California Senate Bill 586 (Hernandez, Chapter 625, Statutes of 2016) The Whole Child Model program: Final Evaluation Report

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Executive Summary

In 2016, the California legislature approved California Senate Bill (SB) 586 (Hernandez, Chapter 625, Statutes of 2016). SB 586 authorized the Department of Health Care Services (DHCS) to establish the Whole Child Model (WCM) program in 21 designated counties. Set to be implemented during or after July 2018, the WCM program was constructed to incorporate covered California Children's Services (CCS) services for Medi-Cal eligible CCS children and youth into a Medi-Cal managed care health plan (referred to as the managed care plan (MCP) contract). Acronym definitions in this report can be found in Appendix A,

The WCM aimed to improve care coordination for primary, specialty, and behavioral health services for CCS and non-CCS conditions within MCPs. In addition, the benefits were to be consistent with CCS program standards, with CCS Paneled Providers, Special Care Centers (SCCs), and pediatric acute care hospitals providing healthcare. Furthermore, the WCM was to meet the goals for CCS redesign[1]:

1. Implement a patient- and family-centered approach
2. Improve care coordination through an organized delivery system
3. Maintain quality
4. Streamline care delivery
5. Build on lessons learned
6. Be cost-effective (not included in this report)

SB 586 required DHCS to contract with an independent entity to conduct an evaluation of the WCM. The evaluation's goals were established to assess the MCPs' performance within the WCM, and the outcomes and experiences of CCS-eligible children and youth participants, including access to primary and specialty care, and youth transitions from the WCM program to adult Medi-Cal coverage.

Specifically, SB 586 required that the evaluation, at a minimum, evaluate the performance of the plans participating in the WCM program as compared to the performance of the CCS program prior to the implementation of the WCM program in the participating counties. The evaluation was to evaluate whether the inclusion of CCS services in a managed care

[1] (https://www.dhcs.ca.gov/Documents/5.20SACCCSRedesignPresentation.pdf)

delivery system improves access to care, quality of care, and the patient experience by analyzing specified data related to the following:

1) access to specialty and primary care, and in particular, utilization of CCS-paneled providers;
2) the type and location of CCS services and the extent to which CCS services are provided in-network compared to out of network;
3) utilization rates of inpatient admissions, outpatient services, durable medical equipment, behavioral health services, home health, pharmacy, and other ancillary services;
4) patient and family satisfaction;
5) appeals and grievances;
6) authorization of CCS-eligible services;
7) network and provider participation; and
8) the ability of a child or youth who ages out of CCS to retain their existing providers, if possible or known.

The evaluation was required to evaluate managed care plans participating in the WCM program as compared to the CCS program in counties where CCS services are not incorporated into managed care, and collect data to evaluate the following:

1) the rate of new CCS enrollment in each county;
2) the percentage of CCS-eligible children and youth with a diagnosis requiring a referral to a CCS special care center who have been seen by a CCS special care center;
3) the percentage of CCS children and youth discharged from a hospital who had at least one followup contact or visit within 28 days after discharge; and
4) appeals and grievances.

DHCS was required to consult with stakeholders regarding the scope and structure of the review.

SB 586 further required DHCS to provide a report to the Legislature on the results of this evaluation by January 1, 2021. The submission date for this report was subsequently revised by Assembly Bill 1688 (Committee on Health, Chapter 511, Statutes of 2017) to January 1, 2021 or three years from the date when all counties are fully operational under the WCM program, whichever is later.

An “Overall Summary” of the evaluation is included in the Conclusions and Discussion section of this report beginning on p. 53.

The “Background and Overview” of the CCS program is on p. 68, and the “Background and Overview” of the WCM program is on p. 71.

An “Evaluation Overview” is provided on p. 74. “Evaluation Design and Overview,” including evaluation methodologies, is provided on p. 76.

The “Summary of Research Findings” is included in this report on p. 583.

Evaluation Approach

Evaluation Design: To evaluate whether the main goals of the WCM listed above were achieved, the University of California, San Francisco, evaluation team (UCSF evaluation team) approached the evaluation through five main research questions. These questions addressed specific evaluation domains to meet the requirements of the California Welfare and Institutions Code (WIC) § 14094.18. (Table 8 on p. 77 displays the requirements set forth in this statute and the research questions corresponding to the statute.) While Research Question 3 is not explicitly stated as a question in WIC, it is related to the quality-of-care goals of the Whole Child Model implementation and stakeholder input process. Therefore, Research Question 3 was added to the evaluation as part of the evaluation of quality-of-care delivery.

Research Question 1. What is the impact of the WCM on children’s access to CCS services?
Research Question 2. What is the impact of the WCM on the client’s and family’s satisfaction?
Research Question 3. What is the impact of the WCM on providers’ and administrators’ satisfaction with the delivery of services and reimbursement?[2]
Research Question 4. What is the impact of the WCM on the quality of care received?
Research Question 5. What is the impact of the WCM on care coordination?

The UCSF evaluation team developed a conceptual framework for the WCM evaluation and used a comprehensive, mixed-methods design. The evaluation assessed how the WCM impacted access to care, client and family satisfaction,

[2] This research question was not an explicit outcome measure mandated in the California Welfare and Institutions Code (WIC) § 14094.18. The question was added because it gave important insight into the implementation process of the WCM.

provider satisfaction, quality of care, and care coordination. ***The UCSF evaluation team conducted a process evaluation that included*** semi-structured key informant interviews with providers and other stakeholders, and qualitative, one-on-one interviews with parents of CCS WCM clients. ***The UCSF evaluation team also conducted an outcomes evaluation that included*** (1) randomized, controlled telephone survey with families (parents and guardians) of CCS WCM and the non-WCM CCS client comparison group referred to as "Classic CCS clients," (2) online service provider/administrator survey, (3) analysis of administrative claims data, (4) analysis of grievances, appeals, and state fair hearings data, and (5) analysis of clinical data. Comparisons were made between clients in the WCM and in Classic CCS (traditional fee-for-service CCS that did not participate in the WCM).

Study Groups

Table 1. Study Groups by Medi-Cal Managed Care Health Plan, Implementation Phase, and County

Health Plan	Counties
Phase I — Implemented July 1, 2018	
CenCal Health	San Luis Obispo, Santa Barbara
Central California Alliance for Health	Merced, Monterey, Santa Cruz
Health Plan of San Mateo* (HPSM WCM)	San Mateo
Phase II — Implemented January 1, 2019	
Partnership Health Plan	Del Norte, Humboldt, Lake, Lassen, Marin, Mendocino, Modoc, Napa, Shasta, Siskiyou, Solano, Sonoma, Trinity, Yolo
Phase III — Implemented July 1, 2019	
CalOptima	Orange

*HPSM WCM was analyzed separately from the other Phase I plans because HPSM was part of the 1115 "Bridge to Reform" Waiver renewal of November 2010, which tested the WCM before its implementation. The subset being studied consisted of HPSM members (referred to as HPSM WCM) that never experienced the Demonstration Project; this cohort was evaluated over the same period as the Phase I plans.

Data Sources

The UCSF evaluation team used several data sources to triangulate findings to answer the research questions for this evaluation. This included seven key data-gathering activities, as outlined in Table 2 below:

Table 2: Key Data Sources, Time Period of Data Collection, and Sample Size

	Data Source Name	Data type/method	Time Period	Size (N)
1	Interviews of Parents and Guardians of Children Who Transition into WCM	Qualitative	Interviews conducted from October 2019 to January 2020	35 parents and guardians interviewed
2	Interviews of Key Informants	Qualitative: included sampling of informants from each WCM CCS county office and MCP	Interviews conducted from October 2019 to May 2022	83 key informants interviewed
3	Telephone Survey of Families (parents and guardians)	Quantitative: statewide stratified random sampling with population weights representing the full CCS client population	March 2020 to June 2020	2,883 clients (Response rate 69.6%69.6 %.)
4	Online Service Provider and Administrator Survey	Quantitative: convenience sampling of DME, service providers and administrators from the Specialty care Coalition and Advocacy & Management Group	Survey conducted between March and May 2022	*n* = 22

	Data Source Name	Data type/method	Time Period	Size (N)
5	Claims Data: • Management Information System / Decision Support System • Patient discharge database and emergency department database from the Department of Health Care Access and Information • CMSNet from DHCS • Vaccination data from the California Department of Public Health's California Immunization Registry • Referral data (provided by the MCPs—note that Phase II could not provide referral data)	Quantitative (all CCS clients except MTU-only were included in the analysis for the time frames listed)	• HPSM WCM: July 1, 2016 to June 30, 2021 • Phase I: July 1, 2016 to June 30, 2021 • Phase II: January 1, 2017 to December 31, 2020 • Phase III: July 1, 2017 to June 30, 2021	Post-period client *n* for WCM and Classic CCS comparison population from matched counties HPSM WCM: *n* = 889 Classic CCS: *n* = 14,965 Phase I: *n* = 17,523 Classic CCS: *n* = 56,194 Phase II: *n* = 11,489 Classic CCS: *n* = 40,562 Phase III: *n* = 17,070 Classic CCS: *n* = 58,408
6	Grievances, Appeals, and State Fair Hearings (SFH)	Quantitative	• Grievances: January 2015 through December 2021 • SFH: January 2015 through October 2020	Grievances: 8,857 unique CCS clients who filed (WCM and Classic CCS) SFH: 399 total cases (WCM and Classic CCS)

Summary of Research Findings

Overview: Key findings of the report results are summarized below, including analytic results of grievances, appeals, and state fair hearings, as well as interviews, the family survey, and administrative claims.

Research Question 1: What is the impact of the WCM on children's access to CCS services?

Overall Results Summary for Research Question 1 (RQ1)

Overall, most families were able to keep both their primary care and specialty care providers after implementation of the WCM. Primary care, specialty, and subspecialty results were mixed depending on the MCP. The rates of inpatient admission and readmission were either unchanged or increased relative to the Classic CCS comparison groups. Hospitalization rates and hospital readmission rates were either largely unchanged or decreased in the WCM as compared to Classic CCS comparison groups. There was also an increased rate of post-hospitalization outpatient follow-up visits and a decreased length of stay experienced across the WCM as compared to Classic CCS comparison groups. While further work on why Emergency Department (ED) visits increased relative to Classic CCS is warranted, hospitalizations appear stable, with high follow-up visit rates (over 90%) post-WCM implementation.

RQ1: Results from Grievances and Appeals Analysis

With the implementation of the WCM, CCS clients in the WCM now had access to a formalized grievance process through their MCP for CCS-related issues and services, whereas in Classic CCS, clients could only file an appeal. Therefore, only WCM clients could file a grievance for CCS-related issues. For evaluation purposes, the evaluation team made the assumption that grievance reporting for CCS-related and CCS-unrelated matters were similar between WCM and Classic comparisons. Based on this assumption, grievances in WCM are expected to be higher due to that difference in reporting. Overall, the number of grievances were minimal for both WCM and CCS. Due to low reporting, rates were reported per 100,000 member months.

- Only those clients in the HPSM WCM experienced a slightly larger increase in grievances per 100,000 member months pre- versus post-HPSM WCM implementation than did their Classic CCS comparison group counterparts. (Low total counts in HPSM both pre- and post-WCM implementation limit the interpretability of this finding.)
- Clients in Phases I, II, and III experienced a smaller pre- versus post-WCM implementation increase in accessibility grievances per 100,000 member months than did their Classic CCS comparison group counterparts.

RQ1: Results from Key Informant Interviews

- Some key informants (KIs) reported that after transition to WCM, CCS programs experienced decreased referrals into the program, mainly for neonatal intensive care unit (NICU) and High-Risk Infant Follow-Up (HRIF), leading to an overall decrease in their CCS program's total caseload after the transition to the WCM.
- KIs noted that the WCM increased access to care due to changes in the authorization process; this resulted in more streamlined access to providers and durable medical equipment (DME).
- Other KIs noted that the WCM decreased access to care due to changes in the referral process that led to inefficiencies and delayed access to specialty care and MTU services.
- Access to DME was mixed in the WCM — some KIs reported better, more streamlined access, and others reported increased delays in obtaining DME.

RQ1: Results from Telephone Survey of Families (continuity of care questions were administered only to WCM participants and not to Classic CCS clients)*

- **Access to Referrals:** The majority of respondents in all study groups (67%) did not experience a problem in obtaining a referral. The differences between clients in the WCM study groups and Classic CCS were not statistically significant.
- **Needing a Referral for Services:** Across all WCM study groups, 44% of respondents reported needing a referral. There was no statistical difference among WCM study groups or between the WCM and Classic CCS comparison group respondents.
- **Primary Care Provider:** A majority of respondents in all WCM study groups (87%) reported having a personal doctor or nurse. A significantly higher percentage of Phase II respondents (92%) indicated having a personal doctor or nurse than Classic CCS respondents (86%).
- **Primary Care Services:** The WCM study groups did not significantly differ from the Classic CCS group in the reported frequency of primary care doctor visits.
- **Continuity* of Primary Care Providers:** The majority of respondents in all WCM study groups (90%) were able to continue seeing their same primary care provider. The WCM study groups did not differ from each other with respect to continuity of primary care provider.
- **Continuity* of Specialty Care Providers:** The vast majority of respondents in all WCM study groups (94%) reported being able to see the same specialists after transitioning to the WCM. The WCM study groups did not differ from each other with respect to continuity of specialty care providers.

- **Access to Getting Appointments with Specialists:** Since the implementation of the WCM, a significant percentage of respondents across all WCM study groups (78%) reported that it was “usually easy” or “always easy” to get an appointment. Fewer Phase III respondents (71%) indicated that it was “usually easy” or “always easy” to get a specialist appointment compared to the Classic CCS comparison groups (79%). The other WCM study group respondents did not differ from Classic CCS comparison group respondents.
- **Unmet Need for Specialty Services:** The majority of respondents in all WCM study groups (87%) were able to get all the specialist services they needed. The differences between the WCM study groups and Classic CCS comparison groups were not statistically significant.
- **Access to Authorizations:** The majority of respondents in all WCM study groups (61%) reported that obtaining an authorization was “about the same.”
- **Access to Behavioral Health Services:** While the majority of respondents in all WCM study groups (58%) indicated that it was “usually easy” or “always easy” to get behavioral health treatment or counseling, a significant proportion (42%) indicated that it was “never easy” or “sometimes easy.” The differences between all WCM study groups and Classic CCS comparison groups were not statistically significant.
- **Behavioral Health Unmet Needs:** The majority of respondents in all WCM study groups (76%) reported that their behavioral or mental health services needs had been met. Compared to Classic CCS (68%), significantly more respondents in Phase I (78%), Phase II (80%), and Phase III (87%) reported that their mental health services needs were met.
- **Access to Durable Medical Equipment:** Since transitioning to WCM, significantly more respondents in Phase II (34%) and Phase III (39%) reported that it was “always easy” to obtain medical equipment and supplies compared to Classic CCS comparison respondents (23%). The differences between the other WCM study groups and Classic CCS comparison group respondents were not significant.
- **Unmet Needs for Medical Equipment:** Phase I and Phase II respondents (19% each) were less likely to report unmet needs for medical equipment and supplies compared to Classic CCS comparison group respondents (26%). This difference was statistically significant. The differences between the other WCM study groups and Classic CCS comparison group respondents were not significant.
- **Continuity* of Pharmacy Services:** The majority of respondents in all WCM study groups (90%) indicated they were able to keep the same pharmacy after the transition to the WCM. The differences between the WCM study groups and Classic CCS comparison group respondents were not statistically significant.

- **Delay Getting Prescription Medications:** The majority of respondents in all WCM study groups (76%) indicated that in the past six months they did not experience delays receiving a prescription medication. The differences between WCM study groups and Classic CCS comparison groups were not statistically significant.
- **Unmet Needs for Prescribed Medication:** The majority of respondents in all WCM study groups (92%) indicated their prescription needs have been met. The differences between WCM study groups and Classic CCS comparison group respondents were not statistically significant.
- **Continuity* of Location of Therapy Services:** The majority of clients across all WCM study groups (90%) did not experience a change in the location of therapy services after entering the WCM.
- **Access to Therapy Service Appointments:** Since the implementation of the WCM, a greater number of respondents in the WCM study groups (42%) reported that it was “always easy” to get a medical therapy services appointment for the client compared to Classic CCS comparison group respondents (30%). The distribution in the ease of obtaining therapy services for Phase II respondents significantly differed from the Classic CCS comparison group respondents. A higher percentage of Phase II respondents (76%) indicated it was “usually easy” or “always easy” to obtain a medical therapy appointment than Classic CCS comparison group respondents (66%) since the implementation of WCM.
- **Unmet Need for Medical Therapy Services:** While the majority of respondents in all WCM study groups reported that their medical therapy services needs were met (65%), a large percentage of respondents reported unmet needs (35%). There were no statistically significant differences between the WCM study groups and Classic CCS comparison groups.
- **Access to Transportation Services:** The distribution between the WCM study groups and Classic CCS comparison group respondents did not differ significantly in how they responded to the ease of getting transportation for their child’s healthcare appointments. Although not significant, a large percentage of Phase III respondents (35%) indicated it was “never easy” to get transportation for their child’s healthcare appointments compared to Classic CCS comparison group respondents (13%).
- **Access to Transportation Services — Missed Appointments:** Approximately a third of respondents (31%) in both WCM and Classic CCS reported missing health or therapy appointments because of transportation problems. The difference between WCM study groups and Classic CCS comparison group respondents was not significant.
- **Access to Interpreter Services:** The majority of respondents in all WCM study groups (80%) reported that, if needed, they were “usually” or “always” able to have a professional interpreter. A greater percentage of Phase I respondents (83%) reported they were “usually” or “always” able to have a professional interpreter compared to Classic CCS comparison groups (78%).

- **Emergency Department Visits Due to Lack of Access to Provider:** Across all WCM study groups, a minority of respondents (~20%) indicated that the client had to go the emergency department because it was too difficult to see another doctor. Compared to Classic CCS comparison group respondents (21%), fewer Phase II clients (17%) went to the emergency department because it was too difficult to see another doctor.

RQ1: Results from Claims Data Analysis

Access to clinical services was measured by evaluating the referral patterns into CCS, specialty network adequacy, primary care/EPSDT (Early and Periodic Screening, Diagnostic, and Treatment) visits, specialty care visits, CCS provider visits, mental health visits, DME claims, and pharmacy claims. Health outcomes reported included ED visits, ED follow-up, hospitalizations, and hospital follow-up. The section summarizes the Difference in Differences (DiD) analysis findings comparing change in the WCM study group post-WCM implementation as compared to the propensity score–matched Classic CCS comparison group. Please refer to the results section to see the pre-to-post changes experienced by each WCM study group.

- **Access to CCS:** Overall enrollment decreased in Phase II and Phase III as compared to Classic CCS comparison groups and increased in both Classic CCS and Phase I post-implementation. New enrollment decreased in all phases as compared to Classic CCS comparison groups. In the WCM, the numbers of those denied were also significantly lower than that of Classic CCS, with the exception of Phase III, where Classic CCS had very low denial rates (<8%, compared to 30%–40% for the other Classic CCS comparison groups).
- **Mortality:** Death was rare (<0.3% per year) in both WCM and Classic CCS, and death rates were stable after WCM implementation.
- **Referral Network and Referral Patterns:** The number of Special Care Centers (SCCs), CCS Paneled Providers, and CCS specialty providers in-network increased post-WCM implementation for almost all phases. The majority of visits were seen in-network, though there was variation between the MCPs. The proportion of visits seen in-network post-WCM implementation ranged from 52% to 100% depending on provider group and WCM study group, with the majority of plans having SCC and CCS Paneled Provider in-network visit rates of 92%–98%. Between 17% and 59% of individual SCCs actively seeing patients in the WCM were out of network post-WCM implementation. Between 19% and 41% of CCS Paneled Providers who saw CCS clients were out of network. Between 4% and 26% of specialist providers seen were out of network, and approximately 20%–35% of primary care providers were out of network. The actual number of listed providers in-network with a claim with a CCS client was approximately 25%–50% for CCS Paneled Providers and 17%–40% for pediatric specialists. Therefore, while there is a large proportion of providers being seen who are out of network, these providers also make up only a small number of visits overall. Specialty

providers with the highest client-to-provider ratio (>1,200 clients per provider) included behavioral pediatrics, pediatric neurodevelopmental disabilities, pediatric dermatology, pediatric rehabilitation, pediatric ophthalmology, and pediatric sports medicine.

- **Travel Distance:** The relationship between WCM study group and travel distance to specialty care, Special Care Centers, and primary care was complex. Absolute travel distance to Special Care Centers increased by approximately 5 miles on average after WCM implementation in Phase I and Phase II ($p < .001$) and absolute travel distance to primary care decreased by 10 miles in Phase II after WCM implementation. However, DiD results showed a relative increase in distance traveled in WCM study groups compared to Classic CCS counties driven by significantly larger decreases in distance traveled by the Classic CCS comparison group. The absolute travel distance experienced by clients in Phase III was significantly lower than the travel distance for Phase I and Phase II clients (average 11.6 miles in Phase III for all visits vs. 40.9 and 51.8 in Phase I and Phase II, respectively, in the post-WCM implementation time period).
- **Factors Associated with Travel Distance:** Across provider visit types, non-White racial and ethnic groups and those who did not speak English consistently experienced shorter travel distance to CCS providers and CCS Special Care Center providers, as compared to those who were White and spoke English, except for Native Americans in Phase II, who experienced longer travel distances as compared to White people. Those with higher illness severity experienced longer travel distances across all visit types.
- **Primary Care Visits:** In the pre- to post-WCM implementation period, primary care visits per 1,000 member months (MM) increased in the HPSM WCM (+412 visits), Phase I (+117 visits), and Phase II (+27 visits) and decreased in Phase III (-33 visits). The HPSM WCM had 1.68 times higher odds ($p = .035$), and Phase I had 1.08 times higher odds ($p < .001$) of having a primary care visit as compared to the Classic CCS comparison group post-WCM implementation. Phase II had 11% lower odds ($p < .001$) of having a primary care visit as compared to the Classic CCS comparison group. Phase III did not differ from the Classic CCS comparison group post-WCM implementation.
- **Well-Child Care Visits for 0–15 Months:** The rate of children having six visits by age 15 months per 100 was low across all WCM study groups. Only 22%–38% of children met the measure post-WCM implementation. Pre- to post-WCM implementation, Phase I increased the number of children meeting the measure (+4 children per 100), while decreases were seen in Phase II (10 children less per 100) and Phase III (1 child less per 100). The DiD analyses showed no statistically significant impact of any of the WCM study groups on well-child visits for 0–15 months when compared to the Classic CCS comparison group post-WCM implementation.
- **Well-Child Care Visits for 0–30 Months:** Over 70% of eligible children in all phases met the 0–30 months well-child visit (WCV) measure of two well-child visits. Increases in the number of children meeting the measure were seen with Phase I (+11 children per 100) and Phase III (+13 children per 100); there was no change in Phase II. In the DiD

analysis, Phase I experienced 1.8 times higher odds of well-child visits for 0- to 30-month-olds ($p < .001$) compared to the Classic CCS comparison group, while no difference was noted for other phases as compared to the Classic CCS comparison groups. The HPSM WCM group had a small sample size, so analyses could not be performed.

- **Well-Child Care Visits for 3- to 6-Year-Olds:** Over 65% of eligible children in all WCM study groups met the 3- to 6-year-olds WCV measure. In the DiD analysis, Phase I had 1.53 times higher odds ($p < .001$), and Phase III had 1.23 times higher odds ($p = .002$) of having a well-child visit for 3- to 6-year-olds as compared to Classic CCS counties post-WCM implementation. No difference was noted in Phase II. The HPSM WCM group had a small sample size, so analyses could not be performed.
- **Well-Child Care Visits for 12- to 20-Year-Olds:** Over 42% of eligible children in all phases met the 12- to 20-year-olds WCV measure. In the DiD analysis, Phase I had 1.32 times higher odds ($p < .001$), and Phase III had 1.11 times higher odds ($p = .003$), while Phase II had 9% lower odds ($p = .043$) of having a well-child visit for 12- to 20-year-olds as compared to Classic CCS comparison groups post-WCM implementation. The HPSM WCM group had a small sample size, so analyses could not be performed.
- **CCS Paneled Provider Visits:** In the pre- to post-period, CCS provider visits per 1,000 MM increased in HPSM WCM (+828 visits), Phase I (+53 visits), and Phase II (+105 visits), while they decreased in Phase III (-343 visits). In the DiD analysis, the HPSM WCM had 1.89 times higher odds ($p = .009$), and Phase II had 1.07 times higher odds ($p < .001$) of having a CCS provider visit as compared to the Classic CCS comparison group post-WCM implementation. Phase I had 7% lower odds ($p < .001$), and Phase III had 47% lower odds ($p < .001$) of having a CCS provider visit as compared to the Classic CCS comparison group.
- **Specialists Visits:** In the pre- to post-period, specialist visits per 1,000 MM increased in the HPSM WCM (+677 visits) and decreased in Phase I (-27 visits), Phase II (-1 visit), and Phase III (-80 visits). In the DiD analysis, the HPSM WCM had 2.4 times higher odds of specialist visits as compared to the Classic CCS comparison groups post-WCM implementation ($p < .001$). Phase I had 7% lower odds ($p = .004$), and Phase III had 10% lower odds ($p < .001$) of specialist visits as compared to Classic CCS comparison groups post-WCM implementation. No significant difference was noted in Phase II.
- **Mental Health Visits:** In the pre- to post-period, mental health care visits per 1,000 MM increased in the HPSM WCM (+143) and in all WCM study groups: Phase I (+43), Phase II (+26), and Phase III (+107). In the DiD analysis, only Phase III had significantly improved odds of mental health visits (1.10 times greater odds, $p = .01$) as compared to the Classic CCS comparison group. The HPSM WCM had a trend toward higher odds (AOR 3.43, $p = .074$) compared to Classic CCS comparison group but did not reach statistical significance. No statistically significant difference was observed for Phase I or Phase II.

- **Durable Medical Equipment Use:** In the pre- to post-period, durable medical equipment claims per 1,000 MM increased in all WCM study groups: Phase I (+12 claims), Phase II (+29 claims), and Phase III (+10 claims). Only Phase III had a significant 9% lower odds of durable medical equipment claims compared to the Classic CCS comparison group post-WCM implementation (p = .046). There was no significant difference in Phases I and II as compared to the Classic CCS comparison groups. The HPSM WCM group had a small sample size, so analyses could not be performed.
- **In-Home Supportive Services Use:** In the pre- to post-period, receipt of In-Home Supportive Services (one or more days in any given month) per 1,000 MM increased in all groups: HPSM (+77 months with receipt of IHSS), Phase I (+10 months with receipt of IHSS), Phase II (+14 months with receipt of IHSS), and Phase III (+12 months with receipt of IHSS). In the DiD analysis, HPSM WCM had 2.84 times higher odds (p = .002), Phase II had 1.06 times higher odds (p < .001), and Phase III had 1.04 times higher odds (p < .001) of having In-Home Supportive Services claims post-WCM implementation when compared to Classic CCS comparison groups. No significant difference was noted for Phase I.
- **Pharmacy Claims (e.g. medications, prescription supplies):** In the pre- to post-period, pharmacy claims per 1,000 MM increased in the HPSM WCM (+1,060 claims) and decreased in all other WCM study groups: Phase I (-38 claims), Phase II (-32 claims), and Phase III (-18 claims). In the DiD analysis, as compared to Classic CCS comparison groups, Phase I and Phase II had lower odds of pharmacy claims by 4% and 8%, respectively (p < .01), while the HPSM WCM had higher odds by 4.47 times (p = .003). No significant difference was noted in Phase III.
- **Emergency Department Visits:** In the pre- to- post-period, ED visits per 1,000 MM increased in HPSM WCM (+45 visits) and decreased in all other WCM study groups: Phase I (-15 visits), Phase II (-8 visits), and Phase III (-15 visits). In the DiD analysis, compared to the Classic CCS comparison groups, there were significantly higher odds for ED visits for the HPSM WCM (AOR 3.17, p < .001) and Phase II (AOR 1.21, p < .001) post-WCM implementation, while no significant change was noted for Phases I and III.
- **Emergency Department Visits with Follow-Up:** In the pre- to- post-period, ED visits with follow-up visit claims per 100 ED visits increased in the HPSM WCM (+11 visits), Phase I (+2 visits), and Phase III (+1 visit) and was unchanged in Phase II. In the DiD analysis, no significant difference was noted post-WCM implementation for ED visits with follow-up visits between any of the WCM study groups and Classic CCS comparison groups.
- **All-Cause Hospitalizations:** In the pre- to post-period, hospitalizations (or inpatient admission) claims per 1,000 MM increased in the HPSM WCM (+22 hospitalizations) and decreased in all other WCM study groups: Phase I (-3 hospitalizations), Phase II (-4 hospitalizations), and Phase III (-4 hospitalizations). In the DiD analysis, compared to Classic CCS, the HPSM WCM had 2.66 times greater odds of a hospitalization (p = .017), while Phase III had 14%

lower odds ($p < .001$) of hospitalizations post-WCM implementation; no significant difference was noted in Phases I and II.

- **Hospital Outpatient Follow-Up Visit within 28 Days after Discharge:** Outpatient follow-up visits rates were high, with greater than 90% of hospitalizations having a follow-up visit within 28 days across all WCM study groups and Classic CCS comparison groups. Compared to Classic CCS, the HPSM WCM had 15.1 times higher odds of hospital outpatient follow-up after discharge ($p < .001$), Phase I had 1.79 times higher odds ($p < .001$), and Phase II had 1.65 times higher odds ($p < .001$), while no significant difference was noted for Phase III post-implementation.
- **30-Day All-Cause Hospital Readmission Rates:** Pre- to post- period readmission rates per 100 discharges increased slightly in most of the WCM study groups: Phase I (+2 readmissions), Phase II (+2 readmissions), and Phase III (+1 readmission). The HPSM rate decreased by 51%, but there were very few admissions. In the DiD analysis, only Phase III was significant, with 15% lower odds ($p = .027$) of hospital readmission compared to Classic CCS comparison groups post-WCM implementation, while no significant difference was noted in Phase I and Phase II. The HPSM WCM group had a small sample size, so analyses could not be performed.
- **Hospital Length of Stay:** The average hospital LOS decreased in all WCM study groups: HPSM WCM (-1.9 days), Phase I (-2.4 days), Phase II (-1.2 days), and Phase III (-1.4 days). Phase III had 17% lower likelihood of hospital LOS ($p < .001$) as compared to the Classic CCS comparison group post-WCM implementation, while there was no difference in LOS for the other three study groups.
- **Special Care Center Use:** In the pre- to post-period, Special Care Center visits per 1,000 MM increased in the HPSM WCM (+391 visits) and Phase I (+24 visits) and decreased in Phase II (-13 visits) and Phase III (-94 visits). In the DiD analysis, Special Care Center visits increased significantly for the HPSM WCM (AOR 6.16, $p < .001$) and Phase I (AOR 1.05, $p = .033$), while they decreased for Phase II (12% lower odds, $p < .001$) and Phase III (19% lower odds, $p < .001$) compared to the Classic CCS comparison groups post-WCM implementation.

Table 3 below summarizes the overall relationship of the DiD outcome comparing the WCM to the Classic CCS comparison group for all WCM study groups for Research Question 1. The arrows indicate the impact of the WCM on the **change in outcomes post-WCM implementation** and does not indicate the absolute value differences between the WCM study groups and Classic CCS comparison groups. **Up arrows indicate higher or increased change in outcome** as compared to the Classic CCS comparison groups post-WCM implementation. **Down arrows indicate decreased or lower change in outcome** as compared to the Classic CCS comparison group post-WCM implementation. An "ND" indicates no statistical difference between the WCM study groups and Classic CCS comparison group post-WCM implementation. **The arrows DO NOT indicate whether a measure was better or worse, nor do they indicate absolute values.** Green indicates a desired outcome, red indicates poor outcome, and no color indicates direction is

neutral. Any pre-to-post changes by WCM study groups are noted in the summary above and in the results section. Absolute values can be found in the results section. This also applies to Table 4 and Table 5 below.

Table 3: Research Question 1: Difference in Differences Outcome Summary for WCM Study Groups as Compared to Classic CCS

Measure	HPSM WCM	Phase I	Phase II	Phase III
Outpatient Visits				
CCS Paneled Provider Visits	↑	↓	↑	↓
Specialist Visits	↑	↓	ND	↓
Specialty Care Center Visits	↑	↑	↓	↓
Mental Health Care Visits (low/med, high severity)	ND	ND	ND	↑
Primary Care Visits	↑	↑	↓	ND
Well-Child Visits (0–15 months)	*	ND	ND	ND
Well-Child Visits (0–30 months)	*	↑	ND	ND
Well-Child Visits (3–6 years)	*	↑	ND	↑
Well-Child Visits (12–20 years)	*	↑	↓	↑
Ancillary Services				
Durable Medical Equipment (DME)	*	ND	ND	↓
In-Home Supportive Services (IHSS)	↑	ND	↑	↑
Pharmacy	↑	↓	↓	ND
Outcomes				
ED Visits	↑	ND	↑	ND
ED with Follow-Up	ND	ND	ND	ND
Hospitalizations	↑	ND	ND	↓
Hospitalization with Follow-Up	↑	↑	↑	ND
Hospital Length of Stay	ND	ND	ND	↓
Hospital Readmissions	*	ND	ND	↓
Travel Distance†				
Travel to Overall Visits	ND	↑	ND	↑
Travel to Specialists	ND	↑	ND	↑

Measure	HPSM WCM	Phase I	Phase II	Phase III
Travel to CCS Paneled Providers	ND	↑	ND	↑
Travel to SCC	ND	ND	↑	↑
Travel to Primary Care	ND	↑	↓	↑

ND = no statistical difference.
↑ Outcome increased or higher as compared to Classic CCS comparison group post-WCM implementation.
↓ Outcome decreased or lower as compared to Classic CCS comparison group post-WCM implementation.
*Too few *n* to perform difference in Difference (DiD) model.
†Most of the ↑ differences were due to larger decreases in travel distance experienced by the Classic CCS comparison group as compared to the WCM study groups.
Green indicates desired outcome, red indicates poor outcome, and no color indicates direction is neutral.

COVID-19 Pandemic Impact on Access to Care: The COVID-19 pandemic interrupted healthcare services during the WCM evaluation, with decreasing visit utilization in both WCM and Classic CCS comparison groups. This utilization did improve over time.

Research Question 2: What is the impact of the WCM on patient and family satisfaction?

Overall Results Summary for Research Question 2 (RQ2)

Overall, on most measures of satisfaction, the majority of respondents in all WCM study groups indicated they were "satisfied" or "very satisfied" with the services they have been receiving.

RQ2: Overall Grievances, Appeals, and State Fair Hearings Results

Both grievances and appeals can be filed with an MCP, but only CCS clients in the WCM can file a grievance for both CCS- and non-CCS-related issues. Classic CCS clients can file only an appeal or state fair hearing and cannot file a CCS grievance. Unfortunately, for those CCS clients in the WCM, specificity about whether a grievance was a CCS-related issue could not be separated from general issues. To evaluate whether general trends could be isolated to a WCM MCP, the UCSF evaluation team compared the grievances reported by Classic CCS clients to their respective non-WCM plans to help control for general trends in Medi-Cal managed care. The expectation would be that WCM CCS clients would have more grievances generally, as CCS WCM clients now can also file CCS-specific grievances, and the comparison would allow for controlling for trends that may be independent of the WCM. Direct WCM to Classic CCS comparisons were not

made for grievances. Rather, the DiD analysis was used to see if there were different trajectories of grievances between the WCM and Classic CCS MCP participants. The UCSF evaluation team would caution against any direct comparisons of the number of grievances filed between the WCM and Classic CCS MCPs due to the differences in grievance reporting.

- Variable numbers and types of grievances were filed throughout all three years and among all phases of the WCM when looking at "timely access," "transportation," "DME," "WCM provider," and "other" grievances in HPSM WCM and Phase I, Phase II, and Phase III.
- The most grievances were filed in Phase III (*n* = 1,162), and the fewest were filed in HPSM WCM (*n* = 50).
- The type of grievance filed most often among all Phases of the WCM were "other" grievances (*n* = 350), then "WCM provider" grievances (*n* = 279). "DME" grievances (*n* = 81) were filed the least often.
- Like grievances, most of the appeals were filed in Phase III (*n* = 210), and the least number of appeals (*n* = 82) were filed by HPSM WCM. Among all phases, appeals trended downward in Phases I and II, were variable throughout all three years of Phase III, and increased throughout the three years of HPSM WCM.
- Among all phases, Phase III had the most state fair hearings per one million member months, whereas both HPSM WCM and Phase I had the fewest. The absolute number of state fair hearings in each phase decreased pre- to- post-WCM regardless of study group. The state fair hearings per one million member months also decreased in every phase pre- to post-WCM except for Phase III, which had a more than threefold increase pre- to post-WCM, despite the decrease in total number of state fair hearings reported.
- "Withdrawal" and "denied" are the most frequent state fair hearings final dispositions among all phases and study groups, signaling that the majority of the state fair hearings outcomes were in favor of the health plans.

RQ2: Results from Parent and Guardian Interviews

- Parents who were interviewed had varied feelings about their overall satisfaction with the WCM. Satisfaction depended on whether their children received needed services and how straightforward or difficult it was for parents to navigate the processes for doing so. Some parents, for example, did not notice any changes between pre- and post-WCM implementation. These parents were typically satisfied with WCM because their child was still receiving services and did not experience any disruptions in care.
- Conversely, the parents who were dissatisfied with the WCM typically had encountered challenges regarding one or more services that were key to their child's care. For some parents, dissatisfaction was driven by difficulties they experienced in securing transportation to and from appointments for their child. Other parents explicitly noted barriers they had experienced receiving pharmacy, laboratory, or therapy services. Parents had been told that nothing would

change regarding their child's care and access to services after transitioning into the WCM, but they felt this was not the case.

- Parents indicated that the process of obtaining authorizations was more difficult under the WCM than had been in Classic CCS, frequently citing examples of a particular item or service that had been difficult to authorize. Many of these examples concerned DME or services from pharmacies (e.g., specific medications or items, such as sanitary wipes). One parent also noted that it was difficult to obtain authorization for Applied Behavior Analysis therapy. These parents felt that providers were less informed about the MCP authorization process than they had been in Classic CCS.
- An additional concern was that within the WCM, service authorizations for various services did not consistently expire on the same day as in Classic CCS. This was a hardship for parents who needed to track expiration dates of multiple authorizations for their child rather than just seeking renewals for all authorizations on the same day, once per year.
- Before the WCM, most parents were very happy with their CCS case workers in their counties. They felt that they had strong relationships with their case workers and could reach out directly to them with questions. Some other parents had no relationship with a case worker from their county before transitioning to the WCM.
- Following the transition to the WCM, most parents noted that it was more difficult to access case management services. They had to contact a general telephone number at their MCP and then navigate a phone tree to access the appropriate department, all of which took more time and multiple phone calls. Several WCM CCS client parents resorted to calling their county's CCS office when they were confused or needed help.

RQ2: Results from Telephone Survey of Families

- **Overall Satisfaction with the WCM:** Since transitioning to the WCM, significantly fewer Phase II respondents (81%) indicated they were "satisfied" or "very satisfied" with their MCP compared to Classic CCS comparison group respondents (83%). Fewer Phase II respondents (8%) were "dissatisfied" or "very dissatisfied" compared to the Classic CCS comparison group respondents (9%), more Phase II respondents (11%) were more likely to be "neither satisfied nor dissatisfied" with their health plan compared to the Classic CCS comparison group respondents (8%). The HPSM WCM, Phase I, and Phase III respondents did not significantly differ from the Classic CCS comparison group in their satisfaction with their MCP.
- **Satisfaction with Medical Equipment:** The majority of respondents across all WCM study groups (77%) indicated they were "satisfied" or "very satisfied" with the medical equipment or supplies they have been receiving. The differences between the WCM and Classic CCS comparison groups were not statistically significant.

- **Satisfaction with Specialty Services:** The majority of respondents across all WCM study groups (88%) indicated they were “satisfied” or “very satisfied” with the specialty services they have been receiving. The differences between the WCM and Classic CCS comparison groups were not statistically significant.
- **Satisfaction with Medical Therapy Services:** The majority of survey respondents across all WCM study groups (74%) were “satisfied” or “very satisfied” with the therapy services they were receiving. There were no statistically significant differences between the WCM and Classic CCS comparison groups.
- **Satisfaction with Communication with Doctor:** Since transitioning to the WCM, fewer Phase I respondents (33%) indicated they are “very satisfied” with the communication they have with their doctors and healthcare providers than Classic CCS comparison groups respondents (38%). However, a greater percentage of Phase I respondents (50%) indicated being “satisfied” with the communication they have with their doctors and healthcare providers compared to the Classic CCS comparison group respondents (45%). The difference between HPSM WCM, Phase II, and Phase III respondents and the Classic CCS comparison group respondents was not significant.
- **Grievances and Appeals:** Most respondents (97%) did not file an appeal, grievance, or complaint about their child’s healthcare. The differences between the WCM study groups and Classic CCS comparison groups were not significant.

Research Question 3: What is the impact of the WCM on provider and administrator satisfaction with the delivery of services and reimbursement?

Overall Results Summary for Research Question 3 (RQ3)

In a small convenience sample (meaning the sample was not collected in a way that can guarantee representation of an entire population) of providers and administrators serving CCS clients in both the WCM and Classic CCS recruited from two specialty list servers, provider views on services provided to CCS clients in the WCM were mixed. The most positive responses were found with pharmacy and case management services. The most dissatisfaction with services was found with DME, overall timeliness to services, overall quality of services, and overall access to services. The KIs indicated dissatisfaction with the Medi-Cal reenrollment process and county CCS staff workloads immediately after the WCM was implemented, which could be consistent with the finding from the provider and administrator survey regarding DME services. Reimbursement in this sample of providers and administrators did not appear to be a major issue, although almost a third could not comment on or did not answer the reimbursement question in the provider survey. Most providers and administrators felt they were able to maintain or improve services to clients in the WCM when compared to Classic CCS clients. While results were generally positive, the providers and administrators findings cannot be generalized to the

universe of providers and administrators who serve children in the WCM due to a low response rate. However, it is notable that the providers and administrators survey mirrored findings found in the KI interviews.

RQ3: Results from Key Informant Interviews

- Key informants reported their dissatisfaction with both the Medi-Cal reenrollment process and the increased CCS staff workload immediately after the WCM implementation.
- CCS staff described their dissatisfaction with the increased workloads immediately after the WCM was implemented.
- All DME vendors spoke about their satisfaction with a more efficient authorization process in the WCM.

Research Question 4: What is the impact of the WCM on the quality of care received?

Overall Results Summary for Research Question 4 (RQ4)

In general, since transitioning to the WCM the majority of respondents indicated that the quality of care as measured across overall quality, primary care, specialty care, medical therapy, pharmacy, DME, and behavioral health received was "about the same" since implementation of the WCM. There were no significant differences among the WCM study groups in perceived quality of care post-WCM implementation.

RQ4: Results from Grievances Data Analysis

Over 90% of Classic CCS clients are in MCPs but are unable to file grievances for CCS-related issues (as only appeals and state fair hearings can be filed in Classic CCS). With the implementation of the WCM, CCS clients now could file grievances for both WCM and for general care within the MCPs. To know whether increases in grievances were due to general trends within managed care, the UCSF evaluation team compared grievances through a DiD analysis of the WCM as compared to a baseline grievances rate within managed care generally. The grievances data sets did not allow the evaluation team to isolate "CCS-only" grievances. The UCSF evaluation team postulated that since CCS clients in the WCM could now file grievances, there may be an increase in grievances filed among the WCM plans as compared to Classic CCS. Managed Care members, including those participating in WCM receive an explanation of coverage every year which outlines their right to file a grievance and appeal. The comparison group allowed the evaluation team to control for statewide trends observed in Medi-Cal MCPs. The UCSF evaluation team would caution against any direct comparisons of the number of grievances filed between the WCM and Classic CCS MCPs due to the differences in grievance reporting.

- The rate of grievances related to quality of care increased for WCM counties when compared to the rates of grievances found in Classic CCS counties, post-implementation for HPSM, Phase II, and Phase III cohorts.
- The rate of grievances related to quality of care were smaller in Phase I when compared to their Classic CCS county counterparts.

RQ4: Results from Key Informant Interviews

- Key informants reported that the WCM had an impact on both provider and DME quality, whereby CCS clients in the WCM had increased access to an expanded MCP network of providers and DME vendors, but some of these providers and vendors were less qualified to work with CCS clients because they were not specialized or experienced in working with children with complex chronic conditions.

RQ4: Results from Telephone Survey of Families

- **Overall Healthcare Quality in the WCM:** Since transitioning to WCM, the majority of respondents in Phase I (62%), Phase II (67%), and Phase III (62%) indicated that the quality of health services was "about the same." Phase I respondents (86%) were significantly more likely to indicate that the quality of health services was "about the same" or "better" since the transition to the WCM compared to Phase II respondents (81%). Depending on WCM study group, between 3% and 10% stated it was worse.
- **Quality of Primary Care Services:** Since transitioning to WCM, the majority of respondents in Phase I (74%), Phase II (81%), and Phase III (74%) indicated that primary care services were "about the same." The differences among Phase I, Phase II, and Phase III WCM study groups were not significant. Across WCM study groups, 4% or less stated it was worse.
- **Quality of Specialist Services:** Since transitioning into WCM, the majority of respondents in Phase I (75%), Phase II (80%), and Phase III (78%) indicated that specialty care services were "about the same." The differences among Phase I, Phase II, and Phase III WCM study groups were not significant. Across WCM study groups, 4% or less stated it was worse.
- **Quality of Medical Therapy Services:** Since transitioning into WCM, the majority of respondents in Phase I (75%), Phase II (83%), and Phase III (71%) indicated that medical therapy services were "about the same." There were no differences between study groups. Across WCM study groups, less than 8% thought it was worse.
- **Quality of Pharmacy Services:** Since transitioning to WCM, the majority of respondents in Phase I (81%), Phase II (84%), and Phase III (82%) indicated that pharmacy services were "about the same." The differences among Phase I,

Phase II, and Phase III WCM study groups were not significant. Across WCM study groups, 7% or less thought it was worse.

- **Quality of DME and Supplies:** Since transitioning to WCM, the majority of respondents in Phase I (74%), Phase II (77%), and Phase III (71%) indicated that the quality of medical equipment and supply services were "about the same." The differences among Phase I, Phase II, and Phase III WCM study groups were not significant. Depending on WCM study group, between 2% and 11% thought it was worse.
- **Quality of Behavioral Health Services:** Across all WCM study groups, approximately 59% of respondents indicated that behavioral health services were "about the same" since the transition to the WCM, and 11% indicated behavioral services were "better since the transition." The differences among Phase I, Phase II, and Phase III WCM study groups were not significant. Depending on WCM study group, between 1% and 6% thought it was worse.

RQ4: Results from Claims Analysis

Quality of care was assessed through three measures: rates of depression screening, and childhood and adolescent vaccination rates. HPSM provided data-related control of Hemoglobin A1c (HbA1c) measure. However, there were too few clients with diabetes in the HPSM WCM evaluation group, and there was no comparison group to perform an analysis against.

The results below highlight the DiD analysis comparing change in the WCM study group post-WCM implementation as compared to the propensity score–matched Classic CCS group. Of note, this design robustly accounts for the overall decrease in preventive care measures that occurred in 2020 associated with the COVID-19 pandemic.

- **Depression Screening:** Overall, screening rates were very low in all WCM study groups (HPSM WCM: 58%, Phase I: 10%, Phase II: 3%, Phase III: 21%) and Classic CCS (12% or less in all CCS control groups) in the post-WCM implementation period. The ideal screening rate is 100%. In the pre- to post-period, depression screening rates per 100 clients increased in HPSM WCM (+58 screened), Phase I (+9 screened), and Phase II (+2 screened) and decreased in Phase III (-1 screened). In the DiD analysis, Phase I had 7.32 times higher odds ($p < .001$), and Phase II had 2.38 times higher odds ($p < .001$) of depression screening, while Phase III had 57% lower odds ($p < .001$) as compared to the Classic CCS comparison groups. The HPSM WCM group had a small sample size, so analyses could not be performed.
- **Childhood Vaccination Rates:** Childhood vaccination rates were low (approximately 25%–30%) across all WCM study groups. The low rate was largely driven by low influenza and rotavirus vaccine rates. The ideal vaccination rate is 100%, with a 90% vaccination rate needed for herd immunity. Phase I had 1.67 times higher odds of childhood

vaccinations post-WCM implementation as compared to the Classic CCS comparison group ($p < .001$). No significant changes were noted in childhood immunizations in other WCM study groups post-WCM implementation.

- **Adolescent Vaccination Rates:** Adolescent vaccine rates were low (~30%) across all WCM study groups. The ideal vaccination rate would be 100%. The low rate was largely due to the low uptake of the HPV (human papillomavirus) vaccine in CCS clients. There were no significant changes noted in adolescent immunizations in any of the WCM study groups as compared to the Classic CCS comparison groups post-WCM implementation. The HPSM WCM group had a small sample size, so analyses could not be performed.

Table 4 below summarizes the overall relationship of the DiD outcome comparing the WCM to the Classic CCS comparison group for all WCM study groups for Research Question 4.

Table 4: Research Question 4: Difference in Differences Outcome Summary for WCM Study Group as Compared to Classic CCS

Outcome	HPSM WCM	Phase I	Phase II	Phase III
Outpatient Visits				
Depression Screening	*	↑	↑	↓
Childhood Vaccinations	*	↑	ND	ND
Adolescent Vaccinations	*	ND	ND	ND

ND = no statistical difference.
↑ Outcome increased or higher as compared to Classic CCS comparison group post-WCM implementation.
↓ Outcome decreased or lower as compared to Classic CCS comparison group post-WCM implementation.
*Too few *n* to perform Difference in Differences model.

Research Question 5: What is the impact of the WCM on care coordination?

Overall Results Summary for Research Question 5 (RQ5)

As part of the CCS redesign process and development of the Whole Child Model, the first two key goals in WCM implementation were to implement a patient- and family-centered approach and to improve care coordination through an

organized delivery system.[3] Not surprisingly, during the evaluation, care coordination as executed by high-quality case management was reiterated across families and key stakeholders as a critical core of CCS, and a crucial component for the overall care of the client. Care coordination through an organized delivery system is also a core function of the Medi-Cal managed care health plans. For the majority of items evaluating the impact of the WCM study groups on care coordination, there were no significant differences between the WCM and Classic CCS. Even though many aspects of care coordination / case management services were not significantly different among WCM study groups and Classic CCS comparison groups, they might benefit from a more in-depth look at how to improve them.

RQ5: Results from Key Informant Interviews

Case management responsibilities transitioned from county CCS programs to the MCPs in the WCM. This had an impact on:

- **Medical Therapy Units:** Because a CCS case manager was no longer attending medical therapy conferences (MTCs) in the WCM, any needed DME or specialty services recommended during the MTC were not authorized or accessed as quickly when compared to Classic CCS.
- **Transportation:** In the WCM, CCS clients had MCP case managers, but they were unable to provide the level of assistance that was previously provided by CCS case managers who knew and anticipated clients' transportation needs and helped to coordinate scheduling and timely reimbursement.
- **Adult Transition Services:** The MCP case management staff was well prepared to help CCS clients when they turned 21, aged out of the CCS program, and transitioned to adult care and providers because these CCS clients were already working with MCP case managers who had access to their history of adolescent care and services.

RQ5: Results from Telephone Survey of Families

- **Impact on Care Coordination Help:** The majority of respondents in all WCM study groups (69%) were "usually" or "always" able to get as much help as they wanted with arranging or coordinating healthcare. The differences between the WCM study groups and Classic CCS comparison group were not statistically significant.
- **Impact on Quality-of-Care Coordination / Case Management Services:** Since transitioning to WCM, the majority of respondents in Phase I (71%), Phase II (67%), and Phase III (84%) indicated that care coordination / case management services were "better since the transition" or "about the same." A large percentage of HPSM WCM respondents (55%) indicated "don't know" and were unable to state whether there was a change in the quality-of-care

[3] "California Children's Services Whole Child Model," Dept. of Health Care Services (DHCS), last modified Feb. 15, 2022, https://www.dhcs.ca.gov/services/ccs/Pages/CCSWholeChildModel.aspx.

coordination / case management services received. This may be because the survey captured HPSM respondents who participated in the CCS Demonstration Project, which was implemented more than six years before administration of the telephone survey. The HPSM WCM respondents (42%) indicated that care coordination / case management services were "better since the transition" or "about the same." The HPSM WCM response distribution accounts for the significant difference between the other WCM study groups. The differences among Phase I, Phase II, and Phase III WCM study groups were not significant.

- **Impact on Care Coordination Assistance with Activities:** Phase III clients' care coordinator / case manager assisted on average with the fewest activities (mean = 1.6), which was significantly fewer than the mean number of activities a care coordinator / case manager provided to Classic CCS comparison group respondents (mean = 1.8). The care coordinator / case manager assistance provided to clients in the HPSM WCM, Phase I, and Phase II did not significantly differ from the Classic CCS comparison group clients.
- **Knowledge of How to Contact Care Coordinator / Case Manager:** The majority of respondents in all WCM study groups (72%) reported knowing how to contact their care coordinator / case manager either by having "direct contact information," "a general number," or going "through the phone tree to find someone to talk to." Compared to Classic CCS comparison group respondents, Phase III respondents were significantly less likely to know how to contact their care coordinator / case manager.
- **Impact on Care Coordination Communication:** The largest percentage of respondents in all WCM study groups met with their care coordinator / case manager to discuss healthcare or service needs either "every few months" (39%) or "never" (35%). The differences between the WCM study groups and Classic CCS comparison groups were not statistically significant.
- **Impact on Care Coordination Knowledge of Child's Medical History:** A majority of respondents in all WCM study groups (60%) indicated the care coordinator / case manager demonstrated knowledge of important information related to the client's medical history "usually" or "always." The differences between the WCM study groups and Classic CCS comparison groups were not statistically significant.
- **Impact on Care Coordination Satisfaction:** A majority of respondents in all WCM study groups (67%) indicated they were "satisfied" or "very satisfied" with the care coordination / case management they have received. Compared to Classic CCS comparison group respondents (72%), significantly fewer Phase II respondents (51%) indicated they were "satisfied" or "very satisfied" with the care coordination / case management they have received. Phase II respondents indicated "neither satisfied nor dissatisfied" more often (24%) than Classic CCS comparison group respondents (11%). Similarly, more Phase II respondents (25%) responded they were "dissatisfied" or "very dissatisfied" with the care coordination / case management services compared to the Classic CCS comparison group respondents (17%).

- **Impact on Care Coordination of Medical Procedures:** The majority of respondents in all WCM study groups (96%) reported that their doctors did not order unnecessary medical tests or procedures because they had already been done by another provider. While Phase I differed significantly from the Classic CCS comparison group, it is unlikely that the difference is meaningful. The differences between the HPSM WCM, Phase II, Phase III, and Classic CCS comparison groups were not significant.
- **Discussed Adult Transition:** The transition to healthcare providers who care for adults rather than children is important for many families as their children approach aging out of CCS when they turn 21. Among those with a client 12 years and older, almost two-thirds of respondents (62%) across WCM study groups indicated that they "did not discuss, and it would have been helpful" to discuss the shift to adult care with their provider. There were no significant differences between the WCM study groups and Classic CCS comparison groups.

RQ5: Results from Claims Analysis

The section below summarizes the Difference in Differences analysis comparing change in the WCM study group post-WCM implementation as compared to the propensity score–matched Classic CCS comparison group for case management claims and transition to adult care (discharge from CCS at age 21) health outcomes.

- **Case Management:** In the pre- to post-period, case management claims per 1,000 MM increased in HPSM WCM (+91), Phase I (+5), and Phase III (+45) and decreased in Phase II (-6). In the DiD analysis, case management claims increased in all WCM study groups except for Phase I as compared to the Classic CCS comparison group post-WCM implementation. The HPSM WCM had 5.93 times higher odds ($p = .031$), Phase II had 1.35 times higher odds ($p < .001$), and Phase III had 1.29 times higher odds ($p < .001$) of having a case management claim as compared to their respective Classic CCS comparison groups post-WCM implementation. There was no change in Phase I case management claims as compared to the Classic CCS comparison group.
- **Transition to Adult Care Outcomes:** After discharge from CCS at age 21, 95%–100% of clients in all WCM study groups maintained Medi-Cal. Primary care visits ranged from 1.08 to 2.33 visits per person-year, specialist visits ranged from 3.04 to 3.75 visits per person-year, ED visits ranged from 0.91 to 1.37 visits per person-year, and hospitalization stays ranged from 0.21 to 0.33 admissions per person-year post-WCM implementation. There were no observations in the HPSM WCM. Phase III experienced 3.55 times higher odds of having primary care visits after discharge from CCS as compared to the Classic CCS comparison group post-WCM implementation ($p = .009$). There was no significant change in any other transition to adult care outcomes for Phase III. Other WCM study groups had no significant impact on any of the transition to adult care outcomes when compared to the Classic CCS groups.

- **Special Care Center Visit within 90 Days after Referral Being Placed:** Pre- to post-period, the rate of Special Care Center (SCC) visits within 90 days after a referral was placed per 1,000 referrals increased in HPSM WCM (+478) and Phase II (+87) and decreased in Phase I (-104) and Phase III (-355). In the DiD analysis, after WCM implementation, the HPSM WCM had 7.72 times higher odds ($p < .001$) and Phase II had 1.30 times higher odds ($p = .003$), while Phase III had 70% lower odds ($p < .001$) of SCC visits within 90 days of a referral being placed as compared to the Classic CCS comparison group. No significant change was noted in Phase I.
- **Yearly Visit to Special Care Center:** The rate of yearly visit to a Special Care Center was high (>65%) and did not change post-WCM implementation for the four conditions studied (cystic fibrosis, sickle cell disease, type 1 diabetes, and moderate to severe congenital heart disease) across the different WCM study groups and Classic CCS comparison group. The exception to this rate was in Phase II for congenital heart disease and type 1 diabetes (50%–55%), which had lower rates as compared to both the other WCM study groups and Classic CCS comparison group.

Table 5 below summarizes the overall relationship of the DiD outcome comparing the WCM to the Classic CCS comparison group for all WCM study groups for Research Question 5.

Table 5: Research Question 5: Difference in Differences Outcome Summary for WCM Study Group as Compared to Classic CCS

Outcome	HPSM WCM	Phase I	Phase II	Phase III
Case Management	↑	ND	↑	↑
SCC Visit within 90 Days of Referral	↑	ND	↑	↓
Transition to Adult Care: Maintenance of Insurance	ND	ND	ND	ND
Transition to Adult Care: Primary Care Visit	ND	ND	ND	↑
Transition to Adult Care: Specialist Visit	ND	ND	ND	ND
Transition to Adult Care: ED Visit	ND	ND	ND	ND
Hospitalizations	ND	ND	ND	ND

↑ Outcome increased or higher as compared to Classic CCS comparison group post-WCM implementation.
↓ Outcome decreased or lower as compared to Classic CCS comparison group post-WCM implementation.
• Green indicates desired outcome, red indicates poor outcome, and no color indicates direction is neutral.

Conclusions and Discussion

Overall Summary

A select number of MCPs served children in CCS through the implementation of the WCM. Each of these MCPs serves a geographically and demographically unique group of children across California. In addition, CCS clients have a breadth of healthcare management and payment needs, ranging from payment for a single procedure (e.g., complicated fracture that requires surgery), to managing a condition that affects a single organ (such as diabetes, sickle cell disease, or cystic fibrosis), to managing a complex multisystem treatment plan for a medically fragile child (e.g., a child with cerebral palsy, intellectual disability, or seizure disorder with tracheostomy and gastrostomy tube). To meet its local client needs, each MCP undertook a different method to implement the WCM. Given the regionalized healthcare system for children's specialty care across California, it is not surprising that each MCP had unique challenges and experienced different outcomes.

The Whole Child Model had six main goals, set forth in the California Children's Services (CCS) Redesign:

1. Implement a patient- and family-centered approach
2. Improve care coordination through an organized delivery system
3. Maintain quality
4. Streamline care delivery
5. Build on lessons learned
6. Be cost-effective (not included in this report)

This evaluation assessed the overall impact of the implementation of the WCM across California. The WCM was either positive or neutral in access and quality. This evaluation was a broad study of the CCS program, and while disability, illness severity, and demographics were accounted for in the analysis, the evaluation did not specifically stratify and focus on specific subpopulations such as those with severe disabilities or those with significant subspecialty needs. There are likely specific groups that experienced differential outcomes within the WCM that may not have been captured due to the lower prevalence of high-complexity conditions. Future research would be helpful to ensure that the WCM addresses the needs of children with significant medical complexity. With this caveat, in general, the WCM was successful in meeting the overall goals set forth through maintaining access to primary and specialty care for the general CCS population and

through meeting CCS specialty needs, with stable health outcomes, while improving client satisfaction with and perceived quality of CCS-related care.

Additional areas for continued improvement include: (1) ensuring adequate pediatric specialty–focused case management to meet the needs of CCS clients within the WCM, (2) investigating and addressing decreased enrollment into CCS observed in the WCM, (3) investigating health differences and health needs found among those with higher illness severity / medical complexity within the WCM, (4) investigating differences in outcomes and medical care utilization found by race and language within the WCM, and (5) addressing mental health service needs statewide for WCM CCS clients. Conclusions per research question addressing these WCM goals are discussed below; successes are noted as well as identifying specific areas of improvement to better achieve the goals of the WCM. Lessons learned and findings from this evaluation can then be used to continue to strengthen and improve the WCM program and any subsequent implementation of it.

Impact of COVID-19 Public Health Emergency on the WCM Evaluation

It is important to note that this evaluation began measuring health outcomes of CCS clients in 2016 through June 30, 2021, and the COVID-19 public health emergency (PHE) started in January 2020. The PHE had marked impacts on the health of children and access to care. The UCSF evaluation team made adaptations of the survey (e.g., to focus on work loss related to childcare due to the impact of the COVID-19 pandemic) and used statistical techniques to mitigate the effect of the COVID-19 pandemic on the outcomes measured (e.g., Difference in Differences analysis). That said, there may be differential effects of the COVID-19 pandemic on different counties that could not be controlled for by statistical modeling (e.g., such as adoption of telehealth to augment access to care). All WCM and Classic CCS (fee-for-service) comparison groups noted decreased healthcare utilization during the early months of the pandemic. The impact of the COVID-19 pandemic should be considered when interpreting the absolute change in outcomes of both the WCM MCPs and Classic CCS comparison groups.

Overall Conclusions and Discussion Across all Research Questions

Conclusions and Discussion Based on Research Question 1: What is the impact of the WCM on children's access to CCS services?

The WCM was able to maintain access to specialty care and primary care services for clients. This included an improvement in follow-up visits after hospitalization. Classic CCS and WCM fared similarly in almost all health access measures evaluated. Below, some potential strategies for improvement are noted.

Enrollment

Overall, enrollment in the CCS program decreased by ~10% as compared to Classic CCS over time for all WCM phases except Phase I, and *new* enrollment decreased for all phases. There was a disproportionately large decrease in infant enrollment proportion in Phase II and Phase III WCM counties when compared to Classic CCS counties. As this evaluation included only data of those who actually enrolled in the CCS program, this evaluation was limited in its ability to ascertain the exact reason for the noted decrease in enrollment, although KI findings suggested that CCS referrals for neonatal intensive care unit (NICU) admissions and High-Risk Infant Follow-Up (HRIF) services decreased and highlighted this area as an important one for further investigation. Potential strategies to mitigate these issues included:

- Implementing state oversight of NICU eligibility determinations in the Whole Child Model (WCM), for both dependent and independent counties, with monitoring and further guidance from the state, as needed, on this process.
- Encouraging MCPs to proactively identify potentially eligible clients (e.g., through a formalized screening process) for eligibility determination and to refer potential clients to CCS.
- Arranging for DHCS to work with WCM managed care plans to identify discrepancies found in enrollment as compared to Classic CCS or other MCPs.

General Access to Care: Provider Access, Authorizations, and Grievances

The WCM was successful in ensuring provider access and authorizations, with decreases in grievances reported in access in WCM counties as compared to total access grievances filed by Classic CCS clients in non-WCM MCPs.

Overall access to care was maintained in the WCM, with high rates of continuity with primary care and specialty care, and high rates of authorization approval following WCM implementation. Most WCM clients (90% or more) reported being able

to keep their primary care physicians and specialists after WCM implementation. In addition, there were lower rates of grievances related to access to care for WCM when compared to the Classic CCS group.

In evaluating the impact of the WCM on CCS authorizations, about 80% of clients reported that obtaining authorizations for services was the same or improved post-WCM implementation. More respondents in Phase II and Phase III (~14%) reported that obtaining authorizations was "worse since the transition" compared to Phase I respondents (9%). The differences in both satisfaction and dissatisfaction with authorizations found between MCPs in Phase I and MCPs in Phase II and Phase III are potential target areas for MCP improvement. In the future, MCPs could work with more successful MCPs in the WCM to emulate their authorization successes.

Access grievances filed by clients in MCPs had increased in the general CCS population. Those clients in Phases I, II, and III experienced a smaller increase in grievances pre- versus post-WCM implementation when compared to their Classic CCS county counterparts in non-WCM MCPs. This lower number is notable, given that WCM grievances include both CCS-specific grievances, and Classic CCS includes only MCP-related grievances. While accessibility grievances increased only for clients in the HPSM WCM pre- versus post-WCM implementation**,** low total counts in the HPSM WCM both pre- and post-WCM implementation and the change in the study populations pre- versus post-WCM implementation limit the interpretability of this finding.

Network Adequacy

Overall, each WCM study group was able to increase the numbers of in-network pediatric providers across all provider groups, with the majority of visits being seen in-network. Phase III demonstrated a decrease in CCS Paneled Providers and lower rates of visits in-network, though Phase III had high rates of CCS paneled pediatric medical specialists seen in-network. Some of the lower rates may have been due to recent changes in NPI reporting and will need further verification. Specialist visits were unaffected by the change in NPI for Phase III. The number of providers actively providing services for CCS clients increased in-network. Despite the increase, there still remains a significant proportion of providers offering services out of network, though these out-of-network providers represented a small proportion of visits overall. This may be because CCS clients were allowed to stay with their specialty care provider for at least one year after transition to the WCM. Longer-term monitoring would be needed to see if there is a shift to more in-network providers or if more pediatric specialists and Special Care Centers enter the network.

Many of the pediatric providers in-network, including those who were CCS paneled, did not have a visit with a CCS client within the study period. In addition, there were some pediatric specialties that had high client-to-provider ratios (>1,200 CCS clients per provider). Some KIs indicated that there may have been insufficient providers in the MCP networks to

meet the specialized needs of CCS clients, which could lead to delays in obtaining services, which also could be due to known pediatric specialty provider shortages.[4] Specifically, it was noted that there was a lack of pediatric DME providers in California who had expertise in fitting, fixing, and obtaining custom pediatric equipment. When evaluating in-network versus out-of-network providers, the CCS clients in the WCM still had a significant number (almost 25%–50%) of their visits with non-Paneled Providers, which would have required additional authorizations. The adequacy of the DME and provider networks, including pediatric specialty care providers serving CCS clients, should be continuously assessed for network adequacy and timely access to care.

The evaluation highlighted potential areas that may improve the experience in network adequacy:

- WCM plans could contract with out-of-network pediatric DME vendors to ensure that pediatric DME needs are met by all WCM MCPs. This is especially important for items such as customized pediatric walkers, wheelchairs, and orthotics, which require highly specialized expertise that may not be found with general DME vendors.
- MCPs can continue to work to ensure pediatric specialty provider participation for CCS clients within the WCM MCPs. Direct focus on recruitment of behavioral pediatrics, pediatric neurodevelopmental disabilities, pediatric dermatology, pediatric rehabilitation, pediatric ophthalmology, pediatric rheumatology, and pediatric sports medicine would decrease ratios of CCS clients to providers.
- Assess and determine the optimal CCS client-to-provider ratio for network adequacy within the WCM. Currently, it is unclear whether the 1,200-to-1 ratio used for adults and children[5] is appropriate for the CCS population.

Travel to Visits

The WCM clients experienced longer travel time to SCCs and mixed outcomes regarding travel time for specialty visits. Despite 90%–95% of CCS client families reporting that they kept the same providers, there appear to be significant changes in travel patterns. There were significant decreases in travel noted in both WCM study groups and Classic CCS comparison groups, except for Special Care Centers, where travel generally increased for all WCM study groups. The changes were more pronounced in Classic CCS counties. This may have been due to decreased travel in general for clinic visits since the start of the pandemic. It is unclear why Classic CCS counties experienced such decreases in travel distance across the various provider types. While the DiD is notable for some differences, it seems that in general, the

[4] Adam Turner, Thomas Ricketts, and Laurel K. Leslie, "Comparison of Number and Geographic Distribution of Pediatric Subspecialists and Patient Proximity to Specialized Care in the US between 2003 and 2019," *JAMA Pediatrics* 174, no. 9 (May 18, 2020): 852–60, https://doi.org/10.1001/jamapediatrics.2020.1124.

[5] *Medi-Cal Annual Network Certification*, DHCS.

travel time either stayed the same or decreased across all provider types except, again, for Special Care Center visits. Not surprisingly, the HPSM WCM and Phase III groups, located in densely populated areas and urban centers near children's hospitals, had the lowest travel distance, as compared to the Phase I, Phase III, and Classic CCS comparison groups, which are located much farther away from children's hospitals. The change in the HPSM WCM is not surprising, as the pre-WCM implementation group in HPSM WCM is likely due to the change in demographic from the pre- versus post-WCM period (more newborns pre-WCM period versus general CCS clients in the post-WCM period).

People of color and those who did not speak English consistently experienced shorter travel distances across provider visit types as compared to those who were White and English speaking. It is unclear whether the findings are because people of color and those do not speak English live closer to specialists and thus did not need to travel far, if people of color and non-English-speaking clients choose the closest specialist, or whether non-English-speaking clients and clients of color are having difficulty getting to care at centers farther away from their home. Further investigations are needed to understand whether this is simply a geographic issue of where people of color and non-English-speaking clients live, or whether there may be a difference in access to providers for such clients.

Behavioral Health

Unmet behavioral health needs can potentially complicate medical management. Generally, CCS will cover behavioral healthcare needs if it compromises the underlying CCS qualifying condition. Based on this evaluation, behavioral health needs and unmet needs were prevalent in the CCS population. Forty percent of respondents across all WCM study groups indicated that it was "never easy" or "sometimes easy" to get behavioral health treatment or counseling and 25% across WCM study groups had an unmet need. However, claims data analysis demonstrated stable or increased rates of mental health visit rates for WCM study groups. In addition, compared to Classic CCS, significantly more respondents in Phase I, Phase II, and Phase III WCM study groups reported that their mental health services needs were met. Even with the increased access and the decrease in unmet mental healthcare needs demonstrated in the WCM study groups, more work needs to be done to ensure seamless access to behavioral health services for CCS clients.

While mental health services in the WCM appear to have decreased unmet needs as compared to Classic CCS, deficiencies in mental health access remain. The UCSF evaluation team findings suggest that:

- Many respondents, 42%, indicated that it was "never easy" or "sometimes easy" to obtain behavioral health services.

Medical Equipment and Supplies

Durable medical equipment (DME) is a key area of need for many CCS clients. Ordering and receiving DME is a complex process, given the need to assess for the appropriate equipment, potentially customize the order for the patient, coordinate ordering with the specialty vendor, and ensure the client receives the appropriate equipment and supplies.[6]

KIs reported that the WCM increased access to care due to changes in the authorization process that resulted in more streamlined access to both providers and DME. The DME vendors all indicated improved and more streamlined DME authorization processes. Survey data showed that families reported that their overall DME needs were largely met, and families reported fewer unmet needs than Classic CCS families. While DME use increased for both the WCM study groups and Classic CCS comparison groups, based on the DiD analysis of the claims data, DME use was either unchanged or lower relative to Classic CCS.

It is unclear whether increases or decreases in DME use indicate poorer access or better care coordination and ordering efficiency. In this evaluation, families generally reported low unmet DME need. Due to the complexity of authorizations and types of custom DME required, a different approach to evaluating DME may be needed. For example, focusing on DME subtypes (custom orthotics vs. wheelchair vs. hospital equipment) may elucidate a better understanding of DME access for CCS clients. Additional study would be required to fully assess impacts to DME access.

Health Outcomes: Emergency Department (ED) Visits and Hospitalizations

Overall, ED visits were mixed, with half of the WCM study groups having no change and the other half noting a decrease in visit rates but higher odds of ED visit as compared to the Classic CCS comparison group. Hospitalization rate data were mixed, hospital length of stay had either stayed the same or decreased, and the follow-up rates after hospitalization either improved or stayed the same. Overall, health outcomes appear to have been either unchanged or improved post-WCM implementation. Further work should be invested in ED visit use improvements.

Impact of Disability, Illness Severity, Race, and Language on Utilization

Having a disability as measured by the Children with Disabilities Algorithm, and having higher illness severity as measured by Chronic Illness and Disability Payment System (CDPS) score, were associated with more ED visits and hospitalizations. Having a childhood disability as compared to having no disability was associated with lower outpatient

[6] Alicia Emanuel, Michelle Lilienfeld, and Skyler Rosellini, *Helping Families Obtain Durable Medical Equipment and Supplies through the California Children's Services (CCS) Program*, National Health Law Program, last updated June 11, 2021, https://healthlaw.org/resource/helping-families-obtain-durable-medical-equipment-and-supplies-through-the-california-childrens-services-ccs-program/.

clinic use. Differences in healthcare utilization by race and language spoken were mixed. General notable trends seen across the measures:

- Those who identified as Black had higher ED visit rates and hospitalizations, with lower primary care use and lower IHSS services across the WCM study groups compared with those who did not identify as Black.
- Children from Spanish-speaking households had a general trend toward lower hospitalizations, higher rates of follow-up visit following hospital discharge, lower ED visit rate, lower use of IHSS services, lower pharmacy use (prescription drugs and prescription supplies), higher rates of primary care provider and well-child visits, and lower rates of mental healthcare use as compared to English-speaking families. Specialist and CCS Paneled Provider use was mixed among Spanish speakers across the different WCM study groups.
- Respondents who identified as Latinx trended toward higher rates of ED use, higher rates of well-child visits, lower rates of CCS provider use, and lower rates of IHSS and outpatient prescription drug use as compared to those identifying as White.
- People of color and non-English speakers, and those with low illness severity, generally had significantly less travel distance to providers as compared to those who were White, English speaking, and with higher illness severity.

Conclusions and Discussion Based on Research Question 2: What is the impact of the WCM on patient and family satisfaction?

In the evaluation of family satisfaction through the statewide family survey, a qualitative study of both families and key informants, many families showed that satisfaction with the WCM was the same or higher than that of Classic CCS. Grievances were difficult to interpret, given that Classic CCS clients had no grievances process, though overall rates of grievances decreased, and state fair hearings were exceedingly rare. Overall, the goal of meeting family-centered care appeared largely met. That said, there were also key areas that families identified that could use improvement. Families stressed the importance of ensuring that MCPs view parents as valuable partners in care, which was corroborated by KIs, who indicated that families helped guide productive changes within the MCP (e.g., in the development of a CCS-specific formulary that led to improvements in medication receipt for clients), and thus continued inclusion of families in the WCM process was identified as key element to ensuring success of the program.

Grievances, Appeals, and State Fair Hearings

Variable numbers and types of grievances were filed throughout all three years and among all phases of the WCM when looking at “timely access,” “transportation,” “DME,” “WCM provider,” and “other” grievances, with most grievances filed in Phase III. The number of appeals trended downward over time in Phase I and Phase II but was variable in Phase III, and the HPSM WCM had an increase in appeals. This is difficult to interpret, as there were different types of CCS client types

in the pre-WCM period (mostly newborn clients) as compared to the post-WCM period, which enabled a client base that was more similar to the general CCS population. In addition, with the implementation of the WCM, CCS clients in the WCM now had access to a formalized grievance process through their MCP for CCS-related issues and services, whereas in Classic CCS, clients could only file an appeal, making direct comparisons between WCM and Classic CCS also difficult to interpret. Thus, it may be that the number of appeals now matched that of the general CCS population.

The number of state fair hearings (SFHs)[7] were exceedingly rare and had to be reported per one million member months. Among all WCM study groups, Phase III had the most SFHs per one million member months, whereas Phase I and HPSM WCM had the least. The number of SFHs in each phase decreased from pre- to post-WCM, regardless of the study group. The SFHs per one million member months also decreased in every phase pre- to post-WCM, except for Phase III, which had a more than threefold increase in SFH pre- to post-WCM. That said, given that SFHs were very rare, it is not clear that this rate change was clinically significant. The most frequent disposition of SFHs were "withdrawal" and "denied," signaling that the majority of SFH outcomes were in favor of the health plans.

Family Experience

Families of clients were generally satisfied with the WCM. Overall, the WCM either improved or was unchanged from services provided by Classic CCS. On most measures of satisfaction, the majority of respondents in all WCM study groups indicated they were "satisfied" or "very satisfied" with the services they have been receiving. Two areas where differences appeared between a WCM study group and its Classic CCS comparison group concerned "provider communication" and "global rating of healthcare." On the item assessing respondents' satisfaction with their health plan, fewer Phase II respondents were "satisfied" or "very satisfied" with their health plan than Classic CCS comparison group respondents.

Of note, the analyses also found that Black, White, and English-language respondents were more likely to report that care was worse after WCM implementation than respondents in other racial and language groups. While it may be the WCM is improving care to certain populations of color and non-English speakers, continuing work is needed to ensure that the reason for the finding is that populations of color and non-English speakers are advocating for their needs and having their needs met rather than not voicing their needs. There must be continued work to ensure that families caring for children with higher illness severity, populations of color, and those who cannot communicate in English are represented and can provide input into the WCM to help facilitate the future success of the WCM program.

[7] State Fair Hearings are conducted by the California Department of Social Services.

Conclusions and Discussion Based on Research Question 3: What is the impact of the WCM on provider and administrator satisfaction with the delivery of services and reimbursement?

The WCM implementation had many different components and therefore impacted providers and administrators differently. In some areas the WCM was clearly beneficial. The DME vendors were quite satisfied with a quicker and more efficient authorization process in the WCM, as compared to the lengthy DME authorization process in Classic CCS. There were other areas where further work could be done to improve the provider and administrator experience. KIs from the CCS county programs reported dissatisfaction with the lengthy and time-consuming Medi-Cal reenrollment process. KIs from the CCS county programs were also dissatisfied with the increased CCS staff workload they experienced immediately after the WCM implementation and suggested more funding support to account for this unanticipated increased workload.

Providers were mixed on reimbursement, which likely depends on what services are rendered and billed for. While the provider and administrator survey was limited in its small sample size, the respondents represented hospitals and services that serve many CCS clients statewide. While the provider survey cannot be generalized to all service providers and pediatric systems that serve in the WCM, it does provide insight to potential strengths and areas of improvement. The survey results mirrored findings of the key informant interviews — providers indicated satisfaction with DME generally, but some dissatisfaction may stem from difficulties with providers and administrators and differences in provider networks. Overall, based on the evaluation findings, MCPs and DHCS should continue to work closely with the breadth of providers (specialists, DME providers, pharmacies, hospital systems), especially during implementation to ensure processes are in place to improve the provider experience in the WCM. Specific areas that were noted in the evaluation included these:

- Given the diverse needs of clients and providers, MCPs frequently communicate with all providers — clinicians (e.g., nurses, physicians, therapists), DME providers, and pharmacy providers — about the care and services needed by CCS clients to ensure adequate service delivery.
- Should there be expansion of the WCM, DHCS should work with CCS counties to provide the appropriate supports and resources to address the potential increased workload of CCS program staff during and immediately after the transition to the WCM. This includes the staff time needed to address CCS client questions about the WCM, and to obtain appropriate documentation from the MCPs for conducting annual medical reviews.
- MCPs should have full access to CMSNet to assist with communication about case management across all parties involved with a client's care.
- While there is a Medi-Cal provider manual requirement for medical supply distribution, the process of submitting the initial authorization and another authorization for additional supply can be onerous to providers. To streamline service

delivery, MCPs could revisit the quantities of some of the medical supplies allowed as reimbursable items for CCS clients (e.g., diapers) or expedite the additional authorization process.

Conclusions and Discussion Based on Research Question 4: What is the impact of the WCM on the quality of care received?

Maintenance of quality of care was measured through family survey, grievances, and health quality measures through claims. Overall, the quality of CCS-level specialty care and services received by clients in the WCM appeared to be stable and similar to that of Classic CCS clients. The majority of survey respondents in each WCM study group indicated that since the transition to WCM, the quality of services remained the same, although care delivery varied some among the different WCM study groups. While the large majority of respondents reported that quality of care remained the same or improved after WCM implementation, it is nevertheless important to understand the factors that contributed to the experience of those respondents who reported that quality of care decreased. The subgroup analyses of clients who reported worse quality of care examined whether any specific characteristics were associated with quality of care showed that those with poor health and those with increased specialty needs appeared to be more vulnerable to a decrease in quality of care following WCM implementation. This suggests that future implementations of the WCM should ensure that MCPs carefully support this highly vulnerable population during implementation to prevent deterioration of their quality of care. A more focused investigation would be needed to evaluate the impact of the WCM on the more medically complex patients in how best to support their needs. The investigation could then evaluate whether simple actionable drivers, such as DME access or appointment assistance, were primary drivers for decreased perceived quality of care or if there were greater system-level complexities that needed to be addressed to improve quality.

Grievances were very rare and had to be reported per 100,000 member months, and while there were differences, they were small. Clients in Phase I experienced a smaller relative increase in quality-of-care grievances pre- versus post-WCM implementation than did their Classic CCS county counterparts. Clients in the HPSM WCM, Phase II, and Phase III all experienced a larger increase in grievances related to the quality of care, and pre- versus post-WCM implementation, than did their Classic CCS county counterparts. Interpretation for this is difficult because Classic CCS clients cannot file grievances for CCS-related care. Based on the family survey, there were no differences among the different WCM study groups and CCS comparison group in the proportion who filed a grievance, and general satisfaction was high. Therefore, the relative increase in grievances may not indicate worse perceived care as compared to classic CCS.

Overall quality of care in claims was measured by using National Quality Forum standards for quality of care in depression screening, vaccinations, and well-child visits. The UCSF evaluation team was unable to evaluate HEDIS (Healthcare Effectiveness Data and Information Set) measures for HbA1c, vaccinations, and depression screening, as UCSF did not

have full access to clinical data. Instead, it had to approximate HEDIS measures through administrative claims data. As UCSF did not have HbA1c data for the majority of WCM clients, UCSF could not report on HbA1c outcomes. When it came to quality measures for immunizations and depression screening, the WCM did very well in having higher claims for depression screening. The WCM had only modest impact in improving vaccine rates. Vaccination rates in the CCS population were very low in general and could be improved. There were specific vaccines related to poor uptake (specifically rotavirus, HPV, and influenza). Therefore, areas of improvement based on this evaluation were identified:

- In order to measure clinical quality outcomes for CCS clients, MCPs would need to oversample CCS clients on these measures for long-term monitoring of these domains or focus quality measure reporting on the CCS client population.
- The evaluation team would not recommend use of HbA1c as a metric for pediatric diabetes quality for the MCPs in the WCM. HbA1c would be a measure of quality of pediatric specialty care center diabetes care. Pediatric diabetes is not managed the same as adult diabetes. Measures such as ensuring visits to a Special Care Center, or ensuring screening (blood pressure screening, diabetes retinopathy screening) would be a better health plan measure of quality. The evaluation team would suggest working with the CCS specialty groups to determine the best quality measures for diabetes care in children.
- The CCS population's low vaccination rate seemed to be driven by three main vaccines related to poor uptake: rotavirus, influenza, and human papillomavirus. Ensuring that the MCPs promote these vaccinations would likely raise vaccination rates significantly for both childhood and adolescent vaccinations in the WCM CCS population.

Conclusions and Discussion Based on Research Question 5: What is the impact of the WCM on care coordination?

A core goal of the WCM was to "improve care coordination through an organized delivery system." The evaluation measured care coordination through reports from key informant interviews, a family survey, and claims through measures of case management. The evaluation also looked at transition to adult care through the claims analysis, as case management is often needed for the transition out of CCS services. Not surprisingly, care coordination as executed by high-quality case management has been identified across families and key stakeholders as a critical core of the CCS program. One of the themes heard most frequently from the family and KI interviews was that CCS case management was much different from MCP case management. In MCPs, case managers were not as easily accessible to the CCS clients, and MCP case management was neither centralized nor coordinated by one person but instead was fragmented, and CCS clients accessed case management services through a telephone triage system. This evaluation of care coordination showed that the WCM MCPs were variable in their success in implementing CCS-level care coordination / case management.

Although the majority of family interviewees had good relationships with their care coordinators, once transitioned to the WCM, they had more difficulty with contacting case management. This was corroborated by the KIs, as one of the themes heard most frequently from the KI interviews was that CCS case management was much different from MCP case management. As stated above, MCP case managers were not as easily accessible to CCS clients, and MCP case management was fragmented, with CCS clients accessing case management services through a phone triage system.

Also, since CCS was no longer responsible for case management in the WCM, it stopped sending a public health nurse to the medical therapy conference. Some KIs noted that this meant that any needed DME or specialty services recommended during the conference were not authorized or accessed as quickly, decreasing care coordination and delaying access for these medically complex pediatric patients. Therefore, the loss of the public health nurse at the medical therapy conference and changes in case management removed some continuity of care for care coordination, especially for the more medically vulnerable.

For the majority of family survey items evaluating the impact of the WCM on care coordination, there were no significant differences between the WCM study groups and Classic CCS comparison groups. Even though many aspects of care coordination / case management services were not significant among WCM study groups and Classic CCS comparison groups, they might benefit from a more in-depth look at how to improve them. For example, high numbers of CCS clients indicated that the case manager was not familiar with the child's medical condition. Improvements in information transfer on the plan level may be useful in addressing this deficiency.

Case management claims in the WCM increased as compared to the Classic CCS comparison group. This is not surprising, as Classic CCS case management is also captured in CMSNet and not fully by claims. As these are different reporting systems, it is difficult to compare case management through CMSNet versus case management experienced in the MCP through claims data alone. Given a third of clients were not satisfied with care coordination in the WCM, additional work is needed to continue to improve these services and consolidate the data systems used by both MCPs and CCS. For example, future work should evaluate the impact of care coordination through a multidisciplinary care team and specialized case management for those with medical complexity.

Transition out of CCS to Adult Care Outcomes (health utilization after turning 21 and discharge from the CCS program)

Overall, a significantly high proportion of WCM clients (95%) who turned 21 within the study period stayed in Medi-Cal, and of those, 95% stayed within their respective health plans. While the MCPs are well poised to coordinate the transition of care for young adults who age out of the CCS program due to having pediatric and adult primary care and specialty

care under one roof, very little difference was found in transition outcome measures with the implementation of the WCM. Of note, families want transition planning, yet 62% did not receive it based on the family survey report; thus, it is not surprising no changes were noted. Learning how MCPs can improve transition planning could impact outcomes. For example, increased access to adult care transition planning services[8] would likely mitigate the reported demand for transition to adult healthcare services and lead to improved use of preventive services within the WCM.

Based on the evaluation, while care coordination was largely similar to that of Classic CCS, MCPs' clients varied in their reported levels of satisfaction in the family survey, indicating areas for quality improvement or for future WCM programs.

- The WCM MCPs successful in generating case management provisions that were similar to Classic CCS could serve as exemplars for future WCM MCPs. For implementation of the WCM, every MCP hired CCS staff and worked closely with CCS to try to ease the transition from the Classic CCS model to the WCM.
- Due to differential success in meeting client needs, MCPs rated low in client satisfaction with care coordination may want to adopt strategies from the WCM MCPs that have had greater success, and future participating MCPs could coordinate with MCPs that had high family satisfaction with the WCM to learn from key successes in implementation.
- Having a tiered case management system that would allow patients who have high needs / high disease burden to have direct access to a dedicated CCS case manager in the MCP, similar to that of the current Classic CCS case management structure, may meet client need while containing cost.
- In the absence of a public health nurse at the medical therapy conference, inclusion of a case manager within the MCP that can attend the conference and coordinate with the family and Medical Therapy Units could help to expedite and coordinate authorizations for and access to DME. This was successfully implemented in one of the WCM MCPs and can serve as a model for the other WCM plans.
- Improving and standardizing the transition preparation process across the WCM MCPs would help meet the adult transition needs of CCS clients identified in this evaluation.

[8] Annie Schmidt et al., "Outcomes of Pediatric to Adult Health Care Transition Interventions: An Updated Systematic Review," *Journal of Pediatric Nursing* 51 (Mar.-Apr. 2020): 92–107, https://doi.org/10.1016/j.pedn.2020.01.002.

B. CCS Program: Background and Overview

Establishment of California Children's Services

The California Children's Services (CCS) program began in 1927 as the "Crippled Children's Program" to serve children with orthopedically handicapping conditions that were amenable to surgical interventions.[9] It is now a statewide health coverage program that provides services to over 185,000 children and young adults (up to age 21) with certain disabilities or chronic health conditions. (See Appendix A, "Acronyms," for a complete list of acronyms used in this report.)

To be eligible for CCS, children must meet specific medical condition, financial, and residential criteria. CCS-eligible medical conditions include but are not limited to, cystic fibrosis, hemophilia, cerebral palsy, heart disease, and cancer. The CCS program provides diagnostic and treatment services, medical case management, and physical and occupational therapy services to children under age 21 for those CCS-eligible medical conditions. The case mix among CCS clients is quite heterogeneous. Some children need CCS for procedures or short-term treatment courses, have single conditions, or both, while other children require significant medical care requiring numerous specialists and extensive case management.

Of the approximately 185,000 children served in CCS, approximately 90% are Medi-Cal eligible,[10] meaning they are enrolled in a Medi-Cal managed care health plan that reimburses authorized CCS services as well as those services unrelated to the CCS medically eligible condition. The remaining 10% in CCS are ineligible for Medi-Cal; their families may pay for some healthcare costs on their own or have a local health plan or commercial coverage as their primary insurance.

Case management is a key aspect of the CCS program. Every CCS client receives case management from CCS case managers. A CCS case manager coordinates all the client's medical care related to their CCS-eligible condition. The CCS case management responsibilities may include an initial determination of medical eligibility for the program and

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[9] "California Advancing and Innovating Medi-Cal (CalAIM)," Centers for Medicare & Medicaid Services (CMS), www.medicaid.gov/medicaid/section-1115-demo/demonstration-and-waiver-list/81046.

[10] *California Children's Services (CCS) Program* (PDF), DHCS, last updated August 2020, https://files.medi-cal.ca.gov/pubsdoco/publications/masters-mtp/part2/calchild.pdf.

subsequent identification of appropriate providers based on the client's medical needs. The CCS case managers also authorize medically necessary services and are responsible for coordinating the CCS client's medical care and referrals to other agencies or services in the community, including those provided by county public health departments, schools, or regional centers.[11]

California Children's Services also provides direct physical and occupational therapy rehabilitative services through the CCS Medical Therapy Program (MTP).[12] MTP services are delivered at public schools throughout the state to CCS clients who have MTP-eligible conditions.[13] Although a program within CCS, MTP services are excluded from the Whole Child Model and continue to be administered by county public health departments.

CCS is administered as a partnership among each of the state's 58 county health departments, the California Department of Health Care Services (DHCS), and some County Organized Health Systems (COHS) plans.[14] In counties with populations greater than 200,000, county staff perform all case management activities for eligible children residing within their county. This includes determining all phases of program eligibility, evaluating needs for specific services, determining the appropriate providers, and authorizing for medically necessary care. These counties are "independent counties."

For counties with populations under 200,000, CCS provides medical case management and eligibility and benefits determination through its regional offices located in Sacramento and Los Angeles. These counties are called "dependent counties." Dependent counties interact directly with families and make decisions on financial and residential eligibility. The regional offices also provide consultation, technical assistance, and oversight to independent counties, individual CCS Paneled Providers, hospitals, and the Special Care Centers within their region. [15]

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[11] *The California Children's Services (CCS) Program Administrative Case Management Manual* (PDF), DHCS, last updated 2014, www.dhcs.ca.gov/services/ccs/Documents/CCSAdminCaseManManual.pdf; and *Family Handbook: What Parents /Guardians Should Know about Children's Services* (PDF), DHCS, last modified June 2008, www.dhcs.ca.gov/formsandpubs/publications/Documents/CMS/pub387.pdf.

[12] "Medical Therapy Program," DHCS, last modified June 15, 2022, www.dhcs.ca.gov/services/ccs/Pages/MTP.aspx.

[13] "Program Overview," DHCS, last modified March 23, 2021, www.dhcs.ca.gov/services/ccs/Pages/ProgramOverview.aspx.

[14] Health and Safety Code, § 123800 et seq. is the enabling statute for the CCS program. The explicit legislative intent of the CCS program is to provide medically necessary services for children with CCS-eligible conditions. The statute also requires that DHCS and the county CCS programs seek eligible children by cooperating with local public or private agencies and providers of medical care to enroll eligible children.

[15] Special Care Centers (SCC) provide comprehensive, coordinated healthcare to California Children's

CCS is financed by a combination of federal (Title V), state, and federal funds.[16] There are some CCS programs carved into their county's MCP whereby the MCP has assumed full fiscal responsibility for payment of CCS-eligible services. In most counties, care delivery and payments related to CCS qualifying conditions are carved out of the Medi-Cal managed care health plans. This means that the MCPs do not have financial responsibility for payment of services that CCS covers. Instead, the state of California reimburses these CCS-eligible services on a fee-for-service (FFS) basis. Through this FFS structure, children in CCS had two separate payer systems one for specialty care and one for primary care

The CCS program has a large fiscal impact on supporting California's chronically ill children. Many infants, children, and adolescents eligible for CCS have multiple medical conditions that require costly, complex care and intensive levels of case management and care coordination often beyond the resources available in county, regional, or state program offices.[17] As a result, in State Fiscal Year 2009–10, total Medi-Cal fee-for-service expenditures for the CCS program exceeded $487.5 million for the roughly 25,000 children under the age of one that CCS served.[18] For the 133,000 children served who are age one and over, total State Fiscal Year 2009–10 expenditures were $1.33 billion. This is approximately $19,500 per child under age one and $10,000 per child age one or over.[19]

Services (CCS) and Genetically Handicapped Persons Program clients with specific medical conditions. SCCs are organized around a specific condition or system. SCCs are comprised of multidisciplinary, multispecialty providers who evaluate the client's medical condition and develop a family-centered healthcare plan to facilitate the provision of timely, coordinated treatment.

[16] "Program Overview," DHCS, last updated March 23, 2021, www.dhcs.ca.gov/services/ccs/Pages/ProgramOverview.aspx.

[17] *Section 1115 Comprehensive Waiver/Demonstration Project Technical Workgroup (TWG) Charter California Children's Services (CCS)* (PDF), DHCS, www.dhcs.ca.gov/provgovpart/Documents/CCS%20TWG%20charter%20(2).pdf.

[18] Paul H. Wise et al., *California Children's Services Program Analysis*, DHCS, www.dhcs.ca.gov/services/ccs/Documents/CCSFinalReport06_30_11.pdf.

[19] Wise et al., *Program Analysis*.

C. Whole Child Model Program: Background and Overview

California Senate Bill 586: Whole Child Model Program

California Senate Bill 586 (Hernandez, Chapter 625, Statutes of 2016) slated implementation of the Whole Child Model (WCM) into 21 counties (see Table 6), with three staggered implementation phases to allow for a more streamlined execution and ensure MCP operational readiness. These implementations periods were to begin no sooner than July 2018.

WCM incorporated the California Children's Services (CCS) Program into Medi-Cal managed care for CCS-eligible members. Medi-Cal managed care health plans (MCPs) operating in WCM counties integrated Medi-Cal managed care and CCS Program administrative functions to provide comprehensive treatment of the whole child and care coordination in the areas of primary, specialty and behavioral health for CCS-eligible and non-CCS conditions. MCPs and their delegated entities participating in the WCM program are required to contract with CCS Paneled Providers and meet specific standards set by DHCS. DHCS assessed each MCPs and their delegated entities' CCS Paneled Provider network to ensure adequate coverage and certified them to serve the WCM population.

The goals of the WCM were improved care coordination for primary, specialty, and behavioral health services for CCS and non-CCS conditions within MCPs. The benefits were to be consistent with CCS program standards with CCS Paneled Providers, Special Care Centers (SCCs),[20] and the pediatric acute care hospitals providing healthcare. The intent of this approach was to meet the goals for CCS redesign:

1. Implement a patient and family-centered approach
2. Improve care coordination through an organized delivery system
3. Maintain quality
4. Streamline care delivery
5. Build on lessons learned
6. Be cost-effective (not included in this report)

[20] Special Care Centers provide comprehensive, coordinated healthcare to California Children's Services and Genetically Handicapped Persons Program clients with specific medical conditions. SCCs are organized around a specific condition or system. SCCs comprise multidisciplinary, multispecialty providers who evaluate the client's medical condition and develop a family-centered healthcare plan to facilitate the provision of timely, coordinated treatment.

Table 6: Whole Child Model Medi-Cal Managed Care Health Plans, Counties, Phase, and Implementation Dates[21]

Med-Cal Managed Care Health Plan	Counties
Phase I — Implemented July 1, 2018	
CenCal Health	San Luis Obispo, Santa Barbara
Central California Alliance for Health	Merced, Monterey, Santa Cruz
Health Plan of San Mateo	San Mateo
Phase II — Implemented January 1, 2019	
Partnership Health Plan	Del Norte, Humboldt, Lake, Lassen, Marin, Mendocino, Modoc, Napa, Shasta, Siskiyou, Solano, Sonoma, Trinity, Yolo
Phase III — Implemented July 1, 2019	
CalOptima	Orange

The transitioning CCS population size for each county is shown below, in Table 7.[22]

Table 7: CCS Population Transitioning to the WCM, by County and Phase

County	CCS Transitioning Population
Phase I — Implemented July 1, 2018	
Merced	2,380
Santa Barbara	1,950
Santa Cruz	1,120
San Luis Obispo	970
San Mateo	80
Phase II — Implemented January 1, 2019	

[21] *California Children's Services (CCS) Program Whole Child Model Frequently Asked Questions*, DHCS, last updated July 2019, www.dhcs.ca.gov/services/ccs/Documents/CCS-WCM-FAQ-2019.pdf.

[22] *Phase-In Methodology: Whole Child Model*, DHCS, November 2018, www.dhcs.ca.gov/services/ccs/Documents/Phase-In-Methodology-11.2018.pdf.

County	CCS Transitioning Population
Sonoma	1,620
Solano	1,060
Shasta	850
Yolo	730
Humboldt	700
Marin	610
Napa	460
Mendocino	390
Lake	360
Siskiyou	250
Del Norte	140
Lassen	90
Trinity	50
Modoc	40
Phase III — Implemented July 1, 2019	
Orange	11,960

CCS families were notified about the transition to the WCM via a mailed flyer from DHCS as well as a 30-day notification letter, 60-day notification letter, and 90-day notification letter. The 60-day and 90-day notification letters also included information about care coordination.

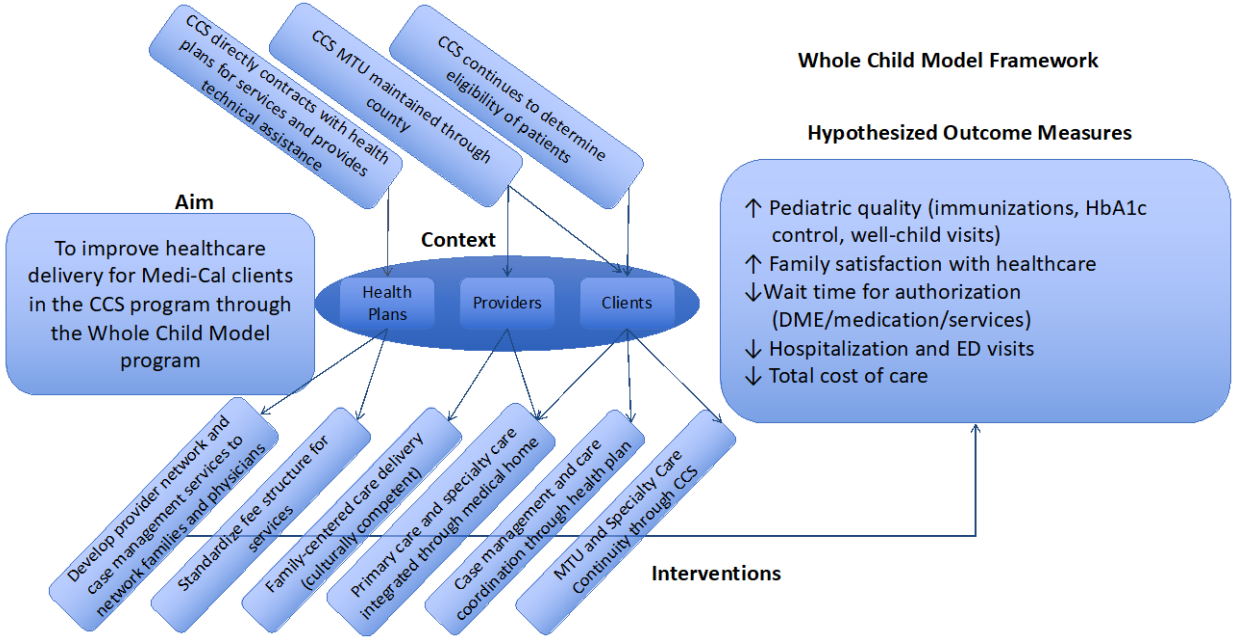
D. Evaluation Overview

Senate Bill 586 required the California Department of Health Care Services (DHCS) to contract with an independent entity to conduct an evaluation of WCM implementation. The purpose of this evaluation is to assess WCM MCP performance and the outcomes and experience of children and youth eligible for California Children's Services (CCS) who are participating in the WCM program, with results being presented to the California legislature no later than January 1, 2023 per WIC § 14094.18. DHCS contracted with the Institute for Health Policy Studies at the University of California, San Francisco (UCSF) for this evaluation.

For this evaluation, the UCSF evaluation team developed a conceptual framework (see Figure 1) and evaluation questions based on Section 14094.18(b) and (c) of SB 586.[23] In addition, the research questions and evaluation design were further vetted through DHCS and its previous and concurrent work with their stakeholder advisory group. The overarching research questions, hypotheses, and specific measures that were developed over an iterative process among DHCS, key stakeholder groups (CCS Advisory Group, CCS medical directors, and constituents), key informant interviews, and the UCSF evaluation team are provided below. The research activities performed in this evaluation were conducted from July 1, 2019 to September 19, 2022 and include client data from July 1, 2016 to June 30, 2021.

[23] Cal. WIC § 14094.18

Figure 1: Whole Child Model Framework



E. Evaluation Design and Overview

General Overview

The California Children's Services (CCS) Whole Child Model (WCM) evaluation includes a process evaluation and an outcomes evaluation.

Process Evaluation

The process evaluation is designed to collect qualitative and semi-structured interview data to assess the implementation of the WCM and client/provider satisfaction from the perspective of families and stakeholders. The process evaluation included a literature review, qualitative interviews with parents and guardians, and key informant interviews.

Outcomes Evaluation

The outcomes evaluation was designed to assess the impact of the WCM program on access to care, satisfaction with care, quality of care, and care coordination. The outcomes evaluation included a randomized, controlled telephone survey with parents and guardians of CCS clients (comparing WCM counties with Classic CCS counties),[24] an online convenience sampling of CCS providers, and an analysis of administrative data. Data included claims, encounter data, hospitalization and emergency department (ED) data, and grievances, appeals, and state fair hearings data, both before and after the transition to WCM.

[24] WCM counties include Del Norte, Humboldt, Lake, Lassen, Marin, Mendocino, Merced, Modoc, Monterey, Napa, Orange, San Luis Obispo, San Mateo, Santa Barbara, Santa Cruz, Shasta, Siskiyou, Solano, Sonoma, Trinity, and Yolo. All other counties in California are CCS counties — Alameda, Alpine, Amador, Butte, Calaveras, Colusa, Contra Costa, El Dorado, Fresno, Glenn, Imperial, Inyo, Kern, Kings, Los Angeles, Madera, Mariposa, Mono, Nevada, Placer, Plumas, Riverside, Sacramento, San Benito, San Bernardino, San Diego, San Francisco, San Joaquin, Santa Clara, Sierra, Stanislaus, Sutter, Tehama, Tulare, Tuolumne, Ventura, and Yuba.

Evaluation Period

The qualitative interviews with key informants and parents/guardians were completed between October 2019 and May 2022. Please note that the evaluation period coincided with the COVID-19 Public Health Emergency. This is discussed further in the limitations section below.

The telephone survey of parents and guardians of children in CCS was completed between March and June 2020.

The administrative claims and encounter data cover two years of pre-enrollment and at least two years of post-enrollment (HPSM and Phase I had sufficient time for three years of post-implementation analysis). The cohorts had staggered start dates as follows:

- Health Plan of San Mateo (HPSM): July 1, 2016 to June 30, 2021
- Phase I: July 1, 2016 to June 30, 2021
- Phase II: January 1, 2017 to December 31, 2020
- Phase III: July 1, 2017 to June 30, 2021
- Classic CCS: Comparisons were made using time windows and propensity score–matched counties that mirror each WCM study group (HPSM WCM, Phase I–Phase III)

Evaluation Questions

This section of the report states each of the five research questions included in this evaluation. It also includes the corresponding research methods and how each research question aligns, as applicable, to California Welfare and Institutions Code (WIC) § 14094.18.

Table 8: Research Questions, Research Methods, and Corresponding WIC Section

Research Question	Research Methods	California Welfare and Institutions Code Sections
Q1. What is the impact of the WCM on children's access to CCS services?	• Qualitative interviews with parents/guardians • Key informant interviews with stakeholders • Telephone survey with parents/guardians	14094.18(b)(1), (b)(2); (b)(3), (b)(4), (b)(8), (c)(1), (c)(2), and (c)(3)

Research Question	Research Methods	California Welfare and Institutions Code Sections
	• Analysis of claims data • Grievances data	
Q2. What is the impact of the WCM on patient and family satisfaction?	• Qualitative interviews with parents/guardians • Telephone survey with parents/guardians	14094.18(b)(4)
Q3. What is the impact of the WCM on providers' satisfaction with the delivery of services and reimbursement?	• Key informant interviews with stakeholders • Telephone survey with parents/guardians • Online survey of CCS healthcare, DME, and pharmacy providers	NA — included as part of evaluating goals (streamlined care, quality and implementation perspective) of the WCM
Q4. What is the impact of the WCM on the quality of care received?	• Qualitative interviews with parents/guardians • Telephone survey with parents/guardians • Key informant interviews with stakeholders • Analysis of administrative data • Metrics of standards of care (HbA1c and depression screening) • Immunization rates • Grievances data	14094.18(b)(1), (b)(2), (b)(3), (b)(4), (b)(5), (b)(8), (c)(1), (c)(2), (c)(3), and (c)(4)
Q5. What is the impact of the WCM on care coordination?	• Qualitative interviews with parents/guardians • Telephone survey with parents/guardians • Key informant interviews with stakeholders • Analysis of administrative data	14094.18(b)(6) and (b)(7)

Evaluation Methodologies

To conduct a comprehensive evaluation of the WCM, UCSF included six key data-gathering activities, as outlined below:

- Interviews with parents and guardians of children who transitioned into the WCM

- Key informant interviews with stakeholders who work in or with CCS, WCM counties, or WCM managed care health plans (MCPs)
- A telephone survey of parents and guardians of children in CCS, both in WCM and Classic CCS counties
- An online survey of providers that serve children in CCS, both in WCM and Classic CCS counties
- Analyses of healthcare encounters and claims that explore changes in utilization and outcomes
- Analysis of grievances, appeals, and state fair hearings data

All activities in this report were approved by the California Committee on the Protection of Human Subjects and the UCSF Institutional Review Board.

Data used in this report (claims, survey data) cover the period from July 1, 2016 to June 30, 2021.

Analytic Methods for Qualitative Parent/Guardian Interviews

Parents and guardians of children in CCS were recruited for qualitative interviews via recruitment flyers (distributed at Medical Therapy Programs [MTPs], Medical Therapy Units [MTUs], SCCs, and via key informants) (see Appendix B, "WCM Evaluation Recruitment Flyer [English]"); via outreach from family advocacy and policy groups, including one well-publicized newsletter article; and direct referrals from key informants and staff at family advocacy groups. Between October 2019 and January 2020, 32 qualitative one-on-one interviews were conducted via telephone in English and in Spanish with parents and guardians of WCM clients who had transitioned into a WCM MCP. Also, three interviews were conducted with parents/guardians of CCS clients in Classic CCS counties. See Table 9 for details. Participants received a $50 e-gift card to Target to compensate them for their time.

Table 9: Qualitative Parent/Guardian Interviews

Care Model	MCP	County
WCM MCP	CalOptima (*N* = 9)[25]	Orange County
	CenCal Health (*N* = 2)	Santa Barbara,
	Central California Alliance for Health (*N* = 6)	Santa Cruz, Merced
	Health Plan of San Mateo (*N* = 9)	San Mateo

[25] *N* indicates number of parents/guardians interviewed in each county.

Care Model	MCP	County
	Partnership Health Plan (*N* = 6)	Shasta, Yolo, Siskiyou, Humboldt, Marin
Classic CCS	*N* = 3	Fresno
Total	35	

Semi-structured Interview Guides for Qualitative Parent/Guardian Interviews

Qualitative interviews with parents and guardians of CCS clients were used to gather in-depth information about their experiences transitioning into the WCM. They answered questions about satisfaction with the transition into the WCM as well as about perceived quality, access to care, and coordination of care in the WCM. The complete interview guide can be found in Appendix C, "Qualitative WCM Parent/Guardian Interview Guide." Sample question prompts used to address key research areas can be found in Table 10, below.

Table 10: Research Questions and Sample of Corresponding Question Prompts for Qualitative Parent/Guardian Interviews

Research Question	Question Prompts Used to Address Research Question
Question 1. What is the impact of the WCM on children's access to CCS services?	• Did the transition impact access to your child's doctors or healthcare providers? How? • Are your services more streamlined than when the services were provided by CCS?
Q2. What is the impact of the WCM on the client's and family's satisfaction?	• Were some things better once your child's care with [NAME OF CURRENT HEALTH PLAN] started? What were they? • Were some things worse once your child's care with [NAME OF CURRENT HEALTH PLAN] started? What were they? • Tell me about the healthcare services that your child currently receives through [NAME OF CURRENT HEALTH PLAN]. Are they meeting your needs? • Do you think that [NAME OF CURRENT HEALTH PLAN] has helped your child? Why? • Do you or your child have any needs that are not being met? What are they?

	• How involved in your child's care are you currently? Do you feel like your current doctors listen to you and take your wishes into account? Does the current health plan take your wishes into account? • What could be improved about the services that you receive?
Q3. What is the impact of the WCM on providers' satisfaction with the delivery of services and reimbursement?	NA
Q4. What is the impact of the WCM on the quality of care received?	• Tell me about the healthcare services that your child currently receives through [NAME OF CURRENT HEALTH PLAN]. Are they meeting your needs?
Q5. What is the impact of the WCM on care coordination?	• Have you had any interactions with a case manager/care coordinator from [NAME OF CURRENT HEALTH PLAN]? What are those interactions like? How do they compare to your interactions with your previous case manager / care coordinator?

Analysis of Qualitative Parent/Guardian Interviews

All parents and guardians verbally consented to participating before their interview began. Interviews were one hour long and were conducted by telephone. Audio from the interviews was recorded only with the parent/guardian's verbal consent. The interviews that were recorded were subsequently transcribed by vendors who met standards set by UCSF for HIPAA (Health Insurance Portability and Accountability Act) compliance and data security. After developing an initial set of codes, all transcripts and notes were analyzed using the qualitative software Dedoose. Using this software, two researchers on the UCSF evaluation team independently coded the interviews for salient themes, which are reported in the Results section (beginning on page 129).

Analytic Methods for Key Informant Interviews

Key stakeholders were identified and recruited via websites of Medi-Cal managed care health plans (MCPs) and county public health departments, via CCS Advisory Group members, and via snowball sampling. Between October 2019 and May 2022, 55 key informant interviews were conducted with 83 people for the WCM evaluation. The informants included

WCM MCP representatives (including C-suite executives, case managers, clinicians, and administrators), SCC providers and staff, county CCS staff, county public health department staff, MTP providers and staff, durable medical equipment providers, and advocacy group representatives). See Table 11 for details on the participant characteristics regarding which MCP or Classic CCS county representative or statewide organization the KI represented and the numbers that were recruited for each phase (both WCM MCPs and Classic CCS counties). The table also shows the total number of interviews conducted and the total number of participants that participated. KIs were not paid for participating.

Table 11: Whole Child Model Key Informant Interviewee Information (MCP, CCS County, or other representative)

	MCP*		County CCS		Statewide/ Regional	
	# of Interviews	# of KIs	# of Interviews	# of KIs	# of Interviews	# of KIs
Phase I						
San Luis Obispo			1	1		
Santa Barbara			2	2		
Santa Cruz			3	6		
San Mateo			7	7		
CenCal Health	2	2				
CCAH	1	2				
HPSM WCM	3	3				
Phase I Total	6	7	13	16		
Phase II						
Del Norte			1	1		
Humboldt			1	1		
Lake			1	2		
Lassen			1	1		
Marin			2	2		
Mendocino			1	1		
Modoc			1	4		
Napa			1	2		
Shasta			1	2		

	MCP*		County CCS		Statewide/ Regional	
	# of Interviews	# of KIs	# of Interviews	# of KIs	# of Interviews	# of KIs
Siskiyou			1	2		
Solano			2	3		
Sonoma			1	1		
Trinity			1	3		
Yolo			2	5		
Partnership Health Plan	1	4				
Phase II Total	1	4	17	30		
Phase III						
Orange			1	2		
CalOptima	2	3				
Phase III Total	2	3	1	2		
DME Vendor					5	7
SCC Provider					5	6
Other**					5	8
Statewide Total					15	21
TOTAL†	9	14	31	48	15	21

*Includes C-suite executives, case managers, clinicians, administrators, and other MCP staff
***Other* includes advocates and consultants.
†Total number of WCM interviews: 55; total KIs: 83.

Semi-structured Interview Guides for Key Informant Interviews

Qualitative interviews with key informants were used to assess their perspectives on the WCM. They were asked a series of questions related to planning for, transitioning to, and implementing the WCM, as well as their experiences post-implementation. Topics covered included perceived impacts of change in case management, access to care and quality of care. Additional topics were discussed as relevant to individual informants. The complete interview guide can be found in Appendix D, "WCM Key Informant Interview Guide." A summary of prompts used to address key research areas are found in Table 12, below.

Table 12: Research Questions and Corresponding Prompts for Key Informant Interviews

Research Question	Question Prompts Used to Address Research Question
Q1. What is the impact of the WCM on children's access to CCS services?	• Do you think access to care has changed following the transition to the Whole Child Model? • How does it affect your ability to deliver high-quality care for your clients?
Q2. What is the impact of the WCM on patient and family satisfaction?	• What do you think are the most beneficial aspects of this change to families?
Q3. What is the impact of the WCM on providers' satisfaction with the delivery of services and reimbursement?	• How do you think costs of care, payments, and/or reimbursements have changed, for providers and for families, since the transition?
Q4. What is the impact of the WCM on the quality of care received?	• Do you think the quality of care has changed following the transition to the Whole Child Model?
Q5. What is the impact of the WCM on care coordination?	• Did families/your clients receive any disruption to their services during the transition?

Analysis of Key Informant Interviews

Each key informant verbally consented to participating before their interview began. Interviews were one hour long and conducted via Zoom. Audio from the interviews was recorded only with the KI's consent. The interviews that were recorded were subsequently transcribed by vendors who met UCSF's standards for HIPAA compliance and data security. If a KI did not consent to being recorded, detailed notes were taken by the interviewer or another member of the research team. After developing an initial set of codes, all transcripts and notes were analyzed using the qualitative software Dedoose. Using this software, two researchers on the UCSF evaluation team independently coded the interviews for salient themes, which are reported in the results section.

Analytic Methods for Telephone Survey with Parents and Guardians

The recruitment goal of the telephone survey with parents/guardians was to survey 1,883 parent and guardians from WCM and 1,000 from Classic CCS counties. This would allow for statistically significant comparisons between the two models of care — the WCM and Classic CCS counties. In addition, the secondary recruitment goal was to survey a

sufficient number of parents and guardians from each of the CCS groups (as defined below) to allow for statistically significant comparisons between the groups.

Development of Telephone Survey

As part of the contracted scope of work, the UCSF evaluation team developed telephone survey questions that would answer the key research questions listed above. Questions were developed from previously validated surveys that measured child health and family care for children with special healthcare needs. Development of the survey questions was also guided by the qualitative parent/guardian telephone interviews and key informant interviews. These tactics ensured that the UCSF evaluation team included each of the key survey domains as required for this evaluation. The domains that were ultimately developed and measured are listed below:

- Demographics
- Child's general health and functional status
- Healthcare use (primary care, specialty care, emergency room use, and hospitalization)
- Access to specialty care
- Access to prescription medication
- Access to behavioral healthcare
- Access to medical equipment and supplies
- Provider communication
- Transportation
- Care coordination and case management
- Transition to adult care services
- Household characteristics and employment status (including job loss and school missed)

After the survey was developed and approved in English — including review and insights from DHCS and the CCS Advisory Group — it was translated into Spanish. Both the English- and Spanish-language surveys were then pretested to ensure comprehension and flow. Once those steps were completed, the survey was then pilot tested by the survey telephone vendor. The finalized survey was then administered between March and June 2020. The telephone survey instrument can be found in Appendix E, "Telephone Survey Questions by Domain."

Eligibility to Participate in Telephone Survey

Parents and guardians of CCS clients were eligible to participate in the telephone survey if their child met the following criteria:

- Enrolled in CCS for at least 12 months. Six of these months had to be before the child transitioned from Classic CCS to the WCM. (Note: This criterion does not apply to the Classic CCS groups. Also, for Phase I, the "transition date" was July 1, 2018.)
- Not enrolled in CCS as "MTU-only."
- Had a valid telephone number recorded in their CCS eligibility file.
- WCM population: Any CCS-eligible client in any WCM MCP.
- Classic CCS county populations: CCS clients in Classic CCS counties that were not participating in the WCM. The same time frame criteria were used for this population for each phase as for the WCM population.

Additional details on eligibility criteria, as well as the entire methodology, can be found in Appendix F, "Development of Sampling Strategy and Weights for the Analysis of the Telephone Survey for the Whole Child Model (SB 586) and Demonstration Projects (CMS 1115 Waiver Report)."

Definitions of CCS Groups for Telephone Survey

The groups defined for the telephone survey sampling plan correspond to the WCM phase in which a CCS-eligible client was enrolled. One of the phases (Phase I) involved multiple MCPs, so that phase was divided into two groups according to the MCPs. HPSM was analyzed separately from the other Phase I WCM plans because HPSM had implemented a WCM DP program in 2013 and thus may alter any differences seen in this evaluation. Also, the Classic CCS group was split into groups of dependent and independent counties. The UCSF evaluation team made the dependent counties their own group because if they were combined with the independent counties, random sampling would not have included sufficient potential participants from dependent counties. Thus, there are six CCS groups that took part in the telephone survey:

- HPSM WCM (concurrent with Phase I): Health Plan of San Mateo
- WCM Phase I: Central California Alliance for Health and CenCal Health
- WCM Phase II: Partnership HealthPlan of California
- WCM Phase III: CalOptima
- Classic CCS FFS: Dependent Counties

- Classic CCS FFS: Independent Counties

Power Analysis for Telephone Survey

The UCSF evaluation team determined that 376 completed surveys were needed from each stratum to ensure statistically significant comparisons. Specifically, the power analysis was set to identify a 10% proportional difference with a beta of .8 and alpha of .05.

Group Sample Sizes for Telephone Survey

The UCSF evaluation team assigned a target quota of 376 to each CCS group, with a few exceptions. The overall goal for the Classic CCS county group was 1,000 completed surveys. The UCSF evaluation team decided to target 300 completed surveys from dependent counties, a significant oversample of the proportion of the population in dependent Classic CCS counties. Thus, the sample size for independent Classic CCS counties was set at 700.

Original Sampling Methodology for Telephone Survey

The UCSF evaluation team determined that it was important to ensure that all counties in California were represented in the sampling plan. Thus they selected the original sample of 3,054 potential participants. The original survey was a stratified sample by county to ensure that each county was adequately represented. For counties with small CCS populations, the floor was set at nine enrollees in the sample per county, and for counties with fewer than nine enrollees, all enrollees were all selected for the sample. Ultimately, however, when replacements were chosen, it was done at the group level rather than by county.

Replacement Sampling Methodology for Telephone Survey

A stratified random sample was used to select replacements for enrollees in the original sample who had incorrect contact information or otherwise could not be reached. Replacement sampling was done at the group level.

Actual Sample and Completion for Telephone Survey

To reach the sample size needed for the analyses in this report, the UCSF evaluation team performed a stratified sampling of 7,621 participants. Within this sample, 3,299 people were determined to be ineligible or had incorrect contact information. This left a remainder of 4,322 in the sample that were successfully reached. The telephone surveys were fully completed by 3,008 people (including 125 sampled for the 1115 Waiver program evaluation, who were surveyed

simultaneously but whose results are not included in this report). Therefore, the overall response rate was 69.6%. The final WCM / Classic CCS sample is shown in Table 13.

Table 13: Final WCM / Classic CCS Sample Size for Completed Telephone Surveys

CCS Group	# of Completed Surveys
WCM HPSM	316
WCM: Phase I	790
WCM: Phase II	451
WCM: Phase III	321
Classic CCS: Dependent	283
Classic CCS: Independent	722
Total	2,883

Survey Weights for Telephone Survey

In order to sample across the WCM counties and Classic CCS county comparison groups, and to account for both the dependent and independent status of counties, a stratified statewide sampling was generated. The details of the generation of the survey weights are provided in Appendix F. The stratification and weights allow for direct comparisons among each of the WCM counties and health plans as well as opinions of parents in CCS across the state whose children are receiving care in Classic CCS counties. As dependent and independent counties vary markedly by local CCS resources and by population density (see description of independent and dependent counties in the description of the CCS program), the UCSF evaluation team oversampled dependent counties to be able to analyze differences that may arise by CCS county status.

Analysis Plan and Variables Used for Each Telephone Survey Research Question

The following analytic plan was used for all research questions:

- Frequency tables were created for each variable by county type.
- Chi-squared or appropriate bivariate analysis was performed to identify differences among each of the WCM phases and, where appropriate, comparisons with the Classic CCS counties.
- Logistic regression was conducted to assess which delivery system (WCM vs. Classic CCS) predicts better access to care, quality of care, or care coordination.
- Population-based constructed survey weights for all analyses testing significance were utilized.

All analyses were conducted in SAS 9.4 (SAS Institute, Cary NC) or STATA 16 (StataCorp, College Station, TX) using the appropriate survey weights constructed.

Table 14: Research Questions and Variables Used in Telephone Survey

Research Question	Variables Used
1. What is the impact of the WCM on children's access to CCS services?	Medical Home / Primary Care Q14.[26] In the past 6 months, how many times did your child visit their primary care provider or nurse? Q16. In the last 6 months, did [CHILD'S NAME] go to the emergency room, even if it was not an emergency, because it was too difficult to see another doctor? Q17. During the last 6 months, did [CHILD'S NAME] need a referral to see any doctors or receive any services? Q18. [If yes] How big of a problem was it to get referrals? Q19. Since the transition to [NAME OF HEALTH PLAN], has [CHILD'S NAME]'s ability to get authorizations for services been better, the same, or worse? Specialty Care Q21. Was [CHILD'S NAME] able to see the same specialists after enrolling in [NAME OF HEALTH PLAN]? Q25. In the last 6 months, how often was it easy to get appointments for [CHILD'S NAME] with specialists? Q27. Does [CHILD'S NAME] need any specialist services that he or she currently cannot get through [NAME OF HEALTH PLAN / COUNTY CCS]? Therapy Services Q34. In the last 6 months, how often was it easy to get therapy services for [CHILD'S NAME]? Q36. Does [CHILD'S NAME] need any therapy services that he or she currently cannot get?

[26] Question numbers (e.g., Q14, Q16) correspond to the question numbers on the telephone survey. The telephone survey, with questions organized by domain, can be found in Appendix D.

Research Question	Variables Used
	Prescription Medication Q40. In the last 6 months, how often was it easy to get these prescription medications for [CHILD'S NAME]? Q41. In the past 6 months, did you delay or not get a prescription that a doctor prescribed? Q44. Does [CHILD'S NAME] need any medications prescribed by a doctor that he or she currently cannot get? Behavioral Health Q48. In the last 6 months, how often was it easy to get this treatment or counseling for [CHILD'S NAME]? Q49. Does [CHILD'S NAME] need any behavioral or mental health services that he or she currently cannot get through [NAME OF HEALTH PLAN / COUNTY CCS]? Medical Equipment and Supplies Q53. In the last 6 months, how often was it easy to get special medical equipment or supplies (including repairs) for [CHILD'S NAME]? Q55. Does [CHILD'S NAME] need any medical equipment or supplies that he or she currently cannot get through [NAME OF HEALTH PLAN / COUNTY CCS]? Transportation Q64. How often is it easy to get transportation to [CHILD'S NAME]'s doctors or other healthcare providers? Q65. [If declined to answer Q62] How often is it easy to get transportation to [CHILD'S NAME]'s doctors or other healthcare providers? Q66. In the last 6 months, did [CHILD'S NAME] miss any scheduled health or therapy appointments because of transportation problems?
2. What is the impact of the WCM	Specialty Care Q26. How satisfied are you with the overall specialist services that [CHILD'S NAME] receives?

Research Question	Variables Used
on patient and family satisfaction?	Therapy Services Q35. How satisfied are you with the therapy services that [CHILD'S NAME] receives? Medical Equipment and Supplies Q54. Overall, how satisfied are you with the medical equipment or supplies (including repairs) that [CHILD'S NAME] receives? Provider Communication Q59. Overall, how satisfied are you with the communication among [CHILD'S NAME]'s doctors and other healthcare providers? Care Coordination / Case Management Q77. How satisfied are you with the care coordination / case management [CHILD'S NAME] receives through [NAME OF HEALTH PLAN/COUNTY CCS]? Global Rating of Healthcare Q80. Overall, how satisfied are you with [NAME OF HEALTH PLAN / COUNTY CCS]? Q81. In the last 6 months, did you file an appeal, grievance, or complaint about [CHILD'S NAME]'s healthcare?
3. What is the impact of the WCM on providers' satisfaction with the delivery of services and reimbursement?	NA
4. What is the impact of the WCM on the quality of care received?	Whole Child Model Q7. Since the transition to [NAME OF HEALTH PLAN], has the quality of the health services that [CHILD'S NAME] receives been better, the same, or worse?

Research Question	Variables Used
	Medical Home / Primary Care Q15. [WCM only] Since the transition to [NAME OF HEALTH PLAN], have the primary care services that [CHILD'S NAME] receives been better, the same, or worse? Specialty Care Q29. [WCM only] Since the transition to [NAME OF HEALTH PLAN], have the specialist services that [CHILD'S NAME] receives been better, the same, or worse? Therapy Services Q38. [WCM only] Since the transition to [NAME OF HEALTH PLAN], have the therapy services that [CHILD'S NAME] receives been better, the same, or worse? Prescription Medication Q43. Since switching to [NAME OF HEALTH PLAN], can you go to the same pharmacy, or did you have to switch to a different pharmacy? Behavioral Health Q57. [WCM only] Since the transition to [NAME OF HEALTH PLAN], have the medical equipment and supplies that [CHILD'S NAME] receives been better, the same, or worse? Transportation Q66. In the last 6 months, did [CHILD'S NAME] miss any scheduled health or therapy appointments because of transportation problems? Q67. [WCM only] Since the transition to [NAME OF HEALTH PLAN], has the transportation assistance that [CHILD'S NAME] receives (including the process of arranging transportation) been better, the same, or worse?
5. What is the impact of the WCM	Medical Home / Primary Care

Research Question	Variables Used
on care coordination?	Q10. Do you have one or more people you think of as [CHILD'S NAME]'s personal doctor or nurse? A personal doctor or nurse is a health professional who knows your child well and is familiar with your child's health history. This can be a general doctor, a pediatrician, a specialist doctor, a nurse practitioner, or a physician's assistant. Q11. If yes, is your personal doctor (check all that apply): Q12. [WCM only] Since you switched to [NAME OF HEALTH PLAN], does [CHILD'S NAME] have the same primary care provider, or did you have to switch to a new primary care provider? Specialty Care Q21. [WCM only] Was [CHILD'S NAME] able to see the same specialists after enrolling in [NAME OF HEALTH PLAN]? Therapy Services Q33. [WCM only] Since the transition to [NAME OF HEALTH PLAN], did the site of [CHILD'S NAME]'s therapy change? Provider Communication Q60. In the past 6 months, was there ever a time when doctors ordered a medical test or procedure that you felt was unnecessary because the test had already been done? Q61. An interpreter is someone who repeats what one person says in a language used by another person. In the last 6 months, if you or [CHILD'S NAME] needed a professional interpreter to help [CHILD'S NAME] speak with his or her doctor, how often did you get one? Care Coordination / Case Management Q71. During the past 6 months, how often did you get as much help as you wanted with arranging or coordinating [CHILD'S NAME] healthcare?

Research Question	Variables Used
	Q72. [WCM only] Since the transition to [NAME OF HEALTH PLAN], have the care coordination / case management services that [CHILD'S NAME] receives been better, the same, or worse? Q.73 In the last 6 months, has your care coordinator / case manager helped you with any of the following things? Q74. Do you know how to contact your care coordinator / case manager? Q75. In the last 6 months, how often have you talked to or met with [CHILD'S NAME]'s care coordinator / case manager to discuss [CHILD'S NAME]'s healthcare or service needs? Q76. In the past 6 months, how often did the care coordinator / case manager demonstrate knowledge of important information related to [CHILD'S NAME]'s medical history? Transition to Adult Services [12+] Q78. [Only children 12+] Did providers talk with you and/or [CHILD'S NAME] about the shift to adult healthcare providers? Q79. [Only children 19+] Did anyone from [NAME OF HEALTH PLAN / CCS] discuss with you and/or [CHILD'S NAME] in planning how to coordinate care between new service vendors or providers after aging out of CCS?

Provider Survey

Overview: A convenience sample of providers recruited from two specialty organizations was performed to gather provider and health system administrator input about early experiences with the WCM. Providers and administrators voluntarily and anonymously responded to an emailed link to an online Qualtrics survey. They were asked closed-ended questions to rate their insights on how or if 13 specific services changed for clients in the WCM since it began, how reimbursement compares to before the WCM, how overall services provided to clients in the WCM compares to FFS, what their primary role and employment setting is, what type of direct patient care they provide (if applicable), and their county. They were provided an open-ended format to provide any additional comments. (See Appendix G, "Online Provider Survey Instrument.")

Recruitment

The UCSF evaluation team collaborated with the Children's Specialty Care Coalition (CSCC) and the Advocacy & Management Group (AMG) to conduct recruitment for the online provider survey. CSCC sent an email to the board designee of each of its member medical groups with a short explanation of the purpose of the evaluation, a link to it, and a request to distribute it, as they saw fit, to its member physicians, administrators, pharmacists, and other clinical staff. CSCC subsequently sent a reminder email and also featured the announcement and link in its weekly newsletter, which goes to a broad consortium of physicians and administrators employed at its member medical groups and engaged in CSCC's work.

AMG also sent an email, with a short explanation of the purpose of the evaluation, a link to it, and a request to distribute it in three e-blasts, going to approximately 250 people each time. AMG also provided information about the survey, including the link to it, in multiple tweets. AMG's membership includes many of the DME and medical supply providers that provide services to CCS clients.

Recruitment and survey completion occurred between March 2022 and May 2022. All responses were anonymous. Respondents were not paid for participating.

Online Provider Survey Inclusion and Exclusion Criteria

- Physicians, administrators, clinical staff, and pharmacists who serve WCM and/or CCS clients were included if they are part of a medical group that the Children's Specialty Care Coalition represents.
- Additional providers and DME suppliers who serve WCM and/or CCS clients were included if they are members of the Advocacy & Management Group.
- Those who did not serve children in WCM or would be unable to differentiate care between WCM and Classic CCS clients were excluded.

Interview Questions

Closed-ended questions were used to assess providers' insights on how or if 13 services changed for clients in the WCM since it began, how reimbursement compares to before the WCM, how overall services provided to clients in the WCM compares to FFS, what their primary role and employment setting is, what type of direct patient care they provide (if applicable), and their county. They were also provided an open-ended format to provide any additional comments. (See Appendix G.) All questions were used to address Research Question 3, "What is the impact of the WCM on providers'

satisfaction with the delivery of and the reimbursement of services?" A summary of questions can be found in Table 15, below.

Table 15: Summary of Questions Used in the Online Provider Survey

Questions in the Online Provider Survey
Do you and/or your practice provide care and/or services for CCS patients who are in the Whole Child Model?
Please indicate how you think the (13) services listed below have changed for children in the WCM since it began. 1. Case management / care coordination 2. Mental health services 3. Pediatric specialty care services 4. Primary care services 5. Durable medical equipment services 6. Pharmacy formulary 7. Transportation services 8. Occupational therapy 9. Physical therapy 10. Transition from pediatric to adult services 11. Overall timeliness of services 12. Overall quality of services 13. Overall access to services
How does the overall reimbursement you / your organization receive from the WCM compare to reimbursement from the fee-for-service CCS?
How do the overall services you / your organization provide to clients from the WCM compare to those in Classic CCS?
Please share any comments about your experience with the WCM.

Analysis for the Provider Survey

Tables describing the demographic profile (field and practice type) of providers were generated. Graphs showing the frequency of those who answered “much better / better,” “no change,” or “worse / much worse” were generated for each of the survey items listed in Table 15 above. There was a broad sampling of WCM providers, many who served across the different WCM programs, and thus in this analysis, the WCM respondents were reported in aggregate in the Results section. All analyses were conducted using STATA 16.

Analytic Methods for Administrative Claims Data Analysis

Data Sources

This section provides information on the data sources (excluding the telephone survey, as described above) that were used for this evaluation. See also Table 15.

- **Administrative Claims and Encounters Data:** This integrated data set, from a variety of sources, includes all paid CCS authorized claims, non-CCS authorized claims, and Medi-Cal managed care health plan encounters for fiscal years 2011–19. Data sets include Management Information System / Decision Support System (MIS/DSS) and CMSNet. The data sets contain demographic, geographic, diagnostic, procedure, and reimbursement information for each claim for every eligible client.
- **Claims Data Set:** This includes all FFS paid claims for a client and could include claims from different sources such as Electronic Data Systems, the Department of Developmental Services, Delta Dental, the Child Health and Disability Prevention Program, and Short-Doyle. The evaluation also includes data on CCS-eligible diagnosis, eligibility start and end dates from the CMSNet system or appropriate data from the Medi-Cal Eligibility Data System and the California Medicaid Management Information System (CA MMIS). Claims data were augmented with Department of Health Care Access and Information (HCAI) patient discharge data and ED data, which provide comorbidity and additional clinical data for hospitalizations as well as ED discharges not found in claims data.[27]
- **Vaccination Data:** The UCSF evaluation team received the California Department of Public Health’s California Immunization Registry (CAIR/CAIR2, https://cairweb.org/) from DHCS.
- **Clinical Data from HPSM:** HPSM provided HbA1c for its patients with diabetes.

[27] DHCS obtained and extracted the files described in the “Administrative Claims and Encounters Data” and the “Claims Data Set” above and made them available for the UCSF evaluation team to download from DHCS. The UCSF evaluation team assembled the header and detail claims/encounter records and made adjustments as indicated by the claim adjustment fields and the last positive claim indicator.

Grievances, Appeals, and State Fair Hearings

- **Grievances and Appeals:** Grievances and appeals data from health plans were received from DHCS for January 2015 to December 2021. These data include 8,857 unique CCS clients in both Classic CCS and the WCM who filed a grievance during this time period.
- The UCSF evaluation team has received state fair hearing data for January 2015 to October 2020. This data set includes 1,263 hearings for CCS clients, matched by Client Index Number. Hearings are from all CCS clients (i.e., in both Classic CCS and WCM).

Table 16: Source Data: Date Requested for All CCS Clients from April 20, 2011 to June 1, 2021

Data Set	Description	Source Agency
MIS/DSS	Monthly eligibility and plan enrollment data, FFS and managed care claims data for all services	DHCS
CMSNet	Statewide eligibility, case management, and service authorization application integrated with the Medi-Cal Eligibility Data System and the California Medicaid Management Information System used by CCS	DHCS
Patient Discharge Database	All-payer database of discharges from all nonfederal, noncorrectional hospitals in the state	OSHPD (Office of Statewide Health Planning and Development)[28]
ED Database	All-payer database of ED visits not resulting in hospitalizations at that hospital	OSHPD
CAIR/CAIR2	California Vaccination Registry	CDPH (California Dept. of Public Health)
Clinical Data	HbA1c	HPSM
Referral Data	Health plan authorization data	HPSM
Grievance and Appeals Data	Data from health plans in grievances and appeals	DHCS
State Fair Hearings Data	The Department of Social Services became responsible for the CCS WCM caseload starting in July 2018, while the Office of Administrative Hearings and Appeals	Dept. of Social Services, OAHA

[28] Since this data retrieval, OSHPD has changed its name to the Department of Health Care Access and Information.

Data Set	Description	Source Agency
	(OAHA) maintained responsibility for those hearings from Classic CCS counties	

Data Sets and Programs Pursued but Unable to Include

- **California Perinatal Quality Care Collaborative (CPQCC) NICU Data Set:** This neonatal intensive care unit (NICU) discharge data set was suggested to the UCSF evaluation team to better understand whether referrals to High-Risk Infant Follow-Up (HRIF) decreased after the WCM was initiated. The UCSF evaluation team approached DHCS to determine if this data set would be appropriate for a case denominator for identification of CCS-eligible clients who may have not been referred into CCS. Unfortunately, in meeting with officials at CPQCC, the data quality and information captured in CPQCC would not generate a robust denominator of patients that may be eligible for the HRIF program, as NICU discharges are incompletely captured in the data set (unlike OSHPD). For this reason, the UCSF evaluation team did not pursue this data set further. Of note, the team was asked to reach out to HRIF to determine if any potential data set was available that could capture potential clients who may be CCS eligible but were not enrolled. UCSF then had discussions with the state HRIF program. The HRIF system uses the CMSNet system for identification and referrals, which the UCSF evaluation team was already using. No further state data set collection was available that could give a denominator except for the overall Medi-Cal claims data set.
- **HEDIS:** The MCPs do not collect HEDIS (Healthcare Effectiveness Data and Information Set) measures on CCS clients and therefore could not provide client-level clinical data to DHCS to calculate HEDIS measures for this evaluation. The UCSF evaluation team was able to generate vaccination and depression screening measures through CPT (Current Procedural Terminology) codes and CAIR2 data. Unfortunately, the measures are limited because they are entirely generated by claims and do not include the element of chart review. Thus, there may be misclassification of these measures or underreporting.

Overview of Statistical Approach and Analyses for Claims Data

- The UCSF evaluation team produced and examined frequencies of the values in the relevant fields for completeness and reasonableness. The CCS eligibility files were similarly validated, and the eligibility was determined and flagged for each monthly record. Data sets were compared against each other to evaluate if any inconsistencies existed; these instances were then reconciled.
- The UCSF evaluation team generated frequency tables for all measures listed in the subsection above; comparisons with propensity score–matched populations are reported.

- All frequencies for healthcare use variables and health outcomes are shown as per 1,000 member months, unless otherwise specified.
- Bivariate statistics were used to compare the county types with respect to appropriate measures previously listed.
- Ages were categorized as less than 12 months; 12–24 months; 25 months–6 years; 7–11 years; and adolescents 12–20 years.
- The UCSF evaluation team performed regression analyses and appropriate panel data analyses on selected outcomes, as listed in the subsection above, to measure the impact of the WCM.
- The UCSF evaluation team used Difference in Differences to analyze key outcomes, and enrollment measures — and to analyze the WCM versus Classic CCS counties.
- Subgroup reporting for each outcome by age, race/ethnicity, and language were performed with subgroup analysis counts found in Appendix H, "Tables of Claims Outcomes for Each Phase Stratified by Language and Race/Ethnicity." Regression analyses were used to evaluate any health disparities within outcome measures reported. See Table 18 below for specific modeling and variables used for regression analyses. Appendix I, "Statistical Models for Claims Analyses, DiD Trend Testing, and Regression Models," goes into detail on how each model was created.
- For any comparisons of WCM services, outcomes data were compared with a propensity score case-matched Classic CCS county client.
- The UCSF evaluation team developed a cohort of case-matched sample using propensity scores to control for potential latent variables that could introduce a level of confounding that may not be able to be accounted for through standard statistical methods. For example, some Classic CCS counties may have different access to SCCs as compared to those in the WCM. The propensity score development is described below and in Appendix J, "Propensity–Scoring Methodology."

Details of Study Population and Identification of Classic Comparison Counties and Propensity Score Match Used to Compare the WCM to Classic CCS County Participants Used in the Administrative Claims and Econometric Analysis

Inclusion Criteria

Development of the WCM study groups were based on the timing and location of the WCM. Due to the significant differences in location, size, and timing of the WCM plans, UCSF generated four main study groups, listed below. While HPSM started with the other Phase I plans, HPSM had actually initiated the WCM program through the Whole Child Demonstration Project in 2013 as part of the CMS 1115 waiver program. Therefore, UCSF limited the WCM analysis in

this evaluation to only those who were in FFS and then transitioned to the WCM along with new enrollees who never entered the 2013 Whole Child Demonstration Project. Because the FFS population was very different than the general HPSM CCS population, the HPSM WCM cohort was analyzed separately from the other Phase I plans. A separate report was generated to discuss the findings of the 1115 Waiver Demonstration Project.

Description of the Study Group Selection for Analysis of CCS Eligibility and Services (administrative claims data)

Study groups:

- WCM: Health Plan of San Mateo
- WCM Phase I: Central California Alliance for Health and CenCal Health
- WCM Phase II: Partnership HealthPlan of California
- WCM Phase III: CalOptima
- Control group: Classic CCS FFS (independent counties except for Phase II, which included both matched independent and dependent counties for each WCM county)

Study time frame:

- WCM: Health Plan of San Mateo and Classic CCS Comparison: July 1, 2016 to June 30, 2021
- WCM Phase I: Central California Alliance for Health and CenCal Health and Classic CCS Comparison: July 1, 2016 to June 30, 2021
- WCM Phase II: Partnership HealthPlan of California and Classic CCS Comparison January 2017 to December 2020
- WCM Phase III: CalOptima and Classic CCS Comparison July 2017 to June 30, 2021

Four study groups were then defined for the evaluation of each WCM study group. Group 1, the pre-WCM, and Group 2, the post-WCM group, were created from clients within a WCM county. Group 3, the Classic CCS pre-WCM implementation group, and Group 4, the Classic CCS post-WCM implementation group, were also created from the chosen comparison Classic CCS county. Together, the first two groups may be referred to as the WCM intervention group. Groups 3 and 4 may be referred to as the Classic CCS comparison group. The four groups not only allow UCSF to evaluate the impact of the WCM pre- versus post-implementation within the intervention group, but also allow for comparison to Classic CCS clients over the same period.

Overall Administrative Claims Analysis Inclusion and Exclusion Criteria

- All children who were CCS eligible within the study time frame were eligible for the claims analysis. The analytic sample did not include those who received MTU services only
- The UCSF evaluation team excluded those CCS clients who were not continuously enrolled for at least one year. This excluded children who utilized CCS for procedures or single hospitalizations rather than the CCS WCM's integrative system of care.

Determination of Classic CCS Comparison Counties and Development of Propensity Score–Matched Comparison Group

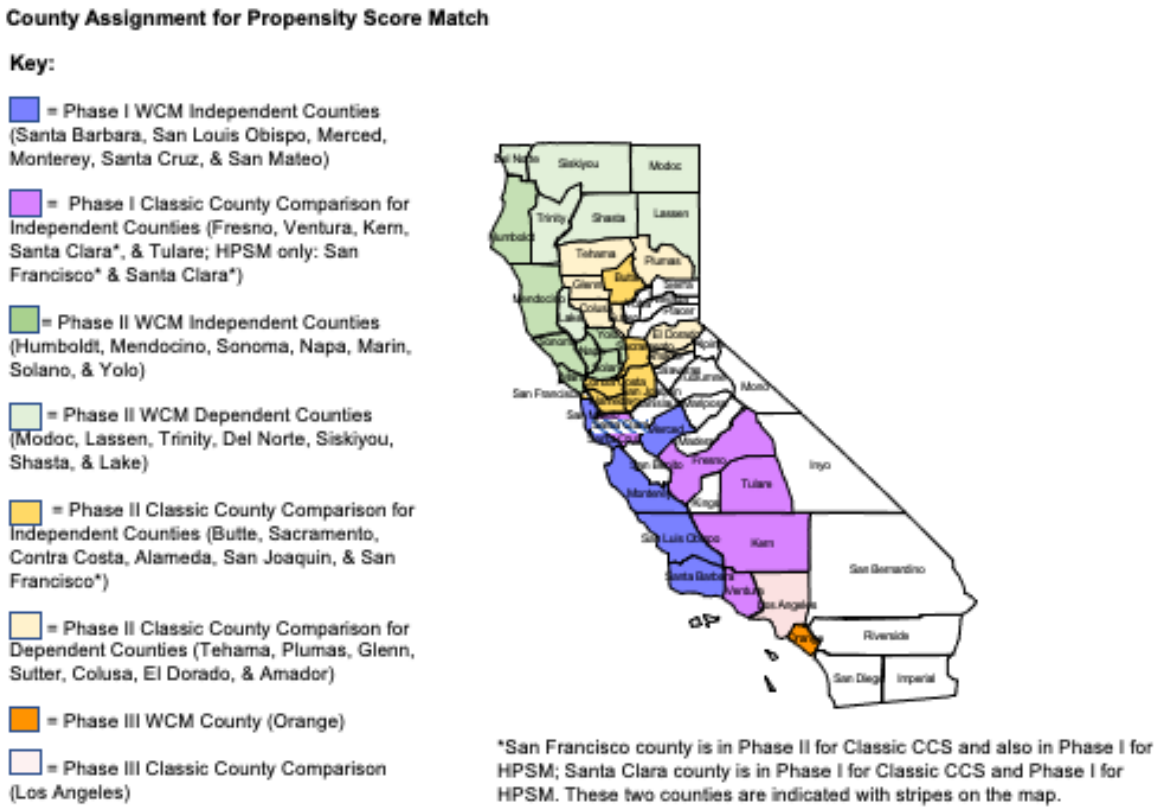
The UCSF evaluation team performed propensity score matching to generate a case-matched comparison cohort from Classic CCS counties. This was done because the three phases for the WCM rollout were notably regional and likely varied in client demographics and other variables that may make direct comparisons problematic. Therefore, rather than comparing each phase with the entire Classic CCS county population, local counties were identified to use as comparison cohorts. Further statistical matching was also performed to match by age, condition, language, ethnicity, and comorbidity scores. (Complete methodology is described in detail in Appendix J.) These counties shared similar location and population density and healthcare and specialty care resources with the counties to which they were being compared. General population statistics were performed between WCM programs and identified comparison counties, while statistical analyses for outcomes were performed on propensity score–matched clients.

Based on the identified counties, the UCSF evaluation team then performed propensity score matching of clients within those counties to develop a comparison cohort. For the purpose of DiD analyses, the propensity score was based on age, gender, condition, disease severity, and functional limitation. This report will focus on the propensity score–matched control group when statistical comparisons are being performed.

Figure 2, below, shows the counties chosen based on geographic location and CCS independent versus dependent status as comparison counties. The full description of the development of the propensity score weights and variables used to generate the propensity scores can be found in Appendix J.

General tables and counts for total Classic CCS county populations presented in this report are based on the matching counties indicated below, but are not propensity matched. Propensity score–matched comparisons will be indicated in the tables in the results section to control for case mix.

Figure 2: County Assignment for Propensity Score Match



Research Questions, Variables Reported, and Description of Claims Analysis

Below is an explanation of the specific statistical analyses and additional details conducted for the research questions listed above. Further details (e.g., variable creation, sensitivity analyses) can be found in the methodology appendix (Appendix H) and in Appendix I.

Table 17, below, shows each research question for the evaluation with the corresponding variables reported and description of claims analysis. Descriptive tables were generated for all variables listed in Table 17. Table 18 further details each variable measured and analyses approach used in regression models. In addition, key outcomes were stratified by age, ethnicity, and language, which can be found in Appendix H. Impacts of race, language, and age are modeled in the regression models and health disparities noted in the description of the regression models within the results section. Please see Table 18, "Description of Measures Used in Regression Models and Statistical Testing," below, that describes the covariates and additional statistical analyses used.

Table 17: Claims Analysis: Outcome Variables Reported by Research Question

Research Question	Variables Reported
1. What is the impact of the WCM on children's access to CCS services?	• Description of network participation by pediatric specialists • Distance traveled by client to specialty care and non-specialty care, Special Care Center use. Service counts for physician use, supplies, and ancillary services: • Specialist Visits • CCS Provider Visits • Special Care Center Visits • Primary Care Visits • EPSDT/Well-Child Visit • 0- to 15-Month-Old Visits • 0- to 30-Month-Old Visits • 3- to 6-Year-Old (yearly visit) • 12- to 20-Year-Old (yearly visit) • Mental Health Low/Medium Visits • Mental Health High Visits • Durable Medical Equipment

Research Question	Variables Reported
	• In-Home Supportive Services (IHSS) • Rehabilitation Claims • Pharmacy
1. What is the impact of the WCM on children's access to CCS services?	Health outcomes and follow-up: • ED Discharge • ED Follow-Up (28-day) • Hospital (all-cause) Discharge • Hospital Follow-Up (28-day) • Hospital Length of Stay • 30-Day Hospital Readmission
2. What is the impact of the WCM on patient and family satisfaction?	• NA (assessed via family survey)
3. What is the impact of the WCM on providers' satisfaction with the delivery of services and reimbursement?	• NA (assessed via key informant interviews and provider survey)
4. What is the impact of the WCM on the quality of care received?	• HbA1c • Depression Screening • Vaccination (childhood and adolescent vaccines)
5. What is the impact of the WCM on care coordination?	• Case Management Claims • Durable Medical Equipment Time to Referral Approval • Special Care Center Visits Within 90 Days of Referral Results • Being seen by Special Care Center at least yearly (cystic fibrosis, sickle cell disease, type I diabetes, congenital heart disease)

Research Question	Variables Reported
5. What is the impact of the WCM on care coordination?	Transition out of CCS and into to adult care: • Maintenance of Insurance • Primary Care Use • ED Visits • Hospitalizations

Description of Methods for Enrollment Characteristics and Death in Claims Data

Total and new enrollments

The UCSF evaluation team was provided eligibility records for CCS enrollees from June 2016 through June 2021. The first record for a given person from June 2016 forward was flagged as a new enrollment. It is common for a client to be enrolled in a non-WCM plan for one to three months before being enrolled in a WCM plan. Therefore, analysis of new enrollees gives the WCM plan credit for a new enrollment if a client's entry into CCS is within three months of entry into a WCM plan. Except for the aforementioned case, new enrollments are assigned to the group and period in which the client enters CCS.

Enrollment into the CCS program

The UCSF evaluation team was provided data from CMSNet to evaluate referrals and denials into the CCS program. This evaluation describes the numbers of new referrals into WCM phases and their Classic CCS comparison groups. The methodology to analyze referrals into the CCS program can be found in Appendix K, "Methodology for CCS Referrals for Eligibility and Services in CMSNet."

Demographics and study population characteristics

Pre- and post-demographics for these study groups were taken from the eligibility records exactly 12 months before and 12 months after WCM implementation. CCS conditions were generated from data from CMSNet. Age was calculated and the health plan of enrollment was taken at these temporal points. County was taken from the county in which the client was enrolled. If the enrollment county was missing from the record, the county of residence was used. Comparison counties in the enrollment tables show the propensity-matched demographics used for the analysis. Description of the different CCS-eligible conditions and Aid Codes are described. See Appendix L. "Results Section 1 Demographic Characteristics and Additional Results."

Deaths in CCS

The eligibility records are routinely populated with dates of death from the California State Registrar (the California Department of Public Health). These dates are used to identify deaths within the CCS population. The pre-to-post changes in the proportion of clients who died were calculated separately for the WCM and its Classic CCS comparison group. These changes were expressed as a proportion of the clients in the pre-periods. A test of two proportions was employed to determine if the pre-to-post was statistically different.

Demographics of the WCM versus fee-for-service-only CCS clients

Demographics tables of the WCM enrollees versus CCS clients who never enter the WCM differ substantively from the demographic tables of the WCM versus Classic CCS comparison clients in the main report. Whereas the report's WCM versus Classic CCS tables show the demographics during one month of enrollment — that is, one year before and one year after the WCM implementation date — these tables show the demographics during years post-WCM implementation. In the report's demographic tables, age was calculated during the month of observation. In these tables age was calculated as of the WCM implementation date or the first month in which the client was enrolled into CCS, whichever is greater. These tables have two features not present in the report's demographic tables: the average number of months of CCS enrollment, and a distribution of their CCS qualifying diagnoses.

Additional claims tables not shown in main report

This evaluation reports all enrollment, new enrollment, and death by month — and stratified by each WCM and by control counties. In addition, breakdown of enrollment by Aid Code can be found in Appendix L.

Analytic Methods for the Statistical Models for Claims Analyses: Difference in Differences and Main Regressions Used in the Report

This section provides the results of the statistical modeling and testing of the outcome measures from the claims data calculated for this evaluation. Descriptions of how each variable was constructed can be found in Appendix M, "Description and Operationalization of Utilization Measures Report." See Table 18, "Description of Measures Used in Regression Models and Statistical Testing," below, for descriptions of the dependent and independent variables, covariates, and model parameters. More technical descriptions of the measure operationalization may be found in Appendix M.

Description of Study Groups in the DiD Analyses

The study population comprises four study groups:

- Pre-WCM: Intervention group pre-WCM implementation
- Post-WCM: Intervention group post-WCM implementation
- Classic pre-WCM: Classic CCS comparison group pre-WCM implementation
- Classic post-WCM: Classic CCS comparison group post-WCM implementation

Description of Comparisons

The comparisons of interest are:

- Pre-WCM versus post-WCM
- Classic pre-WCM versus Classic post-WCM
- Pre-WCM versus Classic pre-WCM
- Post-WCM versus Classic post-WCM
- The DiD — Is the pre-to-post change in the intervention group statistically different than the pre-to-post change in the Classic CCS comparison group?

List of Outcome and Independent/Covariate Measures and Statistical Tests Used

The model results to follow are for the following outcome variables analyzed from the claims analysis described in the main body of the SB 586 report:

- Primary outcome variables (reported in descriptive tables and regression models)
- Case management claims
- CCS Paneled Provider visits
- Deaths
- Durable medical equipment claims
- Emergency department visits
- Ed visits follow-up (28-day)
- Grievances
- Hospital follow-up (28-day)
- Hospital readmission (all-cause 30-day)
- Hospitalizations
- In-Home Supportive Services
- Length of hospital stay
- Mental health visits
- Miles traveled from home to provider (SCC, CCS Paneled Provider, specialist, primary care)

- New enrollment into health plan and CCS
- Pharmacy claims
- Primary care physician visit
- Special Care Center visit within 90 days of referral
- Specialist visits
- Special Care Center visits
- Transition outcomes (measures of access after discharge from the CCS program after turning age 21)
- Primary care visits
- Specialty care visits
- Emergency department visits
- Hospitalizations
- Vaccination (childhood)
- Well-child visits 15 months
- Well-child visits 30 months
- Well-child visits age 3–6
- Well-child visits age 12–20

Primary Independent Variables/Covariates Used in the Regression Models

Each model was run with each of the possible covariates listed below. Covariates were removed if there was no statistical significance noted with that variable. The exceptions were with language and ethnicity, which were always kept in the model unless mentioned otherwise.

- **Chronic Illness and Disability Payment System[29] (CDPS) Score (CDPS_log2):** This variable was used to adjust for disease severity. The measure was log transformed due to skew.
- **Ethnicity (ethnic4):** The measure was categorized as Black, Latinx, other/unknown, and White. This variable was used to adjust for race and to evaluate the impact of race on any associations found in the regression models.

[29] Richard Kronick et al. "Improving Health-Based Payment for Medicaid Beneficiaries: CDPS," *Health Care Finance Review* 21, no. 3 (Spring 2000): 29–64, www.ncbi.nlm.nih.gov/pmc/articles/PMC4194678/.

- **Language (lang2):** This variable was categorized as Spanish, other, and English. It was used to adjust for language and to evaluate impact of language on outcomes.
- **Age Category (Age_Cat):** This variable was categorized as <12 months, 1 year, 2–6 years, 7–11 years, and 12–20 years. This variable was used to adjust for age and to evaluate impact of age on outcomes.
- **Disability derived from the Children with Disabilities Algorithm (CWDA):** The measure was coded as 0/1 (1 = has childhood disability).[30] This variable was used to adjust for disability in children, which may not have been captured with the CDPS score.
- **Season:** This measure was categorized as winter, spring, summer, and fall. It was used to adjust for the potential impact of seasonal variation in healthcare use.
- **For immunization analysis only:** Specialty and primary care visits were used in the model to evaluate the impact of primary care and specialty care visits on vaccination rates.

Table 18: Description of Measures Used in Regression Models and Statistical Testing

Measure	Dependent Variable Notes	Model or Statistical Test	Model Notes	Level I Covariates	Level II Covariate
Case Management	Although there was sometimes more than 1 case management claim/encounter per month, there were rarely more than 2. Thus a 0/1 dichotomous variable was modeled. 1 = one or more ED visits in a given month, 0 = none.	Segmented regression repeated measures by month. Dist = binary.	The unit of analysis is a month of enrollment.	Ethnic4 Lang2 Age_Cat CDPS_log2	Clients (repeated measure)

[30] Alyna T. Chien et al., "Development of the Children with Disabilities Algorithm," *Pediatrics* 136, no. 4 (Oct. 2015): e871–78, https://doi.org/10.1542/peds.2015-0228.

Measure	Dependent Variable Notes	Model or Statistical Test	Model Notes	Level I Covariates	Level II Covariate
CCS Paneled Provider Visits	If there were any visits to a CCS Paneled Provider in a given month, it would not be uncommon to have 1, 2, 3, or more. Thus, counts of visits per month were modeled.	Segmented regression repeated measures by enrollment month. Dist = negative binomial.	The unit of analysis is a month of enrollment.	Season Ethnic4 Lang2 Age_Cat CDPS_log2 CWDA	Clients (repeated measure)
Deaths	Dichotomous 0/1 variable. 1 = died, 0 = did not.	Z-test of two proportions.	The unit of analysis is a month of enrollment.		
Durable Medical Equipment	If there were any claim/encounters for DME provision in a given month, it would not be uncommon to have 1, 2, 3, or more. Thus counts of claims per month were modeled.	Segmented regression repeated measures by enrollment month. Dist = negative binomial.	The unit of analysis is a month of enrollment.	Season Ethnic4 Lang2 Age_Cat Gender CDPS_log2 CWDA	Clients (repeated measure)
ED Visits	Although there was sometimes more than 1 ED visit per month, there were rarely more than 2. Thus a 0/1 dichotomous variable was modeled. 1 = one or more ED visits in a given month, 0 = none.	Segmented regression repeated measures by enrollment month. Dist = binary.	The unit of analysis is a month of enrollment.	Season Ethnic4 Lang2 Age_Cat CDPS_log2 CWDA	Clients (repeated measure)

Measure	Dependent Variable Notes	Model or Statistical Test	Model Notes	Level I Covariates	Level II Covariate
ED Visit Followed by Hospitalization	Data are only from HCAI PDD file. Every hospitalization has an admit source indicating if it is from the emergency department. Before 2017, HCAI did not distinguish between other departments ER's and none-ER sources of admissions.	Logistic regression model. The interaction of intervention group X period was modeled to test the DiD.	The unit of analysis is ED visit.		
Emergency Department Follow-Up (28-day)	ED visits from the HCAI emergency department records and MIS/DSS claims/encounters provide an index date. Claims/encounters are queried to determine if a visit to a primary care provider (PCP), specialist, or select medical professional occurred within 28 days following the index ED visit.	Segmented regression repeated measures by enrollment month. Dist = binary.	The unit of analysis is ED visit.	Season Ethnic4 Lang2 Age_Cat CDPS_log2 CWDA	
Grievances	Number of grievances per member month.	Logistic regression. The interaction of intervention group X period was modeled to test DiD	The unit of analysis is a month of enrollment.		

Measure	Dependent Variable Notes	Model or Statistical Test	Model Notes	Level I Covariates	Level II Covariate
Hospital Follow-Up (28-day)	A follow-up visit with a primary care medical provider or specialist within 28 days of a hospital discharge.	Segmented regression repeated measures by month in which a discharge occurred. Dist = binary.	The unit of analysis is a hospital discharge.	Season Ethnic4 Lang2 Age_Cat CDPS_log2 CWDA	Clients (repeated measure)
Hospital Readmission (all-cause 30-day)	Readmission to a hospital within 30 days of a hospital discharge.	Segmented regression repeated measures by month in which a discharge occurred. Dist = binary.	The unit of analysis is a hospital discharge.	Ethnic4 Lang2 Age_Cat CDPS_log2 CWDA	Clients (repeated measure)
Hospitalizations	Although there were sometimes more than 1 inpatient stay per month, there were rarely more than 2. Thus a 0/1 dichotomous variable was modeled. 1 = one or more inpatient stays in a given month, 0 = none.	Segmented regression repeated measures by enrollment month. Dist = binary.	The unit of analysis is a month of enrollment.	Ethnic4 Lang2 Age_Cat CDPS_log2	Clients (repeated measure)

Measure	Dependent Variable Notes	Model or Statistical Test	Model Notes	Level I Covariates	Level II Covariate
ED Visit Followed by Hospitalization	Data are from HCAI PDD file Every hospitalization has an admit source indicating if it is from the emergency department. Before 2017 HCAI did not distinguish between other departments ER's and none-ER.	Logistic regression model. The interaction of Intervention group. X Period was modeled to test the DiD.	The unit of analysis is ED visit.		Clients (repeated measure)
Hospital Length of Stay	Days in a hospital stay.	Negative Binomial Regression on count of days in the hospital stay.	The unit of analysis is a hospital admission.	CDPS_log2 Ethnic4 Lang3 Age_Cat	Clients (repeated measure)
In-Home Supportive Services	If there was an IHSS claim in a given month, there was rarely more than 1 or 2. IHSS is routinely billed in 15-day increments, and the number of days of service provision is not available in the MIS/DSS. Thus a 0/1 dichotomous variable was modeled. 1 = one or more IHSS claims in a given month, 0 = none.	Segmented regression repeated measures by enrollment month. Dist = binary.	The unit of analysis is a month of enrollment.	Ethnic4 Lang2 Age_Cat CDPS_log2 CWDA	Clients (repeated measure)

Measure	Dependent Variable Notes	Model or Statistical Test	Model Notes	Level I Covariates	Level II Covariate
Mental Health	This measure included any mental health claim/encounter regardless of severity. If there were any such claims/encounters in a given month, it would not be uncommon to have 1, 2, 3, or more. Thus counts of visits per month were modeled.	Segmented regression repeated measures by enrollment month. Dist = negative binomial.	The unit of analysis is a month of enrollment.	Season Ethnic4 Lang2 Age_Cat CDPS_log2 CWDA	
Miles Traveled to Provider	The greatest Euclidian distance between a client's residence and the providers' location visited on any given day.	Repeated measures GLM. Dist = normal.	A client's visit on a given day.	Season Ethnic6 Lang4 Age_Cat Gender_cd CDPS_log2 CWDA	
New Enrollment	Dichotomous 0/1 variable. 1 = newly enrolled into CCS, 0 = not.	Z-test of the difference of two proportions; pre-to-post change of the intervention group vs. pre-to-post change of the Classic CCS comparison group.	The unit of analysis is a month of enrollment.		Clients (repeated measure)

Measure	Dependent Variable Notes	Model or Statistical Test	Model Notes	Level I Covariates	Level II Covariate
Pharmacy	If there were any claim/encounters for pharmacy provision in a given month, it would not be uncommon to have 1, 2, 3, or more. Thus counts of pharmacy items per month were modeled.	Segmented regression repeated measures by enrollment month. Dist = negative binomial.	The unit of analysis is a month of enrollment.	Season Ethnic4 Lang2 Age_Cat CDPS_log2 CWDA	Clients (repeated measure)
Primary Care Physician Visit	If there were any PCP visits in a given month, it would not be uncommon to have 1, 2, 3, or more. Thus counts of visits per month were modeled.	Segmented regression repeated measures by enrollment month. Dist = negative binomial.	The unit of analysis is a month of enrollment.	Season Ethnic4 Lang2 Gender Age_Cat CDPS_log2	Clients (repeated measure)
Special Care Center Visit within 90-Days of Referral	If there were any PCP visits in a given month, it would not be uncommon to have 1, 2, 3, or more. Thus counts of visits per month were modeled.	Segmented regression repeated measures by month in which a referral to an SCC occurred. Dist = negative binomial.	The unit of analysis is a referral to an SCC.	Season Ethnic4 Lang2 Age_Cat CDPS_log2 CWDA	Clients (repeated measure)

Measure	Dependent Variable Notes	Model or Statistical Test	Model Notes	Level I Covariates	Level II Covariate
Specialist Visit	If there were any specialist visits in a given month, it would not be uncommon to have 1, 2, 3, or more. Thus counts of visits per month were modeled.	Segmented regression repeated measures by enrollment month. Dist = negative binomial.	The unit of analysis is a month of enrollment.	Ethnic4 Lang2 Gender Age_Cat CDPS_log2	Clients (repeated measure)
Specialty Care Center Visits	If there were any SCC visits in a given month, it would not be uncommon to have 1, 2, 3, or more. Thus counts of visits per month were modeled.	Segmented regression repeated measures by enrollment month. Dist = negative binomial.	The unit of analysis is a month of enrollment.	Ethnic4 Lang2 Age_Cat CDPS_log2 CWDA	
Transition Outcomes (ED visits, hospitalizations primary care specialty care)	Among CCS clients who transitioned to Medi-Cal at age 21, the difference in the number of select services per person-year of enrollment between the year before vs. the year after the transition.	GLM. Dist = normal.	The unit of analysis is a transitioning client.	Ethnic4 Lang3 CDPS_log2 CWDA	
Childhood Vaccination/Immunization	Dichotomous 0/1 variable. 1 = full immunization schedule completed, 0 = not fully complete.	Segmented regression repeated measures by enrollment	The unit of analysis is a month a client turns age two.	Ethnic4 Lang2	

Measure	Dependent Variable Notes	Model or Statistical Test	Model Notes	Level I Covariates	Level II Covariate
		month. Dist = binary.			
Well-Child Visits 15 Months	Dichotomous 0/1 variable. 1 = 6 or more well-child visits by age 15 months, 0 = fewer than 6 visits.	Segmented regression repeated measures by enrollment month. Dist = binary.	The unit of analysis is the month a client turns age 15 months.	Ethnic4 Lang2 CDPS_log2 (no covariates used for RCHSD DP)	
Well-Child Visits 30 months	Dichotomous 0/1 variable. 1 = 2 or more well-child visits between age 15 and 30 months, 0 = fewer than 2 visits.	Segmented regression repeated measures by enrollment month. Dist = binary.	The unit of analysis is the month a client turns age 30 months.	Ethnic4 Lang2 CDPS_log2 CWDA (no covariates used for RCHSD DP)	

Model Description

Most of the following models include multiple observations per client over time and thus most utilize a multilevel design accounting for the within– and between–client correlation. Multilevel models increase a model's ability to detect differences between groups. However, the number of observations in most of these analyses is very large, so the observations easily detect statistically significant differences regardless.

Also, most of these models are segmented regressions, regressing the dependent variable by month separately for each study group. Other models were reduced to tests of the means among study groups. Table 18 identifies which model was employed for each measure. Regression models that have a *time variant* covariate variable are run twice, first with *time variant* and another without. The model with a time variant provides analysis of trends, and the second model provides

comparisons of means among study groups. Beyond the following results and analyses, details including beta coefficients may be found in Appendix I.

Segmented regressions were conducted using generalized estimating equations, logistic model for dichotomous outcomes, and negative binomial for count outcomes, to account for confounding and within-subject correlation (exchangeable correlation assumed). For binary outcomes, the logit link function was used in SAS procedure Genmod. The UCSF evaluation team simultaneously estimated intercept and slopes for each group.

Using post-hoc estimate statements in SAS, the UCSF evaluation team estimated the "Difference in Differences" by first estimating the difference in the slopes of each group and for each time period. The team then compared the difference of those slopes between periods; that is, the adjusted outcome between post-intervention and pre-intervention. Adjusted odds ratios (AOR), and associated 95% confidence intervals, and two-tailed *p*-values were reported. Statistical analysis was performed in SAS v9.4 (SAS Institute, Cary, NC).

For a DiD model to be valid, the pre-period slopes must be parallel to each other. If not, one could suggest that the pre-to-post-period differences could be due to a trend resulting from something other than the intervention. Such a model may not be entirely invalid, but the interpreter must use caution and discuss how trends might be affecting the results.

Note about the HPSM WCM Statistical Models in This Evaluation: HPSM participated in the 1115 Waiver Demonstration Project (DP), which was in place in San Mateo County until the implementation of the HPSM WCM. The clients in the DP were receiving care within the same system as those in the WCM. As such, no difference in care was expected between DP and WCM clients. Therefore, HPSM WCM clients were selected to include only those who were never enrolled in the DP. As a result of this selection criterion, the pre-WCM clients differ from the post-WCM clients and both pre- and post-WCM HPSM groups differ from the pre-WCM and post-WCM period clients in the Classic CCS counties in important ways, described in Table 19 below. While propensity score matches were generated to attempt to control for the differences (language, age, disease type), there are significant differences seen with HPSM FFS clients as compared to Classic CCS FFS clients. Therefore, differences found between the two populations within the outcomes evaluation should be taken with caution.

Table 19: Summary of Characteristics of HPSM WCM versus Classic CCS County Comparison Group in Both Pre- and Post-WCM Periods

Characteristic	HPSM WCM Clients*	Classic CCS Clients
Total Number of Clients	Pre-WCM: 118 clients with 487 member months of CCS enrollment Post-WCM: 889 clients with 11,565 member months of CCS enrollment	More than 2,000 clients and 30,000 member months of CCS enrollment in both pre- and post-WCM periods
Age	>40% are under age 2 in both pre-WCM and post-WCM periods	<15% are under age 2 in both pre- and post-WCM periods
English-Speaking Status	91% in the pre-WCM were of English-speaking parents	52% were of English-speaking parents in the pre-WCM period
New Client Status	49% of pre-WCM were new CCS clients 12% of post-WCM	5% were new CCS clients in both pre- and post-WCM periods
NICU Status	50% of pre-WCM were NICU clients 12% of post-WCM	7.3% were NICU clients in both pre- and post-WCM periods
Length of Enrollment into CCS	Pre-WCM clients have a median of 2 months of CCS enrollment Post-WCM clients have median of 11 months of CCS enrollment	A median of 14 months of CCS enrollment in both pre- and post-WCM periods

* Data shown are from Table 20, Table 25, Table 33, and Table 37.

As a result of fewer clients and fewer months of enrollment, some measures had very low or no events. These low numbers hindered the models' ability to properly control for the observed differences and prevented some of the models from running at all. The models most affected by these limitations are:

- 30-Day Hospital Readmission Rates
- Durable Medical Equipment Claims
- Well-Child Visits (age 0–15 months)
- Well-Child Visits (age 0–30 months)
- Well-Child Visits (age 3–6)
- Well-Child Visits (age 12–20)

- Depression Screening
- Special Care Center Visits
- Vaccinations (childhood)
- Vaccinations (adolescent)

These models should be interpreted with caution, and in some cases were not statistically tested due to low numbers. These limitations are also noted in the results section of the affected models.

Grievances Analysis

With the implementation of the WCM, CCS clients in the WCM now had access to a formalized grievance process through their MCP for CCS-related issues and services, whereas in Classic CCS clients could only file an appeal. Clients can file a grievance through their MCP to express dissatisfaction with any matter related to the health plan or services provided. CCS clients can file a grievance or appeal when there is a change to their quality of care or services provided.

CCS clients who are Medi-Cal eligible are entitled to the Medi-Cal appeals process, although this process varies for those clients who have Medi-Cal FFS (Classic CCS) and those in a Medi-Cal MCP as part of the WCM.[31] Clients in Classic CCS follow the CCS appeals process (which is different from the Medi-Cal appeals process) if they want to appeal a CCS eligibility decision. Clients have 30 days from the date on the Notice of Action (of the eligibility decision from the county) to appeal the decision and 14 days after receiving the Appeal Response Letter to request a CCS state fair hearing, which is processed by the Office of Administrative Hearings and Appeals (OAHA).[32]

Those CCS clients in the WCM can either file a grievance or appeal with the Medi-Cal MCP or request a Medi-Cal state fair hearing.[33] Instead of following the CCS appeals process described above, CCS clients in the WCM must follow the Medi-Cal MCP's grievance and appeals process. In addition, whether to file a grievance, appeal, or state fair hearing with

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[31] Emanuel, Lilienfeld, and Rosellini, *Helping Families*.

[32] *California Children's Services (CCS) Whole-Child Model (WCM) Grievance, Appeal, and Fair Hearing Processes* (PDF), DHCS, November 2016, www.dhcs.ca.gov/services/ccs/Documents/CCSGrievancesAFHP.pdf.

[33] *County Organized Health System Medi-Cal Plans* (PDF), Natl. Health Law Program, September 29, 2014, https://healthconsumer.org/wp/wp-content/uploads/2016/10/County-Organized-Health-System-Medi-Cal-Plans.pdf.

the Medi-Cal MCP depends on the issue at stake.[34] For example, if the CCS client is unsatisfied with their health plan *unrelated* to the denial of a healthcare service, they can file a grievance with the Medi-Cal MCP at any time, after which the MCP has 30 days to let the CCS client know its grievance decision.

If the CCS client has an issue *related* to a denied healthcare service, they can file an appeal with the Medi-Cal MCP within 60 days of receiving the Notice of Adverse Benefit Determination. The MCP then has 30 days to let the CCS client know its appeal decision. If an appeal has been filed and the MCP still does not approve the service, the CCS client has 120 days from the MCP's decision to request for a state fair hearing from the Department of Social Services, which then has 90 days from the request to resolve the state fair hearing.

The file of grievances provided to the UCSF evaluation team contained a row for each grievance reported from January 2015 through December 2021. There were 8,857 unique CCS clients who filed a grievance while in CCS. Each record contained the client's Client Index Number, the quarter in which the grievance was made, the health plan for which the grievance was directed, the type of grievance, and the disposition of the resolution. Grievance types included accessibility, benefits/coverage, referral, quality of care, and other. Each grievance was marked as unresolved, resolved in favor of the health plan, or resolved in favor of the member.

Tables for grievances were created that show grievances by demographic variables (age, ethnicity, language) and type of grievance (access, benefits, quality of care, referrals, and other) per 100,000 member months for pre- versus post-WCM implementation periods for WCM and Classic CCS, along with percentage increase or decrease calculated separately for WCM and Classic CCS counties. The changes in these standardized counts pre- versus post-WCM implementation will be calculated separately for the WCM and Classic CCS counties. The Difference in Differences value is the difference between these two changes.

A positive DiD value will indicate that the WCM had a larger increase in grievances than was seen in the Classic CCS counties, while a negative value will indicate the WCM had a smaller increase than Classic CCS counties. An asterisk (*) by the Difference in Differences value will indicate that the difference between the changes among WCM versus Classic CCS counties are statistically significant at the <.05 level.

[34] *Grievance, Appeal, and Fair Hearing Processes*, DHCS.

Zero-inflated Poisson regression was used to model the reported grievances. Grievances are reported quarterly by each health plan for each CCS client. Classic CCS clients are not included in these data. The zero-inflated model was chosen to account for the rare instances of grievance relative to the number of CCS clients enrolled.[35]

Three variables were included in the model: The dependent variable (Grievance) and two independent variables (Post and WCM). Each is detailed below.

- Grievance = 1 if a grievance was reported in any given quarter; 0 if not.
- Post = 1 if the quarter represents a time after the implementation of the WCM; 0 if it was a quarter before the WCM launch.
- WCM = 1 if client was in a WCM county; 0 if client was in a Classic CCS county.

This model tested the difference in grievance reporting pre- versus post-WCM implementation periods for clients in a WCM county and those in Classic CCS counties. Comparisons of the grievance rates between WCM and classic counties was of less concern since there are many unknown factors that may cause differences among counties. Of interest is the DiD in these rates: Did the rate of grievance reporting change pre- versus post-WCM implementation differently in WCM counties as comparted to Classic CCS counties? The statistical significance of the DiD measure is tested by the interaction of Post and WCM.[36] Thus, the model is: Grievance = Post(x) + WCM(x) + Post(x) * WCM(x).

[35] "Zero-Inflated Poisson Regression | SAS Annotated Output," UCLA Statistical Consulting Group, https://stats.idre.ucla.edu/sas/output/zero-inflated-poisson-regression/.

[36] Huanxue Zhou et al., "Difference-in-Differences Method in Comparative Effectiveness Research: Utility with Unbalanced Groups," *Applied Health Economics and Health Policy* 14, no. 4 (July 1, 2016): 419–29, https://doi.org/10.1007/s40258-016-0249-y.

F. Evaluation Strengths and Limitations

Strengths

- This evaluation is a mixed-methods approach. It adds qualitative data from key stakeholders and parents/guardians to survey results from parents/guardians and quantitative analysis of claims and encounters. Therefore, the results of the evaluation will include both subjective and objective data, which often will work together to triangulate experiences.
- Parent interviews and family survey were conducted in both English and Spanish to ensure inclusion of the large Spanish-speaking population within California Children's Services (CCS).
- The evaluation contains a link between survey data and DHCS claims/encounters.
- Although this evaluation is focused on the WCM program, a program within CCS, this study takes the approach of looking at CCS clients as a "whole child" rather than just at CCS specialty services. That is, this evaluation will look at all services that a CCS client generally receives, including in Medi-Cal and in other public programs. Therefore, this analysis will comment on the impact of the WCM on healthcare in general as well as specifically on CCS services.
- The UCSF evaluation team employed sophisticated statistical techniques, inverse propensity score weighting, and a Difference in Differences design to determine impacts of the WCM on healthcare utilization. These quasi-experimental methods are considered the gold standard in analyses of utilization. They effectively "match" clients in the WCM and in Classic CCS counties to identify differences over time while accounting for preexisting differences between the groups.

Limitations (and strategies used to address them)

COVID-19 Public Health Emergency

- It is important to note that this evaluation began measuring health outcomes of CCS clients in 2016 through June 30, 2021, and the COVID-19 Public Health Emergency started in January 2020. The Public Health Emergency had marked impacts on the health of children and access to care. The UCSF evaluation team made adaptations of the survey (e.g., to focus on work loss related to childcare due to the impact of the COVID-19 pandemic) and used statistical techniques to mitigate the effect of the COVID-19 pandemic on the outcomes measured (e.g., DiD

analysis). That said, there may be differential effects of the COVID-19 pandemic on different counties that could not be controlled for by statistical modeling (e.g., adoption of telehealth to augment access to care). All WCM and Classic CCS (fee-for-service) comparison groups noted decreased healthcare utilization during the early months of the pandemic. The impact of the COVID-19 pandemic should be considered when interpreting the absolute change in outcomes of both the WCM MCPs and Classic CCS comparison groups.

Limitations of the Approach to the General Analysis on Conclusions Regarding Subpopulations within CCS

- The UCSF team evaluated the entire WCM CCS population and Classic CCS comparison group. The CCS program comprises a very heterogeneous population of children across a wide variety of medical conditions and illness severity. Many children in CCS have single conditions without significant disability or "long-term intensive" medical need. While the analyses account for childhood disability and illness severity, there may be a subgroup of more severely impacted children with complex chronic illness who experience differential outcomes that would not be captured fully in a large population-based evaluation such as this. While UCSF did match according to individual factors, this evaluation did not try to compare outcomes across different illness severities (e.g., comparing whether patients with significant medical complexity had differential outcomes from those with singular diseases). Therefore, any outcomes represent the “average” CCS client and may not represent impact to specific subgroups of children.

Family Survey Limitations

- The telephone survey with parents/guardians of children in CCS is cross-sectional. This means that it occurred only once and can be used only to show association (rather than causation) over time. For differences over time, the UCSF evaluation team asked questions that encouraged respondents to think retrospectively about change — but this technique may not be as accurate as repeating the survey several times — including at baseline before the pilot. In addition, surveys have the potential for recall bias. The data that were received by families were also triangulated with claims data and with parent and guardian interviews, and thus the entirety of the evaluation provides a robust characterization of the family experience.

Provider Survey Limitations

- The provider survey was an anonymous online survey of a convenience sample of providers. Identifying the case base for providers able to differentiate clients in the WCM from those in Classic CCS, and evaluate if there were

differences in services post-WCM implementation, was difficult, as many clinicians were unaware whether a client they served was in the WCM. Because of this, creating a probabilistic sample of providers similar to what was done for CCS clients was not feasible in this evaluation. Thus, this survey may be affected by several response biases (e.g., recall bias, sampling bias). This is also limited by the small sample size of respondents. Provider surveys are well known to have low response rates, and the response based on overall numbers of providers in each sampling frame was low. Again, the UCSF team was unable to ascertain who would have qualified for the survey, as approximately 40% of respondents were deemed ineligible through the screening question, and thus UCSF could not calculate a formal response rate. Therefore, the UCSF team urges caution in interpreting the provider survey and using the data in a more descriptive and qualitative manner, as it does not represent all providers and administrators who serve children in the WCM. The UCSF team did engage two large advocacy groups to ascertain provider view. Both advocacy groups serve providers and administrators from health systems knowledgeable about the WCM and with differences in delivery to FFS versus Classic CCS, thus maximizing the ability to glean input about the WCM. The UCSF team also performed thorough key informant interviews with a wide variety of providers to gain greater insight into provider experiences with the WCM. Therefore, while the survey is not representative of all providers and administrators that provide services to WCM clients, this survey provides insight into provider and administrator experiences of the implementation of the WCM to be used qualitatively in the process evaluation of the WCM.

Limitations in Evaluating Clinical Outcomes

- The UCSF evaluation team is limited by the inability to perform a chart review to evaluate HbA1c, depression screening, and vaccination rates. In addition, the majority of MCPs were not able to provide the relevant HEDIS measures from CCS clients in their systems. Because the UCSF evaluation team has not been able to obtain relevant medical record abstracts from the MCPs, claims/encounter data will be used for the depression screening metric — and HbA1c results are not recorded in claims/encounter data. Unfortunately, in preliminary analyses, the ICD-10 code that would indicate depression screening and follow-up was noted to have been used only recently by MCPs and therefore may not be a reliable indicator for depression screening in this evaluation. The UCSF evaluation team did receive HbA1c measures from one health plan, but the numbers were insufficient to generate an analysis. UCSF was able to use CPT (Current Procedural Terminology) codes for depression screening in lieu of HEDIS (Healthcare Effectiveness Data and Information Set) reports — again, this is limited by the inability to access clinical data. In addition, depression screening claims may not be uniformly reported by clinicians across all health plans. Vaccination data were also derived through administrative claims using only CAIR2. The UCSF team was able to apply the categorization equally across both WCM and Classic CCS clients and thus the Difference in Differences analysis would capture the impact of the WCM, while the actual proportion of those meeting clinical outcomes may be under- or overreported.

Limitations Regarding Missing or Incomplete Data (referral and authorization data)

- Special Care Center (SCC) identification: Referrals to SCCs reported in CMSNet provided the center number to which the referral was made. No National Provider Identifiers (NPIs) were on the referral records. These center numbers were not in the MIS/DSS claims/encounters. UCSF used the NPI in a claim/encounter record to identify an SCC. Thus making a direct link between the referral and SCC visit was not possible. While the specific CCS specialty of the referral was possible to identify, the specialty of the visit was not. Furthermore, the WCM MCPs may not have entered these referrals into CMSNet. Thus, the MCPs provided referral data to UCSF. However, there were no center numbers on those referrals. The lack of a specific CCS Special Care Center identifier limited UCSF in its ability to evaluate specific disease conditions and to follow up with specific SCCs and thus limited UCSF's ability to track changes to specific SCCs. Therefore, this report focuses on specialty center use generally. Another proxy measure for changes in SCC use in this analysis was change in distance traveled to SCCs, which would show general changes in SCC use.
- The UCSF team received referral and authorization data from the MCPs, but there was significant heterogeneity in the level of reporting detail each MCP was able to provide. One MCP (Phase II) was unable to provide any referral data. UCSF was not able to perform the analysis of referral to specialists or provision of durable medical equipment, as the date of provision was not included and there was no way to link these referrals to claims/encounters. Therefore, the referral and authorization analyses were limited to the plans that could share data with UCSF.
- CMSNet had a large number of missing values for reason for CCS eligibility. UCSF was able to use other codes and data sets to help identify CCS qualifying conditions through claims to address this issue.

Limitations Encountered when Evaluating Grievances and State Fair Hearings

- With the implementation of the WCM, state fair hearing responsibility was divided between the Department of Social Services and the Office of Administrative Hearings and Appeals (OAHA). The department became responsible for the CCS WCM caseload starting in July 2018, while OAHA maintained responsibility for those hearings from Classic CCS counties. This bifurcated system of separating hearings between those in WCM MCP and those in Classic CCS is expected to consolidate by the end of 2021 or in early 2022, with OAHA transitioning all state fair hearings to one consolidated database in the Department of Social Services. Until then, it will remain difficult to obtain complete state fair hearing data sets. In addition, a state fair hearing codebook or data dictionary is not available, which limited the ability of the UCSF evaluation team to understand and analyze the state fair hearing data sets. UCSF did meet with the state legal team to help categorize the outcomes of the state fair hearings for this reporting.

- On July 1, 2021, the DHCS data collection and reporting structure for grievances changed. The old method of receiving grievance data quarterly from MCPs via Excel templates was retired (see Appendix N, "Crosswalk Categorization of Grievance Type between Old and New DHCS Systems," for crosswalk between reporting templates), and the Managed Care Program Data was implemented for monthly data collection.[37] The change to monthly reporting means that some grievances in the newer data sets (post-July 2021) will not show as being resolved since grievances have to be resolved within 90 days (monthly reporting won't necessarily capture the final resolution status). This will limit the ability of the UCSF evaluation team to definitively account for the final resolution status of post-July 2021 grievances data.

Limitations Encountered When Evaluating Provider Network Adequacy

- In the analysis of network adequacy and network use, providers have numerous National Provider Identifiers (NPIs) and thus may use a different NPI than the one listed in the Provider 274 file, perhaps leading to underreporting of network inclusion and participation. In addition, changes in reporting in Phase III for NPIs regarding CCS providers may have underestimated the number of CCS providers providing services toward the end of the evaluation. Use of an updated NPI list is needed to ensure proper count.

G.Results

Results are organized by two sections:

Section 1: This section details the general demographics and characteristics of the entire initial California Children's Services (CCS) population (enrollment, deaths, demographic characteristics, and CCS-eligible condition profile) and describes the analytic comparison group developed through the propensity score–match process.

Section 2: This section begins with grievances counts and counts of final disposition, as well as grievances, appeals, and state fair hearing data unrelated to any research question. It is then followed by results of the evaluation, organized by research question. Each of these sections begins with a brief summary of the topics and analysis covered. Further details can be found in the methodology appendices (health utilization, DiD analyses).

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[37] Nathan Nau, *Requirements for Reporting Managed Care Program Data*, All Plan Letter 20-017, DHCS, October 14, 2020, www.dhcs.ca.gov/formsandpubs/Documents/MMCDAPLsandPolicyLetters/APL2020/APL20-017.pdf.

Section 1. Study Group Characteristics: Demographic Profile, CCS Qualifying Conditions, Aid Codes, Enrollment, New Enrollment, and Deaths by WCM Study Group

Overview of Section 1: All counts are either total counts or counts per 1,000 member months unless stated. Full description of the methods used can be found in the methods section above and in Appendix O, "Eligibility File and Study Group Construction for Enrollment and Utilization Analyses (Methodology)." This section starts with general enrollment patterns of the total CCS population within the Whole Child Model (WCM) study group counties and Classic CCS comparison counties. The University of California, San Francisco (UCSF) evaluation team then describes the propensity score–matched group generated from the Classic CCS comparison counties and finally describes the population of the fee-for-service clients within the WCM counties compared to the WCM study groups.

The following data are presented in this section:

1. Overall CCS population in WCM and comparison counties
    a. Total enrollment by WCM study group and the entire county enrollment for the Classic CCS counties comparison group (see Figure 2 above, which lists the Classic CCS comparison counties for each WCM study group).
    b. A table with the total enrollment number of clients, total member months, median and mean member months for each WCM study group and the respective Classic CCS counties comparison group
    c. Counts by independent versus dependent county for Phase II only (dependent counties represented only in Phase II)
    d. The total enrollment over time for the WCM study group
    e. The total enrollment over time for the WCM Classic CCS comparison counties, pre- versus post-period
        i) Table of monthly counts, and counts by county, can be found in Appendix L
    f. Demographic characteristics for each WCM study group (age, race/ethnicity, primary language spoken at home, and county)
    g. Figures of total enrollment by age for each WCM study group
    h. Referrals into CCS and denials for each WCM study group
    i. New enrollment and deaths for each WCM study group
    j. Figures of new enrollment by age group for each WCM study group and by age, race/ethnicity, and language

    k. Enrollment by CCS qualifying condition category
    l. Enrollment by Aid Code
2. Propensity score–matched Classic CCS counties comparison group and the WCM study groups
3. The propensity score–matched clients generated from the Classic CCS counties are the "comparison group" used in the analysis for all research questions by phase (age, gender, race, language spoken at home, and CCS qualifying condition). Each WCM study group, tables of the WCM clients, and propensity score–matched CCS clients are presented in the following order:
    a. Total counts
    b. Demographics
    c. CCS qualifying condition
4. Discussion of the fee-for-service (FFS) group within the WCM counties (WCM eligible/noneligible in WCM county)
    a. General demographic tables and CCS qualifying conditions with discussion
    b. Tables of counts and demographics of the FFS within WCM counties can be found in Appendix P, "Fee-for-Service CCS Clients in Whole Child Model Counties"
5. Summary of Section 1

Total Enrollment by WCM Study Group (HPSM WCM, Phase I, Phase II, and Phase III)

Table 20 through Table 24 below describe the total enrollment by month, overall number of clients, total member months, and the median and mean length of enrollment (in months) in CCS of each WCM study group. Figure 3 through Figure 10 below illustrate total enrollment by month for each WCM study group.

The Health Plan of San Mateo (HPSM) WCM study population does not include HPSM CCS clients who took part in the 1115 Waiver "Whole Child" DP. Therefore, the starting numbers of the HPSM WCM pre-implementation group included only the CCS FFS population, which was very low. Meanwhile, the primary HPSM WCM post-implementation study population comprised new enrollment and those CCS clients who transferred into the HPSM WCM. Not surprisingly, the client numbers increased over time, and quickly surpassed pre-intervention enrollment numbers. Meanwhile, the comparison county population was similar in the pre- versus post-period, and the study population remained stable.

The Phase I and Classic CCS comparison groups had very similar increases in total enrollment post-WCM implementation (~4%).

Phase II had a decrease in enrollment post-WCM implementation (13%), which was higher than the decrease seen in the Classic CCS comparison counties (4%). Only Phase II included CCS clients from dependent counties; Table 23, "Counts of Phase II CCS Enrollees, by County Administration Type," shows the breakdown of those that came from independent versus dependent counties. Clients from dependent counties represented 24.7% of the total Phase II population as compared to the general CCS population of approximately 6%. For that reason, the UCSF evaluation team matched dependent counties as part of the comparison group (see Appendix J and Figure 2, "County Assignment for Propensity Score Match").

Phase III had a 15% decrease in overall enrollment post-WCM implementation, while the Classic CCS comparison counties also decreased, but only by 5%.

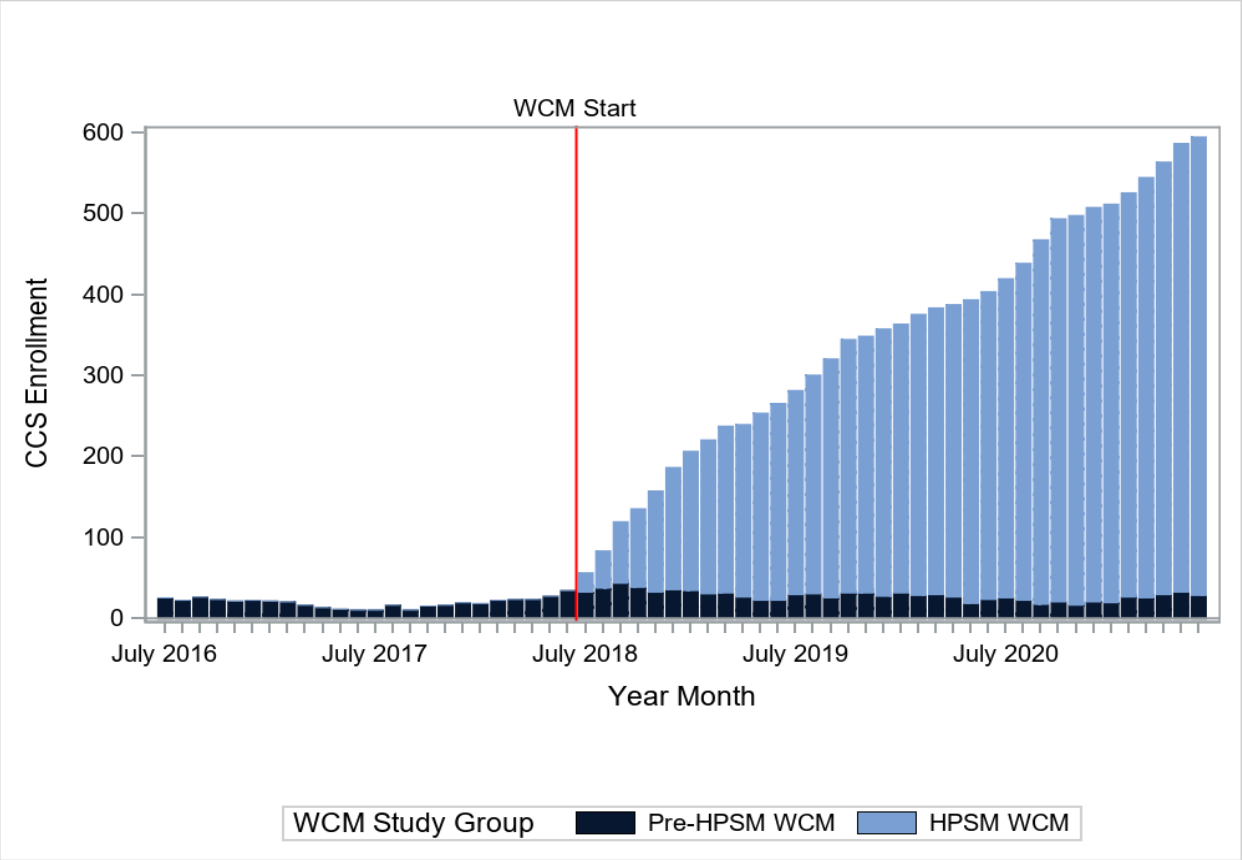
Table 20: Total Enrollment and Length of Enrollment in CCS (by Member Months) during study period, HPSM WCM versus Classic CCS Counties in Pre- versus Post-Period[38]

			Member Months Enrollment			
Location	Study Group	Clients	Total Months	Median	Mean	StdDev
HPSM WCM	Pre-HPSM WCM	118	487	2.0	4.1	4.3
	Post-HPSM WCM	889	11,565	11.0	13.0	9.6
Classic CCS Counties	Pre-HPSM WCM implementation	13,005	178,247	13.0	13.7	8.6
	Post-HPSM WCM implementation	14,965	253,092	13.0	16.9	12.7

• Pre-WCM: Classic CCS clients in San Mateo County between July 2016 and June 2018 who never participated in the 1115 Waiver Demonstration Project and were only in the WCM.
• Post-WCM: HPSM WCM clients between July 2018 and June 2021 who never participated in the 1115 Waiver Demonstration Project.
• Classic Pre-WCM: CCS clients in classic counties between July 2016 and June 2018.
• Classic Post-WCM: CCS clients in classic counties between July 2018 and June 2021.

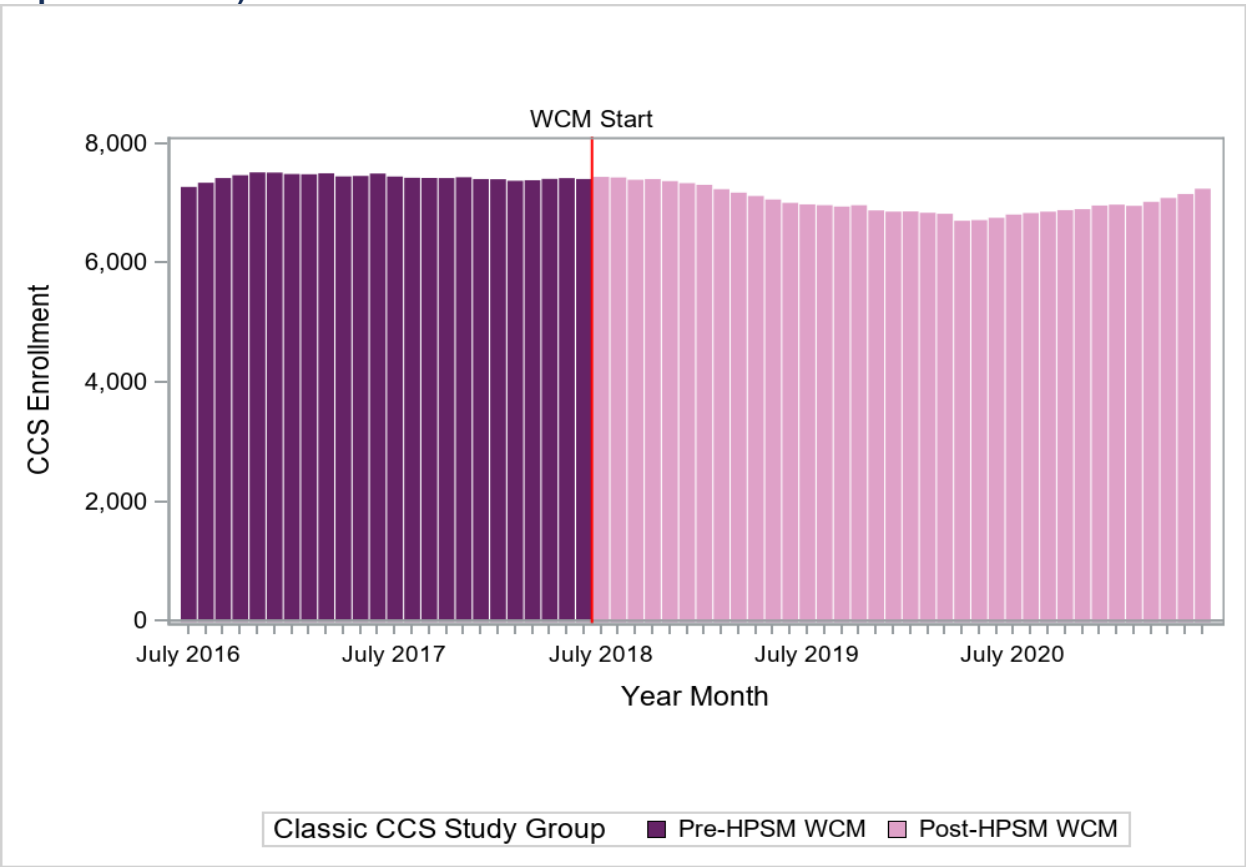
[38] See Figure 2, earlier in this report, for comparison counties.

Figure 3: CCS Enrollment by Month, HPSM WCM versus Classic CCS Counties (pre- versus post-HPSM WCM implementation)



• Pre-WCM: Classic CCS clients in San Mateo County between July 2016 and June 2018 who never participated in the 1115 Waiver Demonstration Project
• Post-WCM: HPSM WCM clients between July 2018 and June 2021 who never participated in the 1115 Waiver Demonstration Project.
• 60% of the 362 San Mateo CCS clients in FFS post-WCM implementation eventually entered the WCM.
• Those that eventually entered the WCM spent an average of 2.1 months in FFS.

Figure 4: CCS Enrollment by Month, Classic CCS Comparison Counties (pre- versus post-HPSM WCM implementation)



- Classic Pre-WCM: CCS clients in classic counties between July 2016 and June 2018.
- Classic Post-WCM: CCS clients in classic counties between July 2018 and June 2021.

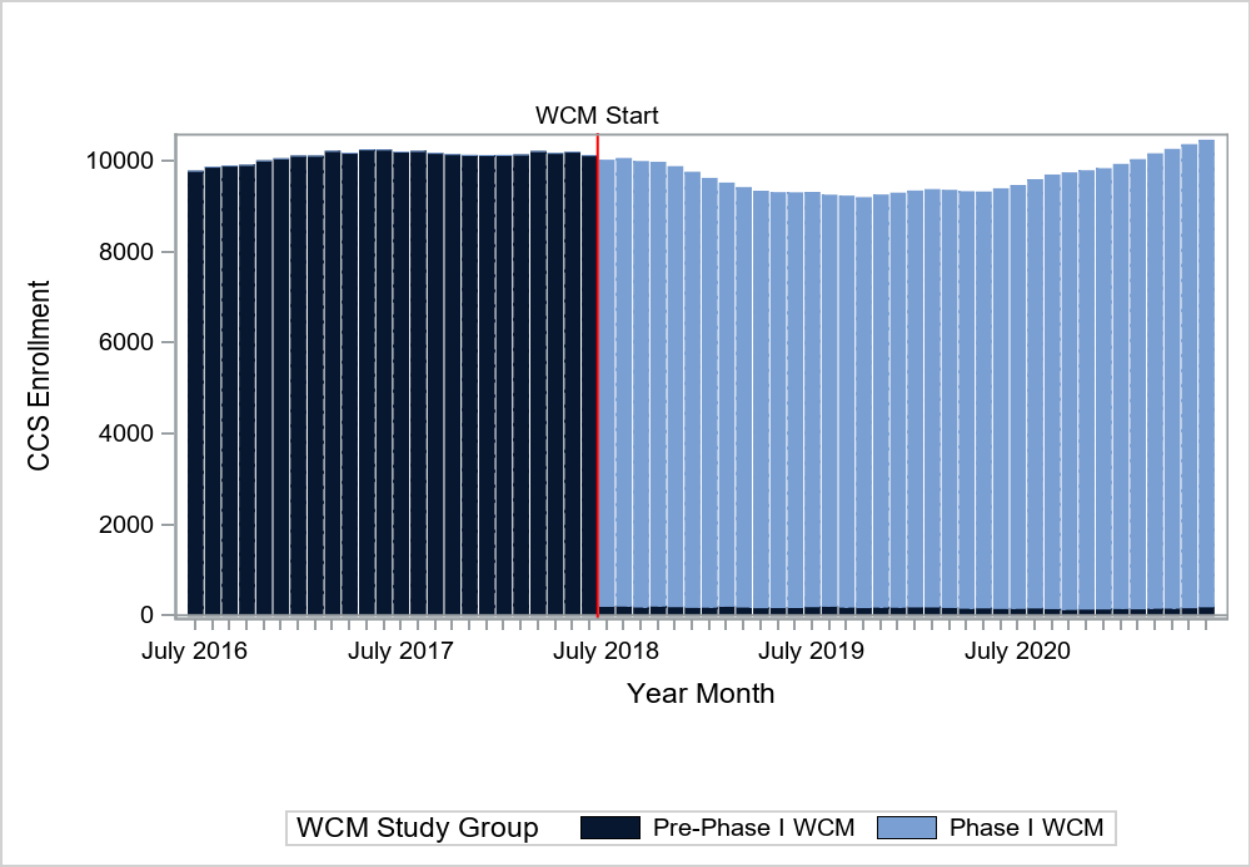
Table 21: Total Enrollment and Length of Enrollment in CCS (by Member Months) during study period, Phase I versus Classic CCS Counties in Pre- versus Post-Period[39]

Location	Study Group	Clients	Member Months Enrollment			
			Total Months	Median	Mean	StdDev
Phase I Counties	Pre-Phase I WCM implementation	16,919	242,545	14.0	14.3	8.6
	Post-Phase I WCM implementation	17,523	340,436	17.0	19.4	12.9
Classic CCS Counties	Pre-Phase I WCM implementation	47,325	656,159	13.0	13.9	8.7
	Post-Phase I WCM implementation	56,194	1,012,289	14.0	18.0	13.2

- Phase I Pre-WCM: CCS clients in Phase I counties between July 2016 and June 2018.
- Phase I Post-WCM CCS clients in WCM between July 2018 and June 2021.
- Classic Pre-WCM: CCS clients in classic counties between July 2016 and June 2018.
- Classic Post-WCM: CCS clients in classic counties between July 2018 and June 2021.

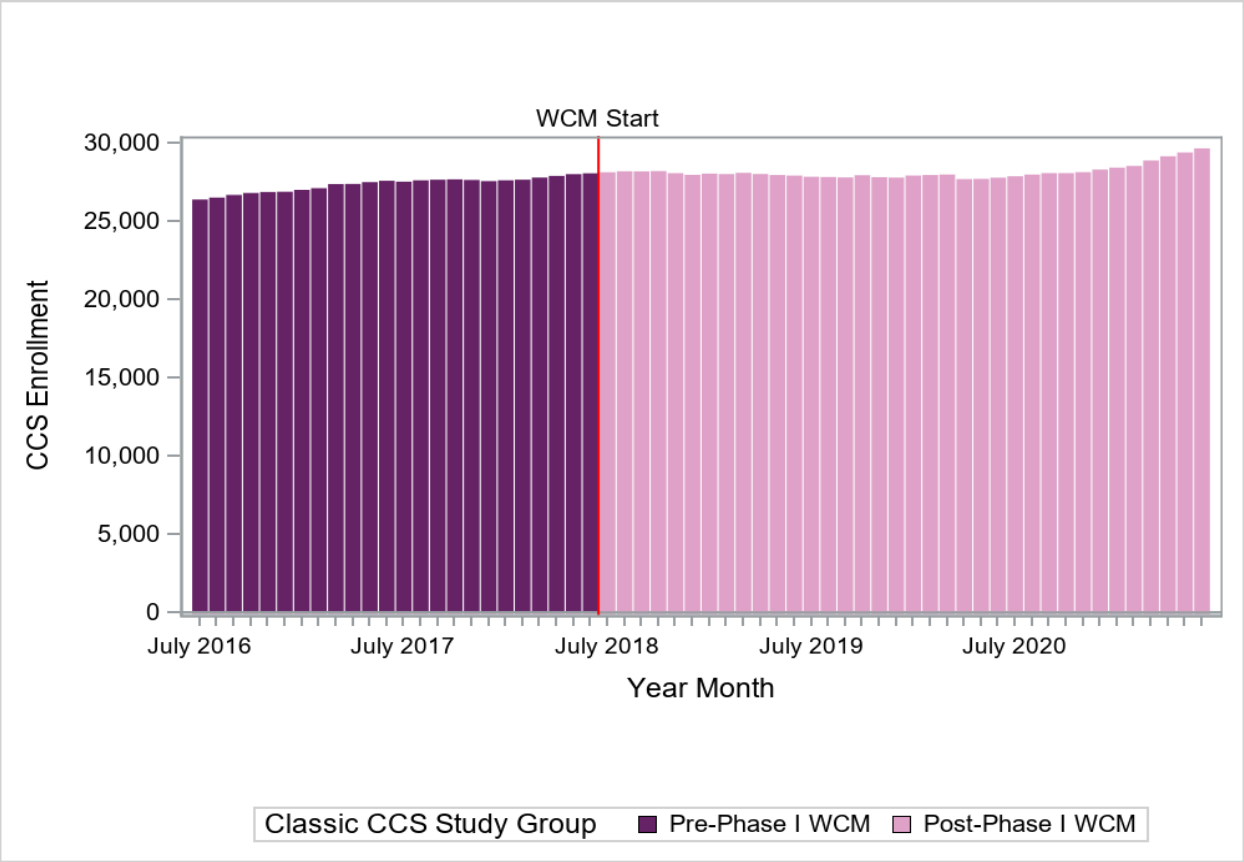
[39] See Figure 2, earlier in this report, for comparison counties. Month-to-month counts can be found in Appendix F, the claims data appendix.

Figure 5: CCS Enrollment by Month, Phase I Counties (pre- versus post-Phase I implementation)



- Phase I Pre-WCM: CCS clients in Phase I counties between July 2016 and June 2018.
- Phase I Post-WCM: CCS clients in WCM between July 2018 and June 2021.
- 67% of the 2,255 Phase I county CCS clients in FFS post-WCM implementation eventually entered the WCM.
- Those that eventually entered the WCM spent an average of 2.5 months in FFS.

Figure 6: CCS Enrollment by Month, Classic CCS Counties (pre- versus post-Phase I implementation)



• Classic Pre-WCM: CCS clients in select classic counties between July 2016 and June 2018.
• Classic Post-WCM: CCS clients in select classic counties between July 2018 and June 2021.

Table 22: Total Enrollment and Length of Enrollment in CCS (by Member Months) during study period, Phase II versus Classic CCS Counties in Pre- versus Post-Period[40]

Location	Study Group	Clients	Member Months Enrollment			
			Total Months	Median	Mean	StdDev
Phase II Counties	Pre-Phase II implementation	13,192	197,178	16.0	14.9	8.6
	Post-Phase II implementation	11,489	184,257	19.0	16.0	8.5
Classic CCS Counties	Pre-Phase II implementation	42,343	616,157	15.0	14.6	8.6
	Post-Phase II implementation	40,562	609,361	16.0	15.0	8.7

- Phase II Pre-WCM: CCS clients in Phase II counties between January 2017 and December 2018.
- Phase II Post-WCM CCS clients in WCM between January 2019 and December 2020.
- Classic Pre-WCM: CCS clients in classic counties between January 2017 and December 2020.
- Classic Post-WCM: CCS clients in classic counties between January 2019 and December 2020.

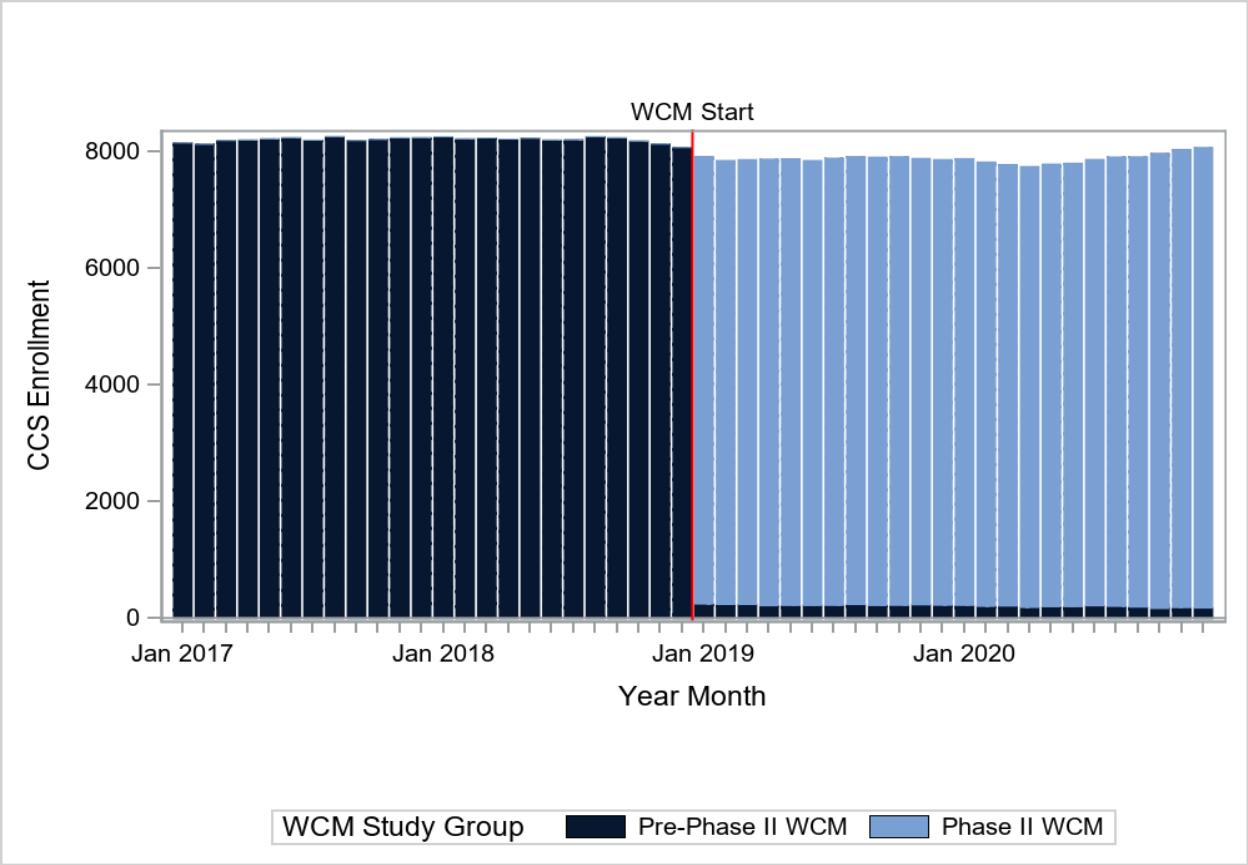
Table 23: Counts of Phase II CCS Enrollees, by County Administration Type

County Program Administration	Phase II Counties							
	Pre-WCM Implementation				Post-WCM Implementation			
	Clients		Member Months		Clients		Member Months	
	n	Pct.	*n*	Pct.	*n*	Pct.	*n*	Pct.
Dependent	3,480	24.7	50,237	24.8	2,713	23.6	42,328	23.0
Independent	10,723	76.0	152,168	75.2	8,855	77.1	141,929	77.0

- Phase II Pre-WCM: CCS clients in Phase II counties between January 2017 and December 2018.
- Phase II Post-WCM: CCS clients in WCM between January 2019 and December 2020.
- To the extent that clients move between counties, the sum of clients in independent and dependent counties may be greater than totals.

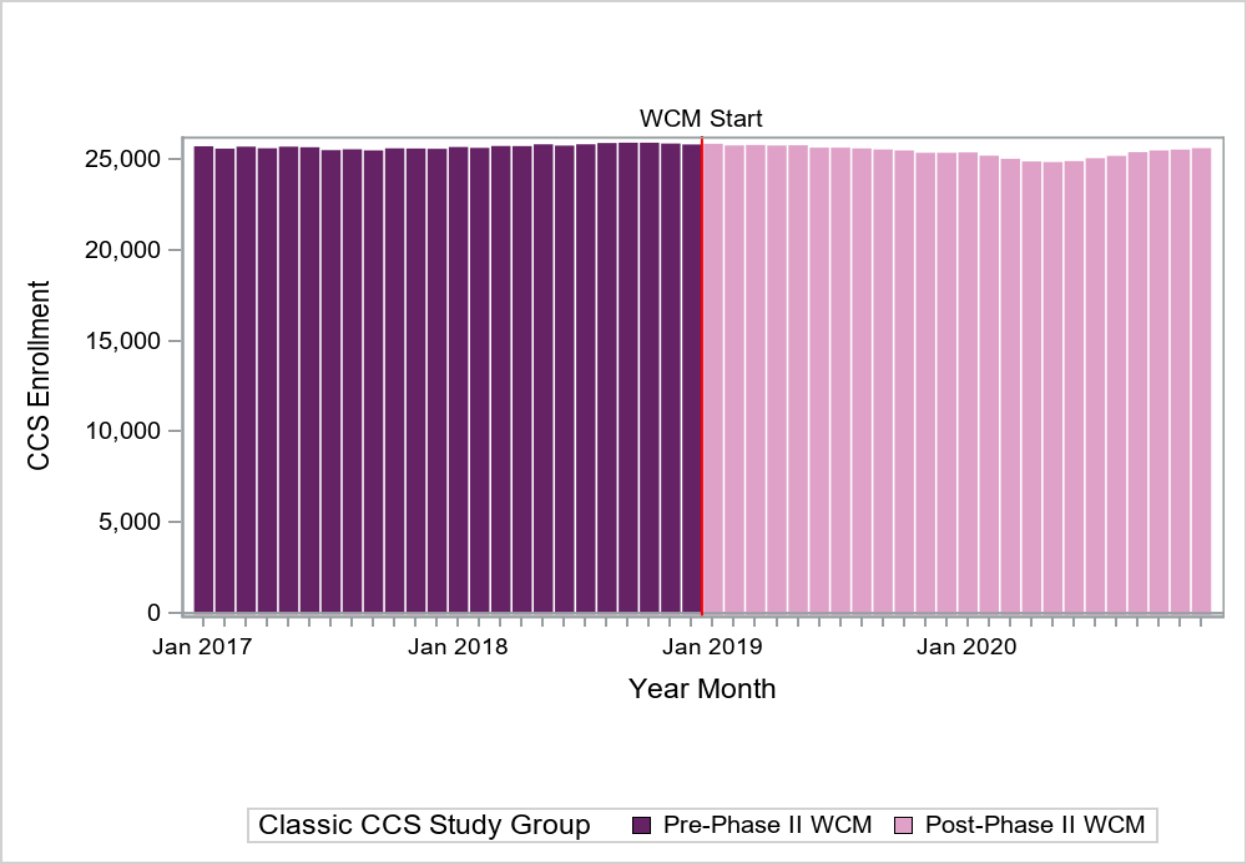
[40] See Figure 2, earlier in this report, for comparison counties. Month-to-month counts can be found in Appendix F, the claims data appendix.

Figure 7: CCS Enrollment by Month, Phase II Counties (pre- versus post-Phase II implementation)



- Classic Pre-WCM: CCS clients in classic counties between January 2017 and December 2018.
- Classic Post-WCM: CCS clients in classic counties between January 2019 and December 2020.
- 71% of the 1,372 Phase II county CCS clients in FFS post-WCM implementation eventually entered the WCM.
- Those that eventually entered the WCM spent an average of 2.9 months in FFS.

Figure 8: CCS Enrollment by Month, Classic CCS Counties (pre- versus post-Phase II implementation)



• Classic Pre-WCM: CCS clients in select classic counties between January 2017 and December 2018.
• Classic Post-WCM: CCS clients in select classic counties between January 2019 and December 2020.

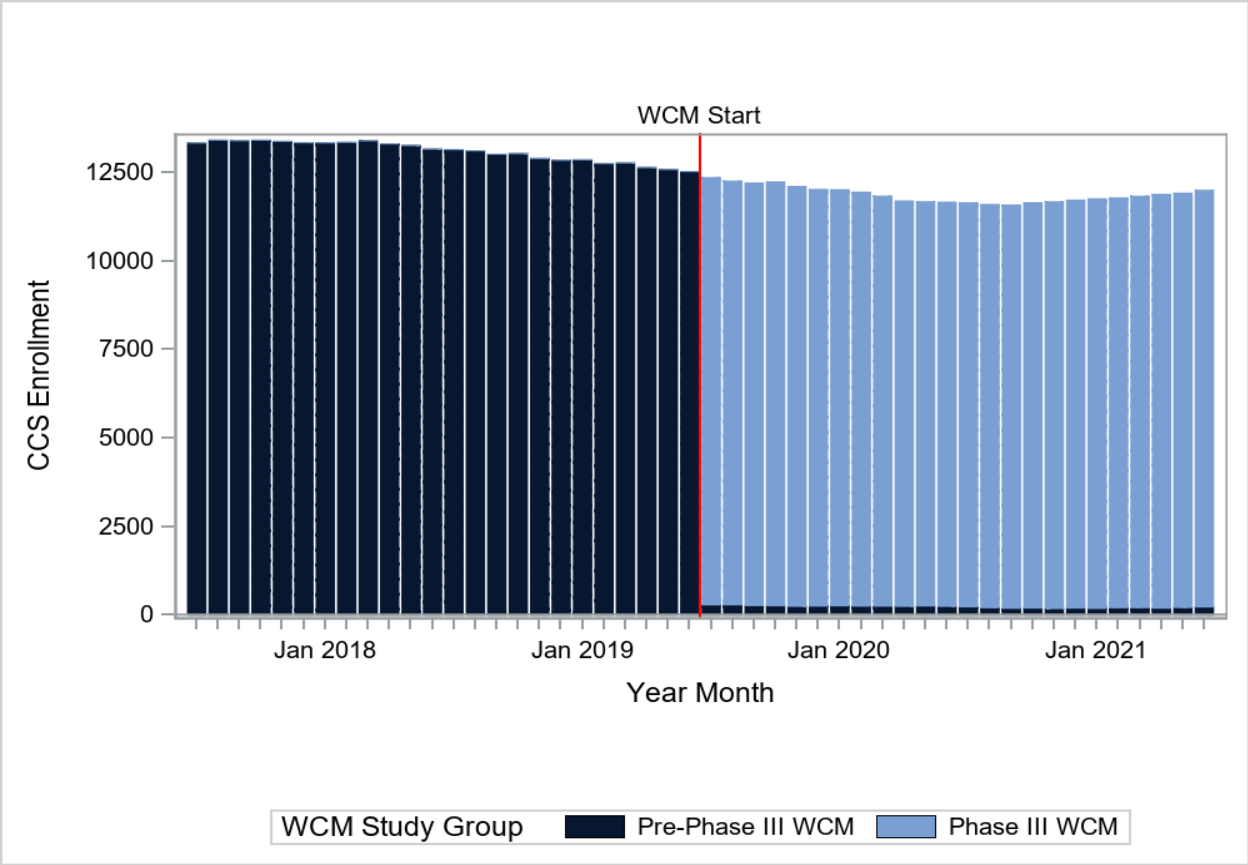
Table 24: Total Enrollment and Length of Enrollment in CCS (by Member Months) during study period, Phase III versus Classic CCS Counties in Pre- versus Post-Period[41]

			Member Months Enrollment			
Location	Study Group	Clients	Total Months	Median	Mean	StdDev
Phase III Counties	Pre-Phase III implementation	20,192	314,383	18.0	15.6	8.5
	Post-Phase III implementation	17,070	279,508	20.0	16.4	8.4
Classic CCS Counties	Pre-Phase III implementation	62,041	912,200	15.0	14.7	8.5
	Post-Phase III implementation	58,408	914,068	18.0	15.6	8.6

- Phase III Pre-WCM: CCS clients in Orange County between July 2017 and June 2019.
- Phase III Post-WCM: CCS clients in WCM between July 2019 and June 2021.
- Classic Pre-WCM: CCS clients in classic counties between July 2017 and June 2019.
- Classic Post-WCM: CCS clients in classic counties between July 2019 and June 2021.

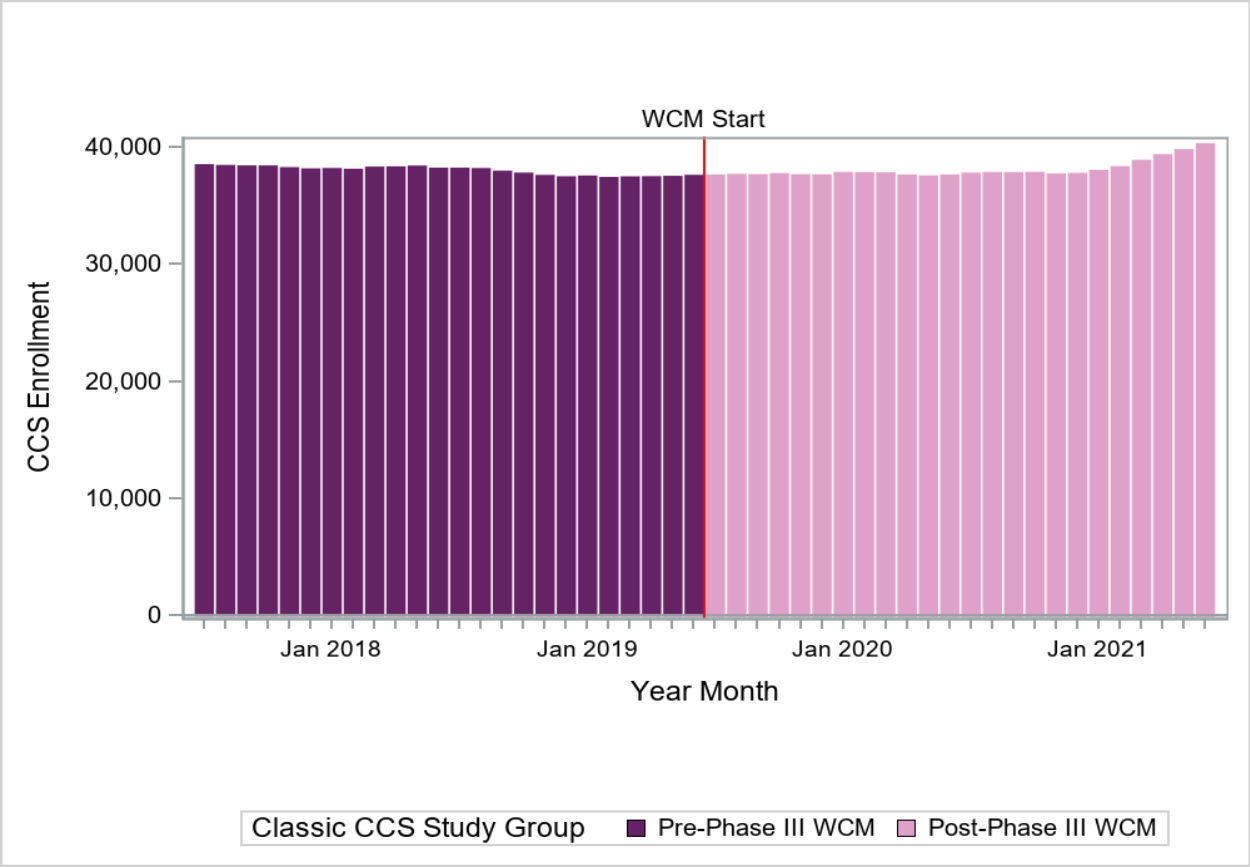
[41] See Figure 2, earlier in this report, for comparison counties. Month-to-month counts can be found in Appendix F, the claims data appendix.

Figure 9: CCS Enrollment by Month, Phase III (pre- versus post-Phase III implementation)



- Phase III Pre-WCM: Classic CCS clients in Orange County between July 2017 and June 2021.
- Phase III Post-WCM: CCS clients in WCM between July 2019 and June 2021.

Figure 10: CCS Enrollment by Month, Classic CCS Counties (pre- versus post-Phase III implementation)



• Classic Pre-WCM: CCS clients in select classic counties between July 2017 and June 2019.
• Classic Post-WCM: CCS clients in select classic counties between July 2019 and June 2021.

Demographic Characteristics (age, race/ethnicity, primary language, and county)

Demographic characteristics are listed below. To help standardize age, the tables include only the first month before implementation of the WCM and data from one month after the implementation of the WCM. WCM plans and Classic CCS control groups had stable demographic characteristics pre- versus post-WCM implementation (Table 25 through Table 28). There were differences in race and language between the WCM study groups and their respective Classic CCS

comparison groups, despite being matched for geographic similarity. The HPSM WCM pre-implementation population was mostly English speaking and younger, while in the post-implementation population, the demographics more closely aligned with the general CCS population. Latinx was the predominant ethnicity represented in all study groups, and English speakers made up approximately half of the sample. Phase II was notable for having fewer clients with Latinx ethnicity and higher representations of those who identified as White and English speaking as compared to the other WCM study groups.

Table 25: Demographics by Age, Race/Ethnicity, Primary Language, and County: HPSM WCM versus Classic CCS Counties

	HPSM WCM				Classic CCS			
	Pre-WCM Implementation		Post-WCM Implementation		Pre-WCM Implementation		Post-WCM Implementation	
Dimension	*n*	Pct	*n*	Pct	*n*	Pct	*n*	Pct
N	11		252		7,442		6,975	
Female	S	S	115	45.6	3,403	45.7	3,157	45.3
Male	S	S	137	54.4	4,039	54.3	3,818	54.7
Age								
Average Age	6.6	.	6.3		9.7		10.0	
<12 Months	S	S	86	34.1	521	7.0	435	6.2
1 Year	S	S	20	7.9	462	6.2	421	6.0
2–6	S	S	39	15.5	1,627	21.9	1,471	21.1
7-11	0	0.0	37	14.7	1,615	21.7	1,479	21.2
12–20	S	S	70	27.8	3,217	43.2	3,169	45.4
Ethnicity								
Alaskan Native or American Indian					13	0.2	24	0.3
Asian/PI	S	S	S	S	137	1.8	101	1.4
Black			S	S	324	4.4	314	4.5

Dimension	HPSM WCM				Classic CCS			
	Pre-WCM Implementation		Post-WCM Implementation		Pre-WCM Implementation		Post-WCM Implementation	
	n	Pct	*n*	Pct	*n*	Pct	*n*	Pct
Latinx	S	S	132	52.4	3,723	50.0	3,679	52.7
White	S	S	20	7.9	646	8.7	614	8.8
Other/Unknown	S	S	90	35.7	2,599	34.9	2,243	32.2
Primary Language								
Asian Language			S	S	897	12.1	813	11.7
English	S	S	125	49.6	3,692	49.6	3,413	48.9
Spanish	S	S	118	46.8	2,723	36.6	2,613	37.5
Other/Unknown			S	S	130	1.7	136	1.9
County								
San Francisco					1,730	23.2	1,551	22.2
San Mateo	11	100.0	252	100.0				
Santa Clara					5,712	76.8	5,424	77.8

• Counts represent CCS enrollment for a month that is one year pre- and one year post-WCM implementation.
• Pre-HPSM WCM clients were in Classic CCS in San Mateo during July 2017 and who never participated in the 1115 Waiver Demonstration Project.
• Post-HPSM WCM clients were in the HPSM WCM and who never participated in the 1115 Waiver Demonstration Project during July 2019.
• Classic Pre-WCM: CCS clients in classic counties during July 2017.
• Classic Post-WCM: CCS clients in classic counties during July 2019.
• S = Value is suppressed to satisfy the Health Insurance Portability and Accountability Act of 1996 (HIPAA) Privacy Rule's de-identification standard.

Table 26: Demographics by Age, Race/Ethnicity, Primary Language, and County: Phase I versus Classic CCS Counties

Dimension	Phase I				Classic CCS			
	Pre-WCM Implementation		Post-WCM Implementation		Pre-WCM Implementation		Post-WCM Implementation	
	n	Pct	*n*	Pct	*n*	Pct	*n*	Pct
N	10,200		9,106		27,502		27,814	
Female	4,769	46.8	4,315	47.4	12,939	47.0	13,013	46.8
Male	5,431	53.2	4,791	52.6	14,563	53.0	14,801	53.2
Age								
Average Age	*9.4*		*9.6*		*9.5*		*9.8*	
<12 Months	811	8.0	665	7.3	2,198	8.0	1,911	6.9
1 Year	668	6.5	615	6.8	1,747	6.4	1,658	6.0
2–6	2,268	22.2	1,957	21.5	6,075	22.1	5,999	21.6
7–11	2,279	22.3	2,029	22.3	6,085	22.1	6,046	21.7
12–20	4,174	40.9	3,840	42.2	11,397	41.4	12,200	43.9
Ethnicity								
Alaskan Native or American Indian	S	S	S	S	76	0.3	79	0.3
Asian/PI	S	S	S	S	217	0.8	173	0.6
Black	125	1.2	121	1.3	981	3.6	1,040	3.7
Latinx	5,829	57.1	5,483	60.2	16,549	60.2	17,733	63.8
White	2,501	24.5	2,127	23.4	3,620	13.2	3,678	13.2
Other/Unknown	1,675	16.4	1,310	14.4	6,059	22.0	5,111	18.4
Primary Language								
Asian Language	71	0.7	49	0.5	627	2.3	536	1.9
English	5,440	53.3	4,815	52.9	16,835	61.2	17,174	61.7

Dimension	Phase I				Classic CCS			
	Pre-WCM Implementation		Post-WCM Implementation		Pre-WCM Implementation		Post-WCM Implementation	
	n	Pct	*n*	Pct	*n*	Pct	*n*	Pct
Spanish	4,675	45.8	4,230	46.5	9,827	35.7	9,889	35.6
Other/Unknown	14	0.1	12	0.1	213	0.8	215	0.8
County								
Fresno					6,576	23.9	6,685	24.0
Kern					5,933	21.6	6,448	23.2
Merced	2,688	26.4	2,483	27.3				
Monterey	3,089	30.3	2,866	31.5				
San Luis Obispo	1,048	10.3	894	9.8				
Santa Barbara	2,147	21.0	1,921	21.1				
Santa Clara					5,712	20.8	5,424	19.5
Santa Cruz	1,228	12.0	942	10.3				
Tulare					5,198	18.9	5,231	18.8
Ventura					4,083	14.8	4,026	14.5

• Counts represent CCS enrollment for one month that is one year pre- and one year post-Phase I implementation.
• Pre-WCM clients were in Classic CCS in Phase I counties during July 2017.
• Post-WCM clients were in the Phase I WCM during July 2019.
• Classic Pre-WCM: CCS clients in classic counties during July 2017.
• Classic Post-WCM: CCS clients in classic counties during July 2019.
• S = Value is suppressed to satisfy the Health Insurance Portability and Accountability Act of 1996 (HIPAA) Privacy Rule's de-identification standard.

Table 27: Demographics by Age, Race/Ethnicity, Primary Language, and County: Phase II versus Classic CCS Counties

Dimension	Phase II				Classic CCS			
	Pre-WCM Implementation		Post-WCM Implementation		Pre-WCM Implementation		Post-WCM Implementation	
	n	Pct	*n*	Pct	*n*	Pct	*n*	Pct
N	8,268		7,666		25,647		25,348	
Female	3,812	46.1	3,617	47.2	12,053	47.0	11,861	46.8
Male	4,456	53.9	4,049	52.8	13,594	53.0	13,487	53.2
Age								
Average Age	*9.4*		*9.7*		*9.6*		*9.8*	
<12 Months	611	7.4	433	5.6	1,903	7.4	1,677	6.6
1 Year	550	6.7	446	5.8	1,668	6.5	1,491	5.9
2–6	1,903	23.0	1,791	23.4	5,566	21.7	5,551	21.9
7–11	1,826	22.1	1,738	22.7	5,779	22.5	5,360	21.1
12–20	3,378	40.9	3,258	42.5	10,731	41.8	11,269	44.5
Ethnicity								
Alaskan Native or American Indian	174	2.1	152	2.0	110	0.4	111	0.4
Asian/PI	87	1.1	76	1.0	606	2.4	559	2.2
Black	373	4.5	363	4.7	2,981	11.6	2,999	11.8
Latinx	2,986	36.1	2,911	38.0	8,889	34.7	9,212	36.3
White	2,821	34.1	2,515	32.8	4,467	17.4	4,201	16.6
Other/Unknown	1,827	22.1	1,649	21.5	8,594	33.5	8,266	32.6
Primary Language								
Asian Language	41	0.5	43	0.6	1,210	4.7	1,136	4.5
English	6,015	72.8	5,518	72.0	17,251	67.3	16,956	66.9

Dimension	Phase II				Classic CCS			
	Pre-WCM Implementation		Post-WCM Implementation		Pre-WCM Implementation		Post-WCM Implementation	
	n	Pct	*n*	Pct	*n*	Pct	*n*	Pct
Spanish	2,146	26.0	2,048	26.7	6,266	24.4	6,293	24.8
Other/Unknown	66	0.8	57	0.7	920	3.6	963	3.8
County								
Alameda					5,769	22.5	5,741	22.6
Amador					129	0.5	125	0.5
Butte					1,006	3.9	922	3.6
Colusa					218	0.9	255	1.0
Contra Costa					3,767	14.7	3,622	14.3
Del Norte	152	1.8	107	1.4				
El Dorado					618	2.4	598	2.4
Glenn					287	1.1	316	1.2
Humboldt	713	8.6	663	8.6				
Lake	464	5.6	354	4.6				
Lassen	130	1.6	108	1.4				
Marin	662	8.0	706	9.2				
Mendocino	453	5.5	412	5.4				
Modoc	46	0.6	43	0.6				
Napa	508	6.1	477	6.2				
Plumas					56	0.2	76	0.3
Sacramento					7,177	28.0	7,383	29.1
San Francisco					1,732	6.8	1,519	6.0

Dimension	Phase II				Classic CCS			
	Pre-WCM Implementation		Post-WCM Implementation		Pre-WCM Implementation		Post-WCM Implementation	
	n	Pct	*n*	Pct	*n*	Pct	*n*	Pct
San Joaquin					3,766	14.7	3,657	14.4
Shasta	911	11.0	852	11.1				
Siskiyou	281	3.4	225	2.9				
Solano	1,245	15.1	1,250	16.3				
Sonoma	1,798	21.7	1,672	21.8				
Sutter					704	2.7	695	2.7
Tehama					418	1.6	439	1.7
Trinity	64	0.8	47	0.6				
Yolo	841	10.2	750	9.8				

- Counts represent CCS enrollment for one month that is one year pre- and one year post-WCM implementation.
- Pre-WCM clients were in Classic CCS in Phase II counties during July 2017.
- Post-WCM clients were in the Phase II WCM during July 2019.
- Classic Pre-WCM: CCS clients in classic counties during July 2017.
- Classic Post-WCM: CCS clients in classic counties during July 2019.

Table 28: Demographics by Age, Race/Ethnicity, Primary Language, and County: Phase III versus Classic CCS Counties

Dimension	Phase III				Classic CCS			
	Pre-WCM Implementation		Post-WCM Implementation		Pre-WCM Implementation		Post-WCM Implementation	
	n	Pct	*n*	Pct	*n*	Pct	*n*	Pct
N	13,148		11,413		38,222		37,799	
Female	6,244	47.5	5,471	47.9	18,042	47.2	17,753	47.0
Male	6,904	52.5	5,942	52.1	20,180	52.8	20,046	53.0

Dimension	Phase III				Classic CCS			
	Pre-WCM Implementation		Post-WCM Implementation		Pre-WCM Implementation		Post-WCM Implementation	
	n	Pct	*n*	Pct	*n*	Pct	*n*	Pct
Age								
Average Age	*10.3*		*10.5*		*9.8*		*10.0*	
<12 Months	694	5.3	569	5.0	3,264	8.5	2,994	7.9
1 Year	675	5.1	594	5.2	2,357	6.2	2,321	6.1
2–6	2,717	20.7	2,264	19.8	7,718	20.2	7,575	20.0
7–11	2,945	22.4	2,394	21.0	8,072	21.1	7,335	19.4
12–20	6,117	46.5	5,592	49.0	16,811	44.0	17,574	46.5
Ethnicity								
Alaskan Native or American Indian	22	0.2	17	0.1	37	0.1	42	0.1
Asian/PI	115	0.9	81	0.7	236	0.6	266	0.7
Black	225	1.7	184	1.6	3,230	8.5	3,318	8.8
Latinx	7,607	57.9	6,757	59.2	25,002	65.4	25,709	68.0
White	1,896	14.4	1,696	14.9	3,027	7.9	3,045	8.1
Other/Unknown	3,283	25.0	2,678	23.5	6,690	17.5	5,419	14.3
Primary Language								
Asian Language	627	4.8	569	5.0	786	2.1	725	1.9
English	6,977	53.1	6,131	53.7	21,525	56.3	22,045	58.3
Spanish	5,431	41.3	4,583	40.2	15,287	40.0	14,396	38.1
Other/Unknown	113	0.9	130	1.1	624	1.6	633	1.7
County								
Los Angeles					38,222	100.0	37,799	100.0

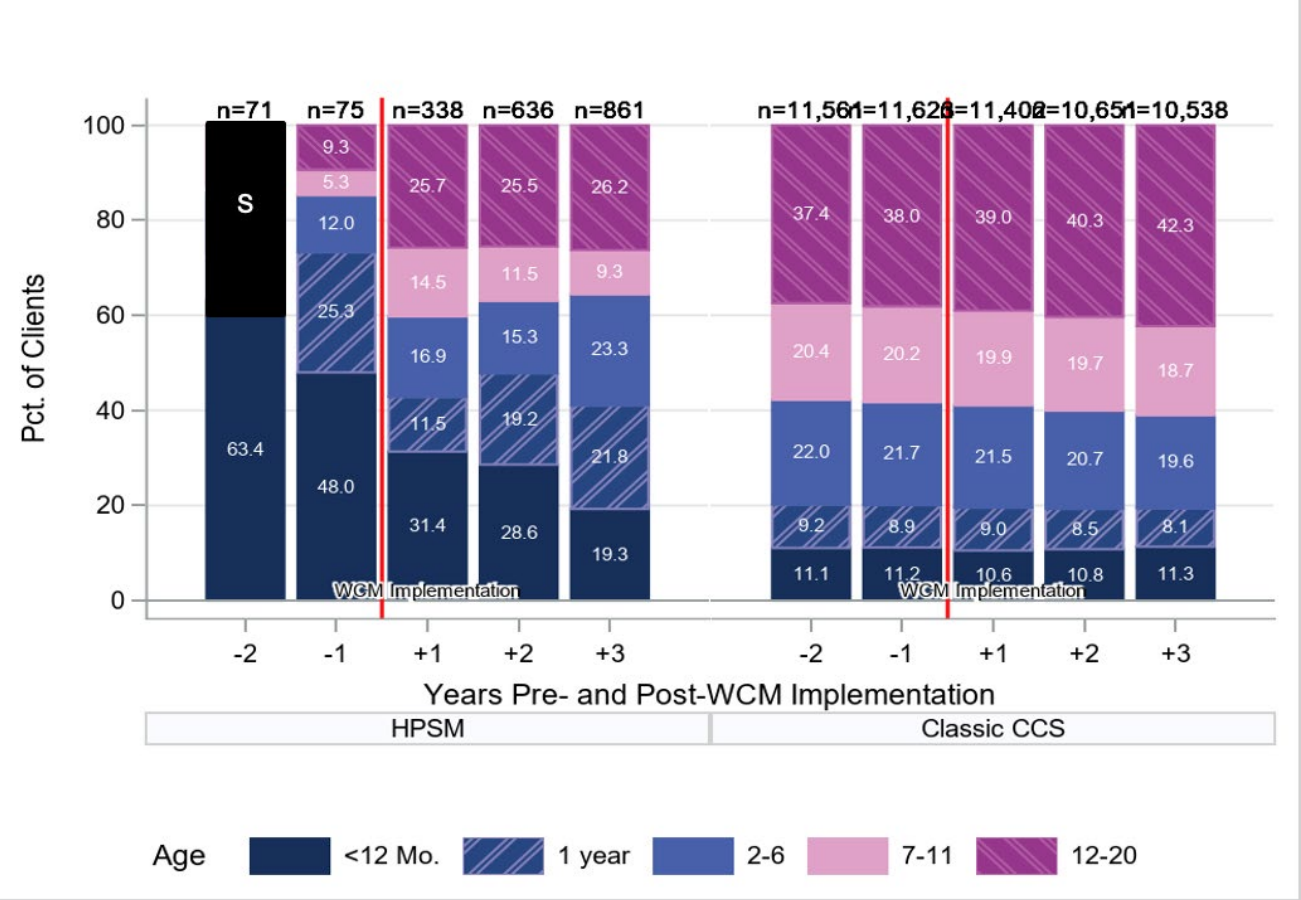
Dimension	Phase III				Classic CCS			
	Pre-WCM Implementation		Post-WCM Implementation		Pre-WCM Implementation		Post-WCM Implementation	
	n	Pct	*n*	Pct	*n*	Pct	*n*	Pct
Orange	13,148	100.0	11,413	100.0				

- Counts represent CCS enrollments one year pre- and one year post-WCM implementation.
- Pre-WCM clients were in Classic CCS in Phase III counties during July 2017.
- Post-WCM clients were in the Phase III WCM during July 2019.
- Classic Pre-WCM: CCS clients in classic counties during July 2017.
- Classic Post-WCM: CCS clients in classic counties during July 2019.

Total Enrollment by Age

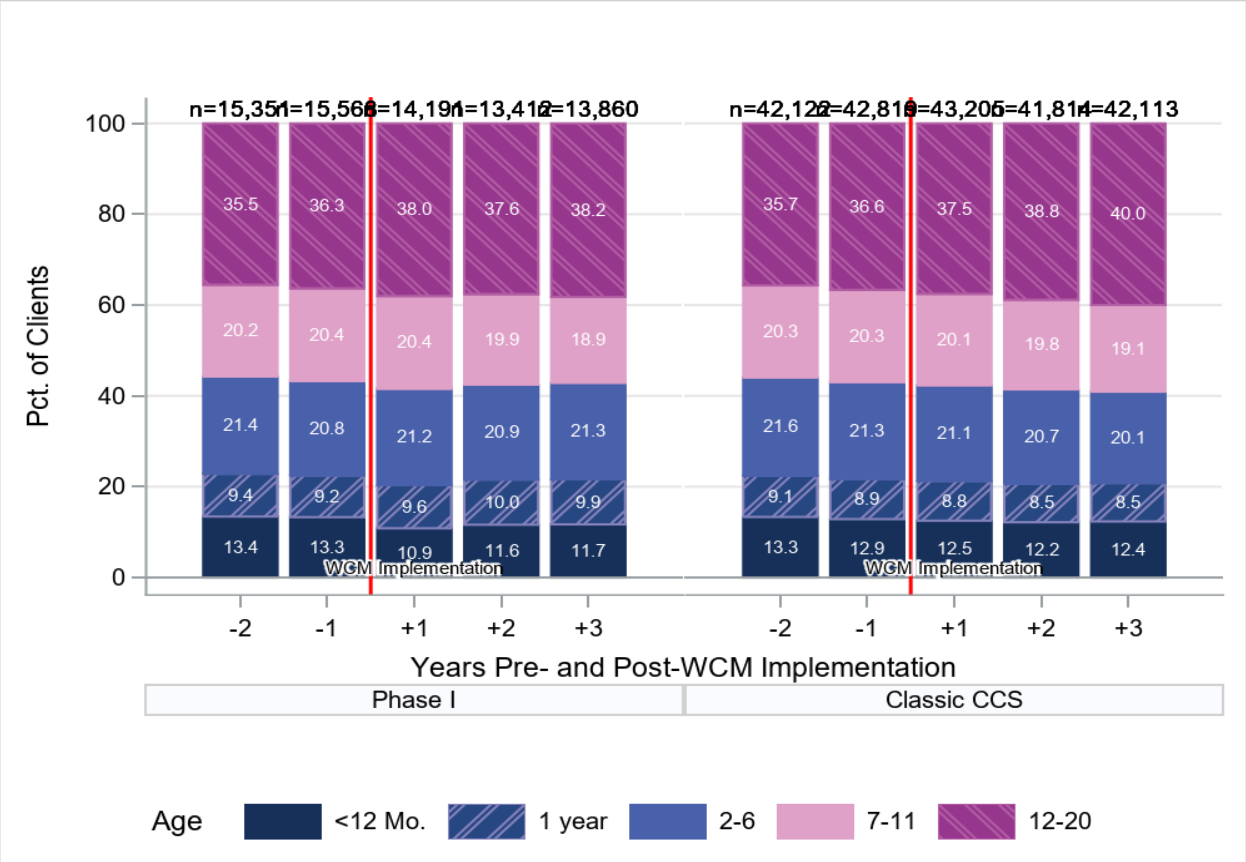
The figures below show the number of enrollees per year, with the proportion represented by each age group for each WCM group and Classic CCS comparison counties. The red line indicates implementation of the WCM. As you can see below, with the exception of HPSM WCM (please see results summary and discussion below addressing HPSM WCM), age groupings remained relatively stable. Across all WCM groups and Classic CCS, there appears to be a decrease in enrollment in those less than one year of age, with the majority of WCM plans having less infant enrollment as compared to Classic CCS. Again, HPSM WCM enrollment is different, and commentary about its specific situation in this evaluation is discussed in the summary.

Figure 11: HPSM WCM Total Enrollment by Age, Compared to Classic CCS Counties



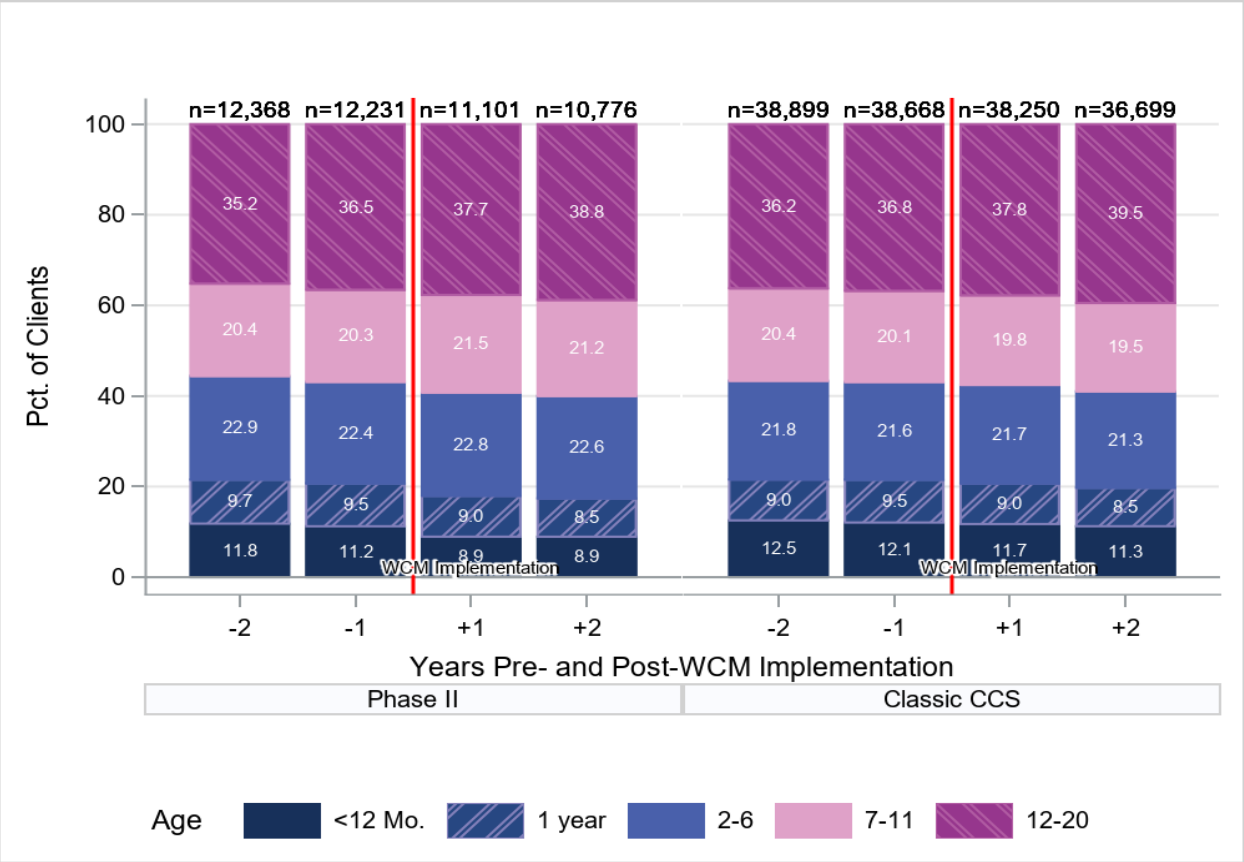
• Pre-WCM: Classic CCS clients in San Mateo County between July 2016 and June 2018 who never participated in the 1115 Waiver Demonstration Project.
• Post-WCM: HPSM WCM clients between July 2018 and June 2021 who never participated in the 1115 Waiver Demonstration Project.
• Classic Pre-WCM: CCS clients in classic counties between July 2016 and June 2018.
• Classic Post-WCM: CCS clients in classic counties between July 2018 and June 2021.
• See Appendix L for tables of counts.
• S = Value is suppressed to satisfy the Health Insurance Portability and Accountability Act of 1996 (HIPAA) Privacy Rule's de-identification standard

Figure 12: Phase I Total Enrollment by Age, Compared to Classic CCS Counties



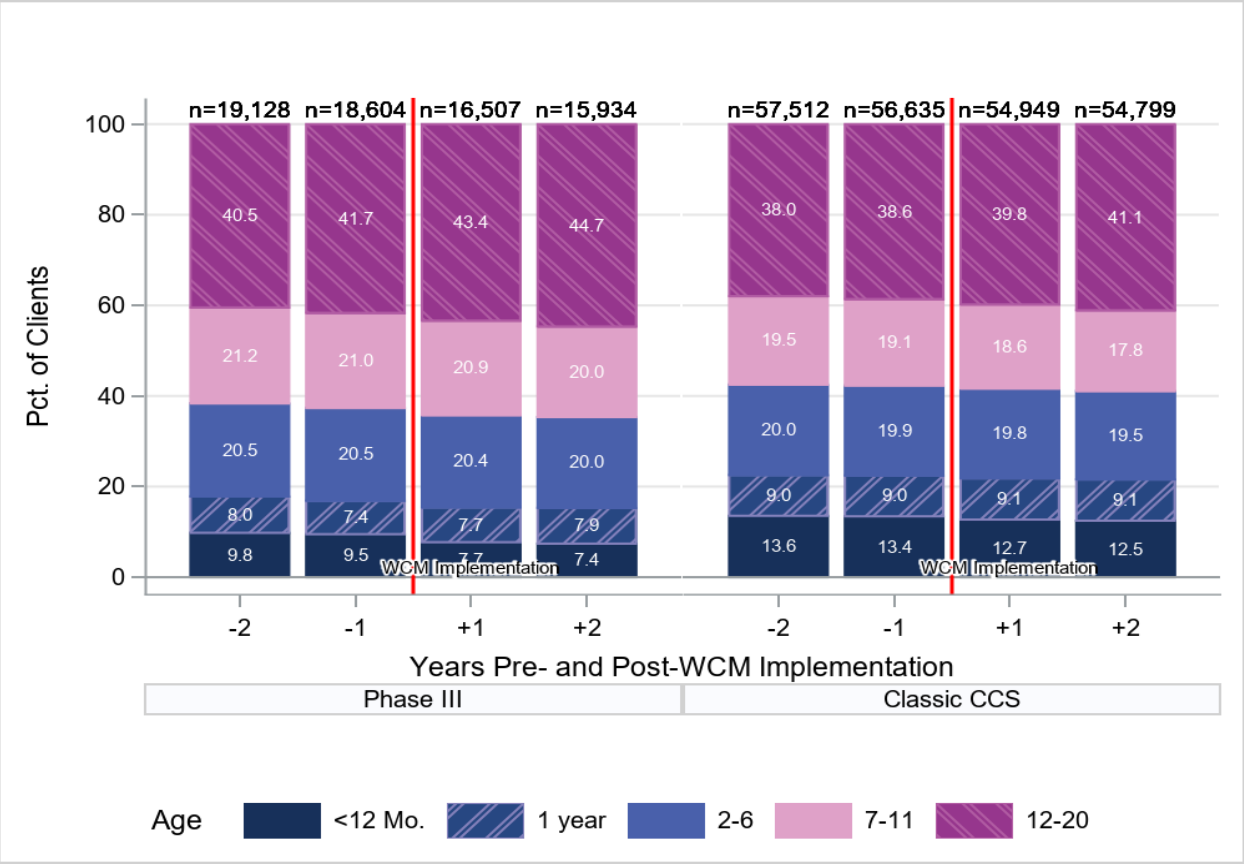
- Pre-WCM: Phase I county CCS clients between July 2016 and June 2018.
- Post-WCM: CCS clients in WCM between July 2018 and June 2021.
- Classic Pre-WCM: CCS clients in classic counties between July 2016 and June 2018.
- Classic Post-WCM: CCS clients in classic counties between July 2018 and June 2021.
- See Appendix L for tables of counts.

Figure 13: Phase II Total Enrollment by Age, Compared to Classic CCS Counties



- Pre-WCM: Phase II county CCS clients between January 2017 and December 2018.
- Post-WCM: CCS clients in WCM between January 2019 and December 2020.
- Classic Pre-WCM: CCS clients in classic counties between January 2017 and December 2018.
- Classic Post-WCM: CCS clients in classic counties between January 2019 and December 2020.
- See Appendix L for tables of counts.

Figure 14: Phase III Total Enrollment by Age, Compared to Classic CCS Counties



- Phase III Pre-WCM: Orange County CCS clients between July 2017 and June 2019.
- Post-WCM: CCS clients in WCM between July 2019 and June 2021.
- Classic Pre-WCM: CCS clients in classic counties between July 2017 and June 2019.
- Classic Post-WCM: CCS clients in classic counties between July 2019 and June 2021.
- See Appendix L for tables of counts.

New Referrals into CCS and Denials

Table 29 through Table 32 below show how many clients were referred into the CCS program or denied. All WCM plans had a decrease in the number of referrals to CCS over time post-implementation. Classic CCS also noted a decrease in

the number of referrals over time. This decreasing enrollment trend in both WCM and Classic CCS groups had started before WCM implementation. Overall, WCM Medi-Cal managed care health plans (MCPs) had lower denial rates than Classic CCS. An exception was found with Phase III, where the number of denials increased despite lower numbers of referrals entering Phase III post-implementation. The Classic CCS comparison group also noted a decrease in referrals in the post-implementation period, with an accompanying decrease in the proportion of denials.

The majority of referrals were clustered in those less than one year old, consistent with the age distribution of new enrollees into CCS (see the ”New Enrollment by Age, Ethnicity, and Primary Language” section, below). The overwhelming reason for denial was medical ineligibility (77% of all requests) followed by incomplete application (6%) and “other” (3%). (See Appendix L).

Table 29: CCS New Referrals and Denials, HPSM WCM versus Classic CCS Counties

Study Group	Years Pre-/Post-WCM Implementation	Referred	Denied	Pct. Denied
HPSM WCM	-2 Year	523	151	28.9
	-1 Year	487	102	20.9
	+1 Year	388	73	18.8
	+2 Year	353	57	16.1
	+3 Year	357	53	14.8
Classic CCS Counties	-2 Year	4,247	1,710	40.3
	-1 Year	4,440	1,846	41.6
	+1 Year	4,405	1,924	43.7
	+2 Year	4,358	2,146	49.2
	+3 Year	4,423	2,084	47.1

Table 30: CCS New Referrals and Denials, Phase I versus Classic CCS Counties

Study Group	Years Pre-/Post-WCM Implementation	Referred	Denied	Pct. Denied
Phase I	-2 Year	3,676	402	10.9

Study Group	Years Pre-/Post-WCM Implementation	Referred	Denied	Pct. Denied
	-1 Year	3,533	411	11.6
	+1 Year	2,694	286	10.6
	+2 Year	2,697	231	8.6
	+3 Year	2,866	208	7.3
Classic CCS Counties	-2 Year	14,605	4,452	30.5
	-1 Year	14,067	4,329	30.8
	+1 Year	14,192	4,606	32.5
	+2 Year	13,288	4,571	34.4
	+3 Year	13,017	4,041	31.0

Table 31: CCS New Referrals and Denials, Phase II versus Classic CCS Counties

Study Group	Years Pre-/Post-WCM Implementation	Referred	Denied	Pct. Denied
Phase II	-2 Year	3,270	955	29.2
	-1 Year	2,874	747	26.0
	+1 Year	2,292	426	18.6
	+2 Year	2,010	321	16.0
Classic CCS Counties	-2 Year	12,495	4,261	34.1
	-1 Year	11,352	3,538	31.2
	+1 Year	11,009	3,376	30.7
	+2 Year	9,486	2,620	27.6

Table 32: CCS New Referrals and Denials, Phase III versus Classic CCS Counties

Study Group	Years Pre-/Post-WCM Implementation	Referred	Denied	Pct. Denied
Phase III	-2 Year	3,755	431	11.5
	-1 Year	3,602	472	13.1
	+1 Year	3,008	614	20.4
	+2 Year	3,233	655	20.3
Classic CCS Counties	-2 Year	12,580	850	6.8
	-1 Year	12,156	863	7.1
	+1 Year	11,129	726	6.5
	+2 Year	10,928	644	5.9

New Enrollment and Deaths by WCM Study Group

Overall new enrollment, as shown in both overall counts, are found in the tables below (Table 33 through Table 36). At the bottom of each table are the results for the absolute proportional change and the (DiD) analysis (comparing the change in the WCM to the CCS comparison group post-WCM implementation) for new enrollment and death. Further description of the DiD analysis can be found in Appendix I.

The percentage of new enrollment declined for each WCM study group and controls. Death rates remained stable and were not significantly different as compared to Classic CCS across WCM plans.

HPSM WCM: There was a decrease in proportion of new clients, but HPSM WCM also was unique because the pre-group was made up of exclusively FFS CCS that did not participate in the 1115 Waiver DP. This population was predominantly made up of infants and thus had a much higher starting proportion that was new as compared to any WCM or CCS program. The negative change seen in new enrollees then brings the proportion of new enrollees more in line to the proportions seen in the other WCM plans and Classic CCS. There was no statistically significant difference in death rates between HPSM WCM and Classic CCS (Table 33).

Phase I: There was a decrease in proportion of new clients into CCS from Phase II as compared to Classic CCS and this was statistically significant, down from an average of 7.2% to 5.4% new enrollees post-implementation. There was no change in death rate pre- versus post-WCM implementation and there was no statistically significant difference in death rates between Phase I and Classic CCS (Table 34).

Phase II: There was a decrease in proportion of new clients into CCS and this was statistically significant, down from 4.8% to 4.2%, this change was significant as compared to the change seen in Classic CCS post-WCM implementation. The death rate difference in Phase II was lower by 0.05% in the pre- versus post-period. While the DiD was statistically significant due to the large sample size (p = .047), given the rarity of death, this does not appear to be clinically significant (Table 35).

Phase III There was a decrease in proportion of new clients into CCS from Phase III as compared to Classic CCS and this was statistically significant, down from an average of 4.5% to 3.5% new enrollees post-implementation. There was no change in death rate pre- versus post-WCM implementation and there was no statistically significant difference in death rates between Phase III and Classic CCS (Table 36).

Table 33: New Enrollment and Deaths per Year, HPSM WCM versus Classic CCS Counties

Location	Study Group	Pre-/Post-Year	Clients	New Clients	Pct. New	Deaths	Pct. Deaths
San Mateo County	Pre-WCM implementation	-2 Year	66	25	37.9	0	0.00
		-1 Year	65	24	36.9	0	0.00
	Post-WCM implementation	+1 Year	309	71	23.0	2	0.65
		+2 Year	514	66	12.8	0	0.00
		+3 Year	682	57	8.4	2	0.29
Classic CCS Counties	Pre-WCM Implementation	-2 Year	10,130	457	4.5	26	0.26
		-1 Year	10,251	510	5.0	22	0.21
	Post-WCM Implementation	+1 Year	10,059	448	4.5	19	0.19
		+2 Year	9,349	472	5.0	30	0.32
		+3 Year	9,323	467	5.0	12	0.13

Location	Study Group	Pre-/Post-Year	Clients	New Clients	Pct. New	Deaths	Pct. Deaths
New enrollment DiD: Change in proportion -0.228, *p* = .006. Deaths DiD: Change in proportion 0.003, *p* = .696.							

• Pre-WCM: Classic CCS clients in San Mateo County between July 2016 and June 2018 who never participated in the 1115 Waiver Demonstration Project.
• Post-WCM: HPSM WCM clients between July 2018 and June 2021 who never participated in the 1115 Waiver Demonstration Project.
• Classic Pre-WCM: CCS clients in classic counties between July 2016 and June 2018.
• Classic Post-WCM: CCS clients in classic counties between July 2018 and June 2021.

Table 34: New Enrollment and Deaths per Year, Phase I versus Classic CCS Counties

Location	Study Group	Pre-/Post-Year	Clients	New Clients	Pct. New	Deaths	Pct. Deaths
Phase I Counties	Pre-WCM implementation	-2 Year	13,369	1,017	7.6	37	0.28
		-1 Year	13,646	920	6.7	38	0.28
	Post-WCM implementation	+1 Year	12,330	606	4.9	31	0.25
		+2 Year	11,607	620	5.3	27	0.23
		+3 Year	11,920	725	6.1	16	0.13
Classic CCS Counties	Pre-WCM Implementation	-2 Year	36,889	2,770	7.5	144	0.39
		-1 Year	37,497	2,587	6.9	89	0.24
	Post-WCM Implementation	+1 Year	37,868	2,589	6.8	107	0.28
		+2 Year	36,649	2,462	6.7	109	0.30
		+3 Year	36,995	2,619	7.1	72	0.19
New enrollment DiD: Change in proportion -0.014, *p* < .001. Deaths DiD: Change in proportion -0.0005, *p* = .652.							

• Phase I Pre-WCM: CCS clients in Phase I counties between July 2017 and June 2018.
• Post-WCM: CCS clients in WCM between July 2018 and June 2021.
• Classic Pre-WCM: CCS clients in classic counties between July 2016 and June 2018.
• Classic Post-WCM: CCS clients in classic counties between July 2018 and June 2021.

Table 35: New Enrollment and Deaths per Year, Phase II versus Classic CCS Counties

Location	Study Group	Pre-/Post-Year	Clients	New Clients	Pct. New	Deaths	Pct. Deaths
Phase II Counties	Pre-WCM implementation	-2 Year	10,710	544	5.1	35	0.33
		-1 Year	10,655	484	4.5	28	0.26
	Post-WCM implementation	+1 Year	9,641	404	4.2	29	0.30
		+2 Year	9,409	395	4.2	30	0.32
Classic CCS Counties	Pre-WCM Implementation	-2 Year	34,048	2,107	6.2	72	0.21
		-1 Year	33,619	1,993	5.9	78	0.23
	Post-WCM implementation	+1 Year	33,446	2,087	6.2	96	0.29
		+2 Year	32,106	1,865	5.8	91	0.28
New enrollment DiD: Change in proportion -0.006, p < .001. Deaths DiD: Change in proportion -0.006, *p* = .047.							

- Phase II Pre-WCM: CCS clients in Phase II counties between January 2017 and December 2018.
- Phase II Post-WCM: CCS clients in WCM between January 2019 and December 2020.
- Classic Pre-WCM: CCS clients in classic counties between January 2017 and December 2018.
- Classic Post-WCM: CCS clients in classic counties between January 2019 and December 2020.

Table 36: New Enrollments and Deaths per Year, Phase III versus Classic CCS Counties

Location	Study Group	Pre-/Post-Year	Clients	New Clients	Pct. New	Deaths	Pct. Deaths
Phase III	Pre-WCM implementation	-2 Year	16,811	781	4.6	36	0.21
		-1 Year	16,375	700	4.3	29	0.18
	Post-WCM implementation	+1 Year	14,481	524	3.6	27	0.19
		+2 Year	13,969	465	3.3	18	0.13
Classic CCS Counties	Pre-WCM Implementation	-2 Year	50,288	3,419	6.8	131	0.26
		-1 Year	49,417	3,296	6.7	139	0.28
		+1 Year	47,848	2,874	6.0	148	0.31

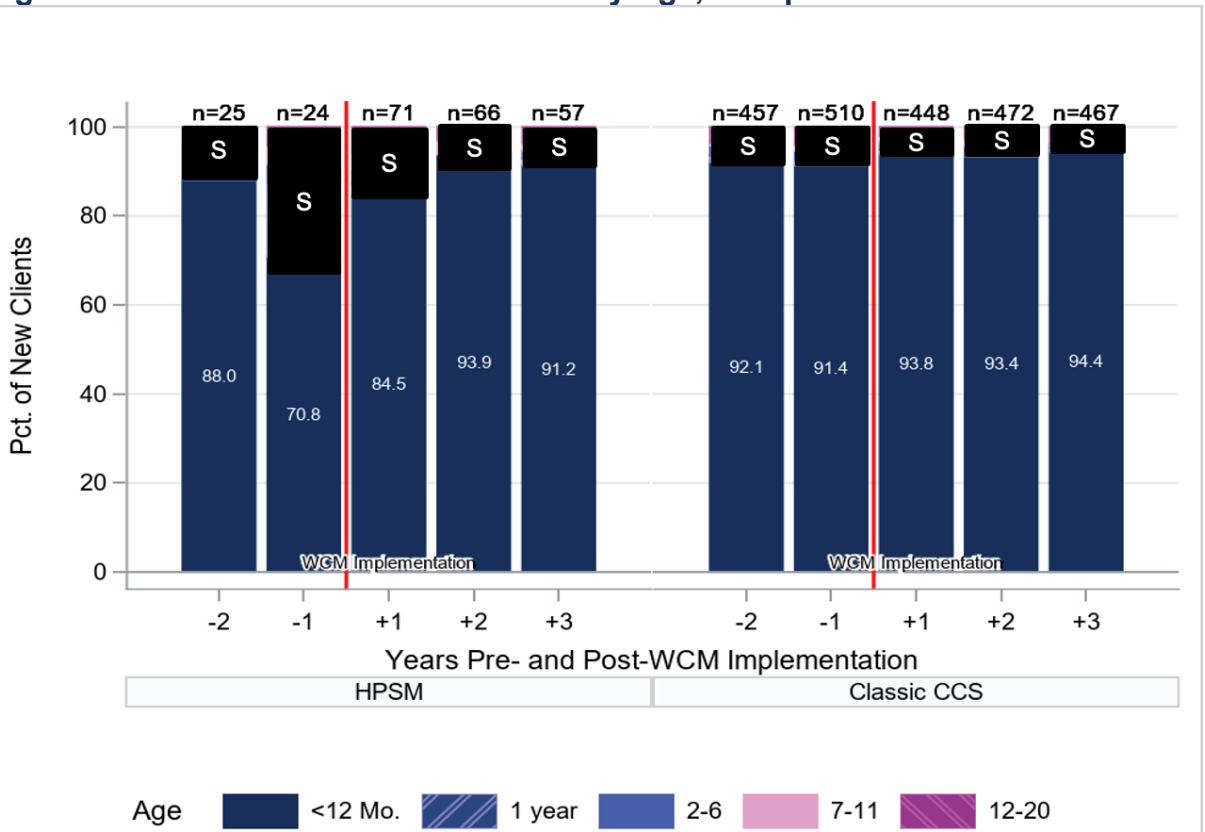
Location	Study Group	Pre-/Post-Year	Clients	New Clients	Pct. New	Deaths	Pct. Deaths
	Post-WCM Implementation	+2 Year	47,774	2,954	6.2	81	0.17
New enrollment DiD: Change in proportion -0.003, p = .001. Deaths DiD: Change in proportion 0.000, p = .732.							

- Phase III Pre-WCM: CCS clients in Orange County who were not in WCM between July 2017 and June 2019.
- Phase III Post-WCM: CCS clients in WCM between July 2019 and June 2021.
- Classic Pre-WCM: CCS clients in classic counties between July 2017 and June 2019.
- Classic Post-WCM: CCS clients in classic counties between July 2019 and June 2021.

New Enrollment by Age, Ethnicity, and Primary Language

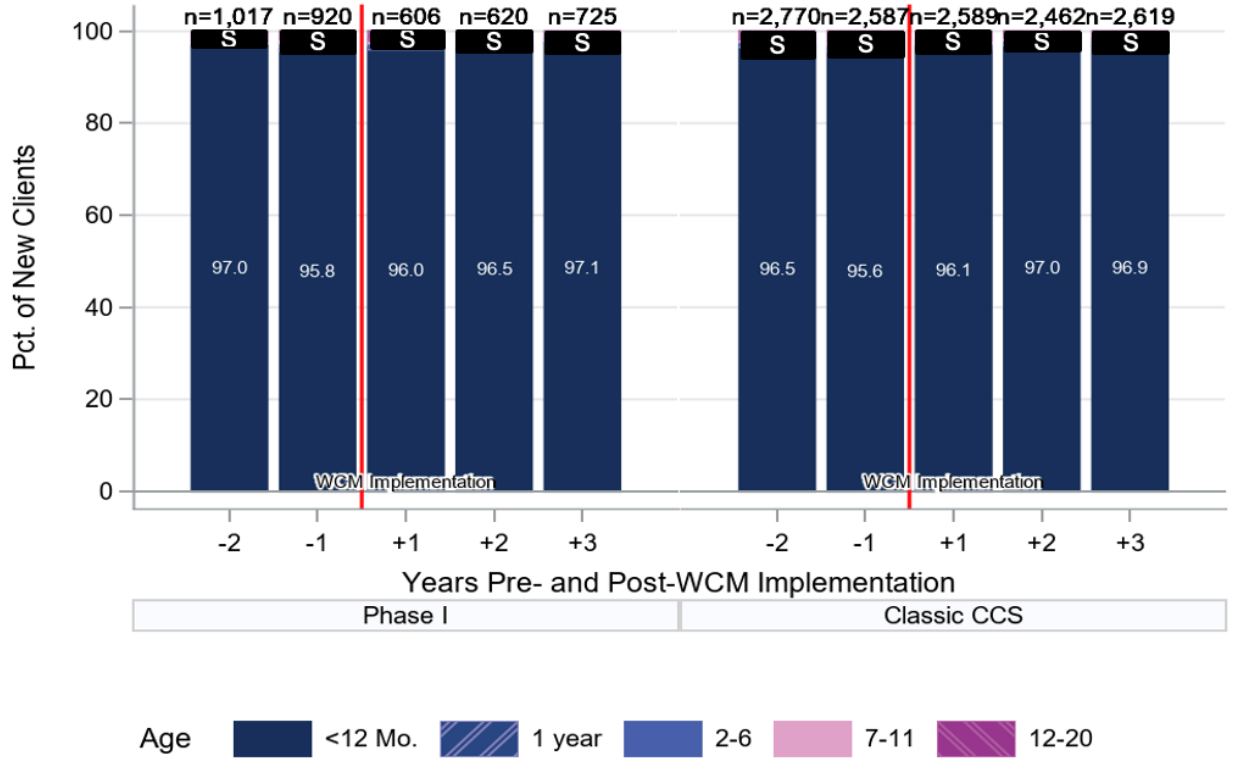
Table 33 through Table 36 above describe the overall counts of new enrollees and the percentage of new enrollees relative to the total CCS population in each of the WCM study groups. The figures below describe new enrollment by age. The vast majority of new enrollment was made up of infants (those less than one year old, Table 33 through Table 36). The proportion of infants enrolling into CCS was similar between WCM plans and Classic CCS. Phase II had less overall new enrollment (Table 35 above) and fewer infants enrolling among new enrollees (Figure 17 below) as compared to Classic CCS. The table including new enrollment by age, ethnicity, and primary language can be found in Appendix L. The most notable finding was that new enrollment was overwhelmingly driven by infants (those less than one year old). Overall, the racial characteristics and language characteristics for new enrollment was similar to the general population characteristics of each WCM study group. New enrollees had slightly less Latinx representation and more English-speaking representation as compared to the general population of CCS clients in the WCM study groups.

Figure 15: HPSM WCM New Enrollment by Age, Compared to Classic CCS Counties



• Pre-WCM: Classic CCS clients in San Mateo County between July 2016 and June 2018 who never participated in the 1115 Waiver Demonstration Project.
• Post-WCM: HPSM WCM clients between July 2018 and June 2021 who never participated in the 1115 Waiver Demonstration Project.
• Classic Pre-WCM: CCS clients in classic counties between July 2016 and June 2018.
• Classic Post-WCM: CCS clients in classic counties between July 2018 and June 2021.
• S = Value is suppressed to satisfy the Health Insurance Portability and Accountability Act of 1996 (HIPAA) Privacy Rule's de-identification standard

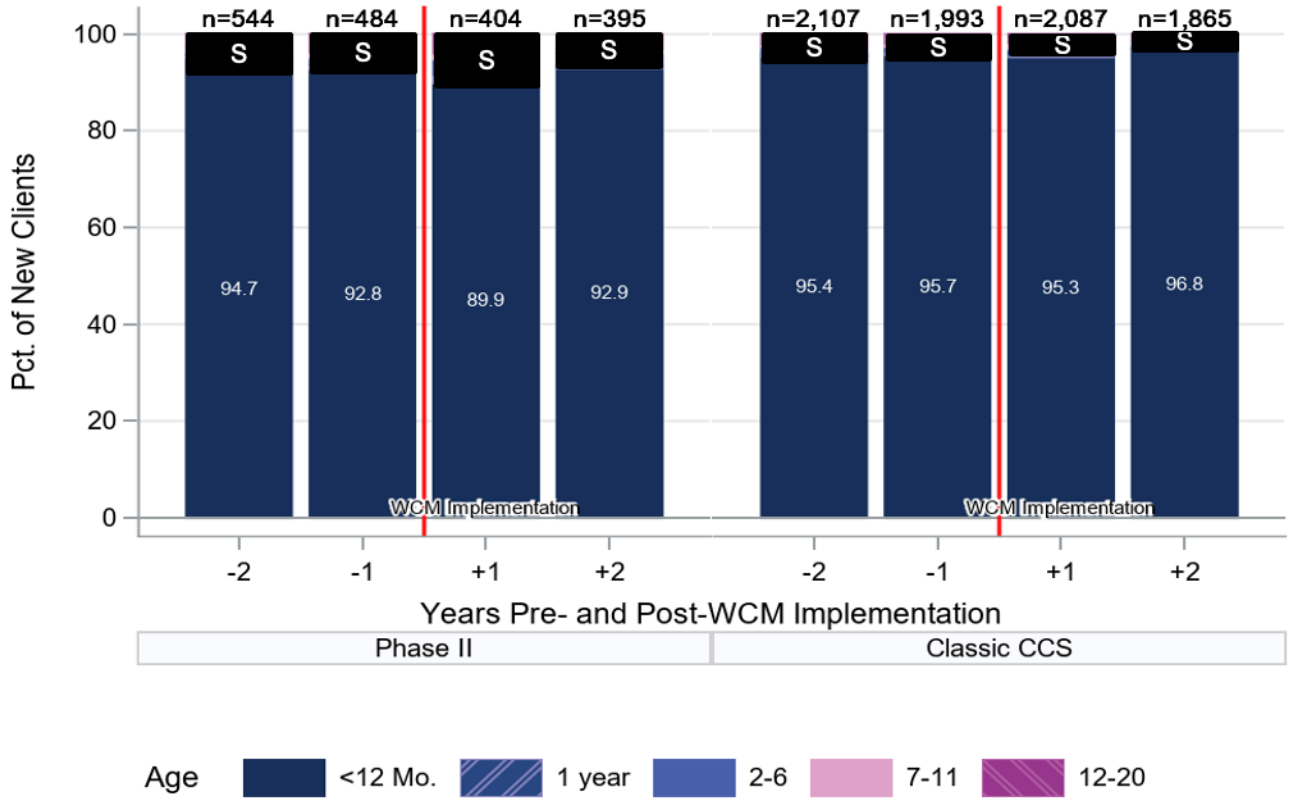
Figure 16: Phase I New Enrollment by Age, Compared to Classic CCS Counties[42]



- Pre-WCM: Phase I county CCS clients between July 2016 and June 2018.
- Post-WCM: CCS clients in WCM between July 2018 and June 2021.
- Classic Pre-WCM: CCS clients in classic counties between July 2016 and June 2018.
- Classic Post-WCM: CCS clients in classic counties between July 2018 and June 2021.
- S = Value is suppressed to satisfy the Health Insurance Portability and Accountability Act of 1996 (HIPAA) Privacy Rule's de-identification standard

[42] Table of counts can be found in Appendix F.

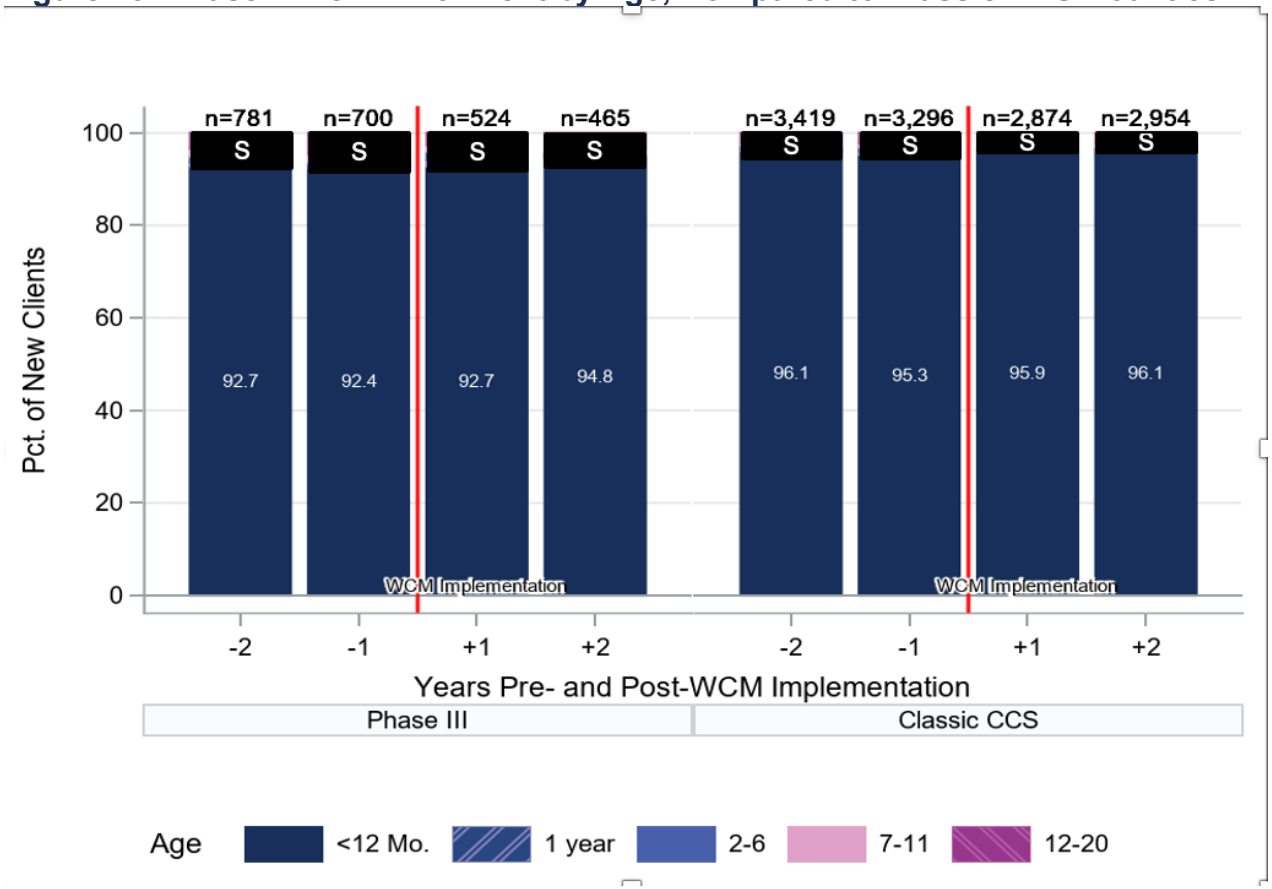
Figure 17: Phase II New Enrollment by Age, Compared to Classic CCS Counties[43]



- Pre-WCM: Phase II county CCS clients between January 2017 and December 2018.
- Post-WCM: CCS clients in WCM between January 2019 and December 2020.
- Classic Pre-WCM: CCS clients in classic counties between January 2017 and December 2018.
- Classic Post-WCM: CCS clients in classic counties between January 2019 and December 2020.
- S = Value is suppressed to satisfy the Health Insurance Portability and Accountability Act of 1996 (HIPAA) Privacy Rule's de-identification standard

[43] Tables of counts can be found in Appendix F.

Figure 18: Phase III New Enrollment by Age, Compared to Classic CCS Counties[44]



- Phase III Pre-WCM: Orange County CCS clients between July 2017 and June 2019.
- Post-WCM: CCS clients in WCM between July 2019 and June 2021.
- Classic Pre-WCM: CCS clients in classic counties between July 2017 and June 2019.
- Classic Post-WCM: CCS clients in classic counties between July 2019 and June 2021.
- S = Value is suppressed to satisfy the Health Insurance Portability and Accountability Act of 1996 (HIPAA) Privacy Rule's de-identification standard

[44] Tables of counts can be found in Appendix F.

Enrollment by CCS Qualifying Condition Category

Table 37 through Table 40 below describe the overall enrollment patterns by CCS qualifying condition for each WCM study group. Again, HPSM WCM has markedly different enrollment toward newborn/NICU due to the inclusion of only the FFS CCS that did not enter the WCM Pilot Program in the pre-WCM implementation period, and thus skewed toward the newborn/NICU admissions. Further discussion of the FFS groups in the other WCM counties is noted below. The predominant conditions represented by CCS qualifying condition category for the other WCM study groups were newborn/NICU, congenital conditions, and accidents. Approximately 20%–30% of records had incomplete data for qualifying diagnosis in CMSNet.

Table 37: Enrollment by CCS Qualifying Condition Category, HPSM WCM

Diagnosis	HPSM WCM		Classic Counties	
	Pct. Pre-WCM Implementation (*n* = 118)	Pct. Post-WCM Implementation (*n* = 889)	Pct. Pre-WCM Implementation (*n* = 13,005)	Pct. Post-WCM Implementation (*n* = 14,965)
Accident	5.9	14.2	11.6	13.5
Circulatory	5.9	6.4	5.3	5.3
Congenital	12.7	20.2	18.6	19.9
Dermatology	0.0	0.6	1.1	1.4
Endocrine-Metabolic-Immune	8.5	18.0	8.0	9.3
Gastroenterology	3.4	3.5	3.7	4.7
Genitourinary	2.5	3.4	4.2	4.7
Hematologic Condition	3.4	1.9	2.4	2.9
Infectious Disease	1.7	1.3	1.0	1.7
Mental Health	1.7	2.7	2.6	3.6
Musculoskeletal	4.2	8.7	7.5	8.2
Newborn/NICU	50.0	22.6	12.1	13.7
Neoplasm	1.7	4.5	3.3	3.5

Diagnosis	HPSM WCM		Classic Counties	
	Pct. Pre-WCM Implementation (*n* = 118)	Pct. Post-WCM Implementation (*n* = 889)	Pct. Pre-WCM Implementation (*n* = 13,005)	Pct. Post-WCM Implementation (*n* = 14,965)
Neurological	4.2	9.8	6.7	7.7
Ophthalmological	5.1	5.6	7.9	8.3
Other	8.5	1.1	1.8	1.4
Otolaryngological	5.9	10.5	9.0	10.4
Pregnancy	1.7	0.3	0.1	0.2
Respiratory	5.9	3.1	3.9	4.6
Undiagnosed	7.6	6.4	30.2	23.2

• Pre-WCM: Classic CCS clients in San Mateo County between July 2016 and June 2018 who never participated in the 1115 Waiver Demonstration Project.
• Post-WCM: HPSM WCM clients between July 2018 and June 2021 who never participated in the 1115 Waiver Demonstration Project.
• Classic Pre-WCM: CCS clients in classic counties between July 2016 and June 2018.
• Classic Post-WCM: CCS clients in classic counties between July 2018 and June 2021.

Table 38: Enrollment by CCS Qualifying Condition Category, Phase I

Diagnosis	Phase I Counties		Classic Counties	
	Pct. Pre-WCM Implementation (*n* = 16,919)	Pct. Post-WCM Implementation (*n* = 17,523)	Pct. Pre-WCM Implementation (*n* = 47,325)	Pct. Post-WCM Implementation (*n* = 56,194)
Accident	12.4	12.4	16.1	15.9
Circulatory	4.6	4.8	5.2	6.0
Congenital	19.5	21.4	18.1	20.1
Dermatology	0.8	0.8	1.1	1.2
Endocrine-Metabolic-Immune	8.8	10.0	8.6	10.0

Diagnosis	Phase I Counties		Classic Counties	
	Pct. Pre-WCM Implementation (*n* = 16,919)	Pct. Post-WCM Implementation (*n* = 17,523)	Pct. Pre-WCM Implementation (*n* = 47,325)	Pct. Post-WCM Implementation (*n* = 56,194)
Gastroenterology	4.0	3.9	4.4	5.0
Genitourinary	3.5	4.0	4.4	4.8
Hematologic Condition	2.1	2.4	2.2	2.8
Infectious Disease	1.2	1.3	2.0	2.4
Mental Health	1.3	1.1	2.4	3.1
Musculoskeletal	7.3	7.6	8.1	8.8
Newborn/NICU	16.4	15.2	16.3	18.2
Neoplasm	3.9	4.3	3.2	3.5
Neurological	6.9	7.5	6.9	7.9
Ophthalmological	7.6	7.8	7.0	7.9
Other	0.6	2.0	1.9	2.6
Otolaryngological	7.5	8.2	7.3	7.8
Pregnancy	0.1	0.1	0.2	0.2
Respiratory	4.5	4.2	5.3	6.0
Undiagnosed	29.7	23.6	29.0	21.9

• Pre-WCM: Phase I county CCS clients between July 2016 and June 2018.
• Post-WCM: CCS clients in WCM between July 2018 and June 2021.
• Classic Pre-WCM: CCS clients in select classic counties between July 2016 and June 2018.
• Classic Post-WCM: CCS clients in select classic counties between July 2018 and June 2021.

Table 39: Enrollment by CCS Qualifying Condition Category, Phase II

Diagnosis	Phase II Counties		Classic Counties	
	Pct. Pre-WCM Implementation (*n* = 13,192)	Pct. Post-WCM Implementation (*n* = 11,489)	Pct. Pre-WCM Implementation (*n* = 42,343)	Pct. Post-WCM Implementation (*n* = 40,562)
Accident	11.1	11.7	10.9	11.0
Circulatory	4.0	4.4	4.4	5.0
Congenital	19.0	20.1	18.4	20.3
Dermatology	0.7	0.7	0.9	1.1
Endocrine-Metabolic-Immune	9.1	10.8	10.4	12.4
Gastroenterology	3.7	3.9	4.1	5.2
Genitourinary	3.4	3.8	3.7	4.1
Hematologic Condition	2.4	2.8	2.9	3.4
Infectious Disease	0.8	0.8	1.0	1.5
Mental Health	1.7	1.7	2.7	3.4
Musculoskeletal	6.8	7.2	7.5	8.3
Newborn/NICU	13.7	12.6	15.3	17.1
Neoplasm	3.5	3.7	3.3	3.7
Neurological	8.1	9.3	7.6	9.1
Ophthalmological	5.5	6.4	5.6	6.6
Other	1.5	1.6	1.7	1.5
Otolaryngological	7.3	7.7	8.5	9.5
Pregnancy	0.2	0.2	0.2	0.3
Respiratory	3.6	3.5	3.7	4.8
Undiagnosed	29.4	25.6	26.5	21.6

Diagnosis	Phase II Counties		Classic Counties	
	Pct. Pre-WCM Implementation (*n* = 13,192)	Pct. Post-WCM Implementation (*n* = 11,489)	Pct. Pre-WCM Implementation (*n* = 42,343)	Pct. Post-WCM Implementation (*n* = 40,562)

- Pre-WCM: Phase II county clients between Jan 2017 and December 2018.
- Post-WCM: Phase II clients between January 2019 and December 2020.
- Classic Pre-WCM: CCS clients in classic counties between January 2017 and December 2018.
- Classic Post-WCM: CCS clients in classic counties between January 2019 and December 2020.

Table 40: Enrollment by CCS Qualifying Condition Category, Phase III

Diagnosis	Phase III Counties		Classic Counties	
	Pct. Pre-WCM Implementation (*n* = 20,192)	Pct. Post-WCM Implementation (*n* = 17,070)	Pct. Pre-WCM Implementation (*n* = 62,041)	Pct. Post-WCM Implementation (*n* = 58,408)
Accident	12.3	10.7	12.0	12.6
Circulatory	4.6	5.2	6.0	7.0
Congenital	16.9	18.7	18.7	20.8
Dermatology	0.4	0.4	1.3	1.4
Endocrine-Metabolic-Immune	8.0	9.8	11.8	14.1
Gastroenterology	2.4	2.6	4.4	5.2
Genitourinary	3.2	3.4	4.0	4.3
Hematologic Condition	2.2	2.5	3.0	3.6
Infectious Disease	0.5	0.7	1.8	2.2
Mental Health	0.7	0.8	2.4	2.8
Musculoskeletal	6.9	7.4	8.4	9.2
Newborn/NICU	8.0	8.6	17.7	18.9
Neoplasm	3.9	4.4	4.3	4.7

Diagnosis	Phase III Counties		Classic Counties	
	Pct. Pre-WCM Implementation (*n* = 20,192)	Pct. Post-WCM Implementation (*n* = 17,070)	Pct. Pre-WCM Implementation (*n* = 62,041)	Pct. Post-WCM Implementation (*n* = 58,408)
Neurological	6.8	8.0	9.2	10.8
Ophthalmological	7.8	8.0	7.7	8.6
Other	3.8	1.8	0.9	0.9
Otolaryngological	7.9	8.8	7.8	8.4
Pregnancy	0.0	0.1	0.1	0.2
Respiratory	2.8	3.0	6.4	7.3
Undiagnosed	27.4	24.6	25.8	20.7

- Pre-WCM: Phase III county clients between July 2017 and June 2019.
- Post-WCM: Phase III clients between July 2019 and June 2021.
- Classic Pre-WCM: CCS clients in classic counties between July 2017 and June 2019.
- Classic Post-WCM: CCS clients in classic counties between July 2019 and June 2021.

Enrollment by CCS Aid Code

Overview of Enrollment by Aid Code: Table 41 through Table 44 below describe enrollment by CCS Aid Code. When clients enter CCS, they are initially enrolled in FFS. On average, approximately three months later, they then transition into their county's WCM program. The time from enrollment into CCS to entering the WCM plan did not vary substantially among the phases though it does show that clients with the 9K Aid Code had significantly longer times before enrollment into the WCM as compared to other Aid Codes across all phases. The UCSF evaluation team describes specifics for each phase below.

HPSM WCM: In the pre-WCM period, CCS clients differed from the other WCM study groups, as half were in Aid Code 9K (CCS eligible) and the other half in Aid Code 9N (CCS and full-scope Medi-Cal) (Table 41). CCS clients with Aid Code 9N took an average of two months before entering the WCM (not shown). For those enrolled in Aid Code 9K (CCS eligible) it took almost seven months to enter the WCM. Almost 90% of the 9K Aid Code clients never enter the WCM. Approximately a quarter of the 9N and 9U CCS clients never enter the WCM (see Appendix L).

Phase I: The majority of CCS clients were in Aid Code 9N (CCS and full-scope Medi-Cal) (Table 42). Children in the 9N category took an average of 2.1 months before entering the WCM, with those enrolled in Aid Code 9K (CCS-eligible) taking nearly 4 months to enter. A third of the new CCS clients never enter the WCM (see Appendix L).

Phase II: The majority of CCS clients in Phase II were in Aid Code 9N (CCS and full-scope Medi-Cal) (Table 43). The children in the 9N category took an average of 2.5 months before entering the WCM, with those enrolled in Aid Code 9K (CCS-eligible) taking 5 months to enter. Almost one-third of the new CCS clients never enter the WCM (see Appendix L).

Phase III: The majority of CCS clients in Phase III were in Aid Code 9N (CCS and full-scope Medi-Cal) (Table 44). Children in the 9N category took an average of 2.3 months before entering the WCM, with those enrolled in Aid Code 9K (CCS-eligible) taking 4.6 months to enter. Almost 40% of the new CCS clients never enter the WCM (see Appendix L).

Table 41: Enrollment by CCS Aid Code, HPSM WCM

Location	Study Group	Aid Code	Description	Count	Percentage
San Mateo County	Pre-HPSM WCM implementation	9K	CCS-eligible	53	44.9
		9N	CCS and full-scope Medi-Cal	63	53.4
		9U	CCS-eligible HF child	2	1.7
			Group Total	**118**	**100.0**
San Mateo County	Post-HPSM WCM implementation	9K	CCS-eligible	7	0.8
		9N	CCS and full-scope Medi-Cal	767	86.3
		9R	CCS-eligible HF child	20	2.2
		9U	CCS-eligible HF child	95	10.7
			Group Total	**889**	**100.0**
Classic CCS Counties	Pre-HPSM WCM implementation	9K	CCS-eligible	1,830	14.1
		9N	CCS and full-scope Medi-Cal	9,282	71.4
		9R	CCS-eligible HF child	325	2.5
		9U	CCS-eligible HF child	1,552	11.9

Location	Study Group	Aid Code	Description	Count	Percentage
		9V	CCS-eligible PFC/PPCW (Waiver) participant	4	0.0
		9W	CCS-eligible PFC/PPCW (Waiver) participant	12	0.1
			Group Total	**13,005**	**100.0**
Classic CCS Counties	Post-HPSM WCM implementation	9K	CCS-eligible	675	4.5
		9N	CCS and full-scope Medi-Cal	11,914	79.6
		9R	CCS-eligible HF child	518	3.5
		9U	CCS-eligible HF child	1,856	12.4
		9V	CCS-eligible PFC/PPCW (Waiver) participant	2	0.0
			Group Total	**14,965**	**100.0**

HF = Healthy Families; *PFC/PPCW* = Partners for Children / Pediatric Palliative Care Waiver.
• Pre-WCM: Classic CCS clients in San Mateo County between July 2016 and June 2018 who never participated in the 1115 Waiver Demonstration Project.
• Post-WCM: HPSM WCM clients between July 2018 and June 2021 who never participated in the 1115 Waiver Demonstration Project.
• Classic Pre-WCM: CCS clients in classic counties between July 2016 and June 2018.
• Classic Post-WCM: CCS clients in classic counties between July 2018 and June 2021.

Table 42: Enrollment by CCS Aid Code, Phase I

Location	Study Group	Aid Code	Description	Count	Percentage
Phase I Counties	Pre-WCM implementation	9K	CCS-eligible	3,571	21.1
		9N	CCS and full-scope Medi-Cal	11,023	65.2
		9R	CCS-eligible HF child	895	5.3
		9U	CCS-eligible HF child	1,415	8.4
		9V	CCS-eligible PFC/PPCW (Waiver) participant	5	0.0

Location	Study Group	Aid Code	Description	Count	Percentage
		9W	CCS-eligible PFC/PPCW (Waiver) participant	10	0.1
			Group Total	**16,919**	**100.0**
Phase I Counties	Post-WCM implementation	9K	CCS-eligible	1,896	10.8
		9N	CCS and full-scope Medi-Cal	13,115	74.8
		9R	CCS-eligible HF child	672	3.8
		9U	CCS-eligible HF child	1,840	10.5
			Group Total	**17,523**	**100.0**
Classic CCS Counties	Pre-WCM implementation	9K	CCS-eligible	10,546	22.3
		9N	CCS and full-scope Medi-Cal	31,719	67.0
		9R	CCS-eligible HF child	1,525	3.2
		9U	CCS-eligible HF child	3,515	7.4
		9V	CCS-eligible PFC/PPCW (Waiver) participant	5	0.0
		9W	CCS-eligible PFC/PPCW (Waiver) participant	15	0.0
			Group Total	**47,325**	**100.0**
Classic CCS Counties	Post-WCM implementation	9K	CCS-eligible	9,272	16.5
		9N	CCS and full-scope Medi-Cal	40,884	72.8
		9R	CCS-eligible HF child	1,659	3.0
		9U	CCS-eligible HF child	4,378	7.8
		9V	CCS-eligible PFC/PPCW (Waiver) participant	1	0.0
			Group Total	**56,194**	**100.0**

HF = Healthy Families; *PFC/PPCW* = Partners for Children / Pediatric Palliative Care Waiver.

Location	Study Group	Aid Code	Description	Count	Percentage

- Phase I Pre-WCM: CCS clients in Phase I counties who were not in WCM between July 2016 and June 2018.
- Phase I Post-WCM: CCS clients in WCM between July 2018 and June 2021.
- Classic Pre-WCM: CCS clients in classic counties between July 2016 and June 2018.
- Classic Post-WCM: CCS clients in classic counties between July 2018 and June 2021.

Table 43: Enrollment by CCS Aid Code, Phase II

Location	Study Group	Aid Code	Description	Count	Percentage
Phase II Counties	Pre-WCM implementation	9K	CCS-eligible	1,759	13.3
		9N	CCS and full-scope Medi-Cal	9,491	71.9
		9R	CCS-eligible HF child	469	3.6
		9U	CCS-eligible HF child	1,443	10.9
		9V	CCS-eligible PFC/PPCW (Waiver) participant	26	0.2
		9W	CCS-eligible PFC/PPCW (Waiver) participant	4	0.0
			Group Total	**13,192**	**100.0**
Phase II Counties	Post-WCM implementation	9K	CCS-eligible	381	3.3
		9N	CCS and full-scope Medi-Cal	9,328	81.2
		9R	CCS-eligible HF child	405	3.5
		9U	CCS-eligible HF child	1,374	12.0
		9V	CCS-eligible PFC/PPCW (Waiver) participant	1	0.0
			Group Total	**11,489**	**100.0**
Classic CCS Counties	Pre-WCM implementation	9K	CCS-eligible	3,816	9.0
		9N	CCS and full-scope Medi-Cal	33,160	78.3

Location	Study Group	Aid Code	Description	Count	Percentage
		9R	CCS-eligible HF child	2,184	5.2
		9U	CCS-eligible HF child	3,137	7.4
		9V	CCS-eligible PFC/PPCW (Waiver) participant	2	0.0
		9W	CCS-eligible PFC/PPCW (Waiver) participant	44	0.1
			Group Total	**42,343**	**100.0**
Classic CCS Counties	Post-WCM implementation	9K	CCS-eligible	2,048	5.0
		9N	CCS and full-scope Medi-Cal	33,611	82.9
		9R	CCS-eligible HF child	2,075	5.1
		9U	CCS-eligible HF child	2,826	7.0
		9W	CCS-eligible PFC/PPCW (Waiver) participant	2	0.0
			Group Total	**40,562**	**100.0**

HF = Healthy Families; *PFC/PPCW* = Partners for Children / Pediatric Palliative Care Waiver.
• Phase II Pre-WCM: CCS clients in Phase II counties who were not in WCM between January 2019 and December 2020.
• Phase II Post-WCM: CCS clients in WCM between January 2019 and December 2020.
• Classic Pre-WCM: CCS clients in classic counties between January 2017 and December 2020.
• Classic Post-WCM: CCS clients in classic counties between January 2019 and December 2020.

Table 44: Enrollment by CCS Aid Code, Phase III

Location	Study Group	Aid Code	Description	Count	Percentage
Orange County	Pre-WCM implementation	9K	CCS-eligible	831	4.1
		9N	CCS and full-scope Medi-Cal	15,517	76.8
		9R	CCS-eligible HF child	7	0.0

Location	Study Group	Aid Code	Description	Count	Percentage
		9U	CCS-eligible HF child	3,832	19.0
		9V	CCS-eligible PFC/PPCW (Waiver) participant	4	0.0
		9W	CCS-eligible PFC/PPCW (Waiver) participant	1	0.0
			Group Total	**20,192**	**100.0**
Orange County	Post-WCM implementation	9K	CCS-eligible	161	0.9
		9N	CCS and full-scope Medi-Cal	13,992	82.0
		9R	CCS-eligible HF child	2	0.0
		9U	CCS-eligible HF child	2,915	17.1
			Group Total	**17,070**	**100.0**
Classic CCS Counties	Pre-WCM implementation	9K	CCS-eligible	1,591	2.6
		9N	CCS and full-scope Medi-Cal	55,181	88.9
		9R	CCS-eligible HF child	181	0.3
		9U	CCS-eligible HF child	5,064	8.2
		9V	CCS-eligible PFC/PPCW (Waiver) participant	19	0.0
		9W	CCS-eligible PFC/PPCW (Waiver) participant	5	0.0
			Group Total	**62,041**	**100.0**
Classic CCS Counties	Post-WCM implementation	9K	CCS-eligible	1,252	2.1
		9N	CCS and full-scope Medi-Cal	50,993	87.3
		9R	CCS-eligible HF child	698	1.2
		9U	CCS-eligible HF child	5,464	9.4

Location	Study Group	Aid Code	Description	Count	Percentage
		9W	CCS-eligible PFC/PPCW (Waiver) participant	1	0.0
			Group Total	**58,408**	**100.0**

HF = Healthy Families; *PFC/PPCW* = Partners for Children / Pediatric Palliative Care Waiver.
- Phase III Pre-WCM: CCS clients in Orange County who were not in WCM between July 2017 and June 2019.
- Phase III Post-WCM: CCS clients in WCM between July 2019 and June 2021.
- Classic Pre-WCM: CCS clients in classic counties between July 2017 and June 2019.
- Classic Post-WCM: CCS clients in classic counties between July 2019 and June 2021.

Description of the Propensity Score–Matched Cohort for Analytic Comparisons of Outcomes for WCM versus Classic CCS Counties

Given the differences found between Classic CCS and the WCM study groups, the UCSF evaluation team generated a propensity score–matched group as a comparison for healthcare outcomes to perform the Difference in Differences (DiD) analysis in the claims data and econometric analyses. Propensity score–matched groups allow for more even comparisons between clients in the WCM and Classic CCS counties. That is, this allows for a "like versus like" comparison to be made.

As shown in the tables above, the distribution of diseases and demographics were different when comparing clients from adjacent counties, and thus could potentially bias the analysis even when controlling for confounding. In addition, differences in geography and local resources may also affect outcomes. Therefore, the UCSF evaluation team matched on geographic, demographic, illness severity, and disability characteristics to generate a matched comparison cohort. The full statistical methods and description of the outcome of the propensity score match is found briefly above in the methods section and fully in Appendix J. The tables presented below are meant to illustrate the final analytic sample used in the following analyses presented in this evaluation. The discussion and characterization of the CCS enrollment patterns and demographics for the full sample are already discussed above.

Overall, the propensity score matching created a balanced comparison group. The tables below illustrate the differences between the WCM study groups and the final analytic sample used in the main administrative claims analyses presented in "Results: Section 2." Overall, the match was successful, though differences remained. Therefore, covariates were still

included in regression models to account for confounding. The full methodology and diagnostics of the propensity score–matched cohorts can be found in Appendix J.

Table 45: Counts of CCS Enrollees, HPSM WCM versus Classic CCS Counties (propensity score–matched)

Location	Study Group	Clients	Member Months Enrollment			
			Total Months	Median	Mean	StdDev
San Mateo County	Pre-WCM implementation	118	487	2.0	4.1	4.3
	Post-WCM implementation	889	11,565	11.0	13.0	9.6
Classic CCS Counties	Pre-WCM implementation	1,966	29,003	15.0	14.8	8.6
	Post-WCM implementation	2,583	44,258	13.0	17.1	12.8

• Pre-WCM: Classic CCS clients in San Mateo County between July 2016 and June 2018 who never participated in the 1115 Waiver Demonstration Project.
• Post-WCM: HPSM WCM clients between July 2018 and June 2021 who never participated in the 1115 Waiver Demonstration Project.
• Classic Pre-WCM: Propensity score–matched CCS clients in classic counties between July 2016 and June 2018.
• Classic Post-WCM: Propensity score–matched CCS clients in classic counties between July 2018 and June 2021.
• See Appendix J for propensity score–matching methodology.

Table 46: Demographics, HPSM WCM versus Classic CCS Counties (propensity score–matched)

Dimension	HPSM WCM				Classic CCS			
	Pre-WCM Implementation		Post-WCM Implementation		Pre-WCM Implementation		Post-WCM Implementation	
	n	Pct	*n*	Pct	*n*	Pct	*n*	Pct
N	11		252		1,216		1,243	
Female	S	S	115	45.6	576	47.4	579	46.6
Male	S	S	137	54.4	640	52.6	664	53.4
Age								
Average Age	*6.6*	.	*6.3*	.	*9.7*	.	*10.3*	.
<12 Months	S	S	86	34.1	106	8.7	75	6.0

Dimension	HPSM WCM				Classic CCS			
	Pre-WCM Implementation		Post-WCM Implementation		Pre-WCM Implementation		Post-WCM Implementation	
	n	Pct	*n*	Pct	*n*	Pct	*n*	Pct
1 Year	S	S	20	7.9	72	5.9	66	5.3
2–6	S	S	39	15.5	262	21.5	264	21.2
7-11	0	0.0	37	14.7	238	19.6	252	20.3
12–20	S	S	70	27.8	538	44.2	586	47.1
Ethnicity								
Alaskan Native or American Indian					S	S	S	S
Asian/PI	S	S	S	S	S	S	S	S
Black			S	S	40	3.3	53	4.3
Latinx	S	S	132	52.4	617	50.7	656	52.8
White	S	S	20	7.9	113	9.3	134	10.8
Other/Unknown	S	S	90	35.7	427	35.1	378	30.4
Primary Language								
Asian Language			S	S	125	10.3	109	8.8
English	S	S	125	49.6	632	52.0	649	52.2
Spanish	S	S	118	46.8	437	35.9	457	36.8
Other/Unknown			S	S	22	1.8	28	2.3
County								
San Francisco					294	24.2	267	21.5
San Mateo	11	100.0	252	100.0				
Santa Clara					922	75.8	976	78.5

Dimension	HPSM WCM				Classic CCS			
	Pre-WCM Implementation		Post-WCM Implementation		Pre-WCM Implementation		Post-WCM Implementation	
	n	Pct	*n*	Pct	*n*	Pct	*n*	Pct

• Counts represent CCS enrollment for one month that is one year pre- and one year post-WCM implementation.
• Pre-HPSM WCM clients were in Classic CCS in San Mateo during July 2017 who were never in the San Mateo CCS DP.
• Post-HPSM WCM clients were in the HPSM WCM during July 2019.
• Classic Pre-WCM: Propensity score–matched CCS clients in classic counties during July 2017.
• Classic Post-WCM: Propensity score–matched CCS clients in classic counties during July 2019.
• See Appendix J for propensity score–matching methodology.
• S = Value is suppressed to satisfy the Health Insurance Portability and Accountability Act of 1996 (HIPAA) Privacy Rule's de-identification standard.

Table 47: CCS Qualifying Conditions, HPSM WCM versus Classic CCS Counties (propensity score–matched)

Diagnosis	HPSM WCM		Classic Counties	
	Pct. Pre-WCM Implementation (*n* = 118)	Pct. Post-WCM Implementation (*n* = 889)	Pct. Pre-WCM Implementation (*n* = 1,966)	Pct. Post-WCM Implementation (*n* = 2,583)
Accident	5.9	14.2	7.7	10.4
Circulatory	5.9	6.4	4.3	3.8
Congenital	12.7	20.2	16.7	17.9
Dermatology	0.0	0.6	1.1	1.1
Endocrine-Metabolic-Immune	8.5	18.0	11.0	12.5
Gastroenterology	3.4	3.5	3.4	4.7
Genitourinary	2.5	3.4	3.5	4.0
Hematologic Disease	3.4	1.9	2.3	2.7
Infectious Disease	1.7	1.3	1.2	1.5
Mental Health	1.7	2.7	2.5	2.9
Musculoskeletal	4.2	8.7	9.0	9.8

Diagnosis	HPSM WCM		Classic Counties	
	Pct. Pre-WCM Implementation (*n* = 118)	Pct. Post-WCM Implementation (*n* = 889)	Pct. Pre-WCM Implementation (*n* = 1,966)	Pct. Post-WCM Implementation (*n* = 2,583)
NICU	50.0	22.6	16.0	17.7
Neoplasm	1.7	4.5	4.0	3.8
Neurology	4.2	9.8	6.8	8.1
Ophthalmology	5.1	5.6	7.5	7.0
Other	8.5	1.1	1.6	1.3
Otolaryngology	5.9	10.5	8.4	9.0
Pregnancy	1.7	0.3	0.2	0.3
Respiratory	5.9	3.1	3.9	4.8
Undiagnosed	7.6	6.4	30.0	23.5

• Pre-WCM: Classic CCS clients in San Mateo County between July 2016 and June 2018 who never participated in the 1115 Waiver Demonstration Project.
• Post-WCM: HPSM WCM clients between July 2018 and June 2021 who never participated in the 1115 Waiver Demonstration Project.
• Classic Pre-WCM: Propensity score–matched CCS clients in classic counties between July 2016 and June 2018
• Classic Post-WCM: Propensity score–matched CCS clients in classic counties between July 2018 and June 2021.
• See Appendix J for propensity score–matching methodology.

Table 48: Counts of CCS Enrollees, Phase I versus Classic CCS Counties (propensity score–matched)

Location	Study Group	Clients	Member Months Enrollment			
			Total Months	Median	Mean	StdDev
Phase I Counties	Pre-WCM implementation	16,919	242,545	14.0	14.3	8.6
	Post-WCM implementation	17,523	340,436	17.0	19.4	12.9
Classic CCS Counties	Pre-WCM implementation	15,917	216,620	13.0	13.6	8.7
	Post-WCM implementation	18,247	326,767	14.0	17.9	13.2

- Phase I Pre-WCM: CCS clients in Phase I counties between July 2016 and June 2018.
- Phase I Post-WCM: CCS clients in WCM between July 2018 and June 2021.
- Classic Pre-WCM: Propensity score–matched CCS clients in classic counties between July 2016 and June 2018.
- Classic Post-WCM: Propensity score–matched CCS clients in classic counties between July 2018 and June 2021.
- See Appendix J for propensity score–matching methodology.

Table 49: Demographics, Phase I versus Classic CCS Counties (propensity score–matched)

	Phase I				Classic CCS			
	Pre-WCM Implementation		Post-WCM Implementation		Pre-WCM Implementation		Post-WCM Implementation	
Dimension	*n*	Pct	*n*	Pct	*n*	Pct	*n*	Pct
N	10,200		9,106		9,053		9,028	
Female	4,769	46.8	4,315	47.4	4,347	48.0	4,302	47.7
Male	5,431	53.2	4,791	52.6	4,706	52.0	4,726	52.3
Age								
Average Age	*9.4*		*9.6*		*9.5*		*9.8*	
<12 Months	811	8.0	665	7.3	732	8.1	596	6.6
1 Year	668	6.5	615	6.8	589	6.5	539	6.0
2–6	2,268	22.2	1,957	21.5	1,978	21.8	1,932	21.4
7–11	2,279	22.3	2,029	22.3	1,989	22.0	1,960	21.7
12–20	4,174	40.9	3,840	42.2	3,765	41.6	4,001	44.3
Ethnicity								
Alaskan Native or American Indian	S	S	S	S	21	0.2	25	0.3
Asian/PI	S	S	S	S	57	0.6	37	0.4
Black	125	1.2	121	1.3	288	3.2	317	3.5
Latinx	5,829	57.1	5,483	60.2	5,245	57.9	5,508	61.0
White	2,501	24.5	2,127	23.4	1,564	17.3	1,603	17.8

Dimension	Phase I				Classic CCS			
	Pre-WCM Implementation		Post-WCM Implementation		Pre-WCM Implementation		Post-WCM Implementation	
	n	Pct	*n*	Pct	*n*	Pct	*n*	Pct
Other/Unknown	1,675	16.4	1,310	14.4	1,878	20.7	1,538	17.0
Primary Language								
Asian Language	71	0.7	49	0.5	159	1.8	135	1.5
English	5,440	53.3	4,815	52.9	5,726	63.2	5,723	63.4
Spanish	4,675	45.8	4,230	46.5	3,107	34.3	3,100	34.3
Other/Unknown	14	0.1	12	0.1	61	0.7	70	0.8
County								
Fresno					2,117	23.4	2,143	23.7
Kern					1,921	21.2	2,045	22.7
Merced	2,688	26.4	2,483	27.3				
Monterey	3,089	30.3	2,866	31.5				
San Luis Obispo	1,048	10.3	894	9.8				
Santa Barbara	2,147	21.0	1,921	21.1				
Santa Clara					1,901	21.0	1,736	19.2
Santa Cruz	1,228	12.0	942	10.3				
Tulare					1,740	19.2	1,742	19.3
Ventura					1,374	15.2	1,362	15.1

• Counts represent CCS enrollment for one month that is one year pre- and one year post-Phase I implementation.
• Pre-WCM clients were in Classic CCS in Phase I counties during July 2017.
• Post-WCM clients were in the Phase I WCM during July 2019.
• Classic Pre-WCM: Propensity score–matched CCS clients in classic counties during July 2017.
• Classic Post-WCM: Propensity score–matched CCS clients in classic counties during July 2019.
• S = Value is suppressed to satisfy the Health Insurance Portability and Accountability Act of 1996 (HIPAA) Privacy Rule's de-identification standard.

Table 50: CCS Qualifying Conditions, Phase I versus Classic CCS Counties (propensity score–matched)

Diagnosis	Phase I Counties		Classic Counties	
	Pct. Pre-WCM Implementation (*n* = 16,919)	Pct. Post-WCM Implementation (*n* = 17,523)	Pct. Pre-WCM Implementation (*n* = 15,917)	Pct. Post-WCM Implementation (*n* = 18,247)
Accident	12.4	12.4	13.6	13.1
Circulatory	4.6	4.8	4.8	5.5
Congenital	19.5	21.4	19.3	20.9
Dermatology	0.8	0.8	1.0	1.1
Endocrine-Metabolic-Immune	8.8	10.0	8.3	9.8
Gastroenterology	4.0	3.9	4.1	4.5
Genitourinary	3.5	4.0	3.8	4.2
Hematologic Condition	2.1	2.4	2.0	2.7
Infectious Disease	1.2	1.3	1.8	2.2
Mental Health	1.3	1.1	2.0	2.7
Musculoskeletal	7.3	7.6	7.4	7.9
Newborn/NICU	16.4	15.2	16.0	17.1
Neoplasm	3.9	4.3	3.9	4.1
Neurological	6.9	7.5	6.2	7.3
Ophthalmological	7.6	7.8	7.0	7.2
Other	0.6	2.0	1.1	2.3
Otolaryngological	7.5	8.2	6.8	7.5
Pregnancy	0.1	0.1	0.2	0.2
Respiratory	4.5	4.2	4.2	4.1

Diagnosis	Phase I Counties		Classic Counties	
	Pct. Pre-WCM Implementation (*n* = 16,919)	Pct. Post-WCM Implementation (*n* = 17,523)	Pct. Pre-WCM Implementation (*n* = 15,917)	Pct. Post-WCM Implementation (*n* = 18,247)
Undiagnosed	29.7	23.6	29.1	22.2

- Phase I Pre-WCM CCS clients in Phase I counties between July 2016 and June 2018.
- Phase I Post-WCM: CCS WCM clients between July 2018 and June 2021.
- Classic Pre-WCM: Propensity score–matched CCS clients in classic counties between July 2016 and June 2018.
- Classic Post-WCM: Propensity score–matched CCS clients in classic counties between July 2018 and June 2021.
- See Appendix J for propensity score–matching methodology.

Table 51: Counts of CCS Enrollees, Phase II versus Classic CCS Counties (propensity score–matched)

Location	Study Group	Clients	Member Months Enrollment			
			Total Months	Median	Mean	StdDev
Phase II Counties	Pre-WCM implementation	13,192	197,178	16.0	14.9	8.6
	Post-WCM implementation	11,489	184,257	19.0	16.0	8.5
Classic CCS Counties	Pre-WCM implementation	12,832	185,715	14.0	14.5	8.5
	Post-WCM implementation	11,865	177,993	16.0	15.0	8.6

- Phase II Pre-WCM: CCS clients in Phase II counties between January 2017 and December 2018.
- Phase II Post-WCM: CCS clients in WCM between January 2019 and December 2020.
- Classic Pre-WCM: Propensity score–matched CCS clients in classic counties between January 2017 and December 2018.
- Classic Post-WCM: Propensity score–matched CCS clients in classic counties between January 2019 and December 2020.
- See Appendix J for propensity score–matching methodology.

Table 52: Demographics, Phase II versus Classic CCS Counties (propensity score–matched)

Dimension	Phase II				Classic CCS			
	Pre-WCM Implementation		Post-WCM Implementation		Pre-WCM Implementation		Post-WCM Implementation	
	n	Pct	*n*	Pct	*n*	Pct	*n*	Pct
N	8,268		7,666		7,759		7,393	

Dimension	Phase II				Classic CCS			
	Pre-WCM Implementation		Post-WCM Implementation		Pre-WCM Implementation		Post-WCM Implementation	
	n	Pct	*n*	Pct	*n*	Pct	*n*	Pct
Female	3,812	46.1	3,617	47.2	3,666	47.2	3,510	47.5
Male	4,456	53.9	4,049	52.8	4,093	52.8	3,883	52.5
Age								
Average Age	*9.4*		*9.7*		*9.5*		*9.9*	
<12 Month	611	7.4	433	5.6	579	7.5	456	6.2
1 Year	550	6.7	446	5.8	509	6.6	437	5.9
2–6	1,903	23.0	1,791	23.4	1,700	21.9	1,621	21.9
7–11	1,826	22.1	1,738	22.7	1,778	22.9	1,580	21.4
12–20	3,378	40.9	3,258	42.5	3,193	41.2	3,299	44.6
Ethnicity								
Alaskan Native or American Indian	174	2.1	152	2.0	31	0.4	25	0.3
Asian/PI	87	1.1	76	1.0	182	2.3	167	2.3
Black	373	4.5	363	4.7	717	9.2	668	9.0
Latinx	2,986	36.1	2,911	38.0	2,639	34.0	2,691	36.4
White	2,821	34.1	2,515	32.8	1,873	24.1	1,759	23.8
Other/Unknown	1,827	22.1	1,649	21.5	2,317	29.9	2,083	28.2
Primary Language								
Asian Language	41	0.5	43	0.6	232	3.0	203	2.7
English	6,015	72.8	5,518	72.0	5,406	69.7	5,112	69.1
Spanish	2,146	26.0	2,048	26.7	1,914	24.7	1,899	25.7
Other/Unknown	66	0.8	57	0.7	207	2.7	179	2.4

Dimension	Phase II				Classic CCS			
	Pre-WCM Implementation		Post-WCM Implementation		Pre-WCM Implementation		Post-WCM Implementation	
	n	Pct	*n*	Pct	*n*	Pct	*n*	Pct
County								
Alameda					1,684	21.7	1,597	21.6
Amador					56	0.7	50	0.7
Butte					353	4.5	321	4.3
Colusa					73	0.9	79	1.1
Contra Costa					1,136	14.6	1,071	14.5
Del Norte	152	1.8	107	1.4				
El Dorado					232	3.0	215	2.9
Glenn					89	1.1	102	1.4
Humboldt	713	8.6	663	8.6				
Lake	464	5.6	354	4.6				
Lassen	130	1.6	108	1.4				
Marin	662	8.0	706	9.2				
Mendocino	453	5.5	412	5.4				
Modoc	46	0.6	43	0.6				
Napa	508	6.1	477	6.2				
Plumas					23	0.3	32	0.4
Sacramento					2,174	28.0	2,159	29.2
San Francisco					466	6.0	390	5.3
San Joaquin					1,124	14.5	1,045	14.1
Shasta	911	11.0	852	11.1				

Dimension	Phase II				Classic CCS			
	Pre-WCM Implementation		Post-WCM Implementation		Pre-WCM Implementation		Post-WCM Implementation	
	n	Pct	*n*	Pct	*n*	Pct	*n*	Pct
Siskiyou	281	3.4	225	2.9				
Solano	1,245	15.1	1,250	16.3				
Sonoma	1,798	21.7	1,672	21.8				
Sutter					192	2.5	174	2.4
Tehama					157	2.0	158	2.1
Trinity	64	0.8	47	0.6				
Yolo	841	10.2	750	9.8				

• Counts represent CCS enrollment for one month that is one year prior pre- and one year post-Phase II implementation.
• Pre-WCM clients were in Phase II counties during January 2018.
• Post-WCM clients were in the Phase II WCM during January 2020.
• Classic Pre-WCM: Propensity score–matched CCS clients in classic counties during January 2018.
• Classic Post-WCM: Propensity score–matched CCS clients in classic counties during January 2020.
• See Appendix J for propensity score–matching methodology.

Table 53: CCS Qualifying Conditions, Phase II versus Classic CCS Counties (propensity score–matched)

Diagnosis	Pct. Pre-WCM Implementation (*n* = 13,192)	Pct. Post-WCM Implementation (*n* = 11,489)	Pct. Pre-WCM Implementation (*n* = 12,832)	Pct. Post-WCM Implementation (*n* = 11,865)
Accident	11.1	11.7	11.9	12.1
Circulatory	4.0	4.4	4.0	4.4
Congenital	19.0	20.1	18.6	19.9
Dermatology	0.7	0.7	0.9	1.0
Endocrine-Metabolic-Immune	9.1	10.8	9.9	11.7
Gastroenterology	3.7	3.9	4.1	4.9

Diagnosis	Pct. Pre-WCM Implementation (*n* = 13,192)	Pct. Post-WCM Implementation (*n* = 11,489)	Pct. Pre-WCM Implementation (*n* = 12,832)	Pct. Post-WCM Implementation (*n* = 11,865)
Genitourinary	3.4	3.8	3.3	3.9
Hematologic Condition	2.4	2.8	2.8	3.4
Infectious Disease	0.8	0.8	0.9	1.3
Mental Health	1.7	1.7	1.8	2.2
Musculoskeletal	6.8	7.2	7.1	7.7
Newborn/NICU	13.7	12.6	13.1	13.4
Neoplasm	3.5	3.7	3.2	3.7
Neurological	8.1	9.3	7.3	8.8
Ophthalmological	5.5	6.4	5.2	6.3
Other	1.5	1.6	1.9	1.8
Otolaryngological	7.3	7.7	7.7	8.6
Pregnancy	0.2	0.2	0.2	0.2
Respiratory	3.6	3.5	3.6	3.8
Undiagnosed	29.4	25.6	26.9	23.0

• Pre-WCM: CCS clients in Phase II counties between January 2017 and December 2018.
• Post-WCM: Phase II clients between January 2019 and December 2020.
• Classic Pre-WCM: Propensity score–matched CCS clients in classic counties between January 2017 and December 2018.
• Classic Post-WCM: Propensity score–matched CCS clients in classic counties between January 2019 and December 2020.
• See Appendix J for propensity score–matching methodology.

Table 54: Counts of CCS Enrollees, Phase III versus Classic CCS Counties (propensity score–matched)

Location	Study Group	Clients	Member Months Enrollment			
			Total Months	Median	Mean	StdDev
Phase III Counties	Pre-WCM implementation	20,192	314,383	18.0	15.6	8.5
	Post-WCM implementation	17,070	279,508	20.0	16.4	8.4

Classic CCS Counties	Pre-WCM implementation	17,568	271,608	16.0	15.5	8.4
	Post-WCM implementation	17,739	280,819	18.0	15.8	8.5

- Phase III Pre-WCM: CCS clients in Orange County between July 2017 and June 2019.
- Phase III Post-WCM: CCS clients in WCM between July 2019 and June 2021.
- Classic Pre-WCM: Propensity score–matched CCS clients in classic counties between July 2017 and June 2019.
- Classic Post-WCM: Propensity score–matched CCS clients in classic counties between July 2019 and June 2021.
- See Appendix J for propensity score–matching methodology.

Table 55: Demographics, Phase III versus Classic CCS Counties (propensity score–matched)

	Phase III				Classic CCS			
	Pre-WCM Implementation		Post-WCM Implementation		Pre-WCM Implementation		Post-WCM Implementation	
Dimension	***n***	**Pct**	***n***	**Pct**	***n***	**Pct**	***n***	**Pct**
N	13,148		11,413		11,421		11,573	
Female	6,244	47.5	5,471	47.9	5,392	47.2	5,420	46.8
Male	6,904	52.5	5,942	52.1	6,029	52.8	6,153	53.2
Age								
Average Age	*10.3*		*10.5*		*10.2*		*10.7*	
<12 Months	694	5.3	569	5.0	746	6.5	589	5.1
1 Year	675	5.1	594	5.2	590	5.2	577	5.0
2–6	2,717	20.7	2,264	19.8	2,183	19.1	2,221	19.2
7–11	2,945	22.4	2,394	21.0	2,574	22.5	2,369	20.5
12–20	6,117	46.5	5,592	49.0	5,328	46.7	5,817	50.3
Ethnicity								
Alaskan Native or American Indian	22	0.2	17	0.1	9	0.1	9	0.1
Asian/PI	115	0.9	81	0.7	80	0.7	88	0.8
Black	225	1.7	184	1.6	897	7.9	927	8.0

Dimension	Phase III				Classic CCS			
	Pre-WCM Implementation		Post-WCM Implementation		Pre-WCM Implementation		Post-WCM Implementation	
	n	Pct	*n*	Pct	*n*	Pct	*n*	Pct
Latinx	7,607	57.9	6,757	59.2	7,457	65.3	7,869	68.0
White	1,896	14.4	1,696	14.9	901	7.9	933	8.1
Other/Unknown	3,283	25.0	2,678	23.5	2,077	18.2	1,747	15.1
Primary Language								
Asian Language	627	4.8	569	5.0	288	2.5	273	2.4
English	6,977	53.1	6,131	53.7	6,272	54.9	6,631	57.3
Spanish	5,431	41.3	4,583	40.2	4,656	40.8	4,455	38.5
Other/Unknown	113	0.9	130	1.1	205	1.8	214	1.8
County								
Los Angeles					11,421	100.0	11,573	100.0
Orange	13,148	100.0	11,413	100.0				

• Counts represent CCS enrollment for one month that is one year pre- and one year post-WCM implementation.
• Pre-WCM clients were in Phase III counties during July 2017.
• Post-WCM clients were in the Phase III WCM during July 2019.
• Classic Pre-WCM: Propensity score–matched CCS clients in classic counties during July 2017.
• Classic Post-WCM: Propensity score–matched CCS clients in classic counties during July 2019.
• See Appendix J for propensity score–matching methodology.

Table 56: CCS Qualifying Conditions, Phase III versus Classic CCS Counties (propensity score–matched)

Diagnosis	Phase III Counties		Classic Counties	
	Pct. Pre-WCM Implementation (*n* = 20,192)	Pct. Post-WCM Implementation (*n* = 17,070)	Pct. Pre-WCM Implementation (*n* = 17,568)	Pct. Post-WCM Implementation (*n* = 17,739)
Accident	12.3	10.7	11.9	12.6

Diagnosis	Phase III Counties		Classic Counties	
	Pct. Pre-WCM Implementation (*n* = 20,192)	Pct. Post-WCM Implementation (*n* = 17,070)	Pct. Pre-WCM Implementation (*n* = 17,568)	Pct. Post-WCM Implementation (*n* = 17,739)
Circulatory	4.6	5.2	4.5	5.2
Congenital	16.9	18.7	16.9	18.6
Dermatology	0.4	0.4	1.2	1.3
Endocrine-Metabolic-Immune	8.0	9.8	8.3	9.6
Gastroenterology	2.4	2.6	3.8	4.4
Genitourinary	3.2	3.4	3.4	4.0
Hematologic Condition	2.2	2.5	3.0	3.5
Infectious Disease	0.5	0.7	1.6	1.8
Mental Health	0.7	0.8	1.8	2.1
Musculoskeletal	6.9	7.4	8.1	9.3
Newborn/NICU	8.0	8.6	8.4	10.0
Neoplasm	3.9	4.4	4.0	4.3
Neurological	6.8	8.0	8.0	9.2
Ophthalmological	7.8	8.0	7.0	7.8
Other	3.8	1.8	1.7	1.3
Otolaryngological	7.9	8.8	8.7	8.9
Pregnancy	0.0	0.1	0.1	0.1
Respiratory	2.8	3.0	5.0	5.5
Undiagnosed	27.4	24.6	30.6	24.9

• Phase III Pre-WCM: CCS clients in Orange County between July 2017 and June 2019.
• Phase III Post-WCM: CCS clients in WCM between July 2019 and June 2021.
• Classic Pre-WCM: Propensity score–matched CCS clients in classic counties between July 2017 and June 2019.

Diagnosis	Phase III Counties		Classic Counties	
	Pct. Pre-WCM Implementation (*n* = 20,192)	Pct. Post-WCM Implementation (*n* = 17,070)	Pct. Pre-WCM Implementation (*n* = 17,568)	Pct. Post-WCM Implementation (*n* = 17,739)

• Classic Post-WCM: Propensity score–matched CCS clients in classic counties between July 2019 and June 2021.
• See Appendix J for propensity score–matching methodology.

Fee-for-Service Clients in the WCM Counties as Compared to the WCM MCP Population

As part of the evaluation, UCSF reports on the FFS clients who never entered the WCM in WCM participating counties. This table includes demographics, average number of months enrolled into CCS, and CCS qualifying condition. The FFS group made up of only approximately 4% of the WCM participating county CCS population. As shown in the tables below, and in Appendix P, the FFS group was fundamentally different than the WCM population. The majority of the FFS population were infants under age one. The FFS population's mean length of time in CCS was markedly shorter (4 months in FFS vs. more than 16 months in the WCM plans), it had a higher proportion of English-speaking clients, and it was largely made up of the NICU discharges.

Table 57: Demographics: HPSM WCM versus Fee-for-Service (FFS-only clients) in San Mateo County

Dimension	WCM		Fee-for-Service Only Clients	
	n	Col. Pct	*n*	Col. Pct
N	889		144	
Female	407	45.8	70	48.6
Male	482	54.2	74	51.4
Age				
Average Age	*6.5*		*1.9*	
<12 Months	308	34.6	87	60.4
1 Year	63	7.1	22	15.3
2–6	134	15.1	20	13.9
7–11	113	12.7	S	S

	WCM		Fee-for-Service Only Clients	
Dimension	***n***	**Col. Pct**	***n***	**Col. Pct**
12–20	271	30.5	S	S
Member Months of Enrollment				
Average Number of Months	*13.0*		*3.9*	
Ethnicity				
Asian/PI	14	1.6	SA	S
Black	29	3.3	S	S
Latinx	422	47.5	31	21.5
White	82	9.2	19	13.2
Other/Unknown	342	38.5	82	56.9
Primary Language				
Asian Language	26	2.9	S	S
English	491	55.2	106	73.6
Spanish	344	38.7	33	22.9
Other/Unknown	28	3.1	S	S
Condition				
Accident	103	11.6	5	3.5
Circulatory	39	4.4	1	0.7
Congenital	152	17.1	18	12.5
Dermatology	4	0.4		
Endocrine-Metabolic-Immune	149	16.8	5	3.5
Gastroenterology	17	1.9	2	1.4
Genitourinary	19	2.1	1	0.7

	WCM		Fee-for-Service Only Clients	
Dimension	***n***	**Col. Pct**	***n***	**Col. Pct**
Hematologic Condition	12	1.3	4	2.8
Infectious Disease	7	0.8	3	2.1
Mental Health	7	0.8	1	0.7
Musculoskeletal	42	4.7	2	1.4
Newborn/NICU	94	10.6	57	39.6
Neoplasm	34	3.8	1	0.7
Neurological	43	4.8	4	2.8
Ophthalmological	21	2.4	1	0.7
Other	10	1.1	21	14.6
Otolaryngological	65	7.3	7	4.9
Pregnancy			1	0.7
Respiratory	14	1.6	5	3.5
Undiagnosed	57	6.4	5	3.5

• S = Value is suppressed to satisfy the Health Insurance Portability and Accountability Act of 1996 (HIPAA) Privacy Rule's de-identification standard.

Table 58: Demographics: Phase I versus Fee-for-Service (FFS-only clients) in Phase I Counties

	WCM		Fee-for-Service Only Clients	
Dimension	***n***	**Col. Pct**	***n***	**Col. Pct**
N	17,523		752	
Female	8,169	46.6	333	44.3
Male	9,354	53.4	419	55.7
Age				

	WCM		Fee-for-Service Only Clients	
Dimension	***n***	**Col. Pct**	***n***	**Col. Pct**
Average Age	*8.4*		*2.6*	
<12 Months	3,505	20.0	555	73.8
1 Year	981	5.6	32	4.3
2–6	3,153	18.0	44	5.9
7–11	3,268	18.6	34	4.5
12–20	6,616	37.8	87	11.6
Member Months of Enrollment				
Average Number of Months	*19.4*		*3.9*	
Ethnicity				
Alaskan Native or Amer. Indian	25	0.1		
Asian/PI	93	0.5	S	S
Black	276	1.6	S	S
Latinx	10,272	58.6	324	43.1
White	3,940	22.5	194	25.8
Other/Unknown	2,917	16.6	225	29.9
Primary Language				
Asian Language	88	0.5	S	S
English	9,962	56.9	474	63.0
Spanish	7,444	42.5	273	36.3
Other/Unknown	29	0.2	S	S
Condition				
Accident	1,417	8.1	16	2.1

	WCM		Fee-for-Service Only Clients	
Dimension	***n***	**Col. Pct**	***n***	**Col. Pct**
Circulatory	623	3.6	22	2.9
Congenital	3,326	19.0	62	8.2
Dermatology	89	0.5		
Endocrine-Metabolic-Immune	1,422	8.1	35	4.7
Gastroenterology	338	1.9	8	1.1
Genitourinary	359	2.0	7	0.9
Hematologic Condition	257	1.5	10	1.3
Infectious Disease	115	0.7	14	1.9
Mental Health	68	0.4	1	0.1
Musculoskeletal	859	4.9	6	0.8
Newborn/NICU	1,313	7.5	404	53.7
Neoplasm	481	2.7	7	0.9
Neurological	634	3.6	19	2.5
Ophthalmological	719	4.1	11	1.5
Other	347	2.0	34	4.5
Otolaryngological	828	4.7	27	3.6
Pregnancy	5	0.0		
Respiratory	196	1.1	12	1.6
Undiagnosed	4,127	23.6	57	7.6

• S = Value is suppressed to satisfy the Health Insurance Portability and Accountability Act of 1996 (HIPAA) Privacy Rule's de-identification standard.

Table 59: Demographics: Phase II versus Fee-for-Service (FFS-only clients) in Phase II Counties

	WCM		Fee-for-Service Only Clients	
Dimension	***n***	**Col. Pct**	***n***	**Col. Pct**
N	11,489		435	
Female	5,369	46.7	194	44.6
Male	6,120	53.3	241	55.4
Age				
Average Age	*8.9*		*5.6*	
<12 Months	1,583	13.8	202	46.4
1 Year	694	6.0	20	4.6
2–6	2,398	20.9	59	13.6
7–11	2,353	20.5	38	8.7
12–20	4,461	38.8	116	26.7
Member Months of Enrollment				
Average Number of Months	*16.0*		*6.3*	
Ethnicity				
Alaskan Native or Amer. Indian	256	2.2	S	S
Asian/PI	108	0.9	S	S
Black	604	5.3	21	4.8
Latinx	4,156	36.2	63	14.5
White	3,795	33.0	150	34.5
Other/Unknown	2,570	22.4	192	44.1
Primary Language				
Asian Language	64	0.6	S	S

	WCM		Fee-for-Service Only Clients	
Dimension	***n***	**Col. Pct**	***n***	**Col. Pct**
English	8,561	74.5	389	89.4
Spanish	2,766	24.1	39	9.0
Other/Unknown	98	0.9	S	S
Condition				
Accident	928	8.1	22	5.1
Circulatory	372	3.2	12	2.8
Congenital	2,039	17.7	57	13.1
Dermatology	44	0.4		
Endocrine-Metabolic-Immune	1,067	9.3	22	5.1
Gastroenterology	239	2.1	9	2.1
Genitourinary	243	2.1	4	0.9
Hematologic Condition	222	1.9	8	1.8
Infectious Disease	55	0.5	3	0.7
Mental Health	77	0.7	9	2.1
Musculoskeletal	523	4.6	13	3.0
Newborn/NICU	564	4.9	111	25.5
Neoplasm	278	2.4	6	1.4
Neurological	593	5.2	21	4.8
Ophthalmological	436	3.8	5	1.1
Other	187	1.6	33	7.6
Otolaryngological	559	4.9	13	3.0
Pregnancy	6	0.1		

	WCM		Fee-for-Service Only Clients	
Dimension	***n***	**Col. Pct**	***n***	**Col. Pct**
Respiratory	121	1.1	11	2.5
Undiagnosed	2,936	25.6	76	17.5

• S = Value is suppressed to satisfy the Health Insurance Portability and Accountability Act of 1996 (HIPAA) Privacy Rule's de-identification standard.

Table 60: Demographics: Phase III versus Fee-for-Service (FFS-only clients) in Phase III Counties

	WCM		Fee-for-Service Only Clients	
Dimension	***n***	**Col. Pct**	***n***	**Col. Pct**
N	17,070		717	
Female	8,043	47.1	334	46.6
Male	9,027	52.9	383	53.4
Age				
Average Age	*9.7*		*3.9*	
<12 Months	1,937	11.3	465	64.9
1 Year	835	4.9	27	3.8
2–6	3,225	18.9	50	7.0
7–11	3,426	20.1	44	6.1
12–20	7,647	44.8	131	18.3
Member Months of Enrollment				
Avg. Number of Months	*16.4*		*4.0*	
Ethnicity				
Alaskan Native or Amer. Indian	23	0.1	S	S
Asian/PI	117	0.7	S	S

	WCM		Fee-for-Service Only Clients	
Dimension	***n***	**Col. Pct**	***n***	**Col. Pct**
Black	321	1.9	18	2.5
Latinx	9,878	57.9	237	33.1
White	2,615	15.3	107	14.9
Other/Unknown	4,116	24.1	346	48.3
Primary Language				
Asian Language	784	4.6	12	1.7
English	9,741	57.1	542	75.6
Spanish	6,340	37.1	128	17.9
Other/Unknown	205	1.2	35	4.9
Condition				
Accident	1,346	7.9	37	5.2
Circulatory	630	3.7	15	2.1
Congenital	2,824	16.5	78	10.9
Dermatology	37	0.2	2	0.3
Endocrine-Metabolic-Immune	1,464	8.6	29	4.0
Gastroenterology	267	1.6	8	1.1
Genitourinary	365	2.1	9	1.3
Hematologic Condition	307	1.8	16	2.2
Infectious Disease	68	0.4	5	0.7
Mental Health	42	0.2	4	0.6
Musculoskeletal	983	5.8	15	2.1
Newborn/NICU	750	4.4	252	35.1

	WCM		Fee-for-Service Only Clients	
Dimension	***n***	**Col. Pct**	***n***	**Col. Pct**
Neoplasm	601	3.5	6	0.8
Neurological	821	4.8	22	3.1
Ophthalmological	904	5.3	10	1.4
Other	306	1.8	92	12.8
Otolaryngological	1,034	6.1	38	5.3
Pregnancy	5	0.0	7	1.0
Respiratory	119	0.7	13	1.8
Undiagnosed	4,197	24.6	59	8.2

• S = Value is suppressed to satisfy the Health Insurance Portability and Accountability Act of 1996 (HIPAA) Privacy Rule's de-identification standard.

Overall Summary and Discussion of Research Section 1 (study population), Including Enrollment, New Enrollment into WCM and Classic CCS, Conditions, Referrals and Denials into CCS, Demographics, and Propensity Score Match

Enrollment Patterns and Death

Overall Enrollment and Death

The number of overall enrollment declined for Phase II and Phase III WCM plans and increased in Phase I plans. The HPSM WCM was expected to increase. The HPSM WCM's study population was represented by new enrollees and those who entered HPSM after the WCM implementation, as most of the HPSM CCS population had transitioned in 2013 as part of its 1115 Waiver DP. The discussion of this population can be found in a separate report focusing on the 1115 Waiver DP evaluation.

New Enrollees and New Referrals/Denials

New referrals declined over time for both WCM plans and Classic CCS. The WCM MCPs had lower denial rates as compared to Classic CCS counties, and both WCM plans and Classic CCS had declining denial rates. The exception was Phase III, which had both declining referral rates and increased denial rates. Despite this, new enrollees as a proportion of overall enrollment declined significantly over time for all WCM plans as compared to Classic CCS.

Deaths in CCS

Deaths were very rare in CCS. There were no statistically significant differences in death rates over time in the WCM study groups as compared to CCS comparison counties, with the exception of Phase II, where there was a slight decrease in death rate as compared to Classic CCS comparison counties (0.05%), $p = .047$. The DiD analysis for death was unadjusted due to very small numbers, and thus, given the marginal *p*-value and overall large population size with significant power to pick up small absolute percentage differences, this change does not appear clinically significant.

CCS Conditions

Distribution of CCS-eligible-condition categories between WCM study groups and Classic CCS comparison counties did not differ by more than few percent across individual categories.

Demographic Characteristics

WCM study groups varied by racial and language characteristics, which reflects the demographic differences across the different regions of California.

Propensity Score–Matched Group Characteristics

Overall, the UCSF evaluation propensity score match worked well to decrease major differences found in the population characteristics noted above. Still, some differences could not be completely matched. Given the potential confounding effect of each of the demographic variables, all statistical models used in analyzing the outcome variables in this report will model all demographic characteristics initially. Final models presented in this evaluation will include only variables that were statistically significant.

Fee-for-Service Clients in the WCM Counties as Compared to the WCM MCP Population

The FFS group was fundamentally different than the WCM population. The FFS group made up only approximately 4% of the county CCS population. The majority of the FFS population was infants under age one. The mean length of time in

CCS was markedly shorter (4 months in FFS vs. over 16 months in the WCM plans) and was largely made up of the NICU discharges. Given the marked difference in characteristics of the FFS population and utilization of CCS services as compared to the WCM population and the small sample size of the FFS population, UCSF limits the analysis of the FFS group to descriptive findings and overall counts of services, which can be found in Appendix P.

Section 2. Results, Organized by Research Question

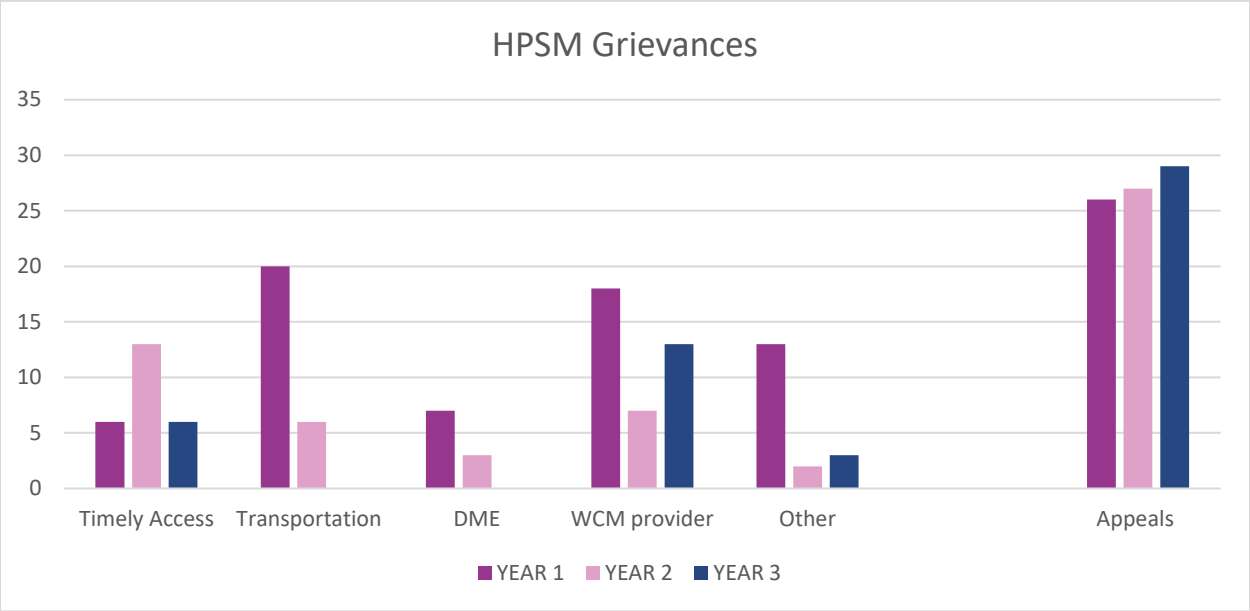
General Grievance, Appeal, and State Fair Hearings Results (not specific to any research questions)

Grievances and Appeals (by phase, number, and type)

When looking at "timely access," "transportation," "DME," "WCM provider," and "other" grievances in WCM Phase I, Phase II, Phase III, and HPSM WCM, the following became apparent: Variable numbers and types of grievances were filed throughout all three years and among all phases of the WCM. It is important to note that enrollment across years within the WCM is fairly consistent, meaning that any differences shown in this table reflect actual differences in grievances and appeals and not changes in enrollment.

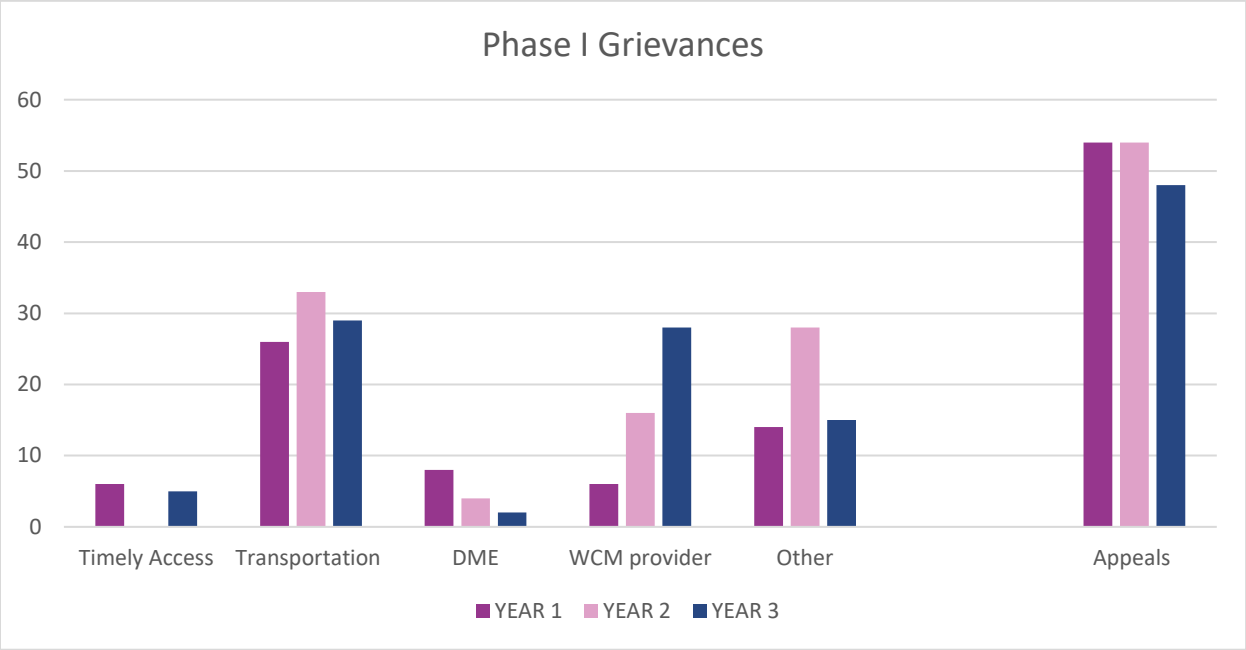
Most of the grievances filed by HPSM WCM members were related to their "WCM provider" (*n* = 38), and the "DME" grievances (*n* = 10) were filed the least. The number of total grievances filed by year steadily decreased: 64 were filed in Year 1, dropping to less than half (*n* = 31) in Year 2, and a total of only 22 filed in Year 3. Appeals filed steadily increased over Years 1–3, although only by one or two per year.

Figure 19: HPSM WCM: Number of Grievances (by type) and Number of Appeals



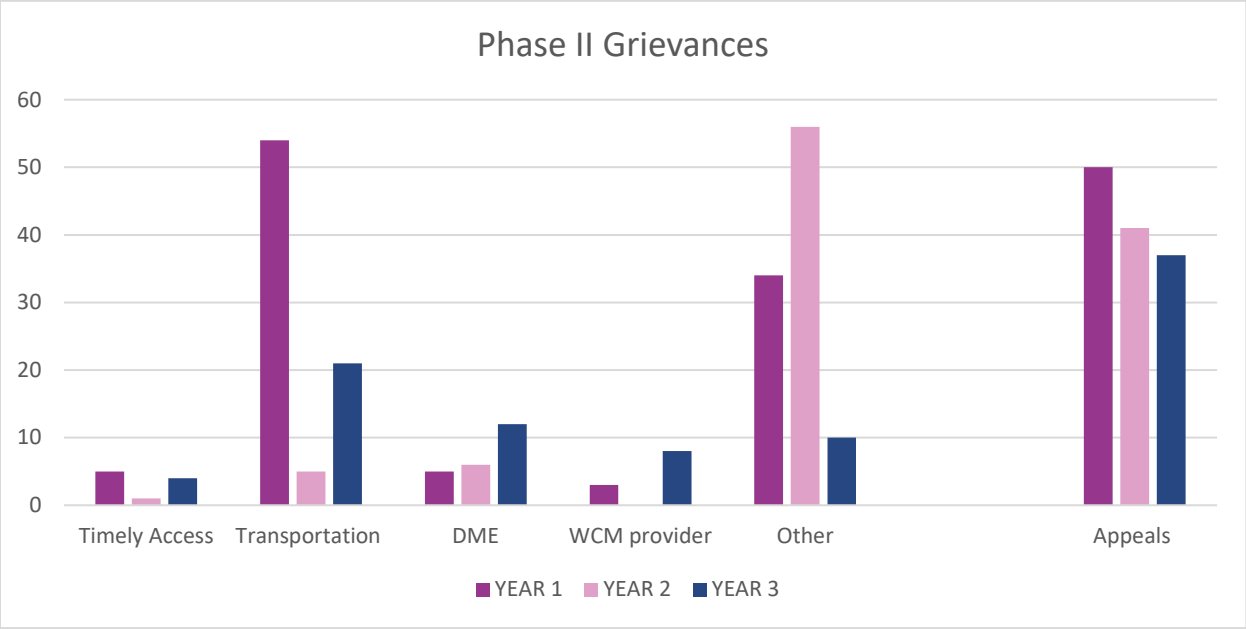
For Phase I, “transportation” grievances (*n* = 88) were the type of grievance most often filed throughout all three years, and “timely access” grievances (*n* = 11) were filed the least. The fewest number of Phase I grievances (*n* = 60) were filed in Year 1 and the most (*n* = 81) were filed in Year 2. Appeals filed stayed the same between Year 1 and Year 2 (*n* = 54) and then slightly decreased in Year 3 (*n* = 48).

Figure 20: Phase I: Number of Grievances by Type and Number of Appeals



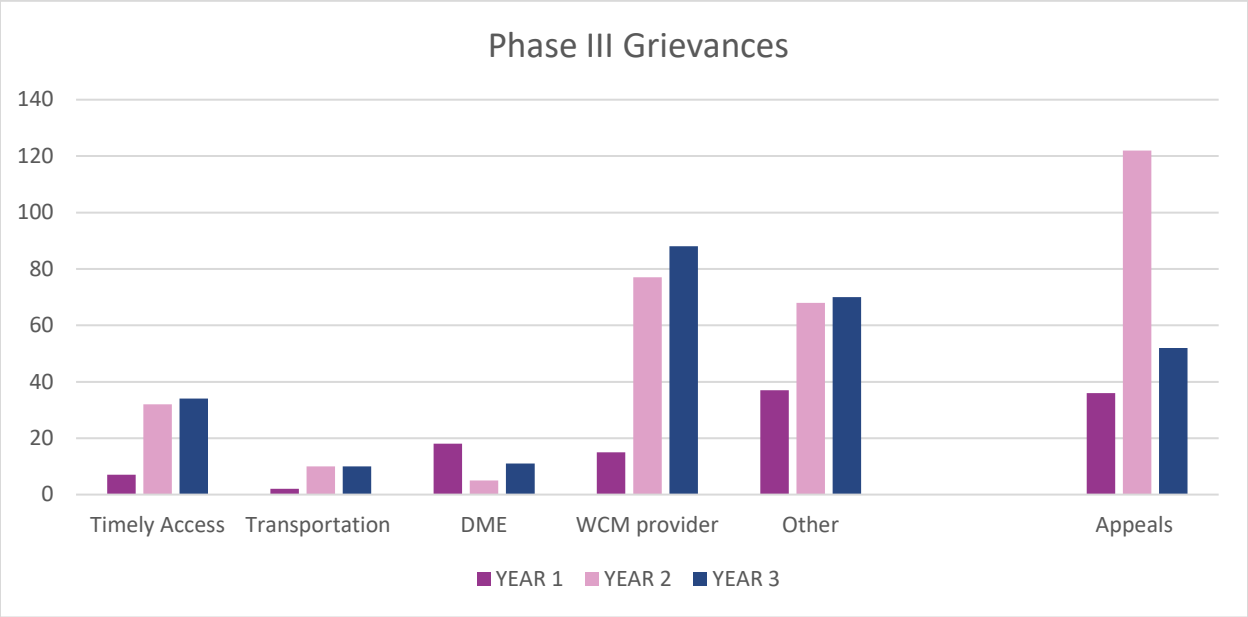
In Phase II, “other” grievances (*n* = 100) were the type of grievance most often filed, and “timely access” grievances (*n* = 10) were filed the least. The majority of “other” grievances (*n* = 56) were filed in Year 2, whereas the majority of “transportation” grievances (*n* = 54) were filed in Year 1. The overall filing of Phase II grievances decreased throughout Years 1–3, with a total of 101 grievances filed in Year 1 only 55 grievances filed by Year 3. Appeals filed in Phase II also steadily decreased throughout Years 1–3, with a total of 50 filed in Year 1 and only 37 filed in Year 3.

Figure 21: Phase II: Number of Grievances by Type and Number of Appeals



Most of the Phase III grievances filed were either "WCM provider" (*n* = 180) or "other" grievances (*n* = 175). There was a steady increase in the overall number of grievances filed by year, with most grievances filed in Year 3 (*n* = 213), up considerably from only a total of 79 filed in Year 1. Among all grievance types, "transportation" grievances were filed the least, with a total of only 22 filed throughout all three years of Phase III. Appeals were variable, with only 36 filed in Year 1, to more than triple that (*n* = 122) in Year 2, and then back down to 52 in Year 3.

Figure 22: Phase III: Number of Grievances by Type and Number of Appeals



Among all phases, the most grievances were filed in Phase III (*n* = 484) and the fewest were filed by HPSM WCM (*n* = 117). The type of grievance filed most often throughout all three years and among all phases of the WCM were "other" grievances (*n* = 350) followed by WCM provider grievances (*n* = 279); DME grievances were filed the least often (*n* = 81).

Like grievances, most of the appeals were filed in Phase III (*n* = 210), and the least number of appeals was filed by HPSM WCM (*n* = 82). Among all phases, appeals trended downward in Phases I and II, were variable throughout all three years of Phase III, and increased throughout the three years of HPSM WCM.

State Fair Hearing: Counts and Final Disposition Counts

These state fair hearing (SFH) data are from January 2015 through October 2020; therefore, Phase I and Phase II counts include at least two years of post-WCM data. Phase III had only 16 months of post-WCM data (July 2019 through October 2020). Because of this, it is worth noting that Phase III counts might not be as stable as Phase I or Phase II due to the decreased time span from which data were measured. Also, UCSF did not statistically test the differences in state fair

hearings. Testing the extremely rare occurrences of the hearings among hundreds of thousands of member months is not thought to add to a meaningful interpretation.

Below are the number of SFHs and SFH per one million member months, by phase, comparing pre- versus post-WCM with Classic CCS pre- versus post-WCM. The final disposition of these SFHs are also presented.

For the HPSM WCM, the Classic CCS pre-WCM study group reported the most (*n* = 50) SFH per one million member months, which was slightly higher than those reported (*n* = 41) per one million member months by the Classic CCS post-WCM study group. Of note, neither the pre- nor post-HPSM WCM study group reported any SFHs during the data collection period.

Table 61: HPSM WCM State Fair Hearings: Counts and Counts per Million Member Months, WCM and Classic CCS Pre- versus Post-WCM

Study Group	Clients	Member Months	State Fair Hearings	State Fair Hearings per 1M MM
Pre-WCM	384	1,309		
Post-WCM	721	7,433		
Classic CCS Pre-WCM	13,005	178,247	9	50
Classic CCS Post-WCM	13,258	196,831	8	41

SFH data from the Department of Social Services January 2015 through October 2020.

There were one to three SFH final dispositions in the HPSM WCM Classic CCS pre- and post-WCM, distributed among six outcomes. As noted above, since there were no SFHs reported by either the pre- or post-HPSM WCM study group, there are no final dispositions to report for these two groups.

Table 62: HPSM WCM State Fair Hearings: Counts by Final Disposition, WCM and Classic CCS Pre- versus Post-WCM

Final Disposition	Pre-WCM	Post-WCM	Classic CCS Pre-WCM	Classic CCS Post-WCM
Denied			2	1

Final Disposition	Pre-WCM	Post-WCM	Classic CCS Pre-WCM	Classic CCS Post-WCM
Dismissed				2
Granted			1	2
Non-Appearance			2	
Rehearing Denied			2	
Withdrawal			2	3

SFH data from the Department of Social Services January 2015 through October 2020.

In WCM Phase I, the most state fair hearings per million member months (*n* = 31) were reported during the pre-WCM. CCS clients in both the post-WCM and Classic CCS post-WCM study groups each reported the least SFHs per one million member months (*n* = 15).

Table 63: Phase I State Fair Hearings: Counts and Counts per Million Member Months, WCM and Classic CCS Pre- versus Post-WCM

Study Group	Clients	Member Months	State Fair Hearings	State Fair Hearings per 1M MM
Pre-WCM	23,292	419,988	13	31
Post-WCM	15,843	260,973	4	15
Classic CCS Pre-WCM	61,994	1,125,401	34	30
Classic CCS Post-WCM	49,862	782,044	12	15

SFH data from the Department of Social Services January 2015 through October 2020.

The most frequent SFH final disposition among all study groups in Phase I combined was “withdrawal,” with a total of 25 reported. Among the two WCM study groups, “withdrawal” was the most frequent final disposition by the pre-WCM study group (*n* = 9), but among the two Classic CCS study groups the most frequent final disposition was that of “denied” (*n* = 12), followed by “withdrawal” (*n* = 9), both among the Classic CCS pre-WCM study group.

Table 64: Phase I State Fair Hearings: Counts by Final Disposition, WCM and Classic CCS Pre- versus Post-WCM

Final Disposition	Pre-WCM	Post-WCM	Classic CCS Pre-WCM	Classic CCS Post-WCM
Alternated			1	
Denied	2	1	12	
Dismissed		1	2	3
Granted	1		3	2
Granted in Part		1		
Missing		1		
Non-Appearance	1		5	
Redirect			1	
Rehearing Denied			1	
Withdrawal	9		9	7

SFH data from the Department of Social Services January 2015 through October 2020.

In Phase II, the Classic CCS pre-WCM study group reported the most SFHs per one million member months (*n* = 89), which was almost triple that of the least (*n* = 30) SFHs reported per one million member months by the post-WCM study group.

Table 65: Phase II State Fair Hearings: Counts and Counts per Million Member Months, WCM and Classic CCS Pre- versus Post-WCM

Study Group	Clients	Member Months	State Fair Hearings	State Fair Hearings per 1M MM
Pre-WCM	18,675	390,822	16	41
Post-WCM	11,171	168,493	5	30
Classic CCS Pre-WCM	57,791	1,214,152	108	89
Classic CCS Post-WCM	39,406	558,271	22	39

Study Group	Clients	Member Months	State Fair Hearings	State Fair Hearings per 1M MM

SFH data from the Department of Social Services January 2015 through October 2020.

The most frequent SFH final disposition in Phase II was "denied," with a combined total of 49 reported among all study groups. Of those, the majority occurred in the Classic CCS pre-WCM group (*n* = 41). "Withdrawal" was the second most frequent SFH final disposition (*n* = 43).

Table 66: Phase II State Fair Hearings: Counts by Final Disposition, WCM and Classic CCS Pre- versus Post-WCM

Final Disposition	Pre-WCM	Post-WCM	Classic CCS Pre-WCM	Classic CCS Post-WCM
Alternated			1	
Closed by Compliance	1		7	
Denied		1	41	7
Dismissed			5	3
Granted	1	1	11	4
Granted in Part			2	
Missing		1		2
Non-Appearance			11	1
Redirect			1	
Rehearing Denied			7	
Withdrawal	14	2	22	5

SFH data from the Department of Social Services January 2015 through October 2020.

In Phase III, the post-WCM study group reported the most SFHs per one million member months (*n* = 123), which was more than four times what the Classic CCS post-WCM study group reported (28 SFHs per one million member months).

Table 67: Phase III State Fair Hearings: Counts and Counts per Million Member Months, WCM and Classic CCS Pre- versus Post-WCM

Study Group	Clients	Member Months	State Fair Hearings	State Fair Hearings per 1M MM
Pre-WCM	30,036	710,502	28	39
Post-WCM	15,354	186,551	23	123
Classic CCS Pre-WCM	93,027	2,078,167	100	48
Classic CCS Post-WCM	51,473	603,797	17	28

SFH data from the Department of Social Services January 2015 through October 2020.

The most frequent SFH final disposition in Phase III was "withdrawal," with a combined total of 70 among all study groups. Of those, the majority occurred in the Classic CCS pre-WCM study group (*n* = 37). The second most frequent SFH final disposition was "denied," with 41 reported among all study groups.

Table 68: Phase III State Fair Hearings: Counts by Final Disposition, WCM and Classic CCS Pre- versus Post-WCM

Final Disposition	Pre-WCM	Post-WCM	Classic CCS Pre-WCM	Classic CCS Post-WCM
Alternated	1			
Closed by Compliance			1	
Denied	5	8	28	
Dismissed	4	1	6	5
Granted	1	1	6	
Granted in Part		3	1	
Missing		2		2
Non-Appearance			17	
Redirect	1		2	

Final Disposition	Pre-WCM	Post-WCM	Classic CCS Pre-WCM	Classic CCS Post-WCM
Rehearing Denied		1	2	
Withdrawal	16	7	37	10

SFH data from the Department of Social Services January 2015 through October 2020.

Among all phases, Phase III had the most SFHs per one million member months, whereas both Phase I and HPSM WCM had the least. In addition, the number of SFHs in each phase decreased pre- to post-WCM, regardless of study group. The SFHs per one million member months also decreased in every phase pre- to post-WCM, except for Phase III which had a more than threefold increase pre- to post-WCM. "Withdrawal" and "denied" are the most frequent final dispositions among all phases and study groups, signaling that the majority of the SFH outcomes were in favor of the health plans.

HPSM WCM Total Grievances

Both HPSM WCM and traditional CCS counties experienced an increase in grievances per 100,000 member months pre-/post-WCM HPSM implementation (216 vs. 94, respectively) (Table 69). The increase in grievances for HPSM WCM was 122 grievances per 100,000 member months more than that of traditional counties, but this difference was not statistically significant.

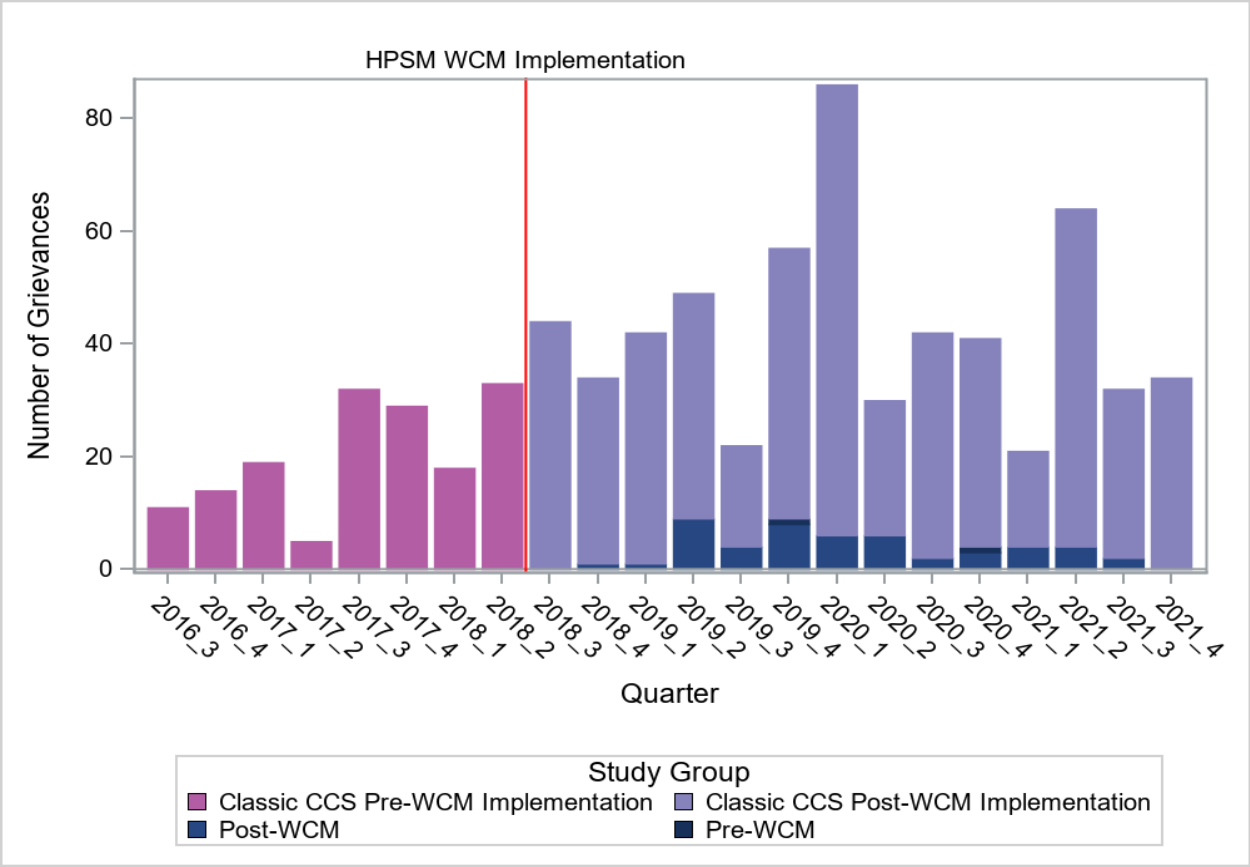
Table 69: HPSM WCM Grievances, by Group

HPSM WCM	Grievances	Pct. Resolved in Favor of Member	CCS Enrollees	Enrolled Member Months (MM)	Grievances per 100K MM
Pre-WCM	2	50.0	451	1,686	119
Post-WCM	50	50.0	889	14,945	335
				WCM Change	216
Classic CCS Pre-WCM Implementation	161	54.0	13,005	178,247	90
Classic CCS Post-WCM Implementation	546	45.6	14,965	295,926	185
				Classic Change	94

				Diff in Diffs	122 (p = .8849)
Totals may not sum due to rounding					

Figure 23 below also shows a graphical illustration of HPSM WCM grievances by quarter. There is an increase in grievances both in HPSM WCM and in Classic CCS comparison groups over time. The graphic also illustrates that HPSM had very few grievances pre-WCM implementation, indicating that statistical models will have limited ability to estimate the impact of the WCM on grievances for the HPSM.

Figure 23: HPSM WCM Grievances by Quarter



Phase I Total Grievances

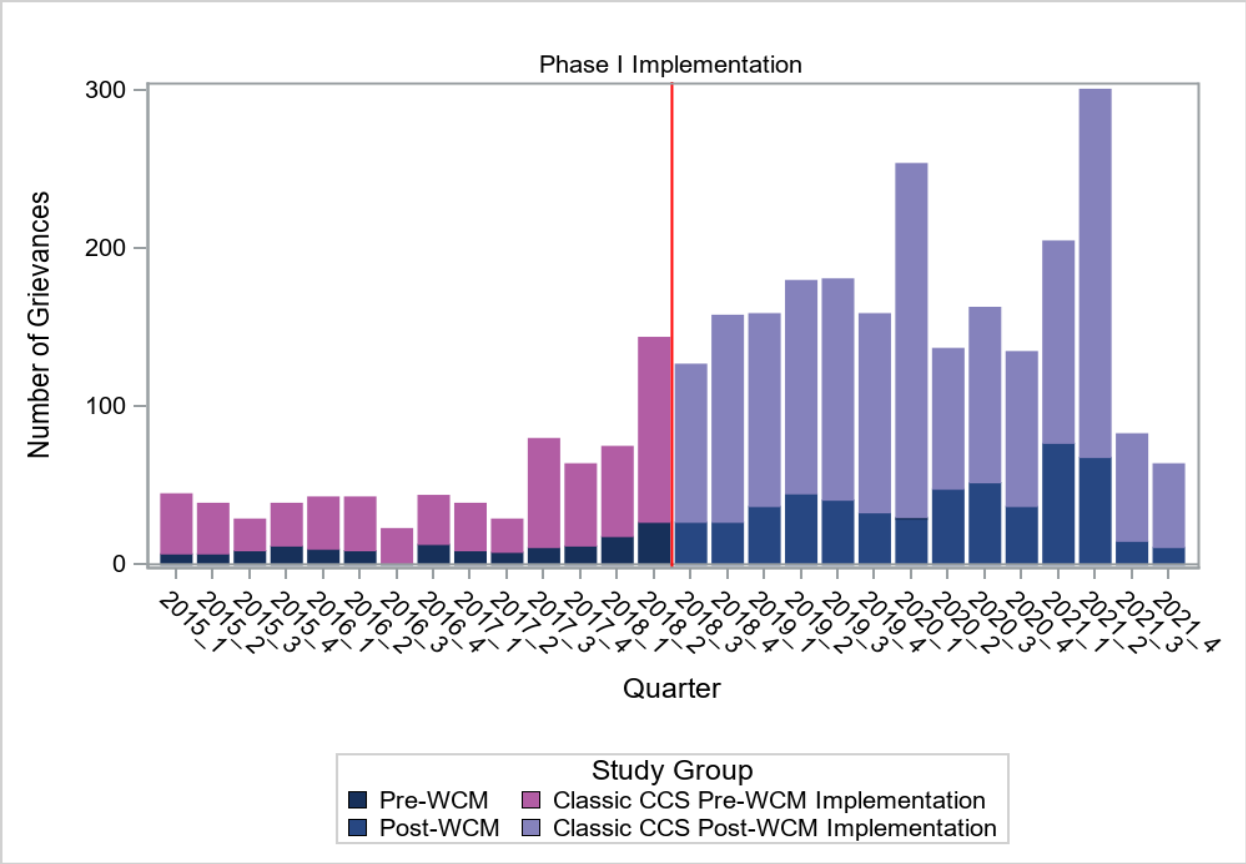
Both WCM and traditional CCS counties experienced an increase in grievances per 100,000 member months pre- versus post-WCM Phase I implementation (100 vs. 96, respectively) (Table 70), but this difference was not statistically significant.

Table 70: Phase I Grievances by Group

Phase I	Grievances	Pct. Resolved in Favor of Member	CCS Enrollees	Enrolled Member Months (MM)	Grievances per 100K MM
Pre-WCM	154	76.6	23,689	422,533	36
Post-WCM	547	74.8	17,523	401,227	136
				WCM Change	100
Classic CCS Pre-WCM Implementation	583	63.1	61,994	1,125,401	52
Classic CCS Post-WCM Implementation	1,758	61.8	56,194	1,187,871	148
				Classic Change	96
				Diff in Diffs	4 (p = .013)
Totals may not sum due to rounding					

Figure 24 below also shows a graphical illustration of Phase I grievances by quarter. Grievances increased in both WCM and Classic CCS comparison groups over time. The graphic also illustrates that increase in grievances appears to have started before implementation of the WCM.

Figure 24: Phase I Grievances by Quarter



Phase II Total Grievances

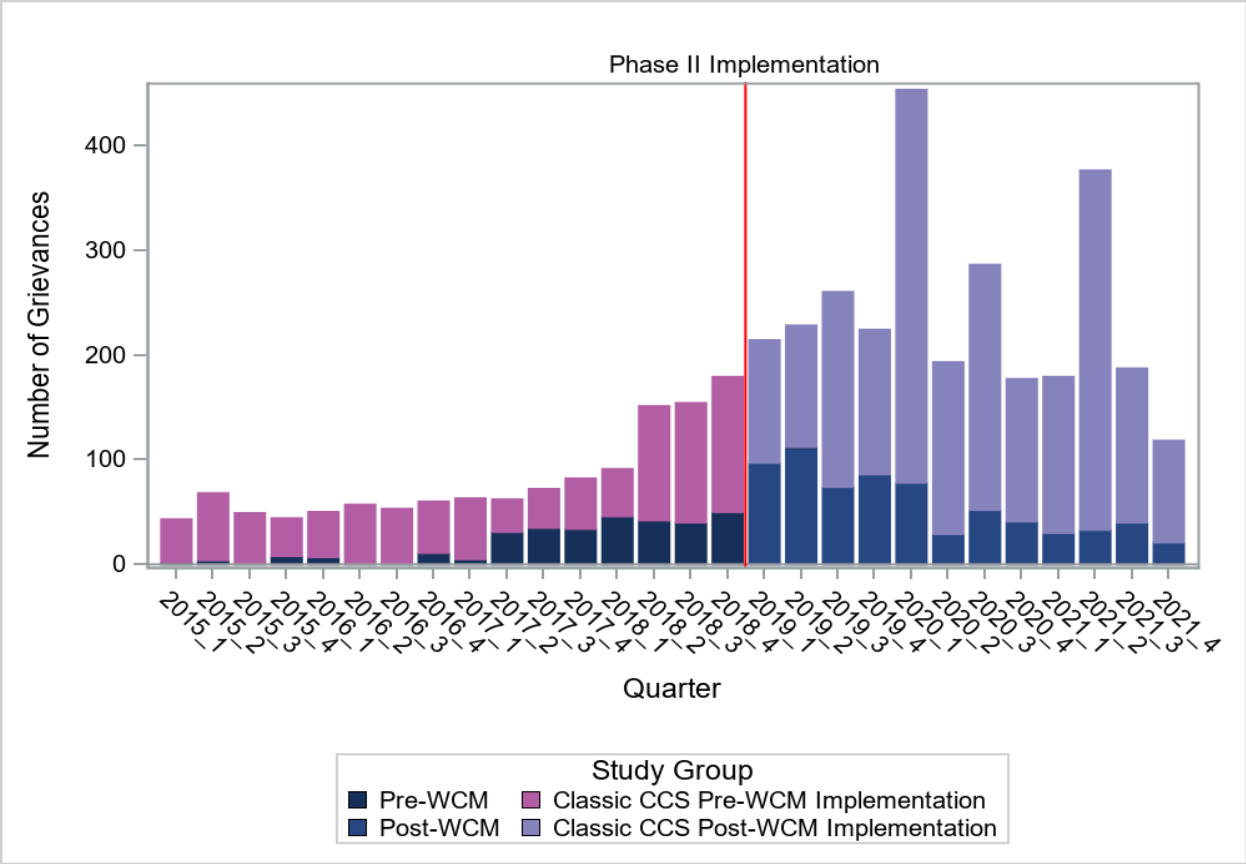
Both WCM and traditional CCS counties experienced an increase in grievances per 100,000 member months pre- versus post-WCM Phase II implementation (89 vs. 42, respectively) (Table 71). The increase in grievances for Phase II WCM counties was 48 grievances per 100,000 member months more than that of traditional counties.

Table 71: Phase II Grievances by Group

Phase II	Grievances	Pct. Resolved in Favor of Member	CCS Enrollees	Enrolled Member Months (MM)	Grievances per 100K MM
Pre-WCM	169	58.0	18,998	393,734	43
Post-WCM	371	41.0	12,448	280,615	132
				WCM Change	89
Classic CCS Pre-WCM Implementation	269	63.2	57,791	1,214,152	22
Classic CCS Post-WCM Implementation	591	61.6	44,421	925,361	64
				Classic Change	42
				Diff in Diffs	48 ($p < .0001$)
Totals may not sum due to rounding					

Figure 25 below also shows a graphical illustration of Phase II grievances by quarter. Grievances increased in both WCM and Classic CCS comparison groups over time. The graphic also illustrates that increase in grievances appears to have started before implementation of the WCM.

Figure 25: Phase II Grievances by Quarter



Phase III Total Grievances

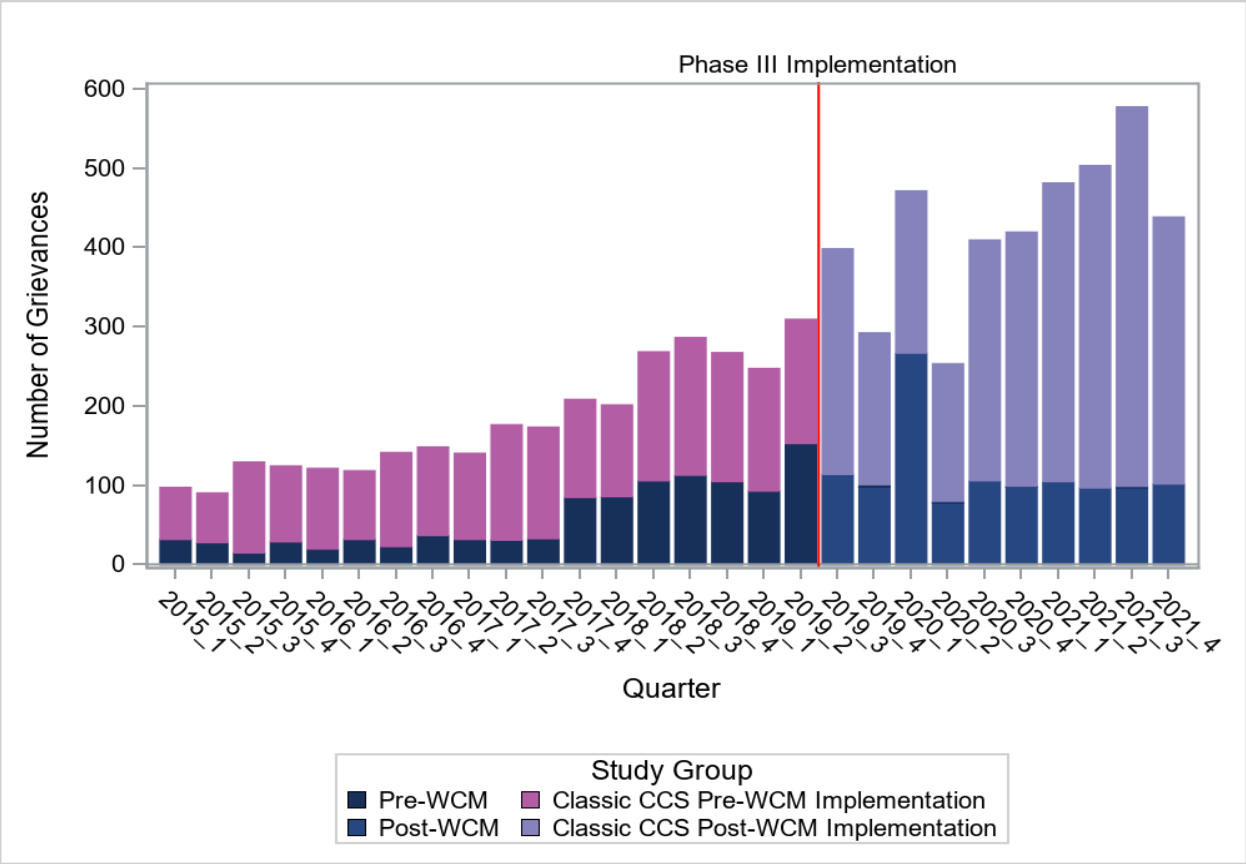
Both WCM and traditional CCS counties experienced an increase in grievances per 100,000 member months pre- versus post-WCM Phase III implementation (184 vs. 161, respectively) (Table 72). The increase in grievances for Phase III WCM counties was 23 grievances per 100,000 member months more than that of traditional counties, but this difference was not statistically significant.

Table 72: Phase III Grievances by Group

Phase III	Grievances	Pct. Resolved in Favor of Member	CCS Enrollees	Enrolled Member Months (MM)	Grievances per 100K MM
Pre-WCM	1,061	83.0	30,473	713,525	149
Post-WCM	1,162	49.9	17,070	349,072	333
				WCM Change:	184
Classic CCS Pre-WCM Implementation	2,208	65.0	93,027	2,078,167	106
Classic CCS Post-WCM Implementation	3,081	45.9	58,408	1,152,673	267
				Classic Change	161
				Diff in Diffs	23 (p = .2790)
Totals may not sum due to rounding					

Figure 26 below also shows a graphical illustration of Phase III grievances by quarter. Grievances increased in both WCM and Classic CCS comparison groups over time. The graphic also illustrates that increase in grievances appears to have started before implementation of the WCM.

Figure 26: Phase III Grievances by Quarter



Overall, implementation of the WCM was associated with an increase in total grievances for all waves of implementation, including the HPSM WCM, Phase I, Phase II, and Phase III. Of note, this increase was statistically significant only for Phase II. Interpretability of some prespecified subgroup analyses was limited by low total grievance counts in WCM implementation counties both pre- and post-WCM implementation. This limitation was especially striking for HPSM WCM, which overall had very low total grievance counts both pre- and post-WCM implementation. However, other prespecified subgroup analyses had grievance counts that were high enough to allow interpretability, and some striking findings were identified (see Appendix Q, “Grievances DiD Subgroup Analysis”).

Research Question 1: What is the impact of the WCM on children's access to CCS services?

The results for Research Question 1 are organized as follows:

1. Access to CCS services brought up via the key informant interviews
2. Telephone survey results regarding access to care, by WCM phase
3. Grievances and appeals
4. Claims analysis that reflects measures relating to access to care, which include network adequacy, provider utilization, healthcare service supports, health outcomes (hospitalizations, ED visits, and subsequent follow-up), and transition outcomes from pediatric to adult healthcare
5. Provider network adequacy
6. Travel distance to specialty care, CCS Paneled Provider, Special Care Center, and primary care provider
7. Utilization of healthcare visits
    a. CCS provider visits
    b. Specialist visits
    c. Special Care Center visits
    d. Mental health visits
        i) High-level and low-level visits shown in tables, and combined in regression
    e. Primary care provider visits (all PCP visit types, including well-child visits, acute care, and follow-up visits)
        i) Primary care visits by age
    f. Well-child visits (specific to healthcare maintenance visits)
        i) HEDIS well-child visit 0–15 months
        ii) HEDIS well-child visit 0–30 months
        iii) HEDIS well-child visit 3–6 years
        iv) HEDIS well-child visit 12–20 years
8. Access to ancillary services
        i) Durable medical equipment claims
        ii) In-Home Supportive Services

iii) Pharmacy claims

9. Health outcomes
    i) Emergency department (ED) visits
        (1) Reason for ED visit
    ii) ED visits with follow-up
    iii) Hospitalizations
        (1) Reason for hospitalization
        (2) Source of hospitalization
    iv) Hospitalization with follow-up
    v) Hospital length of stay
    vi) Hospital readmissions

Access to CCS Services, Brought Up via Key Informant Interviews

Some KIs described decreased referrals into CCS and reduced CCS caseloads after WCM implementation, with one KI noting, *"We had a 22% drop in referrals in [post-WCM year] compared to [pre-WCM year]."* (CCS KI)

The decrease in referrals to CCS led to an overall decrease in KIs' total caseload post-WCM. This decreased caseload then translated into reduced funding and reimbursement for CCS service provision.

> *"We've experienced about a 70% reduction in our referrals. And that has trickled forward to a reduction in our caseload, which then has trickled into a reduction in our allocation to execute the program that we still have."* (CCS KI)

Key informants (KIs) noted an impact on access to services when describing the impact that the WCM had on service authorization requests (SARs). Some MCP Kis kept SARs active to ensure continuity of care during the transition to the WCM.

> *"What we decided that we would do is for any CCS-eligible child . . . that made the transition, if their SAR with the county was still active . . . we said go ahead and continue your clinic visits, continue your treatments, and we will pay the claims according to the fact that you have an active SAR still in place while we're in this transition process for up to six months."* (MCP KI)

Other Kis also spoke about automatic authorizations that helped to streamline the process, with one noting that, *"We changed what requires a prior authorization and what could be provided without a prior authorization process . . . so we actually were able to streamline what services require prior authorization."* (County KI)

DME authorizations were also impacted because after the WCM was implemented, the Medical Therapy Unit (MTU) could only recommend DME and no longer authorize it; DME authorizations became a responsibility of the MCPs. Kis were mixed as far as if access to DME was increased or decreased in the WCM. Some Kis spoke of delays in the MCP's processing of DME authorizations and felt it was done more quickly in Classic CCS counties because they had more control of the process.

> *"I liked [it] prior . . . equipment-wise. I thought it was great that we had such control in terms of where you could really streamline DME through doing auths at the county level."* (MTP KI)

Other Kis felt that DME approvals were faster in the WCM:

> *"The MTU folks working with the WCM health plan to try to streamline the DME provision — that's improved since the Whole Child Model came in."* (CCS KI)

Lastly, in terms of authorizations and access to specialists in the WCM, Kis noted that after the WCM was implemented, the MCP referral process for specialist care or MTU services was not as streamlined as it was through CCS. To obtain specialist services through the MCP, a referral has to originate with the primary care doctor, whereas in CCS, services with a specialist could be approved immediately.

> *"The other thing that's a little bit different about CCS versus the [MCP] is that CCS, when there was a referral to a specialist, we could make that happen instantaneously. Whereas at the [MCP] . . . everybody was referred back to their doctor's office, and the doctor's office would have to generate the referral, and that's not really the way that we did it here in CCS."* (County KI)

In highlighting the delayed access to specialist care, one specialist noted that in the WCM they now have to interact with primary care providers (PCPs) for in-network referrals. Before the WCM, specialists worked directly with CCS on referrals, which was a faster process.

> *"Things take a little longer, so if I'm trying to get through the PCP to get to where they need to go, if I don't get to the PCP in time, or there's a delay and the PCP doesn't get the referral in, there's a delay . . . it is potentially a little longer with these Whole Child Model [counties]."* (SCC KI)

Although the WCM MCPs offered clients an expanded network of providers, some KIs noted that the constraints and limitations of MCP networks impacted access to providers and specialists. This was especially true if the client's specialist or CCS Paneled Provider was not in the MCP network of care, which could lead to delays in care and disrupt a client's continuity of care.

> *"Because of the Whole Child [Model] program, now, because we're not in-network with that specific IPA [independent practice association] group, it's making it difficult for these patients to come and see us . . . there's a possibility that the patient might not be seen."* (SCC KI)

When a provider or SCC was not in the MCP network, then the MCP would have to execute a letter of agreement before the client could be seen, which could lead to delayed access to care.

> *"I think there may have been times where that may have led to maybe a delay in an appointment or possibly having to cancel and reschedule an appointment because they hadn't reached an agreement for this kind of letter of agreement that has to happen every single time a kid is going to one of those [Special Care] Centers."* (MCP KI)

A full report of the KI findings can be found in Appendix R, "California Children's Services Whole Child Model Key Informant Report."

Telephone Survey Results Regarding Access to Care, by WCM Phase

The telephone survey[45] items addressing the first research question, access to CCS services, are drawn from sections of the survey that inquire about:

- Medical home / primary care
- Specialty care
- Therapy services
- Prescription medication

[45] The full telephone survey instrument can be found in Appendix C.

- Behavioral healthcare
- Medical equipment and supplies
- Provider communication
- Transportation

Medical Home / Primary Care

Access to Personal Doctor: A majority of respondents in all WCM study groups (87%) reported "yes" to having a personal doctor or nurse. A significantly greater percentage of Phase II respondents (92%) indicated having a personal doctor or nurse than Classic CCS respondents (86%). See Table 73.

Table 73: Clients' Access to a Personal Doctor

Do you have one or more people you think of as [CHILD'S NAME]'s personal doctor or nurse? (Q10)[46]						
	HPSM	Phase I	Phase II	Phase III	Classic CCS	Total
No	39	117	37	38	142	373
	12.54	15.19	8.28	12.03	14.43	13.19
Yes	272	653	410	278	842	2,455
	87.46	84.81	91.72	87.97	85.57	86.81
Total	311	770	447	316	984	2,828
	100.00	100.00	100.00	100.00	100.00	100.00
Rao-Scott Chi^2	13.18					
P-value	.01					

• First row has frequencies from raw, nonweighted survey results. The second row has column percentages.
• The Rao-Scott chi-square analysis used appropriate survey sample weights.
• The *p*-value represents the significance of the analysis. A *p*-value less than .05 is considered significant.

[46] The items indicated in parentheses refer to the telephone survey item.

Access to the Same Primary Care Provider: The majority of respondents in all WCM study groups (90%) were able to continue seeing their same primary care provider. The differences between WCM study groups were not statistically significant. See Table 74.

Table 74: Clients' Access to Same Primary Care Provider

[Asked only of respondents enrolled in WCM] Since you switched to [NAME OF HEALTH PLAN], does [CHILD'S NAME] have the same primary care provider or did you have to switch to a new primary care provider? (Q12)					
	HPSM	Phase I	Phase II	Phase III	Total
Changed primary care providers	22	50	32	23	127
	13.84	9.23	9.33	10.27	10.02
Kept same primary care provider	137	492	311	201	1,141
	86.16	90.77	90.67	89.73	89.98
Total	159	542	343	224	1,268
	100.00	100.00	100.00	100.00	100.00
Rao-Scott Chi^2	1.09				
P-value	.78				

- First row has frequencies from raw, nonweighted survey results. The second row has column percentages.
- The Rao-Scott chi-square analysis used appropriate survey sample weights.
- The *p*-value represents the significance of the analysis. A *p*-value less than .05 is considered significant.

Frequency of Primary Care Doctor Visits: On average, across the WCM study groups and Classic CCS, respondents reported seeing their primary care provider just under twice in the past six months (mean range = 1.65 to 1.94). The WCM study groups did not significantly differ from the Classic CCS group in the reported frequency of primary care doctor visits. See Table 75.

Table 75: Clients' Mean Number of Visits to Primary Care Doctor

MEANS: [Asked of all whose personal doctor is a primary care doctor.] In the past 6 months, how many times did your client visit their primary care provider or nurse? (Q14)						
WCM Group	*N*	Missing *N*	Mean	Standard Deviation	Min	Max
HPSM	193	1.99	1.80	0.00	13.00	193
Phase I	506	2.22	1.79	0.00	12.00	506
Phase II	313	2.00	1.81	0.00	20.00	313
Phase III	199	1.89	1.65	0.00	10.00	199
Classic CCS	641	1.98	1.94	0.00	30.00	641

• Values are raw, nonweighted survey results.

Emergency Department Visits: Across all WCM study groups the majority of respondents (80%) indicated that the client did not go to the emergency room, even if it was not an emergency, because it was too difficult to see another doctor. Compared to Classic CCS clients (21%), fewer Phase II clients (17%) went to the emergency room, even if it was not an emergency, because it was too difficult to see another doctor. See Table 76.

Table 76: Clients' Access to the Emergency Room

In the last 6 months, did [CHILD'S NAME] go to the emergency room, even if it was not an emergency, because it was too difficult to see another doctor? (Q16)						
	HPSM	Phase I	Phase II	Phase III	Classic CCS	Total
No	238	631	365	245	782	2,261
	78.81	81.84	83.33	77.04	79.15	80.26
Yes	64	140	73	73	206	556
	21.19	18.16	16.67	22.96	20.85	19.74
Total	302	771	438	318	988	2,817
	100.00	100.00	100.00	100.00	100.00	100.00

In the last 6 months, did [CHILD'S NAME] go to the emergency room, even if it was not an emergency, because it was too difficult to see another doctor? (Q16)						
	HPSM	Phase I	Phase II	Phase III	Classic CCS	Total
Rao-Scott Chi^2	6.69					
P-value	.15					

• First row has frequencies from raw, nonweighted survey results. The second row has column percentages.
• The Rao-Scott chi-square analysis used appropriate survey sample weights.
• The *p*-value represents the significance of the analysis. A *p*-value less than .05 is considered significant.

Needing a Referral for Services: Across all WCM study groups, 44% of respondents reported needing a referral. Compared to Classic CCS respondents, significantly fewer Phase II respondents reported needing a referral (Phase II: 38% vs. Classic CCS: 44%). The differences between HPSM WCM, Phase I, and Phase III WCM study groups and Classic CCS were not significant. See Table 77.

Table 77: Clients' Need for a Referral

During the past 6 months, did [CHILD'S NAME] need a referral to see any doctors or receive any services? (Q17)						
	HPSM	Phase I	Phase II	Phase III	Classic CCS	Total
No	176	415	272	162	547	1,572
	56.59	53.76	61.96	51.59	56.28	55.98
Yes	135	357	167	152	425	1,236
	43.41	46.24	38.04	48.41	43.72	44.02
Total	311	772	439	314	972	2,808
	100.00	100.00	100.00	100.00	100.00	100.00
Rao-Scott Chi^2	9.31					
P-value	.05					

• First row has frequencies from raw, nonweighted survey results. The second row has column percentages.
• The Rao-Scott chi-square analysis used appropriate survey sample weights.
• The *p*-value represents the significance of the analysis. A *p*-value less than .05 is considered significant.

Access to Referrals: The majority of respondents in all WCM study groups (67%) did not experience a problem in obtaining a referral. The differences between the WCM study groups and Classic CCS were not statistically significant. See Table 78.

Table 78: Clients' Difficulty in Obtaining a Referral

[if Q17 = Yes: During the past 6 months, did [CHILD'S NAME] need a referral to see any doctors or receive any services?] How big of a problem was it to get referrals? (Q18)	HPSM	Phase I	Phase II	Phase III	Classic CCS	Total
Not a problem	97	226	103	94	283	803
	75.19	64.76	63.98	64.83	67.87	66.86
Small problem	19	87	38	33	82	259
	14.73	24.93	23.60	22.76	19.66	21.57
Big problem	13	36	20	18	52	139
	10.08	10.32	12.42	12.41	12.47	11.57
Total	129	349	161	145	417	1,201
	100.00	100.00	100.00	100.00	100.00	100.00
Rao-Scott Chi^2	6.87					
P-value	.55					

• First row has frequencies from raw, nonweighted survey results. The second row has column percentages.
• The Rao-Scott chi-square analysis used appropriate survey sample weights.
• The *p*-value represents the significance of the analysis. A *p*-value less than .05 is considered significant.

Access to Authorizations: The majority of respondents in all WCM study groups (61%) reported that obtaining an authorization was "about the same." A large percentage of HPSM WCM respondents (38%) stated "don't know" for whether there was a change in their ability to obtain authorizations. The high number of "don't know" responses probably reflects that this survey was administered six years after the WCM was initiated for HPSM. While comparisons between the different WCM study groups are difficult, given different systemic healthcare structures, there were some significant

differences between the WCM study groups. The ability to obtain authorizations significantly differed between HPSM and Phase III, Phase I and Phase III, and Phase II and Phase III. Given the high percentage of HPSM respondents reporting "don't know," there should be caution when interpreting comparisons with the HPSM WCM study group. Compared to Phase I respondents, more Phase III respondents (Phase III = 13% vs. Phase I = 9%) reported that obtaining authorizations was "worse since the transition." A larger percentage of Phase I respondents (6%) indicated "don't know" for obtaining authorizations compared to Phase III respondents (3%). More Phase III respondents (22%) indicated obtaining authorizations was "better since the transition" compared to Phase II respondents (9%). See Table 79.

Table 79: Clients' Access to Authorizations

[Asked only of respondents enrolled in WCM] Since the transition to [NAME OF HEALTH PLAN], has [CHILD'S NAME]'s ability to get authorizations for services been better, the same, or worse? (Q19)					
	HPSM	Phase I	Phase II	Phase III	Total
Better since the transition	23	80	15	35	153
	16.79	21.62	8.52	22.15	18.19
About the same	58	234	120	97	509
	42.34	63.24	68.18	61.39	60.52
Worse since the transition	4	33	26	21	84
	2.92	8.92	14.77	13.29	9.99
Don't know	52	23	15	5	95
	37.96	6.22	8.52	3.16	11.30
Total	137	370	176	158	841
	100.00	100.00	100.00	100.00	100.00
Rao-Scott Chi^2	101.87				
P-value	<.0001				

• First row has frequencies from raw, nonweighted survey results. The second row has column percentages.
• The Rao-Scott chi-square analysis used appropriate survey sample weights.
• The *p*-value represents the significance of the analysis. A *p*-value less than .05 is considered significant.

Specialty Care

Specialists Continuity of Care: The vast majority of respondents (94%) in all WCM study groups reported being able to see the same specialists after transitioning to WCM. The differences between the WCM study groups were not statistically significant. See Table 80.

Table 80: Clients' Ability to See Same Specialist

[Asked only of respondents enrolled in WCM] Was [CHILD'S NAME] able to see the same specialists after enrolling in [NAME OF HEALTH PLAN]? (Q21)					
	HPSM	Phase I	Phase II	Phase III	Total
No — Had to change to one or more new specialists	14	37	18	18	87
	7.04	5.33	4.63	6.43	5.57
Yes — Still able to see same specialists	185	657	371	262	1,475
	92.96	94.67	95.37	93.57	94.43
Total	199	694	389	280	1,562
	100.00	100.00	100.00	100.00	100.00
Rao-Scott Chi^2	2.05				
P-value	.56				

• First row has frequencies from raw, nonweighted survey results. The second row has column percentages.
• The Rao-Scott chi-square analysis used appropriate survey sample weights.
• The *p*-value represents the significance of the analysis. A *p*-value less than .05 is considered significant.

Access to Getting Appointments with Specialists: Since the implementation of WCM, a significant percentage of respondents, across all WCM study groups, reported that it was "usually easy" or "always easy" to get an appointment with specialists (78%). Fewer Phase III respondents (71%) indicated that it was "usually easy" or "always easy" to get an appointment with specialists compared to Classic CCS (79%). The other WCM study group respondents did not differ from Classic CCS respondents. See Table 81.

Table 81: Clients' Ease of Obtaining Specialist Appointments

In the last 6 months, how often was it easy to get appointments for [CHILD'S NAME] with specialists? (Q25)						
	HPSM	Phase I	Phase II	Phase III	Classic CCS	Total
Never easy	10	25	10	6	34	85
	4.74	4.63	3.18	2.83	5.15	4.39
Sometimes easy	38	98	47	56	106	345
	18.01	18.15	14.97	26.42	16.06	17.81
Usually easy	79	172	120	60	252	683
	37.44	31.85	38.22	28.30	38.18	35.26
Always easy	84	245	137	90	268	824
	39.81	45.37	43.63	42.45	40.61	42.54
Total	211	540	314	212	660	1937
	100.00	100.00	100.00	100.00	100.00	100.00
Rao-Scott Chi^2	42.79					
P-value	<.0001					

- First row has frequencies from raw, nonweighted survey results. The second row has column percentages.
- The Rao-Scott chi-square analysis used appropriate survey sample weights.
- The *p*-value represents the significance of the analysis. A *p*-value less than .05 is considered significant.

Unmet Need for Specialty Services: The majority of respondents in all WCM study groups (87%) were able to get all the specialist services they needed. The differences between WCM study groups and Classic CCS were not statistically significant. See Table 82.

Table 82: Clients' Unmet Needs for Specialty Services

Does [CHILD'S NAME] need any specialist services that he or she currently cannot get through [NAME OF HEALTH PLAN / COUNTY CCS]? (Q27)						
	HPSM	Phase I	Phase II	Phase III	Classic CCS	Total
No, he or she gets all the specialist services he or she needs.	209	561	308	214	629	1,921
	87.08	87.66	87.75	89.17	85.35	87.00
Yes, there are specialist services he or she needs but cannot get through current plan	31	79	43	26	108	287
	12.92	12.34	12.25	10.83	14.65	13.00
Total	240	640	351	240	737	2,208
	100.00	100.00	100.00	100.00	100.00	100.00
Rao-Scott Chi^2	5.87					
P-value	.21					

• First row has frequencies from raw, nonweighted survey results. The second row has column percentages.
• The Rao-Scott chi-square analysis used appropriate survey sample weights.
• The *p*-value represents the significance of the analysis. A *p*-value less than .05 is considered significant.

Medical Therapy Services

Continuity of Location of Therapy Services: The majority of clients across all WCM study groups (88%) did not experience a change in the location of therapy services. See Table 83.

Table 83: Clients' Location of Therapy Services

[Asked only of respondents enrolled in WCM] Since the transition to [NAME OF HEALTH PLAN] did the site of [CHILD'S NAME]'s therapy change? (Q33)					
	HPSM	Phase I	Phase II	Phase III	Total
No change	96	303	178	112	689
	84.21	89.91	89.90	85.50	88.33

[Asked only of respondents enrolled in WCM] Since the transition to [NAME OF HEALTH PLAN] did the site of [CHILD'S NAME]'s therapy change? (Q33)					
	HPSM	Phase I	Phase II	Phase III	Total
Yes, used to go to Medical Therapy Unit, now goes to other	6	8	4	5	23
	5.26	2.37	2.02	3.82	2.95
Yes, used to go to other, now goes to Medical Therapy Unit	0	3	3	2	8
	0.00	0.89	1.52	1.53	1.03
Yes, changed some other way	12	23	13	12	60
	10.53	6.82	6.57	9.16	7.69
Total	114	337	198	131	780
	100.00	100.00	100.00	100.00	100.00
Rao-Scott Chi^2	†				
P-value					

• First row has frequencies from raw, nonweighted survey results. The second row has column percentages.
• †The Rao-Scott chi-square analysis could not be computed because at least one cell had zero frequency.
• The *p*-value represents the significance of the analysis. A *p*-value less than .05 is considered significant.

Access to Therapy Service Appointments: Since the implementation of WCM, more respondents in the WCM study groups (42%) reported that it was "always easy" to get a medical therapy services appointment for the client compared to Classic CCS respondents (30%). The distribution in the ease of obtaining therapy services for Phase II respondents significantly differed from Classic CCS respondents. A higher percentage of Phase II respondents (76%) indicated it was "usually easy" or "always easy" to obtain a medical therapy appointment than Classic CCS respondents (66%) since the implementation of WCM. See Table 84.

Table 84: Clients' Ease of Obtaining Therapy Services

In the last 6 months, how often was it easy to get therapy services for [CHILD'S NAME]? (Q34)						
	HPSM	Phase I	Phase II	Phase III	Classic CCS	Total
Never easy	7	7	3	5	14	36
	10.29	5.00	4.41	9.26	10.14	7.69
Sometimes easy	14	35	13	11	33	106
	20.59	25.00	19.12	20.37	23.91	22.65
Usually easy	20	42	24	13	49	148
	29.41	30.00	35.29	24.07	35.51	31.62
Always easy	27	56	28	25	42	178
	39.71	40.00	41.18	46.30	30.43	38.03
Total	68	140	68	54	138	468
	100.00	100.00	100.00	100.00	100.00	100.00
Rao-Scott Chi^2	16.49					
P-value	.17					

• First row has frequencies from raw, nonweighted survey results. The second row has column percentages.
• The Rao-Scott chi-square analysis used appropriate survey sample weights and is across all three healthcare models.
• The *p*-value represents the significance of the analysis. A *p*-value less than .05 is considered significant.

Unmet Need for Medical Therapy Services: While the majority of respondents in all WCM study groups reported that their medical therapy services needs were met (65%), a large percentage of respondents reported unmet needs (35%). There were no statistically significant differences between WCM study groups and Classic CCS. See Table 85.

Table 85: Clients' Unmet Needs for Therapy Services

Does [CHILD'S NAME] need any therapy services that he or she currently cannot get? (Q36)						
	HPSM	Phase I	Phase II	Phase III	Classic CCS	Total
Needs met	98	210	118	85	254	765
	63.64	67.09	63.44	66.93	62.72	64.56
Has unmet needs	56	103	68	42	151	420
	36.36	32.91	36.56	33.07	37.28	35.44
Total	154	313	186	127	405	1,185
	100.00	100.00	100.00	100.00	100.00	100.00
Rao-Scott Chi^2	1.36					
P-value	.85					

• First row has frequencies from raw, nonweighted survey results. The second row has column percentages.
• The Rao-Scott chi-square analysis used appropriate survey sample weights and is across all three healthcare models.
• The *p*-value represents the significance of the analysis. A *p*-value less than .05 is considered significant.

Prescription Medication

Ease of Getting Prescription Medications: The majority of respondents in all WCM study groups (78%) indicated that it was "usually easy" or "always easy" to obtain prescription medications. The differences between WCM study groups and Classic CCS were not statistically significant. See Table 86.

Table 86: Clients' Ease of Obtaining Prescriptions

In the last 6 months, how often was it easy to get these prescription medications for [CHILD'S NAME]? (Q40)						
	HPSM	Phase I	Phase II	Phase III	Classic CCS	Total
Never easy	8	23	11	8	30	80
	4.10	5.20	4.14	4.85	5.42	4.93

In the last 6 months, how often was it easy to get these prescription medications for [CHILD'S NAME]? (Q40)						
	HPSM	Phase I	Phase II	Phase III	Classic CCS	Total
Sometimes easy	33	84	54	22	80	273
	16.92	19.00	20.30	13.33	14.44	16.83
Usually easy	59	144	76	49	175	503
	30.26	32.58	28.57	29.70	31.59	31.01
Always easy	95	191	125	86	269	766
	48.72	43.21	46.99	52.12	48.56	47.23
Total	195	442	266	165	554	1,622
	100.00	100.00	100.00	100.00	100.00	100.00
Rao-Scott Chi^2	10.69					
P-value	.56					

• First row has frequencies from raw, nonweighted survey results. The second row has column percentages.
• The Rao-Scott chi-square analysis used appropriate survey sample weights.
• The *p*-value represents the significance of the analysis. A *p*-value less than .05 is considered significant.

Delay Getting Prescription Medications: The majority of respondents in all WCM study groups (76%) indicated in the past six months they did not delay or did not receive a needed prescription medication. The differences between WCM study groups and Classic CCS were not statistically significant. See Table 87.

Table 87: Clients Who Experienced a Delay Obtaining Prescriptions

In the past 6 months, did you delay or not get a prescription that a doctor prescribed? (Q41)						
	HPSM	Phase I	Phase II	Phase III	Classic CCS	Total
No	150	341	195	125	429	1,240
	78.53	76.12	73.03	74.85	78.14	76.45

In the past 6 months, did you delay or not get a prescription that a doctor prescribed? (Q41)						
	HPSM	Phase I	Phase II	Phase III	Classic CCS	Total
Yes	41	107	72	42	120	382
	21.47	23.88	26.97	25.15	21.86	23.55
Total	191	448	267	167	549	1,622
	100.00	100.00	100.00	100.00	100.00	100.00
Rao-Scott Chi^2	9.07					
P-value	.06					

• First row has frequencies from raw, nonweighted survey results. The second row has column percentages.
• The Rao-Scott chi-square analysis used appropriate survey sample weights.
• The *p*-value represents the significance of the analysis. A *p*-value less than .05 is considered significant.

Continuity of Location of Pharmacy Services: The majority of respondents in all WCM study groups (90%) indicated they were able to keep the same pharmacy after the transition to WCM. The differences between WCM study groups and Classic CCS were not statistically significant. See Table 88.

Table 88: Clients' Ability to Keep the Same Pharmacy

[Asked only of respondents enrolled in WCM] Since switching to [NAME OF HEALTH PLAN], can you go to the same pharmacy or did you have to switch to a different pharmacy? (Q43)					
	HPSM	Phase I	Phase II	Phase III	Total
Switched to a different pharmacy	19	45	25	16	105
	12.18	10.07	9.40	9.82	10.17
Kept same pharmacy	137	402	241	147	927
	87.82	89.93	90.60	90.18	89.83
Total	156	447	266	163	1,032

[Asked only of respondents enrolled in WCM] Since switching to [NAME OF HEALTH PLAN], can you go to the same pharmacy or did you have to switch to a different pharmacy? (Q43)					
	HPSM	Phase I	Phase II	Phase III	Total
	100.00	100.00	100.00	100.00	100.00
Rao-Scott Chi^2	0.47				
P-value	.92				

• First row has frequencies from raw, nonweighted survey results. The second row has column percentages.
• The Rao-Scott chi-square analysis used appropriate survey sample weights.
• The *p*-value represents the significance of the analysis. A *p*-value less than .05 is considered significant.

Unmet Needs for Prescribed Medication: The majority of respondents in all WCM study groups (92%) indicated their prescription needs have been met. The differences between WCM study groups and Classic CCS were not statistically significant. See Table 89.

Table 89: Clients' Unmet Needs for Prescriptions

Does [CHILD'S NAME] need any medications prescribed by a doctor that he or she currently cannot get? (Q44)						
	HPSM	Phase I	Phase II	Phase III	Classic CCS	Total
No, needs met	169	405	240	152	473	1,439
	90.86	93.10	93.75	93.25	90.44	92.07
Yes, has unmet need	17	30	16	11	50	124
	9.14	6.90	6.25	6.75	9.56	7.93
Total	186	435	256	163	523	1,563
	100.00	100.00	100.00	100.00	100.00	100.00
Rao-Scott Chi^2	5.66					
P-value	.23					

Does [CHILD'S NAME] need any medications prescribed by a doctor that he or she currently cannot get? (Q44)						
	HPSM	Phase I	Phase II	Phase III	Classic CCS	Total

- First row has frequencies from raw, nonweighted survey results. The second row has column percentages.
- The Rao-Scott chi-square analysis used appropriate survey sample weights.
- The *p*-value represents the significance of the analysis. A *p*-value less than .05 is considered significant.

Behavioral Health

Access to Behavioral Health Services: While the majority of respondents in all WCM study groups (58%) indicated that it was "usually easy" or "always easy" to get behavioral health treatment or counseling, a significant proportion (42%) indicated that it was "never easy" or "sometimes easy." The differences between WCM study groups and Classic CCS were not statistically significant. See Table 90.

Table 90: Clients' Ease of Obtaining Behavioral Health Services

In the last 6 months, how often was it easy to get this treatment or counseling for [CHILD'S NAME]? (Q48)						
	HPSM	Phase I	Phase II	Phase III	Classic CCS	Total
Never easy	13	36	14	7	39	109
	19.70	21.05	12.28	12.07	19.12	17.78
Sometimes easy	10	43	28	14	54	149
	15.15	25.15	24.56	24.14	26.47	24.31
Usually easy	22	55	35	19	66	197
	33.33	32.16	30.70	32.76	32.35	32.14
Always easy	21	37	37	18	45	158
	31.82	21.64	32.46	31.03	22.06	25.77
Total	66	171	114	58	204	613
	100.00	100.00	100.00	100.00	100.00	100.00

In the last 6 months, how often was it easy to get this treatment or counseling for [CHILD'S NAME]? (Q48)						
	HPSM	Phase I	Phase II	Phase III	Classic CCS	Total
Rao-Scott Chi^2	8.36					
P-value	.76					

• First row has frequencies from raw, nonweighted survey results. The second row has column percentages.
• The Rao-Scott chi-square analysis used appropriate survey sample weights.
• The *p*-value represents the significance of the analysis. A *p*-value less than .05 is considered significant.

Behavioral Health Unmet Needs: The majority of respondents in all WCM study groups (76%) reported that their behavioral or mental health services needs have been met. Compared to Classic CCS (68%), significantly more respondent in Phase I (78%), Phase II (80%), and Phase III (87%) reported that their mental health services needs were met. See Table 91.

Table 91: Clients' Unmet Needs for Behavioral Health Services

Does [CHILD'S NAME] need any behavioral or mental health services that he or she currently cannot get through [NAME OF HEALTH PLAN / COUNTY CCS]? (Q49)						
	HPSM	Phase I	Phase II	Phase III	Classic CCS	Total
Needs met	41	119	78	48	128	414
	78.85	77.78	80.41	87.27	68.09	75.96
Has unmet need	11	34	19	7	60	131
	21.15	22.22	19.59	12.73	31.91	24.04
Total	52	153	97	55	188	545
	100.00	100.00	100.00	100.00	100.00	100.00
Rao-Scott Chi^2	15.75					
P-value	.003					

Does [CHILD'S NAME] need any behavioral or mental health services that he or she currently cannot get through [NAME OF HEALTH PLAN / COUNTY CCS]? (Q49)						
	HPSM	Phase I	Phase II	Phase III	Classic CCS	Total

- First row has frequencies from raw, nonweighted survey results. The second row has column percentages.
- The Rao-Scott chi-square analysis used appropriate survey sample weights.
- The *p*-value represents the significance of the analysis. A *p*-value less than .05 is considered significant.

Medical Equipment and Supplies

Access to Medical Equipment: Since transitioning into WCM, a significantly greater number of respondents in Phase II (34%) and Phase III (39%) reported that it was "always easy" to obtain medical equipment and supplies compared to Classic CCS respondents (23%). The differences between the other WCM study groups and Classic CCS respondents were not significant. See Table 92.

Table 92: Clients' Ease of Obtaining Medical Equipment and Supplies

In the last 6 months, how often was it easy to get special medical equipment or supplies (including repairs) for [CHILD'S NAME]? (Q53)						
	HPSM	Phase I	Phase II	Phase III	Classic CCS	Total
Never easy	17	27	21	14	63	142
	13.71	11.16	12.88	12.84	18.21	14.43
Sometimes easy	33	70	27	24	77	231
	26.61	28.93	16.56	22.02	22.25	23.48
Usually easy	44	75	60	29	128	336
	35.48	30.99	36.81	26.61	36.99	34.15
Always easy	30	70	55	42	78	275
	24.19	28.93	33.74	38.53	22.54	27.95
Total	124	242	163	109	346	984

In the last 6 months, how often was it easy to get special medical equipment or supplies (including repairs) for [CHILD'S NAME]? (Q53)						
	HPSM	Phase I	Phase II	Phase III	Classic CCS	Total
	100.00	100.00	100.00	100.00	100.00	100.00
Rao-Scott Chi^2	35.88					
P-value	.0003					

• First row has frequencies from raw, nonweighted survey results. The second row has column percentages.
• The Rao-Scott chi-square analysis used appropriate survey sample weights.
• The *p*-value represents the significance of the analysis. A *p*-value less than .05 is considered significant.

Unmet Needs for Medical Equipment: Phase I and Phase II respondents were less likely (19% each) to report having unmet needs for medical equipment and supplies compared to Classic CCS respondents (26%). This difference was statistically significant. The differences between the other WCM study groups and Classic CCS respondents were not significant. See Table 93.

Table 93: Clients' Unmet Needs for Medical Equipment and Supplies

Does [CHILD'S NAME] need any medical equipment or supplies that he or she currently cannot get through [NAME OF HEALTH PLAN / COUNTY CCS]? (Q55)						
	HPSM	Phase I	Phase II	Phase III	Classic CCS	Total
No, needs met	86	184	118	86	228	702
	79.63	81.42	80.82	80.37	73.55	78.26
Yes, has unmet need	22	42	28	21	82	195
	20.37	18.58	19.18	19.63	26.45	21.74
Total	108	226	146	107	310	897
	100.00	100.00	100.00	100.00	100.00	100.00
Rao-Scott Chi^2	9.05					
P-value	.06					

Does [CHILD'S NAME] need any medical equipment or supplies that he or she currently cannot get through [NAME OF HEALTH PLAN / COUNTY CCS]? (Q55)						
	HPSM	Phase I	Phase II	Phase III	Classic CCS	Total

- First row has frequencies from raw, nonweighted survey results. The second row has column percentages.
- The Rao-Scott chi-square analysis used appropriate survey sample weights.
- The *p*-value represents the significance of the analysis. A *p*-value less than .05 is considered significant.

Provider Communication

Access to Interpreter Services: The majority of respondents in all WCM study groups (80%) reported that, if needed, they were "usually" or "always" able to have a professional interpreter. A greater percentage of Phase I respondents (83%) reported they were "usually" or "always" able to have a professional interpreter compared to Classic CCS (78%). See Table 94.

Table 94: Clients' Access to Interpreter Services

[Only if interview is conducted in a language other than English] In the last 6 months, if you or [CHILD'S NAME] needed a professional interpreter to help [CHILD'S NAME] speak with his or her doctor, how often did you get one? (Q61)						
	HPSM	Phase I	Phase II	Phase III	Classic CCS	Total
Never	2	3	2	5	8	20
	2.70	1.49	2.60	5.62	3.00	2.82
Sometimes	14	32	13	12	51	122
	18.92	15.92	16.88	13.48	19.10	17.23
Usually	9	18	16	10	30	83
	12.16	8.96	20.78	11.24	11.24	11.72
Always	49	148	46	62	178	483
	66.22	73.63	59.74	69.66	66.67	68.22
Total	74	201	77	89	267	708

[Only if interview is conducted in a language other than English] In the last 6 months, if you or [CHILD'S NAME] needed a professional interpreter to help [CHILD'S NAME] speak with his or her doctor, how often did you get one? (Q61)						
	HPSM	Phase I	Phase II	Phase III	Classic CCS	Total
	100.00	100.00	100.00	100.00	100.00	100.00
Rao-Scott Chi^2	19.45					
P-value	.08					

• First row has frequencies from raw, nonweighted survey results. The second row has column percentages.
• The Rao-Scott chi-square analysis could not be computed because at least one cell had zero frequency.
• The *p*-value represents the significance of the analysis. A *p*-value less than .05 is considered significant.

Transportation Services

Access to Transportation Services: The distribution between the WCM study groups and Classic CCS respondents was not significant in how they responded to the ease of getting transportation for their child's healthcare appointments. Although not significant, it is of interest to note the large percentage of Phase III respondents (35%) who indicated it was "never easy" to get transportation for their child's healthcare appointments compared to Classic CCS respondents (13%). See Table 95.

Table 95: Clients' Ease of Obtaining Transportation Services

How often is it easy to get transportation to [CHILD'S NAME]'s doctors or other healthcare providers? (Q64)						
	HPSM	Phase I	Phase II	Phase III	Classic CCS	Total
Never easy	3	17	13	9	13	55
	8.11	14.53	13.13	34.62	12.62	14.40
Sometimes easy	14	46	37	6	39	142
	37.84	39.32	37.37	23.08	37.86	37.17
Usually easy	9	16	29	7	29	90
	24.32	13.68	29.29	26.92	28.16	23.56

How often is it easy to get transportation to [CHILD'S NAME]'s doctors or other healthcare providers? (Q64)						
	HPSM	Phase I	Phase II	Phase III	Classic CCS	Total
Always easy	11	38	20	4	22	95
	29.73	32.48	20.20	15.38	21.36	24.87
Total	37	117	99	26	103	382
	100.00	100.00	100.00	100.00	100.00	100.00
Rao-Scott Chi^2	15.26					
P-value	.23					

• First row has frequencies from raw, nonweighted survey results. The second row has column percentages.
• The Rao-Scott chi-square analysis used appropriate survey sample weights.
• The *p*-value represents the significance of the analysis. A *p*-value less than .05 is considered significant.

Access to Transportation Services — Missed Appointments: While over two-thirds of respondents across all WCM study groups (69%) did not miss health or therapy appointments because of transportation problems, a little under a third of respondents (31%) reported missing health or therapy appointments because of transportation problems. The difference between WCM study groups and Classic CCS respondents was not significant. See Table 96.

Table 96: Clients Who Missed Appointments Due to Transportation Problems

In the last six months, did [CHILD'S NAME] miss any scheduled health or therapy appointments because of transportation problems? (Q66)						
	HPSM	Phase I	Phase II	Phase III	Classic CCS	Total
No	25	93	75	17	79	289
	60.98	73.23	72.82	56.67	68.70	69.47
Yes	16	34	28	13	36	127
	39.02	26.77	27.18	43.33	31.30	30.53
Total	41	127	103	30	115	416

In the last six months, did [CHILD'S NAME] miss any scheduled health or therapy appointments because of transportation problems? (Q66)						
	HPSM	Phase I	Phase II	Phase III	Classic CCS	Total
	100.00	100.00	100.00	100.00	100.00	100.00
Rao-Scott Chi^2	3.86					
P-value	.43					

• First row has frequencies from raw, nonweighted survey results. The second row has column percentages.
• The Rao-Scott chi-square analysis used appropriate survey sample weights.
• The *p*-value represents the significance of the analysis. A *p*-value less than .05 is considered significant.

Summary of Research Question 1: What is the impact of the WCM on children's access to CCS services?

The telephone survey demonstrated that for a number of measures assessing access to care, there were significant differences between some of the WCM study groups and Classic CCS. That is, all groups were able to visit their PCP and the ED, and continue to see the same specialists, obtain prescriptions, receive behavioral health services, and get transportation to health or therapy appointments. This could be viewed positively — that is, the transition to WCM care went relatively smoothly for families.

Although the access to behavioral health services did not differ between WCM study groups and Classic CCS, a large percentage of respondents, 42%, indicated it was "never easy" or "sometimes easy" to obtain behavioral health services. Further examination of possible obstacles to accessing behavioral health services should be considered.

The following convey the areas of differences between WCM study groups and Classic CCS:

Medical Home / Primary Care: While a majority of respondents in all WCM study groups (87%) reported having a personal doctor or nurse, a significantly greater percentage of Phase II respondents (92%) indicated having a personal doctor or nurse than Classic CCS respondents (86%).

The majority of respondents in all WCM study groups (80%) indicated that the client did not go to the emergency room, even if it was not an emergency, because it was too difficult to see another doctor. Phase II respondents reported fewer clients going to the emergency room, even if it was not an emergency, because it was too difficult to see another doctor compared to Classic CCS. Significantly fewer Phase II respondents reported needing a referral compared to Classic CCS.

Phase III respondents reported that obtaining authorizations since the transition to WCM was worse compare to Phase I. Whereas, compared to Phase II respondents, Phase III respondents' ability to obtain an authorization was better.

Specialty Care: Since the implementation of WCM, a significant percentage of respondents across all WCM study groups (78%) reported that it was "usually easy" or "always easy" to get an appointment with specialists. Fewer Phase III respondents (71%) indicated that it was "usually easy" or "always easy" to get an appointment with specialists compared to Classic CCS (79%).

Medical Therapy Services: Since the implementation of WCM, a greater number of respondents in the WCM study groups (42%) reported that it was "always easy" to get a medical therapy services appointment for the client compared to Classic CCS respondents (30%). Furthermore, a higher percentage of Phase II respondents (76%) indicated it was "usually easy" or "always easy" to obtain a medical therapy appointment than Classic CCS respondents (66%) since the implementation of WCM.

Behavioral Health: The majority of respondents (76%) in all WCM study groups reported that their behavioral or mental health services needs have been met. However, compared to Classic CCS (68%) significantly more respondent in Phase I (78%), Phase II (80%), and Phase III (87%) reported that their mental health services needs were met.

Medical Equipment and Supplies: Phase I and Phase II respondents were less likely to report having unmet needs for medical equipment and supplies (19% each) compared to Classic CCS respondents (26%).

Provider Communication: The majority of respondents in all WCM study groups (80%) reported that, if needed, they were "usually" or "always" able to have a professional interpreter. However, a greater percentage of Phase I respondents (83%) reported they were "usually" or "always" able to have a professional interpreter compared to Classic CCS (78%).

Research Question 1: Nonsignificant Telephone Survey Items

The telephone survey items that pertained to access to healthcare services listed below did not have any significant differences between WCM study groups:

- Medical home / primary care:
- Access to the same primary care provider
- Number of visits to the primary care provider

- Access to referrals
- Specialty care:
- Specialists continuity of care
- Unmet need for specialty services
- Medical therapy services:
- Continuity of location of therapy services
- Unmet need for medical therapy services
- Prescription medications
- Ease of getting prescription medications
- Delay getting prescription medications:
- Access to pharmacy services
- Unmet needs for prescribed medication
- Behavioral health:
- Access to behavioral health services
- Medical equipment and supplies
- Access to medical equipment
- Transportation services:
- Access to transportation services
- Access to transportation services — missed appointments

Additional findings regarding access to care can be found in Appendix S, "WCM Telephone Survey Report," and in Appendix T, "WCM Telephone Survey Table Results by Research Question."

Grievances and Appeals, Regarding Access to Care

When looking at HPSM accessibility grievances, clients in HPSM WCM experienced a slightly larger increase in grievances per 100,000 member months pre- versus post-HPSM WCM implementation than did their Classic CCS counterparts, but low total counts in HPSM both pre- and post-WCM implementation limit the interpretability of this finding.

Table 97: Grievances for Access to Care

HPSM WCM	Grievances	Pct. Resolved in Favor of Member	CCS Enrollees	Enrolled Member Months (MM)	Grievances per 100K MM
Pre-WCM	0		451	1,686	0
Post-WCM	4	50.0	889	14,945	27
				WCM Change	27
Classic CCS Pre-WCM Implementation	21	76.2	13,005	178,247	12
Classic CCS Post-WCM Implementation	62	53.2	14,965	295,926	21
				Classic Change	9
				Diff in Diffs	18

Analysis of Phase I grievances, categorized as “accessibility grievances,” reveals that clients in WCM counties experienced a smaller pre- versus post-WCM implementation increase in accessibility grievances per 100,000 member months than did their Classic CCS county counterparts. See Table 98.

Table 98: Accessibility Grievances, Phase I

Phase I	Grievances	Pct. Resolved in Favor of Member	CCS Enrollees	Enrolled Member Months (MM)	Grievances per 100K MM
Pre-WCM	30	96.7	23,689	422,533	7
Post-WCM	63	74.6	17,523	401,227	16
				WCM Change	9
Classic CCS Pre-WCM Implementation	66	72.7	61,994	1,125,401	6
Classic CCS Post-WCM Implementation	250	68.8	56,194	1,187,871	21
				Classic Change	15

				Diff in Diffs	-7

Analysis of Phase II accessibility grievances reveal that WCM counties experienced a smaller increase in grievances per 100,000 member months pre- versus post-WCM Phase II implementation than did their Classic CCS county counterparts. See Table 99.

Table 99: Accessibility Grievances, Phase II

Phase II	Grievances	Pct. Resolved Favor Member	CCS Enrollees	Enrolled Member Months (MM)	Grievances per 100K MM
Pre-WCM	28	82.1	18,998	393,734	7
Post-WCM	57	52.6	12,448	280,615	20
				WCM Change	13
Classic CCS Pre-WCM Implementation	83	55.4	57,791	1,214,152	7
Classic CCS Post-WCM Implementation	280	61.4	44,421	925,361	30
				Classic Change	23
				Diff in Diffs	-10

Analysis of Phase III accessibility grievances reveal that WCM counties experienced a slightly smaller increase in grievances per 100,000 member months pre- versus post-WCM Phase III implementation than did their Classic CCS county counterparts. See Table 100.

Table 100: Accessibility Grievances, Phase III

Phase III	Grievances	Pct. Resolved Favor Member	CCS Enrollees	Enrolled Member Months (MM)	Grievances per 100K MM
Pre-WCM	46	97.8	30,473	713,525	6

Post-WCM	152	60.5	17,070	349,072	44
				WCM Change	37
Classic CCS Pre-WCM Implementation	224	74.1	93,027	2,078,167	11
Classic CCS Post-WCM Implementation	635	43.6	58,408	1,152,673	55
				Classic Change	44
				Diff in Diffs	-7

Administrative Claims Analysis for Research Question 1

Provider Network Adequacy

In this section, network adequacy is analyzed for primary care providers, CCS Paneled Providers, and specialist providers, and for Special Care Centers. The analysis includes a description of the overall listed network of pediatric providers and the providers that actually had a claim with a CCS client during the study period. Tables below also provide the proportion of providers out of network and the proportion of clinical visits out of network. The tables below are broken down by WCM study group, pre- and post-implementation.

1. Number of pediatric providers listed in the Medi-Cal managed care health plan network of providers by category:
    a. Primary care providers
    b. Special Care Centers
    c. CCS Paneled Provider, which includes all CCS Paneled Providers (e.g, audiologists, physical therapists, physicians, pharmacy)[47]
    d. CCS Paneled Specialists
    e. Specialists (All)
    f. Total providers (specialists and PCPs); this category includes only clinicians
2. Number of providers by category that have seen WCM clients, or “serving” providers
3. Number of serving providers in-network
4. Proportion of serving providers out of network
5. Number of enrollees per in-network provider
6. Number of enrollees per serving provider
7. Percentage of visits that were out of network by category

[47] “California Children's Services Provider Lists,” DHCS, last modified March 23, 2021, www.dhcs.ca.gov/services/ccs/Pages/CCSProviders.aspx.

8. Description of individual specialists and subspecialists in-network per WCM plan can be found in Appendix U, "Network Provider Methodology and Network Provider Participation by Specialty," which describes:
   a. Number of speciality providers in-network
   b. Number of serving providers (to capture the number of providers actively seeing CCS clients)
   c. Number of enrollees in-network
   d. Enrollees per serving provider

HPSM WCM network participation

Access by Provider Type: Table 101 below shows the number of pediatric network providers participating in HPSM WCM by category. When looking at the number of in-network providers who had served clients versus the total number of in-network pediatric providers for each category, a significant number of in-network providers did not see a CCS client. Depending on category, 33% or less of in-network pediatric providers had a claim with a CCS client. The number of in-network providers increased post-WCM implementation. Across the different provider types, 91% or more of visits were in-network, a significant increase as compared to the pre-WCM implementation period. The majority of specialists seen were CCS paneled (91%). In terms of network adequacy, all categories had a ratio of less than 150 CCS clients per physician for both serving providers and listed in-network providers.

Access by Specialty and Subspecialty: Table 2 in Appendix U shows the specialties and the client-to-provider ratios for the HPSM WCM. The highest client-to-provider ratios were found in pediatric urology and pediatric dermatology, with 444 clients per serving provider. When looking at CCS clients per in-network pediatric specialist and subspecialist, almost all ratios were less than 450 clients per provider. There was no in-network pediatric ophthalmology listed.

Table 101: HPSM WCM Network Participation and Visits Seen In-Network versus Out of Network

Study Group	Provider Type	Number of Providers In-Network	Number of Serving Providers	Number of Serving Providers In-Network	Percentage of Serving Providers Out of Network	Number of CCS Enrollees per In-Network Provider	Number of CCS Enrollees per Serving Provider	Percentage of Visits In-Network
HPSM WCM Pre-WCM	Primary Care	2,764	37	26	30%	0.0	3.2	72%
	SCC	7	10	5	50%	16.9	11.8	51%

Study Group	Provider Type	Number of Providers In-Network	Number of Serving Providers	Number of Serving Providers In-Network	Percentage of Serving Providers Out of Network	Number of CCS Enrollees per In-Network Provider	Number of CCS Enrollees per Serving Provider	Percentage of Visits In-Network
Implementation (118 enrollees)	CCS Paneled Provider	3,961	158	85	46%	0.0	0.7	43%
	CCS Paneled Specialist	333	25	10	60%	0.4	4.7	38%
	Specialist	366	27	14	48%	0.3	4.4	38%
	Total Providers (spec/PCP)	2,192	56	36	36%	0.1	2.1	55%
HPSM WCM Post-WCM Implementation (889 enrollees)	Primary Care	6,632	414	339	18%	0.1	2.1	91%
	SCC	27	36	21	42%	32.9	24.7	98%
	CCS Paneled Provider	10,745	2,082	1,690	19%	0.1	0.4	93%
	CCS Paneled Specialist	696	253	230	9%	1.3	3.5	96%
	Specialist	777	264	254	4%	1.1	3.4	96%
	Total Providers (spec/PCP)	7,067	589	304	48%	0.1	1.5	91%

Study period: pre: July 2016–June 2018 (2-year period); post: July 2018–June 2021 (3-year period). Note that the Provider Network 274 file started in January 1, 2017.

Phase I network participation

Access by Provider Type: Table 102 below shows the number of pediatric network providers participating in Phase I by category. The number of in-network providers across all categories increased post-WCM implementation in Phase I. When looking at the number of in-network providers who had served clients versus the total number of in-network pediatric providers for each category, a significant proportion of in-network providers did not see a CCS client. Depending on category, 41% or less of pediatric providers listed in-network had a claim with a CCS enrollee post-WCM implementation. Meanwhile, 19%–47% of specialist or CCS providers who served CCS clients across the listed categories were out of network. The majority of specialists seen were CCS paneled (91%). The numbers of enrollees to provider for both in-network and providers who have a claim with a CCS client was less than 550 post-WCM implementation. The highest proportion of providers who were out of network were found with Special Care Center providers. The majority of visits across categories were seen in-network. The categories with the highest proportion of visits being seen out of network was with CCS Paneled Providers and primary care (8% and 14%, respectively).

Access by Specialty and Subspecialty: Table 3 in Appendix U shows the specialties and the client-to-provider ratios for Phase I. The specialties with the highest client-to-provider ratio (over 1,200) based on the list of in-network providers were behavioral pediatrics, pediatric neurodevelopmental disabilities, pediatric ophthalmology, and pediatric sports medicine. The ratio based on serving provider was over 1,200 for pediatric dermatology, pediatric rehabilitation, child and adolescent psychiatry, and pediatric orthopedics / sports medicine. The other specialties ranged from a client-to-provider ratio of 61 to 1,168 among in-network providers and for the calculation based on serving provider, the general range was 119 to 1,095, with about half listing a client-to-provider ratio of less than 500.

Table 102: Phase I Network Participation and Visits Seen In-Network versus Out of Network

Study Group	Provider Type	Number of Providers In-Network	Number of Serving Providers	Number of Serving Providers In-Network	Percentage of Serving Providers Out of Network	Number of CCS Enrollees per In-Network Provider	Number of CCS Enrollees per Serving Provider	Percentage of Visits In-Network
Phase I Pre-WCM Implementation	Primary Care	5,759	1,368	1,039	24%	2.9	12.4	98%
	SCC	24	111	20	82%	705.0	152.4	94%
	CCS Paneled Provider	9,181	5,980	4,152	31%	1.8	2.8	97%

Study Group	Provider Type	Number of Providers In-Network	Number of Serving Providers	Number of Serving Providers In-Network	Percentage of Serving Providers Out of Network	Number of CCS Enrollees per In-Network Provider	Number of CCS Enrollees per Serving Provider	Percentage of Visits In-Network
(16,919 enrollees)	CCS Paneled Specialist	796	636	402	37%	21.3	26.6	98%
	Specialist	873	710	567	20%	19.4	23.8	98%
	Total Providers (spec/ PCP)	6,201	1,889	1,451	23%	2.7	9.0	98%
Phase I Post-WCM Implementation (17,523 enrollees)	Primary Care	8,139	1,453	1,166	20%	2.2	12.1	86%
	SCC	32	115	28	76%	547.6	152.4	98%
	CCS Paneled Provider	12,479	6,968	5,086	27%	1.4	2.5	92%
	CCS Paneled Specialist	1,593	748	605	19%	11.0	23.4	97%
	Specialist	1,713	824	664	19%	10.2	21.3	97%
	Total Providers (spec/ PCP)	8,978	2,044	1,094	46%	2.0	8.6	87%
	Total Providers (spec/ PCP)	8,978	2,044	1,094	46%	2.0	8.6	87%

Phase II network participation

Access by Provider Type: Table 103 below shows the number of pediatric network providers participating in Phase II by category. The number in-network providers across all categories increased post-WCM implementation in Phase II, with the exception of primary care providers, whose numbers decreased. When looking at the number of in-network providers

who had served clients versus the total number of in-network pediatric providers for each category, a significant number of in-network providers did not see a CCS client. Depending on category, 44% or less of pediatric providers listed in-network had a claim with a CCS enrollee post-WCM implementation. Meanwhile, 10%–35% of specialty or CCS providers who served CCS clients across the listed categories were out of network. Fewer specialists were CCS paneled (74%) as compared to HPSM WCM and Phase I. The numbers of enrollees to provider for both in-network and providers who have a claim with a CCS client was less than 300 post-WCM implementation. The highest proportion of providers who were out of network were found with Special Care Center providers. The majority of visits post-WCM implementation were seen in-network, but 5%–10% of visits were still seen by out-of-network providers. The lowest rates of in-network participation were found with primary care and CCS Paneled Providers.

Access by Specialty and Subspecialty: Table 4 in Appendix U shows the specialties and the client-to-provider ratios for Phase II. The specialty that had the highest client-to-provider ratio (over 1,200) based on the list of in-network providers was pediatric allergy and immunology; there was no pediatric neurodevelopmental disabilities provider in-network, and 100% of clients had to be seen out of network. When evaluating provider-to-client ratio based on providers that have served CCS clients, the specialists that had a ratio of over 1,200 were behavioral pediatrics, pediatric neurodevelopmental disabilities, pediatric allergy and immunology, pediatric dermatology, pediatric rheumatology, pediatric rehabilitation, pediatric ophthalmology, pediatric otolaryngology, pediatric sports medicine, and pediatric urology. The other specialties ranged from a client-to-provider ratio of 47 to 2,300 among in-network providers. When calculating based on serving provider, the general range of client-to-provider ratio was much higher, ranging from 151 to 5,744. About half the specialties had a ratio over 1,200 when calculating based on serving provider.

Table 103: Phase II Network Participation and Visits Seen In-Network versus Out of Network

Study Group	Provider Type	Number of Providers In-Network	Number of Serving Providers	Number of Serving Providers In-Network	Percentage of Serving Providers Out of Network	Number of CCS Enrollees per In-Network Provider	Number of CCS Enrollees per Serving Provider	Percentage of Visits In-Network
Phase II Pre-WCM Implementation	Primary Care	5,522	1,381	1,039	25%	2.4	9.6	96%
	SCC	46	103	42	59%	286.8	128.1	98%

Study Group	Provider Type	Number of Providers In-Network	Number of Serving Providers	Number of Serving Providers In-Network	Percentage of Serving Providers Out of Network	Number of CCS Enrollees per In-Network Provider	Number of CCS Enrollees per Serving Provider	Percentage of Visits In-Network
(13,192 enrollees)	CCS Paneled Provider	15,127	5,396	3,839	29%	0.9	2.4	93%
	CCS Paneled Specialist	933	477	336	30%	14.1	27.7	94%
	Specialist	1,024	515	441	14%	12.9	25.6	94%
	Total Providers (spec/PCP)	6,631	1,755	1,355	23%	2.0	7.5	95%
Phase II Post-WCM Implementation (11,489 enrollees)	Primary Care	4,888	1,269	861	32%	2.4	9.1	89%
	SCC	54	89	47	47%	212.8	129.1	98%
	CCS Paneled Provider	16,272	5,515	4,271	23%	0.7	2.1	95%
	CCS Paneled Specialist	2,171	440	321	27%	5.3	30.0	97%
	Specialist	2,494	479	431	10%	4.6	24.0	97%
	Total Providers (spec/PCP)	7,360	1,617	962	41%	1.6	7.1	90%

Study period: pre: January 2017 to December 2018 (2-year period), post: January 2019 to December 2020 (2-year period). Note that the Provider Network 274 file started in January 1, 2017.

Phase III network participation

Access by Provider Type: Table 104 below shows the number of pediatric network providers participating in Phase III by category. The number of in-network providers across most categories increased post-WCM implementation in Phase III, with the exceptions of primary care providers and CCS Paneled Providers, both of which decreased. Of note, there may have been a change with NPI reporting for CCS paneled providers in Phase III, and thus repeating the analysis for CCS providers would need to be performed with an updated CCS paneled provider list from DHCS. When looking at the number of in-network providers who had served clients versus the total number of in-network pediatric providers for each category, a significant number of in-network providers did not see a CCS client. Depending on category, 55% or less of pediatric providers listed in-network had a claim with a CCS enrollee post-WCM implementation. Meanwhile 26%–59% of specialty or CCS providers who served CCS clients across the listed categories were out of network. Fewer specialists were CCS paneled (71%) as compared to HPSM WCM and Phase I. The numbers of enrollee to provider for both in-network and providers who had a claim with a CCS client was less than 20 for most categories post-WCM implementation. The exception to this low rate was found for in-network providers for Special Care Centers at 853 clients per provider. The highest proportion of providers who were out of network were found with Special Care Center providers, though the number of SCC visits out of network was exceedingly small (0.2%). While the majority of visits across categories were seen in-network, a substantial proportion of visits were out of network, and the proportion seen in-network actually decreased in Phase III post-WCM implementation. The highest proportion of visits being out of network was seen in primary care visits (48%) and in CCS Paneled Provider visits (27%).

Access by Specialty and Subspecialty: Table 5 in Appendix U shows the specialties and the client-to-provider ratios for Phase III. The specialty that had the highest client-to-provider ratio (over 1,200) based on the list of in-network providers was pediatric allergy and immunology; there was no pediatric neurodevelopmental disabilities provider in-network, and 100% of clients had to be seen out of network. When evaluating provider-to-client ratio based on providers that have served CCS clients, the specialists that had a ratio of over 1,200 were behavioral pediatrics, pediatric neurodevelopmental disabilities, pediatric allergy and immunology, pediatric dermatology, pediatric rheumatology, pediatric rehabilitation, pediatric ophthalmology, pediatric otolaryngology, pediatric sports medicine, and pediatric urology. The other specialties ranged from a client-to-provider ratio of 47 to 2,300 among in-network providers. When calculating based on serving provider, the general range of client-to-provider ratio was much higher, ranging from 151 to 5,744. About half the specialties had a ratio over 1,200 when calculating based on serving provider.

Table 104: Phase III Network Participation and Visits Seen In-Network versus Out-of-Network

Study Group	Provider Type	Number of Providers In-Network	Number of Serving Providers	Number of Serving Providers In-Network	Percentage of Serving Providers Out of Network	Number of Enrollees per In-Network Provider	Number of Enrollees per Serving Provider	Percentage of Visits In-Network
Pre-WCM Implementation (20,192 enrollees)	Primary Care	3,664	1,208	776	36%	5.5	16.7	67%
	SCC	19	110	19	83%	1,062.7	183.6	96%
	CCS Paneled Provider	5,703	4,767	2,235	53%	3.5	4.2	88%
	CCS Paneled Specialist	590	535	285	47%	34.2	37.7	94%
	Specialist	581	612	341	44%	34.8	33.0	92%
	Total Providers (spec/PCP)	4,180	1,681	1,067	37%	4.8	12.0	76%
Post-WCM Implementation (17,070 enrollees)	Primary Care	3,570	894	585	35%	4.8	19.1	52%
	SCC	83	101	63	38%	205.7	169.0	100%
	CCS Paneled Provider	5,396	3,016	1,778	41%	3.2	5.7	73%*
	CCS Paneled Specialist	798	338	210	38%	21.4	50.5	97%
	Specialist	878	398	295	26%	19.4	42.9	83%

Study Group	Provider Type	Number of Providers In-Network	Number of Serving Providers	Number of Serving Providers In-Network	Percentage of Serving Providers Out of Network	Number of Enrollees per In-Network Provider	Number of Enrollees per Serving Provider	Percentage of Visits In-Network
	Total Providers (spec/PCP)	4,354	1,200	598	50%	3.9	14.2	61%

Study period: pre: July 2017 to June 2019 (2-year period), post: July 2019 to June 2021 (2-year period).
There may have been a NPI reporting change with CCS paneled providers in Phase III and therefore, this number may need to be rerun with an updated NPI list to ensure accuracy. No other specialty category would be affected by this change.

Summary of network participation

Overall, the network of pediatric specialty and primary care providers within the WCM health plans had expanded post-WCM implementation. The majority of specialists seen were CCS paneled, though the rate was lower in both Phase II and Phase II (74% and 71% respectively) as compared to HPSM WCM and Phase I (both 91%). The majority of visits were seen in-network, though there was variation between the plans. The proportion of visits seen in-network ranged from 52% to 100% depending on category and WCM study group. While the network numbers appear high, lower numbers of certain specialty providers actually had claims with CCS clients. This discrepancy was most visible with Phase II providers where, when calculating the client-to-provider ratio based on providers that had seen CCS clients, nine specialties went from rates of less than 100 clients to provider to over 1,200 clients per provider. Specific conditions with serving providers versus listed in-network providers were pediatric ophthalmology, pediatric dermatology, and pediatric neurodevelopmental disabilities. Generally, the network appears to be adequate for general categories, with specific need in the following specialties: behavioral pediatrics, pediatric neurodevelopmental disabilities, pediatric dermatology, pediatric rehabilitation, pediatric ophthalmology, and pediatric sports medicine.

Travel Distance to Specialty Care, CCS Paneled Providers, Special Care Center, and Primary Care

For the description and analysis of CCS client travel distance to providers, the average distance traveled from the client's home address to provider listed practice address is shown in the tables below for each of the WCM study groups (HPSM WCM, Phase I, Phase II, and Phase III). See Appendix M for full methods. The tables shown are:

- Mean travel distance to overall outpatient provider visits
- Mean travel distance to specialty provider visits

- Mean travel distance to CCS Paneled Provider visits
- Mean travel distance to Special Care Center visits
- Mean travel distance to primary care visits

Before each table, a summary is shown of:

- The mean travel distance table and DiD analysis.
- The regression model covariate findings, describing if the covariates (age, gender, race, language, having a childhood disability [Children with Disabilities Algorithm (CWDA)] or illness severity [Chronic Illness and Disability Payment System (CDPS score)]) were associated with travel distance to providers. The regression output can be found in Appendix I.

Each table shows:

- The average miles traveled for the WCM study and Classic CCS comparison groups in both the pre- and post-WCM implementation periods.
- The t-test describing whether there are any differences between pre- and post-WCM implementation periods for each study group.
- The Difference in Differences *p*-value derived from the regression analysis for change in travel distance post-implementation. The models can be found in Appendix I. DiD regressions were performed with the covariates as described in the methods section and in Appendix I.

Distance to overall outpatient provider visits

Table 105 below provides the average miles traveled to all outpatient visits per WCM study group. See Appendix I for the table of means and median values and ranges. Of note, the data for distance traveled were skewed, and the overall median values were lower than the mean for all measures reported. The HPSM WCM study group had no changes in distance traveled. Phase II had the longest travel distance with an average of 52 miles, and Phase III had the shortest travel distance to visits at 12 miles. In Phase I, distance decreased significantly in the Classic CCS comparison group, and the Difference in Differences is significant. In Phase II, both the Phase II and Classic CCS comparison groups had decreases; however, the Difference in Differences is not significant. In Phase III, the Classic CCS comparison group had a significant decrease and the Difference in Differences is significant.

Regression model covariate findings for DiD model for distance traveled overall (see Appendix I) show:

HPSM WCM: Being Asian as compared to White, speaking Spanish as compared to English, or being any age over 12 months was associated with shorter travel distance.
Phase I: Having higher illness severity, being female, or being older than age two as compared to less than one was associated with longer travel distance to clinics. Speaking an Asian language or Spanish versus English, having a disability, or being age one or 7–11 years was significantly related to shorter travel distance.
Phase II: Having higher illness severity (CDPS score) was related to longer travel distance. Being any other race than White, speaking any other language than English, or being age 2–12 as compared to age <12 months or having a disability were associated with shorter travel distance.
Phase III: Having higher illness severity was associated with longer travel distance. Having a disability; being Asian, Latinx, or “other/unknown” race as compared to White; speaking any language other than English; or being any age over 12 months as compared to less than 12 months was associated with shorter travel distance.

Table 105: Average Miles Traveled to All Providers Pre- versus Post-WCM for WCM Study Groups, and DiD Analysis for Each WCM Study Group

	Average Miles to All Visits			
Period	Pre-WCM Implementation	Post-WCM Implementation	Z	*P*-value
HPSM WCM				
HPSM WCM	68.9	26.9	-0.74	.461
Classic CCS Comparison Group	15.6	16.3	1.17	.240
Difference in Differences			-0.80	.426
Phase I				
Phase I	42.4	40.9	0.26	.795
Classic CCS Comparison Group	52.0	39.4	-13.39	<.001
Difference in Differences			10.92	<.001
Phase II				
Phase II	57.2	51.8	-3.54	<.001
Classic CCS Comparison Group	31.3	24.5	-8.74	<.001
Difference in Differences			1.68	.093
Phase III				
Phase III	11.6	11.6	1.26	.209
Classic CCS Comparison Group	14.9	14.0	-4.23	<.001
Difference in Differences			3.47	<.001

Distance to specialists

Table 106 provides the average miles traveled to specialist visits overall for each WCM study group. Phase I and Phase II had much longer travel distance to specialist providers (approx. 60 to 70 miles) as compared to Phase III, which had the shortest distance at an average of 13 miles. In the HPSM WCM study group, the Classic CCS comparison group had a significant increase in distance; however, the Difference in Differences is not significant. The Classic CCS comparison group in the Phase I study group had a decrease and the Difference in Differences is significant. There was no significant difference between Phase II and Classic CCS post-WCM implementation. Phase III travel distance decreased significantly more than the Classic CCS comparison group in the DiD.

Regression model covariate findings for DiD model for distance traveled to specialists (see Appendix I) show this:

HPSM WCM: Being Asian versus White, Spanish versus English speaking, or age greater than one year is associated with shorter distance travel. No other associates were significant in the model.
Phase I: Having higher illness severity, being female, or being older than age two as compared to less than one is associated with longer travel distance to clinics. Speaking an Asian language or “other” versus English, or being age one or 12–20 years is significantly related to shorter travel distance.
Phase II: Being Native American as compared to White or having higher illness severity is associated with longer distance traveled. Being Black, Latinx, or “other/unknown” race as compared to White, speaking any language other than English, having a disability, or being age one or 2–20 years of age as compared to 12 months is associated with shorter distance traveled.
Phase III: Having higher disability is related to longer travel distance. Being Asian, Latinx or “other/unknown” race as compared to White is associated with shorter distance traveled. Language and age were unable to be included due to model fit.

Table 106: Average Miles Traveled to Specialist Visits Pre- versus Post-WCM for WCM Study Groups, and DiD Analysis for Each WCM Study Group

	Average Miles to Specialist Visits			
Period	Pre-WCM Implementation	Post-WCM Implementation	Z	*P*-value
HPSM WCM				
HPSM WCM	72.9	32.0	-1.57	.116
Classic CCS Comparison Group	19.8	22.1	2.09	.037
Difference in Differences			-1.70	.089
Phase I				
Phase I	56.9	56.1	1.43	.153
Classic CCS Comparison Group	62.7	55.1	-5.62	<.001
Difference in Differences			5.36	<.001
Phase II				
Phase II	70.9	67.5	-1.50	.134
Classic CCS Comparison Group	36.8	31.0	-5.41	<.001
Difference in Differences			1.83	.068
Phase III				
Phase III	13.2	13.0	1.74	.082
Classic CCS Comparison Group	15.9	15.3	-2.12	.034
Difference in Differences			2.69	.007

Distance to CCS Paneled Providers

Table 107 provides the average miles traveled to CCS Paneled Providers overall per WCM study group. Phase I and Phase II had much longer travel distances to CCS Paneled Providers as compared to HPSM WCM and Phase III. There were no changes in the HPSM WCM. Phase I had a significant decrease in distance as compared to the Classic CCS comparison group, and the Difference in Differences was significant. Phase II study groups both had significant decreases in distance traveled; however, the Difference in Differences is not significant. Phase III study group increased significantly relative to Classic CCS.

Regression model covariate findings for DiD model for factors associated with distance traveled to CCS Paneled Providers (see Appendix I) show:
HPSM WCM: Being female or having higher illness severity is associated with longer travel distance. Being Asian versus White, Spanish versus English speaking, or being over age one as compared to less than age one is associated with shorter distance traveled.
Phase I: Having higher illness severity or being female is associated with longer distance traveled. Being Spanish, Asian, or “other” language speaking versus English speaking; being age one as compared to <12 months; or having a disability is associated with shorter distance traveled. The DiD presented below had no covariates due to model fidelity.
Phase II: Being Native American as compared to White or having higher illness severity is associated with longer distance traveled to CCS Paneled Providers. Being Black or “other/unknown” race versus White; being Spanish, Asian, or “other” language speaking versus English speaking; or having a disability is associated with shorter distance traveled to CCS Paneled Providers.
Phase III: Having higher illness severity is associated with longer distance traveled to a CCS Paneled Provider. Being Latinx or “other/unknown” race as compared to White, having a disability, or being older than age one as compared to less than age one is associated with shorter distance traveled.

Table 107: Average Miles Traveled to CCS Paneled Provider Visits Pre- versus Post-WCM for WCM Study Groups, and DiD Analysis for Each WCM Study Group

	Average Miles to CCS Paneled Provider Visits			
Period	Pre-WCM Implementation	Post-WCM Implementation	Z	*P*-value
HPSM WCM				
HPSM WCM	85.0	30.7	-0.56	.576
Classic CCS Comparison Group	18.1	18.3	0.76	.447
Difference in Differences			-0.60	.550
Phase I				
Phase I	49.1	47.9	1.23	.220
Classic CCS Comparison Group	62.6	45.4	-15.10	<.001
Difference in Differences			12.97	<.001
Phase II				
Phase II	76.0	63.3	-5.71	<.001
Classic CCS Comparison Group	35.9	26.3	-9.13	<.001
Difference in Differences			-0.70	.485
Phase III				
Phase III	13.7	13.8	3.78	<.001
Classic CCS Comparison Group	16.0	14.7	-4.73	<.001
Difference in Differences			5.62	<.001

Distance to CCS Special Care Centers

Table 108 provides the average miles traveled to CCS Special Care Center visits overall per WCM study group. With the exception of the Phase III study group, all average distances to visits increased during the post-implementation period. For the HPSM WCM and the Phase I study groups, the DiD analysis shows that there was no difference in change of travel distance when comparing HPSM WCM and Phase I groups to their respective Classic CCS comparison groups. In the Phase II study group, there was a greater increase in distance traveled in Phase II as compared to Classic CCS, and the Difference in Differences is significant. In the Phase III study group, Phase III's travel distance had a greater decrease compared to the Classic CCS comparison group, and the Difference in Differences is significant. Overall, Phase III had lower travel distance to SCCs as compared to the increases in Phase I and Phase II study groups.

Regression model covariate findings for DiD model for distance traveled to CCS Special Care Centers (see Appendix I) show:
HPSM WCM: Speaking Spanish versus English was associated with shorter driving distance. Being age 2–11 years as compared to less than one year was associated with a longer travel distance to SCCs.
Phase I: Having higher illness severity, having a disability, or being over age two as compared to less than one was associated with longer travel distance to an SCC. Being Asian, Latinx, or “other/unknown” race as compared to White or being non-English speaking was associated with shorter travel distance to SCCs.
Phase II: Being Native American as compared to White or having a disability was associated with longer travel distance to an SCC. Being Asian, Black, or “other/unknown” race as compared to White, speaking any other language as compared to English, or being age one as compared to <12 months was associated with shorter travel distance.
Phase III: Having higher illness severity or having a disability was associated with longer distance traveled to an SCC. Non-English speaking as compared to English speaking; being Asian, Latinx, or “other/unknown” race as compared to White; or being age one as compared to less than one was associated with shorter distance traveled to SCCs.

Table 108: Average Miles Traveled to Special Care Centers Pre- versus Post-WCM for WCM Study Groups, and DiD Analysis for Each WCM Study Group

	Average Miles to Special Care Center Visits			
Period	Pre-WCM Implementation	Post-WCM Implementation	Z	*P*-value
HPSM WCM				
HPSM WCM	10.9	12.0	1.38	.167
Classic CCS Comparison Group	11.9	12.1	1.37	.171
Difference in Differences			1.13	.258
Phase I				
Phase I	52.5	58.4	6.83	<.001
Classic CCS Comparison Group	30.7	34.1	5.24	<.001
Difference in Differences			1.93	.054
Phase II				
Phase II	61.4	65.3	3.41	<.001
Classic CCS Comparison Group	22.8	24.7	2.14	.032
Difference in Differences			2.50	.013
Phase III				
Phase III	9.1	9.1	-0.35	.725
Classic CCS Comparison Group	13.0	13.6	3.83	<.001
Difference in Differences			-2.49	.013

Distance to primary care providers

Table 109 provides the average miles traveled to primary care visits overall in each study group. Driving distances to primary care were relatively similar across study groups, with the shortest distance experienced in Phase III. There were no significant changes in distances traveled in the HPSM WCM study group. In the Phase I study group, Phase I had an increase in distance traveled post-WCM implementation while the Classic CCS comparison group had a marked decrease in travel distance, thus the Difference in Differences is significant. In the Phase II study group, Phase II had a greater decrease in distance traveled in the post-period as compared to the Classic CCS comparison group, and the Difference in Differences is significant. In the Phase III study group, Phase III's distance did not change in comparison to a significant decrease in the Classic CCS comparison group, thus resulting in a significant Difference in Differences.

Regression model covariate findings for DiD model for distance traveled to primary care providers (see Appendix I) show:
HPSM WCM: Being female was associated with longer driving distance. Being Native American versus White, speaking Spanish versus English, or age 1–6 as compared to <12 months was associated with shorter distance traveled to primary care providers.
Phase I: Having higher illness severity, being any other race as compared to White, and being over age two as compared to less than one was associated with longer distance traveled. Having a disability or being Spanish or Asian language speaking versus English speaking was associated with shorter distance traveled.
Phase II: Having higher illness severity or being age one or age 12 or older as compared to less than age one was associated with longer travel distance. Having a disability; being Black, Latinx, or “other/unknown” race versus White; or being Spanish or Asian language speaking versus English speaking was associated with shorter travel distance to primary care.
Phase III: Higher illness severity or having a disability was associated with longer travel distance. Being Asian, Latinx, or “other/unknown” race versus White; being non-English speaking; or age one year as compared to less than one was associated with shorter travel distance to primary care providers.

Table 109: Average Miles Traveled to Primary Care Visits Pre- versus Post-WCM for WCM Study Groups, and DiD Analysis for Each WCM Study Group

	Average Miles to Primary Care Visits			
Period	Pre-WCM Implementation	Post-WCM Implementation	Z	*P*-value
HPSM WCM				
HPSM WCM	35.2	19.3	-0.81	.419
Classic CCS Comparison Group	12.5	11.8	-0.62	.536
Difference in Differences			-0.77	.444
Phase I				
Phase I	24.0	25.0	5.98	<.001
Classic CCS Comparison Group	44.9	26.4	-19.48	<.001
Difference in Differences			19.52	<.001
Phase II				
Phase II	35.7	24.2	-8.60	<.001
Classic CCS Comparison Group	21.6	14.5	-9.09	<.001
Difference in Differences			-2.94	.003
Phase III				
Phase III	9.5	9.8	1.53	.126
Classic CCS Comparison Group	13.0	11.5	-7.84	<.001
Difference in Differences			4.45	<.001

Summary of distance traveled to providers

Travel distance to all specialty care, Special Care Centers, and primary care was mixed. There were significant decreases in travel noted in both WCM and Classic CCS groups for visits generally except with Special Care Center visits, which saw an increase in average travel distance in almost all study groups. Primary care distance decreased by 10 miles in Phase II. Phase III experienced less than a 0.3-mile change for any measure. DiD results showing higher travel in WCM study groups relative to CCS comparison groups were driven by significantly larger decreases in distance traveled experienced by the Classic CCS comparison group. The travel distance experienced by clients in Phase III was significantly lower than the travel distance for Phase I and Phase II clients (average 11.6 miles in Phase III for all visits versus 40.9 and 51.8 miles in Phase I and Phase II, respectively, in the post-WCM implementation time period).

Utilization of Healthcare Visits, Ancillary Services, and Health Outcomes

This section presents the results for the outcomes for utilization of healthcare visits, access to ancillary service, and health outcomes.

1. Table 110 presents HPSM WCM and Classic CCS comparison groups pre- versus post-WCM implementation counts for clients and member months, and counts for specific types of provider visits per 1,000 member months.
2. Table 111 presents Phase I WCM and Classic CCS comparison groups pre- versus post-WCM implementation counts for clients and member months, and counts for specific types of provider visits per 1,000 member months.
3. Table 112 presents Phase II WCM and Classic CCS comparison groups pre- versus post-WCM implementation counts for clients and member months, and counts for specific types of provider visits per 1,000 member months.
4. Table 113 presents Phase III WCM and Classic CCS comparison groups pre- versus post-WCM implementation counts for clients and member months, and counts for specific types of provider visits per 1,000 member months.
5. Results of the analyses of WCM healthcare visits/services evaluation include results of the four study groups (HPSM WCM, Phase I, Phase II, and Phase III), each in comparison to its matched Classic CCS comparison group from pre- to post-WCM implementation. The following results may be provided for each of the four WCM study groups:
    a. Tables and text comparing differences in WCM and Classic CCS comparison visit counts individually and for may include:
        i) Comparisons of visit utilization between the WCM intervention group and its Classic CCS comparison groups at pre-period and at post-period, and significance levels for each.
        ii) Comparisons of visits from pre- to post-WCM implementation period for the WCM intervention and Classic CCS comparison groups separately and their significance of differences; further comparison of the size of the changes from pre- to post-WCM period to determine if visit rates changes differed significantly between the WCM intervention and Classic CCS comparison groups.
        iii) Figure of a bar graph indicating group differences in visits between the pre- and post-implementation periods for the WCM intervention group and its Classic CCS comparison group, separately with accompanying narrative.
        iv) A scatter plot of visit count trends for each of the WCM intervention and Classic CCS comparison groups across the individual years of the pre- versus post-implementation period.
        v) DiD regression goodness-of-model-fit description.

vi) Narrative describing any demographic differences in visit changes (i.e., age; gender; race/ethnicity); language spoken at home; condition severity (Chronic Illness and Disability Payment System score); disability (Children with Disabilities Algorithm disability indicator); and season (winter, spring, summer, fall).

vii) Summary of Research 1 outcomes.

Provider Utilization and Well-Child Visits

For utilization of provider visits, the UCSF evaluation team provides first a descriptive table of provider visits per 1,000 member months (MM). Then, for each provider visit type, a Difference in Differences analysis is performed.

Table 110: Provider Utilization per 1,000 Member Months for HPSM WCM versus Classic CCS Comparison Groups

	HPSM WCM					Classic CCS Counties				
	Year					Year				
Measure	**-2**	**-1**	**+1**	**+2**	**+3**	**-2**	**-1**	**+1**	**+2**	**+3**
Clients	66	65	309	514	682	1,517	1,650	1,797	1,632	1,583
Member Months	242	245	1,774	3,926	5,865	13,918	15,085	15,366	14,375	14,517
Clients Served	27	29	290	472	639	1,428	1,536	1,642	1,477	1,449
Pct. Clients Served	40.9	44.6	93.9	91.8	93.7	94.1	93.1	91.4	90.5	91.5
Service per 1,000 Member Months										
Mental Health Low	0	24	103	96	124	224	199	250	257	283
Mental Health High	0	0	0	2	0	0	0	1	3	8
Primary Care	223	204	759	674	554	403	354	583	523	482
Specialist	496	208	1,381	1,085	884	545	513	641	618	602
Special Care Center	25	61	418	461	420	281	348	405	380	475
CCS Paneled Provider	616	265	1,711	1,345	1,081	689	618	968	940	896
Well-Child Visit	74	45	172	138	119	131	89	89	72	70

- Pre-WCM: Fee-for-service CCS clients in San Mateo County between July 2016 and June 2021 who were never in the San Mateo CCS DP.
- Post-WCM: HPSM WCM clients between July 2018 and June 2021.
- Classic Pre-WCM: Propensity score–matched CCS clients in classic counties between July 2016 and June 2018.
- Classic Post-WCM: Propensity score–matched CCS clients in classic counties between July 2018 and June 2021.
- See Appendix J for propensity score–matching methodology.

Table 111: Provider Utilization per 1,000 Member Months for Phase I versus Classic CCS Comparison Groups

	Phase I Counties					Classic CCS Comparison				
	Year					Year				
Measure	**-2**	**-1**	**+1**	**+2**	**+3**	**-2**	**-1**	**+1**	**+2**	**+3**
Clients	13,369	13,646	12,330	11,607	11,920	12,468	12,351	12,339	11,908	11,864
Member Months	120,607	121,938	113,776	109,359	117,301	108,209	108,411	109,026	108,184	109,557
Clients Served	12,551	12,605	11,519	10,866	11,147	11,425	11,298	11,231	10,871	10,642
Pct. Clients Served	93.9	92.4	93.4	93.6	93.5	91.6	91.5	91.0	91.3	89.7
Service per 1,000 Member Months										
Mental Health Low	126	137	164	174	174	135	137	148	164	195
Mental Health High	3	1	1	1	2	4	3	2	1	1
Primary Care	388	399	531	518	482	399	405	515	472	424
Specialist	509	546	518	497	486	532	507	559	502	470
Special Care Center	129	207	195	177	202	246	285	293	270	293
CCS Paneled Provider	640	643	743	698	642	634	612	759	697	625
Well-Child Visit	92	85	91	88	86	100	84	81	72	71

- Pre-WCM: Phase I County CCS clients between July 2016 and June 2018.
- Post-WCM: CCS clients in WCM between July 2018 and June 2021.
- Classic Pre-WCM: Propensity score–matched CCS clients in classic counties between July 2016 and June 2018.
- Classic Post-WCM: Propensity score–matched CCS clients in classic counties between July 2018 and June 2021.
- See Appendix J for propensity score–matching methodology.

Table 112: Provider Utilization per 1,000 Member Months for Phase II versus Classic CCS Comparison Groups

	Phase II Counties				Classic CCS Comparison			
	Year				Year			
Measure	**-2**	**-1**	**+1**	**+2**	**-2**	**-1**	**+1**	**+2**
Clients	10,710	10,655	9,641	9,409	10,439	10,073	9,772	9,391
Member Months	98,599	98,579	91,951	92,306	93,591	92,124	89,743	88,250
Clients Served	9,925	9,859	9,114	8,796	9,670	9,285	9,020	8,572
Pct. Clients Served	92.7	92.5	94.5	93.5	92.6	92.2	92.3	91.3
Service per 1,000 Member Months								

	Phase II Counties				Classic CCS Comparison			
	Year				Year			
Measure	**-2**	**-1**	**+1**	**+2**	**-2**	**-1**	**+1**	**+2**
Mental Health Low	164	173	197	194	187	191	195	209
Mental Health High	5	2	4	2	2	3	3	2
Primary Care	295	331	396	285	291	334	430	325
Specialist	572	570	605	535	567	572	614	561
Special Care Center	154	155	150	134	245	253	261	265
CCS Paneled Provider	447	522	619	559	555	602	723	603
Well-Child Visit	85	81	82	65	85	85	84	69

• Phase II Pre-WCM: CCS clients in Phase II counties who were not in WCM between January 2017 and December 2020.
• Phase II Post-WCM CCS clients in WCM between January 2019 and December 2020.
• Classic Pre-WCM: Propensity score–matched CCS clients in classic counties between January 2017 and December 2018.
• Classic Post-WCM: Propensity score–matched CCS clients in classic counties between January 2019 and December 2020.
• See Appendix J for propensity score–matching methodology.

Table 113: Provider Utilization per 1,000 Member Months for Phase III versus Classic CCS Comparison Groups

	Phase III Orange County				Classic CCS Comparison			
	Year				Year			
Measure	**-2**	**-1**	**+1**	**+2**	**-2**	**-1**	**+1**	**+2**
Clients	16,811	16,375	14,481	13,969	14,166	14,665	14,602	14,562
Member Months	160,153	154,230	140,902	138,606	133,538	138,070	139,697	141,122
Clients Served	15,571	15,070	13,574	13,101	13,239	13,625	13,491	13,313
Pct. Clients Served	92.6	92.0	93.7	93.8	93.5	92.9	92.4	91.4
Service per 1,000 Member Months								
Mental Health Low	163	218	265	313	177	195	210	240
Mental Health High	2	2	1	1	3	3	3	4
Primary Care	382	473	372	417	382	471	388	369
Specialist	592	807	640	593	652	686	621	630
Special Care Center	358	384	315	239	314	321	278	298
CCS Paneled Provider	590	806	388	317	690	772	687	677
Well-Child Visit	95	96	92	98	84	89	80	80

	Phase III Orange County				Classic CCS Comparison			
	Year				Year			
Measure	-2	-1	+1	+2	-2	-1	+1	+2

- Phase III Pre-WCM: CCS clients in Orange County who were not in WCM between July 2017 and June 2021.
- Phase III Post-WCM CCS clients in WCM between July 2019 and June 2021.
- Classic Pre-WCM: Propensity score–matched CCS clients in classic counties between July 2017 and June 2019.
- Classic Post-WCM: Propensity score–matched CCS clients in classic counties between July 2019 and June 2021.
- See Appendix J for propensity score–matching methodology.

CCS Paneled Provider (paneled non-Medi-Cal and Medi-Cal combined) Visit Results

CCS Paneled Provider visits HPSM WCM per 1,000 MM

Table 114 provides comparisons of differences in CCS Paneled Provider visits between the HPSM WCM and Classic CCS comparison groups during the pre- and post-WCM implementation periods separately. During the pre-period, the odds of an HPSM WCM client having a CCS Paneled Provider visit did not differ significantly from those for the Classic CCS comparison group. During the post-period, the odds of an HPSM WCM client having a CCS Paneled Provider visit were 1.31 times greater than those for the Classic CCS comparison group ($p < .001$).

Table 114: CCS Paneled Provider Visits per 1,000 Member Months, Comparing HPSM WCM to the Classic CCS Comparison Group in Pre- versus Post-Period

	CCS Paneled Provider Visits per 1,000 Member Months		Adjusted Odds Ratios*	
Period	HPSM WCM Group	Classic CCS Comparison Group	(95% CI) HPSM WCM Group vs. Classic	*P*-value
Pre-WCM Implementation	439	652	0.69 (0.44, 1.10)	.122
Post-WCM Implementation	1,267	935	1.31 (1.18, 1.45)	<.001

*Adjusted for CDPS and disability.

Table 115 provides comparisons of the pre- to post-WCM implementation periods for the HPSM WCM and Classic CCS comparison groups separately. For the HPSM WCM, the odds of a CCS Paneled Provider Visit were 2.59 times greater during the post-period compared to the post-period ($p < .001$). Likewise, for the Classic CCS comparison group, the odds

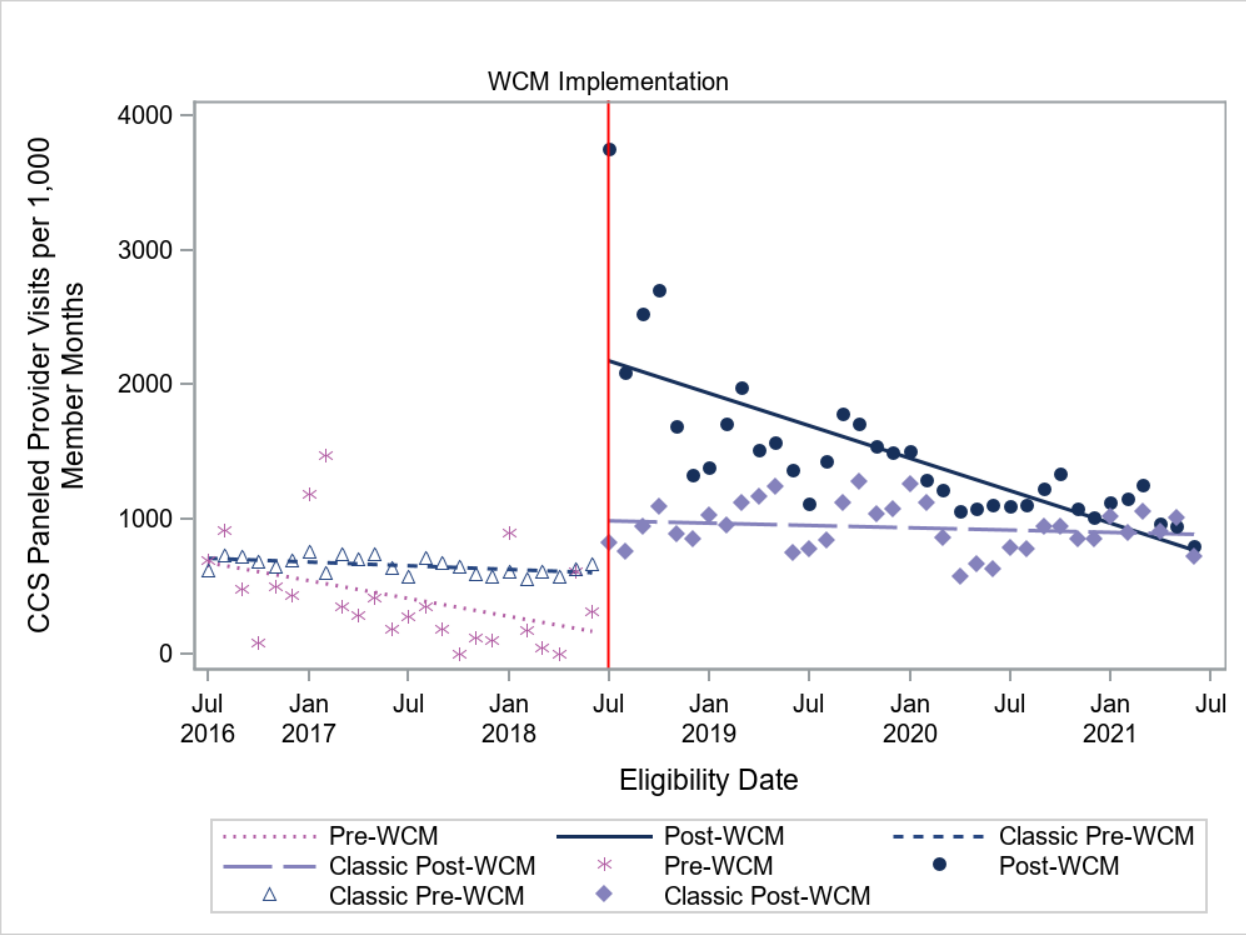
of a visit were 1.37 times greater during the post-period compared to the pre-period ($p < .001$). Given the greater increase in the HPSM WCM compared to the Classic CCS comparison group, the Difference in Differences is significant ($p = .01$).

Table 115: CCS Paneled Provider Visits per 1,000 Member Months, Comparing HPSM WCM in Pre- versus Post-Period, Classic CCS Comparison Group in Pre- versus Post-Period, and DiD Analysis

	CCS Paneled Provider Visits per 1,000 Member Months		Adjusted Odds Ratios*	
Group	Pre-WCM Implementation	Post-WCM Implementation	(95% CI) Post- vs. Pre-Periods	*P*-value
HPSM WCM Group	439	1,267	2.59 (1.62, 4.14)	<.001
Classic CCS Comparison Group	652	935	1.37 (1.28, 1.47)	<.001
Difference in Differences			1.89 (1.18, 3.04)	.009

*Adjusted for CDPS and disability.

Figure 27: CCS Paneled Provider Visits per 1,000 Member Months, with Trend Line Over Time for HPSM WCM and Classic CCS Comparison Groups in Pre- versus Post-Period



Trend Statement for CCS Paneled Provider Visits in HPSM WCM: The slopes in the pre-period are not statistically significant, and thus the parallel slopes assumption for the DiD model has been met (Figure 27).

Regression Analysis: Regression analysis shows that having higher illness severity or having a disability is significantly associated with having higher CCS Paneled Provider visits (see regression table in Appendix I).

CCS Paneled Provider visits Phase I per 1,000 MM

Table 116 provides comparisons of differences in CCS Paneled Provider visits between the Phase I and Classic CCS comparison groups during the pre- and post-implementation periods separately. During the pre-period, the odds of a CCS Paneled Provider visit in the Phase I group were 1.04 times greater than those in the Classic CCS comparison group (p = .006). During the post-period, the odds of a CCS Paneled Provider visit in the Phase I group were not significantly different than those in the Classic CCS comparison group.

Table 116: CCS Paneled Provider Visits per 1,000 Member Months, Comparing Phase I to the Classic CCS Comparison Group in Pre- versus Post-Period

	CCS Paneled Provider Visits per 1,000 Member Months		Adjusted Odds Ratios*	
Period	Phase I Group	Classic CCS Comparison Group	(95% CI) Implementation Group vs. Classic	*P*-value
Pre-WCM Implementation	641	623	1.04 (1.01, 1.08)	.006
Post-WCM Implementation	694	693	0.97 (0.93, 1.00)	.052

*Adjusted for CDPS, disability, race, and language.

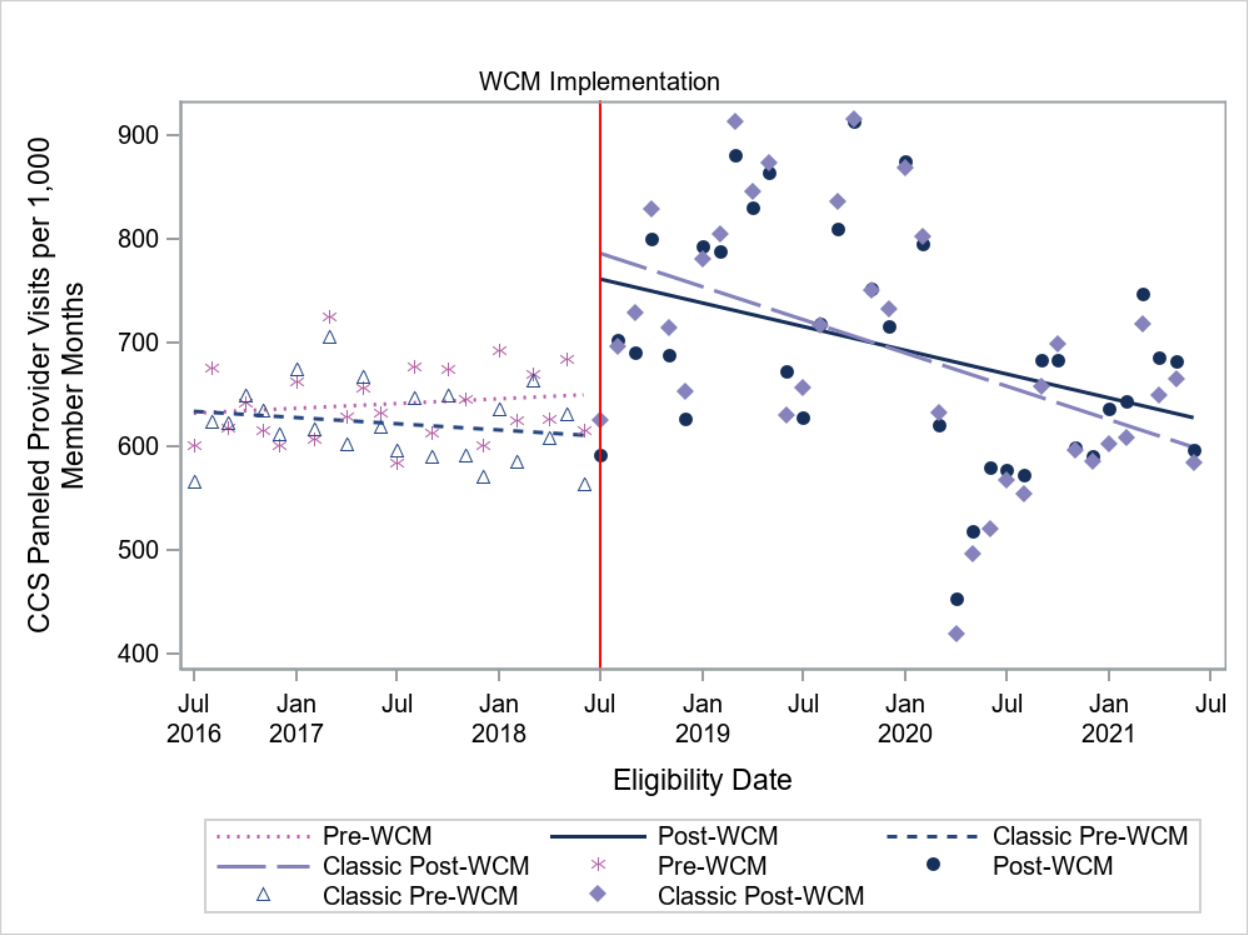
Table 117 provides comparisons of the pre- to post-implementation periods for the Phase I and Classic CCS comparison groups separately. For the Phase I group, the odds of a CCS Paneled Provider Visit in the post-period were 1.07 times greater than those for the pre-period (p < .001). For the CCS comparison group, the post-period odds of a CCS Paneled Provider visit were 1.16 times greater than those of the pre-period (p < .001). Given a greater increase in visits in the Classic CCS comparison group than in the Phase I group, the Difference in Differences is significant (p < .001).

Table 117: CCS Paneled Provider Visits per 1,000 Member Months, Comparing Phase I in Pre- versus Post-Period, Classic CCS Comparison Group in Pre- versus Post-Period, and DiD Analysis

	CCS Paneled Provider Visits per 1,000 Member Months		Adjusted Odds Ratios*	
Group	Pre-WCM Implementation	Post-WCM Implementation	(95% CI) Post- vs. Pre-Periods	*P*-value
Phase I Group	641	694	1.07 (1.04, 1.10)	<.001
Classic CCS Comparison Group	623	693	1.16 (1.12, 1.19)	<.001
Difference in Differences			0.93 (0.89, 0.96)	<.001

*Adjusted for CDPS, disability, race, and language.

Figure 28: CCS Paneled Provider Visits per 1,000 Member Months, with Trend Line Over Time for Phase I and Classic CCS Comparison Groups in Pre- versus Post-Period



Trend Statement for CCS Paneled Provider Visits in Phase I: In the pre-WCM period, the slopes of the WCM and Classic CCS comparison groups are not statistically different (Figure 28), and thus the parallel slopes assumption of the DiD model is satisfied (see Appendix I).

Regression analysis: Regression analysis shows that having higher illness severity, having a disability, or speaking Spanish as compared to English is associated with higher CCS Paneled Provider visits, while being Latinx as compared to White is significantly associated with having lower visits (see regression table in Appendix I).

CCS Paneled Provider visits Phase II per 1,000 MM

Table 118 provides comparisons of differences in CCS Paneled Provider visits between the Phase II and Classic CCS comparison groups during the pre- and post-implementation periods separately. During the pre-period, the odds of a Phase II client having a CCS Paneled Provider were about 20% lower than those for the Classic CCS comparison group ($p < .001$). During the post-WCM period, the odds of a Phase II client having a CCS Paneled Provider visit were about 15% lower than those for the Classic CCS comparison group ($p < .001$).

Table 118: CCS Paneled Provider Visits per 1,000 Member Months, Comparing Phase II to the Classic CCS Comparison Group in Pre- versus Post-Period

	CCS Paneled Provider Visits per 1,000 Member Months		Adjusted Odds Ratios*	
Period	Phase II Group	Classic CCS Comparison Group	(95% CI) Phase II Group vs. Classic	*P*-value
Pre-WCM Implementation	484	578	0.78 (0.75, 0.81)	<.001
Post-WCM Implementation	589	663	0.84 (0.81, 0.87)	<.001

*Adjusted for CDPS, disability, race, language, age.

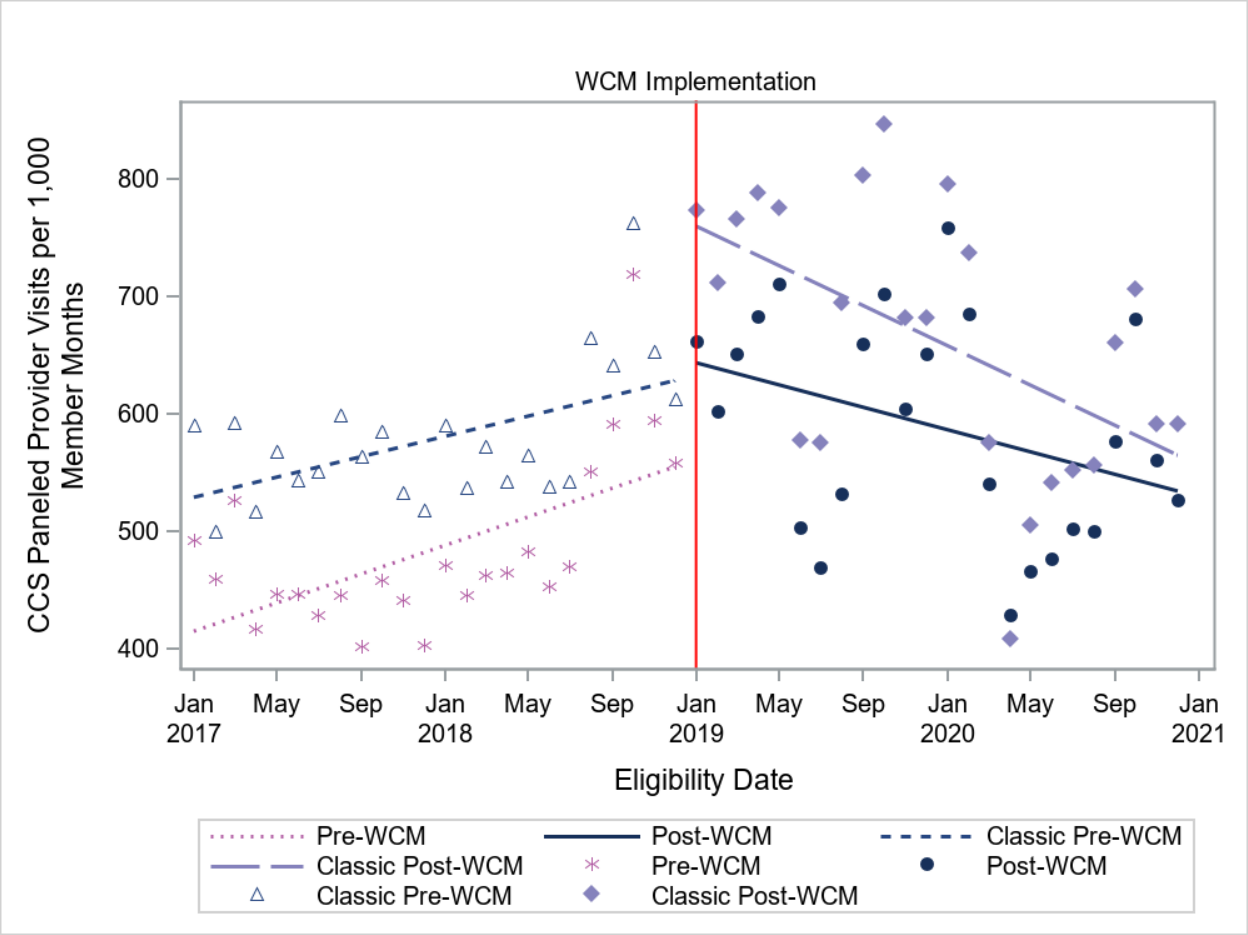
Table 119 provides comparisons of CCS Paneled Provider visits from the pre- to post-WCM implementation periods for the Phase II and Classic CCS comparison groups separately. For the Phase II group, the odds of a CCS Paneled Provider visit in the post-period were 1.24 times greater than those from the pre-period ($p < .001$). Likewise, for the CCS comparison group, the odds of a CCS Paneled Provider visit were 1.16 times greater during the post-period compared to the pre-period ($p < .001$). Given the greater increase in visits in the Phase II group than in the Classic CCS comparison group, the Difference in Differences is significant ($p < .001$).

Table 119: CCS Paneled Provider Visits per 1,000 Member Months, Comparing Phase II in Pre- versus Post-Period, Classic CCS Comparison Group in Pre- versus Post-Period, and DiD Analysis

	CCS Paneled Provider Visits per 1,000 Member Months		Adjusted Odds Ratios*	
Group	Pre-WCM Implementation	Post-WCM Implementation	(95% CI) Post- vs. Pre-Periods	*P*-value
Phase II Group	484	589	1.24 (1.21, 1.28)	<.001
Classic CCS Comparison Group	578	663	1.16 (1.13, 1.19)	<.001
Difference in Differences			1.07 (1.03, 1.12)	<.001

*Adjusted for age, CDPS, disability (CWDA), language, and race.

Figure 29: CCS Paneled Provider Visits per 1,000 Member Months, with Trend Line Over Time for Phase II and Classic CCS Comparison Groups in Pre- versus Post-Period



Trend Statement for CCS Paneled Provider Visits in Phase II: The slopes in the pre-period are not statistically significant (Appendix I) and thus the parallel sloped assumption for the DiD model has been met. Phase II CCS Paneled Provider claims appear to be trending down over time (Figure 29).

Regression Model Results: Higher illness severity, having a disability, or speaking Spanish as compared to English is associated with significantly higher levels of CCS Paneled Provider use, while being age 1–20 years as compared to 12 months or younger is associated with significantly lower CCS Paneled Provider use.

CCS Paneled Provider visits Phase III per 1,000 MM

Table 120 provides comparisons of CCS Paneled Provider visits for the Phase III WCM versus the Classic CCS comparison groups during the pre- and post-periods separately. The odds of a CCS Paneled Provider visit in the Phase III WCM group were about 10% lower than those for the Classic CCS comparison group ($p < .001$). Likewise, the odds of a visit were about 50% lower for the Phase III group than those for the Classic CCS comparison group ($p < .001$).

Table 120: CCS Paneled Provider Visits per 1,000 Member Months, Comparing Phase III to the Classic CCS Comparison Group in Pre- versus Post-Period

	CCS Paneled Provider Visits per 1,000 Member Months		Adjusted Odds Ratios*	
Period	Phase III Group	Classic CCS Comparison Group	(95% CI) Phase III Group vs. Classic	*P*-value
Pre-WCM Implementation	696	731	0.92 (0.89, 0.96)	<.001
Post-WCM Implementation	353	682	0.49 (0.47, 0.51)	<.001

*Adjusted for season, CDPS, disability, race, language, and age.

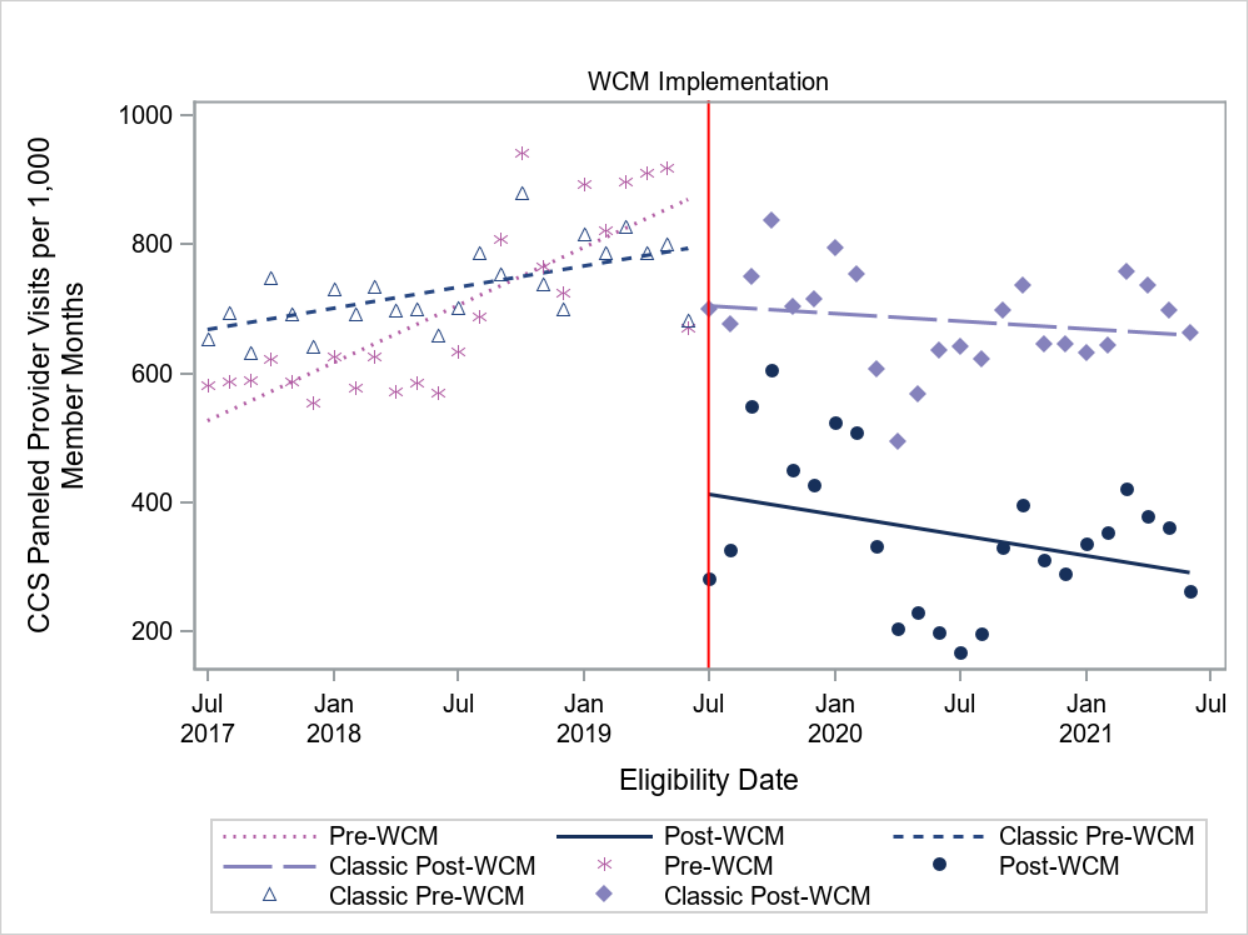
Table 121 provides comparisons of CCS Paneled Provider visits from the pre- to post-WCM periods for the Phase III and Classic CCS comparison groups separately. The odds of a CCS Paneled Provider visit decreased in the post-period compared to the pre-period for the Phase III groups ($p < .001$). The odds of visits did not change significantly in the post-period for the Classic CCS comparison group. Given the decrease in visits in the Phase III compared to the Classic CCS comparison group, the Difference in Differences is significant ($p < .001$)

Table 121: CCS Paneled Provider Visits per 1,000 Member Months, Comparing Phase III in Pre- versus Post-Period, Classic CCS Comparison Group in Pre- versus Post-Period, and DiD Analysis

	CCS Paneled Provider Visits per 1,000 Member Months		Adjusted Odds Ratios*	
Group	Pre-WCM Implementation	Post-WCM Implementation	(95% CI) Post- vs. Pre-Periods	*P*-value
Phase III Group	696	353	0.53 (0.51, 0.55)	<.001
Classic CCS Comparison Group	731	682	1.00 (0.98, 1.02)	.954
Difference in Differences			0.53 (0.51, 0.55)	<.001

*Adjusted for season, CDPS, disability, race, language, and age.

Figure 30: CCS Provider Visits per 1,000 Member Months, with Trend Line Over Time for Phase III and Classic CCS Comparison Groups in Pre- versus Post-Period



Trend Statement for CCS Paneled Provider Visits in Phase III: In the pre-WCM period, the slopes of the WCM and Classic CCS comparison groups are statistically different ($p < .0001$) and thus the parallel slopes assumption of the DiD model is not satisfied (see Appendix I). As such, the pre-to-post differences may be due to underlying trends and not the result of the WCM implementation. Results should be interpreted with caution.

Phase III Independent Variable Associations to CCS Paneled Provider Visits: Regression analysis shows that any season as compared to summer, having higher illness severity, or having a disability was associated with significantly higher CCS Paneled Provider use. Being any non-White or "other/unknown" race as compared to White, speaking any language other than English, or being greater than one year old as compared to less than one was related to lower CCS Paneled Provider use.

Overall summary of CCS Paneled Provider visit results, HPSM WCM and Phase I–Phase III

Overall, findings on CCS Paneled Provider visits varied among the four WCM study groups. In the HPSM WCM study group, both the HPSM WCM and Classic CCS comparison groups had significant increases in CCS Paneled Provider visits. Given the greater increase in visits in the HPSM WCM group, the Difference in Differences is significant. In the Phase I study group, visits increased significantly in both the Phase I and Classic CCS comparison groups. Given the greater increase in the Classic CCS comparison group, the Difference in Differences in the Phase I study group is significant. In the Phase II study group, both the Phase II and Classic CCS comparison groups had significant increases in CCS Paneled Provider visits. Given the greater increase in visits in the Phase II group, the Difference in Differences is significant. In the Phase III study group, the Phase III group had significant decreases in visits and the Difference in Differences between Phase III and Classic CCS comparison group is significant.

Specialist Visits Results

Specialist visits per 1,000 member months, comparing HPSM WCM to Classic CCS comparison group in pre- versus post-period

Table 122 provides comparisons of specialist visits for the HPSM WCM versus the Classic CCS comparison groups during the pre- versus post-WCM period separately. During the pre-period, the odds of a specialist visit in the HPSM WCM group is about 40% lower than for the Classic CCS comparison group ($p = .04$). During the post-period, the odds of a specialist visit were 1.47 times greater in the HPSM WCM group than in the Classic CCS comparison group ($p < .001$).

Table 122: Specialist Visits per 1,000 Member Months, Comparing HPSM WCM to the Classic CCS Comparison Group in Pre- versus Post-Period

	Specialist Visits per 1,000 Member Months		Adjusted Odds Ratios*	
Period	HPSM WCM Group	Classic CCS Comparison Group	(95% CI) HPSM WCM Group vs. Classic	*P*-value
Pre-WCM Implementation	351	528	0.61 (0.38, 0.97)	.036
Post-WCM Implementation	1,028	621	1.47 (1.30, 1.65)	<.001

*Adjusted for CDPS and disability.

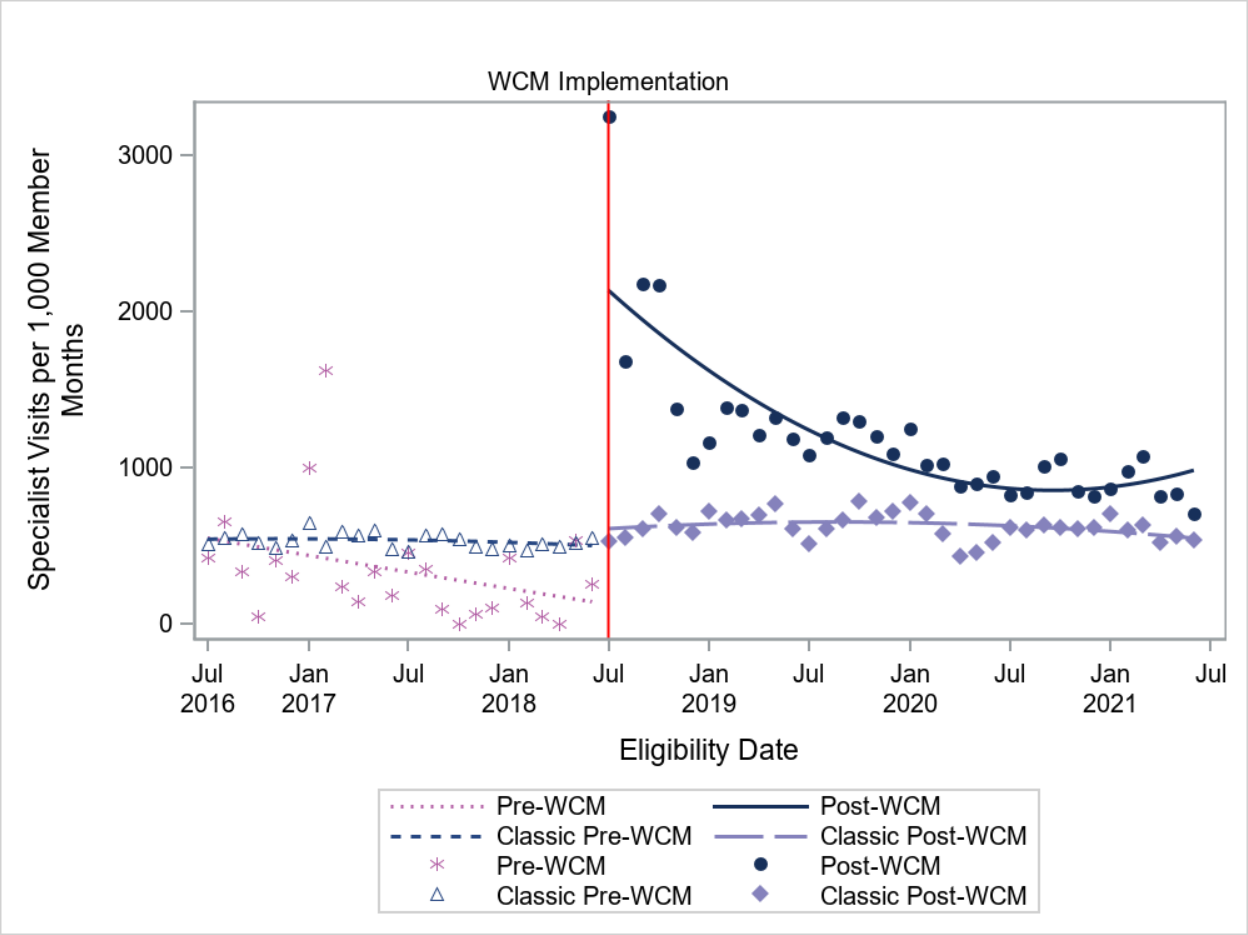
Table 123 provides comparisons of specialist visits from the pre- to post-WCM period for the HPSM WCM and Classic CCS comparison groups separately. For the HPSM WCM group, the odds of a specialist visit increased significantly in the post-period ($p < .001$). Likewise, the odds of a visit increased significantly in the post-period for the Classic CCS comparison group ($p = .002$). Given the greater increase in visits in the HPSM WCM group than in the Classic CCS comparison group, the Difference in Differences is significant ($p < .001$).

Table 123: Specialist Visits per 1,000 Member Months, Comparing HPSM WCM in Pre- versus Post-Period, Classic CCS Comparison Group in Pre- versus Post-Period, and DiD Analysis

	Specialist Visits per 1,000 Member Months		Adjusted Odds Ratios*	
Group	Pre-WCM Implementation	Post-WCM Implementation	(95% CI) Post- vs. Pre-Periods	*P*-value
HPSM WCM Group	351	1,028	2.75 (1.73, 4.39)	<.001
Classic CCS Comparison Group	528	621	1.14 (1.05, 1.25)	.002
Difference in Differences			2.40 (1.50, 3.87)	<.001

*Adjusted for CDPS and disability.

Figure 31: Specialist Visits per 1,000 Member Months, with Trend Line Over Time for HPSM WCM and Classic CCS Comparison Groups in Pre- versus Post-Period



Trend Statement for Specialists Visits: The slopes in the pre-period are not statistically significant and thus meet the parallel assumptions criteria for the DiD model (Figure 31).

HPSM WCM Independent Variable Associations to Specialist Visits: Regression analysis shows that having higher illness severity or having a disability is significantly associated with having more specialist visits (see regression table in Appendix I).

Specialist visits per 1,000 member months, comparing Phase I to Classic CCS comparison group in pre- versus post-period

Table 124 provides comparisons of specialist visits for the Phase I versus Classic CCS comparison groups during the pre- versus post-WCM period separately. In the pre-WCM period, the odds of a specialist visit in the Phase I group were 1.05 times greater than those of the Classic CCS comparison group ($p = .02$). During the post-period, the odds of a specialist visit did not differ significantly between the Phase I and Classic CCS comparison groups ($p < .41$).

Table 124: Specialist Visits per 1,000 Member Months, Comparing Phase I to the Classic CCS Comparison Group in Pre- versus Post-Period

	Specialist Visits per 1,000 Member Months		Adjusted Odds Ratios*	
Period	Phase I Group	Classic CCS Comparison Group	(95% CI) Implementation Group vs. Classic	*P*-value
Pre-WCM Implementation	527	520	1.05 (1.01, 1.10)	.020
Post-WCM Implementation	500	510	0.98 (0.94, 1.03)	.412

*Adjusted for race and language.

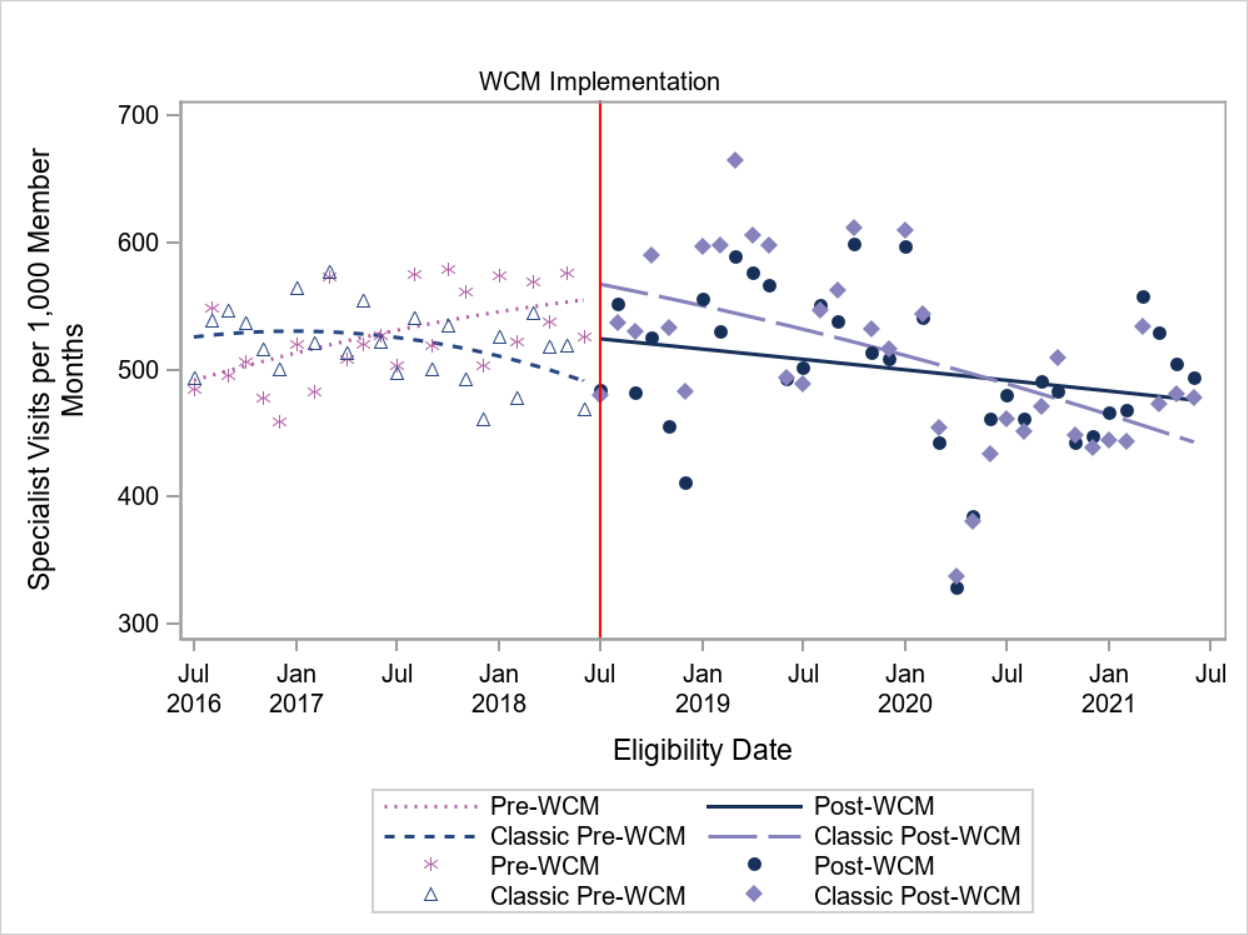
Table 125 provides comparisons of specialist visits from the pre- to post-WCM period for the Phase I and Classic CCS comparison groups separately. For the Phase I group, specialist visits decreased significantly in the post-period ($p < .001$). For the Classic CCS comparison group the odds of a visit in the post-period were not significantly different from those of the pre-period. Given the decreases in visits in the Phase I group, the Difference in Differences is significant ($p < .004$).

Table 125: Specialist Visits per 1,000 Member Months, Comparing Phase I in Pre- versus Post-Period, Classic CCS Comparison Group in Pre- versus Post-Period, and DiD Analysis

	Specialist Visits per 1,000 Member Months		Adjusted Odds Ratios*	
Group	Pre-WCM Implementation	Post-WCM Implementation	(95% CI) Post- vs. Pre-Periods	*P*-value
Phase I Group	527	500	0.92 (0.89, 0.95)	<.001
Classic CCS Comparison Group	520	510	0.98 (0.95, 1.02)	.323
Difference in Differences			0.93 (0.89, 0.98)	.004

*Adjusted for race and language.

Figure 32: Specialist Visits per 1,000 Member Months, with Trend Line Over Time for Phase I and Classic CCS Comparison Groups in Pre- versus Post-Period



Trend Statement for Specialists Visits: The slopes in the pre-period are not statistically significant and thus meet the parallel assumptions criteria for the DiD model.

Phase I Independent Variable Associations to Specialist Visits: Regression analysis shows that being Latinx as compared to White is significantly associated with having lower specialist visits, while being of "other/unknown" race as compared to White is significantly associated with having higher specialist visits (see regression table in Appendix I).

Specialist visits per 1,000 member months, comparing Phase II to Classic CCS comparison group in pre- versus post-period

Table 126 provides comparisons of specialist visits for the Phase II versus the Classic CCS comparison groups during the pre- and post-periods separately. In the pre-WCM period, the odds of a specialist visit in the Phase II group were about 5% lower than those in the Classic CCS comparison group (p = .02). During the post-period, the odds of a specialist visit were about 5% lower for Phase II than those for the Classic CCS comparison groups (p < .001).

Table 126: Specialist Visits per 1,000 Member Months, Comparing Phase II to the Classic CCS Comparison Group in Pre- versus Post-Period

	Specialist Visits per 1,000 Member Months		Adjusted Odds Ratios*	
Period	Phase II Group	Classic CCS Comparison Group	(95% CI) Phase II Group vs. Classic	*P*-value
Pre-WCM Implementation	571	569	0.96 (0.92, 0.99)	.015
Post-WCM Implementation	570	588	0.93 (0.90, 0.97)	<.001

*Adjusted for season, CDPS, race, language, gender, and age.

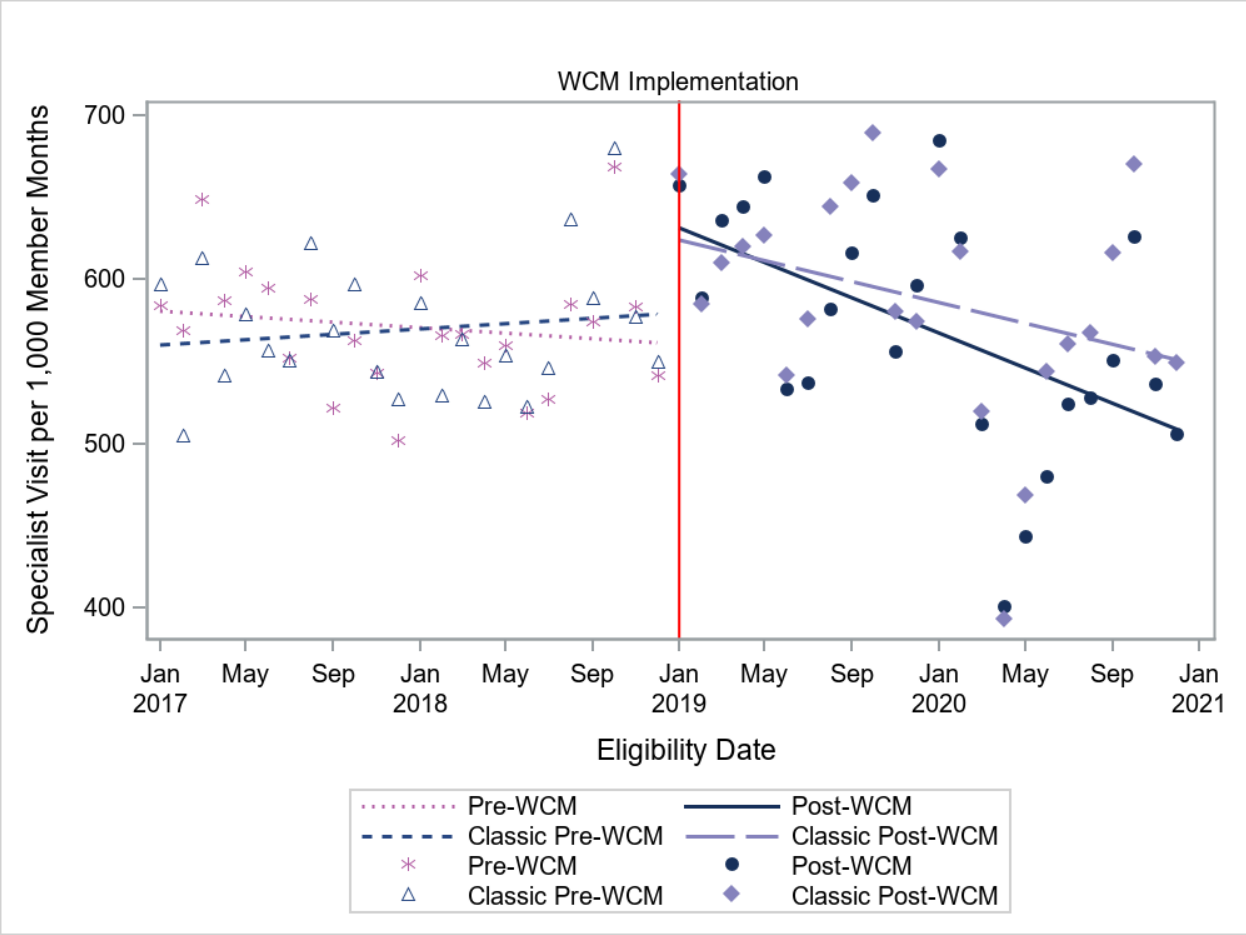
Table 127 provides comparisons of specialist visits from the pre- to post-WCM period for the Phase II and Classic CCS comparison groups separately. For the Phase II group, the odds of a specialist visit did not differ significantly from the pre- to post-period. In the Classic CCS comparison group, the odds of a specialist visit were 1.03 times greater than those of the pre-period (p = .04). The Difference in Differences is not significant.

Table 127: Specialist Visits per 1,000 Member Months, Comparing Phase II in Pre- versus Post-Period, Classic CCS Comparison Group in Pre- versus Post-Period, and DiD Analysis

	Specialist Visits per 1,000 Member Months		Adjusted Odds Ratios*	
Group	Pre-WCM Implementation	Post-WCM Implementation	(95% CI) Post- vs. Pre-Periods	*P*-value
Phase II Group	571	570	1.01 (0.98, 1.04)	.530
Classic CCS Comparison Group	569	588	1.03 (1.00, 1.07)	.038
Difference in Differences			0.98 (0.93, 1.02)	.299

*Adjusted for season, CDPS, race, language, gender, and age.

Figure 33: Specialist Visits per 1,000 Member Months, with Trend Line Over Time for Phase II and Classic CCS Comparison Groups in Pre- versus Post-Period



Trend Statement for Specialists Visits: The slopes in the pre-period are not statistically significant and thus meet the parallel assumptions criteria for the DiD model (Figure 33).

Phase II Independent Variable Associations to Specialist Visits: Regression analysis shows that speaking Spanish as compared to English or being age 1–20 years as compared to less than 12 months is significantly associated with having

lower specialist visits. Fall season as compared to summer, being female, or having higher illness severity is significantly associated with having higher specialist visits (see regression table in Appendix I).

Specialist visits per 1,000 member months, comparing Phase III to Classic CCS comparison group in pre- versus post-period

Table 128 provides comparisons of specialist visits for the Phase III versus the Classic CCS comparison groups during the pre- and post-periods separately. In the pre-WCM period, the odds of a specialist visit in the Phase III group were 1.06 times greater than for those is the Classic CCS comparison group ($p < .001$). During the post-period, the odds of a specialist visit were 5% lower in the Phase III group compared to those in the Classic CCS comparison group ($p = .005$).

Table 128: Specialist Visits per 1,000 Member Months, Comparing Phase III to the Classic CCS Comparison Group in Pre- versus Post-Period

	Specialist Visits per 1,000 Member Months		Adjusted Odds Ratios*	
Period	Phase III Group	Classic CCS Comparison Group	(95% CI) Phase III Group vs. Classic	*P*-value
Pre-WCM Implementation	697	669	1.06 (1.03, 1.09)	<.001
Post-WCM Implementation	617	626	0.95 (0.92, 0.99)	.005

*Adjusted for season, CDPS, disability, race, language, gender, and age.

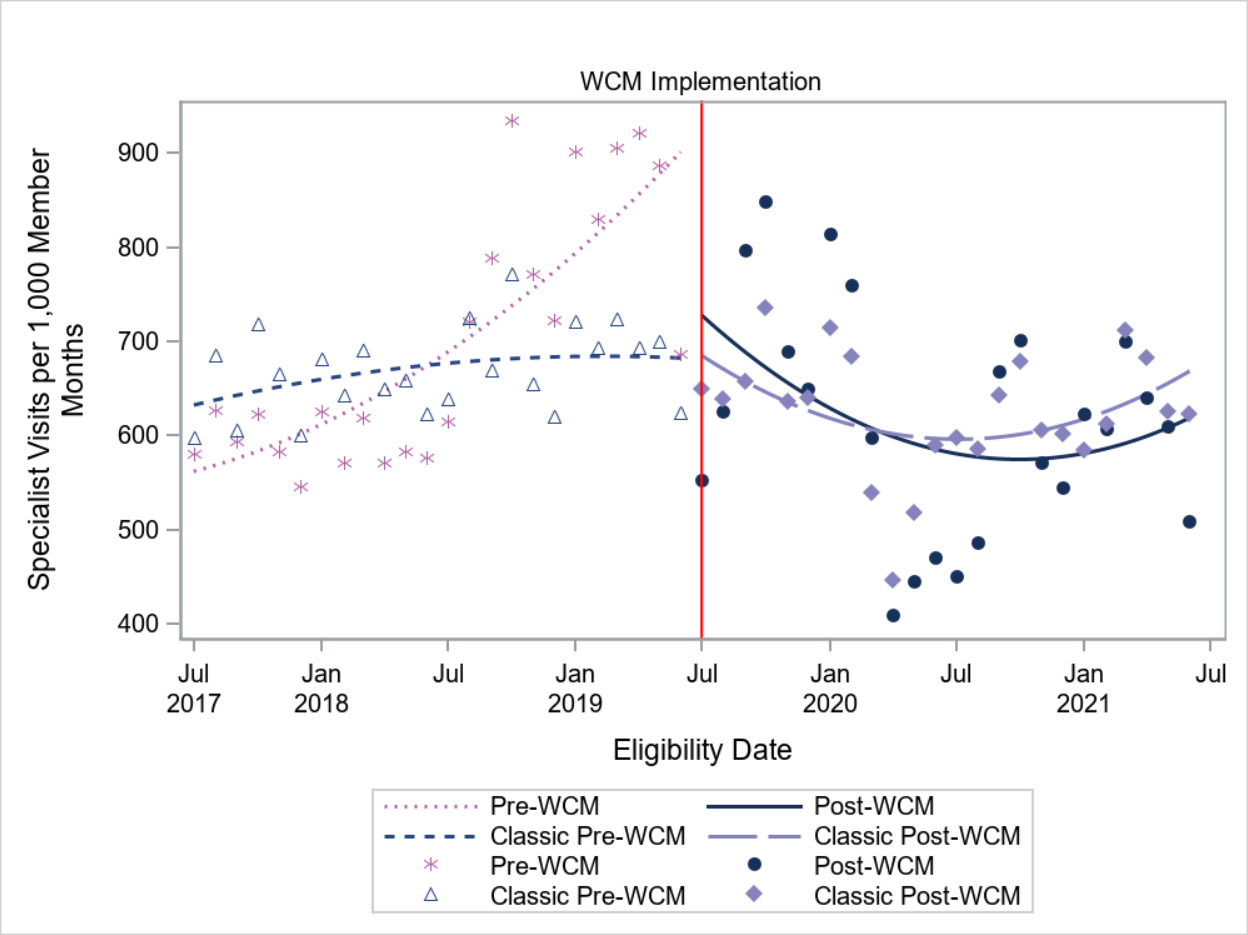
Table 129 provides comparisons of specialist visits from the pre- to post-WCM period for the Phase III and Classic CCS comparison groups separately. For the Phase III group, the odds of a specialist visit during the post-period were about 10% lower than those of the pre-period ($p < .001$). In the Classic CCS comparison group, pre- to post-period differences were not significant. Given the decrease in visits in the Phase III group and no significant difference in the Classic CCS comparison group, the Difference in Differences is significant ($p < .001$).

Table 129: Specialist Visits per 1,000 Member Months, Comparing Phase III in Pre- versus Post-Period, Classic CCS Comparison Group in Pre- versus Post-Period, and DiD Analysis

	Specialist Visits per 1,000 Member Months		Adjusted Odds Ratios*	
Group	Pre-WCM Implementation	Post-WCM Implementation	(95% CI) Post- vs. Pre-Periods	*P*-value
Phase III Group	697	617	0.89 (0.87, 0.91)	<.001
Classic CCS Comparison Group	669	626	0.99 (0.97, 1.01)	.458
Difference in Differences			0.90 (0.87, 0.93)	<.001

*Adjusted for season, CDPS, disability, race, language, gender, and age.

Figure 34: Specialist Visits per 1,000 Member Months, with Trend Line Over Time for Phase III and Classic CCS Comparison Groups in Pre- versus Post-Period



Trend Statement for Specialists Visits: The slopes in the pre-period are not statistically significant and thus meet the parallel assumptions criteria for the DiD model (Figure 34).

Phase III Independent Variable Associations to Specialist Visits: Regression analysis shows that being age 1–6 years or 1–20 years as compared to less than 12 months is significantly associated with having lower specialist visits. Any

season as compared to summer, having a disability, being female, speaking Spanish as compared to English, or having higher illness severity is significantly associated with having higher specialist visits (see regression table in Appendix I).

Overall summary of specialist visit results for HPSM WCM and Phase I–Phase III

For the HPSM WCM study group, specialist visit increases were greater for the HPSM WCM compared to the Classic CCS comparison group, and the Difference in Differences is significant. Phase I and Phase III study groups had parallel outcomes. Phase I and III groups had decreases in visits in contrast to no change in their respective Classic CCS comparison groups, thus the Difference in Differences for both study groups is significant. There was no difference between the Phase II study group and Classic CCS comparison group post-WCM implementation.

Special Care Center Visit Results

Special Care Center visits per 1,000 member months, comparing HPSM WCM to Classic CCS comparison group in pre- versus post-period

Table 130 provides comparisons of Special Care Center visits for the HPSM WCM versus the Classic CCS comparison groups during the pre- and post-periods separately. In the pre-WCM period, the odds of a Special Care Center visit in the HPSM WCM group were about 85% lower than for those in the Classic CCS comparison group ($p < .001$). During the post-period, the odds of a Special Care Center visit did not differ between HPSM WCM and Classic CCS comparison groups.

Table 130: Special Care Center Visits per 1,000 Member Months, Comparing HPSM WCM to the Classic CCS Comparison Group in Pre- versus Post-Period

	Special Care Center Visits per 1,000 Member Months		Adjusted Odds Ratios*	
Period	HPSM WCM Group	Classic CCS Comparison Group	(95% CI) HPSM WCM Group vs. Classic	*P*-value
Pre-WCM Implementation	43	316	0.17 (0.08, 0.36)	<.001
Post-WCM Implementation	434	420	1.03 (0.87, 1.21)	.728

*This regression was run without covariates.

Table 131 provides comparisons of Special Care Center visits from the pre- to post-WCM period for the HPSM WCM and Classic CCS comparison groups separately. For the HPSM WCM group, the odds of a Special Care Center visit

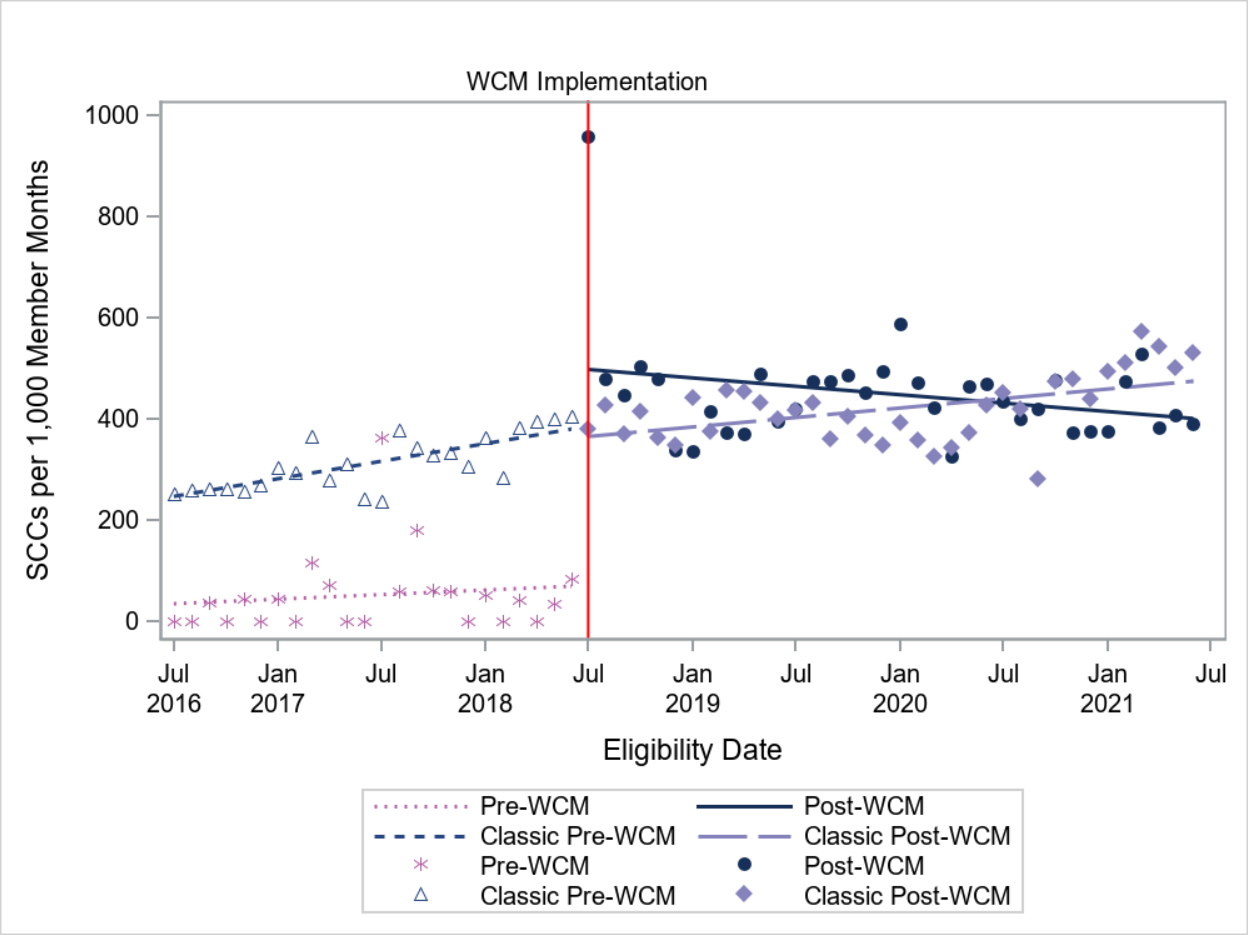
increased 6.94 times during the post-period ($p < .001$). Likewise, in the Classic CCS comparison group, the odds of visits increased 1.13 times during the post-period ($p = .003$). Given the greater increase in visits in the HPSM WCM group, the Difference in Differences is significant ($p < .001$).

Table 131: Special Care Center Visits per 1,000 Member Months, Comparing HPSM WCM in Pre- versus Post-Period, Classic CCS Comparison Group in Pre- versus Post-Period, and DiD Analysis

	Special Care Center Visits per 1,000 Member Months		Adjusted Odds Ratios*	
Group	Pre-WCM Implementation	Post-WCM Implementation	(95% CI) Post- vs. Pre-Periods	*P*-value
HPSM WCM Group	43	434	6.94 (3.27, 14.73)	<.001
Classic CCS Comparison Group	316	420	1.13 (1.02, 1.24)	.015
Difference in Differences			6.16 (2.88, 13.14)	<.001

*This regression was run without covariates.

Figure 35: Special Care Center Visits per 1,000 Member Months, with Trend Line Over Time for HPSM WCM and Classic CCS Comparison Groups in Pre- versus Post-Period



Trend Statement for Special Care Center Visits in HPSM WCM: The slopes in the pre-period are not statistically significant and thus meet the parallel assumptions criteria for the DiD model.

Due to problems with the model, no covariates were run in this regression.

Special Care Center visits per 1,000 member months, comparing Phase I to Classic CCS comparison group in pre- versus post-period

Table 132 provides comparisons of Special Care Center visits for the Phase I versus Classic CCS comparison groups during the pre- and post-WCM periods separately. In the pre-period, the odds of a Special Care Center visit in the Phase I group were about 40% lower than those of the Classic CCS comparison group ($p < .001$). During the post-period, the odds of a Special Care Center visit were about 35% lower in the Phase I group compared to those in the Classic CCS comparison group ($p < .001$).

Table 132: Special Care Center Visits per 1,000 Member Months, Comparing Phase I to Classic CCS Comparison Group in Pre- versus Post-Period

	Special Care Center Visits per 1,000 Member Months		Adjusted Odds Ratios*	
Period	Phase I Group	Classic CCS Comparison Group	(95% CI) Implementation Group vs. Classic	*P*-value
Pre-WCM Implementation	168	266	0.62 (0.60, 0.65)	<.001
Post-WCM Implementation	192	286	0.66 (0.63, 0.68)	<.001

*Adjusted for season, CDPS, disability, race, language, gender, and age.

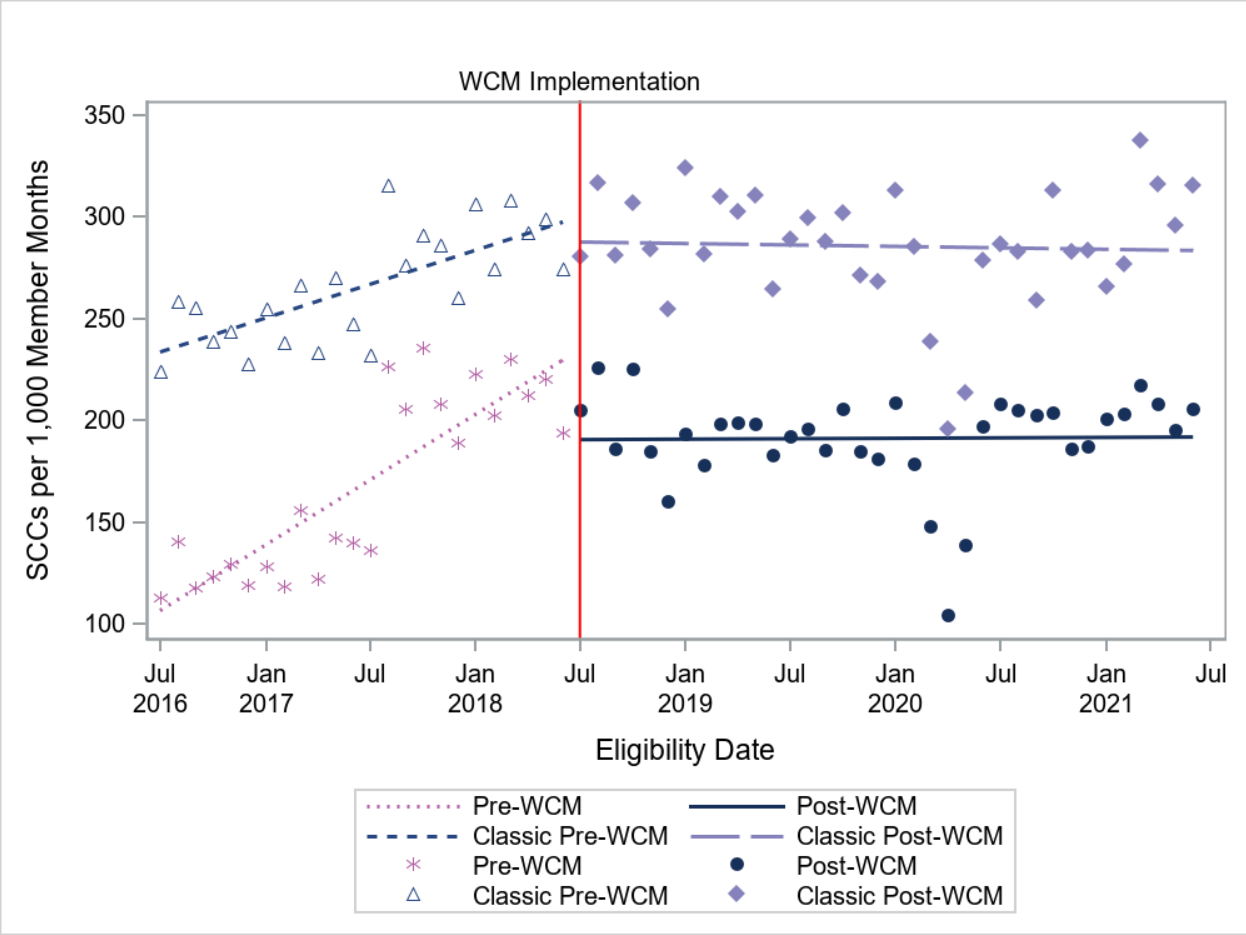
Table 133 provides comparisons of Special Care Center visits from the pre- to post-WCM period for the Phase I and Classic CCS comparison groups separately. For the Phase I group, the odds of a Special Care Center visit were 1.13 times greater during the post-period compared to the pre-period ($p < .001$). In the Classic CCS comparison group, the odds of a Special Care Center visit during the post-period were 1.08 greater than during the pre-period ($p < .001$). Given the greater increase in the Phase I group than the Classic CCS comparison group, the Difference in Differences is significant ($p = .03$).

Table 133: Special Care Center Visits per 1,000 Member Months, Comparing Phase I in Pre- versus Post-Period, Classic CCS Comparison Group in Pre- versus Post-Period, and DiD Analysis

	Special Care Center Visits per 1,000 Member Months		Adjusted Odds Ratios*	
Group	Pre-WCM Implementation	Post-WCM Implementation	(95% CI) Post- vs. Pre-Periods	*P*-value
Phase I Group	168	192	1.13 (1.10, 1.17)	<.001
Classic CCS Comparison Group	266	286	1.08 (1.04, 1.12)	<.001
Difference in Differences			1.05 (1.00, 1.10)	0.033

*Adjusted for season, CDPS, disability, race, language, gender, and age.

Figure 36: Special Care Center Visits per 1,000 Member Months, with Trend Line Over Time for Phase I and Classic CCS Comparison Groups in Pre- versus Post-Period



Trend Statement for Special Care Center Visits in Phase I: The slopes in the pre-period are statistically significant ($p < .0001$) and thus do not meet the parallel assumptions criteria for the DiD model (Figure 36). As such, the pre-to-post differences may be due to underlying trends and not the result of the WCM implementation. Results should be interpreted with caution.

Phase I Independent Variable Associations to Special Care Center Visits: Regression analysis shows that all seasons except summer or being age one year as compared to less than 12 months is significantly associated with having lower Special Care Center visits. Being female, speaking any language except English, having a disability, being age 2–20 years as compared to less than 12 months, or having higher illness severity is significantly associated with having higher Special Care Center visits (see regression table in Appendix I).

Special Care Center visits per 1,000 member months, comparing Phase II to Classic CCS comparison group in pre- versus post-period

Table 134 provides comparisons of Special Care Center visits for the Phase II versus Classic CCS comparison groups during the pre- and post-WCM periods separately. In the pre-WCM period, the odds of a Special Care Center visit in the Phase II group were about 40% lower than in the Classic CCS comparison group ($p < .001$). During the post-period, the odds of a Special Care Center visit were about 45% lower in the Phase II group compared to the Classic CCS comparison group ($p < .001$).

Table 134: Special Care Center Visits per 1,000 Member Months, Comparing Phase II to the Classic CCS Comparison Group in Pre- versus Post-Period

	Special Care Center Visits per 1,000 Member Months		Adjusted Odds Ratios*	
Period	Phase II Group	Classic CCS Comparison Group	(95% CI) Phase II Group vs. Classic	*P*-value
Pre-WCM Implementation	155	249	0.61 (0.58, 0.64)	<.001
Post-WCM Implementation	142	263	0.54 (0.51, 0.57)	<.001

*Adjusted for season, CDPS, disability, race, language, gender, and age.

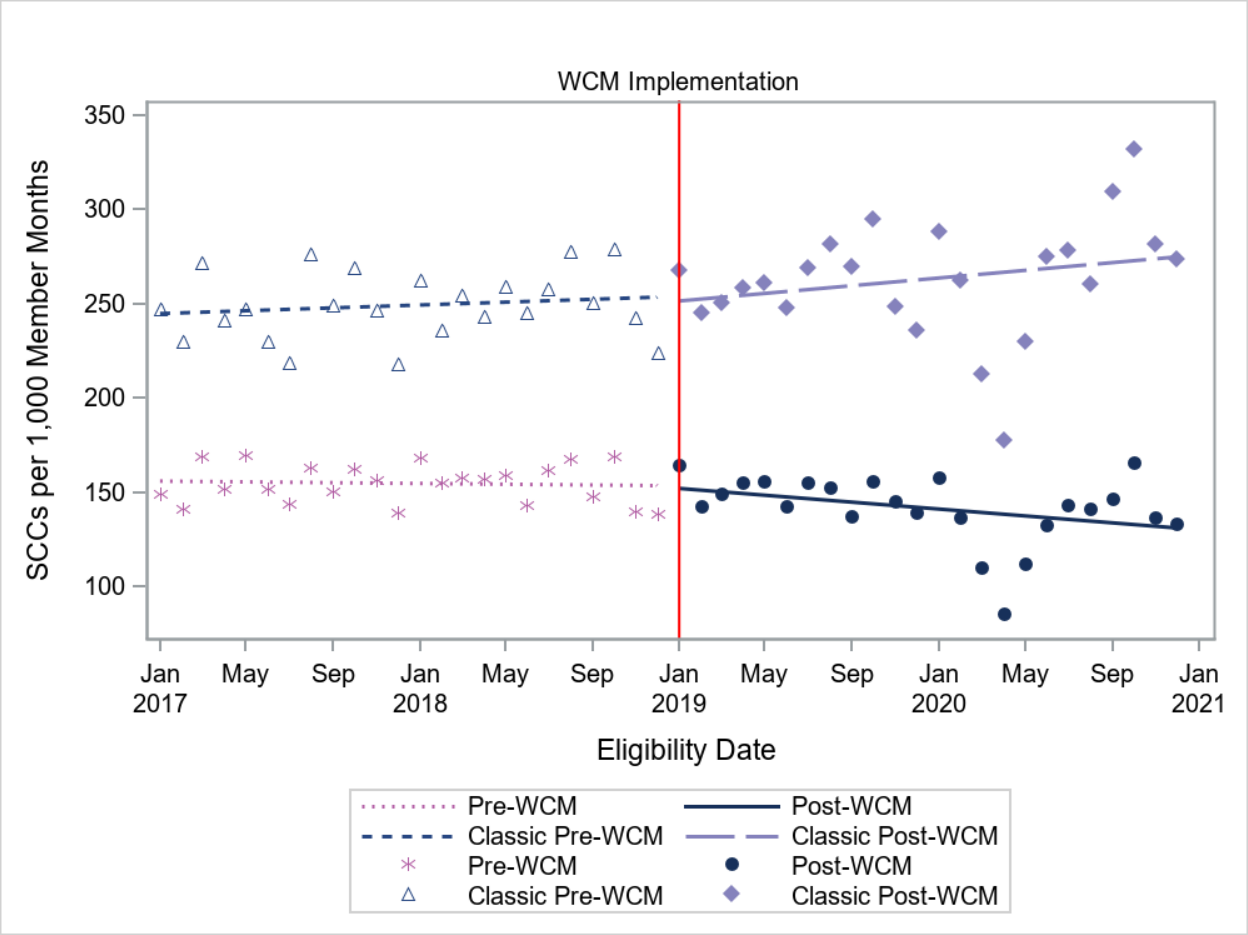
Table 135 provides comparisons of Special Care Center visits from the pre- to post-WCM periods for the Phase II and Classic CCS comparison groups separately. For the Phase II group, the odds of a Special Care Center visit were about 5% lower during the post-period compared to the pre-period ($p = .003$). In the Classic CCS comparison group, the odds of a visit were 1.07 times greater during the post-period than the pre-period ($p < .001$). Given the decrease in visits in the Phase II group and increase in the Classic CCS comparison group, the Difference in Differences is significant ($p < .001$).

Table 135: Special Care Center Visits per 1,000 Member Months, Comparing Phase II in Pre- versus Post-Period, Classic CCS Comparison Group in Pre- versus Post-Period, and DiD Analysis

	Special Care Center Visits per 1,000 Member Months		Adjusted Odds Ratios*	
Group	Pre-WCM Implementation	Post-WCM Implementation	(95% CI) Post- vs. Pre-Periods	*P*-value
Phase II Group	155	142	0.94 (0.91, 0.98)	.003
Classic CCS Comparison Group	249	263	1.07 (1.03, 1.11)	<.001
Difference in Differences			0.88 (0.84, 0.93)	<.001

*Adjusted for season, CDPS, disability, race, language, gender, and age.

Figure 37: Special Care Center Visits per 1,000 Member Months, with Trend Line Over Time for Phase II and Classic CCS Comparison Groups in Pre- versus Post-Period



Trend Statement for Special Care Center Visits in Phase II: The slopes in the pre-period are not statistically significant and thus meet the parallel assumptions criteria for the DiD model (Figure 37).

Phase II Independent Variable Associations to Special Care Center Visits: Regression analysis shows that spring and winter season as compared to summer or being age one year as compared to less than 12 months is significantly

associated with having lower Special Care Center visits. Being female, having a disability, being any race except White, speaking any language except English, being age 2–11 years as compared to less than 12 months, or having higher illness severity is significantly associated with having higher Special Care Center visits (see regression table in Appendix I).

Special Care Center visits per 1,000 member months, comparing Phase III to Classic CCS comparison group in pre- versus post-period

Table 136 provides comparisons of Special Care Center visits for the Phase III versus the Classic CCS comparison groups during the pre- and post-WCM periods separately. In the pre-WCM period, the odds of a Special Care Center visit in the Phase III group were 1.17 times greater than in the Classic CCS comparison group ($p < .001$). During the post-period, the odds of a Special Care Center visit were 5% lower in the Phase III group compared to the Classic CCS comparison group ($p = .01$).

Table 136: Special Care Center Visits per 1,000 Member Months, Comparing Phase III to the Classic CCS Comparison Group in Pre- versus Post-Period

	Special Care Center Visits per 1,000 Member Months		Adjusted Odds Ratios*	
Period	Phase III Group	Classic CCS Comparison Group	(95% CI) Phase III Group vs. Classic	*P*-value
Pre-WCM Implementation	371	318	1.17 (1.12, 1.21)	<.001
Post-WCM Implementation	277	288	0.95 (0.91, 0.99)	.008

*Adjusted for season, CDPS, disability, race, language, gender, and age.

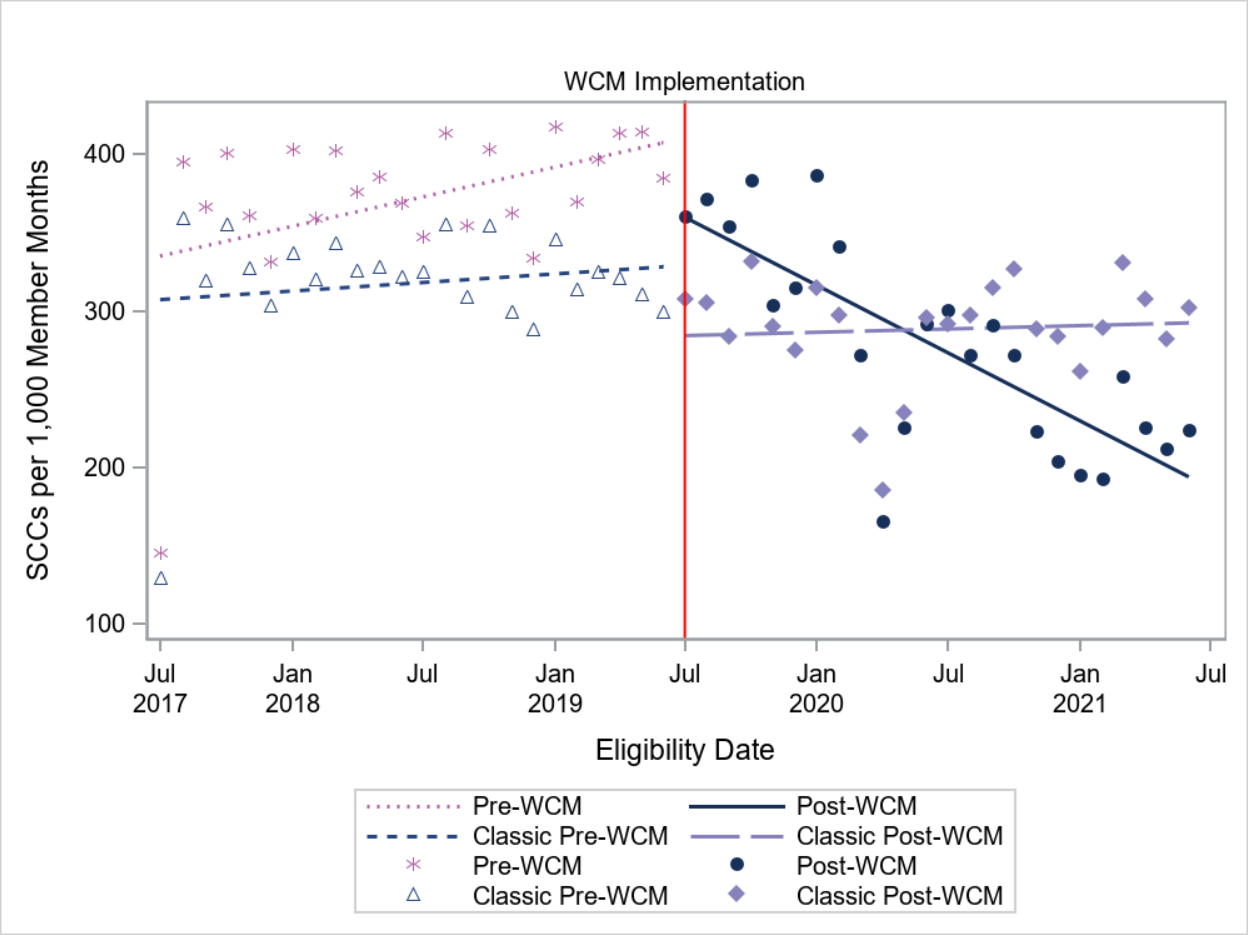
Table 137 provides comparisons of Special Care Center visits from the pre- to post-WCM periods for the Phase III and Classic CCS comparison groups separately. For the Phase III group, Special Care Center visits decreased 20% in the post-period ($p < .001$). In the Classic CCS comparison group, pre- to post-period differences were not significant. Given the significant decrease in Special Care Center visits in the Phase III group and no significant difference in the Classic CCS comparison group, the Difference in Differences is significant ($p < .001$).

Table 137: Special Care Center Visits per 1,000 Member Months, Comparing Phase III in Pre- versus Post-Period, Classic CCS Comparison Group in Pre- versus Post-Period, and DiD Analysis

	Special Care Center Visits per 1,000 Member Months		Adjusted Odds Ratios*	
Group	Pre-WCM Implementation	Post-WCM Implementation	(95% CI) Post- vs. Pre-Periods	*P*-value
Phase III Group	371	277	0.80 (0.77, 0.82)	<.001
Classic CCS Comparison Group	318	288	0.98 (0.96, 1.00)	.097
Difference in Differences			0.81 (0.78, 0.84)	<.001

*Adjusted for season, CDPS, disability, race, language, gender, and age.

Figure 38: Special Care Center Visits per 1,000 Member Months, with Trend Line Over Time for Phase III and Classic CCS Comparison Groups in Pre- versus Post-Period



Trend Statement for Special Care Center Visits in Phase III: The slopes in the pre-period are statistically significant (p = .0002) and thus do not meet the parallel assumptions criteria for the DiD model (Figure 38). As such, the pre-to-post differences may be due to underlying trends and not the result of the WCM implementation. Results should be interpreted with caution.

Phase III Independent Variable Associations to Special Care Center Visits: Regression analysis shows that spring and winter season as compared to summer or not having a disability is significantly associated with having lower Special Care Center visits. Being female, being Latinx or "other/unknown" race as compared to White, speaking Spanish as compared to English, being age 2–20 years as compared to less than 12 months, or having higher illness severity is significantly associated with having higher Special Care Center visits (see regression table in Appendix I).

Overall summary of Special Care Center visit results for HPSM WCM and Phase I–Phase III

Overall, the results varied across the study groups. For the HPSM WCM and Phase I study groups, the HPSM WCM and Phase I groups had greater increases in Special Care Center visits compared to their respective Classic CCS comparison groups; thus the Difference in Differences is significant. In the Phase II study group, the Phase II group had a decrease in visits compared to the increase in Classic CCS comparison group, and the Difference in Differences is significant. In the Phase III study group, the Phase III group had decreased visits compared to no change in visits in the Classic CCS comparison group; thus the Difference in Differences in significant.

Mental Health Visit Results

Mental health visits per 1,000 member months, comparing HPSM WCM to Classic CCS comparison group in pre- versus post-period

Table 138 provides comparisons of differences in mental health visits between the HPSM WCM and Classic CCS comparison groups during the pre- and post-implementation periods separately. During the pre-period, the odds of a mental health visit in the HPSM WCM were about 75% lower than in the Classic CCS comparison group ($p < .03$). During the post-period, the odds of a mental health visit did not differ significantly between the HPSM WCM and Classic CCS comparison groups.

Table 138: Mental Health Visits per 1,000 Member Months, Comparing HPSM WCM to Classic CCS Comparison Group in Pre- versus Post-Period

	Mental Health Visits per 1,000 Member Months		Adjusted Odds Ratios*	
Period	HPSM WCM Group	Classic CCS Comparison Group	(95% CI) HPSM WCM Group vs. Classic	*P*-value
Pre-WCM Implementation	36	244	0.23 (0.06, 0.83)	.025
Post-WCM Implementation	179	301	0.77 (0.51, 1.18)	.232

*Adjusted for CDPS.

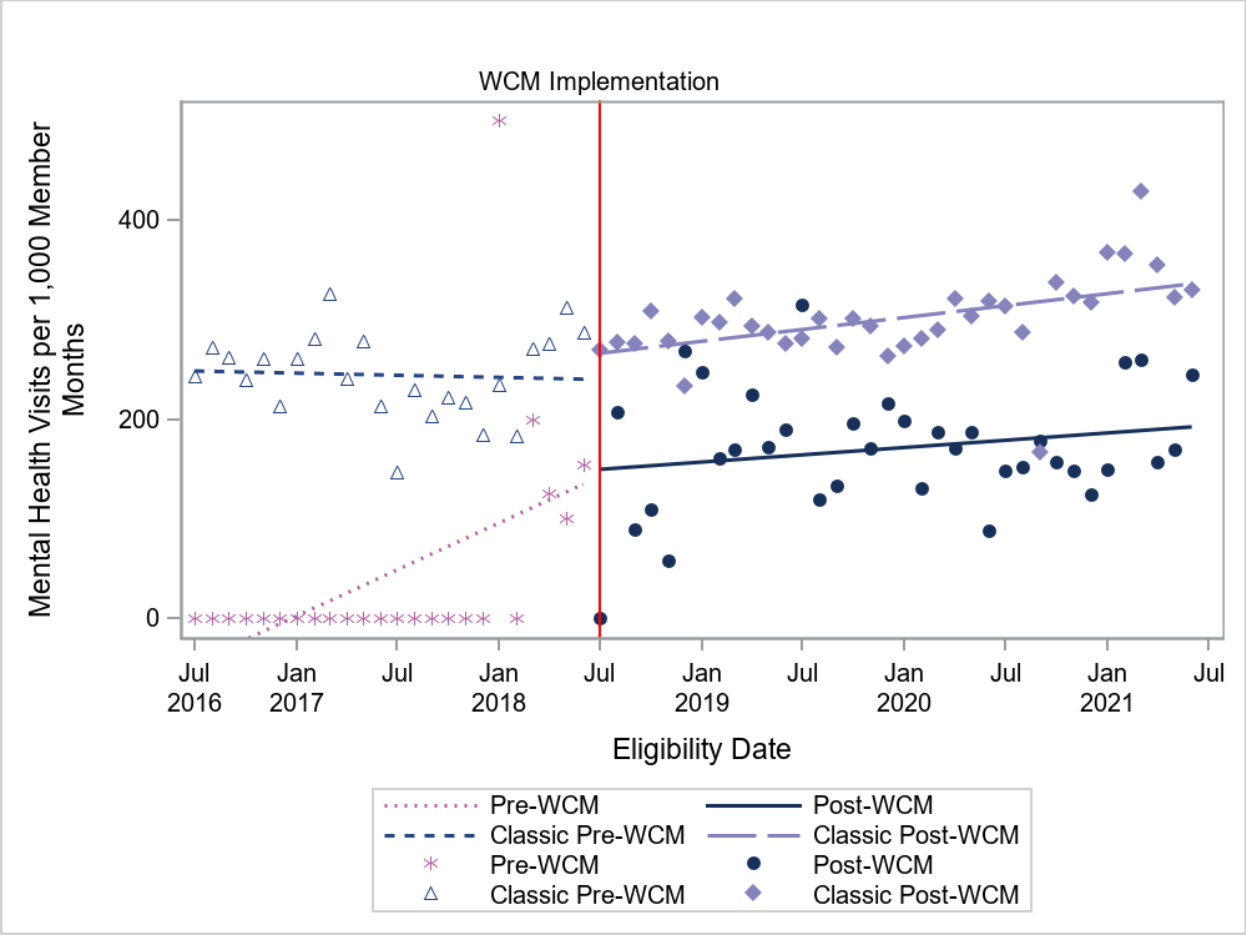
Table 139 provides comparisons of the pre- to post-implementation periods for the HPSM WCM and Classic CCS comparison groups separately. For the HPSM WCM, the odds of a mental health visit during the post-period did not differ significantly from those for the pre-period. Likewise, for the CCS comparison group, the difference between the pre-period and post-period was not significant. With no significant changes in either group, the Difference in Differences is not significant.

Table 139: Mental Health Visits per 1,000 Member Months, Comparing HPSM WCM in Pre- versus Post-Period, Classic CCS Comparison Group in Pre- versus Post-Period, and DiD Analysis

	Mental Health Visits per 1,000 Member Months		Adjusted Odds Ratios*	
Group	Pre-WCM Implementation	Post-WCM Implementation	(95% CI) Post- vs. Pre-Periods	*P*-value
HPSM WCM Group	36	179	3.25 (0.85, 12.44)	.085
Classic CCS Comparison Group	244	301	0.95 (0.80, 1.12)	.526
Difference in Differences			3.43 (0.89, 13.26)	.074

*Adjusted for CDPS.

Figure 39: Mental Health Visits per 1,000 Member Months, with Trend Line Over Time for HPSM WCM and Classic CCS Comparison Groups in Pre- versus Post-Period



Trend Statement for Mental Health Claims in HPSM WCM: In the pre-WCM period, the slopes of the HPSM WCM and Classic CCS comparison groups are statistically different ($p < .0001$) and thus the parallel slopes assumption of the DiD model is not satisfied (see Appendix I). As such, the pre-to-post differences may be due to underlying trends and not the result of the WCM implementation. Results should be interpreted with caution.

HPSM WCM Independent Variable Associations to Mental Health Visits: Regression analysis shows having higher illness severity is significantly associated with having higher mental health visits (see regression table in Appendix I).

Mental health visits per 1,000 member months, comparing Phase I to Classic CCS comparison group in pre- versus post-period

Table 140 provides comparisons of mental health visits between the Phase I and Classic CCS comparison groups during the pre- and post-implementation periods separately. During the pre-period, the odds of a mental health visit for the Phase I group were about 15% lower than those for the Classic CCS comparison group (p = .004). During the post-period, the odds of a mental health visit in the Classic CCS comparison group were about 10% lower than for those in the Phase I group (p = .04).

Table 140: Mental Health Visits per 1,000 Member Months, Comparing Phase I to the Classic CCS Comparison Group in Pre- versus Post-Period

	Mental Health Visits per 1,000 Member Months		Adjusted Odds Ratios*	
Period	Phase I Group	Classic CCS Comparison Group	(95% CI) Implementation Group vs. Classic	*P*-value
Pre-WCM Implementation	155	161	0.86 (0.77, 0.95)	.004
Post-WCM Implementation	198	194	0.91 (0.83, 1.00)	.042

*Adjusted for season, CDPS, disability, race, language, gender, and age.

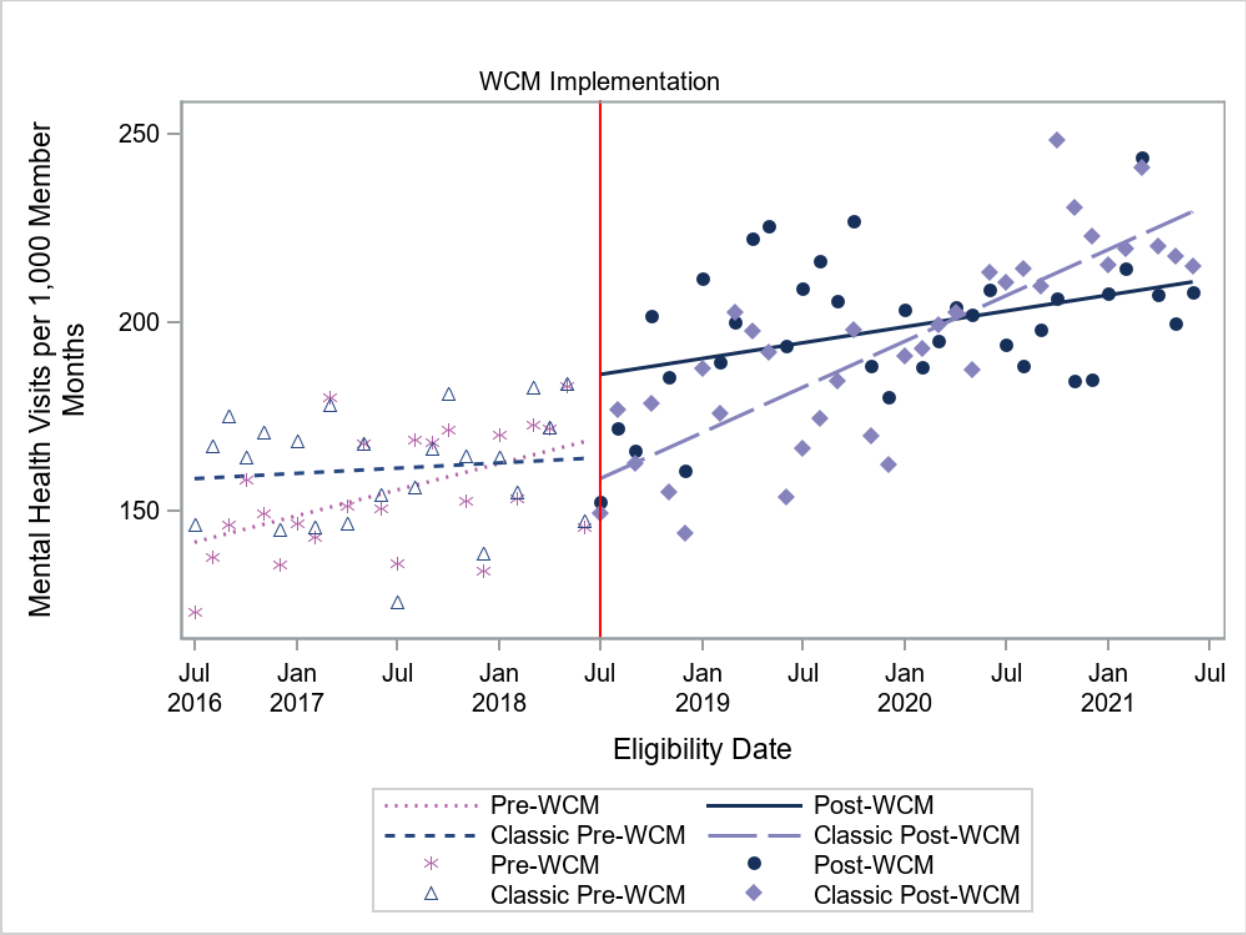
Table 141 provides comparisons of mental health visits during the pre- and post-implementation periods for the Phase I and Classic CCS comparison groups separately. For the Phase I group, the odds of a mental health visit during the post-period were 1.15 times greater than those in the pre-period (p < .001). For the CCS comparison group, the odds of a mental health visit were 1.08 times greater during the post-period compared to those of the pre-period (p = .02). The Difference in Differences is not significant.

Table 141: Mental Health Visits per 1,000 Member Months, Comparing Phase I in Pre- versus Post-Period, Classic CCS Comparison Group in Pre- versus Post-Period, and DiD Analysis

	Mental Health Visits per 1,000 Member Months		Adjusted Odds Ratios*	
Group	Pre-WCM Implementation	Post-WCM Implementation	(95% CI) Post- vs. Pre-Periods	*P*-value
Phase I Group	155	198	1.15 (1.07, 1.22)	<.001
Classic CCS Comparison Group	161	194	1.08 (1.01, 1.16)	.016
Difference in Differences			1.06 (0.97, 1.16)	.225

*Adjusted for season, CDPS, disability, race, language, gender, and age.

Figure 40: Mental Health Visits per 1,000 Member Months, with Trend Line Over Time for Phase I and Classic CCS Comparison Groups in Pre- versus Post-Period



Trend Statement for Mental Health Claims in Phase I: In the pre-WCM period, the slopes of the Phase I and Classic CCS comparison groups are statistically different (p = .0409), and thus the parallel slopes assumption of the DiD model is not satisfied (see Appendix I). As such, the pre-to-post differences may be due to underlying trends and not the result of the WCM implementation. Results should be interpreted with caution.

Phase I Independent Variable Associations to Mental Health Visits: Regression analysis shows that winter compared to summer season, having a disability, being Latinx as compared to White, speaking Spanish or "other" language as compared to English, or being age 2–11 years as compared to 12–20 years is significantly associated with having lower mental health visits. Fall and spring season as compared to summer season or having higher illness severity is significantly associated with having higher mental health visits (see regression table in Appendix I).

Mental health visits per 1,000 member months, comparing Phase II to Classic CCS comparison group in pre- versus post-period

Table 142 provides comparisons of mental health visits between the Phase II and Classic CCS comparison groups during the pre- and post-implementation periods separately. During the pre-period, the odds of a mental health visit for the Phase II group were about 15% lower than those for the Classic CCS comparison group (p = .01). During the post-period, the odds of a mental health visit in the Phase II and Classic CCS comparison groups did not differ significantly.

Table 142: Mental Health Visits per 1,000 Member Months, Comparing Phase II to the Classic CCS Comparison Group in Pre- versus Post-Period

	Mental Health Visits per 1,000 Member Months		Adjusted Odds Ratios*	
Period	Phase II Group	Classic CCS Comparison Group	(95% CI) Phase II Group vs. Classic	*P*-value
Pre-WCM Implementation	198	220	0.86 (0.77, 0.95)	.005
Post-WCM Implementation	224	231	0.92 (0.83, 1.03)	.149

*Adjusted for season, CDPS, disability, race, language, gender, and age.

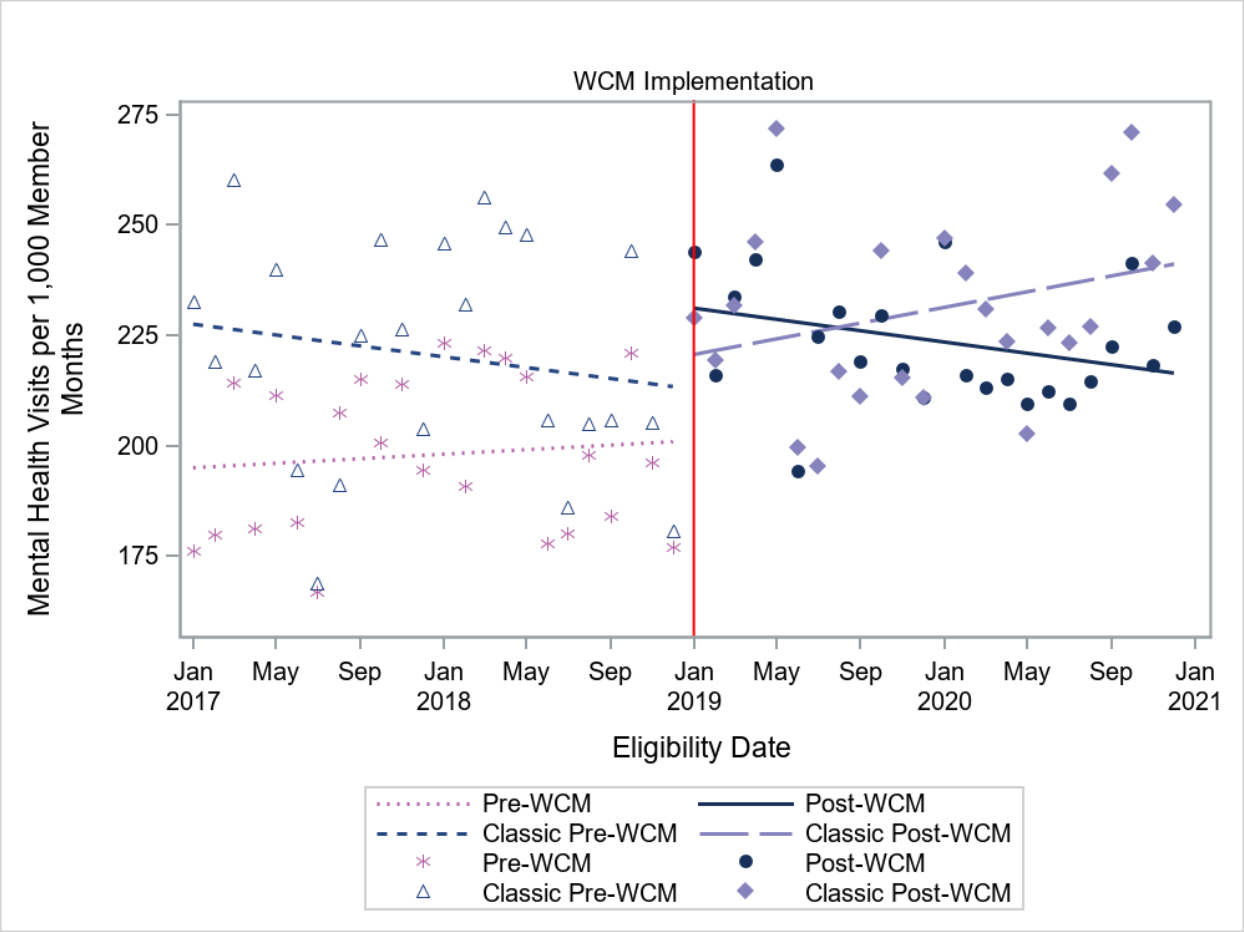
Table 143 provides comparisons of mental health visits from the pre- to post-WCM implementation periods for the Phase II and Classic CCS comparison groups separately. For the Phase II group, the odds of a mental health visit during the post-period were 1.22 times greater than in the pre-period (p < .001). Likewise, in the CCS comparison group, the odds of a mental health visit were 1.13 times greater during the post-period compared to the pre-period (p < .001). The Difference in Differences is not significant.

Table 143: Mental Health Visits per 1,000 Member Months, Comparing Phase II in Pre- versus Post-Period, Classic CCS Comparison Group in Pre- versus Post-Period, and DiD Analysis

	Mental Health Visits per 1,000 Member Months		Adjusted Odds Ratios*	
Group	Pre-WCM Implementation	Post-WCM Implementation	(95% CI) Post- vs. Pre-Periods	*P*-value
Phase II Group	198	224	1.22 (1.14, 1.30)	<.001
Classic CCS Comparison Group	220	231	1.13 (1.05, 1.21)	<.001
Difference in Differences			1.08 (0.98, 1.19)	.132

*Adjusted for season, CDPS, disability, race, language, gender, and age.

Figure 41: Mental Health Visits per 1,000 Member Months, with Trend Line Over Time for Phase II and Classic CCS Comparison Groups in Pre- versus Post-Period



Trend Statement for Mental Health Claims in Phase II: The slopes in the pre-period are not statistically significant (p = .3608), and the parallel slopes assumption for the DiD model has been met.

Phase II Independent Variable Associations to Mental Health Visits: Regression analysis shows that having a disability, being Latinx or "other/unknown" race as compared to White, speaking Spanish or "other" language compared to

English, or being age 2–11 years as compared to 12–20 years is significantly associated with having lower mental health visits. Fall and spring as compared to summer season or having higher illness severity is significantly associated with having higher mental health visits (see regression table in Appendix I).

Mental health visits per 1,000 member months, comparing Phase III to Classic CCS comparison group in pre- versus post-period

Table 144 provides comparisons of mental health visits between the Phase III and Classic CCS comparison groups during the pre- and post-implementation periods separately. During the pre-period, the odds of a mental health visit for the Phase III and Classic CCS comparison groups did not differ significantly. Likewise, during the post-period, the odds of a mental health visit in the Phase III and Classic CCS comparison groups did not differ significantly.

Table 144: Mental Health Visits per 1,000 Member Months, Comparing Phase III to the Classic CCS Comparison Group in Pre- versus Post-Period

	Mental Health Visits per 1,000 Member Months		Adjusted Odds Ratio*	
Period	Phase III Group	Classic CCS Comparison Group	(95% CI) Phase III Group vs. Classic	*P*-value
Pre-WCM Implementation	213	211	0.97 (0.89, 1.06)	.502
Post-WCM Implementation	320	251	1.07 (0.97, 1.17)	.160

*Adjusted for season, CDPS, disability, race, language, and age.

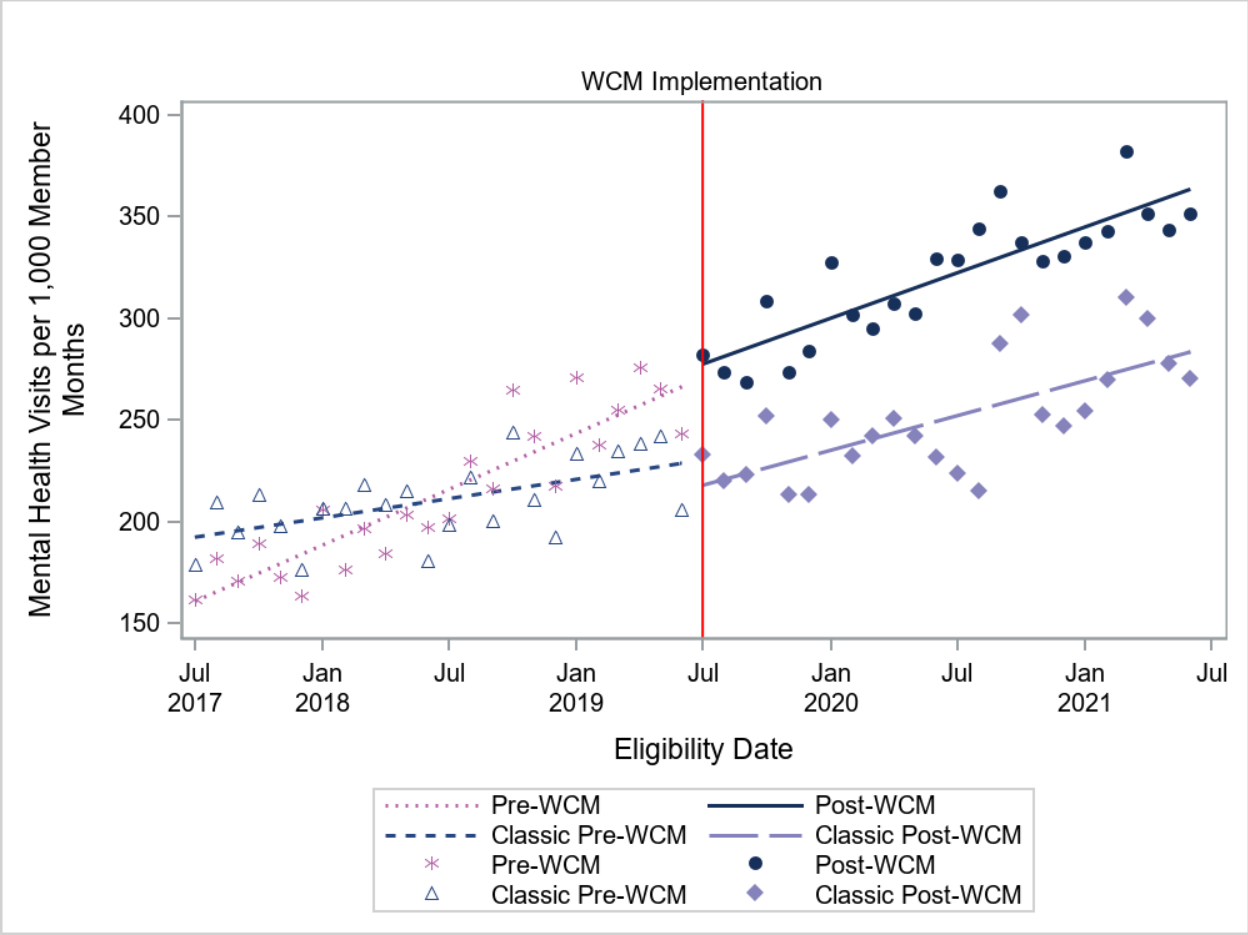
Table 145 provides comparisons of mental health visits in the pre- and post-WCM implementation periods for the Phase III and Classic CCS comparison groups separately. For the Phase III group, the odds of a mental health visit during the post-period were 1.28 times greater than in the pre-period ($p < .001$). Likewise, in the CCS comparison group, the odds of a mental health visit were 1.16 times greater during the post-period compared to those of the pre-period ($p < .001$). Given the greater increase in odds of visits in the Phase III group, the Difference in Differences is significant ($p = .01$).

Table 145: Mental Health Visits per 1,000 Member Months, Comparing Phase III in Pre- versus Post-Period, Classic CCS Comparison Group in Pre- versus Post-Period, and DiD Analysis

	Mental Health Visits per 1,000 Member Months		Adjusted Odds Ratios*	
Group	Pre-WCM Implementation	Post-WCM Implementation	(95% CI) Post- vs. Pre-Periods	*P*-value
Phase III Group	213	320	1.28 (1.22, 1.34)	<.001
Classic CCS Comparison Group	211	251	1.16 (1.10, 1.23)	<.001
Difference in Differences			1.10 (1.02, 1.18)	.011

*Adjusted for season, CDPS, disability, race, language, and age.

Figure 42: Mental Health Visits per 1,000 Member Months, with Trend Line Over Time for Phase III and Classic CCS Comparison Groups in Pre- versus Post-Period



Trend Statement for Mental Health Claims in Phase III: The slopes in the pre-period are not statistically significant (p = .1095), and the parallel slopes assumption for the DiD model has been met.

Phase III Independent Variable Associations to Mental Health Visits: Regression analysis shows that winter compared to summer season, having a disability, speaking Spanish or "other" language as compared to English, or being

age 2–11 years as compared to 12–20 years is significantly associated with having lower mental health visits. Fall and spring compared to summer season, being Black as compared to White race, or having higher illness severity is significantly associated with having higher mental health visits (see regression table in Appendix I).

Overall summary of mental health visit results for HPSM WCM and Phase I–Phase III

Overall, the results on mental health visits for the four study groups varied. In the HPSM WCM study group, there were no significant changes in either the HPSM WCM or the Classic CCS comparison groups and the Difference in Differences is not significant. In the Phase I study group, mental health visits increased significantly during the post-period for both the Phase I and Classic CCS comparison groups. The Difference in Differences is not significant. In the Phase II study group, mental health visits increased in both the Phase II and Classic CCS comparison groups significantly; however, the Difference in Differences is not significant. In the Phase III study group, mental health visits increased in both the Phase III and Classic CCS comparison groups, and Difference in Differences is significant.

Primary Care Provider Visit Results

Primary care visits per 1,000 member months, comparing HPSM WCM to Classic CCS comparison group in pre- versus post-period

Table 146 provides comparisons of primary care provider (PCP) visits between the HPSM WCM and Classic CCS comparison groups during the pre- and post-WCM implementation periods separately. During the pre-period, the odds of a PCP visit for the HPSM WCM were not significantly different than those of the Classic CCS comparison group. However, during the post-period, the odds of a PCP visit in the HPSM WCM were 1.26 times greater than in the Classic CCS comparison group ($p < .001$).

Table 146: Primary Care Visits per 1,000 Member Months, Comparing HPSM WCM to Classic CCS Comparison Group in Pre- versus Post-Period

	Primary Care Visits per 1,000 Member Months		Adjusted Odds Ratios*	
Period	HPSM WCM Group	Classic CCS Comparison Group	(95% CI) HPSM WCM Group vs. Classic	*P*-value
Pre-WCM Implementation	214	377	0.75 (0.47, 1.20)	.231
Post-WCM Implementation	626	531	1.26 (1.14, 1.40)	<.001

*Adjusted for CDPS and disability.

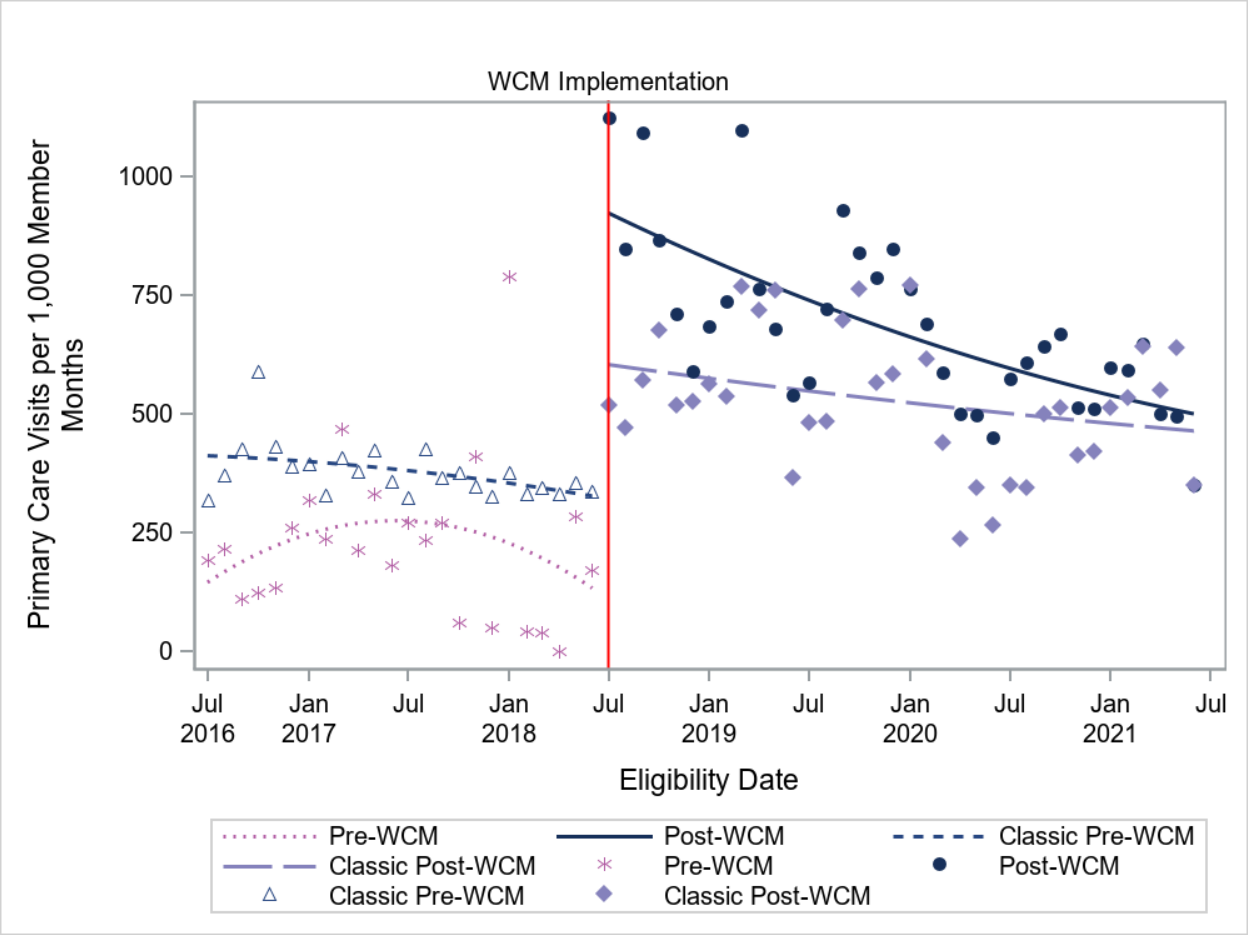
Table 147 provides comparisons of PCP visits in the pre- and post-WCM implementation periods for the HPSM WCM and Classic CCS comparison groups separately. For the HPSM WCM group, the odds of a PCP visit during the post-period were 2.29 times greater than in the pre-period ($p < .001$). Likewise, in the CCS comparison group, the odds of a PCP visit during the post-period were 1.36 times greater than in the pre-period ($p < .001$). Given the greater increase in odds of a PCP visit in the HPSM WCM group, the Difference in Differences is significant ($p = .04$).

Table 147: Primary Care Visits per 1,000 Member Months, Comparing HPSM WCM in Pre- versus Post-Period, Classic CCS Comparison Group in Pre- versus Post-Period, and DiD Analysis

	Primary Care Visits per 1,000 Member Months		Adjusted Odds Ratios*	
Group	Pre-WCM Implementation	Post-WCM Implementation	(95% CI) Post- vs. Pre-Periods	*P*-value
HPSM WCM Group	214	626	2.29 (1.43, 3.68)	<.001
Classic CCS Comparison Group	377	531	1.36 (1.23, 1.50)	<.001
Difference in Differences			1.68 (1.04, 2.73)	.035

*Adjusted for CDPS and disability.

Figure 43: Primary Care Visits per 1,000 Member Months, with Trend Line Over Time for HPSM WCM and Classic CCS Comparison Groups in Pre- versus Post-Period



Trend Statement for Primary Care Visits in HPSM WCM: The slopes in the pre-period are not statistically significant, and the parallel slopes assumption for the DiD model has been met.

HPSM WCM Independent Variable Associations to Primary Care Visits: Regression analysis shows that having a disability or having higher illness severity is significantly associated with having higher primary care visits (see regression table in Appendix I).

Primary care visits per 1,000 member months, comparing Phase I to Classic CCS comparison group in pre- versus post-period

Table 148 provides comparisons of PCP visits between the Phase I and Classic CCS comparison groups during the pre- and post-WCM implementation periods separately. During the pre-period, the odds of a PCP visit for the Phase I group did not differ significantly from those of the Classic CCS comparison group. During the post-period, the odds of a PCP visit in the Phase I group were 1.06 times greater than those for the Classic CCS comparison group (p = .001).

Table 148: Primary Care Visits per 1,000 Member Months, Comparing Phase I to the Classic CCS Comparison Group in Pre- versus Post-Period

	Primary Care Visits per 1,000 Member Months		Adjusted Odds Ratios*	
Period	Phase I Group	Classic CCS Comparison Group	(95% CI) Implementation Group vs. Classic	*P*-value
Pre-WCM Implementation	393	402	0.99 (0.95, 1.02)	.364
Post-WCM Implementation	510	470	1.06 (1.02, 1.11)	.001

*Adjusted for season, CDPS, disability, race, language, and gender.

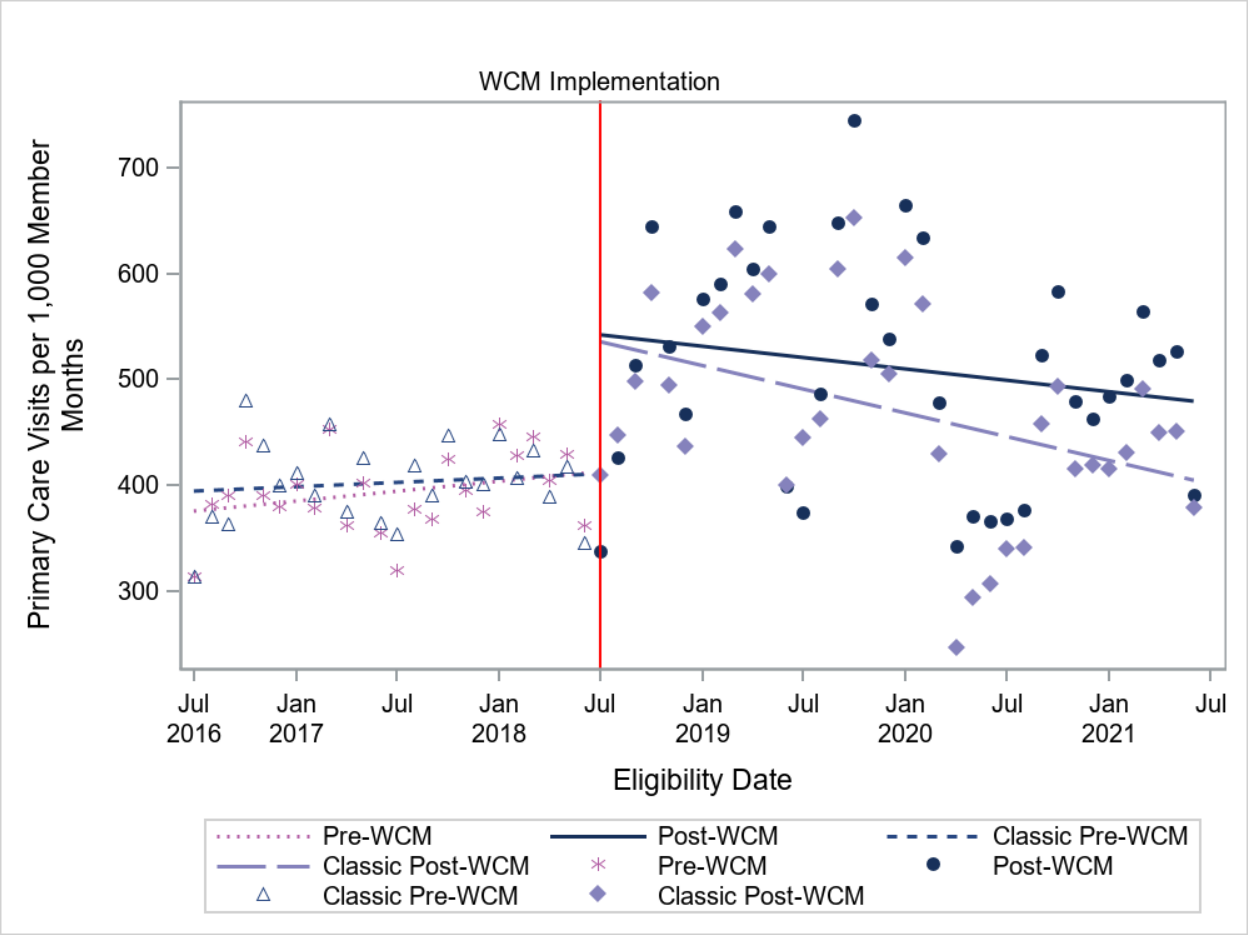
Table 149 provides comparisons of PCP visits from the pre- to post-WCM implementation periods for the Phase I and Classic CCS comparison groups separately. For the Phase I group, the odds of a PCP visit during the post-period were 1.27 times greater than those of the pre-period (p < .001). In the Classic CCS comparison group, the odds of a PCP visit were 1.17 times greater during the post-period compared to the pre-period (p < .001). Given a greater increase in visits in the Phase I group, the Difference in Differences is significant (p < .001).

Table 149: Primary Care Visits per 1,000 Member Months, Comparing Phase I in Pre- versus Post-Period, Classic CCS Comparison Group in Pre- versus Post-Period, and DiD Analysis

	Primary Care Visits per 1,000 Member Months		Adjusted Odds Ratios*	
Group	Pre-WCM Implementation	Post-WCM Implementation	Post- vs. Pre-Periods	*P*-value
Phase I Group	393	510	1.27 (1.23, 1.30)	<.001
Classic CCS Comparison Group	402	470	1.17 (1.14, 1.21)	<.001
Difference in Differences			1.08 (1.04, 1.13)	<.001

*Adjusted for season, CDPS, disability, race, language, and gender.

Figure 44: Primary Care Visits per 1,000 Member Months, with Trend Line Over Time for Phase I and Classic CCS Comparison Groups in Pre- versus Post-Period



Trend Statement for Primary Care Visits in Phase I: In the pre-WCM period, the slopes of the Phase I and Classic CCS comparison groups are statistically different (p = .0152), and thus the parallel slopes assumption of the DiD model is not satisfied (see Appendix I). As such, the pre-to-post differences may be due to underlying trends and not the result of the WCM implementation. Results should be interpreted with caution.

Phase I Independent Variable Associations to Primary Care Visits: Regression analysis shows that having a disability, all seasons except for summer, being "other/unknown" race as compared to White, speaking Spanish as compared to English, being female, or having higher illness severity is significantly associated with having higher primary care visits (see regression table in Appendix I).

Primary care visits per 1,000 member months, comparing Phase II to Classic CCS comparison group in pre- versus post-period

Table 150 provides comparisons of PCP visits between the Phase II and Classic CCS comparison groups during the pre- and post-WCM implementation periods separately. During the pre-period, the odds of a PCP visit for the Phase I group did not differ from those for the comparison group. During the post-period, the odds of a PCP visit in the Phase II group were 10% lower than those in the Classic CCS comparison group ($p < .001$).

Table 150: Primary Care Visits per 1,000 Member Months, Comparing Phase II to the Classic CCS Comparison Group in Pre- versus Post-Period

	Primary Care Visits per 1,000 Member Months		Adjusted Odds Ratios*	
Period	Phase II Group	Classic CCS Comparison Group	(95% CI) Phase II Group vs. Classic	*P*-value
Pre-WCM Implementation	313	312	1.01 (0.99, 1.03)	.271
Post-WCM Implementation	340	378	0.90 (0.89, 0.92)	<.001

*Adjusted for season, CDPS, disability, race, language, gender, and age.

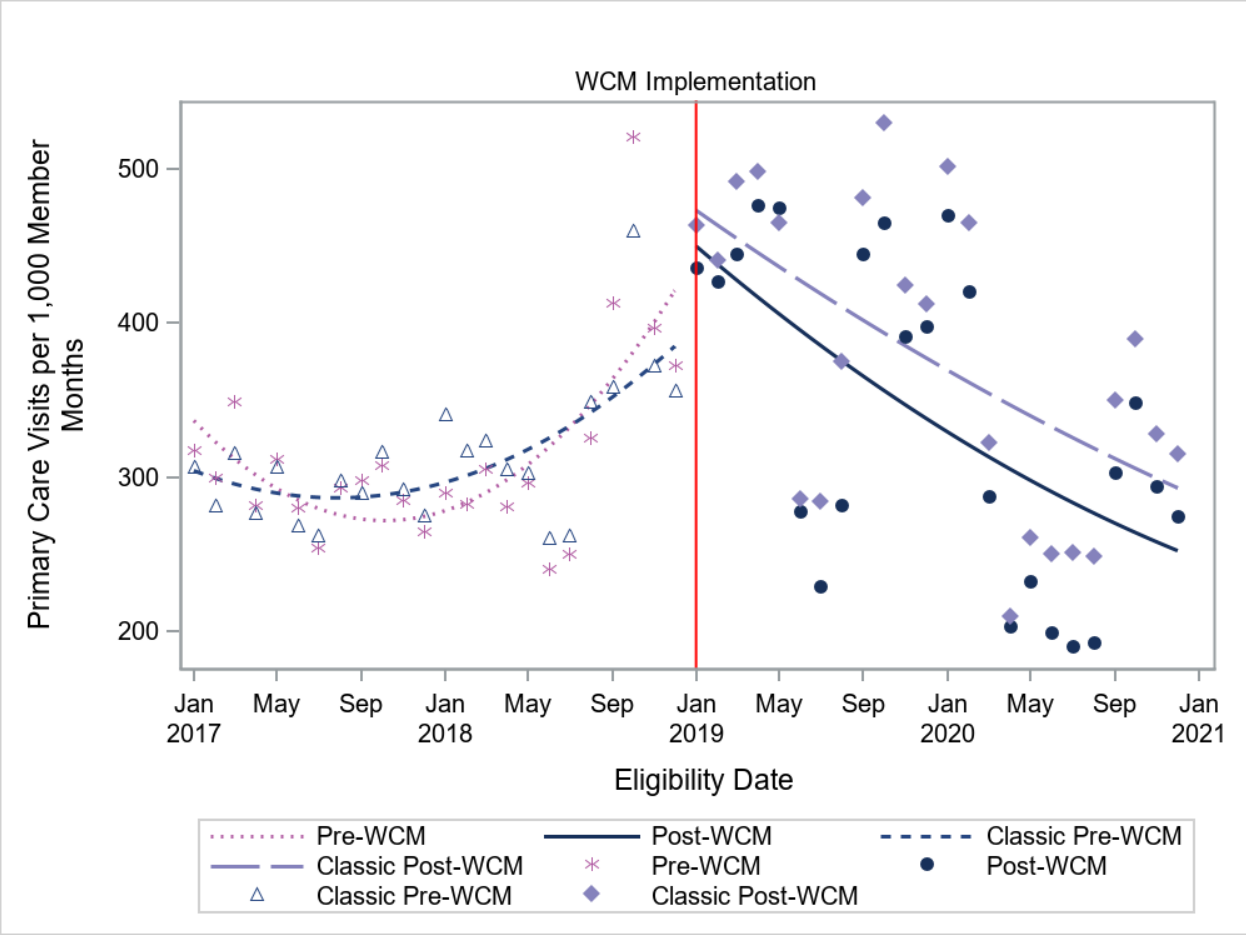
Table 151 provides comparisons of PCP visits from the pre- to post-implementation periods for the Phase II and Classic CCS comparison groups separately. For the Phase II group, the odds of a PCP visit during the post-period were 1.08 times greater than during the pre-period ($p < .001$). In the Classic CCS comparison group, the odds of a PCP visit during the post-period were 1.21 times greater than those in the pre-period group ($p < .001$). Given the greater increase in the Classic CCS comparison group, the Difference in Differences is significant.

Table 151: Primary Care Visits per 1,000 Member Months, Comparing Phase II in Pre- versus Post-Period, Classic CCS Comparison Group in Pre- versus Post-Period, and DiD Analysis

	Primary Care Visits per 1,000 Member Months		Adjusted Odds Ratios*	
Group	Pre-WCM Implementation	Post-WCM Implementation	(95% CI) Post- vs. Pre-Periods	*P*-value
Phase II Group	313	340	1.08 (1.07, 1.10)	<.001
Classic CCS Comparison Group	312	378	1.21 (1.19, 1.23)	<.001
Difference in Differences			0.89 (0.87, 0.92)	<.001

*Adjusted for season, CDPS, disability, race, language, gender, and age.

Figure 45: Primary Care Visits per 1,000 Member Months, with Trend Line Over Time for Phase II and Classic CCS Comparison Groups in Pre- versus Post-Period



Trend Statement for Primary Care Visits in Phase II: In the pre-WCM period, the slopes of the Phase I and Classic CCS comparison groups are statistically different (p = .0036), and thus the parallel slopes assumption of the DiD model is not satisfied (see Appendix I). As such, the pre-to-post differences may be due to underlying trends and not the result of the WCM implementation. Results should be interpreted with caution.

Phase II Independent Variable Associations to Primary Care Visits: Regression analysis shows that being Black as compared to White or being age 1–20 as compared to less than 12 months is significantly associated with having lower primary care visits. Having a disability, any other season as compared to summer, speaking any language as compared to English, being female, or having higher illness severity is significantly associated with having higher primary care visits (see regression table in Appendix I).

Primary care visits per 1,000 member months, comparing Phase III to Classic CCS comparison group in pre- versus post-period

Table 152 provides comparisons of PCP visits between the Phase III and Classic CCS comparison groups during the pre- and post-WCM implementation periods separately. During the pre-period, the odds of a PCP visit for the Phase III group were not significantly different than those of the Classic CCS comparison group. Likewise, during the post-period, the odds of a PCP visit in the Phase III group were not significantly different than those for the Classic CCS comparison group.

Table 152: Primary Care Visits per 1,000 Member Months, Comparing Phase III to the Classic CCS Comparison Group in Pre- versus Post-Period

	Primary Care Visits per 1,000 Member Months		Adjusted Odds Ratios*	
Period	Phase III Group	Classic CCS Comparison Group	(95% CI) Phase III Group vs. Classic	*P*-value
Pre-WCM Implementation	427	427	0.99 (0.93, 1.05)	.734
Post-WCM Implementation	394	378	0.97 (0.92, 1.01)	.171

*Adjusted for season, CDPS, disability, race, language, gender, and age.

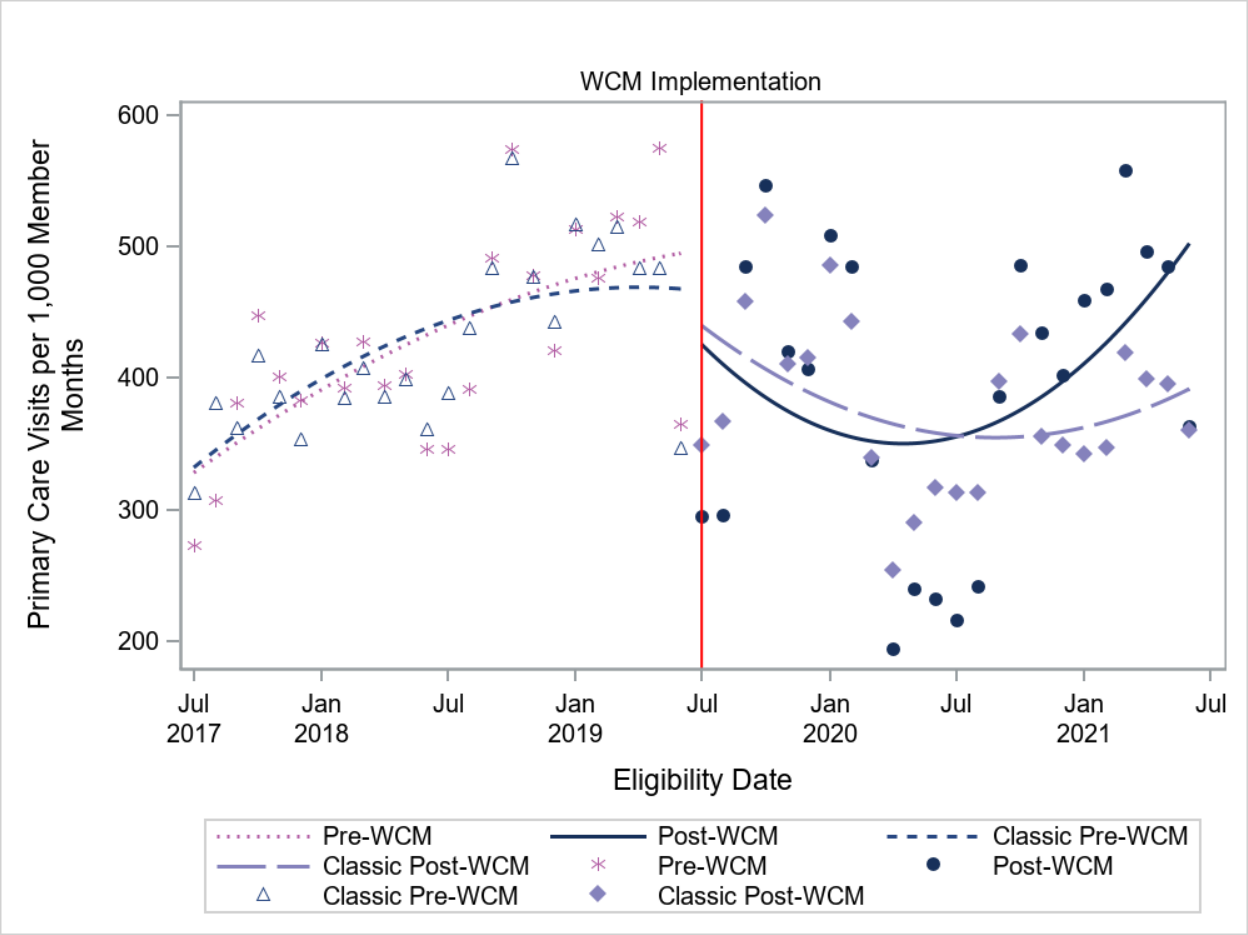
Table 153 provides comparisons of PCP visits from the pre- to post-WCM implementation periods for the Phase III and Classic CCS comparison groups separately. For the Phase III group, the odds of a PCP visit during the post-period did not differ significantly from those of the pre-period group. In the Classic CCS comparison group, the odds of a PCP visit did not differ between the pre- and post-implementation periods. The Difference in Differences is not significant.

Table 153: Primary Care Visits per 1,000 Member Months, Comparing Phase III in Pre- versus Post-Period, Classic CCS Comparison Group in Pre- versus Post-Period, and DiD Analysis

	Primary Care Visits per 1,000 Member Months		Adjusted Odds Ratios*	
Group	Pre-WCM Implementation	Post-WCM Implementation	(95% CI) Post- vs. Pre-Periods	*P*-value
Phase III Group	427	394	0.95 (0.91, 1.00)	.063
Classic CCS Comparison Group	427	378	0.98 (0.95, 1.00)	.100
Difference in Differences			0.98 (0.92, 1.03)	.422

*Adjusted for season, CDPS, disability, race, language, gender, and age.

Figure 46: Primary Care Visits per 1,000 Member Months, with Trend Line Over Time for Phase III and Classic CCS Comparison Groups in Pre- versus Post-Period



Trend Statement for Primary Care Visits in Phase III: The slopes in the pre-period are not statistically significant, and the parallel slopes assumption for the DiD model has been met.

Phase III Independent Variable Associations to Primary Care Visits: Regression analysis shows that being any non-White or "other/unknown" race as compared to White or being age one year or 12–20 years as compared to less than 12

months is significantly associated with having lower primary care visits. Any season as compared to summer, having a disability, being female, or having higher illness severity is significantly associated with having higher visits (see regression table in Appendix I).

Overall summary of primary care visit results for HPSM WCM and Phase I–Phase III

Overall, results varied among the study groups. The HPSM WCM and Phase I study groups had parallel findings. Both the HPSM WCM and the Phase I groups had greater increases in PCP visits compared to increases in their respective Classic CCS comparison groups and the Difference in Differences is significant for both groups. For Phase II, the Classic CCS comparison group had greater increases in PCP visits in comparison to the Phase II group; thus the Difference in Differences is significant. For Phase III, both the Phase III and Classic CCS comparison groups had no significant change in PCP visits; thus the Difference in Differences is not significant.

Analyses for Well-Child Visits

The UCSF evaluation team reported on four separate Healthcare Effectiveness Data and Information Sets in the National Committee for Quality Assurance (HEDIS/NCQA) measures of well-child visits. This was done to examine the quality of care for health maintenance visits for children and adolescents, as this measures healthcare maintenance and primary care delivery where primary care physician visits can include acute care visits and follow-up visits, which are difficult to separate out by coding alone.[48] Each of the study groups had four measures shown by age stratification. These age stratifications, as defined by HEDIS/NCQA include:

- 0–15 months of age (six well-child visits)
- 0–30 months of age (two well-child visits)
- 3–6 years of age (one annual visit)
- 12–20 years of age (one annual visit)

Six or more well-child visits per 100 0- to 15-month-olds

HPSM WCM: Six or more well-child visits per 100 0- to 15-month-olds

There were insufficient observations in the pre-period for well-child visits to generate stable estimates for the DiD or regression analysis. Instead, the UCSF evaluation team reports the proportion of well-child visits.

[48] "Child and Adolescent Well-Care Visits (W30, WCV)," Natl. Committee for Quality Assurance, www.ncqa.org/hedis/measures/child-and-adolescent-well-care-visits/.

Table 154 provides numbers of clients 0–15 months old, and number and proportion of those who had six or more well-child visits. During the pre-period, the HPSM WCM group had three 0- to 15-month-old members but zero had six or more well-child visits. During the post-period, 32.3% had six or more well-child visits. For the Classic CCS comparison group, during the pre-period, 37.7% of 0- to 30-month-old clients had six or more well-child visits, and during the post-period, 37.0% had six or more well-child visits.

Table 154: Proportion of Six or More Well-Child Visits per 100 0- to 15-Month-Olds for HPSM WCM and Classic CCS Comparison Groups in Pre- versus Post-WCM Period

Six or More Well-Child Visits per 100 0- to 15-Month-Olds				
Group	Study Group	Number of Children	Visits	Percentage Meeting Visit Criteria
HPSM WCM Group	Pre-WCM	3	0	0.0
	Post-WCM	161	52	32.3
Classic CCS Comparison Group	Classic Pre-WCM	138	52	37.7
	Classic Post-WCM	127	47	37.0

Phase I: Six or more well-child visits per 100 0- to 15-month-olds

Table 155 provides comparisons of six or more well-child visits for 0- to 15-month-old-infants between the Phase I and Classic CCS comparison groups during the pre- and post-WCM implementation periods separately. During the pre-period, the odds of six or more well-child visits did not differ significantly between the Phase I and Classic CCS comparison groups. Likewise, during the post-period, the odds of six or more well-child visits did not differ significantly between the Phase I and Classic CCS comparison groups.

Table 155: Six or More Well-Child Visits per 100 0- to 15-Month-Olds, Comparing Phase I to the Classic CCS Comparison Group in Pre- versus Post-WCM Period

	Six or More Well-Child Visits per 100 0- to 15-Month-Olds		Adjusted Odds Ratios*	
Period	Phase I Group	Classic CCS Comparison Group	(95% CI) Phase I Group vs. Classic	*P*-value
Pre-WCM Implementation	34	36	0.84 (0.71, 1.01)	.064
Post-WCM Implementation	38	37	0.92 (0.72, 1.17)	.484

*Adjusted for CDPS, race, and language.

Table 156 provides comparisons of six or more well-child visits for infants 0–15 months old, from the pre- to post-WCM implementation periods for the Phase I and Classic CCS comparison groups separately. For the Phase I group, the odds did not differ significantly from the pre- to the post-period. Likewise, for the Classic CCS comparison group, the odds of six or more visits did not differ significantly between the pre- and post-periods. The Difference in Differences is not significant.

Table 156: Had Six or More Well-Child Visits per 100 0- to 15-Month-Olds, Comparing Phase I in Pre- versus Post-Period, Classic CCS Comparison Group in Pre- versus Post-Period, and DiD Analysis

	Six or More Well-Child Visits per 100 0- to 15-Month-Olds		Adjusted Odds Ratios*	
Group	Pre-WCM Implementation	Post-WCM Implementation	(95% CI) Post- vs. Pre-Periods	*P*-value
Phase I Group	34	38	1.19 (0.97, 1.45)	.095
Classic CCS Comparison Group	36	37	1.09 (0.87, 1.37)	.433
Difference in Differences			1.09 (0.80, 1.47)	.591

*Adjusted for CDPS, race, and language.

Phase I Independent Variable Associations to Six or More Well-Child Visits for 0- to 15-Month-Olds: Regression analysis shows that being Black or “other/unknown” race as compared to White is significantly associated with having lower six or more well-child visits for 0- to 15-month-olds, while speaking Spanish as compared to English is significantly associated with having higher visits (see regression table in Appendix I).

Phase II: Six or more well-child visits per 100 0- to 15-month-olds

Table 157 provides comparisons of six or more well-child visits for 0- to 15-month-old-infants between the Phase II and Classic CCS comparison groups during the pre- and post-WCM implementation periods separately. During the pre-period, the odds of six or more well-child visits did not differ significantly between the Phase II and Classic CCS comparison groups. Likewise, during the post-period, the odds of six or more well-child visits did not differ significantly between the Phase II and Classic CCS comparison groups.

Table 157: Six or More Well-Child Visits per 100 0- to 15-Month-Olds, Comparing Phase II to the Classic CCS Comparison Group in Pre- versus Post-Period

	Six or More Well-Child Visits per 100 0- to 15-Month-Olds		Adjusted Odds Ratios*	
Period	Phase II Group	Classic Comparison Group	(95% CI) Phase II Group vs. Classic	*P*-value
Pre-WCM Implementation	32	36	0.84 (0.68, 1.03)	.095
Post-WCM Implementation	22	30	0.68 (0.45, 1.03)	.070

*Adjusted for CDPS, disability, race, language, and gender.

Table 158 provides comparisons of six or more well-child visits for infants 0–15 months of age, from the pre- to post-WCM implementation periods for the Phase II and Classic CCS comparison groups separately. For the Phase II group, the odds of six or more well-child visits were about 40% lower in the post-period than in the pre-period (p = .01). For the Classic CCS comparison group, the odds of six or more visits did not differ significantly between the pre- and post-period. The Difference in Differences is not significant.

Table 158: Had Six or More Well-Child Visits per 100 0- to 15-Month-Olds, Comparing Phase II in Pre- versus Post-Period, Classic CCS Comparison Group in Pre- versus Post-Period, and DiD Analysis

	Six or More Well-Child Visits per 100 0- to 15-Month-Olds		Adjusted Odds Ratios*	
Group	Pre-WCM Implementation	Post-WCM Implementation	(95% CI) Post- vs. Pre-Periods	*P*-value
Phase II Group	32	22	0.62 (0.44, 0.86)	.005
Classic CCS Comparison Group	36	30	0.76 (0.55, 1.05)	.092
Difference in Differences			0.81 (0.51, 1.29)	.379

*Adjusted for CDPS, disability, race, language, and gender.

Phase II Independent Variable Associations to Six or More Well-Child Visits for 0- to 15-Month-Olds: Regression analysis shows that not having a disability, or speaking Spanish or "other" language as compared to English, is significantly associated with having higher six or more well-child visits for 0- to 15-month-olds (see regression table in Appendix I).

Phase III: Six or more well-child visits per 100 0- to 15-month-olds

Table 159 provides comparisons of six or more well-child visits for 0- to 15-month-old infants between the Phase III and Classic CCS comparison groups during the pre- and post-WCM implementation periods separately. During the pre-period, the odds of six or more well-child visits were 25% lower in the Phase III group compared to the Classic CCS comparison group (p = .003). During the post-period, the odds of six or more well-child visits were not significantly different between the Phase III and Classic CCS comparison groups.

Table 159: Six or More Well-Child Visits per 100 0- to 15-Month-Olds, Comparing Phase III to the Classic CCS Comparison Group in Pre- versus Post-Period

	Six or More Well-Child Visits per 100 0- to 15-Month-Olds		Adjusted Odds Ratios*	
Period	Phase III Group	Classic CCS Comparison Group	(95% CI) Phase III Group vs. Classic	*P*-value
Pre-WCM Implementation	32	36	0.75 (0.63, 0.91)	.003
Post-WCM Implementation	31	42	0.55 (0.28, 1.06)	.076

*Adjusted for CDPS, race, language, and gender.

Table 160 provides comparisons of six or more well-child visits for infants 0–15 months of age, from the pre- to post-WCM implementation periods for the Phase III and Classic CCS comparison groups separately. For the Phase III group, the odds of six or more well-child visits did not differ significantly from pre-period to post-period. Likewise, the odds of six or more well-child visits for the Classic CCS comparison group did not differ significantly from pre- to post-period. The Difference in Differences is not significant.

Table 160: Had Six or More Well-Child Visits per 100 0- to 15-Month-Olds, Comparing Phase III in Pre- versus Post-Period, Classic CCS Comparison Group in Pre- versus Post-Period, and DiD Analysis

	Six or More Well-Child Visits per 100 0- to 15-Month-Olds		Adjusted Odds Ratios*	
Group	Pre-WCM Implementation	Post-WCM Implementation	(95% CI) Post- vs. Pre-Periods	*P*-value
Phase III Group	32	31	0.97 (0.60, 1.58)	.914
Classic CCS Comparison Group	36	42	1.33 (0.82, 2.17)	.243
Difference in Differences			0.73 (0.37, 1.45)	.367

*Adjusted for CDPS, race, language, and gender.

Phase III Independent Variable Associations to Six or More Well-Child Visits for 0- to 15-Month-Olds: Regression analysis shows that having higher severity of illness or being Black compared to White race is significantly associated with

having lower six or more well-child visits for 0- to 15-month-olds, while speaking Spanish or "other" language as compared to English is significantly associated with having higher visits (see regression table in Appendix I).

Overall summary of well-child visits for 0- to 15-month-olds results for HPSM WCM and Phase I–Phase III

Overall, results varied across the four study groups, with few changes from the pre- to the post-period. For the HPSM WCM study group, the very low numbers of clients did not allow for statistical comparisons in the HPSM WCM group. For the Phase I study group, neither the Phase I nor the Classic CCS comparison group had significant changes in the post-period, and the Difference in Differences is not significant. For the Phase II study group, well-child visits were significantly lower in the post-period in the Phase II group, but there were no changes in visits in the Classic CCS comparison group, and the Difference in Differences is not significant. For the Phase III study group, neither the Phase III group nor the Classic CCS comparison group had significant changes in well-child visits, and the Difference in Differences in not significant.

Having two or more well-child visits per 100 0- to 30-month-olds

HPSM WCM: Two or more well-child visits per 100 0- to 30-month-olds

There were insufficient observations in the pre-period for well-child visits to generate stable estimates for the DiD or regression analysis. Instead, the UCSF evaluation team reports the proportion of well-child visits seen.

Table 161 provides proportions of clients 0–30 months old who had two or more well-child visits. There were no clients during the pre-period who were 0–30 months old; however, during the post-period there were 66 clients, 77.3% of whom had two or more well-child visits. For the Classic CCS comparison group during the pre-period, 74.5% had two or more well-child visits, and during the post-period, 77.1% had two or more well-child visits.

Table 161: Proportion of Two or More Well-Child Visits per 100 0- to 30-Month-Olds for the HPSM WCM and Classic CCS Comparison Groups in Pre- versus Post-Period

Two or More Well-Child Visits per 100 0- to 30-Month-Olds				
Group	Study Group	Number of Children	Visits	Percentage Having Met Visit Criteria
HPSM WCM Group	Pre-WCM	1	0	0.0
	Post-WCM	66	51	77.3

Two or More Well-Child Visits per 100 0- to 30-Month-Olds				
Group	Study Group	Number of Children	Visits	Percentage Having Met Visit Criteria
Classic CCS Comparison Group	Classic pre-WCM	110	82	74.5
	Classic post-WCM	157	121	77.1

Phase I: Two or more well-child visits per 100 0- to 30-month-olds

Table 162 provides comparisons of two or more well-child visits for 0- to 30-month-old infants between the Phase I and Classic CCS comparison groups during the pre- and post-WCM implementation periods separately. During the pre-period, the odds of two or more well-child visits were about 40% lower for the Phase I group compared to the Classic CCS comparison group ($p < .001$). During the post-period, the odds of two or more well-child visits did not differ significantly between the Phase I and Classic CCS comparison groups.

Table 162: Two or More Well-Child Visits per 100 0- to 30-Month-Olds, Comparing Phase I to the Classic CCS Comparison Group in Pre- versus Post-Period

	Two or More Well-Child Visits per 100 0- to 30-Month-Olds		Adjusted Odds Ratios*	
Period	Phase I Group	Classic CCS Comparison Group	(95% CI) Phase I Group vs. Classic	*P*-value
Pre-WCM Implementation	69	74	0.62 (0.51, 0.76)	<.001
Post-WCM Implementation	80	75	1.11 (0.84, 1.48)	.461

*Adjusted for CDPS, race, language, and disability.

Table 163 provides comparisons of two or more well-child visits for infants 0–30 months of age, from the pre- to post-WCM implementation periods for the Phase I and Classic CCS comparison groups separately. For the Phase I group, the odds were 1.96 times greater during the post-period than during the pre-period ($p < .001$). For the Classic CCS comparison group, the odds did not differ significantly between the pre- and post-implementation periods. Given the increase in visits post-period in the Phase I group, the Difference in Differences is significant ($p < .001$).

Table 163: Had Two or More Well-Child Visits per 100 0- to 30-Month-Olds, Comparing Phase I in Pre- versus Post-Period, Classic CCS Comparison Group in Pre- versus Post-Period, and DiD Analysis

	Two or More Well-Child Visits per 100 0- to 30-Month-Olds		Adjusted Odds Ratios*	
Group	Pre-WCM Implementation	Post-WCM Implementation	(95% CI) Post- vs. Pre-Periods	*P*-value
Phase I Group	69	80	1.96 (1.53, 2.52)	<.001
Classic CCS Comparison Group	74	75	1.09 (0.85, 1.39)	.489
Difference in Differences			1.80 (1.27, 2.55)	<.001

*Adjusted for CDPS, race, language, and disability.

Phase I Independent Variable Associations to Two or More Well-Child Visits for 0- to 30-Month-Olds: Regression analysis shows that having higher severity of illness or being Black compared to White race is significantly associated with having lower two or more well-child visits for 0- to 30-month-olds, while speaking Spanish as compared to English is significantly associated with having higher visits (see regression table in Appendix I).

Phase II: Two or more well-child visits per 100 0- to 30-month-olds

Table 164 provides comparisons of two or more well-child visits for 0- to 30-month-old infants between the Phase II and Classic CCS comparison groups during the pre- and post-WCM implementation periods separately. During the pre-period, the odds of two or more well-child visits did not differ significantly between the Phase II and Classic CCS comparison groups. Likewise, the odds of two or more well-child visits did not differ significantly between the Phase II and Classic CCS comparison groups.

Table 164: Two or More Well-Child Visits per 100 0- to 30-Month-Olds, Comparing Phase II to the Classic CCS Comparison Group in Pre- versus Post-Period

	Two or More Well-Child Visits per 100 0- to 30-Month-Olds		Adjusted Odds Ratios*	
Period	Phase II Group	Classic CCS Comparison Group	(95% CI) Phase II Group vs. Classic	*P*-value
Pre-WCM Implementation	71	72	0.96 (0.78, 1.19)	.705
Post-WCM Implementation	71	70	0.97 (0.67, 1.42)	.894

*Adjusted for CDPS, disability, race, language, and gender.

Table 165 provides comparisons of two or more well-child visits for infants 0–30 months old, from the pre- to post-WCM implementation periods for the Phase II and Classic CCS comparison groups separately. For the Phase II group, the difference in odds between the pre- and post-period was not significant. Likewise, for the Classic CCS comparison group, the odds of two or more well-child visits did not differ significantly between the pre- and post-implementation periods. The Difference in Differences is not significant.

Table 165: Had Two or More Well-Child Visits per 100 0- to 30-Month-Olds, Comparing Phase II in Pre- versus Post-Period, Classic CCS Comparison Group in Pre- versus Post-Period, and DiD Analysis

	Two or More Well-Child Visits per 100 0- to 30-Month-Olds		Adjusted Odds Ratios*	
Group	Pre-WCM Implementation	Post-WCM Implementation	(95% CI) Post- vs. Pre-Periods	*P*-value
Phase II Group	71	71	0.97 (0.72, 1.30)	.841
Classic CCS Comparison Group	72	70	0.96 (0.70, 1.30)	.773
Difference in Differences			1.02 (0.66, 1.56)	.944

*Adjusted for CDPS, disability, race, language, and gender.

Phase II Independent Variable Associations to Two or More Well-Child Visits for 0- to 30-Month-Olds: Regression analysis shows that not having a disability, having higher severity of illness, speaking Spanish as compared to English, or being male is significantly associated with having higher visits (see regression table in Appendix I).

Phase III: Two or more well-child visits per 100 0- to 30-month-olds

Table 166 provides comparisons of two or more well-child visits for 0- to 30-month-old infants between the Phase III and Classic CCS comparison groups during the pre- and post-WCM implementation periods separately. During the pre-period, the odds of two or more well-child visits did not differ significantly between the Phase III and Classic CCS comparison groups. Likewise, the odds of two or more well-child visits did not differ significantly between the Phase III and Classic CCS comparison groups.

Table 166: Two or More Well-Child Visits per 100 0- to 30-Month-Olds, Comparing Phase III to the Classic CCS Comparison Group in Pre- versus Post-Period

	Two or More Well-Child Visits per 100 0- to 30-Month-Olds		Adjusted Odds Ratios*	
Period	Phase III Group	Classic CCS Comparison Group	(95% CI) Phase III Group vs. Classic	*P*-value
Pre-WCM Implementation	71	70	0.99 (0.82, 1.20)	.939
Post-WCM Implementation	84	75	1.69 (0.74, 3.87)	.216

*Adjusted for CDPS, race, and language.

Table 167 provides comparisons of two or more well-child visits for infants 0–30 months old, from the pre- to post-WCM implementation periods for the Phase III and Classic CCS comparison groups separately. For the Phase III group, the odds of two or more visits were 2.11 times greater than those for the pre-period (p = .03). For the Classic CCS comparison group, the odds of two or more well-child visits did not differ significantly between the pre- and post-period. The Difference in Differences is not significant.

Table 167: Had Two or More Well-Child Visits per 100 0- to 30-Month-Olds, Comparing Phase III in Pre- versus Post-Period, Classic CCS Comparison Group in Pre- versus Post-Period, and DiD Analysis

	Two or More Well-Child Visits per 100 0- to 30-Month-Olds		Adjusted Odds Ratios*	
Group	Pre-WCM Implementation	Post-WCM Implementation	(95% CI) Post- vs. Pre-Periods	*P*-value
Phase III Group	71	84	2.11 (1.08, 4.10)	.028
Classic CCS Comparison Group	70	75	1.24 (0.73, 2.11)	.431
Difference in Differences			1.70 (0.73, 3.99)	.221

*Adjusted for CDPS, race, and language.

Phase III Independent Variable Associations to Two or More Well-Child Visits for 0- to 30-Month-Olds: Regression analysis shows that having higher severity of illness, being Latinx or "other/unknown" race compared to White, or speaking Spanish or "other" language as compared to English is significantly associated with having higher visits (see regression table in Appendix I).

Overall summary of well-child visits for 0- to 30-month-olds results for HPSM WCM and Phase I–Phase III

Overall, the results varied across the study groups. The proportion of children meeting the well-child visit measure was higher than for infants, with 70%–80% of 0- to 30-month-olds meeting the measure. The UCSF evaluation team was unable to thoroughly assess change in the HPSM WCM group due to sample size issues during the pre-WCM period. In the Phase I study group, Phase I two or more well-child visits increased significantly during the post-period, and the Classic CCS comparison group had no significant change. The Difference in Differences is significant. In the Phase II study group, there were no changes during the post-period in either the Phase II or Classic CCS comparison groups. The Difference in Differences is not significant. In the Phase III study group, Phase III group had a significant increase in visits during the post-period while there was no change in the Classic CCS comparison group. The Difference in Differences is not significant.

Having annual well-child visits for 3- to 6-year-olds

HPSM WCM: Having annual well-child visits for 3- to 6-year-olds

There were insufficient observations in the pre-period for well-child visits to generate stable estimates for the DiD or regression analysis. Instead, the UCSF evaluation team reports the proportion of well-child visits seen.

Table 168 provides descriptive statistics for an annual well-child visit for 3- to 6-year-old children in the HPSM WCM and Classic CCS comparison groups separately. During the pre-period, the HPSM WCM group had 0 visits, and the Classic CCS comparison group had 416 visits. During the post-period, the HPSM WCM group had 87 visits, and the Classic CCS comparison group had 467.

Table 168: Proportion of Annual Well-Child Visits per 100 3- to 6-Year-Olds for the HPSM WCM and Classic CCS Comparison Groups in Pre- versus Post-Period

Annual Well-Child Visits per 100 3- to 6-Year-Olds				
Group	Study Group	Number of Children	Visits	Percentage Meeting Visit Criteria
HPSM WCM Group	Pre-WCM implementation	4	0	0.0
	Post-WCM implementation	144	87	60.4
Classic CCS Comparison Group	Classic pre-WCM implementation	577	416	72.1
	Classic post-WCM implementation	700	467	66.7

Phase I: Having annual well-child visits for 3- to 6-year-olds

Table 169 provides comparisons of an annual well-child visit for 3- to 6-year-old children between the Phase I and Classic CCS comparison groups during the pre- and post-WCM implementation periods separately. During the pre-period, the odds of an annual well-child visit were 20% lower in the Phase I group compared to the Classic CCS comparison group ($p < .001$). In the post-period, the odds of an annual well-child visit in the Phase I group were 1.23 times greater than in the Classic CCS comparison group ($p < .001$).

Table 169: Annual Well-Child Visits per 100 3- to 6-Year-Olds, Comparing Phase I to the Classic CCS Comparison Group in Pre- versus Post-Period

	Annual Well-Child Visits per 100 3- to 6-Year-Olds		Adjusted Odds Ratios*	
Period	Phase I Group	Classic CCS Comparison Group	(95% CI) Phase I Group vs. Classic	*P*-value
Pre-WCM Implementation	65	68	0.80 (0.72, 0.88)	<.001
Post-WCM Implementation	71	65	1.23 (1.12, 1.34)	<.001

*Adjusted for CDPS, disability, race, and language.

Table 170 provides comparisons of an annual well-child visit for 3- to 6-year-old children from the pre- to post-WCM implementation periods for the Phase I and Classic CCS comparison groups separately. For the Phase I group, the odds of an annual well-child visit during the post-period were 1.34 times greater than during the pre-period ($p < .001$). For the Classic CCS comparison group, the odds of an annual well-child visit were about 10% lower during the post-period compared to those of the pre-period ($p = .005$). Given the increase in the Phase I group and the decrease in the Classic CCS comparison group, the Difference in Differences is significant ($p < .001$).

Table 170: Had Annual Well-Child Visits per 100 3- to 6-Year-Olds, Comparing Phase I in Pre- versus Post-Period, Classic CCS Comparison Group in Pre- versus Post-Period, and DiD Analysis

	Annual Well-Child Visits per 100 3- to 6-Year-Olds		Adjusted Odds Ratios*	
Group	Pre-WCM Implementation	Post-WCM Implementation	(95% CI) Post- vs. Pre-Periods	*P*-value
Phase I Group	65	71	1.34 (1.23, 1.47)	<.001
Classic CCS Comparison Group	68	65	0.88 (0.80, 0.96)	.005
Difference in Differences			1.53 (1.35, 1.75)	<.001

*Adjusted for CDPS, disability, race, and language.

Phase I Independent Variable Associations to Annual Well-Child Visits for 3- to 6-Year-Olds: Regression analysis shows that not having a disability, having higher severity of illness, being Latinx compared to White, or speaking Spanish

or “other” language as compared to English is significantly associated with having higher annual well-child visits for 3- to 6-year-olds (see regression table in Appendix I).

Phase II: Having annual well-child visits for 3- to 6-year-olds

Table 171 provides comparisons of an annual well-child visit for 3- to 6-year-old children between the Phase II and Classic CCS comparison groups during the pre- and post-WCM implementation periods separately. During the pre-period, the odds of an annual well-child visit did not differ significantly between the Phase II and Classic CCS comparison groups. Likewise, in the post-period, the odds of an annual well-child visit did not differ between the Phase II and Classic CCS comparison groups.

Table 171: Annual Well-Child Visits per 100 3- to 6-Year-Olds, Comparing Phase II to the Classic CCS Comparison Group in Pre- versus Post-Period

	Annual Well-Child Visits per 100 3- to 6-Year-Olds		Adjusted Odds Ratios*	
Period	Phase II Group	Classic CCS Comparison Group	(95% CI) Phase II Group vs. Classic	*P*-value
Pre-WCM Implementation	69	70	0.97 (0.87, 1.08)	.615
Post-WCM Implementation	65	65	1.02 (0.91, 1.14)	.722

*Adjusted for CDPS, disability, race, language, and gender.

Table 172 provides comparisons of an annual well-child visit for 3- to 6-year-old children from the pre- to post-WCM implementation periods for the Phase II and Classic CCS comparison groups separately. For the Phase II group, the odds of an annual well-child visit during the post-period were 15% lower than during the pre-period ($p = .002$). For the Classic CCS comparison group, the odds of an annual well-child visit were about 20% lower during the post-period compared to the pre-period ($p < .001$). The Difference in Differences is not significant.

Table 172: Had Annual Well-Child Visits per 100 3- to 6-Year-Olds, Comparing Phase II in Pre- versus Post-Period, Classic CCS Comparison Group in Pre- versus Post-Period, and DiD Analysis

	Annual Well-Child Visits per 100 3- to 6-Year-Olds		Adjusted Odds Ratios*	
Group	Pre-WCM Implementation	Post-WCM Implementation	(95% CI) Post- vs. Pre-Periods	*P*-value
Phase II Group	69	65	0.85 (0.76, 0.94)	.002
Classic CCS Comparison Group	70	65	0.81 (0.72, 0.90)	<.001
Difference in Differences			1.05 (0.90, 1.22)	.541

*Adjusted for CDPS, disability, race, language, and gender.

Phase II Independent Variable Associations to Annual Well-Child Visits for 3- to 6-Year-Olds: Regression analysis shows that not having a disability, having higher severity of illness, being Latinx or "other/unknown" race as compared to English, or speaking Spanish or "other" language as compared to English is significantly associated with having higher visits (see regression table in Appendix I).

Phase III: Having annual well-child visits for 3- to 6-year-olds

Table 173 provides comparisons of an annual well-child visit for 3- to 6-year-old children between the Phase III and Classic CCS comparison groups during the pre- and post-WCM implementation periods separately. During the pre-period, the odds of an annual well-child visit were 1.22 times greater for the Phase III group compared to the Classic CCS comparison group ($p < .001$). Likewise, in the post-period, the odds of an annual well-child visit were 1.49 times greater for the Phase III group compared to the Classic CCS comparison group ($p < .001$).

Table 173: Annual Well-Child Visits per 100 3- to 6-Year-Olds, Comparing Phase III to the Classic CCS Comparison Group in Pre- versus Post-Period

	Annual Well-Child Visits per 100 3- to 6-Year-Olds		Adjusted Odds Ratios*	
Period	Phase III Group	Classic CCS Comparison Group	(95% CI) Phase III Group vs. Classic	*P*-value
Pre-WCM Implementation	70	65	1.22 (1.11, 1.34)	<.001
Post-WCM Implementation	69	59	1.49 (1.36, 1.64)	<.001

*Adjusted for CDPS, disability, race, and language.

Table 174 provides comparisons of an annual well-child visit for 3- to 6-year-old children from the pre- to post-WCM implementation periods for the Phase III and Classic CCS comparison groups separately. For the Phase III group, the odds of an annual well-child visit during the post-period did not differ significantly from the pre-period. For the Classic CCS comparison group, the odds of an annual well-child visit were about 20% lower during the post-period compared to the pre-period ($p < .001$).Given the decrease in visits in the Classic CCS comparison group, the Difference in Differences is significant ($p = .002$).

Table 174: Had Annual Well-Child Visits per 100 3- to 6-Year-Olds, Comparing Phase III in Pre- versus Post-Period, Classic CCS Comparison Group in Pre- versus Post-Period, and DiD Analysis

	Annual Well-Child Visits per 100 3- to 6-Year-Olds		Adjusted Odds Ratios*	
Group	Pre-WCM Implementation	Post-WCM Implementation	(95% CI) Post- vs. Pre-Periods	*P*-value
Phase III Group	70	69	1.00 (0.91, 1.09)	.950
Classic CCS Comparison Group	65	59	0.81 (0.74, 0.89)	<.001
Difference in Differences			1.23 (1.08, 1.40)	.002

*Adjusted for CDPS, disability, race, and language.

Phase III Independent Variable Associations to Annual Well-Child Visits for 3- to 6-Year-Olds: Regression analysis shows that not having a disability, having higher severity of illness, being Latinx or “other/unknown” race compared to

White, or speaking Spanish or “other” language as compared to English is significantly associated with having higher visits (see regression table in Appendix I).

Overall summary of well-child visits for 3- to 6-year-olds results for HPSM WCM and Phase I–Phase III

Overall, the study groups varied in their results for annual well-child visits (Table 175). The HPSM WCM group lacked sufficient data during the pre-WCM period to provide an estimate of Difference in Differences. The Phase I study group had increases in the Phase I group and decreases in the Classic CCS comparison group, and the Difference in Differences is significant. In the Phase II study group, both the Phase II and Classic CCS comparison groups had decreases during the post-period, and the Difference in Differences is not significant. In the Phase III study group, there were no changes in the Phase III group, and the Classic CCS comparison group had a decrease. The Difference in Differences is significant.

Annual well-child visits for 12- to 20-year-olds

HPSM WCM: Having annual well-child visits for 12- to 20-year-olds

There were insufficient observations in the pre-period for well-child visits to generate stable estimates for the DiD analysis. Instead, the UCSF evaluation team reports the proportion of well-child visits seen.

Table 175: Proportion of Annual Well-Child Visits per 100 12- to 20-Year-Olds for the HPSM WCM and Classic CCS Comparison Groups in Pre- versus Post-Period

Annual Well-Child Visits				
Group	Study Group	12- to 20-Year-Olds	Visits	Per 100 12-20-Year-Olds
HPSM WCM Group	Pre-WCM	10	2	20.0
	Post-WCM	432	217	50.2
Classic CCS Comparison Group	Classic pre-WCM	1,549	801	51.7
	Classic post-WCM	2,200	1,031	46.9

HPSM WCM independent variable associations to annual well-child visits for 12- to 20-year-olds: Regression analysis shows that having higher illness severity is significantly associated with having higher annual well-child visits for 12- to 20-year-olds after adjusting for CDPS and disability (see regression table in Appendix I).

Phase I: Having annual well-child visits for 12- to 20-year-olds

Table 176 provides comparisons of an annual well-child visit for 12- to 20-year-olds between the Phase I and Classic CCS comparison groups during the pre- and post-WCM implementation periods separately. During the pre-period, the odds of an annual well-child visit did not differ between the Phase I and Classic CCS comparison groups. During the post-period, the odds of an annual well-child visit were 1.36 times greater for the Phase I group compared to the Classic CCS comparison group ($p < .001$).

Table 176: Annual Well-Child Visits per 100 12- to 20-Year-Olds, Comparing Phase I to the Classic CCS Comparison Group in Pre- versus Post-Period

	Annual Well-Child Visits per 100 12- to 20-Year-Olds		Adjusted Odds Ratios*	
Period	Phase I Group	Classic CCS Comparison Group	(95% CI) Phase I Group vs. Classic	*P*-value
Pre-WCM Implementation	48	46	1.03 (0.97, 1.09)	.284
Post-WCM Implementation	53	45	1.36 (1.30, 1.43)	<.001

*Adjusted for CDPS, disability, race, language, and gender.

Table 177 provides comparisons of an annual well-child visit for 12- to 20-year-olds from the pre- to post-WCM implementation periods for the Phase I and Classic CCS comparison groups separately. For the Phase I group, the odds of an annual well-child visit during the post-period were significantly greater than those of the pre-period ($p < .001$). For the Classic CCS comparison group, the odds of an annual well-child visit were about 5% lower during the post-period compared to the pre-period ($p = .004$). Given the increase in visits in the Phase I group and decrease in visits in the Classic CCS comparison group, the Difference in Differences is significant ($p < .001$).

Table 177: Had Annual Well-Child Visits per 100 12- to 20-Year-Olds, Comparing Phase I in Pre- versus Post-Period, Classic CCS Comparison Group in Pre- versus Post-Period, and DiD Analysis

	Annual Well-Child Visits per 100 12- to 20-Year-Olds		Adjusted Odds Ratios*	
Group	Pre-WCM Implementation	Post-WCM Implementation	(95% CI) Post- vs. Pre-Periods	*P*-value
Phase I Group	48	53	1.22 (1.16, 1.29)	<.001
Classic CCS Comparison Group	46	45	0.93 (0.88, 0.98)	.004
Difference in Differences			1.32 (1.23, 1.42)	<.001

*Adjusted for CDPS, disability, race, language, and gender.

Phase I Independent Variable Associations to Annual Well-Child Visits for 12- to 20-Year-Olds: Regression analysis shows that not having a disability, having higher severity of illness, being Black compared to White race, speaking Spanish or "other" language as compared to English, or being female is significantly associated with having higher visits (see regression table in Appendix I).

Phase II: Having annual well-child visits for 12- to 20-year-olds

Table 178 provides comparisons of an annual well-child visit for 12- to 20-year-olds between the Phase II and Classic CCS comparison groups during the pre- and post-WCM implementation periods separately. During the pre-period, the odds of an annual well-child visit did not differ between the Phase II and Classic CCS comparison groups. During the post-period, the odds of an annual well-child visit were about 15% lower for the Phase II group than for the Classic CCS comparison group ($p < .001$).

Table 178: Annual Well-Child Visits per 100 12- to 20-Year-Olds, Comparing Phase II to the Classic CCS Comparison Group in Pre- versus Post-Period

	Annual Well-Child Visits per 100 12- to 20-Year-Olds		Adjusted Odds Ratios*	
Period	Phase II Group	Classic CCS Comparison Group	(95% CI) Phase II Group vs. Classic	*P*-value
Pre-WCM Implementation	45	47	0.94 (0.88, 1.00)	.070
Post-WCM Implementation	42	46	0.86 (0.81, 0.92)	<.001

*Adjusted for CDPS, disability, race, language, and gender.

Table 179 provides comparisons of an annual well-child visit for 12- to 20-year-olds from the pre- to post-WCM implementation periods for the Phase II and Classic CCS comparison groups separately. For the Phase II group, the odds of an annual well-child visit during the post-period were 15% lower than for the pre-period ($p < .001$). For the Classic CCS comparison group, the odds of an annual well-child visit were about 5% lower during the post-period compared to the pre-period ($p = .04$). Given the decrease in visits in both the Phase II and Classic CCS comparison groups, the Difference in Differences is significant ($p = .04$).

Table 179: Had Annual Well-Child Visits per 100 12- to 20-Year-Olds, Comparing Phase II Post-WCM versus Pre-WCM Period, Classic CCS County Comparison Pre-WCM versus Post-WCM Period, and DiD Analysis

	Annual Well-Child Visits per 100 12- to 20-Year-Olds		Adjusted Odds Ratios*	
Group	Pre-WCM Implementation	Post-WCM Implementation	(95% CI) Post- vs. Pre-Periods	*P*-value
Phase II Group	45	42	0.85 (0.80, 0.91)	<.001
Classic CCS Comparison Group	47	46	0.94 (0.88, 1.00)	.044
Difference in Differences			0.91 (0.83, 1.00)	.043

*Adjusted for CDPS, disability, race, language, and gender.

Phase II Independent Variable Associations to Annual Well-Child Visits for 12- to 20-Year-Olds: Regression analysis shows that not having a disability; having higher severity of illness; being Black, Latinx, or “other/unknown” race

as compared to White; speaking Spanish or "other" language as compared to English; or being female is significantly associated with having higher visits (see regression table in Appendix I).

Phase III: Having annual well-child visits for 12- to 20-year-olds

Table 180 provides comparisons of an annual well-child visit for 12- to 20-year-olds between the Phase III and Classic CCS comparison groups during the pre- and post-WCM implementation periods separately. During the pre-period, the odds of an annual well-child visit were 1.20 times greater in the Phase III group than in the Classic CCS comparison group ($p < .001$). Likewise, during the post-period, the odds of an annual well-child visit were 1.33 times greater in the Phase III group than in the Classic CCS comparison group ($p < .001$).

Table 180: Annual Well-Child Visits per 100 12- to 20-Year-Olds, Comparing Phase III to the Classic CCS Comparison Group in Pre- versus Post-Period

	Annual Well-Child Visits per 100 12- to 20-Year-Olds		Adjusted Odds Ratios*	
Period	Phase III Group	Classic CCS Comparison Group	(95% CI) Phase III Group vs. Classic	*P*-value
Pre-WCM Implementation	54	50	1.20 (1.14, 1.26)	<.001
Post-WCM Implementation	55	48	1.33 (1.27, 1.40)	<.001

*Adjusted for CDPS, disability, race, language, and gender.

Table 181 provides comparisons of an annual well-child visit for 12- to 20-year-olds from the pre- to post-WCM implementation periods for the Phase III and Classic CCS comparison groups separately. For the Phase III group, the odds of an annual well-child visit during the post-period did not differ significantly from those in the pre-period. For the Classic CCS comparison group, the odds of an annual well-child visit were about 5% lower during the post-period compared to the pre-period ($p = .004$). Given that the Phase III group differences were not significant and that visits decreased in the Classic CCS comparison group, the Difference in Differences is significant ($p = .003$).

Table 181: Had Annual Well-Child Visits per 100 12- to 20-Year-Olds, Comparing Phase III in Pre- versus Post-Period, Classic CCS Comparison Group in Pre- versus Post-Period, and DiD Analysis

	Annual Well-Child Visits per 100 12- to 20-Year-Olds		Adjusted Odds Ratios*	
Group	Pre-WCM Implementation	Post-WCM Implementation	(95% CI) Post- vs. Pre-Periods	*P*-value
Phase III Group	54	55	1.03 (0.98, 1.09)	.191
Classic CCS Comparison Group	50	48	0.93 (0.88, 0.98)	.004
Difference in Differences			1.11 (1.04, 1.19)	.003

*Adjusted for CDPS, disability, race, language, and gender.

Phase III Independent Variable Associations to Annual Well-Child Visits for 12- to 20-Year-Olds: Regression analysis shows that having higher severity of illness; being Black, Latinx, or "other/unknown" race as compared to White; speaking Spanish or "other" language as compared to English; not having a disability; or being female is significantly associated with having higher visits (see regression table in Appendix I).

Overall summary of well-child visits for 12- to 20-year-olds results for HPSM WCM and Phase I–Phase III

Overall, the study groups varied in their results for annual well-child visits. The HPSM WCM study group lacked sufficient data during the pre-WCM period to provide an estimate of Difference in Differences. The Phase I study group had increases in the Phase I group and decreases in the Classic CCS comparison group, and the Difference in Differences is significant. In the Phase II study group, both the Phase II and Classic CCS comparison groups had decreases during the post-period, and the Difference in Differences is significant. In the Phase III study group, there were no changes in the Phase III group, and the Classic CCS comparison group had a decrease. The Difference in Differences is significant.

Analysis for Access to Ancillary Services

Durable medical equipment claims

Durable medical equipment claims per 1,000 member months, comparing HPSM WCM to Classic CCS comparison group in pre- versus post-period

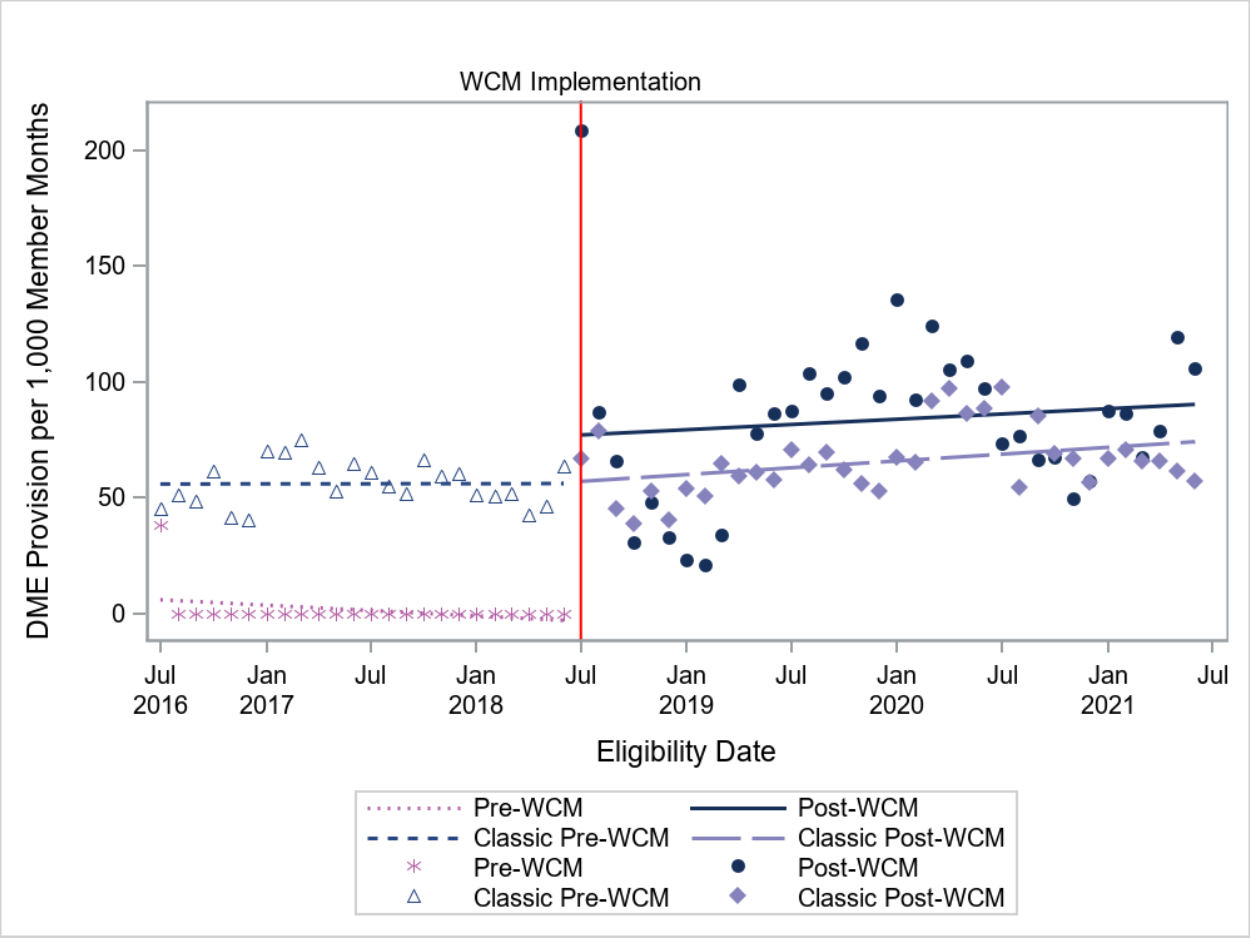
There were insufficient instances of DME provision in the pre-period to generate stable estimates for the DiD analysis or to perform regression analysis. Instead, the UCSF evaluation team reports the proportion of DME claims.

Table 182 presents pre- and post-numbers of DME claims for the HPSM WCM study groups. For the HPSM WCM there were 2.1 claims per 1,000 member months during the pre-period and 84.9 during the post-period. For the Classic CCS comparison group, there were 56.2 claims per 1,000 member months and 65.4 during the post-period.

Table 182: Durable Medical Equipment Claims per 1,000 Member Months, Comparing HPSM WCM to the Classic CCS Comparison Group in Pre- versus Post-Period

DME Provision				
Group	Study Group	Member Months	Events	Per 1,000 Member Months
Pre-WCM Implementation	Pre-WCM	487	1	2.1
	Post-WCM	11,565	982	84.9
Pre-WCM Implementation	Classic pre-WCM	29,003	1,629	56.2
	Classic post-WCM	44,258	2,894	65.4

Figure 47: Proportion of Durable Medical Equipment Claims per 1,000 Member Months for HPSM WCM and Classic CCS Comparison Groups in Pre- versus Post-Period



HPSM WCM Independent Variable Associations to Durable Medical Equipment Claims: Regression analysis could not be performed.

Durable medical equipment claims per 1,000 member months, comparing Phase I to Classic CCS comparison group in pre- versus post-period

Table 183 provides comparisons of DME provision between the Phase I and Classic CCS comparison groups during the pre- and post-WCM implementation periods separately. During the pre-period, the odds of DME provision did not differ significantly between the Phase I and Classic CCS comparison groups. Likewise, during the post-period, the odds of DME provision did not differ between the Phase I and Classic CCS comparison groups.

Table 183: Durable Medical Equipment Claims per 1,000 Member Months, Comparing Phase I to the Classic CCS Comparison Group in Pre- versus Post-Period

	Durable Medical Equipment Provisions per 1,000 Member Months		Adjusted Odds Ratios*	
Period	Phase I Group	Classic CCS Comparison Group	(95% CI) Implementation Group vs. Classic	*P*-value
Pre-WCM Implementation	49	50	0.97 (0.87, 1.08)	.575
Post-WCM Implementation	61	62	1.08 (0.97, 1.21)	.170

*Adjusted for CDPS, disability, race, language, and age.

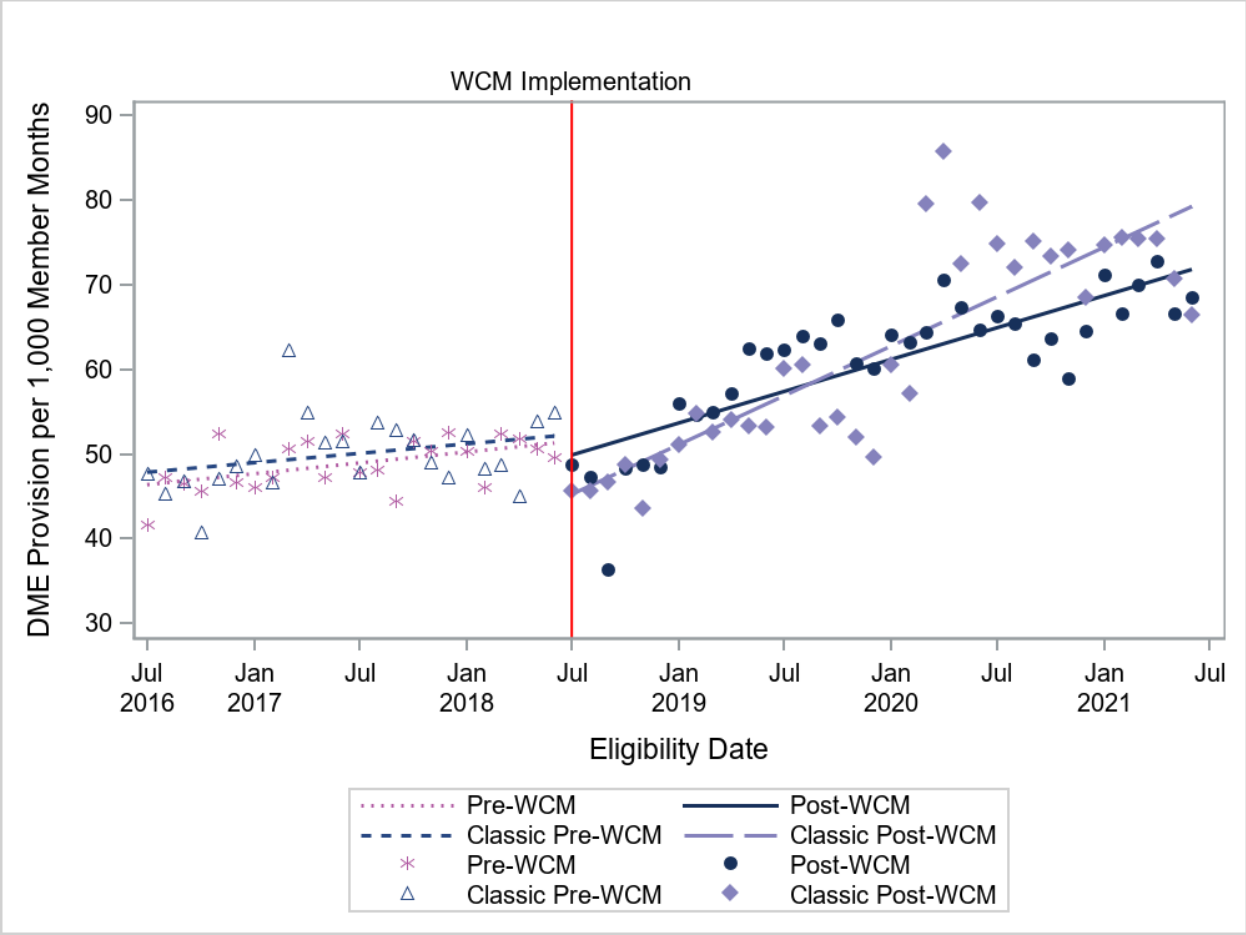
Table 184 provides comparisons of DME provision from the pre- to post-WCM implementation periods for the Phase I and Classic CCS comparison groups separately. For the Phase I group, the odds of DME provision during the post-period was 1.32 times greater than in the pre-period ($p < .001$). For the Classic CCS comparison group, the odds of DME provision were 1.19 times greater than for the pre-period ($p < .001$).The Difference in Differences is not significant.

Table 184: Durable Medical Equipment Claims per 1,000 Member Months, Comparing Phase I in Pre- versus Post-Period, Classic CCS Comparison Group in Pre- versus Post-Period, and DiD Analysis

	Durable Medical Equipment Provisions per 1,000 Member Months		Adjusted Odds Ratios*	
Group	Pre-WCM Implementation	Post-WCM Implementation	(95% CI) Post- vs. Pre-Periods	*P*-value
Phase I Group	49	61	1.32 (1.23, 1.42)	<.001
Classic CCS Comparison Group	50	62	1.19 (1.09, 1.30)	<.001
Difference in Differences			1.12 (1.00, 1.25)	.057

*Adjusted for CDPS, disability, race, language, and age.

Figure 48: Durable Medical Equipment Claims per 1,000 Member Months, with Trend Line Over Time for Phase I and Classic CCS Comparison Groups in Pre- versus Post-Period



Trend Statement for Durable Medical Equipment Claims in Phase I: In the pre-WCM period, the slopes of the Phase I and Classic CCS comparison groups are not statistically different, and thus the parallel slopes assumption of the DiD model is satisfied (see Appendix I).

Phase I Independent Variable Associations to Durable Medical Equipment Claims: Regression analysis shows that having a disability or being age one year as compared to less than 12 months of age is significantly associated with having lower durable medical equipment claims, while having higher illness severity or being age 2–20 years as compared to less than 12 months is significantly associated with having higher claims (see regression table in Appendix I).

Durable medical equipment claims per 1,000 member months, comparing Phase II to Classic CCS comparison group in pre- versus post-period

Table 185 provides comparisons of DME provision between the Phase II and Classic CCS comparison groups during the pre- and post-WCM implementation periods separately. During the pre-period, the odds of DME provision did not differ significantly between the Phase II and Classic CCS comparison groups. During the post-period, the odds of DME provision were 1.23 times greater in the Phase II group than in the Classic CCS comparison group (p = .01).

Table 185: Durable Medical Equipment Claims per 1,000 Member Months, Comparing Phase II to the Classic CCS Comparison Group in Pre- versus Post-Period

	Durable Medical Equipment Provisions per 1,000 Member Months		Adjusted Odds Ratios*	
Period	Phase II Group	Classic CCS Comparison Group	(95% CI) Phase II Group vs. Classic	*P*-value
Pre-WCM Implementation	63	50	1.10 (0.98, 1.24)	.112
Post-WCM Implementation	92	67	1.23 (1.06, 1.43)	.005

*Adjusted for season, CDPS, disability, race, language, gender, and age.

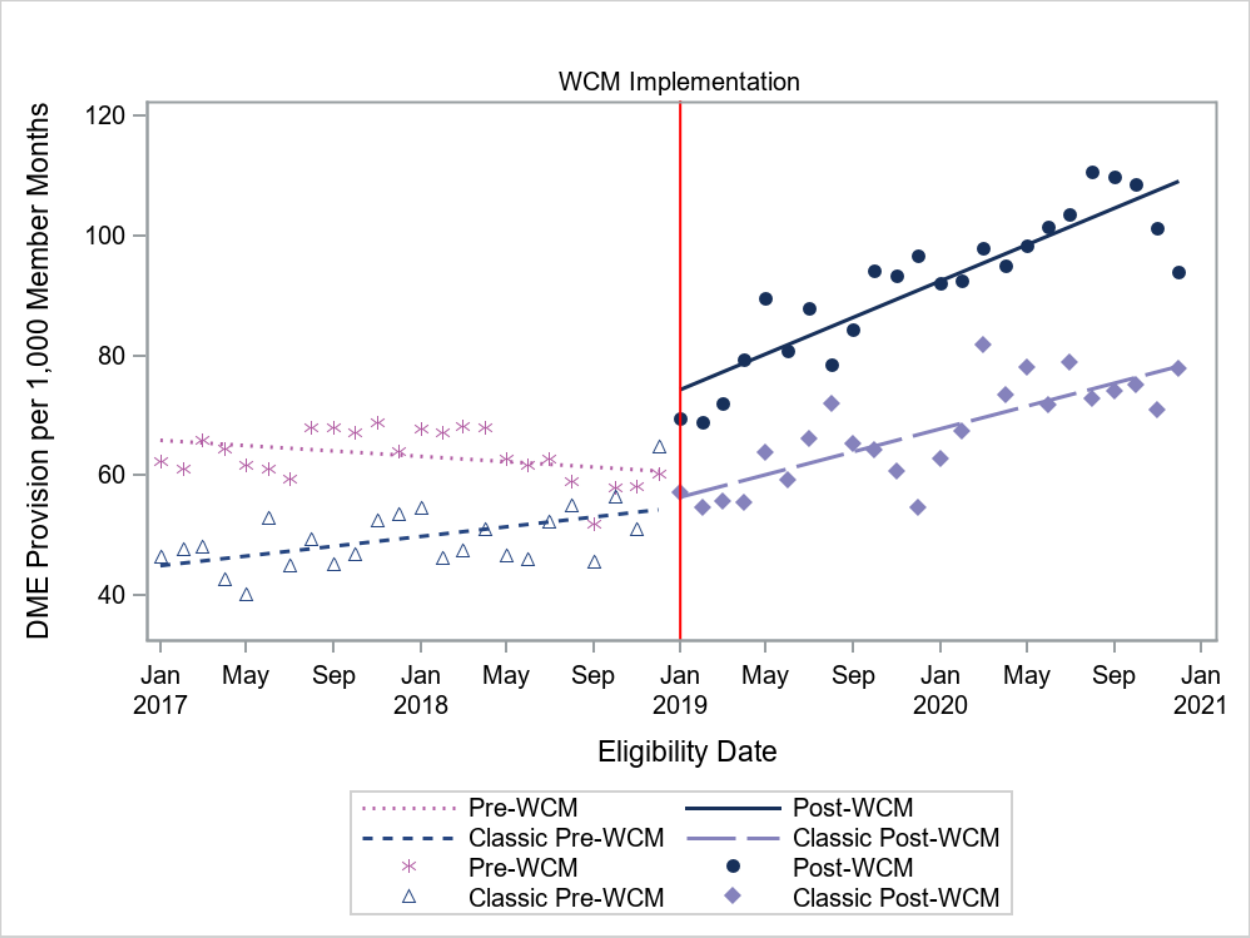
Table 186 provides comparisons of DME provision from the pre- to post-WCM implementation periods for the Phase II and Classic CCS comparison groups separately. In the Phase II group, the odds of DME provision during the post-period were 1.42 times greater than in the pre-period (p < .001). For the Classic CCS comparison group, the odds of DME provision were 1.27 times greater than for the pre-period (p < .001).The Difference in Differences is not significant.

Table 186: Durable Medical Equipment Claims per 1,000 Member Months, Comparing Phase II in Pre- versus Post-Period, Classic CCS Comparison Group in Pre- versus Post-Period, and DiD Analysis

	Durable Medical Equipment Provisions per 1,000 Member Months		Adjusted Odds Ratios*	
Group	Pre-WCM Implementation	Post-WCM Implementation	(95% CI) Post- vs. Pre-Periods	*P*-value
Phase II Group	63	92	1.42 (1.27, 1.58)	<.001
Classic CCS Comparison Group	50	67	1.27 (1.17, 1.38)	<.001
Difference in Differences			1.12 (0.98, 1.28)	.100

*Adjusted for season, CDPS, race, language, disability, gender, and age.

Figure 49: Durable Medical Equipment Claims per 1,000 Member Months, with Trend Line Over Time for Phase II and Classic CCS Comparison Groups in Pre- versus Post-Period



Trend Statement for Durable Medical Equipment Claims in Phase II: In the pre-WCM period, the slopes of the WCM and Classic CCS comparison groups are statistically different (p = .0018), and thus the parallel slopes assumption of the DiD model is not satisfied (see Appendix I). As such, the pre-to-post differences may be due to underlying trends and not the result of the WCM implementation. Results should be interpreted with caution.

Phase II Independent Variable Associations to Durable Medical Equipment Claims: Regression analysis shows that not having a disability, or speaking Spanish as compared to English, is significantly associated with having lower durable medical equipment claims, while having higher illness severity or being age 2–20 years as compared to less than 12 months is significantly associated with having higher claims (see regression table in Appendix I).

Durable medical equipment claims per 1,000 member months, comparing Phase III to Classic CCS comparison group in pre- versus post-period

Table 187 provides comparisons of DME provision between the Phase III and Classic CCS comparison groups during the pre- and post-WCM implementation periods separately. During the pre-period, the odds of DME provision for the Phase III group were 1.09 times greater than for the Classic CCS comparison group (p = .04). During the post-period, the odds of DME provision did not differ significantly between the Phase III and Classic CCS comparison groups.

Table 187: Durable Medical Equipment Claims per 1,000 Member Months, Comparing Phase III to the Classic CCS Comparison Group in Pre- versus Post-Period

	Durable Medical Equipment Provisions per 1,000 Member Months		Adjusted Odds Ratios*	
Period	Phase III Group	Classic CCS Comparison Group	(95% CI) Phase III Group vs. Classic	*P*-value
Pre-WCM Implementation	76	69	1.09 (1.00, 1.19)	.040
Post-WCM Implementation	86	82	1.00 (0.90, 1.10)	.926

*Adjusted for CDPS, race, language, disability, and age.

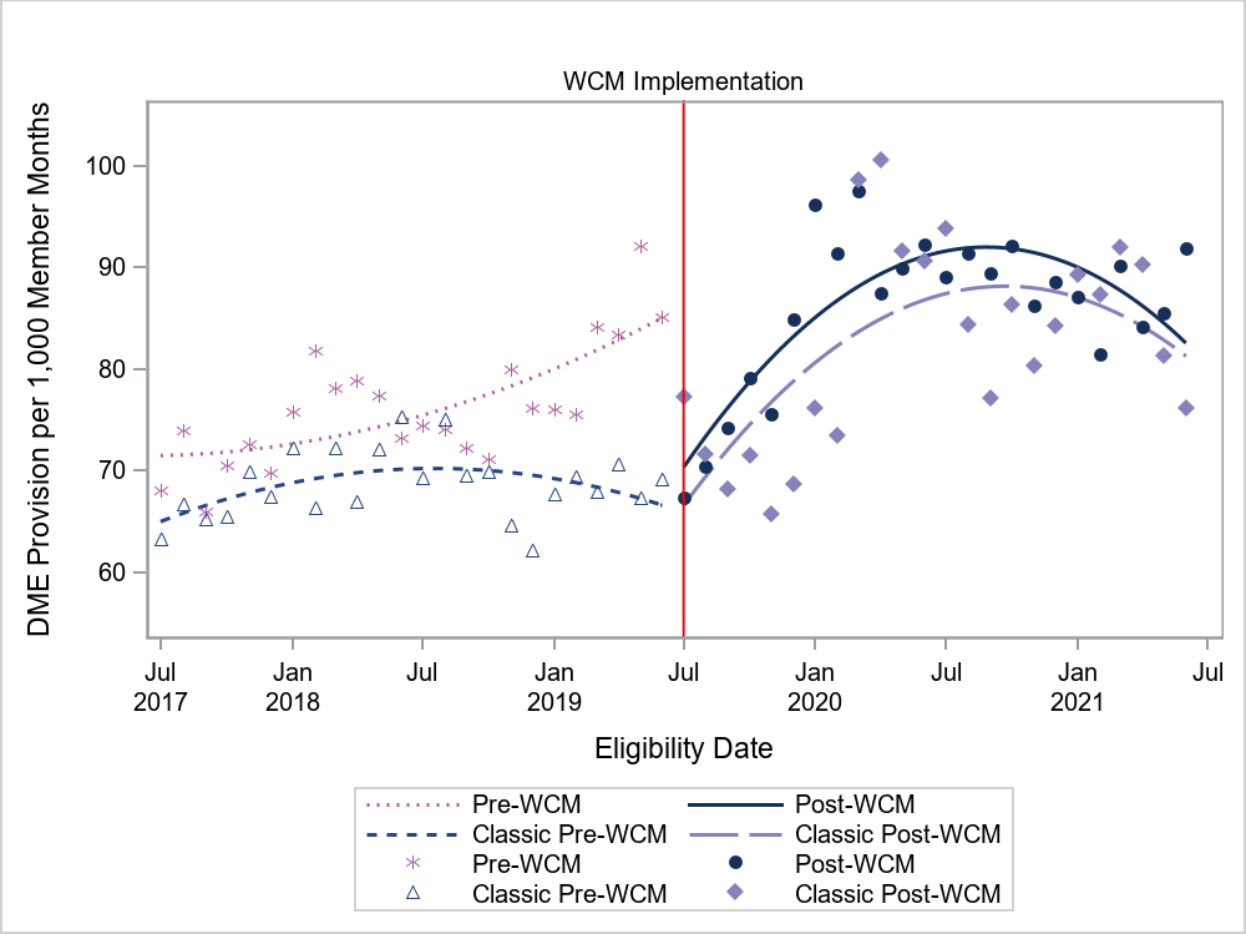
Table 188 provides comparisons of DME provision from the pre- to post-WCM implementation periods for the Phase III and Classic CCS comparison groups separately. For the Phase III group, the odds of DME provision during the post-period were 1.09 times greater than in the pre-period (p = .01). For the Classic CCS comparison group, the odds of DME provision were 1.20 times greater than for the pre-period (p < .001). The Difference in Differences is significant (p = .046).

Table 188: Durable Medical Equipment Claims per 1,000 Member Months, Comparing Phase III in Pre- versus Post-Period, Classic CCS Comparison Group in Pre- versus Post-Period, and DiD Analysis

	Durable Medical Equipment Provisions per 1,000 Member Months		Adjusted Odds Ratios*	
Group	Pre-WCM Implementation	Post-WCM Implementation	(95% CI) Post- vs. Pre-Periods	*P*-value
Phase III Group	76	86	1.09 (1.03, 1.16)	.006
Classic CCS Comparison Group	69	82	1.20 (1.12, 1.28)	<.001
Difference in Differences			0.91 (0.83, 1.00)	.046

*Adjusted for CDPS, race, language, disability, and age.

Figure 50: Durable Medical Equipment Claims per 1,000 Member Months, with Trend Line Over Time for Phase III and Classic CCS Comparison Groups in Pre- versus Post-Period



Trend Statement for Durable Medical Equipment Claims in Phase III: In the pre-WCM period, the slopes of the Phase III and Classic CCS comparison groups are not statistically different, and thus the parallel slopes assumption of the DiD model is satisfied (see Appendix I).

Phase III Independent Variable Associations to Durable Medical Equipment Claims: Regression analysis shows that not having a disability or being age one year as compared to less than 12 months is significantly associated with having lower durable medical equipment claims, while having higher illness severity or being age 2–20 years as compared to less than 12 months of age is significantly associated with having higher claims (see regression table in Appendix I).

Overall summary of durable medical equipment claims results for HPSM WCM and Phase I–Phase III

Overall, the Phase I, II, and III study groups had significant increases in DME provision in both their phase and Classic CCS comparison groups. In Phase III, the Classic CCS comparison group had greater increases compared to Phase III group, and the Difference in Differences is significant only for the Phase III group.

In-Home Supportive Services claims

In-Home Supportive Services claims per 1,000 member months, comparing HPSM WCM to Classic CCS comparison group in pre- versus post-period

Table 189 provides comparisons of In-Home Supportive Services (IHSS) provision between the HPSM WCM and Classic CCS comparison groups during the pre- and post-WCM implementation periods separately. During the pre-period, the odds of IHSS provision for the HPSM WCM group were about 75% lower than for the Classic CCS comparison group ($p < .001$). During the post-period, the odds of IHSS provision were about 25% lower for the HPSM WCM group compared to the Classic CCS comparison group ($p < .001$).

Table 189: In-Home Supportive Services Claims per 1,000 Member Months, Comparing HPSM WCM to the Classic CCS Comparison Group in Pre- versus Post-Period

	In-Home Supportive Services Claims per 1,000 Member Months		Adjusted Odds Ratios*	
Period	HPSM WCM Group	Classic CCS Comparison Group	(95% CI) HPSM WCM Group vs. Classic	*P*-value
Pre-WCM Implementation	21	150	0.27 (0.14, 0.51)	<.001
Post-WCM Implementation	98	163	0.76 (0.70, 0.82)	<.001

*Adjusted for CDPS and disability.

Table 190 provides comparisons of IHSS provision from the pre- to post-WCM implementation periods for the HPSM WCM and Classic CCS comparison groups separately. For the HPSM WCM group, the odds of IHSS provision during the post-period were 3.53 times greater than in the pre-period ($p < .001$). For the Classic CCS comparison group, the odds of

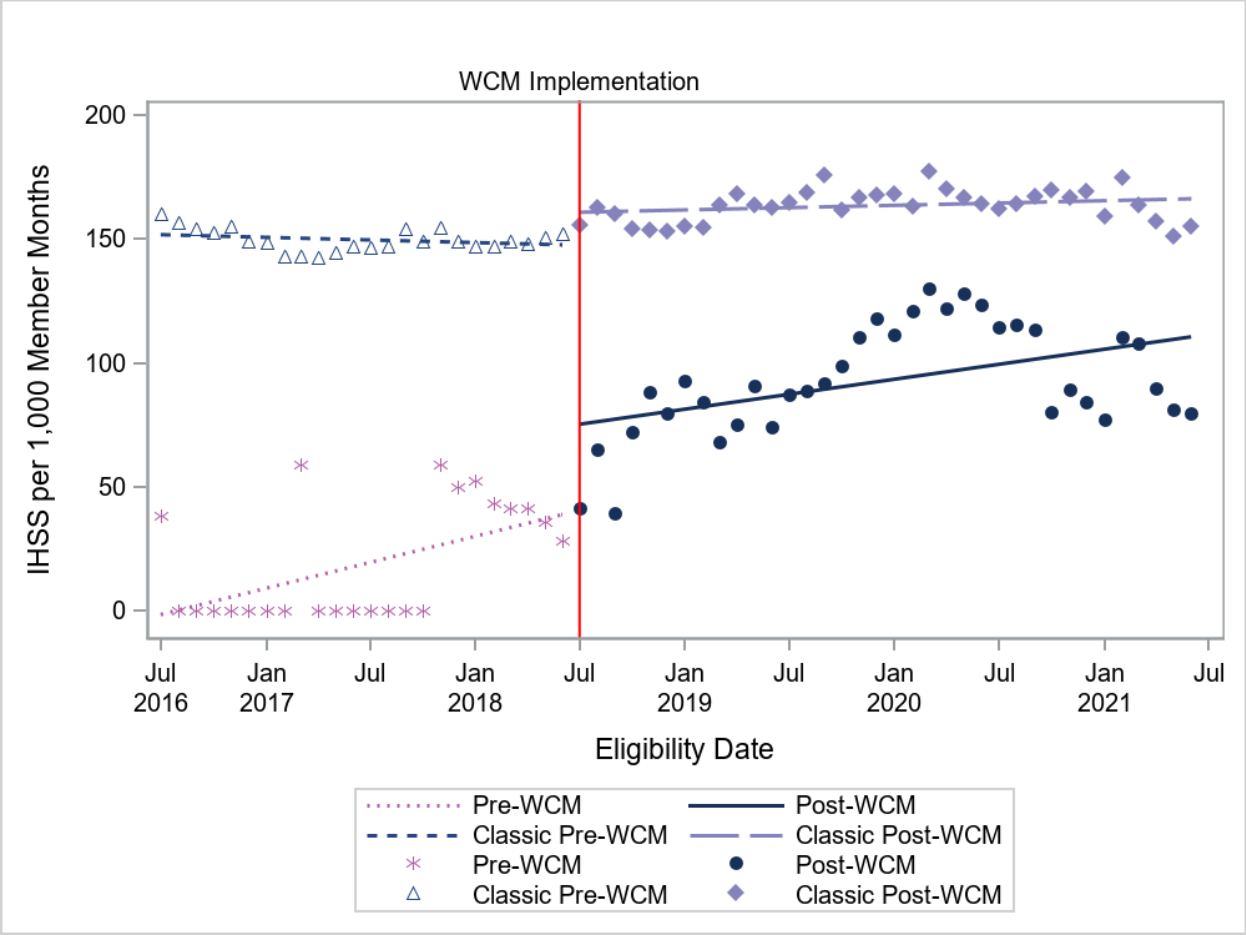
IHSS provision were 1.24 times greater than for the pre-period ($p < .001$). Due to greater increases in the HPSM WCM group, the Difference in Differences is significant ($p = .002$).

Table 190: In-Home Supportive Services Claims per 1,000 Member Months, Comparing HPSM WCM in Pre- versus Post-Period, Classic CCS Comparison Group in Pre- versus Post-Period, and DiD Analysis

	In-Home Supportive Services Claims per 1,000 Member Months		Adjusted Odds Ratios*	
Group	Pre-WCM Implementation	Post-WCM Implementation	(95% CI) Post- vs. Pre-Periods	*P*-value
HPSM WCM Group	21	98	3.53 (1.85, 6.74)	<.001
Classic CCS Comparison Group	150	163	1.24 (1.19, 1.30)	<.001
Difference in Differences			2.84 (1.48, 5.43)	.002

*Adjusted for CDPS and disability.

Figure 51: In-Home Supportive Services Claims per 1,000 Member Months, with Trend Line Over Time for HPSM WCM and Classic CCS Comparison Groups in Pre- versus Post-Period



Trend Statement for In-Home Supportive Services Claims in HPSM WCM: The slopes in the pre-period are not statistically significant, and the parallel slopes assumption for the DiD model has been met.

HPSM WCM Independent Variable Associations to In-Home Supportive Services Claims: Regression analysis shows that not having a disability or having higher illness severity is significantly associated with having higher In-Home Supportive Services claims (see regression table in Appendix I).

In-Home Supportive Services claims per 1,000 member months, comparing Phase I to Classic CCS comparison group in pre- versus post-period

Table 191 provides comparisons of In-Home Supportive Services provision between the Phase I and Classic CCS comparison groups during the pre- and post-WCM implementation periods separately. During the pre-period, the odds of IHSS provision for the Phase I group were 1.25 times greater than for the Classic CCS comparison group ($p < .001$) During the post-period, the odds of IHSS provision were 1.28 times greater for the Phase I group than for the Classic CCS comparison group ($p < .001$).

Table 191: In-Home Supportive Services Claims per 1,000 Member Months, Comparing Phase I to the Classic CCS Comparison Group in Pre- versus Post-Period

	In-Home Supportive Services Claims per 1,000 Member Months		Adjusted Odds Ratios*	
Period	Phase I Group	Classic CCS Comparison Group	(95% CI) Implementation Group vs. Classic	*P*-value
Pre-WCM Implementation	116	100	1.25 (1.22, 1.28)	<.001
Post-WCM Implementation	126	111	1.28 (1.26, 1.30)	<.001

*Adjusted for CDPS, race, language, disability, gender, and age.

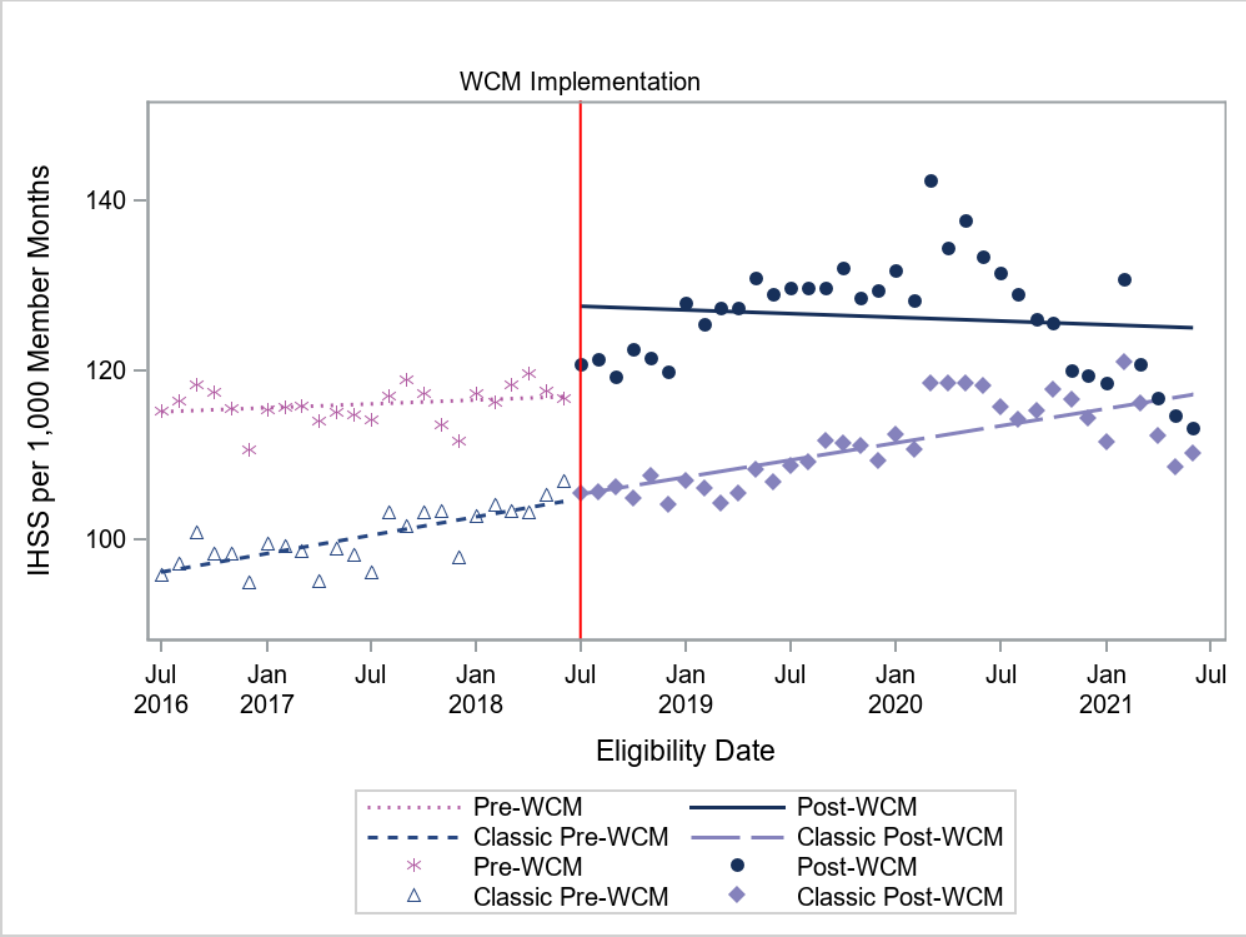
Table 192 provides comparisons of IHSS provision from the pre- to post-WCM implementation periods for the Phase I and Classic CCS comparison groups separately. For the Phase I group, the odds of IHSS provision during the post-period were 1.21 times greater than in the pre-period ($p < .001$). For the Classic CCS comparison group, the odds of IHSS provision were 1.18 times greater than for the pre-period ($p < .001$).The Difference in Differences is not significant.

Table 192: In-Home Supportive Services Claims per 1,000 Member Months, Comparing Phase I in Pre- versus Post-Period, Classic CCS Comparison Group in Pre- versus Post-Period, and DiD Analysis

	In-Home Supportive Services Claims per 1,000 Member Months		Adjusted Odds Ratios*	
Group	Pre-WCM Implementation	Post-WCM Implementation	(95% CI) Post- vs. Pre-Periods	*P*-value
Phase I Group	116	126	1.21 (1.19, 1.23)	<.001
Classic CCS Comparison Group	100	111	1.18 (1.16, 1.21)	<.001
Difference in Differences			1.02 (0.99, 1.05)	.114

*Adjusted for CDPS, race, language, disability, gender, and age.

Figure 52: In-Home Supportive Services Claims per 1,000 Member Months, with Trend Line Over Time for Phase I and Classic CCS Comparison Groups in Pre- versus Post-Period



Trend Statement for In-Home Supportive Services Claims in Phase I: The slopes in the pre-period are not statistically significant, and the parallel slopes assumption for the DiD model has been met.

Phase I Independent Variable Associations to In-Home Supportive Services Claims: Regression analysis shows that being Black, Latinx, or “other/unknown” race as compared to White; speaking Spanish as compared to English; or having

a disability is significantly associated with having lower In-Home Supportive Services claims. Having higher illness severity, being female, or being age 2–20 years as compared to less than 12 months is significantly associated with having higher claims (see regression table in Appendix I).

In-Home Supportive Services claims per 1,000 member months, comparing Phase II to Classic CCS comparison group in pre- versus post-period

Table 193 provides comparisons of In-Home Supportive Services provision between the Phase II and Classic CCS comparison groups during the pre- and post-WCM implementation periods separately. During the pre-period, the odds of IHSS provision for the Phase II group were 1.35 times greater than for the Classic CCS comparison group ($p < .001$). During the post-period, the odds of IHSS provision were 1.44 times greater for the Phase II group than for the Classic CCS comparison group ($p < .001$).

Table 193: In-Home Supportive Services Claims per 1,000 Member Months, Comparing Phase II to the Classic CCS Comparison Group in Pre- versus Post-Period

	In-Home Supportive Services Claims per 1,000 Member Months		Adjusted Odds Ratios*	
Period	Phase II Group	Classic CCS Comparison Group	(95% CI) Phase II Group vs. Classic	*P*-value
Pre-WCM Implementation	163	122	1.35 (1.32, 1.38)	<.001
Post-WCM Implementation	177	134	1.44 (1.40, 1.47)	<.001

*Adjusted for season, CDPS, race, language, disability, gender, and age.

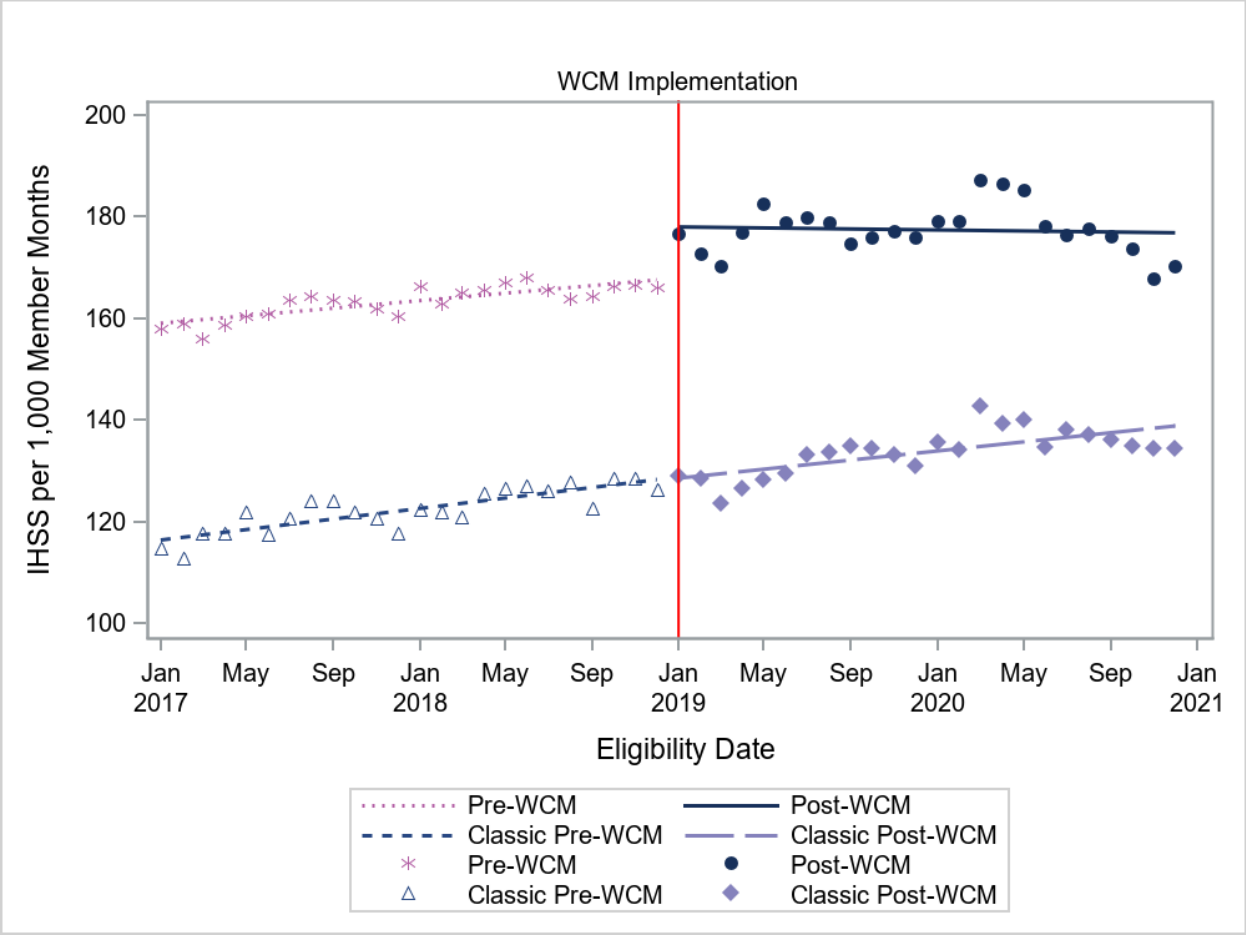
Table 194 provides comparisons of IHSS provision from the pre- to post-WCM implementation periods for the Phase II and Classic CCS comparison groups separately. For the Phase II group, the odds of IHSS provision during the post-period were 1.18 times greater than during the pre-period ($p < .001$). For the Classic CCS comparison group, the odds of IHSS provision were 1.11 times greater than for the pre-period ($p < .001$). The Difference in Differences is significant ($p < .001$).

Table 194: In-Home Supportive Services Claims per 1,000 Member Months, Comparing Phase II in Pre- versus Post-Period, Classic CCS Comparison Group in Pre- versus Post-Period, and DiD Analysis

	In-Home Supportive Services Claims per 1,000 Member Months		Adjusted Odds Ratios*	
Group	Pre-WCM Implementation	Post-WCM Implementation	(95% CI) Post- vs. Pre-Periods	*P*-value
Phase II Group	163	177	1.18 (1.15, 1.20)	<.001
Classic CCS Comparison Group	122	134	1.11 (1.09, 1.14)	<.001
Difference in Differences			1.06 (1.03, 1.09)	<.001

*Adjusted for season, CDPS, race, language, disability, gender, and age.

Figure 53: In-Home Supportive Services Claims per 1,000 Member Months, with Trend Line Over Time for Phase II and Classic CCS Comparison Groups in Pre- versus Post-Period



Trend Statement for In-Home Supportive Services Claims in Phase II: The slopes in the pre-period are not statistically significant, and the parallel slope assumption for the DiD model has been met.

Phase II Independent Variable Associations to In-Home Supportive Services Claims: Regression analysis shows that winter season as compared to summer, being female, speaking Spanish as compared to English, or being Black,

Latinx, and “other/unknown” race as compared to White is significantly associated with having lower In-Home Supportive Services claims. Having higher illness severity, not having a disability, speaking “other” language as compared to Spanish, and being age 2–20 years as compared to less than 12 months is significantly associated with having higher claims (see regression table in Appendix I).

In-Home Supportive Services claims per 1,000 member months, comparing Phase III to Classic CCS comparison group in pre- versus post-period

Table 195 provides comparisons of In-Home Supportive Services provision between the Phase III and Classic CCS comparison groups during the pre- and post-WCM implementation periods separately. During the pre-period, the odds of IHSS provision for the Phase III group were 15% lower than for the Classic CCS comparison group ($p < .001$). During the post-period, the odds of IHSS provision were about 10% lower in the Phase III group than in the Classic CCS comparison group ($p < .001$).

Table 195: In-Home Supportive Services Claims per 1,000 Member Months, Comparing Phase III to the Classic CCS Comparison Group in Pre- versus Post-Period

	In-Home Supportive Services Claims per 1,000 Member Months		Adjusted Odds Ratios*	
Period	Phase III Group	Classic CCS Comparison Group	(95% CI) Phase III Group vs. Classic	*P*-value
Pre-WCM Implementation	143	159	0.85 (0.83, 0.86)	<.001
Post-WCM Implementation	155	158	0.88 (0.87, 0.90)	<.001

*Adjusted for CDPS, race, language, disability, gender, and age.

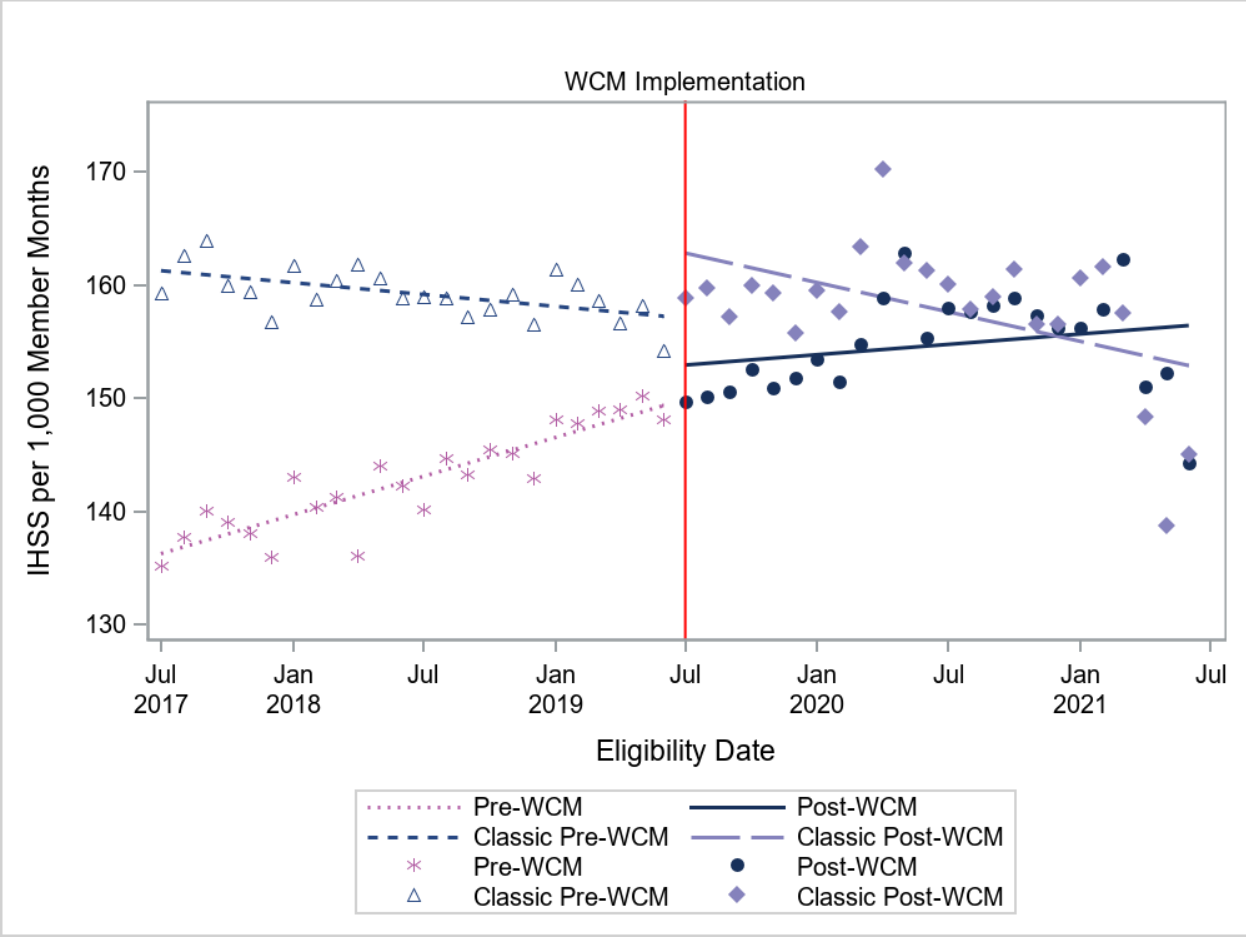
Table 196 provides comparisons of IHSS provision from the pre- to post-WCM implementation periods for the Phase III and Classic CCS comparison groups separately. For the Phase III group, the odds of IHSS provision during the post-period were 1.15 times greater than during the pre-period ($p < .001$). For the Classic CCS comparison group, the odds of IHSS provision during the pre-period were 1.10 times greater than during the post-period ($p < .001$). Given the significant increase in the Phase III group and the decrease in the Classic CCS comparison group, the Difference in Differences is significant ($p < .001$). Clients in the Classic CCS comparison group experienced a slight pre-to-post decrease in IHSS provision per 1,000 member months. After adjusting for the covariates the estimated AOR is 10% higher and $p < .001$. Notwithstanding the significant *p*-value, the statistical difference is more a reflection of high power due to a large number of observations than it is a meaningful difference.

Table 196: In-Home Supportive Services Claims per 1,000 Member Months, Comparing Phase III in Pre- versus Post-Period, Classic CCS Comparison Group in Pre- versus Post-Period, and DiD Analysis

	In-Home Supportive Services Claims per 1,000 Member Months		Adjusted Odds Ratios*	
Group	Pre-WCM Implementation	Post-WCM Implementation	(95% CI) Post- vs. Pre-Periods	*P*-value
Phase III Group	143	155	1.15 (1.13, 1.17)	<.001
Classic CCS Comparison Group	159	158	1.10 (1.08, 1.12)	<.001
Difference in Differences			1.04 (1.02, 1.07)	<.001

*Adjusted for CDPS, race, language, disability, gender, and age.

Figure 54: In-Home Supportive Services Claims per 1,000 Member Months, with Trend Line Over Time for Phase III and Classic CCS Comparison Groups in Pre- versus Post-Period



Trend Statement for In-Home Supportive Services Claims in Phase III: In the pre-WCM period, the slopes of the Phase III and Classic CCS comparison groups are statistically different, and thus the parallel slopes assumption of the DiD model is not satisfied (see Appendix I). As such, the pre-to-post differences may be due to underlying trends and not the result of the WCM implementation. Results should be interpreted with caution.

Phase III Independent Variable Associations to In-Home Supportive Services Claims: Regression analysis shows that having a disability; being Black, Latinx, or "other/unknown" race as compared to White; or speaking Spanish as compared to English is significantly associated with having lower In-Home Supportive Services claims. Having higher illness severity, speaking "other" language as compared to English, being female, or being age 2–20 years as compared to less than 12 months is significantly associated with having higher claims (see regression table in Appendix I).

Overall summary of In-Home Supportive Services claims results for HPSM WCM and Phase I–Phase III

Overall, the HPSM WCM and all the phase intervention groups (I–III) had significant increases in IHSS provision. IHSS provision also increased in all the Classic CCS comparison groups except in the Phase III study group. Difference in differences is significant in all the study groups except the Phase I study group.

Pharmacy claims

Pharmacy claims per 1,000 member months, comparing HPSM WCM to Classic CCS comparison group in pre- versus post-period

Table 197 provides comparisons of pharmacy provision between the HPSM WCM and Classic CCS comparison groups during the pre- and post-WCM implementation periods separately. During the pre-period, the odds of pharmacy provision for the HPSM WCM group were about 75% lower than for the Classic CCS comparison group (p = .010). During the post-period, the odds of pharmacy provision for the HPSM WCM group were 1.21 times higher than during the Classic CCS comparison group (p = .013)

Table 197: Pharmacy Claims per 1,000 Member Months, Comparing HPSM WCM to the Classic CCS Comparison Group in Pre- versus Post-Period

	Pharmacy Provisions per 1,000 Member Months		Adjusted Odds Ratios*	
Period	HPSM WCM Group	Classic CCS Comparison Group	(95% CI) Implementation Group vs. Classic	*P*-value
Pre-WCM Implementation	376	1,093	0.27 (0.10, 0.73)	.010
Post-WCM Implementation	1,436	1,145	1.21 (1.04, 1.41)	.013

*Adjusted for CDPS and disability.

Table 198 provides comparisons of pharmacy provision from the pre- to post-WCM implementation periods for the HPSM WCM and Classic CCS comparison groups separately. For the HPSM WCM group, the odds of pharmacy provision during the post-period were 4.67 times greater than during the post-period (p = .002). For the Classic CCS comparison

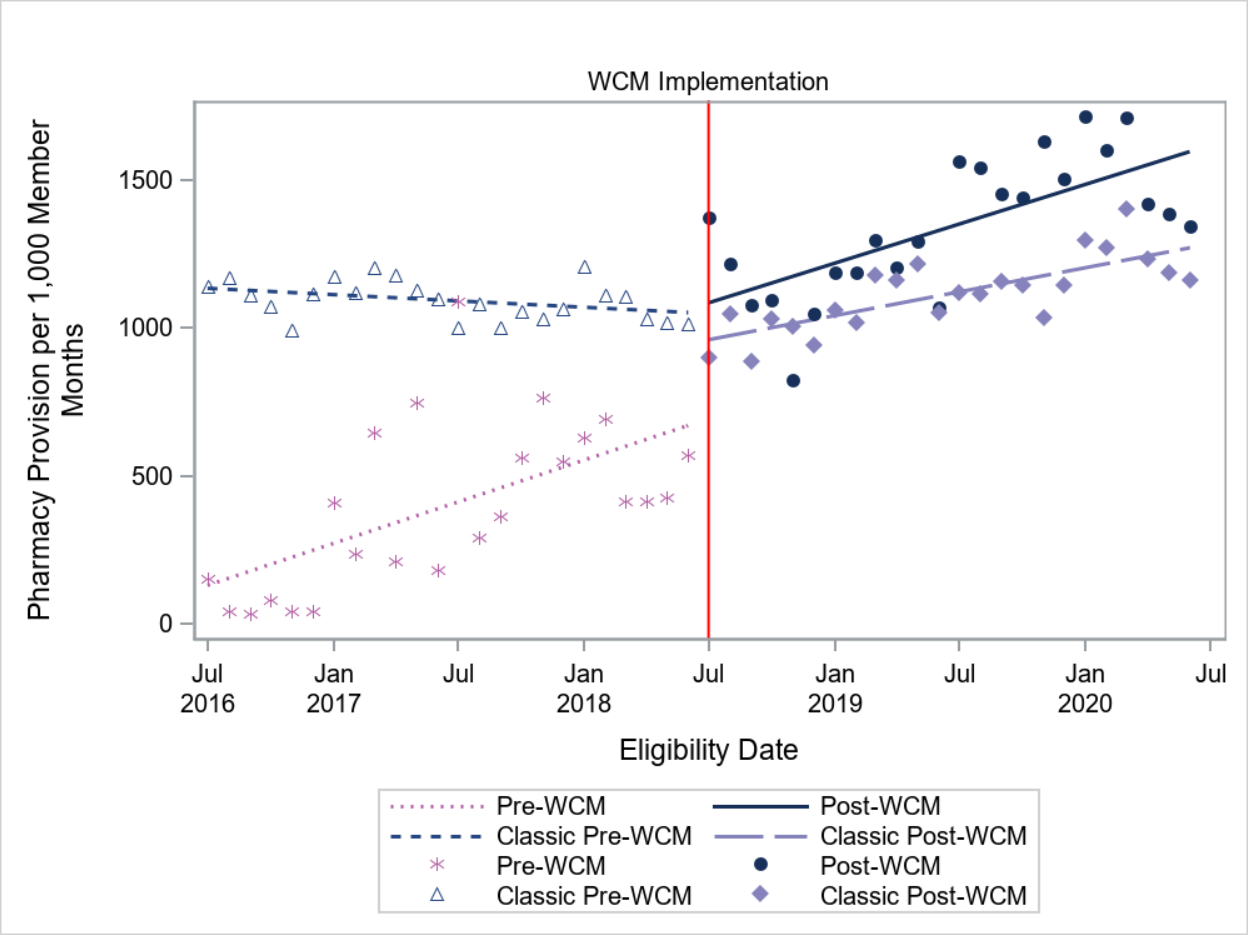
group, the odds of pharmacy provision during the pre-period did not differ significantly from those of the pre-period. Given the greater increase in the HPSM WCM group, the Difference in Differences is significant (*p* = .003).

Table 198: Pharmacy Claims per 1,000 Member Months, Comparing HPSM WCM in Pre- versus Post-Period, Classic CCS Comparison Group in Pre- versus Post-Period, and DiD Analysis

	Pharmacy Provisions per 1,000 Member Months		Adjusted Odds Ratios*	
Group	Pre-WCM Implementation	Post-WCM Implementation	(95% CI) Post- vs. Pre-Periods	*P*-value
HPSM WCM Group	376	1,436	4.67 (1.74,12.57)	.002
Classic CCS Comparison Group	1,093	1,145	1.05 (0.99, 1.10)	.097
Difference in Differences			4.47 (1.66, 12.02)	.003

*Adjusted for CDPS and disability.

Figure 55: Pharmacy Claims per 1,000 Member Months, with Trend Line Over Time for HPSM WCM and Classic CCS Comparison Groups in Pre- versus Post-Period



Trend Statement for Pharmacy Claims in HPSM WCM: The slopes in the pre-period are not statistically significant, and the parallel slopes assumption for the DiD model has been met.

HPSM WCM Independent Variable Associations to Pharmacy Claims: Regression analysis shows that having a disability or having higher illness severity is significantly associated with having higher pharmacy claims (see regression table in Appendix I).

Pharmacy claims per 1,000 member months, comparing Phase I to Classic CCS comparison group in pre- versus post-period

Table 199 provides comparisons of pharmacy provision between the Phase I and Classic CCS comparison groups during the pre- and post-WCM implementation periods separately. During the pre-period, the odds of pharmacy provision for the Phase I group were 1.04 times greater than for the Classic CCS comparison group (p = .047). During the post-period, the odds of pharmacy provision did not differ significantly between the Phase I and Classic CCS comparison groups.

Table 199: Pharmacy Claims per 1,000 Member Months, Comparing Phase I to the Classic CCS Comparison Group in Pre- versus Post-Period

	Pharmacy Provisions per 1,000 Member Months		Adjusted Odds Ratios*	
Period	Phase I Group	Classic CCS Comparison Group	(95% CI) Implementation Group vs. Classic	*P*-value
Pre-WCM Implementation	1,311	1,296	1.04 (1.00, 1.07)	.047
Post-WCM Implementation	1,273	1,405	1.00 (0.96, 1.03)	.829

*Adjusted for season, CDPS, race, language, disability, gender, and age.

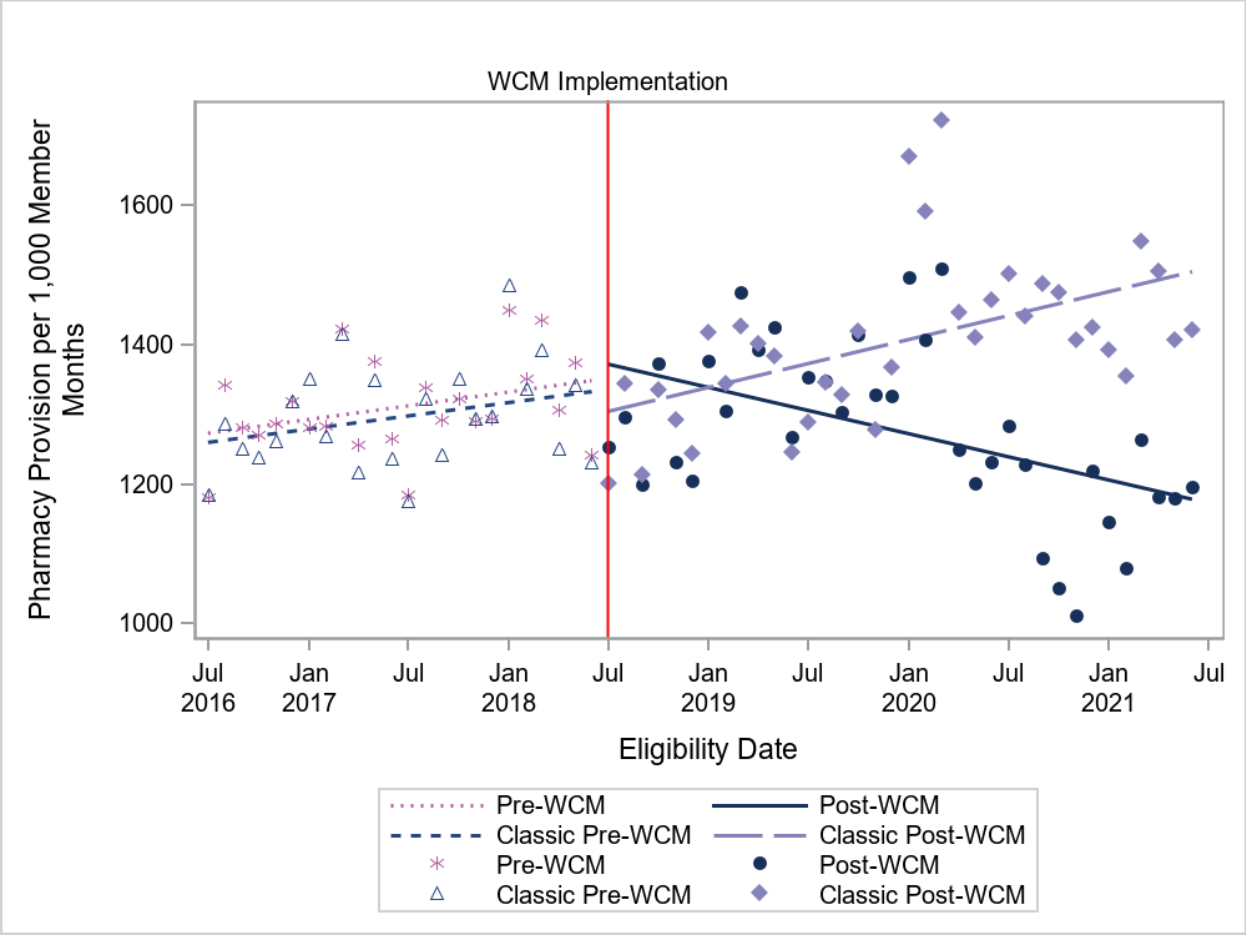
Table 200 provides comparisons of pharmacy provision from the pre- to post-WCM implementation periods for the Phase I and Classic CCS comparison groups separately. For the Phase I group, the odds of pharmacy provision during the post-period were not significantly different from the pre-period (p = .37). For the Classic CCS comparison group, the odds of pharmacy provision during the post-period were 1.05 times greater than during the pre-period (p < .001). Given the increase in the Classic CCS comparison group, the Difference in Differences is significant (p = .01).

Table 200: Pharmacy Claims per 1,000 Member Months, Comparing Phase I in Pre- versus Post-Period, Classic CCS Comparison Group in Pre- versus Post-Period, and DiD Analysis

	Pharmacy Provisions per 1,000 Member Months		Adjusted Odds Ratios*	
Group	Pre-WCM Implementation	Post-WCM Implementation	(95% CI) Post- vs. Pre-Periods	*P*-value
Phase I Group	1,311	1,273	1.01 (0.99, 1.03)	.370
Classic CCS Comparison Group	1,296	1,405	1.05 (1.03, 1.07)	<.001
Difference in Differences			0.96 (0.93, 0.99)	.011

*Adjusted for season, CDPS, race, language, disability, gender, and age.

Figure 56: Pharmacy Claims per 1,000 Member Months, with Trend Line Over Time for Phase I and Classic CCS Comparison Groups in Pre- versus Post-Period



Trend Statement for Pharmacy Claims in Phase I: The slopes in the pre-period are not statistically significant, and the parallel slopes assumption for the DiD model has been met.

Phase I Independent Variable Associations to Pharmacy Claims: Regression analysis shows that fall season as compared to summer, speaking Spanish or “other” language as compared to English, or being Latinx as compared to

White is significantly associated with having lower pharmacy claims. Having higher illness severity, having a disability, being female, being age 1–20 years as compared to less than 12 months, or spring season as compared to summer is significantly associated with having higher claims (see regression table in Appendix I).

Pharmacy claims per 1,000 member months, comparing Phase II to Classic CCS comparison group in pre- versus post-period

Table 201 provides comparisons of pharmacy provisions between the Phase II and Classic CCS comparison groups during the pre- and post-WCM implementation periods separately. During the pre-period, the odds of pharmacy provision for the Phase II group did not differ significantly from those for the Classic CCS comparison group. During the post-period, the odds of pharmacy provision were about 10% lower in the Phase II group than in the Classic CCS comparison ($p < .001$).

Table 201: Pharmacy Claims per 1,000 Member Months, Comparing Phase II to the Classic CCS Comparison Group in Pre- versus Post-Period

	Pharmacy Provisions per 1,000 Member Months		Adjusted Odds Ratios*	
Period	Phase II Group	Classic CCS Comparison Group	(95% CI) Phase II Group vs. Classic	*P*-value
Pre-WCM Implementation	1,354	1,258	0.99 (0.95, 1.03)	.589
Post-WCM Implementation	1,322	1,395	0.91 (0.88, 0.95)	<.001

*Adjusted for season, CDPS, race, language, disability, gender, and age.

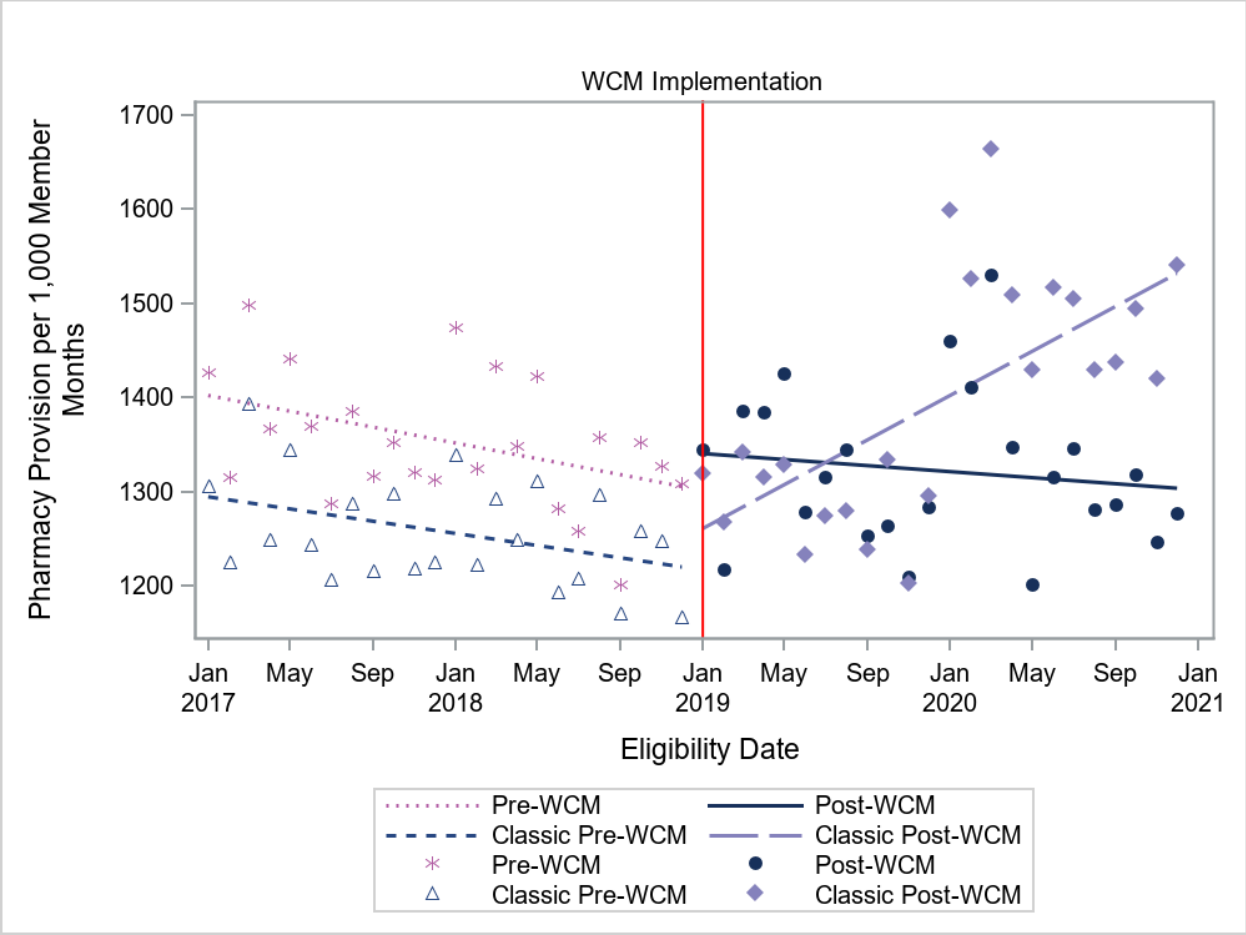
Table 202 provides comparisons of pharmacy provision from the pre- to post-WCM implementation periods for the Phase II and Classic CCS comparison groups separately. For the Phase II group, the odds of pharmacy provision during the post-period did not differ significantly from those during the pre-period. For the Classic CCS comparison group, the odds of pharmacy provision during the post-period were 1.06 times greater than during the pre-period ($p < .001$). Given the significant increase in the Classic CCS comparison group, the Difference in Differences is significant ($p < .001$).

Table 202: Pharmacy Claims per 1,000 Member Months, Comparing Phase II in Pre- versus Post-Period, Classic CCS Comparison Group in Pre- versus Post-Period, and DiD Analysis

	Pharmacy Provisions per 1,000 Member Months		Adjusted Odds Ratios*	
Group	Pre-WCM Implementation	Post-WCM Implementation	(95% CI) Post- vs. Pre-Periods	*P*-value
Phase II Group	1,354	1,322	0.98 (0.96, 1.00)	.099
Classic CCS Comparison Group	1,258	1,395	1.06 (1.04, 1.09)	<.001
Difference in Differences			0.92 (0.89, 0.95)	<.001

*Adjusted for season, CDPS, race, language, disability, gender, and age.

Figure 57: Pharmacy Claims per 1,000 Member Months, with Trend Line Over Time for Phase II and Classic CCS Comparison Groups in Pre- versus Post-Period



Trend Statement for Pharmacy Claims in Phase II: The slopes in the pre-period are not statistically significant, and the parallel slopes assumption for the DiD model has been met.

Phase II Independent Variable Associations to Pharmacy Claims: Regression analysis shows that fall season as compared to summer, speaking Spanish as compared to English, and being Latinx or “other/unknown” race as compared

to White is significantly associated with having lower pharmacy claims. Having higher illness severity, having a disability, being female, being age 1–20 years as compared to less than 12 months, or spring season as compared to summer is significantly associated with having higher claims (see regression table in Appendix I).

Pharmacy claims per 1,000 member months, comparing Phase III to Classic CCS comparison group in pre- versus post-period

Table 203 provides comparisons of pharmacy provisions between the Phase III and Classic CCS comparison groups during the pre- and post-WCM implementation periods separately. During the pre-period, the odds of pharmacy provision did not differ significantly between the Phase III and Classic CCS comparison groups. Likewise, during the post-period, the odds of pharmacy provision did not differ significantly between the Phase III and Classic CCS comparison groups.

Table 203: Pharmacy Claims per 1,000 Member Months, Comparing Phase III to the Classic CCS Comparison Group in Pre- versus Post-Period

	Pharmacy Provisions per 1,000 Member Months		Adjusted Odds Ratios*	
Period	Phase III Group	Classic CCS Comparison Group	(95% CI) Phase III Group vs. Classic	*P*-value
Pre-WCM Implementation	1,591	1,620	0.98 (0.95, 1.01)	.264
Post-WCM Implementation	1,573	1,676	0.98 (0.95, 1.01)	.238

*Adjusted for season, CDPS, race, language, disability, gender, and age.

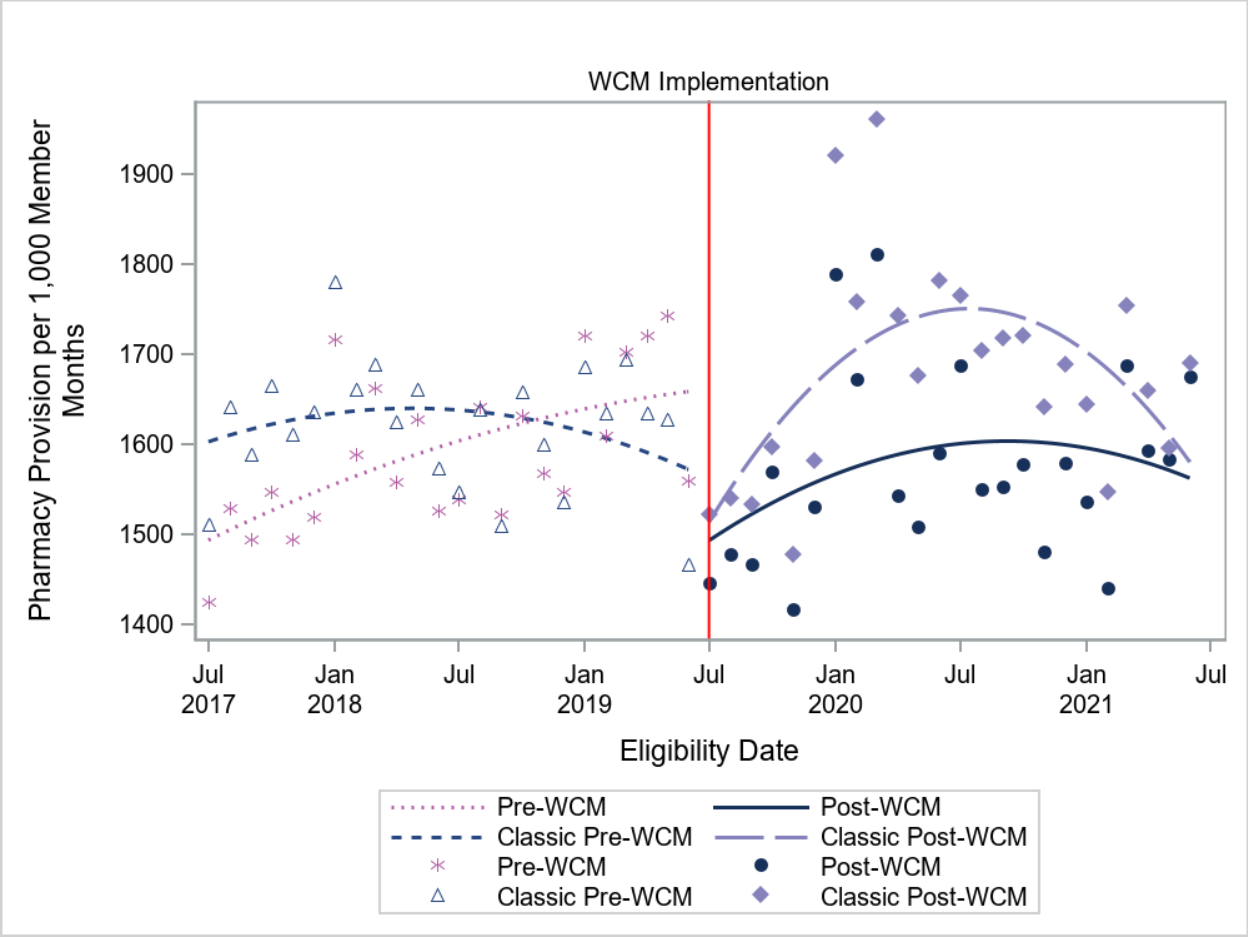
Table 204 provides comparisons of pharmacy provision from the pre- to post-WCM implementation periods for the Phase III and Classic CCS comparison groups separately. For the Phase III group, the odds of pharmacy provision during the post-period did not differ significantly from the pre-period. For the Classic CCS comparison group, the odds of pharmacy provision during the post-period were 1.02 times greater than during the pre-period (p = .03). The Difference in Differences is not significant.

Table 204: Pharmacy Claims per 1,000 Member Months, Comparing Phase III to the Classic CCS Comparison Group in Pre- versus Post-Period, Classic CCS Comparison Group in Pre- versus Post-Period, and DiD Analysis

	Pharmacy Provisions per 1,000 Member Months		Adjusted Odds Ratios*	
Group	Pre-WCM Implementation	Post-WCM Implementation	(95% CI) Post- vs. Pre-Periods	*P*-value
Phase III Group	1,591	1,573	1.02 (1.00, 1.04)	.053
Classic CCS Comparison Group	1,620	1,676	1.02 (1.00, 1.04)	.025
Difference in Differences			1.00 (0.97, 1.02)	.887

*Adjusted for season, CDPS, race, language, disability, gender, and age.

Figure 58: Pharmacy Claims per 1,000 Member Months, with Trend Line Over Time for Phase III and Classic CCS Comparison Groups in Pre- versus Post-Period



Trend Statement for Pharmacy Claims in Phase III: The slopes in the pre-period are not statistically significant (p = .226), and the parallel slopes assumption for the DiD model has been met.

Phase III Independent Variable Associations to Pharmacy Claims: Regression analysis shows that fall season as compared to summer, not having a disability, or being Latinx or "other/unknown" race as compared to White is

significantly associated with having lower pharmacy claims. Having higher illness severity, speaking "other" language as compared to English, being female, being age 2–20 years as compared to less than 12 months, or spring season as compared to summer is significantly associated with having higher claims (see regression table in Appendix I).

Overall summary of pharmacy claims results for HPSM WCM and Phase I–Phase III

In the HPSM WCM study group, the HPSM WCM group had a significant increase and the Classic CCS comparison group did not; however, the Difference in Differences is significant. Phase I, Phase II, and Phase III study groups had similar results: The Classic CCS comparison groups had significant increases during the post-period in all three study groups, and the Phase I, II, and III groups had no significant change. In these three study groups, Difference in Differences is significant in the Phase I and II groups only.

Health Outcomes

Emergency department visits

Reason for emergency department visits

Overview: To describe reasons for emergency department (ED) visits, first ED visits were categorized by major condition categories by ICD-10 code ranges (see Appendix M for categorizations) and then ranked by prevalence. Individual ICD-10 codes were then also ranked in order of prevalence and described below.

Reason for ED Visit by Condition Category: The most common reason for ED visit by CCS-related condition categories was also, with only a few percent variation, identical between the different WCM study groups. The findings were similar to the reason for ED visits in the general pediatric population,[49] with the most common reason being "other," which comprised injury, poisoning, and certain other consequences of external causes (ICD-10 codes S00–T88) and symptoms, signs, and abnormal clinical laboratory findings not elsewhere classified (R00–R99); external causes of morbidity (V00–Y99); and factors influencing health status and contact with health services (Z00–Z99), which made up approximately a third of visits. This was followed by accidents (~20%) then respiratory illnesses (~10%). See Appendix L for reason for ED visit by condition category by WCM study group.

Reason for ED Visit by ICD-10 Diagnosis: The top individual ICD-10 diagnoses of WCM clients coming to the emergency department were similar across WCM study groups and were predominately made up of acute illness (upper

[49] Audrey J. Weiss and H. Joanna Jiang, *Most Frequent Reasons for Emergency Department Visits, 2018*, Statistical Brief 286, Agency for Healthcare Research and Quality, December 2021, www.hcup-us.ahrq.gov/reports/statbriefs/sb286-ED-Frequent-Conditions-2018.pdf.

respiratory disease, fever, nausea/vomiting, or chest pain). Fever (ICD-10 code R509) was the most common single coded reason for ED visit across the WCM study groups, comprising approximately 3%–4% of all ED visits, followed by acute upper respiratory infection (J069) with approximately 3% of visits followed by chest pain (R079). Phase III had a slightly different distribution, with abdominal pain and vomiting (R10.9, R11.10) making up approximately 3% of ED visits, followed by chest pain (1.5%) and then upper respiratory tract infections (1.3%). See Appendix L for breakdown of the top 20 ICD-10 reasons for ED visit by WCM study group.

Emergency department visits per 1,000 member months, comparing HPSM WCM to Classic CCS comparison group in pre- versus post-period

Table 205 provides comparisons of ED visits between the HPSM WCM and Classic CCS comparison groups during the pre- and post-WCM implementation periods separately. During the pre-period, the odds of an ED visit were 55% lower in the HPSM WCM group compared to those for the Classic CCS comparison group ($p = .01$). During the post-period, the odds of an ED visit in the HPSM WCM group were 1.43 times greater than those for the Classic CCS comparison group ($p < .001$).

Table 205: Emergency Department Visits per 1,000 Member Months, Comparing HPSM WCM to the Classic CCS Comparison Group in Pre- versus Post-Period

	Emergency Department Visits per 1,000 Member Months		Adjusted Odds Ratios*	
Period	HPSM WCM Group	Classic CCS Comparison Group	(95% CI) HPSM WCM Group vs. Classic	*P*-value
Pre-WCM Implementation	31	53	0.45 (0.25, 0.82)	.009
Post-WCM Implementation	76	45	1.43 (1.26, 1.63)	<.001

*Adjusted for CDPS and disability.

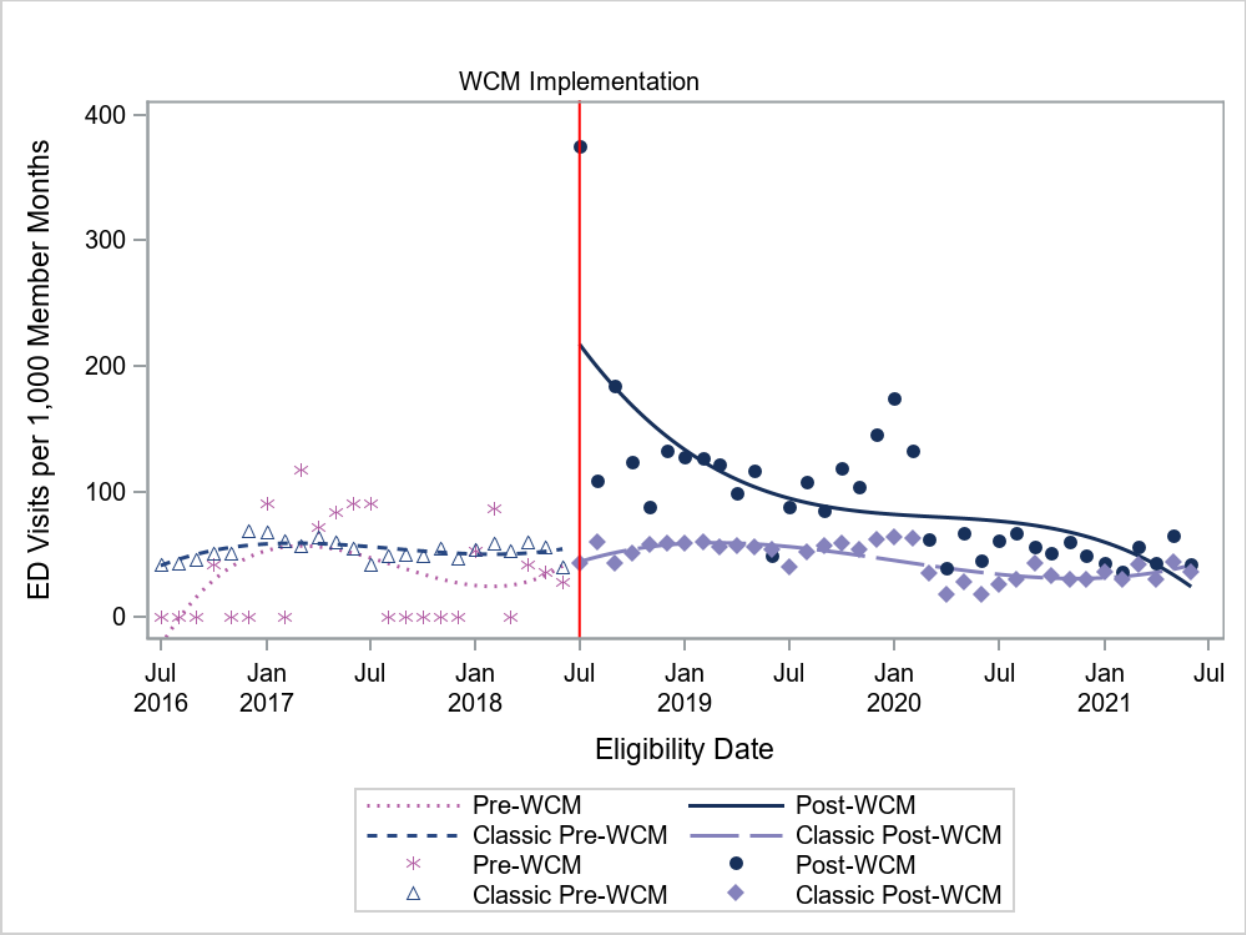
Table 206 provides comparisons of ED visits from the pre- to post-WCM implementation periods for the HPSM WCM and Classic CCS comparison groups separately. For the HPSM WCM group, the odds of an ED visit during the post-period were 2.74 times greater than during the pre-period ($p < .001$). For the Classic CCS comparison group, the odds of an ED visit during the post-period were 15% lower than during the pre-period ($p = .001$). Given the increase in the HPSM WCM group and the decrease in the Classic CCS comparison group, the Difference in Differences is significant ($p < .001$).

Table 206: Emergency Department Visits per 1,000 Member Months, Comparing HPSM WCM in Pre- versus Post-Period, Classic CCS Comparison Group in Pre- versus Post-Period, and DiD Analysis

	Emergency Department Visits per 1,000 Member Months		Adjusted Odds Ratios*	
Group	Pre-WCM Implementation	Post-WCM Implementation	(95% CI) Post- vs. Pre-Periods	*P*-value
HPSM WCM Group	31	76	2.74 (1.51, 5.00)	<.001
Classic CCS Comparison Group	53	45	0.86 (0.79, 0.94)	.001
Difference in Differences			3.17 (1.73, 5.81)	<.001

*Adjusted for CDPS and disability.

Figure 59: Emergency Department Visits per 1,000 Member Months, with Trend Line Over Time for HPSM WCM and Classic CCS Comparison Groups in Pre- versus Post-Period



Trend Statement for Emergency Department Visits in HPSM WCM: In the pre-WCM period, the slopes of the HPSM WCM and Classic CCS comparison groups are not statistically different and thus the parallel slopes assumption of the DiD model is satisfied (see Appendix I).

HPSM WCM Independent Variable Associations to Emergency Department Visits: Regression analysis shows that having a disability or having higher illness severity is significantly associated with having higher emergency department visits (see regression table in Appendix I).

Emergency department visits per 1,000 member months, comparing Phase I to Classic CCS comparison group in pre- versus post-period

Table 207 provides comparisons of ED visits between the Phase I and Classic CCS comparison groups during the pre- and post-WCM implementation periods separately. During the pre-period, the odds of an ED visit were 1.04 times greater for the HPSM WCM group than for the Classic CCS comparison group (p = .03). Likewise, during the post-period, the odds of an ED visit were 1.04 times greater for the HPSM WCM group than for the Classic CCS comparison group.

Table 207: Emergency Department Visits per 1,000 Member Months, Comparing Phase I to the Classic CCS Comparison Group in Pre- versus Post-Period

	Emergency Department Visits per 1,000 Member Months		Adjusted Odds Ratios*	
Period	Phase I Group	Classic CCS Comparison Group	(95% CI) Phase I Group vs. Classic	*P*-value
Pre-WCM Implementation	67	66	1.04 (1.00, 1.08)	.029
Post-WCM Implementation	52	50	1.04 (1.01, 1.08)	.017

*Adjusted for season, CDPS, race, language, disability, gender, and age.

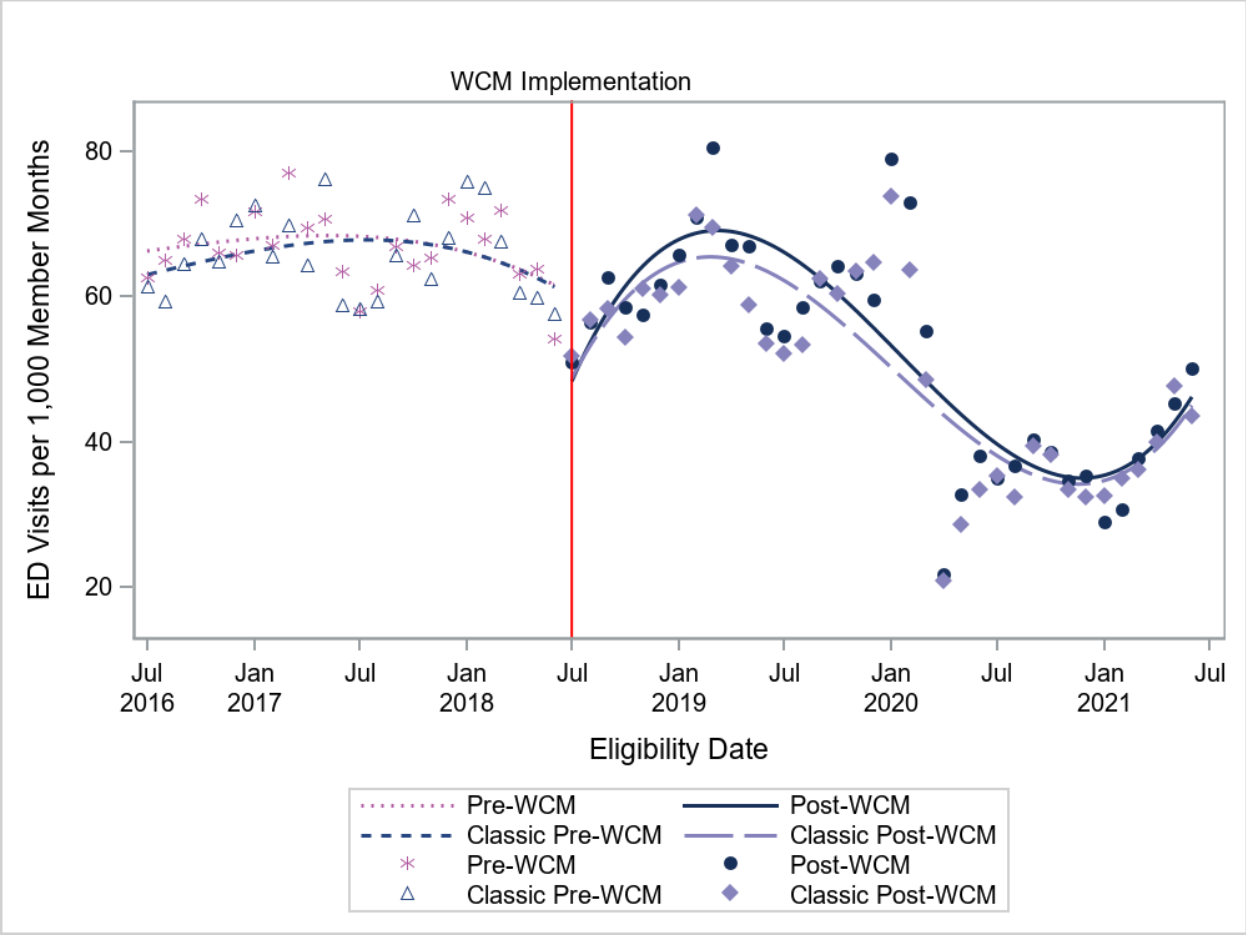
Table 208 provides comparisons of ED visits from the pre- to post-WCM implementation periods for the Phase I and Classic CCS comparison groups separately. For the Phase I group, the odds of an ED visit during the post-period were about 25% lower than during the pre-period (p < .001). For the Classic CCS comparison group, the odds of an ED visit during the post-period were also about 25% lower than during the pre-period (p < .001). The Difference in Differences is not significant.

Table 208: Emergency Department Visits per 1,000 Member Months, Comparing Phase I in Pre- versus Post-Period, Classic CCS Comparison Group in Pre- versus Post-Period, and DiD Analysis

	Emergency Department Visits per 1,000 Member Months		Adjusted Odds Ratios*	
Group	Pre-WCM Implementation	Post-WCM Implementation	(95% CI) Post- vs. Pre-Periods	*P*-value
Phase I Group	67	52	0.76 (0.74, 0.78)	<.001
Classic CCS Comparison Group	66	50	0.76 (0.73, 0.78)	<.001
Difference in Differences			1.00 (0.96, 1.05)	.877

*Adjusted for season, CDPS, race, language, disability, gender, and age.

Figure 60: Emergency Department Visits per 1,000 Member Months, with Trend Line Over Time for Phase I and Classic CCS Comparison Groups in Pre- versus Post-Period



Trend Statement for Emergency Department Visits in Phase I: In the pre-WCM period, the slopes of the Phase I and Classic CCS comparison groups are not statistically different, and thus the parallel slopes assumption of the DiD model is satisfied (see Appendix I).

Phase I Independent Variable Associations to Emergency Department Visits: Regression analysis shows that speaking Spanish or "other" language compared to English, being age one year or 7–11 years as compared to less than 12 months, or not having a disability is significantly associated with having lower emergency department visits. Having higher illness severity; any other season as compared to summer; being female; being Black, Latinx, or "other/unknown" race as compared to White; or being age 2–6 years as compared to less than 12 months is significantly associated with having higher emergency department visits (see regression table in Appendix I).

Emergency department visits per 1,000 member months, comparing Phase II to Classic CCS comparison group in pre- versus post-period

Table 209 provides comparisons of ED visits between the Phase II and Classic CCS comparison groups during the pre- and post-WCM implementation periods separately. During the pre-period, the odds of an ED visit did not differ significantly between the Phase II and Classic CCS comparison groups. During the post-period, the odds of an ED visit in the Phase II group were 1.22 times greater than in the Classic CCS comparison group ($p < .001$).

Table 209: Emergency Department Visits per 1,000 Member Months, Comparing Phase II to the Classic CCS Comparison Group in Pre- versus Post-Period

	Emergency Department Visits per 1,000 Member Months		Adjusted Odds Ratios*	
Period	Phase II WCM Group	Classic CCS Comparison Group	(95% CI) Phase II WCM Group vs. Classic	*P*-value
Pre-WCM Implementation	75	73	1.01 (0.97, 1.05)	.608
Post-WCM Implementation	67	54	1.22 (1.17, 1.27)	<.001

*Adjusted for season, CDPS, race, language, disability, gender, and age.

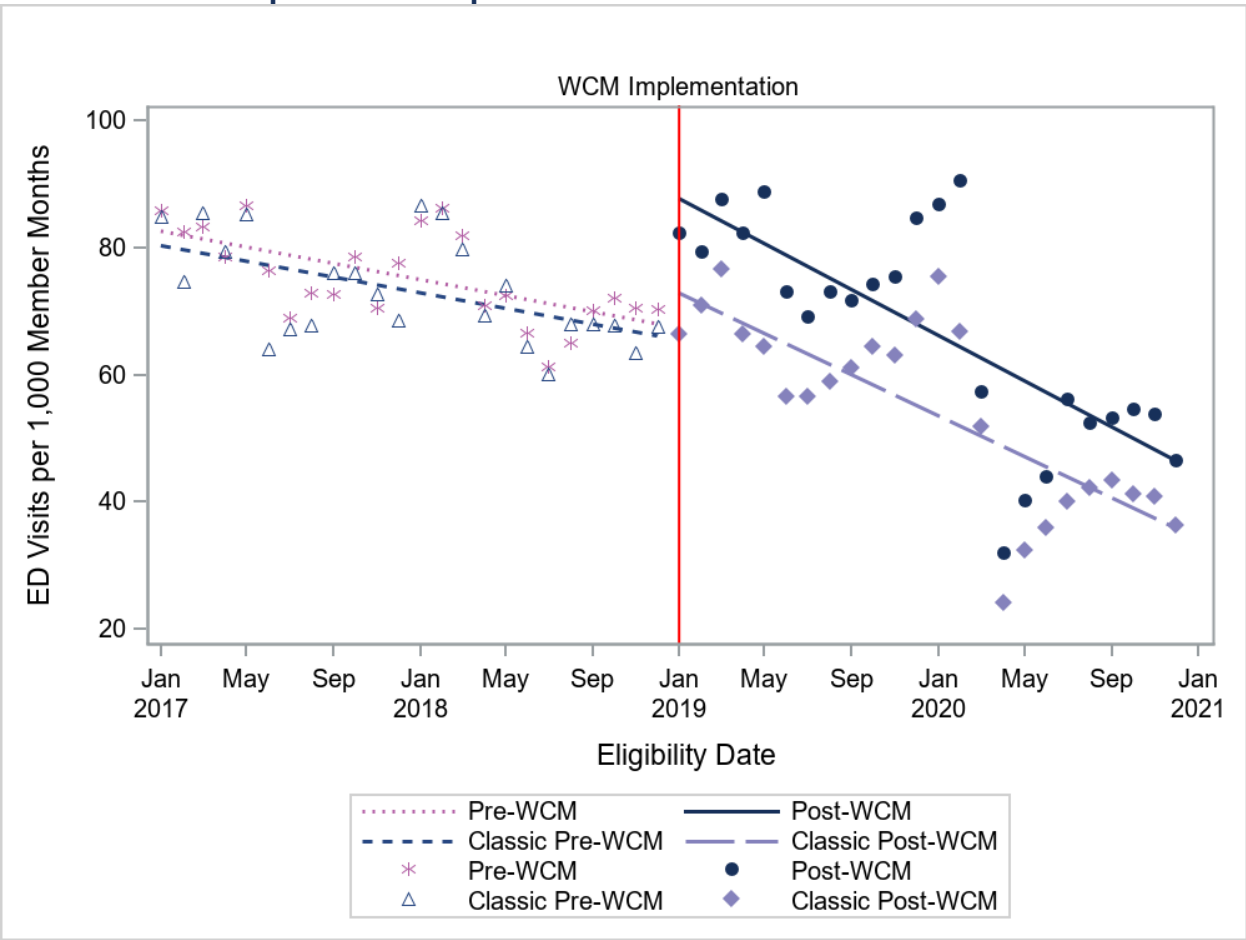
Table 210 provides comparisons of ED visits from the pre- to post-WCM implementation periods for the Phase II and Classic CCS comparison groups separately. For the Phase II group, the odds of an ED visit during the post-period were about 10% lower than during the pre-period ($p < .001$). For the Classic CCS comparison group, the odds of an ED visit during the post-period were about 25% lower than during the pre-period ($p < .001$). Due to greater decreases in the Classic CCS comparison group than in the Phase II group, the Difference in Differences is significant ($p < .001$).

Table 210: Emergency Department Visits per 1,000 Member Months, Comparing Phase II in Pre- versus Post-Period, Classic CCS Comparison Group in Pre- versus Post-Period, and DiD Analysis

	Emergency Department Visits per 1,000 Member Months		Adjusted Odds Ratios*	
Group	Pre-WCM Implementation	Post-WCM Implementation	(95% CI) Post- vs. Pre-Periods	*P*-value
Phase II Group	75	67	0.88 (0.86, 0.91)	<.001
Classic CCS Comparison Group	73	54	0.73 (0.71, 0.76)	<.001
Difference in Differences			1.21 (1.15, 1.26)	<.001

*Adjusted for season, CDPS, race, language, disability, gender, and age.

Figure 61: Emergency Department Visits per 1,000 Member Months, with Trend Line Over Time for Phase II and Classic CCS Comparison Groups in Pre- versus Post-Period



Trend Statement for Emergency Department Visits in Phase II: In the pre-WCM period, the slopes of the Phase II and Classic CCS comparison groups are not statistically different, and thus the parallel slopes assumption of the DiD model is satisfied (see Appendix I).

Phase II Independent Variable Associations to Emergency Department Visits: Regression analysis shows that speaking Spanish or "other" language compared to English or not having a disability is significantly associated with having lower emergency department visits. Having higher illness severity, any other season as compared to summer, being Black as compared to White race, being female, or being age 2–6 years or 12–20 years as compared to less than 12 months is significantly associated with having higher emergency department visits (see regression table in Appendix I).

Emergency department visits per 1,000 member months, comparing Phase III to Classic CCS comparison group in pre- versus post-period

Table 211 provides comparisons of ED visits between the Phase III and Classic CCS comparison groups during the pre- and post-WCM implementation periods separately. During the pre-period, the odds of an ED visit did not differ significantly between the Phase III and Classic CCS comparison groups (p = .07). Likewise, during the post-period, the odds of an ED visit did not differ significantly between the Phase III and Classic CCS comparison groups (p = .47).

Table 211: Emergency Department Visits per 1,000 Member Months, Comparing Phase III to the Classic CCS Comparison Group in Pre- versus Post-Period

	Emergency Department Visits per 1,000 Member Months		Adjusted Odds Ratios*	
Period	Phase III WCM Group	Classic CCS Comparison Group	(95% CI) Phase III WCM Group vs. Classic	*P*-value
Pre-WCM Implementation	62	64	1.03 (1.00, 1.07)	.067
Post-WCM Implementation	47	48	1.01 (0.98, 1.05)	.468

*Adjusted for season, CDPS, race, language, disability, gender, and age.

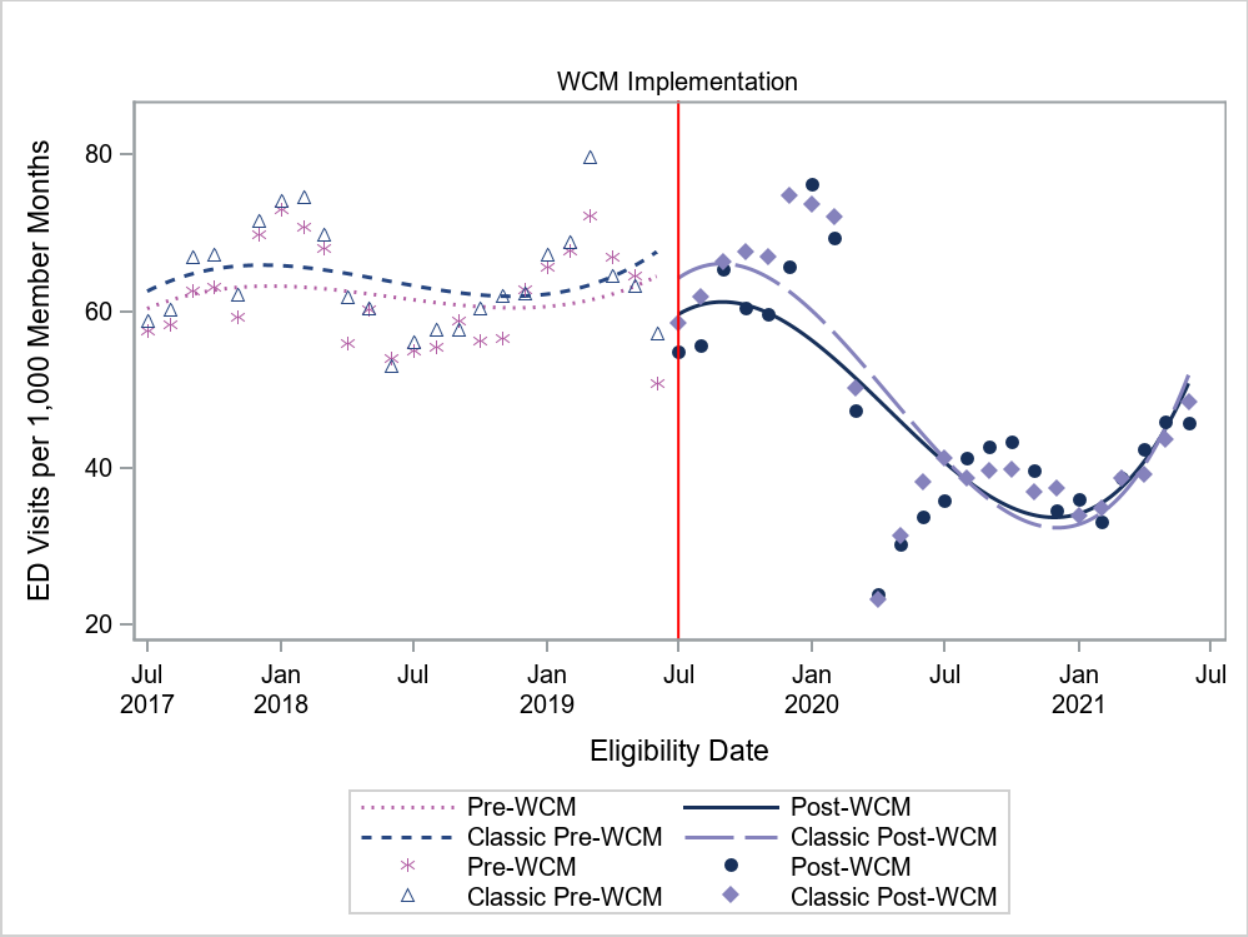
Table 212 provides comparisons of ED visits from the pre- to post-WCM implementation periods for the Phase III and Classic CCS comparison groups separately. For the Phase III group, the odds of an ED visit during the post-period were 25% lower than during the pre-period (p < .001). For the Classic CCS comparison group, the odds of an ED visit during the post-period were about 25% lower than during the pre-period (p < .001). Due to similar decreases in the Classic CCS comparison and Phase III groups, the Difference in Differences is not significant (p = .40).

Table 212: Emergency Department Visits per 1,000 Member Months, Comparing Phase III in Pre- versus Post-Period, Classic CCS Comparison Group in Pre- versus Post-Period, and DiD Analysis

	Emergency Department Visits per 1,000 Member Months		Adjusted Odds Ratios*	
Group	Pre-WCM Implementation	Post-WCM Implementation	(95% CI) Post- vs. Pre-Periods	*P*-value
Phase III Group	62	47	0.75 (0.72, 0.77)	<.001
Classic CCS Comparison Group	64	48	0.76 (0.74, 0.78)	<.001
Difference in Differences			0.98 (0.94, 1.02)	.398

*Adjusted for season, CDPS, race, language, disability, gender, and age.

Figure 62: Emergency Department Visits per 1,000 Member Months, with Trend Line Over Time for Phase III and Classic CCS Comparison Groups in Pre- versus Post-Period



Trend Statement for Emergency Department Visits in Phase III: In the pre-WCM period, the slopes of the Phase III and Classic CCS comparison groups are not statistically different (p = .933), and thus the parallel slopes assumption of the DiD model is satisfied (see Appendix I).

Phase III Independent Variable Associations to Emergency Department Visits: Regression analysis shows that speaking Spanish or "other" language as compared to English, being age 7–20 years as compared to less than 12 months, or not having a disability is significantly associated with having lower emergency department visits. Having higher illness severity, any other season as compared to summer, being Black or Latinx as compared to White race, being female, or being age 2–6 years as compared to less than 12 months is significantly associated with having higher emergency department visits (see regression table in Appendix I).

Overall summary of emergency department visits results for HPSM WCM and Phase I–Phase III

In the HPSM WCM study group, the HPSM WCM group had a significant increase in ED visits, the Classic CCS comparison group had a significant decrease, and the Difference in Differences is significant. Phase I, Phase II, and Phase III study groups had similar results: In each of these three study groups, both the Phase I–III and Classic CCS comparison groups had significant decreases in ED visits. Of these three study groups, only the Phase II study group had significant Difference in Differences.

ED visits with 28-day follow-up claims

ED visits with follow-up claims per 100 ED visits, comparing HPSM WCM to Classic CCS comparison group in pre- versus post-period

Table 213 provides comparisons of ED visits with follow-up visits between the HPSM WCM and Classic CCS comparison groups during the pre- and post-WCM implementation periods separately. During the pre-period, the odds of an ED visit with follow-up visit did not differ significantly between the HPSM WCM and Classic CCS comparison groups. During the post-period, the odds of an ED visit with follow-up visit were 1.46 times greater for the HPSM WCM group compared to the Classic CCS comparison group (p = .003).

Table 213: Emergency Department Visits with Follow-Up Claims per 100 ED Visits, Comparing HPSM WCM to the Classic CCS Comparison Group in Pre- versus Post-Period

	ED Visits with Follow-Up Claims per 100 ED Visits		Adjusted Odds Ratios*	
Period	HPSM WCM Group	Classic CCS Comparison Group	(95% CI) HPSM WCM Group vs. Classic	*P*-value
Pre-WCM Implementation	73	73	1.04 (0.35, 3.04)	.948
Post-WCM Implementation	84	77	1.46 (1.14, 1.87)	.003

*Adjusted for CDPS and disability.

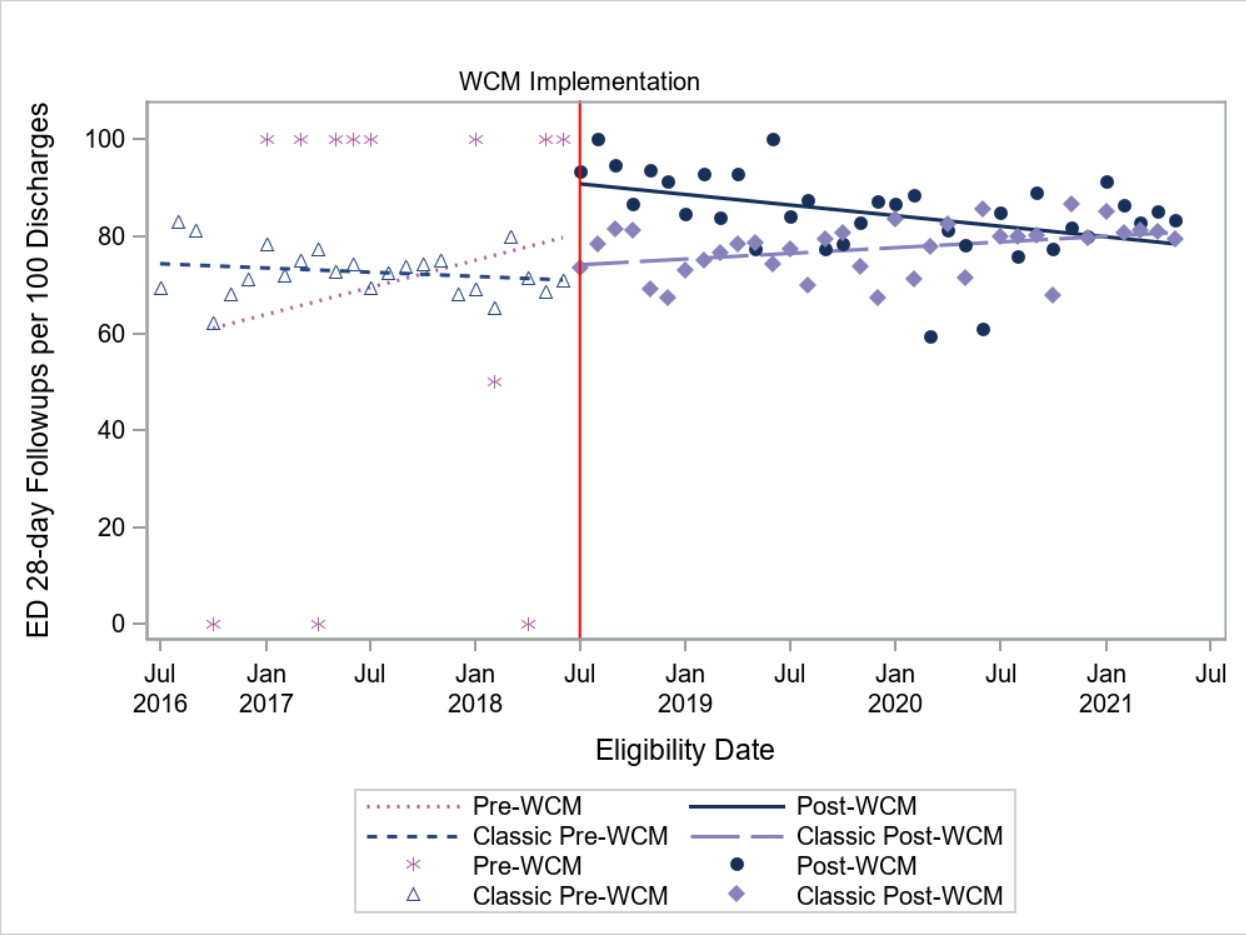
Table 214 provides comparisons of ED visits with follow-up visits from the pre- to post-WCM implementation periods for the HPSM WCM and Classic CCS comparison groups separately. For the HPSM WCM group, the odds of an ED visit with follow-up visit during the post-period did not differ significantly from those during the pre-period. Likewise, for the Classic CCS comparison group, the odds of an ED visit with follow-up visit during the post-period did not differ significantly from those during the pre-period. The Difference in Differences is not significant.

Table 214: ED Visits with Follow-Up Claims per 100 ED Visits, Comparing HPSM WCM in Pre- versus Post-Period, Classic CCS Comparison Group in Pre- versus Post-Period, and DiD Analysis

	ED Visits with Follow-Up Claims per 100 ED Visits		Adjusted Odds Ratios*	
Group	Pre-WCM Implementation	Post-WCM Implementation	(95% CI) Post- vs. Pre-Periods	*P*-value
HPSM WCM Group	73	84	1.64 (0.56, 4.86)	.369
Classic CCS Comparison Group	73	77	1.17 (0.98, 1.39)	.086
Difference in Differences			1.41 (0.47, 4.22)	.542

*Adjusted for CDPS and disability.

Figure 63: ED Visits with Follow-Up Claims per 100 ED Visits, with Trend Line Over Time for HPSM WCM and Classic CCS Comparison Groups in Pre- versus Post-Period



Trend Statement for ED Visits with Follow-Up Claims in HPSM WCM: In the pre-WCM period, the slopes of the HPSM WCM and Classic CCS comparison groups are not statistically different, and thus the parallel slopes assumption of the DiD model is satisfied (see Appendix I).

HPSM WCM Independent Variable Associations to ED Visits with Follow-Up Claims: Regression analysis shows that having a disability or having higher illness severity is significantly associated with having higher ED visits with follow-up claims (see regression table in Appendix I).

ED visits with follow-up claims per 100 ED visits, comparing Phase I to Classic CCS comparison group in pre- versus post-period

Table 215 provides comparisons of ED visits with follow-up between the Phase I and Classic CCS comparison groups during the pre- and post-WCM implementation periods separately. During the pre-period, the odds of an ED visit with follow-up were 1.11 time greater in the Phase I group compared to the Classic CCS comparison group (p = .001). Likewise, during the post-period, the odds of an ED visit with follow-up in the Phase I group were 1.1 times greater than those in the Classic CCS comparison group (p = .001).

Table 215: ED Visits with Follow-Up Claims per 100 ED Visits, Comparing Phase I to the Classic CCS Comparison Group in Pre- versus Post-Period

	ED Visits with Follow-Up Claims per 100 ED Visits		Adjusted Odds Ratios*	
Period	Phase I Group	Classic CCS Comparison Group	(95% CI) Phase I Group vs. Classic	*P*-value
Pre-WCM Implementation	74	72	1.11 (1.04, 1.18)	.001
Post-WCM Implementation	76	75	1.10 (1.04, 1.17)	.001

*Adjusted for season, CDPS, race, language, disability, and age.

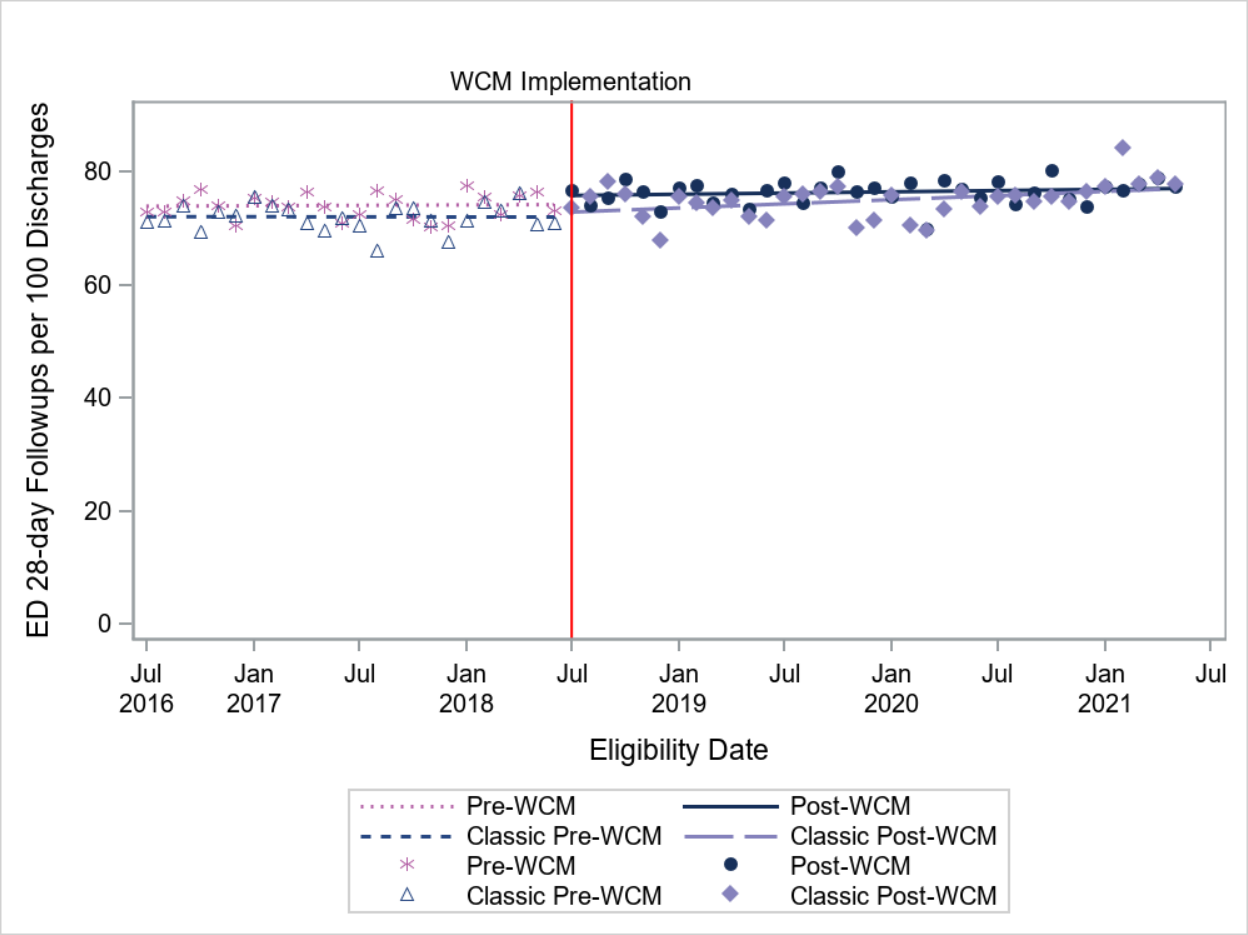
Table 216 provides comparisons of ED visits from the pre- to post-WCM implementation periods for the Phase I and Classic CCS comparison groups separately. For the Phase I group, the odds of an ED visit with follow-up during the post-period were 1.1 times greater than during the pre-period (p = .001). For the Classic CCS comparison group, the odds of an ED visit with follow-up during the post-period were 1.1 times greater than during the pre-period (p = .001). The Difference in Differences is not significant.

Table 216: ED Visits with Follow-Up Claims per 100 ED Visits, Comparing Phase I in Pre- versus Post-Period, Classic CCS Comparison Group in Pre- versus Post-Period, and DiD Analysis

	ED Visits with Follow-Up Claims per 100 ED Visits		Adjusted Odds Ratios*	
Group	Pre-WCM Implementation	Post-WCM Implementation	(95% CI) Post- vs. Pre-Periods	*P*-value
Phase I Group	74	76	1.10 (1.04, 1.16)	.001
Classic CCS Comparison Group	72	75	1.10 (1.04, 1.17)	.001
Difference in Differences			1.00 (0.92, 1.08)	.928

*Adjusted for season, CDPS, race, language, disability, and age.

Figure 64: ED Visits with Follow-Up Claims per 100 ED Visits, with Trend Line Over Time for Phase I and Classic CCS Comparison Groups in Pre- versus Post-Period



Trend Statement for ED Visits with Follow-Up Claims in Phase I: In the pre-WCM period, the slopes of the Phase I and Classic CCS comparison groups are not statistically different, and thus the parallel slopes assumption of the DiD model is satisfied (see Appendix I).

Phase I Independent Variable Associations to ED Visits with Follow-Up Claims: Regression analysis shows that being Latinx as compared to White race or being age one year as compared to less than 12 months is significantly associated with having lower emergency department visits with follow-up claims. Having higher illness severity, having a disability, speaking any language other than English, being age 2–20 years as compared to less than 12 months, or fall and winter season as compared to summer is significantly associated with having higher claims (see regression table in Appendix I).

ED visits with follow-up claims per 100 ED visits, comparing Phase II to Classic CCS comparison group in pre- versus post-period

Table 217 provides comparisons of ED visits with follow-up between the Phase II and Classic CCS comparison groups during the pre- and post-WCM implementation periods separately. During the pre-period, the odds of an ED visit with follow-up were 1.16 times greater for the Phase II group compared to the Classic CCS comparison groups ($p < .001$). During the post-period, the odds of an ED visit with follow-up were 1.09 times greater for the Phase II group than for the Classic CCS comparison group ($p = .02$).

Table 217: ED Visits with Follow-Up Claims per 100 ED Visits, Comparing Phase II to the Classic CCS Comparison Group in Pre- versus Post-Period

	ED Visits with Follow-Up Claims per 100 ED Visits		Adjusted Odds Ratios*	
Period	Phase II Group	Classic CCS Comparison Group	(95% CI) Phase II Group vs. Classic	*P*-value
Pre-WCM Implementation	75	70	1.16 (1.08, 1.24)	<.001
Post-WCM Implementation	75	73	1.09 (1.01, 1.16)	.017

*Adjusted for season, CDPS, race, language, disability, and age.

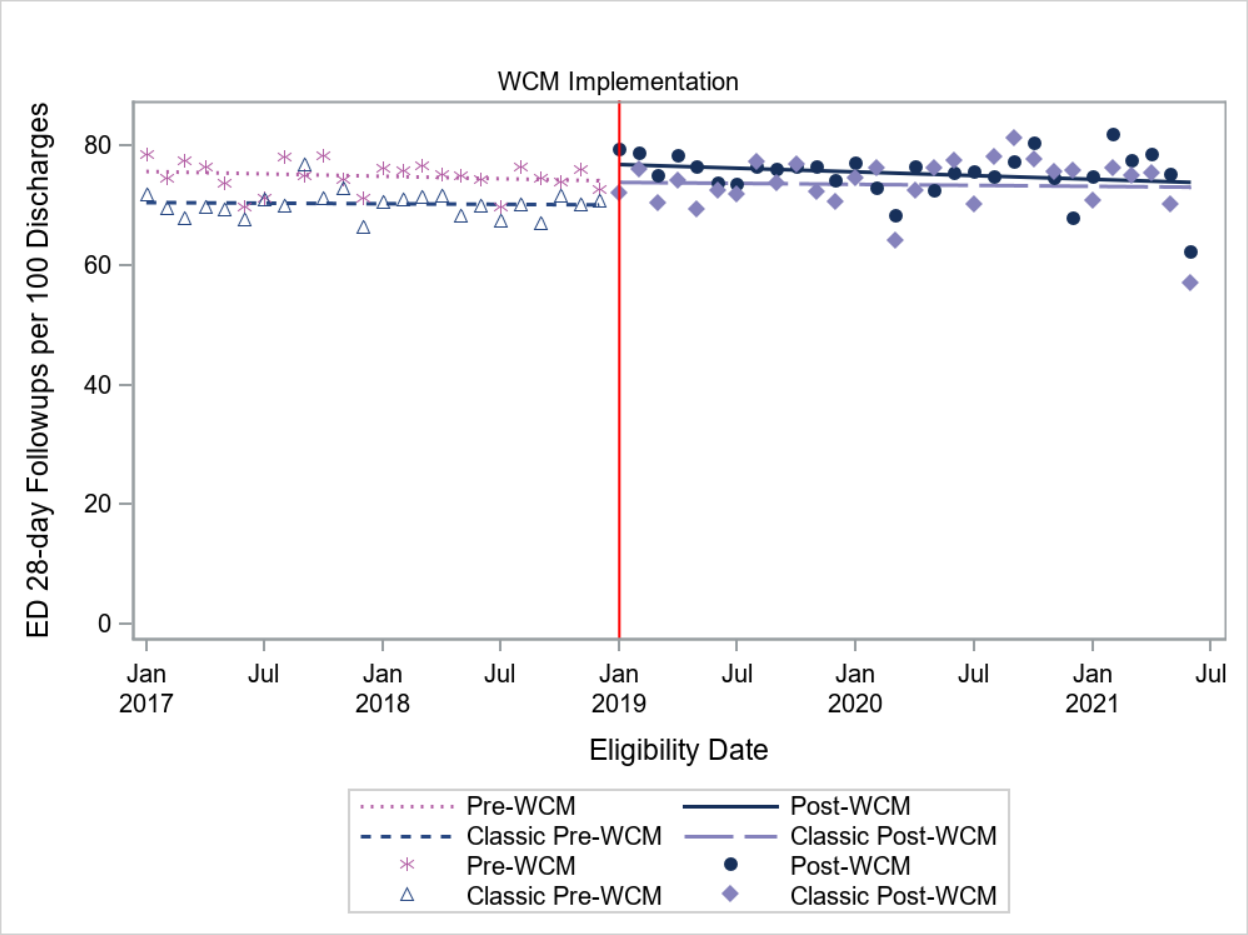
Table 218 provides comparisons of ED visits from the pre- to post-WCM implementation periods for the Phase II and Classic CCS comparison groups separately. For the Phase II group, the odds of an ED visit with follow-up during the post-period did not differ significantly from the pre-period. For the Classic CCS comparison group, the odds of an ED visit with follow-up during the post-period were 1.09 times greater than during the pre-period ($p = .01$). The Difference in Differences is not significant.

Table 218: ED Visits with Follow-Up Claims per 100 ED Visits, Comparing Phase II in Pre- versus Post-Period, Classic CCS Comparison Group in Pre- versus Post-Period, and DiD Analysis

	ED Visits with Follow-Up Claims per 100 ED Visits		Adjusted Odds Ratios*	
Group	Pre-WCM Implementation	Post-WCM Implementation	(95% CI) Post- vs. Pre-Period	*P*-value
Phase II Group	75	75	1.02 (0.97, 1.09)	.418
Classic CCS Comparison Group	70	73	1.09 (1.02, 1.17)	.013
Difference in Differences			0.94 (0.86, 1.03)	.179

*Adjusted for season, CDPS, race, language, disability, and age.

Figure 65: ED Visits with Follow-Up Claims per 100 ED Visits, with Trend Line Over Time for Phase II and Classic CCS Comparison Groups in Pre- versus Post-Period



Trend Statement for ED Visits with Follow-Up Claims in Phase II: In the pre-WCM period, the slopes of the Phase II and Classic CCS comparison groups are not statistically different, and thus the parallel slopes assumption of the DiD model is satisfied (see Appendix I).

Phase II Independent Variable Associations to ED Visits with Follow-Up Claims: Regression analysis shows that being age one year as compared to less than 12 months is significantly associated with having lower emergency department visits with follow-up claims. Having higher illness severity, having a disability, speaking any language except English, being age 2–20 years as compared to less than 12 months, or any season except summer is significantly associated with having higher claims (see regression table in Appendix I).

ED visits with follow-up claims per 100 ED visits, comparing Phase III to Classic CCS comparison group in pre- versus post-period

Table 219 provides comparisons of ED visits with follow-up between the Phase III and Classic CCS comparison groups during the pre- and post-WCM implementation periods separately. During the pre-period, the odds of an ED visit with follow-up were 1.11 times greater in the Phase III group than in the Classic CCS comparison group ($p < .001$). However, during the post-period, the odds of an ED visit with follow-up were not significantly different than for the Classic CCS comparison group.

Table 219: ED Visits with Follow-Up Claims per 100 ED Visits, Comparing Phase III to the Classic CCS Comparison Group in Pre- versus Post-Period

	ED Visits with Follow-Up Claims per 100 ED Visits		Adjusted Odds Ratios*	
Period	Phase III Group	Classic CCS Comparison Group	(95% CI) Phase III Group vs. Classic	*P*-value
Pre-WCM Implementation	76	73	1.11 (1.05, 1.18)	<.001
Post-WCM Implementation	77	76	1.06 (0.99, 1.13)	.073

*Adjusted for season, CDPS, race, language, disability, and age.

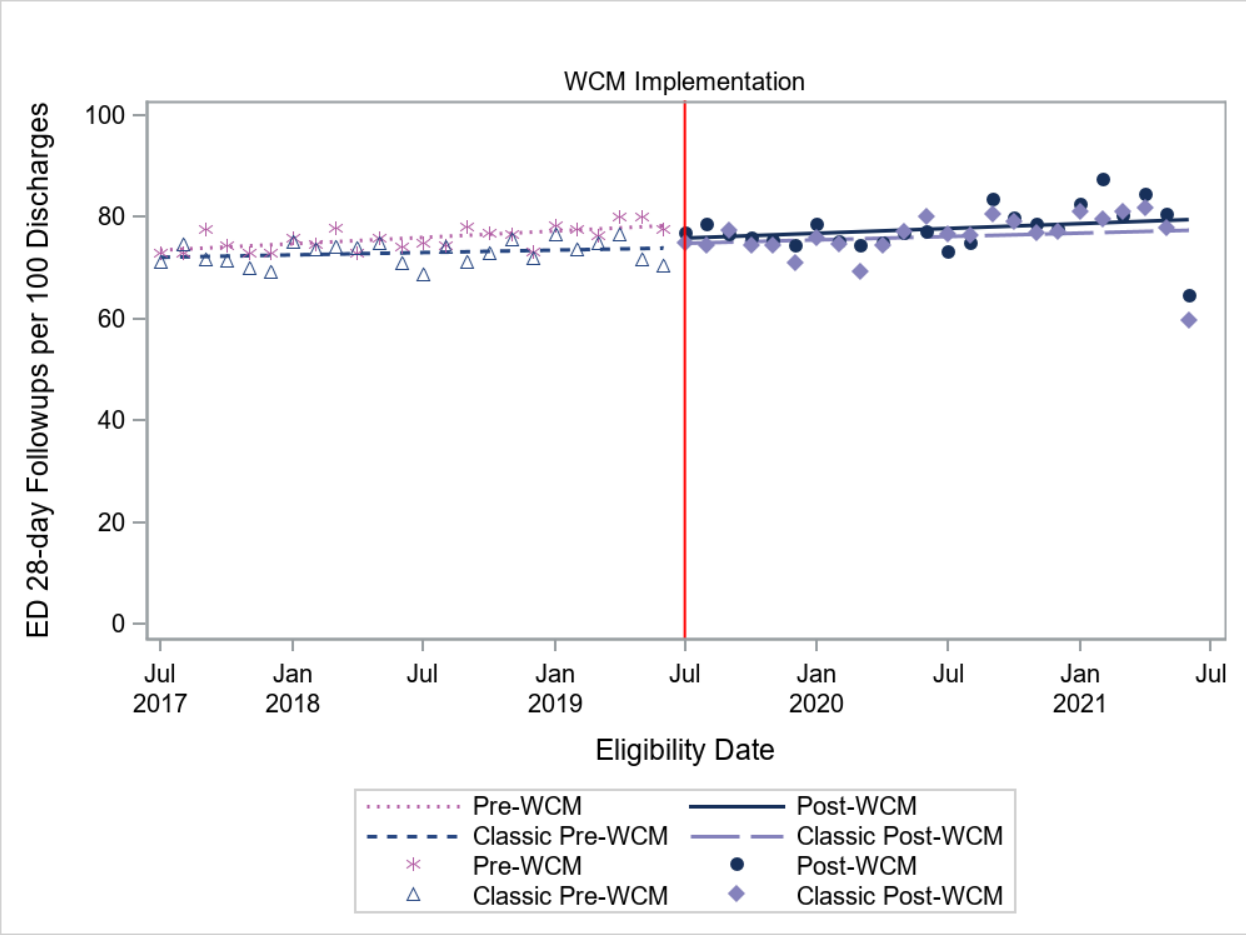
Table 220 provides comparisons of ED visits with follow-ups from the pre- to post-WCM implementation periods for the Phase III and Classic CCS comparison groups separately. For the Phase III group, the odds of an ED visit with follow-up during the post-period did not differ significantly from the pre-period. For the Classic CCS comparison group, the odds of an ED visit with follow-up during the post-period were 1.11 times greater than during the pre-period ($p < .001$). The Difference in Differences is not significant.

Table 220: ED Visits with Follow-Up Claims per 100 ED Visits, Comparing Phase III in Pre- versus Post-Period, Classic CCS Comparison Group in Pre- versus Post-Period, and DiD Analysis

	ED Visits with Follow-Up Claims per 100 ED Visits		Adjusted Odds Ratios*	
Group	Pre-WCM Implementation	Post-WCM Implementation	(95% CI) Post- vs. Pre-Period	*P*-value
Phase III Group	76	77	1.06 (1.00, 1.12)	.058
Classic CCS Comparison Group	73	76	1.11 (1.05, 1.17)	<.001
Difference in Differences			0.96 (0.88, 1.04)	.274

*Adjusted for season, CDPS, race, language, disability, and age.

Figure 66: ED Visits with Follow-Up Claims per 100 ED Visits, with Trend Line Over Time for Phase III and Classic CCS Comparison Groups in Pre- versus Post-Period



Trend Statement for ED Visits with Follow-Up Claims in Phase III: In the pre-WCM period, the slopes of the Phase III and Classic CCS comparison groups are not statistically different, and thus the parallel slopes assumption of the DiD model is satisfied (see Appendix I).

Phase III Independent Variable Associations to ED Visits with Follow-Up Claims: Regression analysis shows that being Black as compared to White race or being age one year as compared to less than 12 months is significantly associated with having lower emergency department visits with follow-up claims. Having higher illness severity, speaking any language as compared to English, being age 7–20 years as compared to less than 12 months, having a disability, or any other season as compared to summer is significantly associated with having higher claims (see regression table in Appendix I).

Overall summary of ED visits with follow-up claims results for HPSM WCM and Phase I–Phase III

Results varied among the study groups. In the HPSM WCM study group, neither the HPSM WCM nor the Classic CCS comparison group had changes in follow-up visits, and the Difference in Differences is not significant. In the Phase I study group, both the Phase I and Classic CCS comparison groups had follow-up increases; thus the Difference in Differences is not significant. The Phase II and Phase III study groups had parallel findings, with no changes in follow-ups as compared to increases in their respective Classic CCS comparison groups. However, the Difference in Differences is not significant for either study group.

Hospitalizations Results

Reason for hospitalization admissions (all-cause, all ages) by illness category

In Figures 67–70 the UCSF evaluation team describes the primary reasons for hospital admission for each of the WCM study groups by major ICD-10 diagnostic grouping.[50] The figures show the proportional representation of each condition. There are 20 major condition categories included: accidents; cardiovascular; congenital; dermatologic; endocrine/metabolic; ears, nose, throat (ENT-otolaryngology); gastrointestinal; genitourinary; hematology; infectious disease; mental/behavioral; musculoskeletal; neoplasm; neurological; newborn conditions (e.g., neonatal ICU–related); ophthalmological; other; pregnancy; respiratory condition; and undiagnosed.

The WCM study groups were similar in major reasons for hospitalizations by category, with only slight variation by percentage. The most prevalent category as reason for hospitalizations were accident-related or "other," followed by respiratory, congenital, endocrine, and neurologic conditions. HPSM WCM (Figure 67) had a much higher relative proportion of "other," but the data are skewed due to low *n*, and only five condition categories were represented within all the hospitalizations.

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[50] *ICD-10: International Statistical Classification of Diseases and Related Health Problems*, 10th rev., 2nd ed., World Health Organization, 2004, https://apps.who.int/iris/handle/10665/42980.

Most common reason for hospitalization by ICD-10-CM in the WCM post-implementation study period by singular condition

Overall, the WCM health plans and Classic control groups had similar hospitalization profiles. There was a predominance of hospitalizations due to accidents, "other," and respiratory illnesses. Phase III differed, with less representation of newborn care as compared to HPSM WCM and Phase I and Phase II. In addition, Phase III had more representation of respiratory- and neurological-related hospitalizations post-WCM implementation.

HPSM WCM: The primary most common single diagnostic reasons for hospitalization in the HPSM WCM was chemotherapy (ICD-10 codes Z51.11/D61.810) with 8% of hospitalizations, followed by birth/newborn care (Z38.01/Z38.00) with 7% of admissions and then diabetic ketoacidosis (E10.10) with 3% of admissions and acute lymphoblastic leukemia (C91.00) with 2% of admissions. For the Classic CCS comparison group, birth/newborn care was the most prevalent hospital diagnosis (Z38.01/Z38.00) representing 12% of total hospitalizations, this was followed by chemotherapy (Z51.11) with 6%, then diabetic ketoacidosis (E10.10) with 4% and then bronchopulmonary dysplasia originating in the perinatal period (P27.1) representing 2% of hospitalizations.
Phase I: The most common reason for admission in Phase I was chemotherapy (Z51.11) with 5.4% of hospitalizations, followed by diabetic ketoacidosis (E10.10) with 3.7% of hospitalizations, followed by birth/newborn care (Z38.01/Z38.00) with 2%. Of note, COVID-19 was the 20th most common ICD-10 (U07.1) for admission in Phase I. For the Classic CCS comparison group, birth/newborn care (Z38.01/Z38.00) was the most prevalent with 10% of hospitalizations, followed by diabetic ketoacidosis (E10.10) with 4% of hospitalizations.
Phase II: The most common reason for admission in Phase II was chemotherapy (Z51.11) with 6.4% of hospitalizations, followed by diabetic ketoacidosis (E10.10) with 4.5% of hospitalizations, followed by sepsis (A41.9) with 2.7% of hospitalizations and birth/newborn care (Z38.01/Z38.00) with 2.7%. For the Classic CCS comparison group, the most common reason for admission was birth/newborn care (Z38.01/Z38.00) at 5.8% of hospitalizations followed by chemotherapy (Z51.11) with 4.7% of hospitalizations, followed by sepsis (A41.9) with 2.2% of hospitalizations.
Phase III: Unlike the other phases, newborn care was much lower in Phase III as compared to the other phases and was not within the top 10 ICD-10 diagnoses. The most common single ICD-10 reason for admission was chemotherapy (Z51.11) with 6.1% of hospitalizations, followed by chronic respiratory failure (J96.10) representing 2.9% of hospitalizations, followed by acute tracheitis (J04.10) representing 2.3% of hospitalizations followed by diabetic ketoacidosis (E10.10) with 2.2% of hospitalizations. Of note, COVID-19 was the 11th most ICD-10 (U07.1) for admission in Phase III, representing 0.8% of hospitalizations.

Figure 67: HPSM WCM Reason for Hospitalization by Condition Category

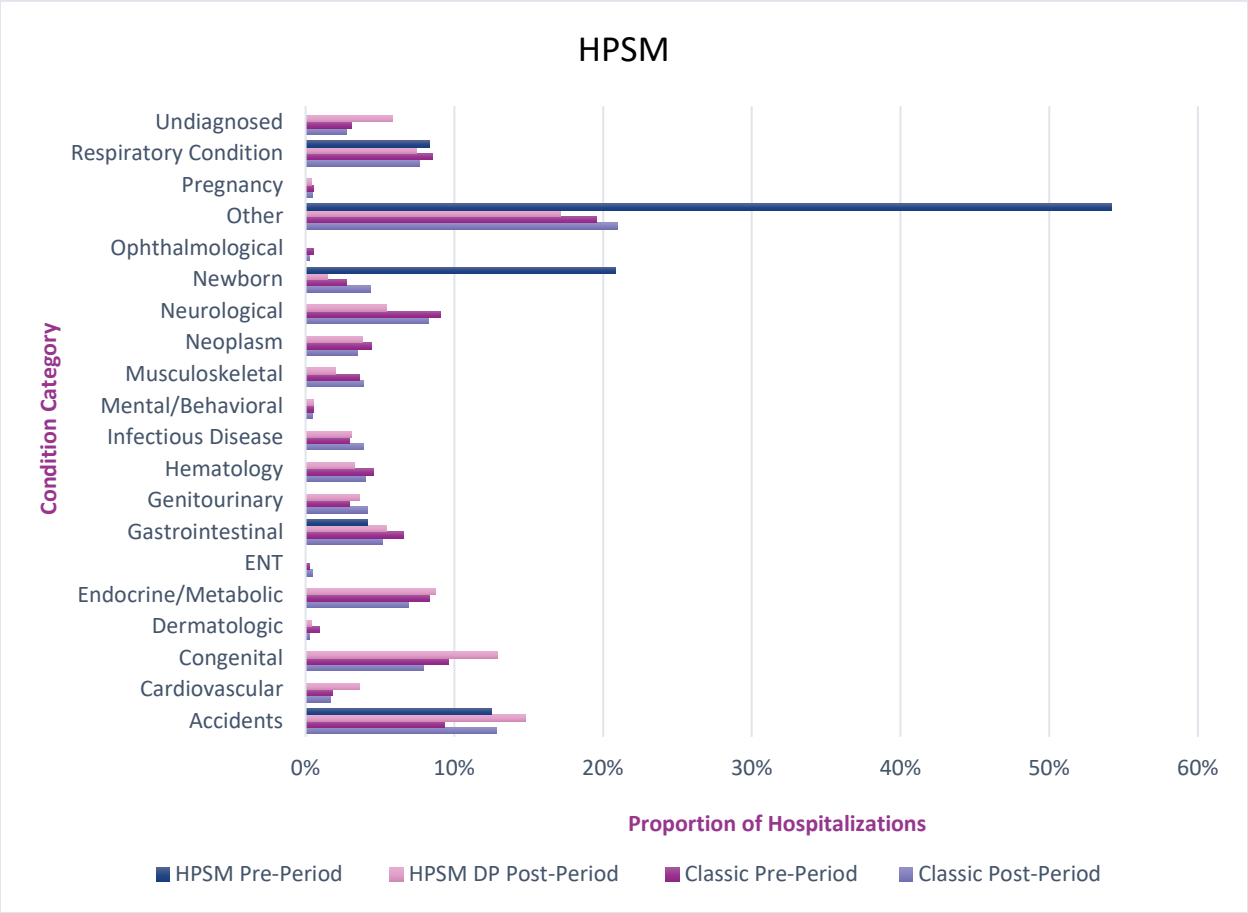


Figure 68: Phase I Reason for Hospitalization by Condition Category

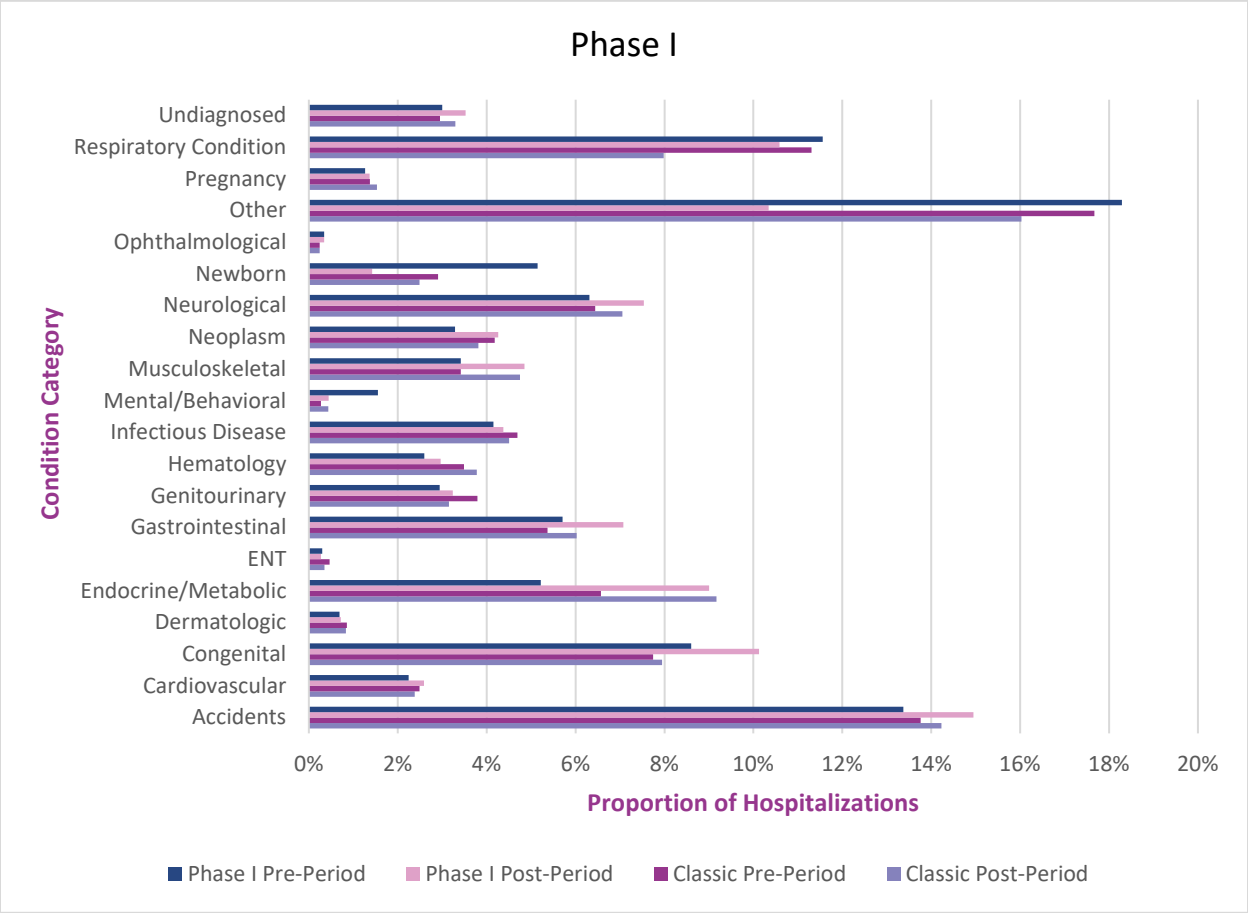


Figure 69: Phase II Reason for Hospitalization by Condition Category

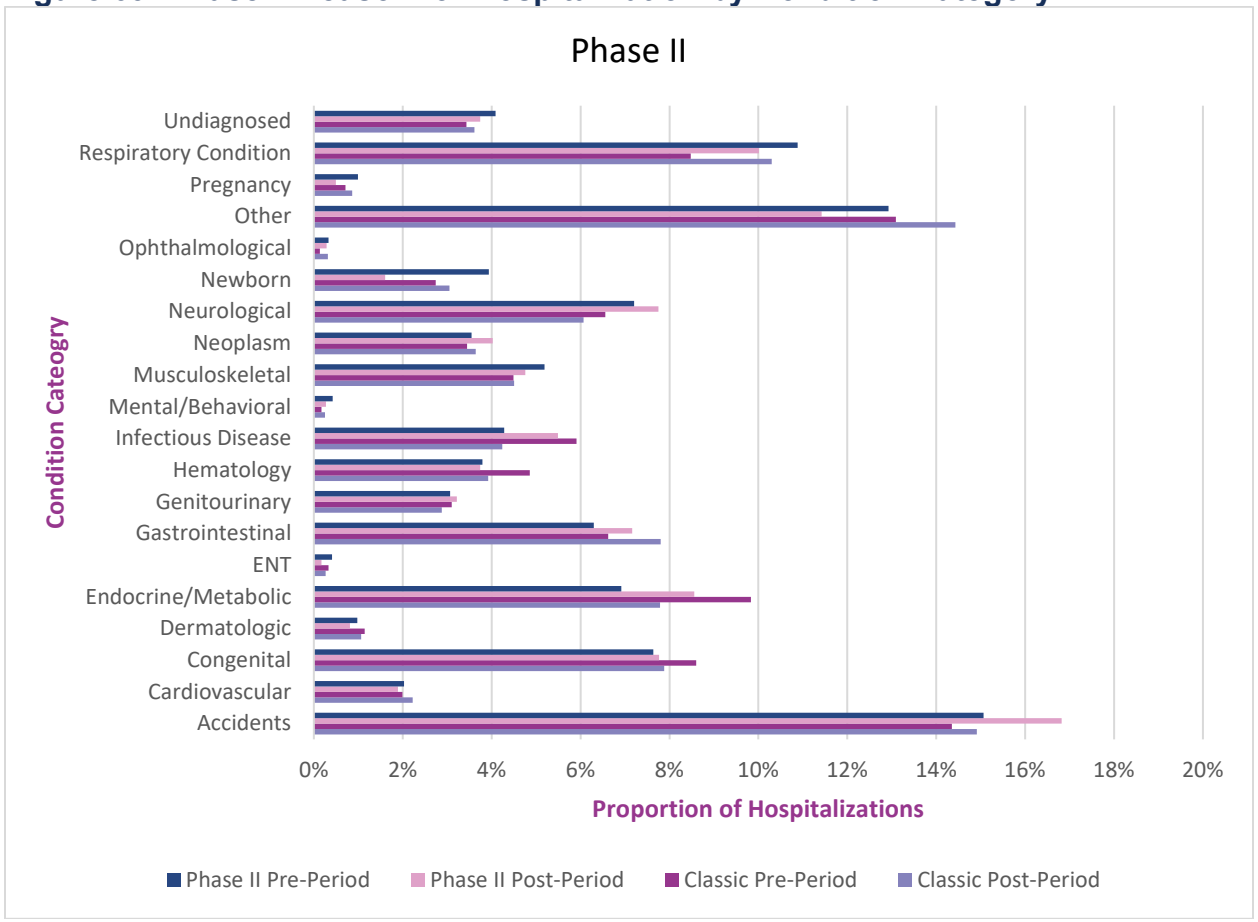
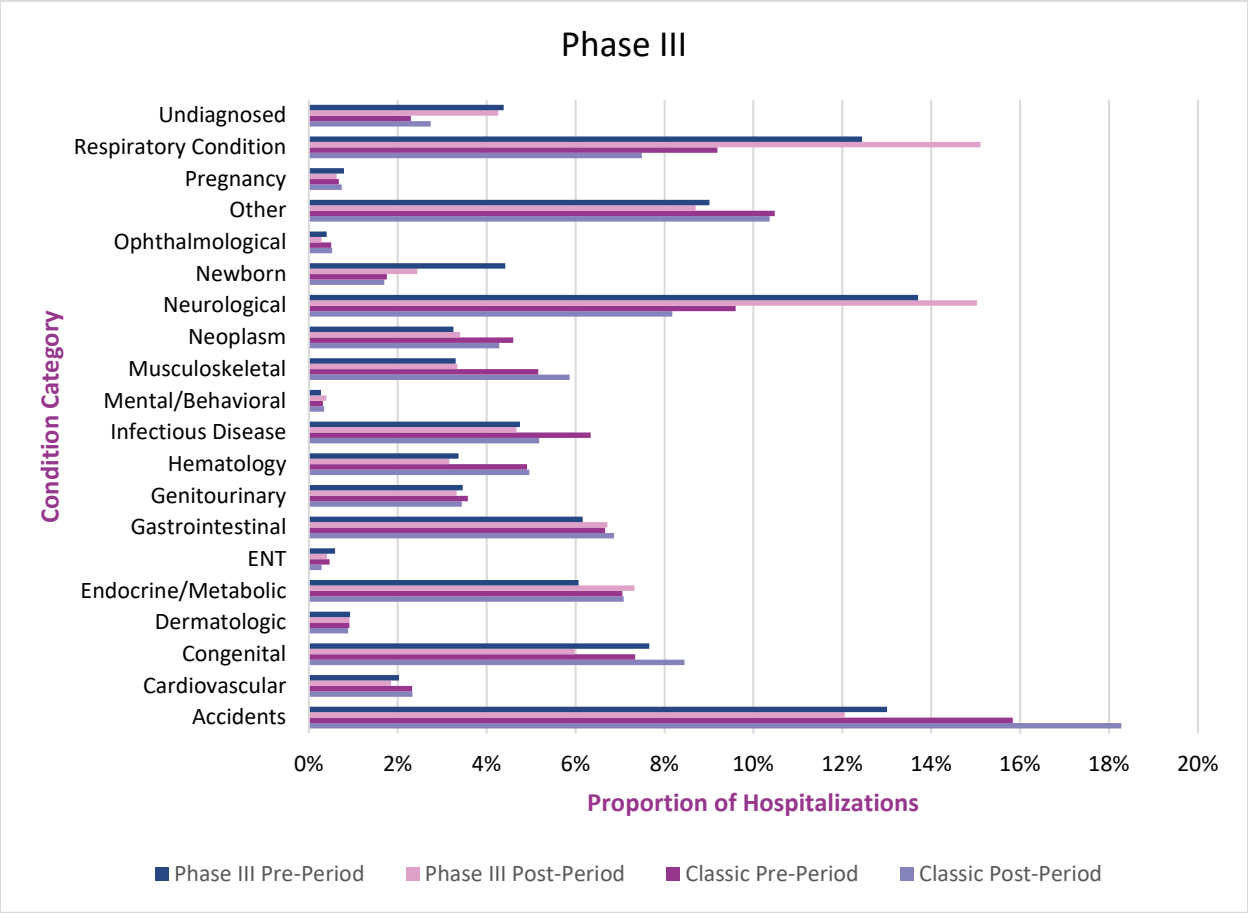


Figure 70: Phase III Reason for Hospitalization by Condition Category



Source of hospitalizations

Table 221 below shows the source of hospitalization, whether it was from the ED versus direct admit, transfer, or births. Overall, approximately 45%–50% of hospitalizations started from the emergency department in the post-implementation period. Except for the Phase III Classic CCS comparison group, the number of hospitalizations originating from the emergency department increased slightly when comparing from pre- to post-WCM implementation for all WCM study groups and Classic CCS comparisons.

Table 221: Source of Admission and Proportion from ED versus Other (direct admit or transfer)

WCM Study Group	ED Admissions	Non-ED Admissions	ED Percentage
HPSM WCM			
Pre-WCM Implementation	5	19	20.8%
Post-WCM Implementation	33	52	38.8%
Classic CCS Pre-WCM Implementation	91	184	33.1%
Classic CCS Post-WCM Implementation	125	152	45.1%
Phase I			
Pre-WCM Implementation	914	1,169	43.9%
Post-WCM Implementation	780	851	47.8%
Classic CCS Pre-WCM Implementation	1,718	1,709	50.1%
Classic CCS Post-WCM Implementation	1,604	1,453	52.5%
Phase II			
Pre-WCM Implementation	1,105	1,684	39.6%
Post-WCM Implementation	787	1,129	41.1%
Classic CCS Pre-WCM Implementation	1,216	1,302	48.3%
Classic CCS Post-WCM Implementation	937	918	50.5%
Phase III			
Pre-WCM Implementation	458	606	43.0%
Post-WCM Implementation	780	851	47.8%
Classic CCS Pre-WCM Implementation	858	752	53.3%
Classic CCS Post-WCM Implementation	1,604	1,453	52.5%

Hospitalization claims per 1,000 member months results

Hospitalization claims per 1,000 member months, comparing HPSM WCM to Classic CCS comparison group in pre- versus post-period

Table 222 provides comparisons of hospitalizations between the HPSM WCM and Classic CCS comparison groups during the pre- and post-WCM implementation periods separately. During the pre-period, the odds of a hospitalization did not differ significantly between the HPSM WCM and Classic CCS comparison groups (p = .12). During the post-period,

the odds of a hospitalization were 1.43 times greater for the HPSM WCM group than for the Classic CCS comparison group ($p < .001$).

Table 222: Hospitalization Claims per 1,000 Member Months, Comparing HPSM WCM to the Classic CCS Comparison Group in Pre- versus Post-Period

	Hospitalization Claims per 1,000 Member Months		Adjusted Odds Ratios*	
Period	HPSM WCM Group	Classic CCS Comparison Group	(95% CI) HPSM WCM Group vs. Classic	*P*-value
Pre-WCM Implementation	14	19	0.54 (0.24, 1.17)	.119
Post-WCM Implementation	36	17	1.43 (1.18, 1.73)	<.001

*Adjusted for CDPS.

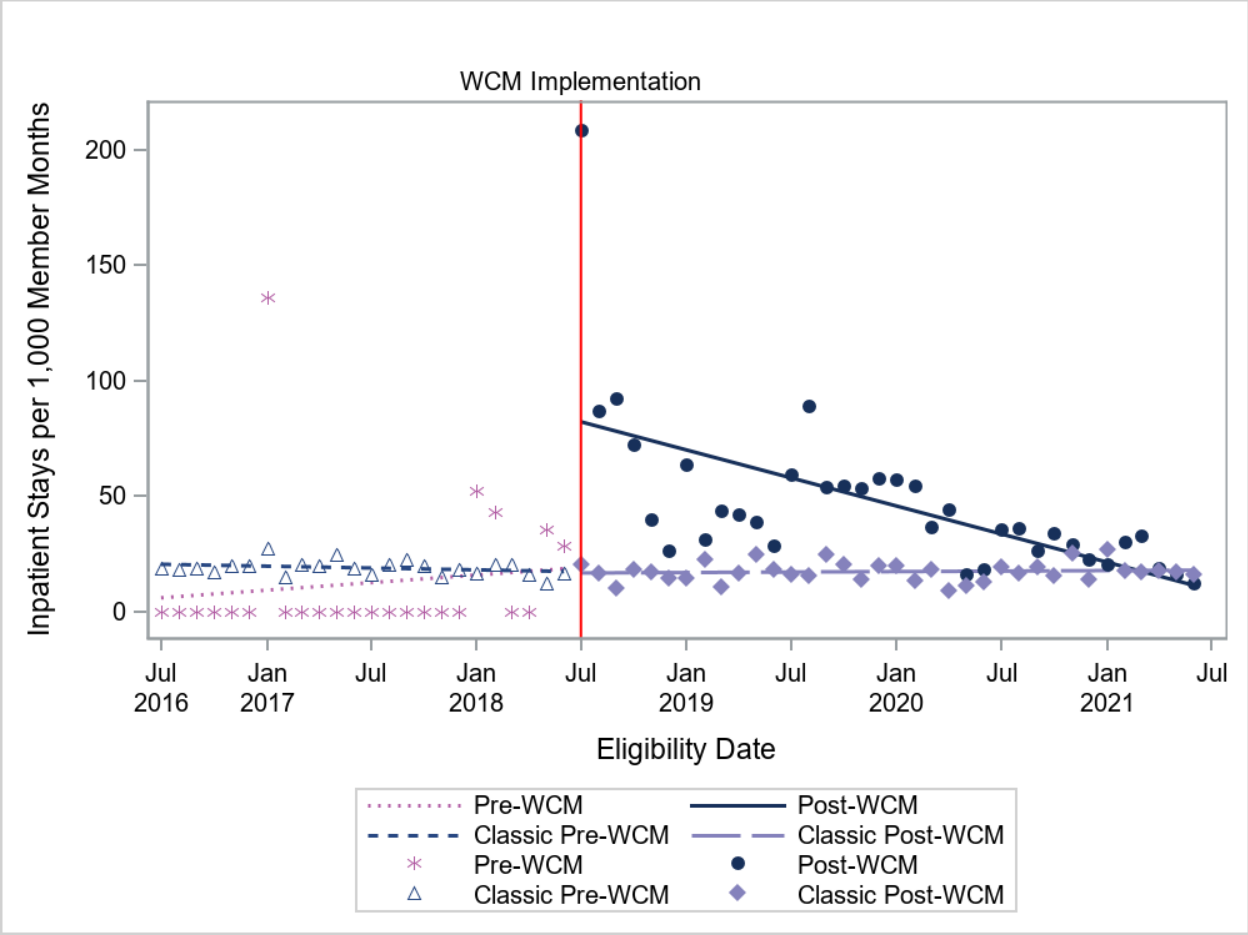
Table 223 provides comparisons of hospitalizations from the pre- to post-WCM implementation periods for the HPSM WCM and Classic CCS comparison groups separately. For the HPSM WCM group, the odds of a hospitalization during the post-period were 2.60 times greater than during the pre-period ($p = .02$). For the Classic CCS comparison group, the odds of a hospitalization during the post-period did not differ significantly from those during the pre-period ($p = .75$). Given the significant increases in the HPSM WCM group, the Difference in Differences is significant ($p = .02$).

Table 223: Hospitalization Services Claims per 1,000 Member Months, Comparing HPSM WCM in Pre- versus Post-Period, Classic CCS Comparison Group in Pre- versus Post-Period, and DiD Analysis

	Hospitalization Claims per 1,000 Member Months		Adjusted Odds Ratios*	
Group	Pre-WCM Implementation	Post-WCM Implementation	(95% CI) Post- vs. Pre-Period	*P*-value
HPSM WCM Group	14	36	2.60 (1.18, 5.71)	.018
Classic CCS Comparison Group	19	17	0.98 (0.84, 1.13)	.751
Difference in Differences			2.66 (1.19, 5.93)	.017

*Adjusted for CDPS.

Figure 71: Hospitalization Claims per 1,000 Member Months, with Trend Line Over Time for HPSM WCM and Classic CCS Comparison Groups in Pre- versus Post-Period



Trend Statement for Hospitalization Claims in HPSM WCM: In the pre-WCM period, the slopes of the HPSM WCM and Classic CCS comparison groups are not statistically different (p = .396), and thus the parallel slopes assumption of the DiD model is satisfied (see Appendix I).

HPSM WCM Independent Variable Associations to Hospitalization Claims: Regression analysis shows having higher illness severity is significantly associated with having higher hospitalization claims (see regression table in Appendix I).

Hospitalization claims per 1,000 member months, comparing Phase I to Classic CCS comparison group in pre- versus post-period

Table 224 provides comparisons of hospitalizations between the Phase I and Classic CCS comparison groups during the pre- and post-WCM implementation periods separately. During the pre-period, the odds of a hospitalization for the Phase I group were about 15% lower than for the Classic CCS comparison group ($p < .001$). Likewise, during the post-period, the odds of a hospitalization for the Phase I group were about 10% lower than for the Classic CCS comparison group ($p < .001$).

Table 224: Hospitalization Claims per 1,000 Member Months, Comparing Phase I to the Classic CCS Comparison Group in Pre- versus Post-Period

	Hospitalization Claims per 1,000 Member Months		Adjusted Odds Ratios*	
Period	Phase I Group	Classic CCS Comparison Group	(95% CI) Implementation Group vs. Classic	*P*-value
Pre-WCM Implementation	20	23	0.86 (0.80, 0.92)	<.001
Post-WCM Implementation	17	18	0.88 (0.83, 0.94)	<.001

*Adjusted for CDPS, race, language, disability, gender, and age.

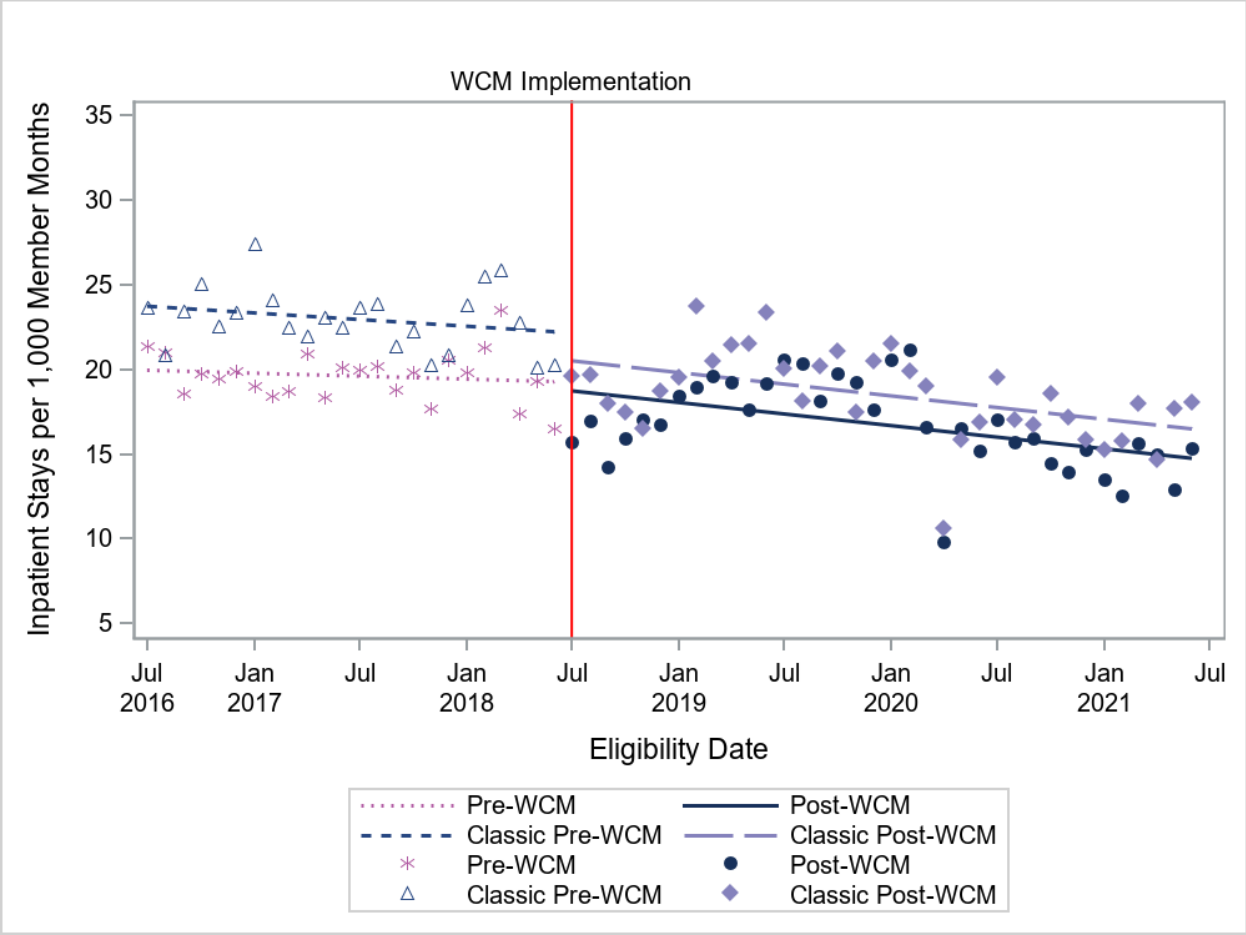
Table 225 provides comparisons of hospitalizations from the pre- to post-WCM implementation periods for the Phase I and Classic CCS comparison groups separately. For the Phase I group, the odds of a hospitalization during the post-period were 15% lower than during the pre-period ($p < .001$). For the Classic CCS comparison group, the odds of a hospitalization during the post-period were about 20% lower than during the pre-period ($p < .001$). Due to similar decreases in the Classic CCS comparison and Phase I groups, the Difference in Differences is not significant ($p = .45$).

Table 225: Hospitalization Claims per 1,000 Member Months, Comparing Phase I in Pre- versus Post-Period, Classic CCS Comparison Group in Pre- versus Post-Period, and DiD Analysis

	Hospitalization Claims per 1,000 Member Months		Adjusted Odds Ratios*	
Group	Pre-WCM Implementation	Post-WCM Implementation	(95% CI) Post- vs. Pre-Period	*P*-value
Phase I Group	20	17	0.85 (0.80, 0.89)	<.001
Classic CCS Comparison Group	23	18	0.82 (0.78, 0.87)	<.001
Difference in Differences			1.03 (0.95, 1.11)	.447

*Adjusted for CDPS, race, language, disability, gender, and age.

Figure 72: Hospitalization Claims per 1,000 Member Months, with Trend Line Over Time for Phase I and Classic CCS Comparison Groups in Pre- versus Post-Period



Trend Statement for Hospitalization Claims in Phase I: In the pre-WCM period, the slopes of the Phase I and Classic CCS comparison groups are not statistically different (p = .796), and thus the parallel slopes assumption of the DiD model is satisfied (see Appendix I).

Phase I Independent Variable Associations to Hospitalization Claims: Regression analysis shows that speaking Spanish or "other" language as compared to English or being age one year as compared to less than 12 months is significantly associated with having lower hospitalization visits. Having higher illness severity, being age 2–20 years as compared to less than 12 months, being female, or being Black or "other/unknown" race as compared to White race is significantly associated with having higher visits (see regression table in Appendix I).

Hospitalization claims per 1,000 member months, comparing Phase II to Classic CCS comparison group in pre- versus post-period

Table 226 provides comparisons of hospitalizations between the Phase II and Classic CCS comparison groups during the pre- and post-WCM implementation periods separately. During the pre-period, the odds of a hospitalization did not differ significantly between the Phase II and Classic CCS comparison groups (p = .27). Likewise, during the post-period, the odds of a hospitalization did not differ significantly between the Phase II and Classic CCS comparison groups (p = .17).

Table 226: Hospitalization Claims per 1,000 Member Months, Comparing Phase II to the Classic CCS Comparison Group in Pre- versus Post-Period

	Hospitalization Claims per 1,000 Member Months		Adjusted Odds Ratios*	
Period	Phase II Group	Classic CCS Comparison Group	(95% CI) Phase II Group vs. Classic	*P*-value
Pre-WCM Implementation	26	25	0.96 (0.90, 1.03)	.270
Post-WCM Implementation	22	21	0.95 (0.88, 1.02)	.173

*Adjusted for CDPS, race, language, disability, gender, and age.

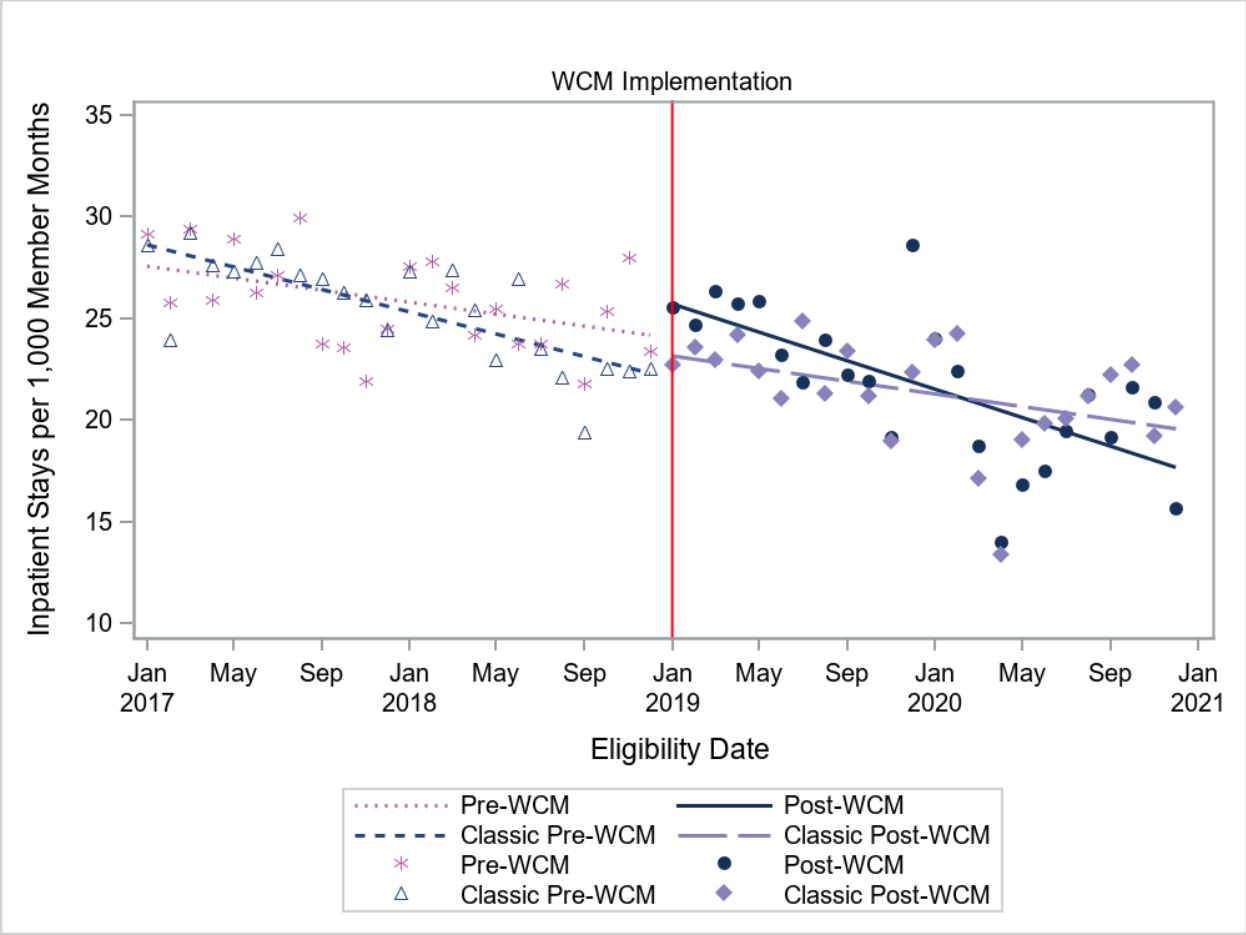
Table 227 provides comparisons of hospitalizations from the pre- to post-WCM implementation periods for the Phase II and Classic CCS comparison groups separately. For the Phase II group, the odds of a hospitalization during the post-period were about 15% lower than during the pre-period (p < .001). For the Classic CCS comparison group, the odds of a hospitalization during the post-period were also about 15% lower than during the pre-period (p < .001). Due to similar decreases in the Classic CCS comparison and Phase II groups, the Difference in Differences is not significant (p = .75).

Table 227: Hospitalization Claims per 1,000 Member Months, Comparing Phase II in Pre- versus Post-Period, Classic CCS Comparison Group in Pre- versus Post-Period, and DiD Analysis

	Hospitalization Claims per 1,000 Member Months		Adjusted Odds Ratios*	
Group	Pre-WCM Implementation	Post-WCM Implementation	(95% CI) Post- vs. Pre-Period	*P*-value
Phase II Group	26	22	0.83 (0.78, 0.88)	<.001
Classic CCS Comparison Group	25	21	0.84 (0.79, 0.89)	<.001
Difference in Differences			0.99 (0.91, 1.07)	.751

*Adjusted for CDPS, race, language, disability, gender, and age.

Figure 73: Hospitalization Claims per 1,000 Member Months, with Trend Line Over Time for Phase II and Classic CCS Comparison Groups in Pre- versus Post-Period



Trend Statement for Hospitalization Claims in Phase II: In the pre-WCM period, the slopes of the Phase II and Classic CCS comparison groups are not statistically different (p = .169), and thus the parallel slopes assumption of the DiD model is satisfied (see Appendix I).

Phase II Independent Variable Associations to Hospitalization Claims: Regression analysis shows that speaking "other" language as compared to English, not having a disability, or being age one year as compared to less than 12 months is significantly associated with having lower hospitalization visits. Having higher illness severity, being age 2–6 years or 12–20 years as compared to less than 12 months, being female, or being Black as compared to White race is significantly associated with having higher visits (see regression table in Appendix I).

Hospitalization claims per 1,000 member months, comparing Phase III to Classic CCS comparison group in pre- versus post-period

Table 228 provides comparisons of hospitalizations between the Phase III and Classic CCS comparison groups during the pre- and post-WCM implementation periods separately. During the pre-period, the odds of a hospitalization did not differ significantly between the Phase III and Classic CCS comparison groups (p = .57). During the post-period, the odds of a hospitalization for the Phase III group were about 15% lower than for the Classic CCS comparison group (p < .001).

Table 228: Hospitalization Claims per 1,000 Member Months, Comparing Phase III to the Classic CCS Comparison Group in Pre- versus Post-Period

	Hospitalization Claims per 1,000 Member Months		Adjusted Odds Ratios*	
Period	Phase III Group	Classic CCS Comparison Group	(95% CI) Implementation Group vs. Classic	*P*-value
Pre-WCM Implementation	22	24	1.02 (0.96, 1.08)	.569
Post-WCM Implementation	18	21	0.87 (0.82, 0.93)	<.001

*Adjusted for CDPS, race, language, disability, gender, and age.

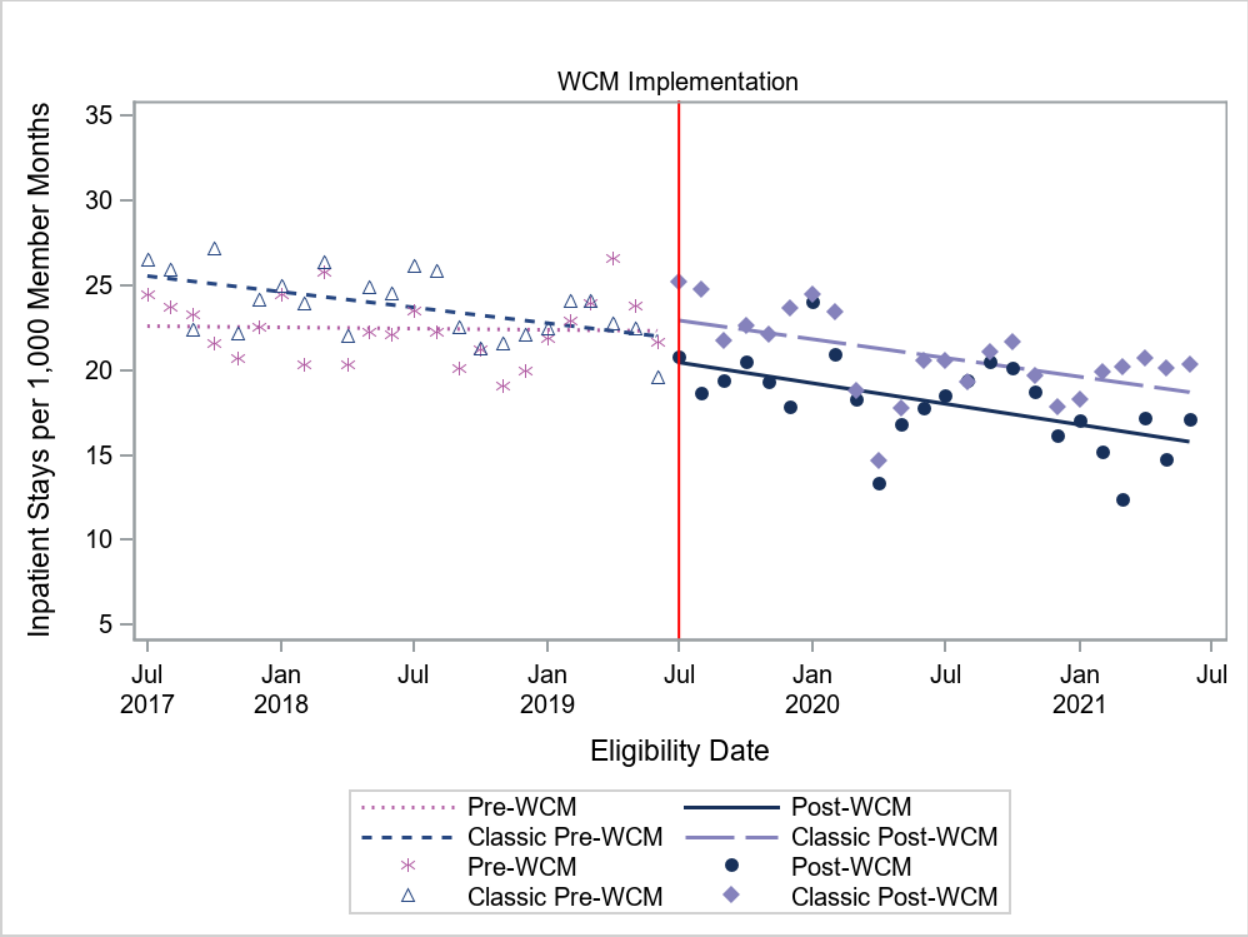
Table 229 provides comparisons of hospitalizations from the pre- to post-WCM implementation periods for the Phase III and Classic CCS comparison groups separately. For the Phase III group, the odds of a hospitalization during the post-period were about 20% lower than during the pre-period (p < .001). Likewise, in the Classic CCS comparison group, the odds of a hospitalization during the post-period were about 10% lower than during the pre-period (p < .001). Due to a greater decrease in the Phase III group, the Difference in Differences is significant (p < .001).

Table 229: Hospitalization Claims per 1,000 Member Months, Comparing Phase III in Pre- versus Post-Period, Classic CCS Comparison Group in Pre- versus Post-Period, and DiD Analysis

	Hospitalization Claims per 1,000 Member Months		Adjusted Odds Ratios*	
Group	Pre-WCM Implementation	Post-WCM Implementation	(95% CI) Post- vs. Pre-Period	*P*-value
Phase III Group	22	18	0.79 (0.75, 0.83)	<.001
Classic CCS Comparison Group	24	21	0.92 (0.87, 0.96)	<.001
Difference in Differences			0.86 (0.80, 0.92)	<.001

*Adjusted for CDPS, race, language, disability, gender, and age.

Figure 74: Hospitalization Claims per 1,000 Member Months, with Trend Line Over Time for Phase III and Classic CCS Comparison Groups in Pre- versus Post-Period



Trend Statement for Hospitalization Claims in Phase III: In the pre-WCM period, the slopes of the Phase III and Classic CCS comparison groups are not statistically different, and thus the parallel slopes assumption of the DiD model is satisfied (see Appendix I).

Phase III Independent Variable Associations to Hospitalization Claims: Regression analysis shows that speaking Spanish or "other" language as compared to English or being age one year as compared to less than 12 months is significantly associated with having lower hospitalization visits. Having higher illness severity, being age 2–6 years or 12–20 years as compared to less than 12 months, being female, or being Black or "other/unknown" race as compared to White is significantly associated with having higher visits (see regression table in Appendix I).

Overall summary of hospitalization claims results for HPSM WCM and Phase I–Phase III

In the HPSM WCM study group, the HPSM WCM group had a significant increase in hospitalizations, the Classic CCS comparison group had no change in hospitalizations, and the Difference in Differences is significant. Phase I, Phase II, and Phase III study groups had similar results. In each of these three study groups, both the Phase I–III groups and Classic CCS comparison groups had significant decreases in hospitalizations. Of these three study groups, only the Phase III study group has significant Difference in Differences.

Hospital outpatient follow-up (28-day) visits per 100 discharges results

Hospital outpatient follow-up (28-day) visits per 100 discharges, comparing HPSM WCM to Classic CCS comparison group in pre- versus post-period

Table 230 provides comparisons of hospital outpatient follow-up visits between the HPSM WCM and Classic CCS comparison groups during the pre- and post-WCM implementation periods separately. During the pre-period, the odds of a hospital outpatient follow-up visit were 90% lower in the HPSM WCM group compared to the Classic CCS comparison group ($p < .001$). During the post-period, the odds of a hospital outpatient follow-up visit for the HPSM WCM group did not differ significantly from those in the Classic CCS comparison group.

Table 230: Hospital Outpatient Follow-Up (28-day) Visits per 100 Discharges, Comparing HPSM WCM to the Classic CCS Comparison Group in Pre- versus Post-Period

	Hospital 28-Day Follow-Ups per 100 Discharges		Adjusted Odds Ratios*	
Period	HPSM WCM Group	Classic CCS Comparison Group	(95% CI) HPSM WCM Group vs. Classic	*P*-value
Pre-WCM Implementation	67	95	0.10 (0.03, 0.33)	<.001
Post-WCM Implementation	96	93	1.58 (0.84, 2.97)	.153

*Adjusted for CDPS and disability.

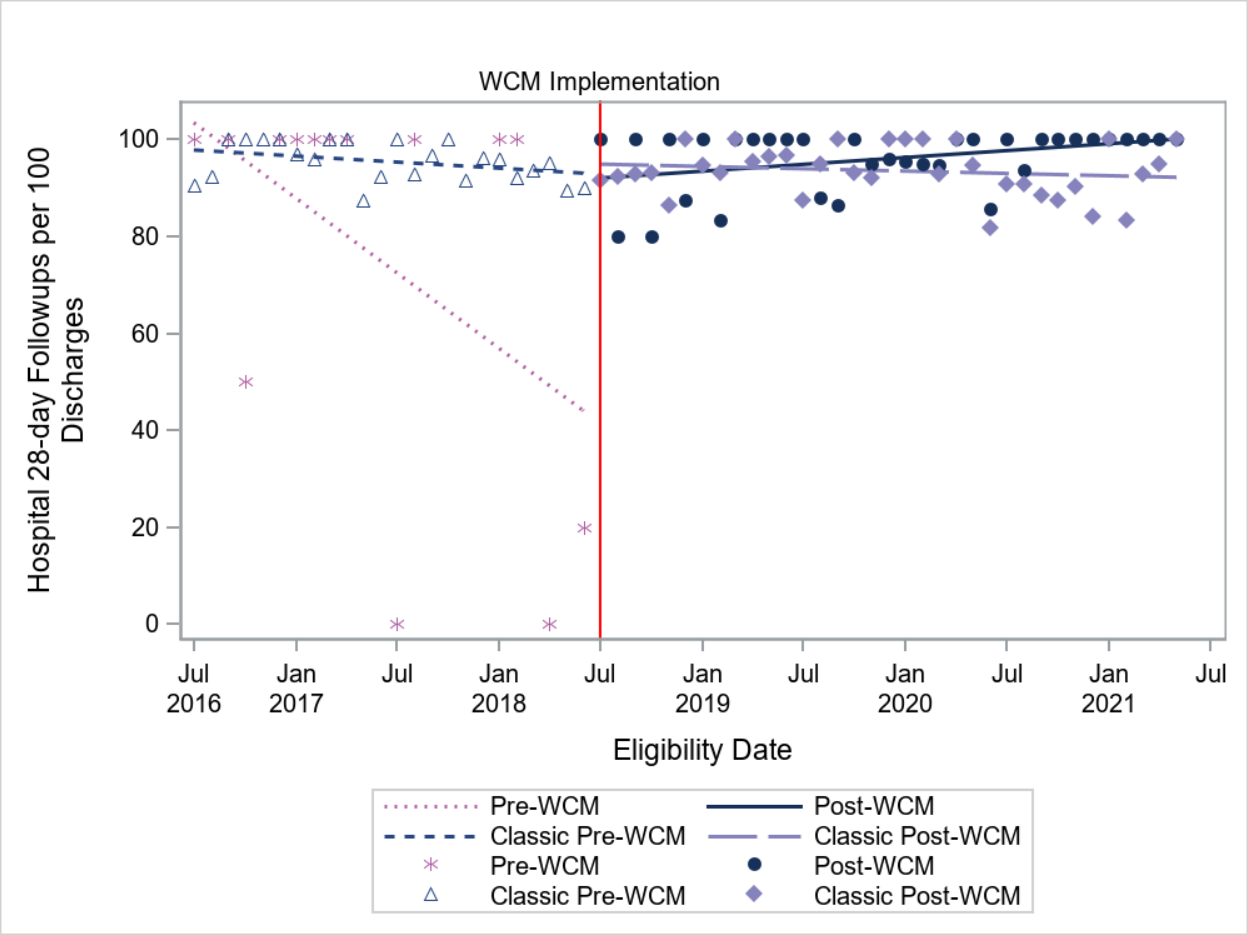
Table 231 provides comparisons of hospital outpatient follow-up visits from the pre- to post-WCM implementation periods for the HPSM WCM and Classic CCS comparison groups separately. For the HPSM WCM group, the odds of a hospital outpatient follow-up visit during the post-period were 11.3 times greater than during the pre-period ($p < .001$). In the Classic CCS comparison group, the odds of a hospital outpatient follow-up visit during the post-period did not differ significantly from the pre-period. Given the increase in visits in the HPSM WCM, the Difference in Differences is significant ($p < .001$).

Table 231: Hospital Outpatient Follow-Up (28-day) Visits per 100 Discharges, Comparing HPSM WCM in Pre- versus Post-Period, Classic CCS Comparison Group in Pre- versus Post-Period, and DiD Analysis

	Hospital 28-Day Follow-Ups per 100 Discharges		Adjusted Odds Ratios*	
Group	Pre-WCM Implementation	Post-WCM Implementation	(95% CI) Post- vs. Pre-Period	*P*-value
HPSM WCM Group	67	96	11.34 (3.50, 36.72)	<.001
Classic CCS Comparison Group	95	93	0.75 0.46, 1.23)	.258
Difference in Differences			15.12 (4.21, 54.33)	<.001

*Adjusted for CDPS and disability.

Figure 75: Hospital Outpatient Follow-Up (28-day) Visits per 100 Discharges, with Trend Line Over Time for HPSM WCM and Classic CCS Comparison Groups in Pre- versus Post-Period



Trend Statement for Hospital Outpatient Follow-Up (28-day) Visits in HPSM WCM: In the pre-WCM period, the slopes of the HPSM WCM and Classic CCS comparison groups are not statistically different, and thus the parallel slopes assumption of the DiD model is satisfied (see Appendix I).

HPSM WCM Independent Variable Associations to Hospital Outpatient Follow-Up (28-day) Visits: Regression analysis shows that having higher illness severity is significantly associated with having higher hospital outpatient follow-up visits (see regression table in Appendix I).

Hospital outpatient follow-up (28-day) visits per 100 discharges, comparing Phase I to Classic CCS comparison group in pre- versus post-period

Table 232 provides comparisons of hospital outpatient follow-up visits between the Phase I and Classic CCS comparison groups during the pre- and post-WCM implementation periods separately. During the pre-period, the odds of a hospital outpatient follow-up visit did not differ significantly between the Phase I and Classic CCS comparison groups. During the post-period, the odds of a hospital outpatient follow-up visit for the Phase I group were about 1.61 times greater than for the Classic CCS comparison group ($p < .001$).

Table 232: Hospital Outpatient Follow-Up (28-day) Visits per 100 Discharges, Comparing Phase I to the Classic CCS Comparison Group in Pre- versus Post-Period

	Hospital 28-Day Follow-Ups per 100 Discharges		Adjusted Odds Ratios*	
Period	Phase I Group	Classic CCS Comparison Group	(95% CI) Phase I Group vs. Classic	*P*-value
Pre-WCM Implementation	92	93	0.94 (0.80, 1.11)	.492
Post-WCM Implementation	96	93	1.61 (1.28, 2.02)	<.001

*Adjusted for CDPS, race, language, disability, season, and age.

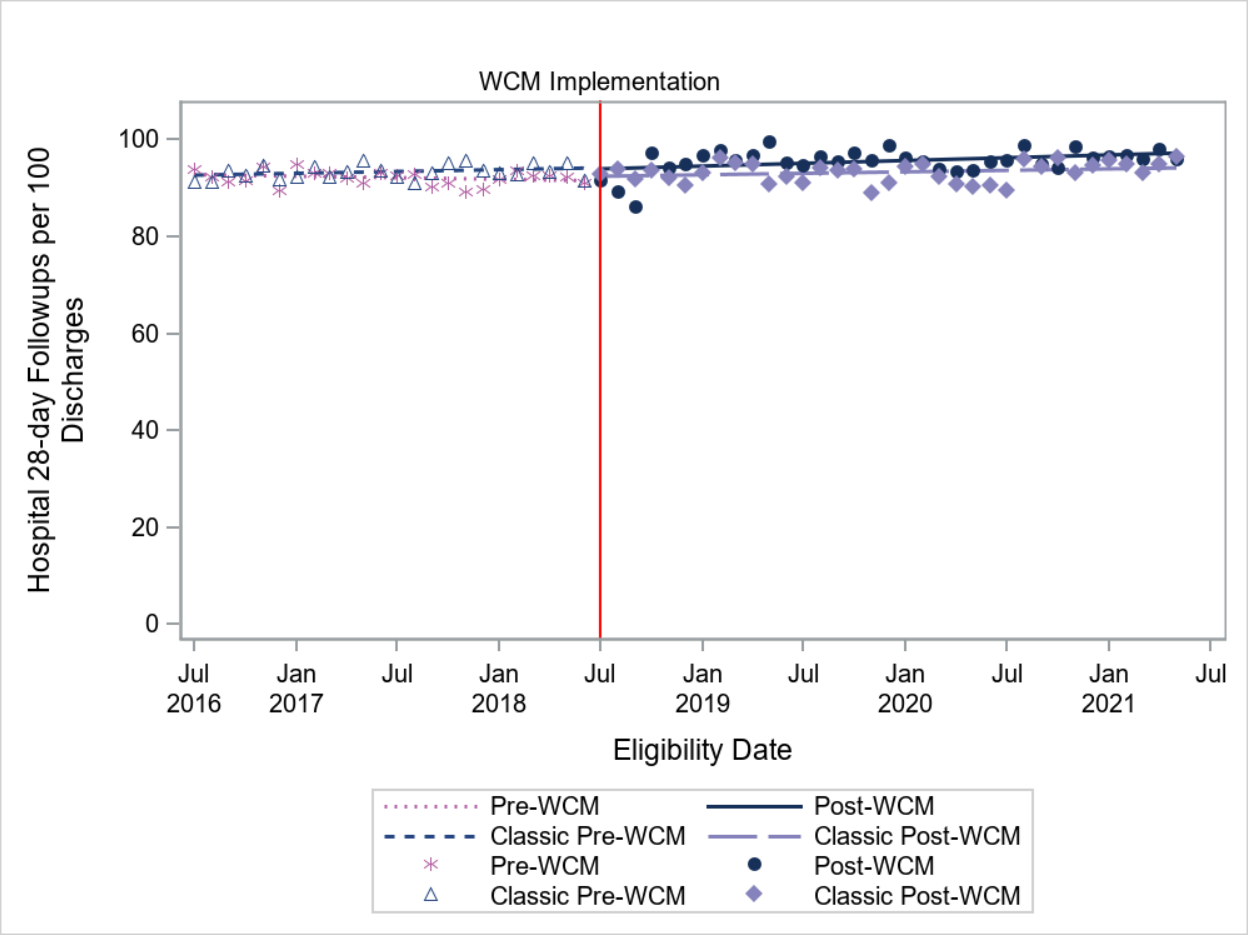
Table 233 provides comparisons of hospital outpatient follow-up visits from the pre- to post-WCM implementation periods for the Phase I and Classic CCS comparison groups separately. For the Phase I group, the odds of a hospital outpatient follow-up visit during the post-period were 1.79 times greater than during the pre-period ($p < .001$). In the Classic CCS comparison group, the odds of a hospital outpatient follow-up visit during the post-period did not differ significantly from the pre-period. Due to a greater increase in the Phase I group, the Difference in Differences is significant ($p < .001$).

Table 233: Hospital Outpatient Follow-Up (28-day) Visits per 100 Discharges, Comparing Phase I in Pre- versus Post-Period, Classic CCS Comparison Group in Pre- versus Post-Period, and DiD Analysis

	Hospital 28-Day Follow-Ups per 100 Discharges		Adjusted Odds Ratios*	
Group	Pre-WCM Implementation	Post-WCM Implementation	(95% CI) Post- vs. Pre-Period	*P*-value
Phase I Group	92	96	1.79 (1.43, 2.23)	<.001
Classic CCS Comparison Group	93	93	1.05 (0.89, 1.23)	.582
Difference in Differences			1.71 (1.30, 2.25)	<.001

*Adjusted for CDPS, race, language, disability, season, and age.

Figure 76: Hospital Outpatient Follow-Up (28-day) Visits per 100 Discharges, with Trend Line Over Time for Phase I and Classic CCS Comparison Groups in Pre- versus Post-Period



Trend Statement for Hospital Outpatient Follow-Up (28-day) Visits in Phase I: In the pre-WCM period, the slopes of the Phase I and Classic CCS comparison groups are statistically different (p = .0164), and thus the parallel slopes assumption of the DiD model is not satisfied (see Appendix I). As such, the pre-to-post differences may be due to underlying trends and not the result of the WCM implementation. Results should be interpreted with caution.

Phase I Independent Variable Associations to Hospital Outpatient Follow-Up (28-day) Visits: Regression analysis shows that having a disability, having higher illness severity, being Latinx and "other/unknown" race as compared to White, speaking Spanish as compared to English, being age 1–20 years as compared to less than 12 months, or winter season as compared to summer is significantly associated with having higher hospital outpatient follow-up visits (see regression table in Appendix I).

Hospital outpatient follow-up (28-day) visits per 100 discharges, comparing Phase II to Classic CCS comparison group in pre- versus post-period

Table 234 provides comparisons of hospital outpatient follow-up visits between the Phase II and Classic CCS comparison groups during the pre- and post-WCM implementation periods separately. During the pre-period, the odds of a hospital outpatient follow-up visit did not differ significantly between the Phase II and Classic CCS comparison groups. During the post-period, the odds of a hospital outpatient follow-up visit for the Phase II group were 1.81 times greater than for the Classic CCS comparison group ($p < .001$).

Table 234: Hospital Outpatient Follow-Up (28-day) Visits per 100 Discharges, Comparing Phase II to the Classic CCS Comparison Group in Pre- versus Post-Period

	Hospital 28-Day Follow-Ups per 100 Discharges		Adjusted Odds Ratios*	
Period	Phase II Group	Classic CCS Comparison Group	(95% CI) Phase II Group vs. Classic	*P*-value
Pre-WCM Implementation	94	93	1.10 (0.92, 1.31)	.313
Post-WCM Implementation	96	93	1.81 (1.39, 2.35)	<.001

*Adjusted for CDPS, race, language, and disability.

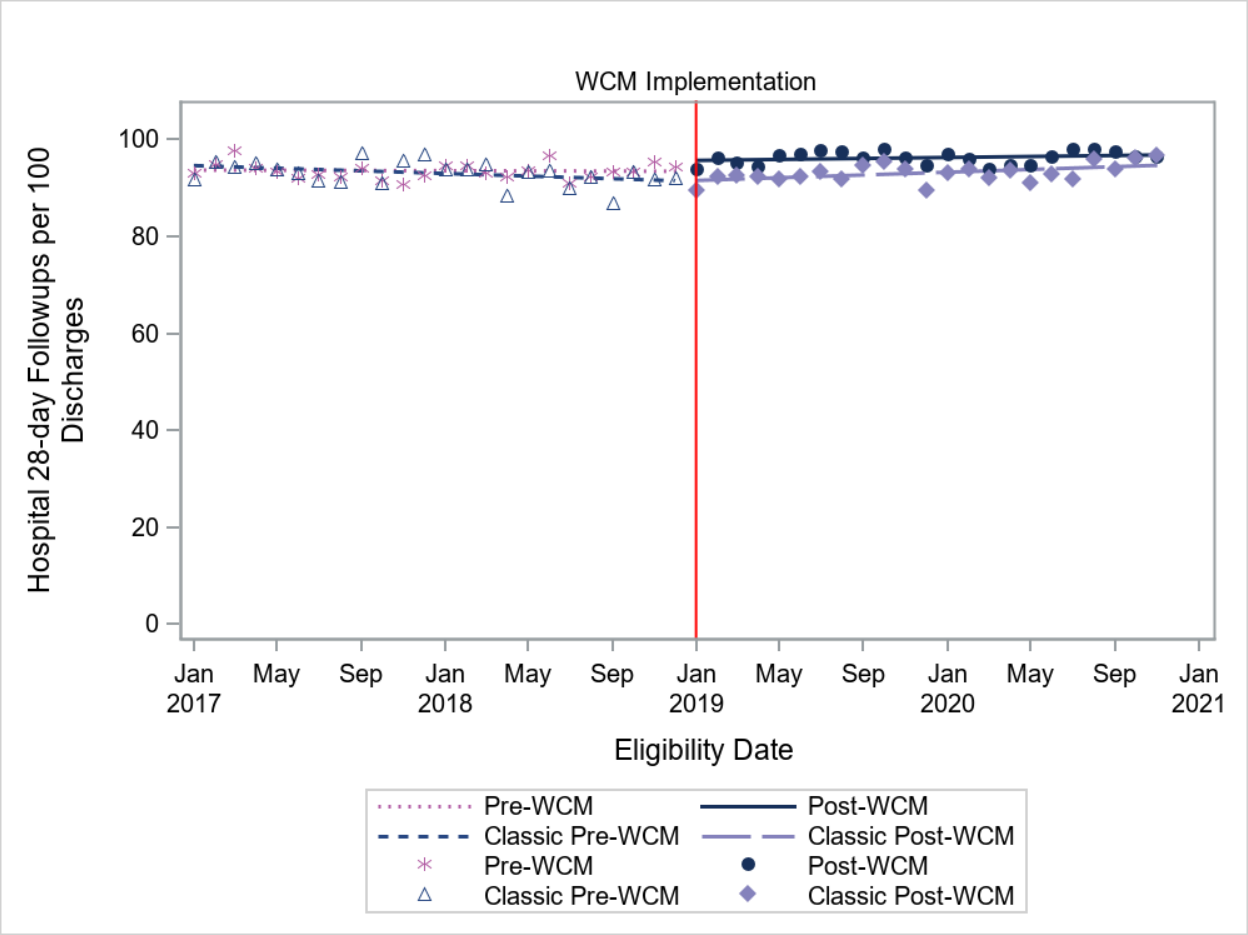
Table 235 provides comparisons of hospital outpatient follow-up visits from the pre- to post-WCM implementation periods for the Phase II and Classic CCS comparison groups separately. For the Phase II group, the odds of a hospital outpatient follow-up visit during the post-period were 1.80 times greater than during the pre-period ($p < .001$). In the Classic CCS comparison group, the odds of a hospital outpatient follow-up visit during the post-period did not differ significantly from the pre-period. Given an increase in the Phase II group, the Difference in Differences is significant ($p < .001$).

Table 235: Hospital Outpatient Follow-Up (28-day) Visits per 100 Discharges, Comparing Phase II in Pre- versus Post-Period, Classic CCS Comparison Group in Pre- versus Post-Period, and DiD Analysis

	Hospital 28-Day Follow-Ups per 100 Discharges		Adjusted Odds Ratios*	
Group	Pre-WCM Implementation	Post-WCM Implementation	(95% CI) Post- vs. Pre-Period	*P*-value
Phase II Group	94	96	1.80 (1.42, 2.30)	<.001
Classic CCS Comparison Group	93	93	1.09 (0.91, 1.31)	.323
Difference in Differences			1.65 (1.22, 2.22)	.001

*Adjusted for CDPS, race, language, and disability.

Figure 77: Hospital Outpatient Follow-Up (28-day) Visits per 100 Discharges, with Trend Line Over Time for Phase II and Classic CCS Comparison Groups in Pre- versus Post-Period



Trend Statement for Hospital Outpatient Follow-Up (28-day) Visits in Phase II: In the pre-WCM period, the slopes of the Phase II and Classic CCS comparison groups are not statistically different, and thus the parallel slopes assumption of the DiD model is satisfied (see Appendix I).

Phase II Independent Variable Associations to Hospital Outpatient Follow-Up (28-day) Visits: Regression analysis shows that having a disability, having higher illness severity, or speaking Spanish as compared to English is significantly associated with having higher hospital outpatient follow-up visits (see regression table in Appendix I).

Hospital outpatient follow-up (28-day) visits per 100 discharges, comparing Phase III to Classic CCS comparison group in pre- versus post-period

Table 236 provides comparisons of hospital outpatient follow-up visits between the Phase III and Classic CCS comparison groups during the pre- and post-WCM implementation periods separately. During the pre-period, the odds of a hospital outpatient follow-up visit were 1.69 times greater for the Phase III group compared to the Classic CCS comparison group ($p < .001$). Likewise, during the post-period, the odds of a hospital outpatient follow-up visit were 1.62 times greater for the Phase III group compared to the Classic CCS comparison group ($p < .001$).

Table 236: Hospital Outpatient Follow-Up (28-day) Visits per 100 Discharges, Comparing Phase III to the Classic CCS Comparison Group in Pre- versus Post-Period

	Hospital 28-Day Follow-Ups per 100 Discharges		Adjusted Odds Ratios*	
Period	Phase III Group	Classic CCS Comparison Group	(95% CI) Phase III Group vs. Classic	*P*-value
Pre-WCM Implementation	93	91	1.69 (1.39, 2.05)	<.001
Post-WCM Implementation	95	93	1.62 (1.29, 2.03)	<.001

*Adjusted for CDPS, race, language, disability, season, and age.

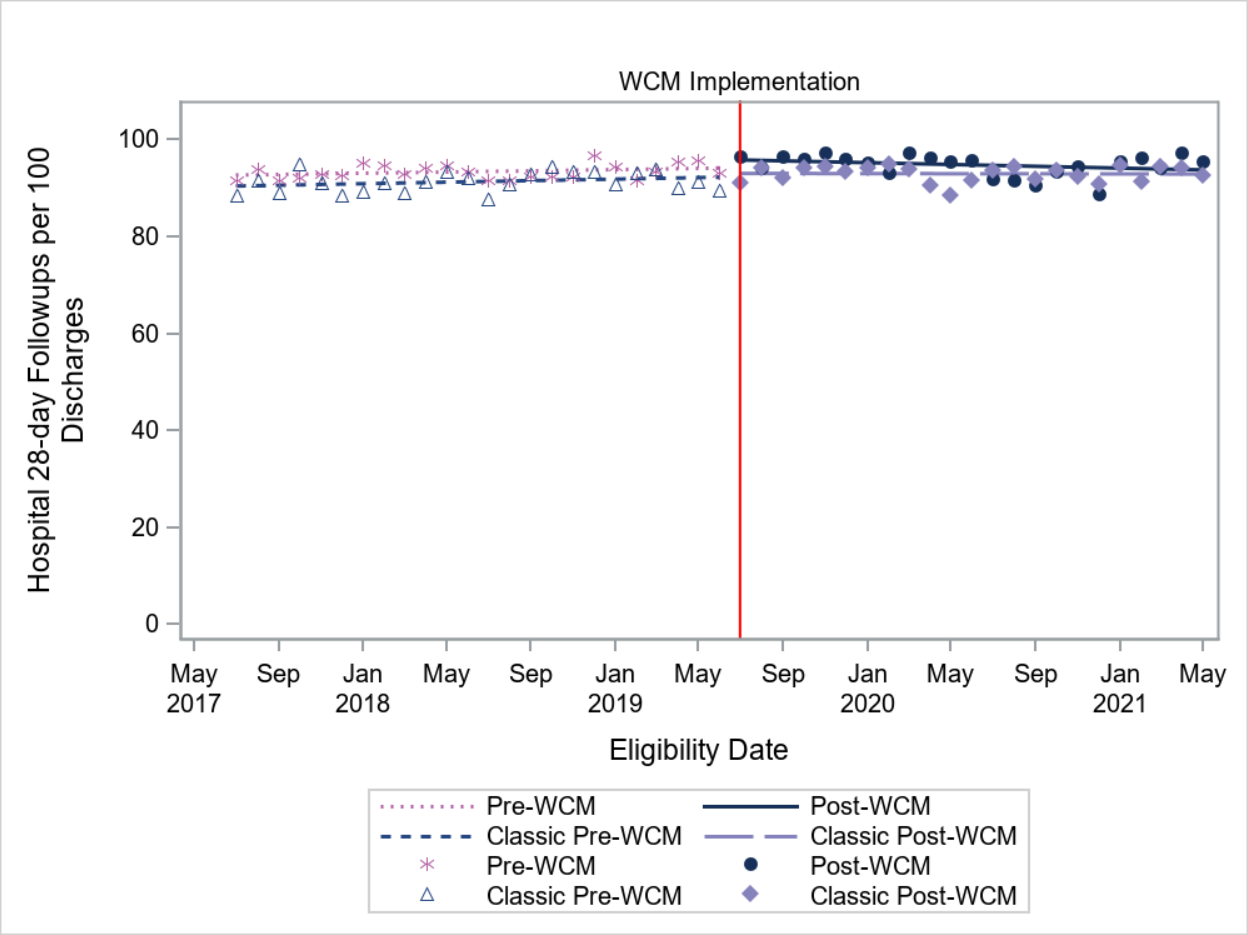
Table 237 provides comparisons of hospital outpatient follow-up visits from the pre- to post-WCM implementation periods for the Phase III and Classic CCS comparison groups separately. For the Phase III group, the odds of a hospital outpatient follow-up visit during the post-period did not differ significantly from the pre-period. For the Classic CCS comparison group, the odds of a hospital outpatient follow-up visit during the post-period were 1.25 times greater than during the pre-period ($p = .002$). The Difference in Differences is not significant.

Table 237: Hospital Outpatient Follow-Up (28-day) Visits per 100 Discharges, Comparing Phase III in Pre- versus Post-Period, Classic CCS Comparison Group in Pre- versus Post-Period, and DiD Analysis

	Hospital 28-Day Follow-Ups per 100 Discharges		Adjusted Odds Ratios*	
Group	Pre-WCM Implementation	Post-WCM Implementation	(95% CI) Post- vs. Pre-Period	*P*-value
Phase III Group	93	95	1.20 (0.94, 1.53)	.138
Classic CCS Comparison Group	91	93	1.25 (1.08, 1.45)	.002
Difference in Differences			0.96 (0.72, 1.27)	.762

*Adjusted for CDPS, race, language, disability, season, and age.

Figure 78: Hospital Outpatient Follow-Up (28-day) Visits per 100 Discharges, with Trend Line Over Time for Phase III and Classic CCS Comparison Groups in Pre- versus Post-Period



Trend Statement for Hospital Outpatient Follow-Up (28-day) Visits per 100 Discharges in Phase III: In the pre-WCM period, the slopes of the Phase III and Classic CCS comparison groups are not statistically different, and thus the parallel slopes assumption of the DiD model is satisfied (see Appendix I).

Phase III Independent Variable Associations to Hospital Outpatient Follow-Up (28-day) Visits: Regression analysis shows that having a disability, having higher illness severity, being Latinx as compared to White race, speaking any language as compared to English, or being age 1–20 years as compared to less than 12 months is significantly associated with having higher hospital outpatient follow-up visits (see regression table in Appendix I).

Overall summary of hospital outpatient follow-up (28-day) visits per 100 discharges results for HPSM WCM and Phase I–Phase III

Results varied by study group, and the absolute proportion of having follow-up after hospital discharge was at least 93% in all study groups. In the HPSM WCM study group, the HPSM WCM group had a statistically significant increase in follow-up visits compared to the Classic CCS comparison group post-WCM implementation. Both Phase I and Phase II groups had increases in follow-up visits in comparison to their respective Classic CCS. The follow-up visit rates in Phase III were not different from Classic CCS comparison group post-implementation.

Hospital length of stay results

Average hospital length of stay, comparing HPSM WCM to Classic CCS comparison group in pre- versus post-period

Table 238 provides comparisons of average hospital length of stay between the HPSM WCM and Classic CCS comparison groups during the pre- and post-WCM implementation periods separately. During the pre-period, the average hospital length of stay did not differ significantly between the HPSM WCM and Classic CCS comparison groups (p = .26). Likewise, during the post-period, the average hospital length of stay did not differ significantly between the HPSM WCM and Classic CCS comparison groups (p = .35).

Table 238: Average Hospital Length of Stay, Comparing HPSM WCM to the Classic CCS Comparison Group in Pre- versus Post-Period

	Average Length of Stay (days)		Adjusted Incidence Rate Ratio *	
Period	HPSM WCM Group	Classic CCS Comparison Group	(95% CI) HPSM WCM vs. Classic CCS	*P*-value
Pre-WCM Implementation	13.0	8.7	0.83 (0.60, 1.14)	.257
Post-WCM Implementation	11.1	9.7	1.11 (0.90, 1.36)	.347

*Adjusted for CDPS, race, language, and age.

Table 239 provides comparisons of average hospital length of stay from the pre- to post-WCM implementation periods for the HPSM WCM and Classic CCS comparison groups separately. For the HPSM WCM group, the average hospital length of stay during the post-period was significantly shorter than during the pre-period (p = .047). In the Classic CCS

comparison group, the average hospital length of stay during the post-period did not differ significantly from the pre-period (p = .57). The Difference in Differences is not significant (p = .14).

Table 239: Average Hospital Length of Stay, Comparing HPSM WCM to Classic CCS Comparison Group in Pre- versus Post-Period, Classic CCS Comparison Group in Pre- versus Post-Period, and DiD Analysis

	Average Length of Stay (days)		Adjusted Incidence Rate Ratio *	
Group	Pre-WCM Implementation	Post-WCM Implementation	(95% CI) Post- vs. Pre-Period	*P*-value
HPSM WCM Group	13.0	11.1	1.40 (1.00, 1.95)	.047
Classic CCS Comparison Group	8.7	9.7	1.05 (0.88, 1.26)	.571
Difference in Differences			1.33 (0.91, 1.93)	.137

*Adjusted for CDPS, race, language, and age.

HPSM WCM Independent Variable Associations to Higher Hospital Length of Stay: Regression analysis shows that having lower illness severity, speaking Spanish as compared to English, or being age one year or older as compared to less than 12 months is significantly associated with having lower hospital length of stay (see regression table in Appendix I).

Average hospital length of stay, comparing Phase I to Classic CCS comparison group in pre- versus post-period

Table 240 provides comparisons of average hospital length of stay between the Phase I and Classic CCS comparison groups during the pre- and post-WCM implementation periods separately. During the pre-period, the average hospital length of stay did not differ significantly between the Phase I and Classic CCS comparison groups (p = .37). Likewise, during the post-period, the average hospital length of stay did not differ significantly between the Phase I and Classic CCS comparison groups (p = .65).

Table 240: Average Hospital Length of Stay, Comparing Phase I to Classic CCS Comparison Group in Pre- versus Post-Period

	Average Length of Stay (days)		Adjusted Incidence Rate Ratio *	
Period	Phase I Group	Classic CCS Comparison Group	(95% CI) Phase I vs. Classic CCS	*P*-value
Pre-WCM Implementation	9.7	8.6	1.03 (0.97, 1.09)	.373
Post-WCM Implementation	7.3	7.8	1.02 (0.95, 1.09)	.645

*Adjusted for CDPS, disability, race, language, and age.

Table 241 provides comparisons of average hospital length of stay from the pre- to post-WCM implementation periods for the Phase I and Classic CCS comparison groups separately. For the Phase I group, the average hospital length of stay during the post-period did not differ significantly from the pre-period (p = .23). Likewise, in the Classic CCS comparison group, the average hospital length of stay during the post-period did not differ significantly from the pre-period (p = .32). The Difference in Differences is not significant (p = .81).

Table 241: Average Hospital Length of Stay, Comparing Phase I to Classic CCS Comparison Group in Pre- versus Post-Period, Classic CCS Comparison Group in Pre- versus Post-Period, and DiD Analysis

	Average Length of Stay (days)		Adjusted Incidence Rate Ratio *	
Group	Pre-WCM Implementation	Post-WCM Implementation	(95% CI) Post- vs. Pre-Period	*P*-value
Phase I Group	9.7	7.3	0.96 (0.90, 1.02)	.227
Classic CCS Comparison Group	8.6	7.8	0.97 (0.92, 1.03)	.324
Difference in Differences			0.99 (0.91, 1.08)	.809

*Adjusted for CDPS, disability, race, language, and age.

Phase I Independent Variable Associations to Higher Hospital Length of Stay: Regression analysis shows that having lower illness severity, having a disability, or being age one year or older as compared to less than 12 months is significantly associated with having lower hospital length of stay (see regression table in Appendix I).

Average hospital length of stay, comparing Phase II to Classic CCS comparison group in pre- versus post-period

Table 242 provides comparisons of average hospital length of stay between the Phase II and Classic CCS comparison groups during the pre- and post-WCM implementation periods separately. During the pre-period, the average hospital length of stay for the Phase II group was about 5% shorter than for the Classic CCS comparison group (p = .048). Likewise, during the post-period, the average hospital length of stay for the Phase II group was about 10% shorter than for the Classic CCS comparison group (p = .003).

Table 242: Average Hospital Length of Stay, Comparing Phase II to the Classic CCS Comparison Group in Pre- versus Post-Period

	Average Length of Stay (days)		Adjusted Incidence Rate Ratio *	
Period	Phase II Group	Classic CCS Comparison Group	(95% CI) Phase II vs. Classic CCS	*P*-value
Pre-WCM Implementation	7.4	8.0	0.93 (0.87, 1.00)	.048
Post-WCM Implementation	6.2	7.9	0.89 (0.83, 0.96)	.003

*Adjusted for CDPS, disability, race, language, and age.

Table 243 provides comparisons of average hospital length of stay from the pre- to post-WCM implementation periods for the Phase II and Classic CCS comparison groups separately. In the Phase II group, the average hospital length of stay during the post-period was significantly shorter as compared to the pre-period (p = .05). In the Classic CCS comparison group, the average hospital length of stay during the post-period did not differ significantly from the pre-period (p = .62). The Difference in Differences is not significant (p = .34).

Table 243: Average Hospital Length of Stay, Comparing Phase II to Classic CCS Comparison Group in Pre- versus Post-Period, Classic CCS Comparison Group in Pre- versus Post-Period, and DiD Analysis

	Average Length of Stay (days)		Adjusted Incidence Rate Ratio *	
Group	Pre-WCM Implementation	Post-WCM Implementation	(95% CI) Post- vs. Pre-Period	*P*-value
Phase II Group	7.4	6.2	0.94 (0.88, 1.00)	.050
Classic CCS Comparison Group	8.0	7.9	0.98 (0.92, 1.05)	.616
Difference in Differences			0.96 (0.87, 1.05)	.338

*Adjusted for CDPS, disability, race, language, and age.

Phase II Independent Variable Associations to Higher Hospital Length of Stay: Regression analysis shows that having higher illness severity, being "other/unknown" race as compared to White, or not having a disability is significantly associated with having higher hospital length of stay, while being age one year or older as compared to less than 12 months is significantly associated with having lower hospital length of stay (see regression table in Appendix I).

Average hospital length of stay, comparing Phase III to Classic CCS comparison group in pre- versus post-period

Table 244 provides comparisons of average hospital length of stay between the Phase III and Classic CCS comparison groups during the pre- and post-WCM implementation periods separately. During the pre-period, the average hospital length of stay did not differ significantly between the Phase III and Classic CCS comparison groups ($p = .80$). During the post-period, the average hospital length of stay for the Phase III group was significantly shorter than for the Classic CCS comparison group ($p < .001$).

Table 244: Average Hospital Length of Stay, Comparing Phase III to the Classic CCS Comparison Group in Pre- versus Post-Period

	Average Length of Stay (days)		Adjusted Incidence Rate Ratio *	
Period	Phase III Group	Classic CCS Comparison Group	(95% CI) Phase III vs. Classic CCS	*P*-value
Pre-WCM Implementation	7.6	7.5	1.01 (0.94, 1.09)	.802
Post-WCM Implementation	6.2	7.5	0.83 (0.77, 0.90)	<.001

*Adjusted for disability, race, and language.

Table 245 provides comparisons of average hospital length of stay from the pre- to post-WCM implementation periods for the Phase III and Classic CCS comparison groups separately. For the Phase III group, the average hospital length of stay during the post-period was significantly shorter than during the pre-period ($p < .001$). In the Classic CCS comparison group, the average hospital length of stay during the post-period did not differ significantly from the pre-period ($p = .93$). Given a decrease in average hospital length of stay for the Phase III group, the Difference in Differences is significant ($p < .001$).

Table 245: Average Hospital Length of Stay, Comparing Phase III in Pre- versus Post-Period, Classic CCS Comparison Group in Pre- versus Post-Period, and DiD Analysis

	Average Length of Stay (days)		Adjusted Incidence Rate Ratio *	
Group	Pre-WCM Implementation	Post-WCM Implementation	(95% CI) Post- vs. Pre-Period	*P*-value
Phase III Group	7.6	6.2	0.82 (0.77, 0.88)	<.001
Classic CCS Comparison Group	7.5	7.5	1.00 (0.92, 1.08)	.933
Difference in Differences			0.83 (0.74, 0.92)	<.001

*Adjusted for disability, race, and language.

Phase III Independent Variable Associations to Higher Hospital Length of Stay: Regression analysis shows that not having a disability or being Black or "other/unknown" race as compared to White is significantly associated with having higher hospital length of stay, while speaking "other" language as compared to English is significantly associated with having lower hospital length of stay (see regression table in Appendix I).

Overall summary of average hospital length of stay results for HPSM WCM and Phase I–Phase III

Three of the four study groups had similar patterns of results. In the HPSM WCM, Phase II, and Phase III groups, average hospital length of stay was significantly shorter during the post-period. Only the Phase III group had a significant decrease as compared to Classic CCS.

Hospital readmissions (all-cause 30-day) per 100 discharges results

Hospital readmissions per 100 discharges, comparing HPSM WCM to Classic CCS comparison group in pre- versus post-period

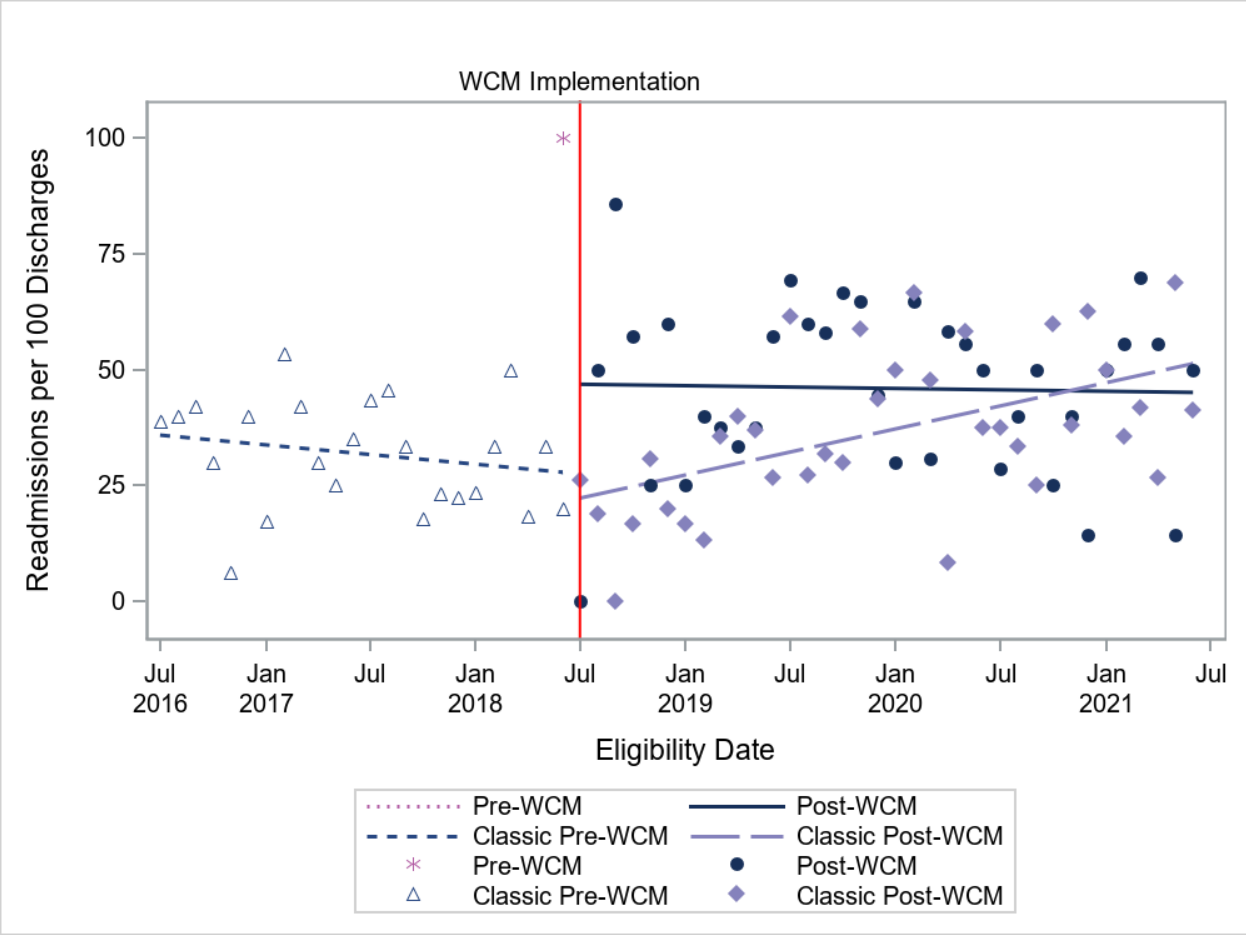
In the pre-period for hospital readmission there were insufficient observations visits to generate stable estimates for the DiD analysis or regression model (Table 246). Instead, the UCSF evaluation team reports the proportion of readmissions. In the HPSM WCM, in the pre-period, 100% ($n = 4$) of the hospital discharges resulted in readmissions, while in the post-

period, 49% of hospitalizations resulted in readmissions. In the Classic CCS comparison group, 32% of hospitalization in the pre-period resulted in readmissions, and during the post-period, 37% of hospitalizations resulted in readmissions.

Table 246: Proportion with Hospital Readmissions per 100 Discharges for the HPSM WCM and Classic CCS Comparison Groups in Pre- versus Post-Period

			Readmissions	
Group	Study Group	Discharges	Events	Per 100 Discharges
HPSM WCM Group	Pre-WCM	4	4	100.0
	Post-WCM	353	172	48.7
Classic CCS Comparison Group	Classic Pre-WCM	430	137	31.9
	Classic Post-WCM	569	212	37.3

Figure 79: Proportions with Hospital Readmissions per 100 Discharges Over Time for HPSM WCM and Classic CCS Comparison Groups in Pre- versus Post-Period



Hospital readmissions per 100 discharges, comparing Phase I to Classic CCS comparison group in pre- versus post-period

Table 247 provides comparisons of hospital readmissions between the Phase I and Classic CCS comparison groups during the pre- and post-WCM implementation periods separately. During the pre-period, the odds of a hospital readmission were about 15% lower in the Phase I group compared to the Classic CCS comparison group (p = .01). During

the post-period, the odds of a hospital readmission for the Phase I group did not differ from those for the Classic CCS comparison group (p = .11).

Table 247: Hospital Readmissions per 100 Discharges, Comparing Phase I to the Classic CCS Comparison Group in Pre- versus Post-Period

	Readmissions per 100 Discharges		Adjusted Odds Ratios*	
Period	Phase I Group	Classic CCS Comparison Group	(95% CI) Phase I Group vs. Classic	*P*-value
Pre-WCM Implementation	36	39	0.87 (0.79, 0.96)	.005
Post-WCM Implementation	38	38	0.93 (0.85, 1.02)	.112

*Adjusted for CDPS, race, language, disability, gender, and age.

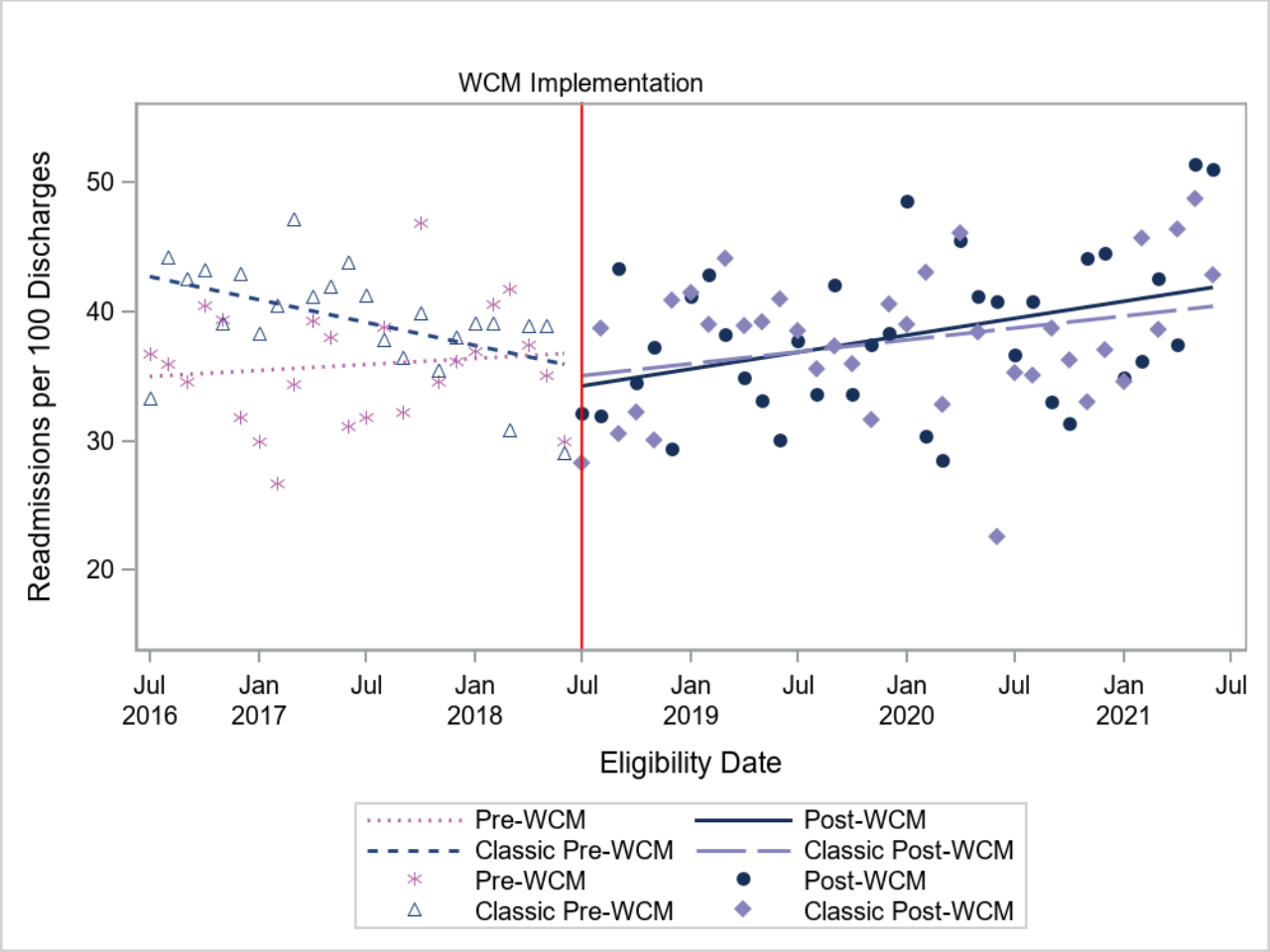
Table 248 provides comparisons of hospital readmissions from the pre- to post-WCM implementation periods for the Phase I and Classic CCS comparison groups separately. For the Phase I group, the odds of a hospital readmission during the post-period did not differ significantly from the pre-period (p = .76). In the Classic CCS comparison group, the odds of a hospital readmission during the post-period did not differ significantly from the pre-period (p = .26). The Difference in Differences is not significant (p = .32).

Table 248: Hospital Readmissions per 100 Discharges, Comparing Phase I in Pre- versus Post-Period, Classic CCS Comparison Group in Pre- versus Post-Period, and DiD Analysis

	Readmissions per 100 Discharges		Adjusted Odds Ratios*	
Group	Pre-WCM Implementation	Post-WCM Implementation	(95% CI) Post- vs. Pre-Period	*P*-value
Phase I Group	36	38	1.02 (0.92, 1.12)	.763
Classic CCS Comparison Group	39	38	0.95 (0.87, 1.04)	.258
Difference in Differences			1.07 (0.94, 1.22)	.322

*Adjusted for CDPS, race, language, disability, gender, and age.

Figure 80: Hospital Readmissions per 100 Discharges, with Trend Line Over Time for Phase I and Classic CCS Comparison Groups in Pre- versus Post-Period



Trend Statement for Hospital Readmissions in Phase I: In the pre-WCM period, the slopes of the Phase I and Classic CCS comparison groups are not statistically different (p = .065), and thus the parallel slopes assumption of the DiD model is satisfied (see Appendix I).

Phase I Independent Variable Associations to Hospital Readmissions: Regression analysis shows that not having a disability, being age one year as compared to less than 12 months, or being female is significantly associated with having lower readmissions, while having higher illness severity, speaking Spanish as compared to English, or being age 2–20 years as compared to less than 12 months is significantly associated with having higher readmissions (see regression table in Appendix I).

Hospital readmissions per 100 discharges, comparing Phase II to Classic CCS comparison group in pre- versus post-period

Table 249 provides comparisons of hospital readmissions between the Phase II and Classic CCS comparison groups during the pre- and post-WCM implementation periods separately. During the pre-period, the odds of a hospital readmission did not differ significantly between the Phase II and Classic CCS comparison groups (p = .78). Likewise, during the post-period, the odds of a hospital readmission did not differ significantly between the Phase II and Classic CCS comparison groups (p = .07).

Table 249: Hospital Readmissions per 100 Discharges, Comparing Phase II to the Classic CCS Comparison Group in Pre- versus Post-Period

	Readmissions per 100 Discharges		Adjusted Odds Ratios*	
Period	Phase II Group	Classic CCS Comparison Group	(95% CI) Phase I Group vs. Classic	*P*-value
Pre-WCM Implementation	34	34	0.98 (0.85, 1.13)	.782
Post-WCM Implementation	36	36	0.87 (0.76, 1.01)	.071

*Adjusted for CDPS, race, language, disability, season, gender, and age.

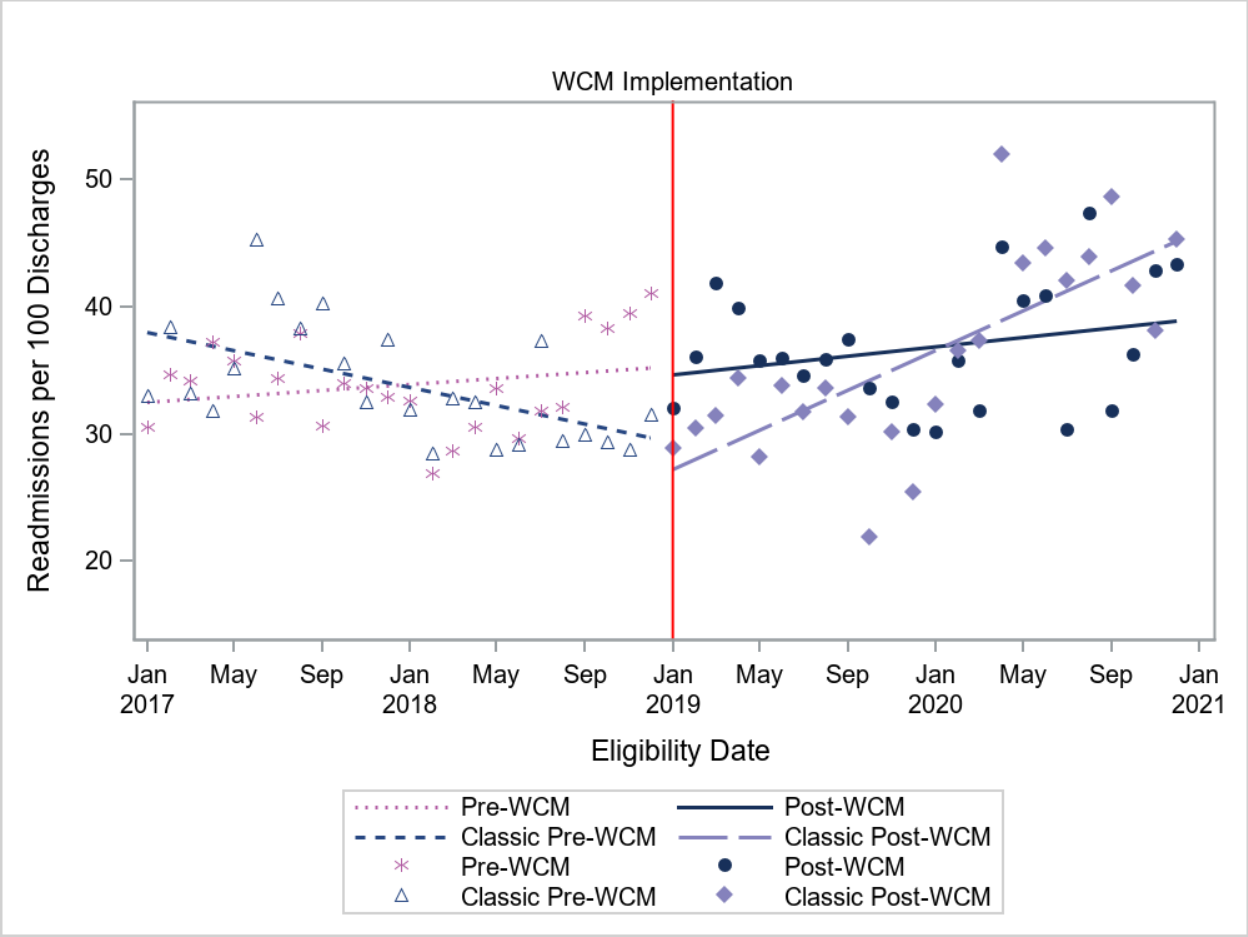
Table 250 provides comparisons of hospital readmissions from the pre- to post-WCM implementation periods for the Phase II and Classic CCS comparison groups separately. For the Phase II group, the odds of a hospital readmission during the post-period were 1.16 times greater than during the pre-period (p = .02). In the Classic CCS comparison group, the odds of a hospital readmission during the post-period were 1.30 times greater than during the pre-period (p < .001). The Difference in Differences is not significant (p = .18).

Table 250: Hospital Readmissions per 100 Discharges, Comparing Phase II in Pre- versus Post-Period, Classic CCS Comparison Group in Pre- versus Post-Period, and DiD Analysis

	Readmissions per 100 Discharges		Adjusted Odds Ratios*	
Group	Pre-WCM Implementation	Post-WCM Implementation	(95% CI) Post- vs. Pre-Period	*P*-value
Phase II Group	34	36	1.16 (1.03, 1.30)	.016
Classic CCS Comparison Group	34	36	1.30 (1.15, 1.46)	<.001
Difference in Differences			0.89 (0.75, 1.06)	.182

*Adjusted for CDPS, race, language, disability, season, gender, and age.

Figure 81: Hospital Readmissions per 100 Discharges, with Trend Line Over Time for Phase II and Classic CCS Comparison Groups in Pre- versus Post-Period



Trend Statement for Hospital Readmissions in Phase II: In the pre-WCM period, the slopes of the Phase II and Classic CCS comparison groups are not statistically different (p = .116), and thus the parallel slopes assumption of the DiD model is satisfied (see Appendix I).

Phase II Independent Variable Associations to Hospital Readmissions: Regression analysis shows that not having a disability, being age one year as compared to less than 12 months, or fall season as compared to summer is significantly associated with having lower readmissions, while having higher illness severity is significantly associated with having higher readmissions (see regression table in Appendix I).

Hospital readmissions per 100 discharges, comparing Phase III to Classic CCS comparison group in pre- versus post-period

Table 251 provides comparisons of hospital readmissions between the Phase III and Classic CCS comparison groups during the pre- and post-WCM implementation periods separately. During the pre-period, the odds of a hospital readmission were 1.20 times greater for the Phase III group compared to the Classic CCS comparison group (p = .01). During the post-period, the odds of a hospital readmission did not differ significantly between the Phase III and Classic CCS comparison groups (p = .78).

Table 251: Hospital Readmissions per 100 Discharges, Comparing Phase III to the Classic CCS Comparison Group in Pre- versus Post-Period

	Readmissions per 100 Discharges		Adjusted Odds Ratios*	
Period	Phase III Group	Classic CCS Comparison Group	(95% CI) Intervention Group vs. Classic	*P*-value
Pre-WCM Implementation	43	35	1.20 (1.04, 1.39)	.012
Post-WCM Implementation	44	37	1.02 (0.88, 1.18)	.775

*Adjusted for CDPS, race, language, and disability.

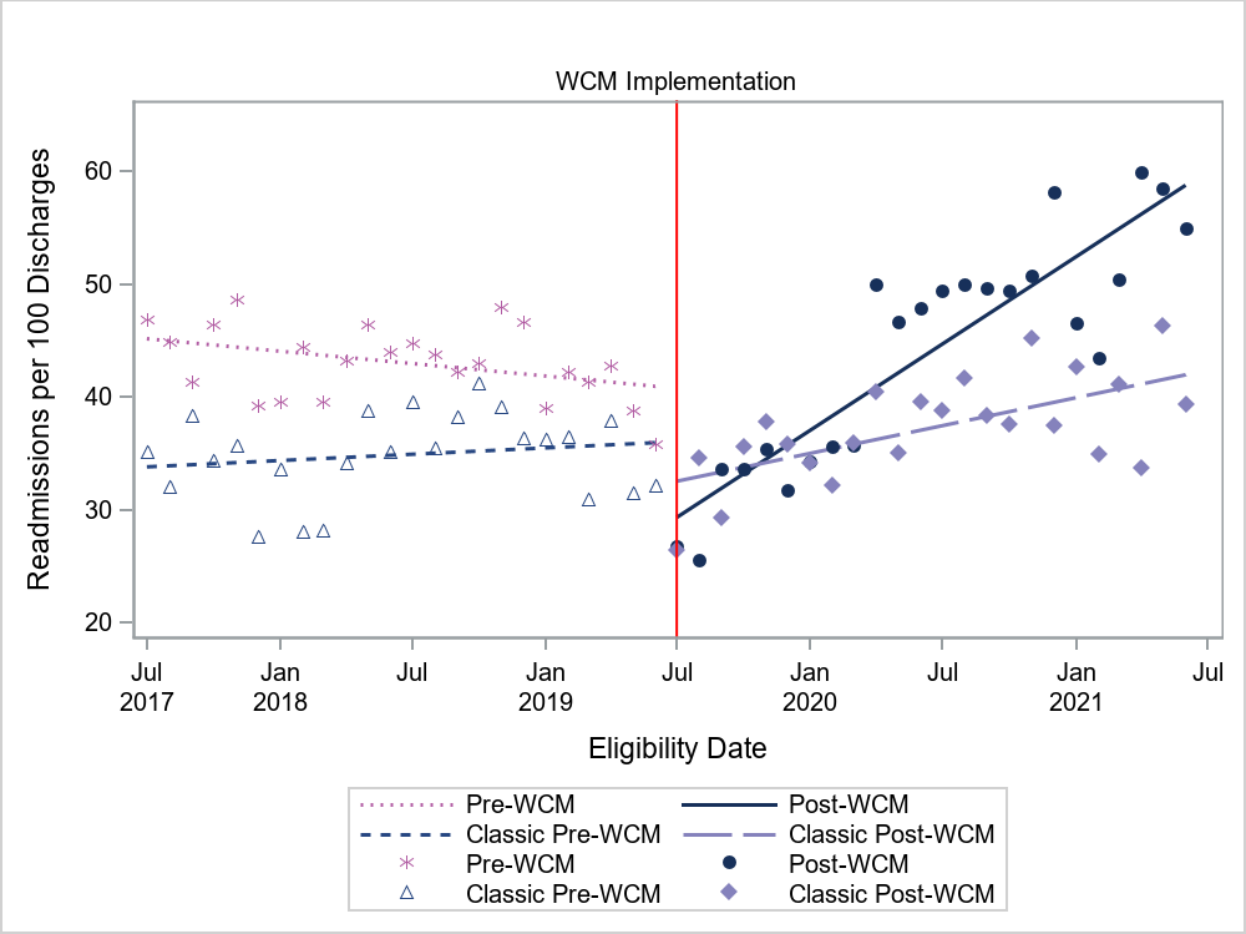
Table 252 provides comparisons of hospital readmissions from the pre- to post-WCM implementation periods for the Phase III and Classic CCS comparison groups separately. For the Phase III group, the odds of a hospital readmission during the post-period were 1.18 times greater than during the pre-period (p = .004). In the Classic CCS comparison group, the odds of a hospital readmission during the post-period were 1.39 times greater than during the pre-period (p < .001). Due to a greater increase in the Classic CCS comparison group, the Difference in Differences is significant (p = .03).

Table 252: Hospital Readmissions per 100 Discharges, Comparing Phase III in Pre- versus Post-Period, Classic CCS Comparison Group in Pre- versus Post-Period, and DiD Analysis

	Readmissions per 100 Discharges		Adjusted Odds Ratios*	
Group	Pre-WCM Implementation	Post-WCM Implementation	(95% CI) Post- vs. Pre-Period	*P*-value
Phase III Group	43	44	1.18 (1.05, 1.31)	.004
Classic CCS Comparison Group	35	37	1.39 (1.26, 1.53)	<.001
Difference in Differences			0.85 (0.73, 0.98)	.027

*Adjusted for CDPS, race, language, and disability.

Figure 82: Hospital Readmissions per 100 Discharges, with Trend Line Over Time for Phase III and Classic CCS Comparison Groups in Pre- versus Post-Period



Trend Statement for Hospital Readmissions in Phase III: In the pre-WCM period, the slopes of the Phase III and Classic CCS comparison groups are not statistically different (p = .285), and thus the parallel slopes assumption of the DiD model is satisfied (see Appendix I).

Phase III Independent Variable Associations to Hospital Readmissions: Regression analysis shows that having a disability or having higher illness severity is significantly associated with having higher readmissions (see regression table in Appendix I).

Overall summary of hospital readmissions per 100 discharges results for HPSM WCM and Phase I–Phase III

Results varied among the four study groups. For the HPSM WCM, readmissions were not evaluated for differences. In the Phase I study group, there were no significant changes in either group, and the Difference in Differences is not significant. In both the Phase II and III study groups, both the Phase II and III groups and Classic CCS comparison groups had significant increases in hospital readmissions; however, the Difference in Differences is significant only for the Phase III group.

Summary of Research Question 1: Network Adequacy, Travel to Providers, Healthcare Claims for Provider Visits, Ancillary Services, and Health Outcomes

Network adequacy

The number of pediatric specialty providers in-network increased post implementation for all study groups. The proportion of visits seen in-network remained relatively stable post-WCM implementation for all health plans (see Table 101 through Table 104). The proportion of visits seen in-network was variable and ranged from 52% to 100% depending on provider category and WCM study group. Overall, each WCM study group was able to increase the numbers of in-network pediatric providers across almost all provider groups. Exceptions to network expansion were seen with primary care providers in Phase II, and with primary care providers and CCS Paneled Providers in Phase III. The number of providers actively providing services for CCS clients increased in-network. There still remains a significant proportion of providers delivering services out of network. This may be because CCS clients were allowed to stay with their specialty care provider for at least one year post-transition to the WCM. While the network numbers appear high, lower numbers of certain specialty providers actually had claims with CCS clients. This discrepancy was most visible with Phase II providers — when comparing ratios based on listed network providers versus serving providers, nine specialties went from rates of less than 100 clients to provider to over 1,200 clients per provider. Conditions with discrepancies between listed in-network providers and serving providers are pediatric ophthalmology, pediatric dermatology, and pediatric neurodevelopmental disabilities. Longer-term monitoring would be needed to see if there is a shift to more in-network providers or if more pediatric specialists and Special Care Centers enter into the network.

DHCS uses a PCP maximum ratio of 2,000 enrollees per provider and 1,200 enrollees per physician as a network standard.[51] Based on this number, primary care provider ratios were met when using both "serving providers" and listed in-network providers. This ratio was also met across the provider groups. For individual specialties (see Appendix U), specialists that consistently had numbers of enrollees that were over 1,200 per provider across the WCM study groups were behavioral pediatrics, pediatric neurodevelopmental disabilities, pediatric dermatology, pediatric rehabilitation, pediatric ophthalmology, and pediatric sports medicine. Published in-network provider ratios tended to be better than ratios based on providers actively seeing CCS clients. Further work is needed to ensure that CCS clients being seen by specialists that show the greatest discrepancy between in-network published availability and "serving provider" ratios are having their access-to-care needs met.

Noted Limitation to Network Adequacy: The 274 (provider network identification file) was implemented January 2017. Counts in HPSM WCM and Phase I are likely artificially lower in the pre-WCM implementation period because the file started mid-pre-WCM implementation period.

Travel distance to providers

Significant decreases in travel were noted in both WCM and Classic CCS groups generally. The exception was found for travel distance to Special Care Centers, which went higher post-implementation. The shortest travel distance to providers generally was found in Phase III (~10 miles on average), while the longest travel time to providers was found in Phase I and Phase II (40–50 miles on average).

Provider visit claims

CCS Paneled Provider visits

In the HPSM WCM study group, CCS Paneled Provider visits in HPSM WCM increased compared to the Classic CCS group post-implementation. In Phase I and Phase III study groups, the Classic CCS comparison group had greater increases compared to the Phase I and Phase III groups. In Phase II, the Phase II group had greater increases in visits than its respective Classic CCS comparison group.

[51] *Medi-Cal Managed Care Health Plans Annual Network Certification Assurance of Compliance Report* (PDF), DHCS, November 2021, www.dhcs.ca.gov/formsandpubs/Documents/2021-Annual-Network-Certification-Report.pdf.

Specialist visits

Specialist visits increased in the HPSM WCM as compared to the Classic CCS post-implementation. The Phase I and Phase III group visits decreased in the post-period compared their respective Classic CCS groups. In the Phase II group, there was no significant change.

Special Care Center visits

Special Care Center visits in both HPSM WCM and Phase I increased compared to the Classic CCS group changes in visit rates post-implementation, and Difference in Differences is significant. Visits decreased in the Phase II and Phase III groups compared to their respective Classic CCS comparison groups.

Mental health visits (low/med, high severity)

Mental health visits in Phase III increased more at post-implementation as compared to the Classic CCS group. Change in mental health visit rates in HPSM, Phase I, and Phase II did not differ significantly compared to change in visit rates in their respective Classic CCS comparison groups.

Primary care visits

PCP visits increased at post-implementation in HPSM WCM and Phase I groups compared their respective Classic CCS group. In the Phase II study group, PCP visits increased in the Classic CCS comparison group compared to the Phase II group. In Phase III, there were no differences in changes.

Well-child visits (0–15 months)

Six or more well-child visits changes during post-implementation did not differ significantly between Phase I, Phase II, and Phase III groups, in comparison to their Classic CCS comparison groups.

Well-child visits (0–30 months)

Two or more well-child visits changes during post-implementation did not differ significantly in Phase II and Phase III groups compared to their Classic CCS comparison groups. Two or more visits increased significantly in Phase I compared to their Classic CCS group.

Well-child visits (3–6 years)

Annual well-child visit rates for age 3–6 years in both Phase I and Phase III were higher relative to the Classic CCS comparison group. In Phase I, this was due to an increase in visits in Phase I, while in Phase III this was due to a decrease in the Classic CCS comparison group. Phase II did not differ from Classic controls.

Well-child visits (12–20 years)

Annual well-child visit rates in both Phase I and Phase III were higher relative to controls. In Phase I, this was due to an increase in Phase I and a decrease in Classic CCS comparison visits, while in Phase III this was due to a decrease in the Classic CCS comparison group. Phase II decreased as compared to Classic comparisons post-implementation.

Ancillary services

Durable medical equipment

DME provision increases in the Phase I and Phase II and their Classic CCS comparison groups in the post-implementation period were not significantly different. DME increases in Phase III were lower at post-implementation than increases in the Classic CCS comparison group.

In-Home Supportive Services

IHSS increased in HPSM WCM, Phase II, and Phase III compared to their Classic CCS comparison groups in the post-implementation period. IHSS increases in Phase I were not different compared to increases in the Classic CCS group.

Pharmacy

Pharmacy claims in the HPSM WCM group increased in comparison to the Classic CCS comparison group during the post-implementation period. Pharmacy claims in Phase I and Phase II had no significant change in comparison to increases in their Classic CCS groups during the post-implementation period. Pharmacy claims changes did not differ between the Phase III and Classic CCS comparison groups.

Health outcomes

Emergency department visits

ED visit rates in HPSM WCM increased compared to the Classic CCS comparison group. Phase II ED visits were higher relative to controls. There were no differences in Phase I ED visits compared to the Classic CCS comparison group. In Phase II, ED visits decreased more in the Classic CCS comparison group compared to the Phase II group. Phase III decreases in ED visits did not differ between the Phase III and Classic CCS comparison groups post-implementation.

Emergency department visits with follow-up

ED visits with follow-up visit increases in HPSM WCM, Phase I, and Phase II did not increase in comparison to their Classic CCS comparison group at post-implementation. Likewise, follow-up visits did not change in the Phase III group in comparison to the Classic CCS comparison group.

Hospitalizations

Hospitalizations in HPSM WCM increased significantly in comparison to the Classic CCS group, and the Difference in Differences is significant. Hospitalization decreases in the Phase I and Phase II groups did not differ significantly from their Classic CCS comparison groups in the post-implementation period. Hospitalizations in the Phase III group decreased significantly in comparison to its Classic CCS group in the post-implementation period.

Hospitalization with outpatient follow-up

Hospitalization with follow-up visits increased in HPSM WCM, Phase I, and Phase II in comparison to their respective Classic CCS comparison groups. In Phase III, increases in follow-up visits did not differ between the Phase III and Classic CCS comparison groups at post-implementation.

Average hospital length of stay

Average hospital length of stay changes for HPSM WCM, Phase I, and Phase II groups did not differ significantly in comparisons to their respective Classic CCS groups in the post-implementation periods. Average hospital length of stay in Phase III decreased in comparison to the Classic CCS group.

Hospital readmissions

Hospital readmission increases for Phase I and Phase II did not differ significantly from their Classic CCS comparison groups. Phase III hospital readmission rates increased significantly less than that of Classic CCS, and thus Phase III had lower odds of having a readmission as compared to Classic CCS.

Impact of race/ethnicity and language on healthcare use and health outcomes

Differences in health utilization and outcomes by race and by language spoken were mixed (see regression models and Appendix H). The UCSF evaluation team would like to be clear that the impact of race and ethnicity and language on child health outcomes is very complex.[52] While the UCSF team has noted some general trends seen across the different outcomes, there is a large body of literature that describes work on health disparities encountered by children. This evaluation was not focused on evaluating why health disparities were encountered, and it is very important to note that health disparities research requires a different set of methods and evaluation. The UCSF team emphasizes that further work is needed to evaluate any racial or language differences noted in service use and the mechanisms in which to understand and address any health disparities seen.

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[52] Edith Chen, Andrew D. Martin, and Karen A. Matthews, "Understanding Health Disparities: The Role of Race and Socioeconomic Status in Children's Health," *American Journal of Public Health* 96, no. 4 (Apr. 1, 2006): 702–8, https://doi.org/10.2105/ajph.2004.048124; and K. Casey Lion, Elissa Z. Faro, and Tumaini R. Coker, "All Quality Improvement Is Health Equity Work: Designing Improvement to Reduce Disparities," *Pediatrics* 149, no. S3 (Mar. 1, 2022), https://doi.org/10.1542/peds.2020-045948e.

- Those who reported Black race experienced higher ED visit rates and hospitalizations, with lower primary care use and lower IHSS services across the WCM study groups.
- Clients from Spanish-speaking families trended toward lower hospitalizations, higher hospitalization outpatient follow-up, lower ED rate, lower IHSS services, lower pharmacy use, higher PCP and well-child visits, and lower mental health use. Specialist and CCS Paneled Provider use was mixed among Spanish speakers across the different WCM study groups.
- People who identified as Latinx trended toward higher ED use, higher well-child visits, lower CCS provider use, and lower IHSS and pharmacy use.

COVID effect on outpatient utilization

While average outpatient use was stable in the pre- and post-period, noticeable decreases were noted in ED visits and primary care visits in both WCM study groups and Classic CCS control groups during the COVID pandemic. Visits did recover over time. These visit changes are most notable on the scatter plots shown for each outpatient visit outcome. The DiD model does take into account changes experienced in both WCM and classic counties due to the pandemic, allowing the analysis to account for the effects of the pandemic.

Research Question 2: What is the impact of the WCM on patient and family satisfaction?

The results for Research Question 2 are organized as follows:

1. Qualitative parent/guardian interviews results
2. Telephone survey results

Qualitative Parent/Guardian Interview Results

The main goals of the qualitative parent/guardian interviews were to gain the perspective of families as they transitioned into the WCM and to aid in the development of the telephone survey instrument used in the randomized control trial of this evaluation. (See “Telephone Survey Results,” below.) During these interviews, parents and guardians were asked a series of questions to ascertain their satisfaction with the WCM. Their responses varied and depended on if their children received needed services and how straightforward or difficult it was for parents to navigate the process of obtaining said services. Some parents did not notice any differences pre- versus post-WCM.

Results of the qualitative parent/guardian interviews can be found in Appendix V, “Report on Qualitative Interviews with WCM Parents.” However, because the interviews were with such a small sample size (N = 35) and because one of the

primary goals of them was to inform the development of the telephone survey instrument rather than make generalizable statements about the WCM program, the UCSF evaluation team is hesitant to include the results in the body of this report. Instead, the team recommends learning about the impact of the WCM on patients' and families' satisfaction from the results of the much larger telephone survey, below.

Telephone Survey Results

The telephone survey items addressing the second research question, the impact that the WCM had on patient and family satisfaction, are the satisfaction items found in the following sections:

- Specialty care
- Therapy services
- Medical equipment and supplies
- Provider communication
- Global rating of healthcare

Specialty Care

Satisfaction with Specialty Services: The majority of respondents in all WCM study groups (88%) indicated they were "satisfied" or "very satisfied" with the specialty services they have been receiving. The differences between WCM study groups and Classic CCS were not statistically significant. See Table 253.

Table 253: Clients' Satisfaction with Specialist Services

How satisfied are you with the overall specialist services that [CHILD'S NAME] receives? (Q26)						
	HPSM	Phase I	Phase II	Phase III	Classic CCS	Total
Very dissatisfied	14	36	17	9	40	116
	6.76	6.68	5.41	4.21	5.99	5.97
Dissatisfied	3	15	7	9	9	43
	1.45	2.78	2.23	4.21	1.35	2.21
Neither satisfied nor dissatisfied	7	15	8	8	27	65
	3.38	2.78	2.55	3.74	4.04	3.35
Satisfied	75	204	102	78	223	682

How satisfied are you with the overall specialist services that [CHILD'S NAME] receives? (Q26)						
	HPSM	Phase I	Phase II	Phase III	Classic CCS	Total
	36.23	37.85	32.48	36.45	33.38	35.12
Very satisfied	108	269	180	110	369	1,036
	52.17	49.91	57.32	51.40	55.24	53.35
Total	207	539	314	214	668	1,942
	100.00	100.00	100.00	100.00	100.00	100.00
Rao-Scott Chi^2	22.22					
P-value	.14					

• First row has frequencies from raw, nonweighted survey results. The second row has column percentages.
• The Rao-Scott chi-square analysis used appropriate survey sample weights.
• The *p*-value represents the significance of the analysis. A *p*-value less than .05 is considered significant.

Therapy Services

Satisfaction with Therapy Services: The majority of survey respondents in all WCM study groups (74%) were "satisfied" or "very satisfied" with the therapy services they were receiving. There were no statistically significant differences between the WCM study groups and Classic CCS. See Table 254.

Table 254: Clients' Satisfaction with Therapy Services

How satisfied are you with the therapy services that [CHILD'S NAME] receives? (Q35)						
	HPSM	Phase I	Phase II	Phase III	Classic CCS	Total
Very dissatisfied	10	18	11	8	41	88
	5.78	5.37	5.37	5.88	9.13	6.78
Dissatisfied	16	28	19	9	36	108
	9.25	8.36	9.27	6.62	8.02	8.32
Neither satisfied nor dissatisfied	16	29	24	20	52	141
	9.25	8.66	11.71	14.71	11.58	10.86

How satisfied are you with the therapy services that [CHILD'S NAME] receives? (Q35)						
	HPSM	Phase I	Phase II	Phase III	Classic CCS	Total
Satisfied	84	142	81	57	177	541
	48.55	42.39	39.51	41.91	39.42	41.68
Very satisfied	47	118	70	42	143	420
	27.17	35.22	34.15	30.88	31.85	32.36
Total	173	335	205	136	449	1,298
	100.00	100.00	100.00	100.00	100.00	100.00
Rao-Scott Chi^2	12.89					
P-value	.68					

• First row has frequencies from raw, nonweighted survey results. The second row has column percentages.
• The Rao-Scott chi-square analysis used appropriate survey sample weights.
• The *p*-value represents the significance of the analysis. A *p*-value less than .05 is considered significant.

Medical Equipment and Supplies

Satisfaction with Medical Equipment: The majority of respondents in all WCM study groups (77%) indicated they were "satisfied" or "very satisfied" with the medical equipment or supplies they have been receiving. The differences between WCM study groups and Classic CCS were not statistically significant. See Table 255.

Table 255: Clients' Satisfaction with Medical Equipment and Supplies

Overall, how satisfied are you with the medical equipment or supplies (including repairs) that [CHILD'S NAME] receives? (Q54)						
	HPSM	Phase I	Phase II	Phase III	Classic CCS	Total
Very dissatisfied	8	17	7	6	23	61
	6.50	7.05	4.32	5.50	6.57	6.19
Dissatisfied	9	16	9	11	30	75
	7.32	6.64	5.56	10.09	8.57	7.61

Overall, how satisfied are you with the medical equipment or supplies (including repairs) that [CHILD'S NAME] receives? (Q54)						
	HPSM	Phase I	Phase II	Phase III	Classic CCS	Total
Neither satisfied nor dissatisfied	8	19	15	10	40	92
	6.50	7.88	9.26	9.17	11.43	9.34
Satisfied	72	118	76	48	149	463
	58.54	48.96	46.91	44.04	42.57	47.01
Very satisfied	26	71	55	34	108	294
	21.14	29.46	33.95	31.19	30.86	29.85
Total	123	241	162	109	350	985
	100.00	100.00	100.00	100.00	100.00	100.00
Rao-Scott Chi^2	12.86					
P-value	.68					

• First row has frequencies from raw, nonweighted survey results. The second row has column percentages.
• The Rao-Scott chi-square analysis used appropriate survey sample weights.
• The *p*-value represents the significance of the analysis. A *p*-value less than .05 is considered significant.

Provider Communication

Satisfaction with Communication with Doctor: Since transitioning into WCM, fewer Phase I respondents (33%) indicated they are "very satisfied" with the communication they have with their doctors and healthcare providers than Classic CCS respondents (38%). However, a greater percentage of Phase I respondents (50%) indicated being "satisfied" with the communication they have with their doctors and healthcare providers compared to Classic CCS respondents (45%). The difference between HPSM WCM, Phase II, and Phase III respondents and Classic CCS respondents was not significant. See Table 256.

Table 256: Clients' Satisfaction with Communication with Their Doctors

Overall, how satisfied are you with the communication among [CHILD'S NAME]'s doctors and other healthcare providers? (Q59)	HPSM	Phase I	Phase II	Phase III	Classic CCS	Total
Very dissatisfied	18	49	20	22	68	177
	5.90	6.48	4.50	7.03	6.91	6.32
Dissatisfied	7	23	14	10	27	81
	2.30	3.04	3.15	3.19	2.74	2.89
Neither satisfied nor dissatisfied	14	63	44	21	70	212
	4.59	8.33	9.91	6.71	7.11	7.57
Satisfied	143	375	198	149	442	1,307
	46.89	49.60	44.59	47.60	44.92	46.65
Very satisfied	123	246	168	111	377	1,025
	40.33	32.54	37.84	35.46	38.31	36.58
Total	305	756	444	313	984	2,802
	100.00	100.00	100.00	100.00	100.00	100.00
Rao-Scott Chi^2	20.90					
P-value	.18					

- First row has frequencies from raw, nonweighted survey results. The second row has column percentages.
- The Rao-Scott chi-square analysis used appropriate survey sample weights.
- The *p*-value represents the significance of the analysis. A *p*-value less than .05 is considered significant.

Global Rating of Healthcare

Overall Satisfaction with Healthcare Delivery Model: Since transitioning into the WCM, significantly fewer Phase II respondents (81%) indicated they were "satisfied" and "very satisfied" with their health plan compared to Classic CCS respondents (83%). Although fewer Phase II respondents (8%) were "dissatisfied" and "very dissatisfied" compared to Classic CCS respondents (9%), more Phase II respondents (11%) were more likely to be "neither satisfied nor dissatisfied" with their health plan compared to Classic CCS respondents (8%). HPSM WCM, Phase I, and Phase III respondents did not significantly differ from Classic CCS in the satisfaction with their healthcare plan. See Table 257.

Table 257: Clients' Overall Satisfaction with Their Health Plan

Overall, how satisfied are you with [NAME OF HEALTH PLAN / COUNTY CCS]? (Q80)						
	HPSM	Phase I	Phase II	Phase III	Classic CCS	Total
Very dissatisfied	13	26	20	18	56	133
	4.21	3.48	4.58	5.77	5.77	4.79
Dissatisfied	3	16	16	5	32	72
	0.97	2.14	3.66	1.60	3.30	2.59
Neither satisfied nor dissatisfied	26	64	47	25	74	236
	8.41	8.57	10.76	8.01	7.62	8.50
Satisfied	147	385	212	150	396	1,290
	47.57	51.54	48.51	48.08	40.78	46.47
Very satisfied	120	256	142	114	413	1,045
	38.83	34.27	32.49	36.54	42.53	37.64
Total	309	747	437	312	971	2,776
	100.00	100.00	100.00	100.00	100.00	100.00
Rao-Scott Chi^2	49.60					
P-value	<.0001					

- First row has frequencies from raw, nonweighted survey results. The second row has column percentages.
- The Rao-Scott chi-square analysis used appropriate survey sample weights.
- The *p*-value represents the significance of the analysis. A *p*-value less than .05 is considered significant.

Grievances and Appeals: The majority of respondents (97%) did not file an appeal, grievance, or complaint about their child's healthcare. The differences between the WCM study groups and Classic CCS were not statistically significant. See Table 258.

Table 258: Survey Respondents Who Filed an Appeal, Grievance, or Complaint

In the last six months, did you file an appeal, grievance, or complaint about [CHILD'S NAME]'s healthcare? (Q81)						
	HPSM	Phase I	Phase II	Phase III	Classic CCS	Total
No	298	760	434	310	963	2,765
	96.44	98.19	97.09	97.79	97.27	97.46
Yes	11	14	13	7	27	72
	3.56	1.81	2.91	2.21	2.73	2.54
Total	309	774	447	317	990	2,837
	100.00	100.00	100.00	100.00	100.00	100.00
Rao-Scott Chi^2	3.16					
P-value	.53					

• First row has frequencies from raw, nonweighted survey results. The second row has column percentages.
• The Rao-Scott chi-square analysis used appropriate survey sample weights.
• The *p*-value represents the significance of the analysis. A *p*-value less than .05 is considered significant.

Summary of Research Question 2: What is the impact of the WCM on patient and family satisfaction?

Overall, on most measures of satisfaction, the majority of respondents in all WCM study groups indicated they were "satisfied" or "very satisfied" with the services they have been receiving. Two areas where there were differences appeared between WCM study groups and Classic CCS concerning provider communication and global rating of healthcare.

Provider Communication: Since transitioning into WCM, fewer Phase I respondents (33%) indicated they are "very satisfied" with the communication they have with their doctors and healthcare providers than Classic CCS respondents (38%). However, a greater percentage of Phase I respondents (50%) indicated being "satisfied" with the communication they have with their doctors and healthcare providers compared to Classic CCS respondents (45%).

Global Rating of Healthcare: Since transitioning into the WCM, significantly fewer Phase II respondents (81%) indicated they were "satisfied" and "very satisfied" with their health plan compared to Classic CCS respondents (83%). Although fewer Phase II respondents (8%) were "dissatisfied" and "very dissatisfied" compared to Classic CCS respondents (9%),

more Phase II respondents (11%) were more likely to be “neither satisfied nor dissatisfied” with their health plan compared to Classic CCS respondents (8%).

Additional findings regarding patient satisfaction can be found in Appendix S and Appendix T.

Research Question 3: What is the impact of the WCM on providers’ satisfaction with the delivery of services and reimbursement?

The results for Research Question 3 are organized as follows:

1. Key informant interview results
2. Online provider survey

Key Informant Interview Results

Some KIs expressed dissatisfaction with the Medi-Cal reenrollment process. The KIs spoke of CCS clients in the WCM who lost their Medi-Cal eligibility, which could sometimes occur if there were delays or mistakes in processing annual renewal documentation. Without Medi-Cal coverage, the CCS client was no longer in the WCM or covered by the MCP.

Sometimes the Medi-Cal reenrollment process stretched over many months, as CCS waited for the MCP coverage to start again at the beginning of the subsequent month. Other times, CCS would start case management activities only to have them halted at the end of the month because the CCS client’s Medi-Cal reenrollment had been approved and the client was back with the WCM MCP.

> *“We've also had trouble with children who churn on and off Medi-Cal. They're on one month; they're off the next. Or, they're on [MCP] one month, the next month they're not capitated to [MCP] and so they are our [CCS] responsibility to case manage, which we attempt to do. Then, when we get started, the next month they're back on [MCP].”* (CCS KI)

CCS KIs also noted that after the transition to the WCM, many CCS programs had to function with reduced budgets and an initial increased workload immediately after the WCM was implemented. As one KI noted, *“we’re doing more work than what we’re being compensated for.”* (County KI)

To further illustrate the above sentiment regarding MCPs taking on care coordination and authorizations that CCS public health nurses used to do, the CCS program budgets and staff decreased accordingly in the absence of these tasks. Even so, there was still other program work for which the counties were responsible but which were no longer reimbursed by the state. As one CCS KI explained:

> *"When we went [to the] Whole Child Model, there was a significant reduction in the FTEs [full-time equivalents] and the staffing permitted because a majority of our workload moved to the health plan. . . . And I do think the state does not understand how much work remains at the county level, and that's been one of the issues we've tried consistently to help the state understand is that there's a lot more work left for the counties than they anticipated or planned or budgeted for."* (CCS KI).

DME vendors were very satisfied with the quicker authorization process in the WCM. Expedited authorizations allowed DME vendors to deliver timely services and DME, noting that *"we would deliver on the spot with the Whole Child Model [and] we know exactly what to expect"* (DME KI). In addition, one DME vendor summed up their satisfaction working with MCPs in the WCM quite succinctly: In the WCM, there was *"quicker payment and less denials"* (DME vendor KI). The DME vendors also said that parents were more satisfied when obtaining DME in the WCM because their access to DME improved.

A full report of the KI findings can be found in Appendix R.

Provider Survey

As stated in the methods section, this is a very small convenience sample derived from two specialty coalitions (DME providers and pediatric specialists), and thus likely not generalizable. That said, these 22 providers do represent views of the specialty care coalition and the member hospitals. The majority of the respondents provided services across the various WCM plans. Therefore, the UCSF evaluation team provides the aggregate results for the overall WCM evaluation as opposed to a breakdown by WCM study group/phases.

Table 259 below describes the characteristics of the respondents. Overall, there was a mix of providers that ranged from healthcare providers, nurses, administrators, and DME service providers who practiced in a variety of settings. Healthcare providers and DME services providers made up over half of the respondents.

Table 259: Provider Survey Respondent Characteristics

What is the employment setting where you spend the majority of your time?	% (*n* = 22)
Solo or two-physician practice	4.55%
Multispecialty group practice	31.82%
Academic medical center	31.82%
Durable medical equipment	31.82%
What is your primary role in your agency?	**% (*n* = 22)**
Healthcare provider	31.82%
Administrator	18.18%
Finance	9.09%
Other (RN case manager)	9.09%
Service provider (DME / home health)	27.27%
Pharmacist	4.55%

Figure 83 below describes the proportion of providers that indicated whether CCS-related services either improved, stayed the same, or worsened after implementation of the WCM as compared to services provided to clients in CCS. Over half of the initial respondents indicated they were unable to differentiate a WCM client from a Classic CCS client in terms of service receipt, and thus were eliminated from the sample. Of the 22 respondents who could comment on the difference, the majority reported services to be the same or better. Most individual services generally had more providers report no change or better after the WCM implementation. The exceptions were with DME services, the overall timeliness of services, quality of services, and overall access to services, which had almost equal numbers reporting worse as compared to no change or better. Pharmacy and case management were two domains that appear to have had the greatest improvement per providers surveyed (36% and 50% reporting improvement, respectively).

Figure 83: Provider Views of WCM Services as Compared to Classic CCS Post-WCM Implementation*

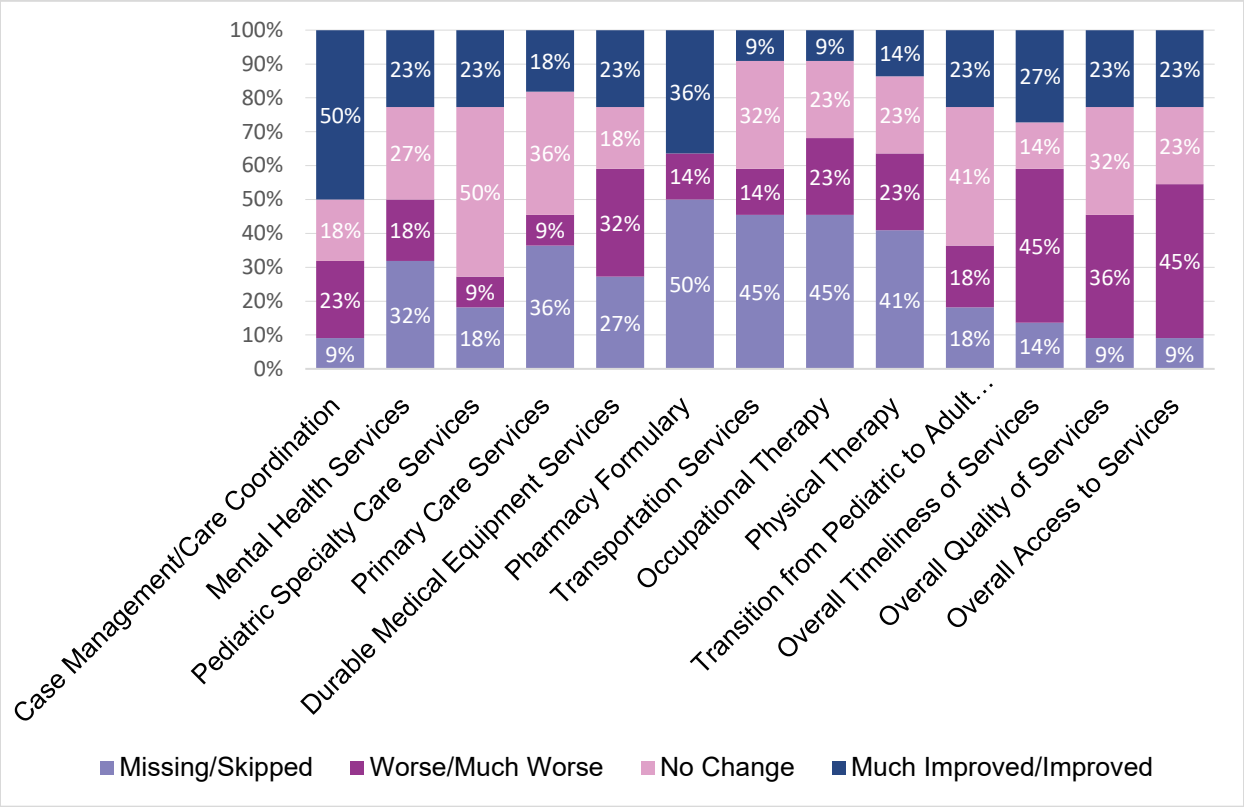
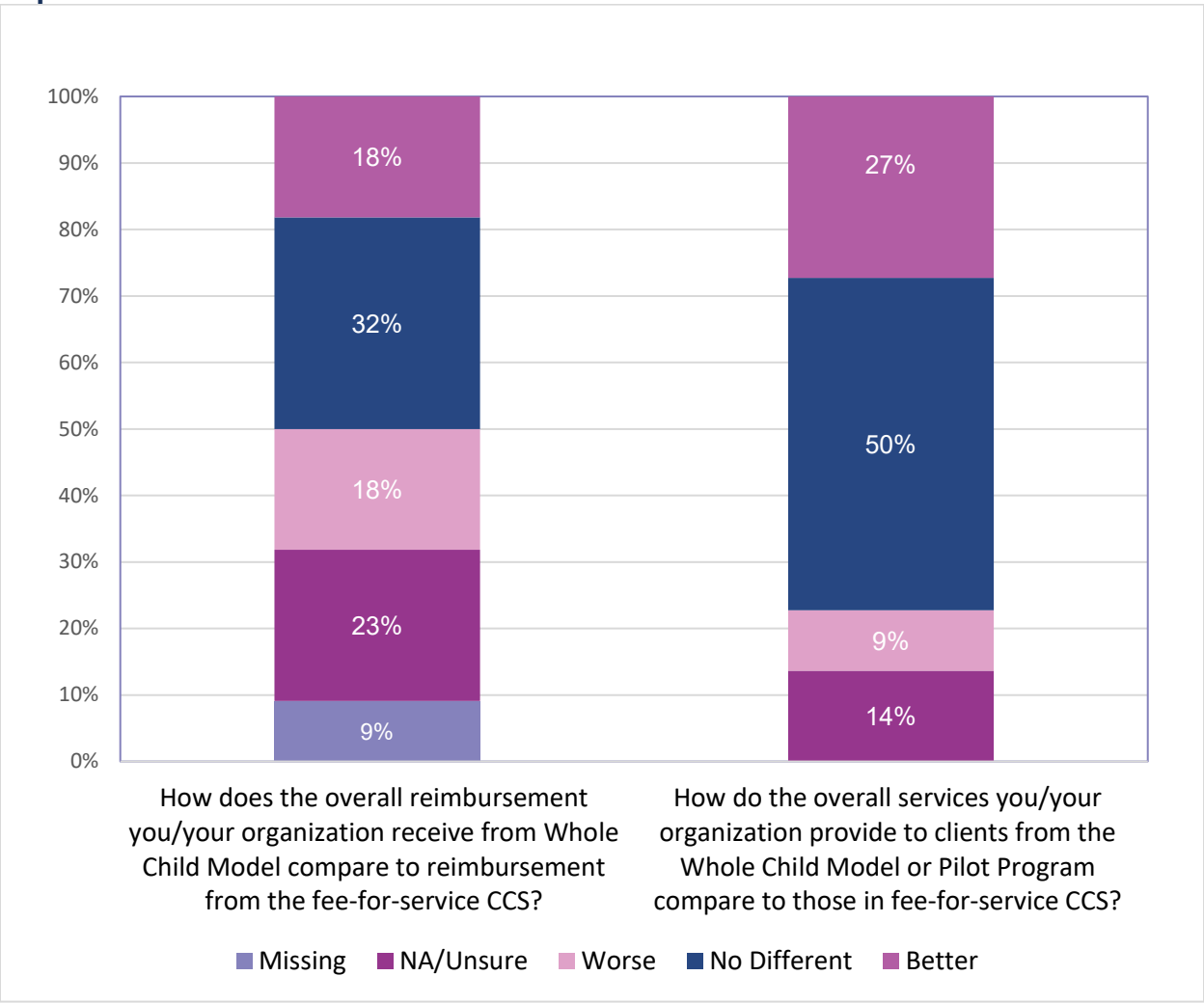


Figure 84 below illustrates the views of providers on reimbursement and whether or not their services provided had changed after the WCM was implemented. Please note that this is a small convenience sample of specialty providers that serve the CCS population and thus cannot be assumed to generalize to the entire provider population.
Thirty-two percent stated reimbursement was the same, while only 18% of this sample said it was worse, with a third either unclear or not answering the question. Few respondents thought the WCM negatively impacted their ability to provide services to CCS clients, with 27% reporting that their services improved.

Figure 84: Provider Views of Reimbursement and Overall Services as Compared to Classic CCS Post-WCM Implementation



Overall Results for the Provider Survey

Provider views on services delivered to WCM clients in CCS were mixed. The most positive responses were found with pharmacy and case management services. The most dissatisfaction with services was found with DME, overall timeliness of services, overall quality of services, and overall access to services. Reimbursement in this sample of providers did not appear to be a major issue, though almost a third could not comment on or did not answer the reimbursement question. Most providers felt they were able to maintain or improve services to WCM clients as compared to Classic CCS clients.

Research Question 4: What is the impact of the WCM on the quality of care received?

The results for Research Question 4 are organized as follows:

1. Key informant interview results
2. Telephone survey results
3. Grievances data
4. Analysis of administrative data

Key Informant Interview Results

KIs were asked about their perceptions of quality in the WCM, but some noted that it would be difficult to measure because the WCM does not include strong quality metrics. One CCS KI felt that quality of care probably wasn't as good as it was before the transition to the WCM.

> *"I don't see anything that says the quality is better. . . . I don't know what the checks and balances are to make sure. . . . I can tell you my feeling is that the quality is not as good."* (CCS KI)

Some MCP KIs felt generally that the quality of overall care in the WCM did improve. For example, one MCP KI said that *"we're probably not saving a lot of money, but we're getting people better access for sure. I can say that for a fact. So quality and access improved, I think, with the transition."* (MCP KI)

Other KIs shared perceptions of quality, mostly related to decreased quality of providers in the WCM. In the WCM, CCS clients now had access to an expanded network of MCP providers and could also self-refer to a provider of their choosing. In contrast, Classic CCS clients mainly received care through a more limited yet highly qualified network of CCS Paneled Providers. Some KIs felt that the MCPs were not requiring CCS clients to see a qualified Paneled Provider, and instead

sent them to a non-paneled in-network provider, which could ultimately *"affect the quality of care for these children"* (CCS KI).

In addition, by referring CCS clients to non-Paneled Providers, one KI noted that it effectively lowered the standard of care received.

> *"Well, I would say the main issue that I'm also seeing with [the MCP] is that they do not reinforce that the children need to be seen by CCS paneled physicians. They will pay to — they can go to whoever they want to regardless and, therefore, that decreases the standard of care for our kids. We have a standard that they have to see certain specialists that are paneled, and they're paneled for a reason — they have higher training. And that is no longer the case."* (CCS KI)

KIs reported similar concerns with the quality of DME vendors in the MCP network. In Classic CCS, the MTU worked closely with DME vendors who had experience providing equipment for children with complex medical needs. In the WCM, the MCP had an expanded network of DME vendors, but some KIs felt they were not qualified to provide the appropriate DME that CCS clients needed.

> *"They don't have the same level of expertise, and they don't have the certification or the staff at the rehab companies that most CCS departments use. . . . They have to be state-tested and certified in seating and positioning. And so these [MCP] vendors — many vendors don't have them."* (County KI)

A full report of the KI findings can be found in Appendix R.

Telephone Survey Results

The survey items addressing the fourth research question, the impact WCM had on the quality of care received, are drawn from sections of the survey that inquire about:

- Whole Child Model
- Subgroup analysis of factors impacting perceived quality of care in Appendix W, "Evaluation of the Relationship between Reported Quality of Care after WCM Start and Demographic Factors, Clinical Factors, and Reported Quality of Care for Specific Services"
- Medical home / primary care
- Specialty care

- Therapy services
- Prescription medication
- Behavioral health
- Medical equipment and supplies
- Transportation

Whole Child Model

Since transitioning into WCM, the majority of respondents in Phase I (62%), Phase II (67%), and Phase III (61%) indicated that the quality of health services were “about the same.” A large percentage of HPSM respondents (39%) indicated “don’t know.” The HPSM WCM was implemented more than six years before administration of the survey, which likely contributed to the high percentage of "don't know" responses. HPSM WCM respondents (39%) also indicated that the quality of health services were “about the same.” Phase I respondents (86%) were significantly more likely to indicate that the quality of health services were “about the same” and “better since the transition” compared to Phase II respondents (81%). See Table 260.

Table 260: Quality of Clients’ Health Services

Since the transition to [NAME OF HEALTH PLAN], has the quality of the health services that [CHILD’S NAME] receives been better, the same, or worse? (Q7)					
	HPSM	Phase I	Phase II	Phase III	Total
Better since the transition	62	184	63	68	377
	19.87	23.71	14.16	21.52	20.39
About the same	121	483	298	194	1,096
	38.78	62.24	66.97	61.39	59.28
Worse since the transition	8	37	43	31	119
	2.56	4.77	9.66	9.81	6.44
Don't know	121	72	41	23	257
	38.78	9.28	9.21	7.28	13.90
Total	312	776	445	316	1,849
	100.00	100.00	100.00	100.00	100.00

Since the transition to [NAME OF HEALTH PLAN], has the quality of the health services that [CHILD'S NAME] receives been better, the same, or worse? (Q7)					
	HPSM	Phase I	Phase II	Phase III	Total
Rao-Scott Chi^2	136.39				
P-value	<.0001				

- First row has frequencies from raw, nonweighted survey results. The second row has column percentages.
- The Rao-Scott chi-square analysis used appropriate survey sample weights.
- The *p*-value represents the significance of the analysis. A *p*-value less than .05 is considered significant.

Subgroup Analysis of Factors Relating to Quality of Care

In Appendix W, UCSF performed a subgroup analysis to evaluate factors that would potentially be contributing to poor quality of care. These include demographic characteristics (age, race/ethnicity, language), as well as factors such as healthcare access, general health status, and number of specialists seen. Key findings included that respondents with higher specialty use reported higher frequency of "worse" since transition to the WCM, and that White and Black respondents were more likely to report that care was worse after WCM than respondents in other racial groups. Those who reported fair or poor health, as compared to those with excellent health, also had a higher frequency of reporting "worse" quality since transition to the WCM.

Medical Home / Primary Care

Quality of Primary Care Services: Since transitioning into WCM, the majority of respondents in Phase I (74%), Phase II (81%), and Phase III (74%) indicated that primary care services were "about the same." A large percentage of HPSM respondents (36%) indicated "don't know." The HPSM WCM was implemented more than six years before administration of the survey, which likely contributed to the high percentage of "don't know" responses. A large minority of HPSM WCM respondents (42%) also indicated that primary care services were "about the same." The HPSM WCM responses account for the significant difference between the other WCM study groups. The differences among Phase I, Phase II, and Phase III study groups were not significant. See Table 261.

Table 261: Quality of Clients' Primary Care Services

[Asked only of respondents enrolled in WCM] Since the transition to [NAME OF HEALTH PLAN], have the primary care services that [CHILD'S NAME] receives been better, the same, or worse? (Q15)	HPSM	Phase I	Phase II	Phase III	Total
Better since the transition	57	121	49	46	273
	21.11	18.11	12.10	16.43	16.82
About the same	113	496	328	207	1,144
	41.85	74.25	80.99	73.93	70.49
Worse since the transition	4	13	13	12	42
	1.48	1.95	3.21	4.29	2.59
Don't know	96	38	15	15	164
	35.56	5.69	3.70	5.36	10.10
Total	270	668	405	280	1,623
	100.00	100.00	100.00	100.00	100.00
Rao-Scott Chi^2	151.86				
P-value	<.0001				

- First row has frequencies from raw, nonweighted survey results. The second row has column percentages.
- The Rao-Scott chi-square analysis used appropriate survey sample weights.
- The *p*-value represents the significance of the analysis. A *p*-value less than .05 is considered significant.

Specialty Care

Quality of Specialty Care: Since transitioning into WCM, the majority of respondents in Phase I (75%), Phase II (80%), and Phase III (78%) indicated that specialty care services were "about the same." A large percentage of HPSM WCM respondents (36%) indicated "don't know." The HPSM WCM was implemented more than six years before administration of the survey, which likely contributed to the high percentage of "don't know" responses. A large minority of HPSM WCM respondents (45%) also indicated that primary care services were "about the same." The HPSM WCM responses account for the significant difference between the other WCM study groups. The differences among Phase I, Phase II, and Phase III WCM study groups were not significant. See Table 262.

Table 262: Quality of Clients' Specialist Services

[Asked only of respondents enrolled in WCM] Since the transition to [NAME OF HEALTH PLAN], have the specialist services that [CHILD'S NAME] receives been better, the same, or worse? (Q29)	HPSM	Phase I	Phase II	Phase III	Total
Better since the transition	49	129	46	39	263
	17.13	17.36	11.08	13.36	15.15
About the same	130	556	330	228	1,244
	45.45	74.83	79.52	78.08	71.66
Worse since the transition	4	19	13	13	49
	1.40	2.56	3.13	4.45	2.82
Don't know	103	39	26	12	180
	36.01	5.25	6.27	4.11	10.37
Total	286	743	415	292	1,736
	100.00	100.00	100.00	100.00	100.00
Rao-Scott Chi^2	158.51				
P-value	<.0001				

• First row has frequencies from raw, nonweighted survey results. The second row has column percentages.
• The Rao-Scott chi-square analysis used appropriate survey sample weights.
• The *p*-value represents the significance of the analysis. A *p*-value less than .05 is considered significant.

Therapy Services

Quality of Therapy Services: Since transitioning into WCM, the majority of respondent in Phase I (75%), Phase II (83%), and Phase III (71%) indicated that therapy services were "about the same." A large percentage of HPSM WCM respondents (40%) indicated "don't know." The HPSM WCM was implemented more than six years before administration of the survey, which likely contributed to the high percentage of "don't know" responses. A large minority of HPSM WCM respondents (41%) also indicated that primary care services were "about the same" since the transition. The HPSM WCM responses account for the significant difference between the other WCM study groups. The differences among Phase I, Phase II, and Phase III WCM study groups were not significant. See Table 263.

Table 263: Quality of Clients' Therapy Services

[Asked only of respondents enrolled in WCM] Since the transition to [NAME OF HEALTH PLAN], have the therapy services that [CHILD'S NAME] receives been better, the same, or worse? (Q38)	HPSM	Phase I	Phase II	Phase III	Total
Better since the transition	25	50	15	24	114
	13.97	13.48	7.01	16.55	12.54
About the same	74	278	178	103	633
	41.34	74.93	83.18	71.03	69.64
Worse since the transition	9	15	11	11	46
	5.03	4.04	5.14	7.59	5.06
Don't know	71	28	10	7	116
	39.66	7.55	4.67	4.83	12.76
Total	179	371	214	145	909
	100.00	100.00	100.00	100.00	100.00
Rao-Scott Chi^2	107.75				
P-value	<.0001				

• First row has frequencies from raw, nonweighted survey results. The second row has column percentages.
• The Rao-Scott chi-square analysis used appropriate survey sample weights.
• The *p*-value represents the significance of the analysis. A *p*-value less than .05 is considered significant.

Prescription Medication

Quality of Pharmacy Services: Since transitioning into WCM, the majority of respondents in Phase I (81%), Phase II (84%), and Phase III (82%) indicated that pharmacy services were "about the same." A large percentage of HPSM WCM respondents (34%) indicated "don't know." The HPSM WCM was implemented more than six years before administration of the survey, which likely contributed to the high percentage of "don't know" responses. A large minority of HPSM WCM respondents (47%) also indicated that pharmacy services were "about the same." The HPSM WCM responses account for the significant difference between the other WCM study groups. The differences among Phase I, Phase II, and Phase III WCM study groups were not significant. See Table 264.

Table 264: Quality of Clients' Pharmacy Services

[Asked only of respondents enrolled in WCM] Since the transition to [NAME OF HEALTH PLAN], have the prescription/pharmacy services that [CHILD'S NAME] receives been better, the same, or worse? (Q46)	HPSM	Phase I	Phase II	Phase III	Total
Better since the transition	29	53	18	19	119
	14.87	11.65	6.69	11.11	10.92
About the same	92	370	227	140	829
	47.18	81.32	84.39	81.87	76.06
Worse since the transition	7	21	19	9	56
	3.59	4.62	7.06	5.26	5.14
Don't know	67	11	5	3	86
	34.36	2.42	1.86	1.75	7.89
Total	195	455	269	171	1,090
	100.00	100.00	100.00	100.00	100.00
Rao-Scott Chi^2	174.43				
P-value	<.0001				

- First row has frequencies from raw, nonweighted survey results. The second row has column percentages.
- The Rao-Scott chi-square analysis used appropriate survey sample weights.
- The *p*-value represents the significance of the analysis. A *p*-value less than .05 is considered significant.

Behavioral Health Services

Quality of Behavioral Health Services: Across all WCM study groups, approximately 59% of respondents indicated that behavioral health services were "about the same" since the transition, and 11% indicated behavioral services were "better since the transition." A significant number of HPSM WCM respondents (49%) stated "don't know" on whether behavioral health services were "better," "the same," or "worse," and 36% indicated that services were "about the same" since the transition. The HPSM WCM distribution of responses account for the significant difference between the other WCM study groups. The differences among Phase I, Phase II, and Phase III WCM study groups were not significant. See Table 265.

Table 265: Quality of Clients' Behavioral Health Services

[Asked only of respondents enrolled in WCM] Since the transition to [NAME OF HEALTH PLAN], have the behavioral or mental health services that [CHILD'S NAME] receives been better, the same, or worse? (Q51)	HPSM	Phase I	Phase II	Phase III	Total
Better since the transition	8	22	7	12	49
	10.67	11.06	5.60	17.39	10.47
About the same	27	125	85	41	278
	36.00	62.81	68.00	59.42	59.40
Worse since the transition	3	12	6	1	22
	4.00	6.03	4.80	1.45	4.70
Don't know	37	40	27	15	119
	49.33	20.10	21.60	21.74	25.43
Total	75	199	125	69	468
	100.00	100.00	100.00	100.00	100.00
Rao-Scott Chi^2	24.70				
P-value	.003				

- First row has frequencies from raw, nonweighted survey results. The second row has column percentages.
- The Rao-Scott chi-square analysis used appropriate survey sample weights.
- The *p*-value represents the significance of the analysis. A *p*-value less than .05 is considered significant.

Medical Equipment and Supplies

Quality of DME and Supplies: Since transitioning into WCM, the majority of respondents in Phase I (74%), Phase II (77%), and Phase III (71%) indicated that the quality of medical equipment and supply services were "about the same." A large percentage of HPSM WCM respondents (40%) indicated "don't know." The HPSM WCM was implemented more than six years before administration of the survey, which likely contributed to the high percentage of "don't know" responses. A large minority of HPSM respondents (47%) also indicated that DME services were "about the same." Across all WCM study groups, 11% of respondents indicated DME services were "better since the transition." The HPSM WCM

distribution of responses account for the significant difference among the WCM study groups. The differences among Phase I, Phase II, and Phase III WCM plans were not significant. See Table 266.

Table 266: Quality of Clients' Medical Equipment and Supplies

[Asked only of respondents enrolled in WCM] Since the transition to [NAME OF HEALTH PLAN], have the medical equipment and supplies that [CHILD'S NAME] receives been better, the same, or worse? (Q57)					
	HPSM	Phase I	Phase II	Phase III	Total
Better since the transition	14	25	13	17	69
	11.29	9.77	7.93	15.04	10.50
About the same	58	190	127	80	455
	46.77	74.22	77.44	70.80	69.25
Worse since the transition	3	14	16	12	45
	2.42	5.47	9.76	10.62	6.85
Don't know	49	27	8	4	88
	39.52	10.55	4.88	3.54	13.39
Total	124	256	164	113	657
	100.00	100.00	100.00	100.00	100.00
Rao-Scott Chi^2	81.81				
P-value	<.0001				

- First row has frequencies from raw, nonweighted survey results. The second row has column percentages.
- The Rao-Scott chi-square analysis used appropriate survey sample weights.
- The *p*-value represents the significance of the analysis. A *p*-value less than .05 is considered significant.

Transportation Services

Quality of Transportation Services: Since transitioning into WCM, a little under half to just over half of respondents in Phase I (50%), Phase II (43%), and Phase III (59%) indicated that transportation assistance were "about the same." A large percentage of HPSM WCM respondents (48%) as well as Phase III respondents (35%) indicated "don't know." The large percentage of "don't know" from HPSM WCM respondents is probably attributable to the HPSM WCM having been

implemented more than six years before administration of the survey. It is unclear why Phase III respondents also had a high percentage of "don't know" responses. Phase III had the fewest respondents (6%) indicating that transportation assistance was "better since the transition," and HPSM WCM had the largest percentage of respondents (19%). The HPSM WCM response distribution accounts for the significant difference between the other WCM study groups. The differences among Phase I, Phase II, and Phase III WCM study groups were not significant. See Table 267.

Table 267: Quality of Clients' Transportation Assistance

[WCM only] Since the transition to [NAME OF HEALTH PLAN], has the transportation assistance that [CHILD'S NAME] receives (including the process of arranging transportation) been better, the same, or worse? (Q67)					
	HPSM	**Phase I**	**Phase II**	**Phase III**	**Total**
Better since the transition	8	21	10	2	41
	19.05	17.21	10.20	5.88	13.85
About the same	11	61	42	20	134
	26.19	50.00	42.86	58.82	45.27
Worse since the transition	3	13	28	0	44
	7.14	10.66	28.57	0.00	14.86
Don't know	20	27	18	12	77
	47.62	22.13	18.37	35.29	26.01
Total	42	122	98	34	296
	100.00	100.00	100.00	100.00	100.00
Rao-Scott Chi^2	†				
P-value					

• First row has frequencies from raw, nonweighted survey results. The second row has column percentages.
• †The Rao-Scott chi-square analysis could not be computed because at least one cell had zero frequency.
• The *p*-value represents the significance of the analysis. A *p*-value less than .05 is considered significant.

Summary of Research Question 4: What is the impact of the WCM on the quality of care received?

In general, since transitioning to the WCM the majority of respondents indicated that the quality of care received was "about the same." There were no significant differences among the WCM study groups. An exception was the responses regarding the health services a client received. Phase I respondents (86%) were significantly more likely to indicate that the quality of health services was "about the same" and "better since the transition" compared to Phase II respondents (81%).

Approximately one-fifth to two-thirds of HPSM WCM respondents routinely answered "don't know" to the items assessing quality of care, which complicated the interpretation of the results for each question. The HPSM WCM was implemented more than six years before administration of the survey, which likely contributed to the high percentage of "don't know" responses. Taking this caveat into consideration, HPSM WCM respondents indicated to the majority of items evaluated that the quality of care received was "about the same." The exception to this were responses to quality of specialty services, where a larger proportion of HPSM WCM respondents (17%) indicated services were "better since the transition."

Additional findings regarding quality of care can be found in Appendices X and Y.

Grievances Data

Table 268 represents HPSM WCM quality-of-care grievances. Clients in HPSM WCM experienced a larger increase in grievances related to quality of care, per 100,000 member months pre- versus post-HPSM WCM implementation, than did their traditional CCS counterparts. However, the interpretability of this result is limited by the small total number of HPSM WCM grievances pre-WCM implementation.

Table 268: Quality-of-Care Grievances, HPSM WCM versus Classic CCS Counties

HPSM WCM	Grievances	Pct. Resolved in Favor of Member	CCS Enrollees	Enrolled Member Months (MM)	Grievances per 100,000 MM
Pre-WCM	2	50.0	451	1,686	119
Post-WCM	26	46.2	889	14,945	174
				WCM Change	55
Classic CCS Pre-WCM Implementation	56	62.5	13,005	178,247	31
Classic CCS Post-WCM Implementation	142	63.4	14,965	295,926	48
				Classic Change	17
				Diff in Diffs	39

Phase I grievances, categorized as quality-of-care grievances, reveal in analysis that clients in WCM counties experienced a smaller relative increase in this type of grievance, per 100,000 member months pre- versus post-WCM implementation, than did their Classic CCS county counterparts. See Table 269.

Table 269: Quality-of-Care Grievances, Phase I versus Classic CCS Counties

Phase I	Grievances	Pct. Resolved in Favor of Member	CCS Enrollees	Enrolled Member Months (MM)	Grievances per 100,000 MM
Pre-WCM	95	73.7	23,689	422,533	22
Post-WCM	177	62.1	17,523	401,227	44
				WCM Change	22
Classic CCS Pre-WCM Implementation	185	57.3	61,994	1,125,401	16
Classic CCS Post-WCM Implementation	562	76.2	56,194	1,187,871	47
				Classic Change	31
				Diff in Diffs	-9

Phase II grievances related to quality of care revealed in analysis that WCM counties experienced a larger increase in these types of grievances, per 100,000 member months pre- versus post-WCM Phase II implementation, than did their Classic CCS county counterparts.[53] See Table 270.

Table 270: Quality-of-Care Grievances, Phase II versus Classic CCS Counties

Phase II	Grievances	Pct. Resolved in Favor of Member	CCS Enrollees	Enrolled Member Months (MM)	Grievances per 100,000 MM
Pre-WCM	119	56.3	18,998	393,734	30
Post-WCM	461	44.5	12,448	280,615	164
				WCM Change	134
Classic CCS Pre-WCM Implementation	375	53.9	57,791	1,214,152	31
Classic CCS Post-WCM Implementation	596	53.2	44,421	925,361	64
				Classic Change	33
				Diff in Diffs	101

Phase III grievances related to quality of care revealed in analysis that clients in WCM counties experienced a larger increase in grievances related to quality of care, per 100,000 member months pre- versus post-WCM implementation, than did their Classic CCS county counterparts. See Table 271.

[53] As mentioned previously with accessibility grievances, the *p*-values for quality-of-care grievances are also pending. They will be included in the subsequent report.

Table 271: Quality-of-Care Grievances, Phase III versus Classic CCS Counties

Phase III	Grievances	Pct. Resolved in Favor of Member	CCS Enrollees	Enrolled Member Months (MM)	Grievances per 100,000 MM
Pre-WCM	130	97.7	30,473	713,525	18
Post-WCM	278	68.0	17,070	349,072	80
				WCM Change	62
Classic CCS Pre-WCM Implementation	619	67.2	93,027	2,078,167	30
Classic CCS Post-WCM Implementation	697	43.6	58,408	1,152,673	60
				Classic Change	30
				Diff in Diffs	32

Analysis of Administrative and Clinical Data for HbA1c, Depression Screening, and Immunizations

Evaluation of for quality of care includes the following outcomes:

- HbA1c (measure of diabetes management)
- Annual depression screening for those age 12 years and older
- Childhood immunization completion for children age 0–2 years
- Adolescent immunization completion at age 13 years
- Analysis of the individual vaccine components that make up the childhood and adolescent immunization measures can be found in Appendix X, “Supplemental Childhood and Adolescent Immunization Descriptive Tables.”

Presentation of Results

Results of the analyses of WCM quality of care received include results of the four study groups: HPSM WCM, Phase I, Phase II, and Phase III as compared to their matched Classic CCS comparison group from pre- to post-WCM implementation. The following results may be provided for each of the four WCM study groups:

1. Tables and text comparing HPSM WCM and Phases I, II, and III to their Classic CCS comparison groups. The tables include:

a. Comparisons of services utilization between the WCM intervention groups and their Classic CCS comparison groups at pre-period and at post-period, and significance levels for each.
b. Comparisons of services from the pre- to post-WCM implementation period for the WCM intervention and Classic CCS comparison group separately and their significance of differences; further comparison of the size of the changes from the pre- to post-WCM period to determine if services rates changes differed significantly between the WCM intervention and Classic CCS comparison groups (Difference in Differences).
c. Narrative describing any demographic differences in services changes — for example, age, gender, race/ethnicity, language spoken at home, condition severity (Chronic Illness and Disability Payment System [CDPS] score), disability (Children with Disabilities Algorithm [CWDA] disability indicator); and season (winter, spring, summer, fall).
d. Summary of Research Question 4 outcomes.

HbA1c

There were very few clients with diabetes who transferred from the FFS system into the HPSM WCM. UCSF received only 28 HbA1c lab observations, without values from comparison groups. Due to small sample and no comparison groups, no meaningful statistical analysis could be performed on these data.

Annual Depression Screening Age 12 and Older

Annual depression screening per 100 clients age 12 and older, comparing HPSM WCM to Classic CCS comparison group in pre- versus post-period

There were insufficient observations in the pre-period for annual depression screens to generate stable estimates for the DiD analysis. Instead, the UCSF evaluation team reports the proportion of annual depression screens.

Table 272 below presents pre- and post-implementation period numbers of annual depression screens for the HPSM WCM study groups. For the HPSM WCM, of the few who qualified for screening, none received screening in the pre-period, and 58.0% were screened during the post-period. For the Classic CCS comparison group, 7.8% were screened during the pre-period, and 10.3% were screened during the post-period.

Table 272: Annual Depression Screens per 100 Clients Age 12 and Older in HPSM WCM and Classic CCS Comparison Groups in Pre- versus Post-Period

			Annual Depression Screens	
Group	Study Group	Clients	Screening	Per 100 Clients
HPSM WCM Group	Pre-WCM	2	0	0.0
	Post-WCM	131	76	58.0
Classic CCS Comparison Group	Classic pre-WCM	787	61	7.8
	Classic post-WCM	1,277	131	10.3

HPSM WCM Independent Variable Associations to Annual Depression Screens: Regression analysis shows that having higher illness severity or not having a disability is significantly associated with having higher annual depression screens after adjusting for CDPS and disability (see Appendix I).

Annual depression screening per 100 clients age 12 and older, comparing Phase I to Classic CCS comparison group in pre- versus post-period

Table 273 below provides comparisons of differences in annual depression screens between the Phase I WCM and Classic CCS comparison groups during the pre- and post-WCM implementation periods separately. During the pre-period, the odds of a Phase I WCM client having an annual depression screen were about 75% lower than during the Classic CCS comparison group ($p < .001$). During the post-period, the odds of a Phase I WCM client having an annual depression screen were 1.67 times greater than for the Classic CCS comparison group ($p < .001$).

Table 273: Annual Depression Screens per 100 Clients Age 12 and Older in Phase I and Classic CCS Comparison Groups in Pre- versus Post-Period

	Annual Depression Screens per 100 Clients		Adjusted Odds Ratios*	
Period	Percentage Screened Phase I Group	Percentage Screened Classic CCS Comparison Group	(95% CI) Phase I Group vs. Classic	*P*-value
Pre-WCM Implementation	1	5	0.23 (0.17, 0.30)	<.001
Post-WCM Implementation	10	6	1.67 (1.50, 1.87)	<.001

*Adjusted for CDPS, disability, race, language, and gender.

Table 274 below provides comparisons of annual depression screens during the pre- and post-WCM implementation periods for the Phase I and Classic CCS comparison groups. For the Phase I group, the odds of an annual depression screen were 9.57 times greater during the post-period than during the pre-period ($p < .001$). Likewise, for the CCS comparison group, the odds of an annual depression screen during the post-period were 1.31 times greater than during the pre-period ($p < .001$). Given the greater increase in screenings in the Phase I group, the Difference in Differences from pre- to post-implementation periods between the Phase I and Classic CCS comparison groups is significant ($p < .001$).

Table 274: Annual Depression Screens per 100 Clients Age 12 and Older, Comparing Phase I in Pre- versus Post-Period, Classic CCS Comparison Group in Pre- versus Post-Period, and DiD Analysis

	Annual Depression Screens per 100 Clients		Adjusted Odds Ratios*	
Group	Percentage Screened Pre-WCM Implementation	Percentage Screened Post-WCM Implementation	(95% CI) Post- vs. Pre-Period	*P*-value
Phase I Group	1	10	9.57 (7.49, 12.23)	<.001
Classic CCS Comparison Group	5	6	1.31 (1.12, 1.52)	<.001
Difference in Differences			7.32 (5.49, 9.78)	<.001

*Adjusted for CDPS, disability, race, language, and gender.

Phase I Independent Variable Associations to Annual Depression Screens: Regression analysis shows that having higher illness severity, speaking Spanish as compared to English, or being female is significantly associated with having higher annual depression screens, while being Latinx or "other/unknown" race as compared to White or having a disability is significantly associated with having lower annual depression screens (see Appendix I).

Annual depression screening per 100 clients age 12 and older, comparing Phase II to Classic CCS comparison group in pre- versus post-period

Table 275 provides comparisons of differences in annual depression screens between the Phase II WCM and Classic CCS comparison groups during the pre- and post-WCM implementation periods. During the pre-period, the odds of an annual depression screen in Phase II were about 90% lower than those for the Classic CCS comparison group ($p < .001$). Likewise, during the post-period, the odds of an annual depression screen in Phase II were about 80% lower than those for the Classic CCS comparison group ($p < .001$).

Table 275: Annual Depression Screens per 100 Clients Age 12 and Older in Phase II and Classic CCS Comparison Groups in Pre- versus Post-Period

	Annual Depression Screens per 100 Clients		Adjusted Odds Ratios*	
Period	Percentage Screened Phase II Group	Percentage Screened Classic CCS Comparison Group	(95% CI) Phase II Group vs. Classic	*P*-value
Pre-WCM Implementation	1	8	0.09 (0.07, 0.13)	<.001
Post-WCM Implementation	3	12	0.22 (0.18, 0.27)	<.001

*Adjusted for CDPS, disability, race, language, and gender.

Table 276 below provides comparisons of annual depression screens during the pre- to post-WCM implementation periods for the Phase II and Classic CCS comparison groups. For the Phase II group, the odds of an annual depression screen were 3.47 times greater during the post-period than during the pre-period ($p < .001$). Likewise, for the CCS comparison group, the odds of an annual depression screen during the post-period were 1.46 times greater than during the pre-period ($p < .001$). Given the greater increase in screenings in the Phase II group, the Difference in Differences from pre- to post-implementation periods between the Phase II and Classic CCS comparison groups is significant ($p < .001$).

Table 276: Annual Depression Screens per 100 Clients Age 12 and Older, Comparing Phase II in Pre- versus Post-Period, Classic CCS Comparison Group in Pre- versus Post-Period, and DiD Analysis

	Annual Depression Screens per 100 Clients		Adjusted Odds Ratios*	
Group	Percentage Screened Pre-WCM Implementation	Percentage Screened Post-WCM Implementation	(95% CI) Post- vs. Pre-Period	*P*-value
Phase II Group	1	3	3.47 (2.44, 4.94)	<.001
Classic CCS Comparison Group	8	12	1.46 (1.27, 1.68)	<.001
Difference in Differences			2.38 (1.63, 3.48)	<.001

*Adjusted for CDPS, disability, race, language, and gender.

Phase II Independent Variable Associations to Annual Depression Screens: Regression analysis shows that having higher illness severity, being Latinx or "other/unknown" race as compared to White, speaking Spanish as compared to English, or being female is significantly associated with having higher annual depression screens (see Appendix I).

Annual depression screening per 100 clients age 12 and older, comparing Phase III to Classic CCS comparison group in pre- versus post-period

Table 277 provides comparisons of differences in annual depression screens between the Phase III WCM and Classic CCS comparison groups during the pre- and post-WCM implementation periods. During the pre-period, the odds of an annual depression screen in Phase III were 14.2 times greater than for the Classic CCS comparison group ($p < .001$). Likewise, during the post-period, the odds of an annual depression screen in Phase II were 6.16 times greater than in the Classic CCS comparison group ($p < .001$).

Table 277: Annual Depression Screens per 100 Clients Age 12 and Older in Phase III and Classic CCS Comparison Groups in Pre- versus Post-Period

	Annual Depression Screens per 100 Clients		Adjusted Odds Ratios*	
Period	Percentage Screened Phase III Group	Percentage Screened Classic CCS Comparison Group	(95% CI) Phase III Group vs. Classic	*P*-value
Pre-WCM Implementation	22	2	14.24 (12.09, 16.78)	<.001
Post-WCM Implementation	21	4	6.16 (5.49, 6.93)	<.001

*Adjusted for CDPS, disability, race, language, and gender.

Table 278 below provides comparisons of the pre- to post-WCM implementation periods for the Phase III and Classic CCS comparison groups. For the Phase III group, the odds of an annual depression screen were about 10% lower during the post-period than during the pre-period ($p = .04$). For the CCS comparison group, the odds of an annual depression screen during the post-period were 2.14 times greater than during the pre-period ($p < .001$). Given the decrease in screenings in Phase III and increase in the Classic CCS comparison group, the Difference in Differences from pre- to post-implementation periods between the Phase III and Classic CCS comparison groups is significant ($p < .001$).

Table 278: Annual Depression Screens per 100 Clients Age 12 and Older, Comparing Phase III in Pre- versus Post-Period, Classic CCS Comparison Group in Pre- versus Post-Period, and DiD Analysis

	Annual Depression Screens per 100 Clients		Adjusted Odds Ratios*	
Group	Percentage Screened Pre-WCM Implementation	Percentage Screened Post-WCM Implementation	(95% CI) Post- vs. Pre-Period	*P*-value
Phase III Group	22	21	0.92 (0.86, 0.99)	.035
Classic CCS Comparison Group	2	4	2.14 (1.77, 2.57)	<.001
Difference in Differences			0.43 (0.35, 0.53)	<.001

*Adjusted for CDPS, disability, race, language, and gender.

Phase III Independent Variable Associations to Annual Depression Screens: After adjusting for gender, race, language, and CDPS, regression analysis shows that having higher illness severity or speaking Spanish or "other" language as compared to English is significantly associated with having higher annual depression screens (see Appendix I).

Overall summary of annual depression screening per 100 clients age 12 and older results, HPSM WCM and Phase I–Phase III

HPSM WCM had an increase in depression screening pre- versus post-WCM implementation. For both Phase I and Phase II study groups, annual depressions screening rates increased significantly more than their Classic CCS comparison groups post-WCM implementation. While the absolute screening rate in Phase III was much higher as compared to Classic CCS, the Phase III study group experienced a significantly lower probability of depression screening as compared to the Classic CCS comparison group post-WCM implementation.

Immunization Rates

UCSF reports the immunization rates for childhood immunizations and adolescent immunizations per phase. Unlike the other DiD models presented in the report, this analysis also addressed the impact of primary care and specialty care visits on immunization completion rates. The results are noted in regression model results below. Appendix X provides tables for each individual vaccine component that makes up the childhood and adolescent immunization measure.

Childhood immunization completion rates

Immunization (childhood) completion per 100 two-year-olds, comparing HPSM WCM to Classic CCS comparison group in pre- versus post-period

In the HPSM WCM group, there were insufficient observations for the pre-period for childhood immunizations to generate stable estimates for the DiD analysis. Instead, the UCSF evaluation team reports the proportion of childhood immunizations.

Table 279 below presents proportions of two-year-old clients who completed their immunization schedule. For the HPSM WCM group, there were three clients during the pre-period, none of whom had completed their immunization schedule; however, during the post-period there were 91 clients, 52.7% of whom had completed their immunization schedule. For the Classic CCS comparison group during the pre-period, 27.1% had completed their immunization schedule, and during the post-period, 24.4% had completed their immunization schedule.

Table 279: Childhood Immunization Completion per 100 Two-Year-Olds in HPSM WCM and Classic CCS Comparison Groups in Pre- versus Post-Period

		Childhood Immunization Completion per 100 2-Year-Olds		
Group	Study Group	Number of 2-Year-Olds	Number Immunized	Proportion Immunized
HPSM WCM Group	Pre-WCM	S	0	0.0
	Post-WCM	91	48	52.7
Classic CCS Comparison Group	Classic pre-WCM	59	16	27.1
	Classic post-WCM	119	29	24.4

HPSM WCM Independent Variable Associations to Childhood Immunization Completion: Regression analysis adjusted for race, language, and primary care and specialty care visits showed that speaking "other" language as compared to English is significantly associated with having higher childhood immunization (see Appendix I).

Immunization (childhood) completion per 100 two-year-olds, comparing Phase I to Classic CCS comparison group in pre- versus post-period

Table 280 below provides comparisons of differences in childhood immunization completion between the Phase I and Classic CCS comparison groups during the pre- and post-implementation periods. During the pre-period, the odds of

childhood immunization completion in the Phase I group were not significantly different from the Classic CCS comparison group. During post-period, the odds of childhood immunization completion in the Phase I group were 1.6 times greater than in the Classic CCS comparison group ($p < .001$).

Table 280: Childhood Immunization Completion per 100 Two-Year-Olds in Phase I and Classic CCS Comparison Groups in Pre- versus Post-Period

	Childhood Immunization Completion per 100 2-Year-Olds		Adjusted Odds Ratios*	
Period	Percentage Immunized Phase I Group	Percentage Immunized Classic CCS Comparison Group	(95% CI) Phase I Group vs. Classic	*P*-value
Pre-WCM Implementation	23	23	0.92 (0.75, 1.15)	.476
Post-WCM Implementation	35	24	1.55 (1.27, 1.89)	<.001

*Adjusted for race, language, primary care visits, and specialist visits.

Table 281 provides comparisons of childhood immunization completion from the pre- to post-WCM implementation periods for the Phase I and Classic CCS comparison groups. For the Phase I group, the odds of immunization completion in the post-period were 1.77 times greater than in the pre-period ($p < .001$). For the Classic CCS comparison group, the odds of immunization completion did not differ significantly from the pre- to post-periods. Given the greater increase in immunization completion in the Phase I group, the Difference in Differences from pre- to post-periods between the Phase I and Classic CCS comparison groups is significant ($p < .001$).

Table 281: Childhood Immunization Completion per 100 Two-Year-Olds, Comparing Phase I in Pre- versus Post-Period, Classic CCS Comparison Group in Pre- versus Post-Period, and DiD Analysis

	Childhood Immunization Completion per 100 2-Year-Olds		Adjusted Odds Ratios*	
Group	Percentage Immunized Pre-WCM Implementation	Percentage Immunized Post-WCM Implementation	(95% CI) Post- vs. Pre-Period	*P*-value
Phase I Group	23	35	1.77 (1.45, 2.16)	<.001
Classic CCS Comparison Group	23	24	1.06 (0.85, 1.31)	.596
Difference in Differences			1.67 (1.25, 2.24)	<.001

*Adjusted for race, language, primary care visits, and specialist visits.

Phase I Independent Variable Associations to Childhood Immunization Completion: Regression analysis shows that speaking Spanish as compared to English or having primary care visits is significantly associated with having higher childhood immunizations, while having specialist visits is significantly associated with having lower childhood immunization completion (see Appendix I).

Immunization (childhood) completion per 100 two-year-olds, comparing Phase II to Classic CCS comparison group in pre- versus post-period

Table 282 provides comparisons of differences in childhood immunization completion between the Phase II and Classic CCS comparison groups during the pre- and post-implementation periods. During the pre-period, the odds of childhood immunization completion in the Phase II group were not significantly different than in the Classic CCS comparison. Likewise, during the post-period, the odds of childhood immunization completion in the Phase II group were not significantly different than in the Classic CCS comparison group.

Table 282: Childhood Immunization Completion per 100 Two-Year-Olds in Phase II and Classic CCS Comparison Groups in Pre- versus Post-Period

	Childhood Immunization Completion per 100 2-Year-Olds		Adjusted Odds Ratios*	
Period	Percentage Immunized Phase II Group	Percentage Immunized Classic CCS Comparison Group	(95% CI) Phase II Group vs. Classic	*P*-value
Pre-WCM Implementation	22	24	0.89 (0.70, 1.13)	.329
Post-WCM Implementation	29	27	1.15 (0.88, 1.51)	.306

*Adjusted for race, language, primary care visits, and specialist visits.

Table 283 provides comparisons of childhood immunization completion from the pre- to post-WCM implementation periods for the Phase II and Classic CCS comparison groups. For the Phase II group, the odds of immunization completion during the post-period were 1.42 times greater than during the pre-period (p = .01). For the Classic CCS comparison group, the odds of immunization completion did not differ significantly from pre- to post-period. The Difference in Differences from pre- to post-implementation periods between the Phase II and Classic CCS comparison groups is not significant.

Table 283: Childhood Immunization Completion per 100 Two-Year-Olds, Comparing Phase II in Pre- versus Post-Period, Classic CCS Comparison Group in Pre- versus Post-Period, and DiD Analysis

	Childhood Immunization Completion per 100 2-Year-Olds		Adjusted Odds Ratios*	
Group	Percentage Immunized Pre-WCM Implementation	Percentage Immunized Post-WCM Implementation	(95% CI) Post- vs. Pre-Period	*P*-value
Phase II Group	22	29	1.42 (1.10, 1.83)	.006
Classic CCS Comparison Group	24	27	1.10 (0.85, 1.41)	.478
Difference in Differences			1.29 (0.91, 1.85)	.156

*Adjusted for race, language, primary care visits, and specialist visits.

Phase II Independent Variable Associations to Childhood Immunization Completion: Regression analysis shows that being Latinx as compared to White or speaking “other” language as compared to English is significantly associated

with having higher childhood immunization completion, while having specialist visits is significantly associated with having lower childhood immunization completion (see Appendix I).

Immunization (childhood) completion per 100 two-year-olds, comparing Phase III to Classic CCS comparison group in pre- versus post-period

Table 284 provides comparisons of differences in childhood immunization completion between the Phase III and Classic CCS comparison groups during the pre- and post-implementation periods. During the pre-period, the odds of childhood immunization completion in the Phase III group is 1.47 times greater than in the Classic CCS comparison ($p < .001$). Likewise, during the post-period, the odds of childhood immunization completion in the Phase III group is 1.31 times greater than in the Classic CCS comparison group ($p = .028$).

Table 284: Childhood Immunization Completion per 100 Two-Year-Olds in Phase III and Classic CCS Comparison Groups in Pre- versus Post-Period

	Childhood Immunization Completion per 100 2-Year-Olds		Adjusted Odds Ratios*	
Period	Percentage Immunized Phase III Group	Percentage Immunized Classic CCS Comparison Group	(95% CI) Phase III Group vs. Classic	*P*-value
Pre-WCM Implementation	29	22	1.47 (1.20, 1.82)	<.001
Post-WCM Implementation	32	28	1.31 (1.03, 1.66)	.028

*Adjusted for race, language, primary care visits, and specialist visits.

Table 285 provides comparisons of childhood immunization completion from the pre- to post-WCM implementation periods for the Phase III and Classic CCS comparison groups. For the Phase III group, the odds of immunization completion did not differ significantly between the pre- and post-periods. For the Classic CCS comparison group, the odds of immunization completion were 1.35 times greater during the post-period compared to the pre-period ($p = .013$). The Difference in Differences from pre- to post-implementation periods between the Phase III and Classic CCS comparison groups is not significant.

Table 285: Childhood Immunization Completion per 100 Two-Year-Olds, Comparing Phase III in Pre- versus Post-Period, Classic CCS Comparison Group in Pre- versus Post-Period, and DiD Analysis

	Childhood Immunization Completion per 100 2-Year-Olds		Adjusted Odds Ratios*	
Group	Percentage Immunized Pre-WCM Implementation	Percentage Immunized Post-WCM Implementation	(95% CI) Post- vs. Pre-Period	*P*-value
Phase III Group	29	32	1.19 (0.97, 1.47)	.092
Classic CCS Comparison Group	22	28	1.35 (1.07, 1.70)	.013
Difference in Differences			0.89 (0.65, 1.21)	.446

*Adjusted for race, language, primary care visits, and specialist visits.

Phase III Independent Variable Associations to Childhood Immunization Completion: Regression analysis shows that being Latinx or "other/unknown" race as compared to White or having primary care visits is significantly associated with having higher childhood immunization completion, while having specialist visits is significantly associated with having lower childhood immunization completion (see Appendix I).

Overall summary of immunization (childhood) completion per 100 two-year-olds results, HPSM WCM and Phase I–Phase III

Results on childhood immunization completion for the four study groups varied. HPSM WCM counts went up for childhood immunization completion. Phase I had an increase in the rate of childhood immunization completion as compared to Classic CCS post-WCM implementation. There was no statistically significant difference in Phase II and Phase III childhood immunizations rates as compared to their respective Classic CCS comparison groups post-WCM implementation.

Adolescent immunization completion results

Adolescent immunization completion per 100 13-year-olds, comparing HPSM WCM to Classic CCS comparison group in pre- versus post-period

There were insufficient observations in the pre-period for adolescent immunization completion to generate stable estimates for the DiD analysis or regression models. Instead, the UCSF evaluation team reports the proportion of adolescent immunizations.

Table 286 presents proportions of clients who completed their immunization schedule by age 13. For the HPSM WCM group, there were 16 clients during the post-period, 31.3% of whom had completed their immunization schedule. For the Classic CCS comparison group during the pre-period, 31.5% had completed their immunization schedule, and during the post-period, 37.4% had completed their immunization schedule.

Table 286: Proportion with Adolescent Immunization Completion per 100 13-Year-Olds in HPSM WCM and Classic CCS Comparison Groups in Pre- versus Post-Period

Adolescent Immunization Completion				
Group	Study Group	Number of 13-Year-Olds	Number Immunized	Proportion Immunized
HPSM WCM Group	Post-WCM	S	S	S
Classic CCS Comparison Group	Classic pre-WCM	54	17	31.5
	Classic post-WCM	123	46	37.4

HPSM WCM Independent Variable Associations to Adolescent Immunization Completion: Regression analysis shows that there were no independent predictors of adolescent immunization completion after adjusting for race, language, primary care visits, and specialist visits (see Appendix I).

Adolescent immunization completion per 100 13-year-olds, comparing Phase I to Classic CCS comparison group in pre- versus post-period

Table 287 below provides comparisons of differences in adolescent immunization completion between the Phase I and Classic CCS comparison groups during the pre- and post-implementation periods. During the pre-period, the odds of adolescent immunization completion in the Phase I group were not significantly different than in the Classic CCS comparison group. Likewise, during the post-period, the odds of adolescent immunization completion in the Classic CCS comparison group were not significantly different than in the Classic CCS comparison group.

Table 287: Adolescent Immunization Completion per 100 13-Year-Olds in Phase I and Classic CCS Comparison Groups in Pre- versus Post-Period

	Adolescent Immunization Completion per 100 13-Year-Olds		Adjusted Odds Ratios*	
Period	Percentage Immunized Phase I Group	Percentage Immunized Classic CCS Comparison Group	(95% CI) Phase I Group vs. Classic	*P*-value
Pre-WCM Implementation	25	28	0.83 (0.65, 1.07)	.148
Post-WCM Implementation	31	29	1.06 (0.87, 1.31)	.553

*Adjusted for race, language, primary care visits, and specialist visits.

Table 288 below provides comparisons of adolescent immunization completion from the pre- to post-WCM implementation periods for the Phase I and Classic CCS comparison groups. For the Phase I group, the odds of adolescent immunization completion were 1.32 times greater during the post-period compared to the pre-period (p = .02). For the Classic CCS comparison group, the odds of immunization completion did not differ significantly between the pre- and post-implementation periods. The Difference in Differences from pre- to post-implementation periods between the Phase I and Classic CCS comparison groups is not significant.

Table 288: Adolescent Immunization Completion per 100 13-Year-Olds, Comparing Phase I in Pre- versus Post-Period, Classic CCS Comparison Group in Pre- versus Post-Period, and DiD Analysis

	Adolescent Immunization Completion per 100 13-Year-Olds		Adjusted Odds Ratios*	
Group	Percentage Immunized Pre-WCM Implementation	Percentage Immunized Post-WCM Implementation	(95% CI) Post- vs. Pre-Period	*P*-value
Phase I Group	25	31	1.32 (1.05, 1.65)	.016
Classic CCS Comparison Group	28	29	1.03 (0.81, 1.30)	.814
Difference in Differences			1.28 (0.93, 1.77)	.132

*Adjusted for race, language, primary care visits, and specialist visits.

Phase I Independent Variable Associations to Adolescent Immunization Completion: Regression analysis shows that speaking Spanish as compared to English is significantly associated with having higher adolescent immunization completion (see Appendix I).

Adolescent immunization completion per 100 13-year-olds, comparing Phase II to Classic CCS comparison group in pre- versus post-period

Table 289 below provides comparisons of differences in adolescent immunization completion between the Phase II and Classic CCS comparison groups during the pre- and post-implementation periods. During the pre-period, the odds of adolescent immunization completion in the Phase II group were not significantly different from the Classic CCS comparison. Likewise, during the post-period, the odds of adolescent immunization completion in the Phase II group were not significantly different from the Classic CCS comparison group.

Table 289: Adolescent Immunization Completion per 100 13-Year-Olds in Phase II and Classic CCS Comparison Groups Pre- versus Post-Period

	Adolescent Immunization Completion per 100 13-Year-Olds		Adjusted Odds Ratios*	
Period	Percentage Immunized Phase II Group	Percentage Immunized Classic CCS Comparison Group	(95% CI) Phase II Group vs. Classic	*P*-value
Pre-WCM Implementation	23	23	1.10 (0.82, 1.45)	.529
Post-WCM Implementation	29	27	1.25 (0.93, 1.67)	.144

*Adjusted for race, language, primary care visits, and specialist visits.

Table 290 below provides comparisons of adolescent immunization completion from the pre- to post-WCM implementation periods for the Phase II and Classic CCS comparison groups. For the Phase II group, the odds of immunization completion during the post-period were 1.45 times greater than during the pre-period (p = .01). For the Classic CCS comparison group, the odds of immunization completion did not differ significantly between the pre- and post-period. The Difference in Differences from pre- to post-implementation periods between the Phase II and Classic CCS comparison groups is not significant.

Table 290: Adolescent Immunization Completion per 100 13-Year-Olds, Comparing Phase II in Pre- versus Post-Period, Classic CCS Comparison Group in Pre- versus Post-Period, and DiD Analysis

	Adolescent Immunization Completion per 100 13-Year-Olds		Adjusted Odds Ratios*	
Group	Percentage Immunized Pre-WCM Implementation	Percentage Immunized Post-WCM Implementation	(95% CI) Post- vs. Pre-Period	*P*-value
Phase II Group	23	29	1.45 (1.09, 1.92)	.010
Classic CCS Comparison Group	23	27	1.28 (0.95, 1.71)	.103
Difference in Differences			1.14 (0.76, 1.70)	.533

*Adjusted for race, language, primary care visits, and specialist visits.

Phase II Independent Variable Associations to Adolescent Immunization Completion: Regression analysis shows that being Black, Latinx, or "other/unknown" race as compared to White or speaking "other" language as compared to English is significantly associated with having higher adolescent immunization completion (see Appendix I).

Adolescent immunization completion per 100 13-year-olds, comparing Phase III to Classic CCS comparison group in pre- versus post-period

Table 291 below provides comparisons of differences in adolescent immunization completion between the Phase III and Classic CCS comparison groups during the pre- and post-implementation periods. During the pre-period, the odds of adolescent immunization completion in the Phase III group were not significantly different from the Classic CCS comparison. Likewise, during the post-period, the odds of adolescent immunization completion in the Phase III group were not significantly different than the Classic CCS comparison group.

Table 291: Adolescent Immunization Completion per 100 13-Year-Olds in Phase III and Classic CCS Comparison Groups Pre- versus Post-Period

	Adolescent Immunization Completion per 100 13-Year-Olds		Adjusted Odds Ratios*	
Period	Percentage Immunized Phase III Group	Percentage Immunized Classic CCS Comparison Group	(95% CI) Phase III Group vs. Classic	*P*-value
Pre-WCM Implementation	33	31	1.14 (0.94, 1.39)	.176
Post-WCM Implementation	34	29	1.25 (1.00, 1.56)	.054

*Adjusted for race, language, primary care visits, and specialist visits.

Table 292 below provides comparisons of adolescent immunization completion from the pre- to post-WCM implementation periods for the Phase III and Classic CCS comparison groups. For the Phase III group, the odds of immunization completion did not differ significantly between the pre- and post-periods. Likewise, for the Classic CCS comparison group, the odds of immunization completion did not differ significantly from the pre- to post-implementation periods. The Difference in Differences from pre- to post-implementation periods between the Phase III and Classic CCS comparison groups is not significant.

Table 292: Adolescent Immunization Completion per 100 13-Year-Olds, Comparing Phase III in Pre- versus Post-Period, Classic CCS Comparison Group in Pre- versus Post-Period, and DiD Analysis

	Adolescent Immunizations per 100 13-Year-Olds		Adjusted Odds Ratios*	
Group	Percentage Immunized Pre-WCM Implementation	Percentage Immunized Post-WCM Implementation	(95% CI) Post- vs. Pre-Period	*P*-value
Phase III Group	33	34	1.05 (0.85, 1.28)	.663
Classic CCS Comparison Group	31	29	0.96 (0.77, 1.19)	.698
Difference in Differences			1.09 (0.81, 1.47)	.560

*Adjusted for race, language, primary care visits, and specialist visits.

Phase III Independent Variable Associations to Adolescent Immunization Completion: Regression analysis shows that being Latinx or "other/unknown" race as compared to White is significantly associated with having higher adolescent immunization completion (see Appendix I).

Overall summary of adolescent immunization completion per 100 13-year-olds results, HPSM WCM and Phase I–Phase III

HPSM WCM adolescent vaccination was similar to the Classic CCS comparison group. The Phase I–III study groups did not vary in adolescent immunization rates as compared to the Classic CCS comparisons groups after implementation of the WCM.

Overall Administrative Claims Summary of Research Question 4

Changes in HbA1c was unable to be assessed due to lack of comparison group and very few clients with diabetes represented from HPSM WCM. The other WCM MCPs were unable to provide any clinical data.

Depression screening rates in the WCM plans improved significantly for Phase I and Phase II as compared to Classic CCS comparison groups after implementation of the WCM. While the absolute depression screening rate in Phase III was much higher as compared to Classic CCS, the Phase III study group probability of depression screening decreased as compared to the Classic CCS comparison group post-WCM implementation.

Overall, childhood immunization rates among CCS clients were low in both the WCM and Classic CCS groups (~25%–30%). Not having the rotavirus vaccine or influenza completed was the primary driver of having not met the full childhood immunization criteria (see Appendix X). Childhood immunizations rates in Phase II and Phase III childhood vaccination rates did not differ compared to Classic CCS comparison group post-WCM implementation.

Overall, adolescent immunization rates among CCS clients were low in both the WCM and Classic CCS (~30%). The low overall adolescent immunization rate was largely driven by the low uptake of the HPV (human papillomavirus) vaccine, which was around 30% (see Appendix X). Adolescent immunization rates in the WCM plans did not differ from Classic CCS comparison groups after implementation of the WCM.

Generally, higher primary care visits were associated with higher childhood immunization rates, while higher specialty care visits were associated with lower childhood immunization rates. Adolescent vaccination rates were not affected by number of primary care or specialty care visits. Being Latinx was associated with having higher childhood and adolescent immunization rates as compared to those who identified as White. Speaking Spanish as compared to English was also associated with higher childhood and adolescent immunization receipt.

Research Question 5: What is the impact of the WCM on care coordination?

The results for Research Question 5 are organized as follows:

1. Key informant interview results
2. Telephone survey results
3. Analysis of administrative data for care coordination and health outcomes:
    a. Case management claims
    b. Durable medical equipment time to referral approval
    c. Special Care Center visits within 90 days of referral results
    d. Being seen by Special Care Center at least yearly (cystic fibrosis, sickle cell disease, type 1 diabetes, congenital heart disease)
    e. Transition to adult care outcomes at age 21. For this evaluation, the UCSF evaluation team defines “transition to adult care” as the time when a client turns 21 and is discharged from the CCS program.
        i) Maintenance of insurance after discharge from CCS
        ii) Seen by primary care after discharge from CCS
        iii) Seen by specialists after discharge from CCS
        iv) ED visits after discharge from CCS
        v) Hospitalization stays after discharge from CCS

Key Informant Interview Results

The implementation of the WCM disrupted case management processes because CCS public health nurses (PHNs) were no longer the case managers for CCS clients — instead, case management became the responsibility of the MCP. The entities had fundamental differences in how they operationalized case management for CCS clients.

> *“What does case management mean? Our [CCS] nurses case manage from a proactive viewpoint, where they follow these kids on a regular basis, and they're continually following up with the families and with us as therapists so they get a whole picture of the child. The health plans — they follow by claims data and they're more reactive, and the families have to call them with a problem. That's been a huge shift for our families, too, trying to get used to that.”* (MTP KI)

These differences and shift in responsibilities had a tremendous impact on the clients, many of whom were accustomed to a more personalized and intimate relationship with their CCS case manager. As one county KI noted, *"Before the change [to WCM, CCS] was pretty much one-stop shopping."* In the MCP, CCS clients often did not have a dedicated case manager and did not have a direct number they could call when they had questions.

> *"Families are used to having one person help them with everything [in CCS] and they don't have that now. . . . [In the MCP] they have to jump through all these different hoops and go through these phone trees and go through all this stuff just to get to a person that they can talk to."* (CCS KI)

Another area where the change in case management was acutely felt was in the medical therapy conference. Since CCS was no longer responsible for case management, it no longer sent a PHN to the conference to help with DME approvals and service authorizations. This change was noted by MTU staff, many of whom had to take on additional case management responsibilities. Their increased responsibilities had a twofold impact of not only decreasing their direct treatment hours spent with clients, but also slowing down the authorization process and client access to specialty care.

> *"In the past, when a child was referred to a Special Care Center, a nurse from CCS would just do the authorization on the spot at our medical therapy conference. Now that is not done because we don't have a nurse there."* (MTP KI)

A full report of the KI findings can be found in Appendix R.

Telephone Survey Results

The telephone survey inquired about care coordination, including items drawn from sections of the survey that inquire about:

- Care coordination / case management services
- Provider communication
- Transition to adult care

Care Coordination / Case Management

Impact on Care Coordination Help: The majority of respondents in all WCM study groups (69%) were "usually" or "always" able to get as much help as they wanted with arranging or coordinating healthcare. The differences between the WCM study groups and Classic CCS were not statistically significant. See Table 293.

Table 293: Clients' Help with Care Coordination

During the past 6 months, how often did you get as much help as you wanted with arranging or coordinating [CHILD'S NAME]'s healthcare? (Q71)						
	HPSM	Phase I	Phase II	Phase III	Classic CCS	Total
Always	25	53	36	29	74	217
	37.88	39.26	38.30	40.28	42.77	40.19
Usually	25	41	22	22	45	155
	37.88	30.37	23.40	30.56	26.01	28.70
Sometimes	13	25	20	14	28	100
	19.70	18.52	21.28	19.44	16.18	18.52
Never	3	16	16	7	26	68
	4.55	11.85	17.02	9.72	15.03	12.59
Total	66	135	94	72	173	540
	100.00	100.00	100.00	100.00	100.00	100.00
Rao-Scott Chi^2	9.18					
P-value	.69					

• First row has frequencies from raw, nonweighted survey results. The second row has column percentages.
• The Rao-Scott chi-square analysis used appropriate survey sample weights.
• The *p*-value represents the significance of the analysis. A *p*-value less than .05 is considered significant.

Impact on Quality-of-Care Coordination / Case Management Services: Since transitioning into WCM, the majority of respondents in Phase I (71%), Phase II (67%), and Phase III (84%) indicated that care coordination / case management services were "better since the transition" or "about the same." A large percentage of HPSM WCM respondents (55%) indicated "don't know," unable to state whether there was a change in the quality-of-care coordination / case management services received. The HPSM WCM was implemented more than six years before administration of the survey, which likely contributed to the high percentage of "don't know" responses. The HPSM WCM respondents (42%) indicated that care coordination / case management services were "better since the transition" or "about the same." The HPSM WCM

response distribution accounts for the significant difference between the other WCM study groups. The differences among Phase I, Phase II, and Phase III WCM study groups were not significant. See Table 294.

Table 294: Quality of Clients' Care Coordination

Q72. [Asked only of respondents enrolled in WCM] Since the transition to [NAME OF HEALTH PLAN], have the care coordination / case management services that [CHILD'S NAME] receives been better, the same, or worse? (Q72)					
	HPSM	Phase I	Phase II	Phase III	Total
Better since the transition	11	34	16	13	74
	15.49	23.13	16.67	17.57	19.07
About the same	19	70	48	49	186
	26.76	47.62	50.00	66.22	47.94
Worse since the transition	2	18	13	5	38
	2.82	12.24	13.54	6.76	9.79
Don't know	39	25	19	7	90
	54.93	17.01	19.79	9.46	23.20
Total	71	147	96	74	388
	100.00	100.00	100.00	100.00	100.00
Rao-Scott Chi^2	43.29				
P-value	<.0001				

- First row has frequencies from raw, nonweighted survey results. The second row has column percentages.
- The Rao-Scott chi-square analysis used appropriate survey sample weights.
- The *p*-value represents the significance of the analysis. A *p*-value less than .05 is considered significant.

Impact on Care Coordination Assistance with Activities — Count: For Phase III clients, the care coordinator / case manager assisted on average with the fewest activities (mean = 1.6), which was significantly fewer than the mean number of activities a care coordinator / case manager provided to Classic CCS respondents (mean = 1.8). The care coordinator / case manager assistance provided to clients in HPSM WCM, Phase I, and Phase II did not significantly differ from Classic CCS clients. See Table 295.

Table 295: Mean Number of Activities Care Coordinator Helped Survey Respondents With

MEANS: In the last 6 months, has your care coordinator / case manager helped you with any of the following things? (Check all that apply) (Q73)						
WCM Group	*N*	Missing *N*	Mean	Standard Deviation	Min	Max
HPSM WCM	45	271	1.91	1.06	1.00	4.00
Phase I	95	695	1.92	1.08	1.00	5.00
Phase II	56	395	1.70	1.04	1.00	4.00
Phase III	49	272	1.57	0.76	1.00	3.00
Classic CCS	121	884	1.81	0.97	1.00	5.00

• Values are raw, nonweighted survey results.

Know How to Contact Care Coordinator / Case Manager: The majority of respondents in all WCM study groups (72%) reported knowing how to contact their care coordinator / case manager either by having "direct contact information," "a general number," or going "through the phone tree to find someone to talk to." Compared to Classic CCS respondents, Phase III respondents were significantly less likely to know how to contact their care coordinator / case manager. See Table 296.

Table 296: Survey Respondents Who Knew How to Contact Care Coordinator

Do you know how to contact your care coordinator / case manager? (Q74)						
	HPSM	Phase I	Phase II	Phase III	Classic CCS	Total
Yes, I have direct contact information, including their email address or direct telephone number	31	57	41	29	97	255
	53.45	44.88	46.07	43.28	56.07	49.61
Yes, I contact a general number at current plan and leave a message for them to contact me	5	19	8	11	20	63
	8.62	14.96	8.99	16.42	11.56	12.26
	5	15	9	5	18	52

Do you know how to contact your care coordinator / case manager? (Q74)						
	HPSM	Phase I	Phase II	Phase III	Classic CCS	Total
Yes, I contact current plan and go through the phone tree to find someone to talk to	8.62	11.81	10.11	7.46	10.40	10.12
No, I don't know how to contact them	17	36	31	22	38	144
	29.31	28.35	34.83	32.84	21.97	28.02
Total	58	127	89	67	173	514
	100.00	100.00	100.00	100.00	100.00	100.00
Rao-Scott Chi^2	19.45					
P-value	.08					

• First row has frequencies from raw, nonweighted survey results. The second row has column percentages.
• The Rao-Scott chi-square analysis used appropriate survey sample weights.
• The *p*-value represents the significance of the analysis. A *p*-value less than .05 is considered significant.

Impact on Care Coordination Communication: The largest percentage of respondents in all WCM study groups met with their care coordinator / case manager to discuss healthcare or service needs either “every few months” (39%) or “never” (35%). The differences between WCM study groups and Classic CCS were not statistically significant. See Table 297.

Table 297: How Often Survey Respondents Met with Care Coordinator to Discuss Child’s Health

In the last 6 months, how often have you talked to or met with [CHILD’S NAME]’s care coordinator / case manager to discuss [CHILD’S NAME]’s healthcare or service needs? (Q75)						
	HPSM	Phase I	Phase II	Phase III	Classic CCS	Total
More than once a month	6	11	10	6	18	51
	10.71	9.40	12.35	8.70	10.78	10.41
About once a month	6	21	12	13	26	78
	10.71	17.95	14.81	18.84	15.57	15.92

In the last 6 months, how often have you talked to or met with [CHILD'S NAME]'s care coordinator / case manager to discuss [CHILD'S NAME]'s healthcare or service needs? (Q75)						
	HPSM	Phase I	Phase II	Phase III	Classic CCS	Total
Every few months	23	44	26	27	69	189
	41.07	37.61	32.10	39.13	41.32	38.57
Never	21	41	33	23	54	172
	37.50	35.04	40.74	33.33	32.34	35.10
Total	56	117	81	69	167	490
	100.00	100.00	100.00	100.00	100.00	100.00
Rao-Scott Chi^2	7.89					
P-value	.79					

• First row has frequencies from raw, nonweighted survey results. The second row has column percentages.
• The Rao-Scott chi-square analysis used appropriate survey sample weights.
• The *p*-value represents the significance of the analysis. A *p*-value less than .05 is considered significant.

Impact on Care Coordination Knowledge of Child's Medical History: A majority of respondents in all WCM study groups (60%) indicated the care coordinator / case manager demonstrated knowledge of important information related to the client's medical history "usually" or "always." The differences between WCM study groups and Classic CCS were not statistically significant. See Table 298.

Table 298: How Often Care Coordinator Demonstrated Knowledge About Child's Medical History

[Only if Q75 = "More than once a month," "About once a month," "Every few months," or "Never"] In the past 6 months, how often did the care coordinator / case manager demonstrate knowledge of important information related to [CHILD'S NAME]'s medical history? (Q76)						
	HPSM	Phase I	Phase II	Phase III	Classic CCS	Total
Never	6	20	18	7	18	69
	15.00	23.26	32.14	15.91	15.13	20.00
Sometimes	12	9	10	13	22	66

[Only if Q75 = “More than once a month,” “About once a month,” “Every few months,” or “Never”] In the past 6 months, how often did the care coordinator / case manager demonstrate knowledge of important information related to [CHILD’S NAME]’s medical history? (Q76)						
	HPSM	Phase I	Phase II	Phase III	Classic CCS	Total
	30.00	10.47	17.86	29.55	18.49	19.13
Usually	8	21	8	7	30	74
	20.00	24.42	14.29	15.91	25.21	21.45
Always	14	36	20	17	49	136
	35.00	41.86	35.71	38.64	41.18	39.42
Total	40	86	56	44	119	345
	100.00	100.00	100.00	100.00	100.00	100.00
Rao-Scott Chi^2	20.24					
P-value	.06					

• First row has frequencies from raw, nonweighted survey results. The second row has column percentages.
• The Rao-Scott chi-square analysis used appropriate survey sample weights.
• The *p*-value represents the significance of the analysis. A *p*-value less than .05 is considered significant.

Impact on Care Coordination Satisfaction: A majority of respondents in all WCM study groups (67%) indicated they were “satisfied” or “very satisfied” with the care coordination / case management they have received. Compared to Classic CCS respondents (72%), significantly fewer Phase II respondents (51%) indicated they were “satisfied” or “very satisfied” with the care coordination / case management they have received. Phase II respondents responded “neither satisfied nor dissatisfied” more often (24%) than Classic CCS respondents (11%). Similarly, more Phase II respondents (25%) indicated they were “dissatisfied” or “very dissatisfied” with the care coordination / case management services compared to Classic CCS respondents (17%). The HPSM WCM, Phase I, and Phase III responses did not differ from Classic CCS respondents. See Table 299.

Table 299: Clients' Satisfaction with Care Coordination

How satisfied are you with the care coordination / case management [CHILD'S NAME] received through [NAME OF HEALTH PLAN / COUNTY CCS]? (Q77)						
	HPSM	Phase I	Phase II	Phase III	Classic CCS	Total
Very dissatisfied	6	8	8	3	15	40
	10.53	6.72	9.64	4.48	9.43	8.25
Dissatisfied	3	14	13	2	12	44
	5.26	11.76	15.66	2.99	7.55	9.07
Neither satisfied nor dissatisfied	8	18	20	11	17	74
	14.04	15.13	24.10	16.42	10.69	15.26
Satisfied	27	47	27	36	70	207
	47.37	39.50	32.53	53.73	44.03	42.68
Very satisfied	13	32	15	15	45	120
	22.81	26.89	18.07	22.39	28.30	24.74
Total	57	119	83	67	159	485
	100.00	100.00	100.00	100.00	100.00	100.00
Rao-Scott Chi^2	37.07					
P-value	.002					

• First row has frequencies from raw, nonweighted survey results. The second row has column percentages.
• The Rao-Scott chi-square analysis used appropriate survey sample weights.
• The *p*-value represents the significance of the analysis. A *p*-value less than .05 is considered significant.

Provider Communication

Impact on Care Coordination of Medical Procedures: The majority of respondents in all WCM study groups (96%) reported that their doctors did not order medical tests or procedures that were unnecessary because they had already been done. While Phase I differed significantly from Classic CCS, it is unlikely that the difference is meaningful. The differences between HPSM WCM, Phase II, and Phase III WCM study groups and Classic CCS were not significant. See Table 300.

Table 300: Survey Respondents Who Reported Unnecessary Tests

In the past 6 months, was there ever a time when doctors ordered a medical test or procedure that you felt was unnecessary because the test had already been done? (Q60)						
	HPSM	Phase I	Phase II	Phase III	Classic CCS	Total
No	295	733	428	292	913	2,661
	96.72	96.57	96.61	94.81	94.51	95.69
Yes	10	26	15	16	53	120
	3.28	3.43	3.39	5.19	5.49	4.31
Total	305	759	443	308	966	2,781
	100.00	100.00	100.00	100.00	100.00	100.00
Rao-Scott Chi^2	7.36					
P-value	.12					

• First row has frequencies from raw, nonweighted survey results. The second row has column percentages.
• The Rao-Scott chi-square analysis used appropriate survey sample weights.
• The *p*-value represents he significance of the analysis. A *p*-value less than .05 is considered significant.

Transition to Adult Care

Discussed Adult Transition: The transition to healthcare providers who care for adults rather than children is important for many families as their children get close to aging out of WCM or Classic CCS when they turn 21. Among those with a client 12 years or older, almost two-thirds of respondents (62%) across WCM study groups indicated that they "did not discuss, and it would have been helpful" to discuss the shift to adult care with their provider. There were no significant differences between the WCM study groups and Classic CCS. See Table 301.

Table 301: Survey Respondents Who Talked with Providers About Transition to Adult Care

[Asked only if client is age 12+] Did providers talk with you and/or [CHILD'S NAME] about the shift to adult healthcare providers? (Q78)						
	HPSM	Phase I	Phase II	Phase III	Classic CCS	Total
Discussed this	25	70	48	33	80	256

[Asked only if client is age 12+] Did providers talk with you and/or [CHILD'S NAME] about the shift to adult healthcare providers? (Q78)						
	HPSM	Phase I	Phase II	Phase III	Classic CCS	Total
	35.21	36.27	46.15	38.82	37.56	38.44
Did not discuss, and it would have been helpful	46	123	56	52	133	410
	64.79	63.73	53.85	61.18	62.44	61.56
Total	71	193	104	85	213	666
	100.00	100.00	100.00	100.00	100.00	100.00
Rao-Scott Chi^2	2.80					
P-value	.59					

• First row has frequencies from raw, nonweighted survey results. The second row has column percentages.
• The Rao-Scott chi-square analysis used appropriate survey sample weights.
• The *p*-value represents the significance of the analysis. A *p*-value less than .05 is considered significant.

Summary of Research Question 5: What is the impact of the WCM on care coordination?

For the majority of items evaluating the impact of WCM on care coordination, there were no significant differences between the WCM study groups and Classic CCS.

There were, however, some differences between WCM study groups and Classic CCS:

- Care coordination / case management services
  - **Know How to Contact Care Coordinator / Case Manager:** The majority of respondents in all WCM study groups (72%) reported knowing how to contact their care coordinator / case manager either by having "direct contact information," "a general number," or going "through the phone tree to find someone to talk to." However, compared to Classic CCS respondents, Phase III respondents were significantly less likely to know how to contact their care coordinator / case manager.
  - **Impact on Care Coordination Satisfaction:** A majority of respondents in all WCM study groups (67%) indicated they were "satisfied" or "very satisfied" with the care coordination / case management they have received. However, compared to Classic CCS respondents (72%), significantly fewer Phase II respondents (51%) indicated they were "satisfied" or "very satisfied" with the care coordination / case management they have received. Phase

II respondents also responded “neither satisfied nor dissatisfied” more often (24%) than Classic CCS respondents (11%). Similarly, more Phase II respondents (25%) indicated they were “dissatisfied” or “very dissatisfied” with the care coordination / case management services compared to Classic CCS respondents (17%).

- Provider communication
  - **Impact on Care Coordination of Medical Procedures:** The majority of respondents in all WCM study groups (96%) reported that their doctors did not order medical tests or procedures that were unnecessary because they had already been done. Although Phase I differed significantly from Classic CCS, it is unlikely that this difference would impact the care received.

Even though many aspects of care coordination / case management services were not significant among WCM phases and Classic CCS counties, they might benefit from a more in-depth look on how to improve them. For example, 48% of respondents in the WCM study groups indicated services were “about the same,” while 19% indicated they were “better since the transition” and 23% indicated “don’t know.” A review of satisfaction shows that while 67% of respondents are “satisfied” or “very satisfied,” a large percentage of respondents, 33%, are “neither satisfied nor dissatisfied,” “dissatisfied,” or “very dissatisfied.” Also, a large percentage of respondents, 39%, indicated the care coordinator / case manager “sometimes” or “never” demonstrated knowledge of important information related to the client’s medical history. Care coordination / case management services is such a crucial component for the overall care of the client that it might be beneficial to explore how to improve these services.

Research Question 5: Nonsignificant Telephone Survey Items

The following survey items that pertained to the impact of the WCM on care coordination did not have any significant differences between WCM study groups:

- Care coordination / case management services
  - Impact on care coordination help
  - Impact on quality-of-care coordination / case management services (WCM only)
  - Impact on care coordination assistance with activities — count
  - Impact on care coordination communication
  - Impact on care coordination knowledge of child’s medical history
- Transition to adult care

- **Discussed Adult Transition:** While there were no significant differences between the healthcare models, it is important to note that almost two-thirds of respondents across WCM study groups indicated that they "did not discuss, and it would have been helpful" to discuss the shift to adult care with their provider.

Additional findings regarding care coordination can be found in Appendix S and Appendix T.

Analysis of Administrative Data for Care Coordination / Case Management and Health Outcomes

Overview

This section presents the results for case management, Special Care Center visit within 90 days of referral placement, and transition to adult care (health outcomes after discharge from CCS at age 21) metrics by plan/phase.

Table 302 presents HPSM WCM and Classic CCS comparison groups pre- and post-WCM implementation counts for clients and member months and counts for case management claims per 1,000 member months.

Table 303 presents Phase I and Classic CCS comparison groups pre- and post-WCM implementation counts for clients and member months and counts for case management claims per 1,000 member months.

Table 304 presents Phase II and Classic CCS comparison groups pre- and post-WCM implementation counts for clients and member months and counts for case management claims per 1,000 member months.

Table 305 presents Phase III and Classic CCS comparison groups pre- and post-WCM implementation counts for clients and member months and counts for case management claims per 1,000 member months.

Results of the analyses of WCM healthcare visits/services evaluation include results of the four WCM study groups (HPSM WCM, Phase I, Phase II, and Phase III), each compared to its matched Classic CCS comparison group, from pre- to post-WCM implementation. Tables and text comparing differences in WCM and Classic CCS comparison visit counts individually may be provided for each of the four WCM study groups and may include:

- Comparisons of visit utilization between the WCM intervention group and its Classic CCS comparison group at pre-period and post-period, and significance levels for each
- Comparisons of visits from the pre- to post-WCM implementation period for the WCM intervention and Classic CCS comparison groups separately and their significance of differences; further comparison of the size of the changes

from pre- to post-WCM period to determine if visit rate changes differed significantly between the WCM intervention and Classic CCS comparison groups

- A scatter plot of visit count trends for each of the WCM intervention and Classic CCS comparison groups across the individual years of the pre- and post-implementation periods
- DiD regression goodness-of-model-fit description
- Narrative describing any demographic differences in visit changes — age, gender, race/ethnicity, language spoken at home, condition severity (Chronic Illness and Disability Payment System score), disability (Children with Disabilities Algorithm disability indicator), and season (winter, spring, summer, fall)
- Summary of Research Question 5 outcomes

Case Management Claims Results

For case management claims, the UCSF evaluation team provides first a descriptive table of case management claims per 1,000 member months (MM). Then, for each WCM phase, a Difference in Differences analysis was performed.

Table 302: HPSM WCM versus Classic CCS Case Management Claims per 1,000 Member Months

	HPSM WCM					Classic CCS Counties				
	Year					Year				
Measure	**-2**	**-1**	**+1**	**+2**	**+3**	**-2**	**-1**	**+1**	**+2**	**+3**
Clients	66	65	309	514	682	1,517	1,650	1,797	1,632	1,583
Member Months	242	245	1,774	3,926	5,865	13,918	15,085	15,366	14,375	14,517
Clients Served	27	29	290	472	639	1,428	1,536	1,642	1,477	1,449
Pct. Clients Served	40.9	44.6	93.9	91.8	93.7	94.1	93.1	91.4	90.5	91.5
Service per 1,000 Member Months										
Case Management	17	0	137	103	85	115	100	153	156	159

• Pre-WCM: Fee-for-Service CCS clients in San Mateo County between July 2016 and June 2021 who were never in the San Mateo CCS DP.
• Post-WCM: HPSM WCM clients between July 2018 and June 2021.
• Classic Pre-WCM: Propensity score–matched CCS clients in classic counties between July 2016 and June 2018.
• Classic Post-WCM: Propensity score–matched CCS clients in classic counties between July 2018 and June 2021.
• See Appendix J for propensity score–matching methodology.

Table 303: Phase I versus Classic CCS Case Management Claims per 1,000 Member Months

	Phase I Counties					Classic CCS Counties				
	Year					Year				
Measure	**-2**	**-1**	**+1**	**+2**	**+3**	**-2**	**-1**	**+1**	**+2**	**+3**
Clients	13,369	13,646	12,330	11,607	11,920	12,468	12,351	12,339	11,908	11,864
Member Months	120,607	121,938	113,776	109,359	117,301	108,209	108,411	109,026	108,184	109,557
Clients Served	12,551	12,605	11,519	10,866	11,147	11,425	11,298	11,231	10,871	10,642
Pct. Clients Served	93.9	92.4	93.4	93.6	93.5	91.6	91.5	91.0	91.3	89.7
Service per 1,000 Member Months										
Case Management	13	12	15	17	23	34	29	40	55	62

- Pre-WCM: Phase I County CCS clients between July 2016 and June 2018.
- Post-WCM: CCS clients in WCM between July 2018 and June 2021.
- Classic Pre-WCM: Propensity score–matched CCS clients in classic counties between July 2016 and June 2018.
- Classic Post-WCM: Propensity score–matched CCS clients in classic counties between July 2018 and June 2021.
- See Appendix J for propensity score–matching methodology.

Table 304: Phase II versus Classic CCS Case Management Claims per 1,000 Member Months

	Phase II Counties				Classic CCS Counties			
	Year				Year			
Measure	**-2**	**-1**	**+1**	**+2**	**-2**	**-1**	**+1**	**+2**
Clients	10,710	10,655	9,641	9,409	10,439	10,073	9,772	9,391
Member Months	98,599	98,579	91,951	92,306	93,591	92,124	89,743	88,250
Clients Served	9,925	9,859	9,114	8,796	9,670	9,285	9,020	8,572
Pct. Clients Served	92.7	92.5	94.5	93.5	92.6	92.2	92.3	91.3
Service per 1,000 Member Months								
Case Management	60	56	55	50	87	67	58	67

- Phase II Pre-WCM: CCS clients in Phase II counties who were not in WCM between January 2017 and December 2020.
- Phase II Post-WCM CCS clients in WCM between January 2019 and December 2020.
- Classic Pre-WCM: Propensity score–matched CCS clients in classic counties between January 2017 and December 2018.
- Classic Post-WCM: Propensity score–matched CCS clients in classic counties between January 2019 and December 2020.
- See Appendix J for propensity score–matching methodology.

Table 305: Phase III versus Classic CCS Case Management Claims per 1,000 Member Months

	Phase III Orange County				Classic CCS Counties			
	Year				Year			
Measure	**-2**	**-1**	**+1**	**+2**	**-2**	**-1**	**+1**	**+2**
Clients	16,811	16,375	14,481	13,969	14,166	14,665	14,602	14,562
Member Months	160,153	154,230	140,902	138,606	133,538	138,070	139,697	141,122
Clients Served	15,571	15,070	13,574	13,101	13,239	13,625	13,491	13,313
Pct. Clients Served	92.6	92.0	93.7	93.8	93.5	92.9	92.4	91.4
Service per 1,000 Member Months								
Case Management	82	92	125	138	56	56	57	67

- Phase III Pre-WCM: CCS clients in Orange County who were not in WCM between July 2017 and June 2021.
- Phase III Post-WCM CCS clients in WCM between July 2019 and June 2021.
- Classic Pre-WCM: Propensity score–matched CCS clients in classic counties between July 2017 and June 2019.
- Classic Post-WCM: Propensity score–matched CCS clients in classic counties between July 2019 and June 2021.
- See Appendix J for propensity score–matching methodology.

Case management claims per 1,000 member months, comparing HPSM WCM to Classic CCS comparison group in pre- versus post-period

Table 306 provides comparisons of differences in case management claims between the HPSM WCM and Classic CCS comparison groups during the pre- and post-WCM implementation periods separately. During the pre-period, the odds of an HPSM WCM client having a case management claim were about 90% lower than for a Classic CCS comparison group client (p = .006). During the post-period, the odds of an HPSM WCM client having a case management claim were about 40% lower than for a Classic CCS comparison group client (p = .006).

Table 306: Case Management Claims per 1,000 Member Months, Comparing HPSM WCM to Classic CCS Comparison Group in Pre- versus Post-Period

	Case Management Claims per 1,000 Member Months		Adjusted Odds Ratios*	
Period	HPSM WCM Group	Classic CCS Comparison Group	(95% CI) HPSM WCM Group vs. Classic	*P*-value
Pre-WCM Implementation	8	108	0.10 (0.02, 0.52)	.006
Post-WCM Implementation	99	156	0.61 (0.43, 0.87)	.006

*Adjusted for CDPS and disability.

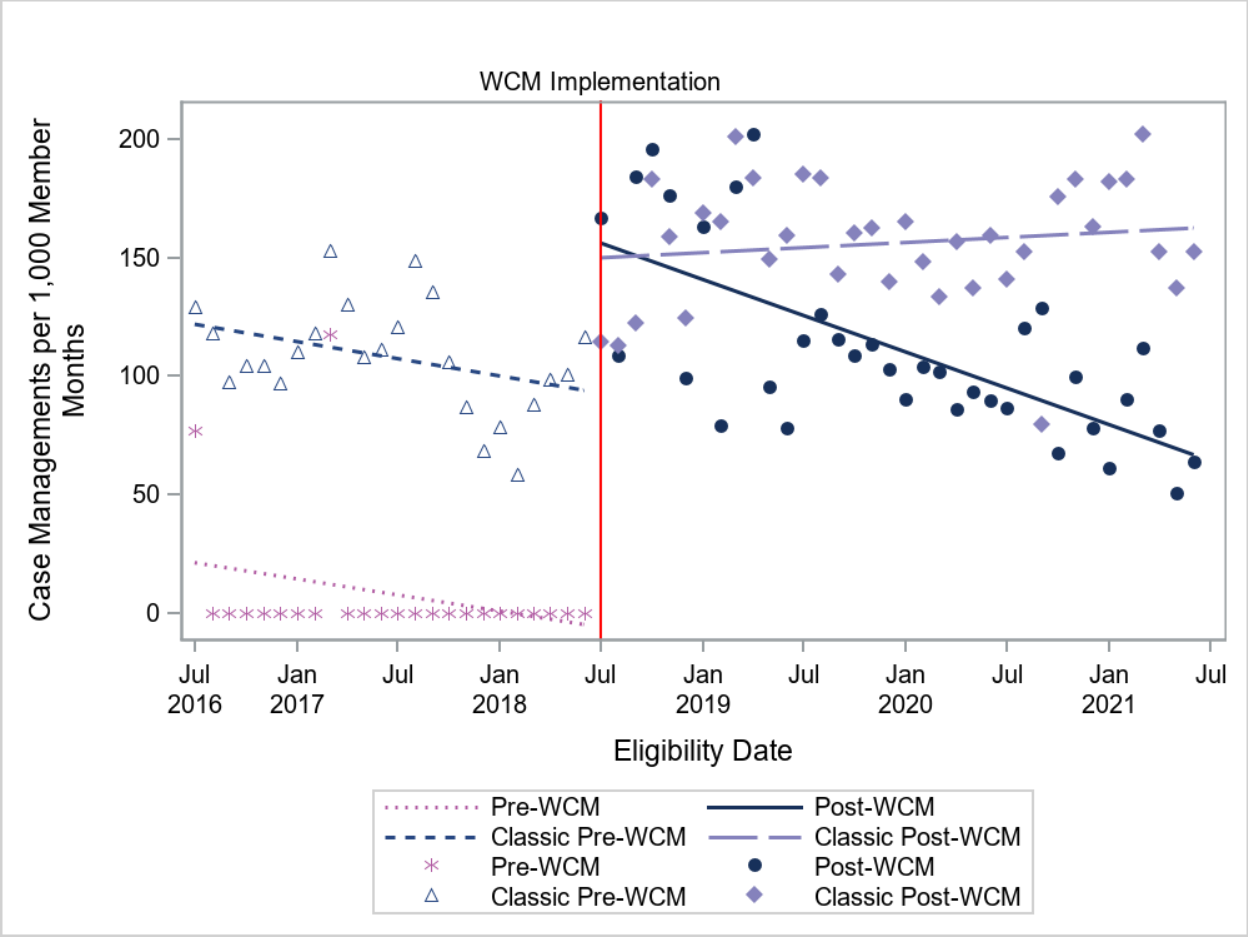
Table 307 provides comparisons of the pre- to post-WCM implementation periods for the HPSM WCM and Classic CCS comparison groups separately. For the HPSM WCM group, the odds of a case management claim during the post-period were 7.01 times greater than during the pre-period (p = .018). However, for the CCS comparison group, the odds of a case management claim were not significantly different during the post-period compared to the pre-period. Given the increase in claims for HPSM WCM and no change for Classic CCS group, the Difference in Differences is significant (p = .031).

Table 307: Case Management Claims per 1,000 Member Months, Comparing HPSM WCM in Pre- versus Post-Period, Classic CCS Comparison Group in Pre- versus Post-Period, and DiD Analysis

	Case Managements Claims per 1,000 Member Months		Adjusted Odds Ratios*	
Group	Pre-WCM Implementation	Post-WCM Implementation	(95% CI) Post- vs. Pre-Period	*P*-value
HPSM WCM Group	8	99	7.01 (1.40, 35.24)	.018
Classic CCS Comparison Group	108	156	1.18 (0.99, 1.41)	.064
Difference in Differences			5.93 (1.17, 30.00)	.031

*Adjusted for CDPS and disability.

Figure 85: Case Management Claims per 1,000 Member Months, with Trend Line Over Time for HPSM WCM and Classic CCS Comparison Groups in Pre- versus Post-Period



Trend Statement for Case Management Claims in HPSM WCM: The slopes in the pre-period are not statistically significant and thus meet the parallel slopes assumption for the DiD model.

HPSM WCM Independent Variable Associations to Case Management Claims: Regression analysis shows that having higher illness severity is significantly associated with having higher case management claims (see regression table in Appendix I).

Case management claims per 1,000 member months, comparing Phase I to Classic CCS comparison group in pre- versus post-period

Table 308 provides comparisons of differences in case management claims between the Phase I and Classic CCS comparison groups during the pre- and post-implementation periods separately. During the pre-period, the odds of a case management claim in the Phase I group were about 65% lower than in the Classic CCS comparison ($p < .001$). Likewise, the during the post-period, the odds of a case management claim in the Phase I group were about 65% lower than in the Classic CCS comparison group ($p < .001$).

Table 308: Case Management Claims per 1,000 Member Months, Comparing Phase I to Classic CCS Comparison Group in Pre- versus Post-Period

	Case Management Claims per 1,000 Member Months		Adjusted Odds Ratios*	
Period	Phase I Group	Classic CCS Comparison Group	(95% CI) Implementation Group vs. Classic	*P*-value
Pre-WCM Implementation	13	32	0.34 (0.27, 0.43)	<.001
Post-WCM Implementation	18	52	0.36 (0.30, 0.43)	<.001

*Adjusted for season, CDPS, race, language, and age.

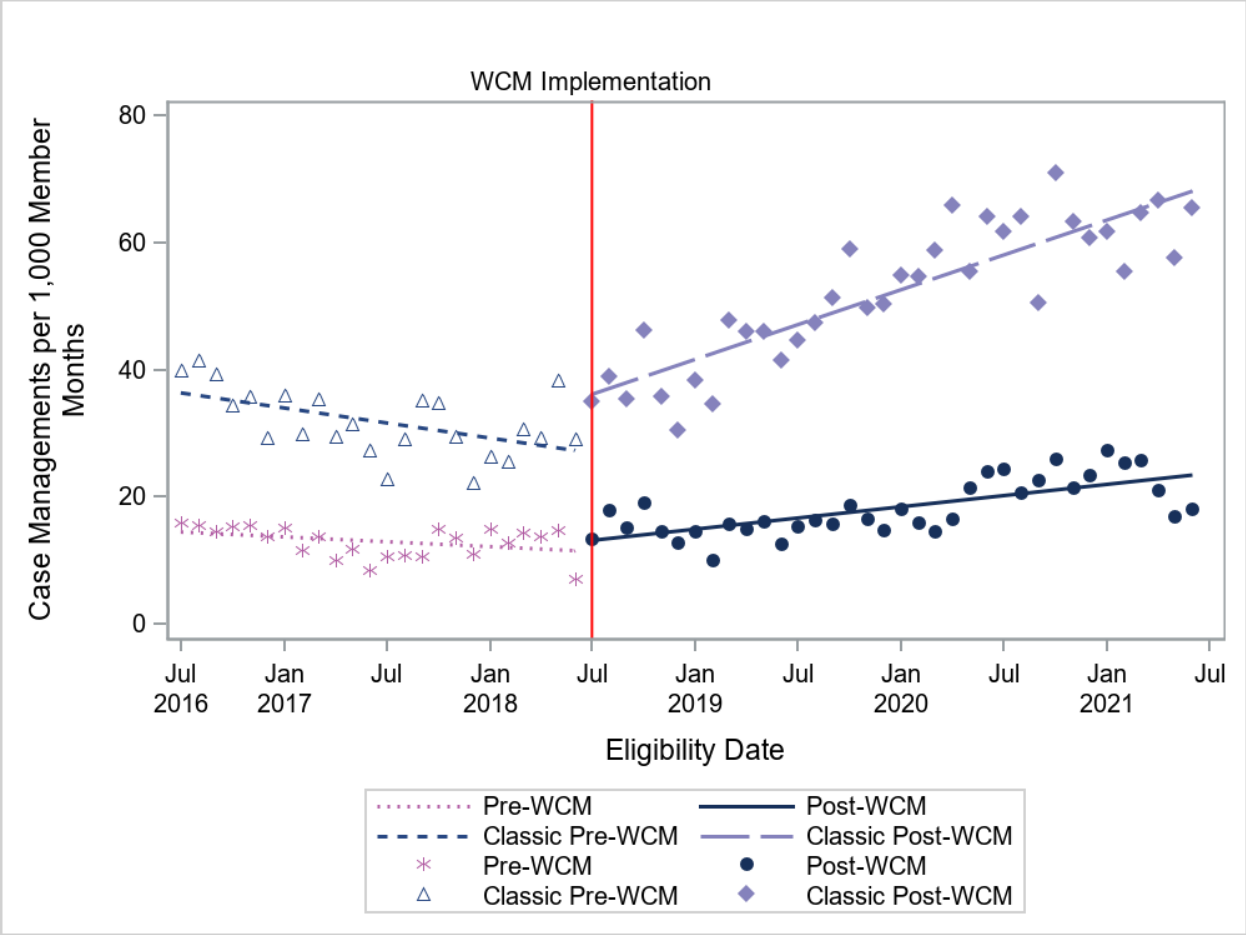
Table 309 provides comparisons of the pre- to post-WCM implementation periods for the Phase I and Classic CCS comparison groups separately. For the Phase I group, the odds of a case management claim during the post-period were 1.55 times greater than during the pre-period ($p < .001$). Likewise, for the CCS comparison group, the odds of a case management claim were 1.48 times greater than for the pre-period ($p < .001$). The Difference in Differences is not significant.

Table 309: Case Management Claims per 1,000 Member Months, Comparing Phase I in Pre- versus Post-Period, Classic CCS Comparison Group in Pre- versus Post-Period, and DiD Analysis

	Case Management Claims per 1,000 Member Months		Adjusted Odds Ratios*	
Group	Pre-WCM Implementation	Post-WCM Implementation	(95% CI) Post- vs. Pre-Period	*P*-value
Phase I Group	13	18	1.55 (1.28, 1.89)	<.001
Classic CCS Comparison Group	32	52	1.48 (1.31, 1.68)	<.001
Difference in Differences			1.05 (0.83, 1.32)	.688

*Adjusted for season, CDPS, disability, race, language, age, and gender.

Figure 86: Case Management Claims per 1,000 Member Months, with Trend Line Over Time for Phase I and Classic CCS Comparison Groups in Pre- versus Post-Period



Trend Statement for Case Management Claims in Phase I: The slopes in the pre-period are not statistically significant and thus meet the parallel slopes assumption for the DiD model.

Phase I Independent Variable Associations to Case Management Claims: Regression analysis shows that being Latinx or “other/unknown” race as compared to White or winter season as compared to summer is associated with having

lower case management claims, while having higher illness severity or being age 2–20 as compared to 12 months or younger is significantly associated with having higher claims (see regression table in Appendix I).

Case management claims per 1,000 member months, comparing Phase II to Classic CCS comparison group in pre- versus post-period

Table 310 provides comparisons of differences in case management claims between the Phase II and Classic CCS comparison groups during the pre- and post-implementation periods separately. During the pre-period, the odds of a case management claim in the Phase II group were about 40% lower than in the Classic CCS comparison ($p < .001$). Likewise, during the post-period, the odds of a case management claim in the Phase II group were about 20% lower than in the Classic CCS comparison group ($p = .008$).

Table 310: Case Management Claims per 1,000 Member Months, Comparing Phase II to Classic CCS Comparison Group in Pre- versus Post-Period

	Case Management Claims per 1,000 Member Months		Adjusted Odds Ratios*	
Period	Phase II Group	Classic CCS Comparison Group	(95% CI) Phase II Group vs. Classic	*P*-value
Pre-Period	58	77	0.60 (0.50, 0.70)	<.001
Post-WCM Implementation	52	62	0.81 (0.69, 0.94)	.008

*Adjusted for season, CDPS, race, language, age, and gender.

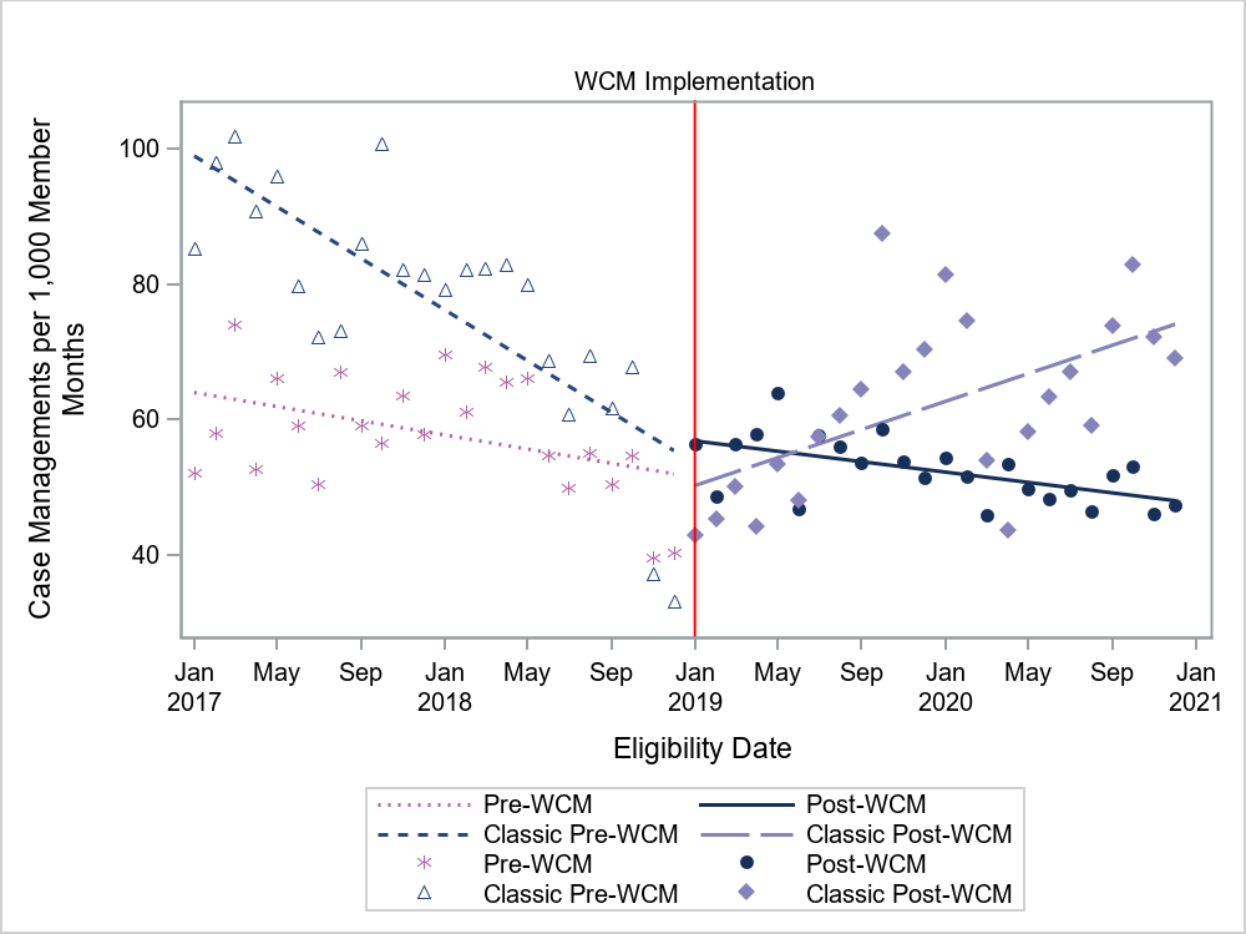
Table 311 provides comparisons of the pre- to post-WCM implementation periods for the Phase II and Classic CCS comparison groups separately. For the Phase II group, case management claims during the post-period were not significantly different than during the pre-period. However, for the CCS comparison group, case management claims were about 20% lower than for the pre-period ($p < .001$). Given no change in the Phase II group and the decrease in the Classic CCS comparison group, the Difference in Differences is significant ($p < .001$).

Table 311: Case Management Claims per 1,000 Member Months, Comparing Phase II in Pre- versus Post-Period, Classic CCS Comparison Group in Pre- versus Post-Period, and DiD Analysis

	Case Management Claims per 1,000 Member Months		Adjusted Odds Ratios*	
Group	Pre-WCM Implementation	Post-WCM Implementation	(95% CI) Post- vs. Pre-Period	*P*-value
Phase II Group	58	52	1.07 (0.95, 1.21)	.285
Classic CCS Comparison Group	77	62	0.79 (0.72, 0.86)	<.001
Difference in Differences			1.35 (1.17, 1.57)	<.001

*Adjusted for season, CDPS, race, language, age, and gender.

Figure 87: Case Management Claims per 1,000 Member Months, with Trend Line Over Time for Phase II and Classic CCS Comparison Groups in Pre- versus Post-Period



Trend Statement for Case Management Claims in Phase II: The slopes in the pre-period are statistically significant ($p < .001$), and thus the parallel slopes assumption of the DiD model is not satisfied (see Appendix I). As such, the pre-to-post differences may be due to underlying trends and not the result of the WCM implementation. Results should be interpreted with caution.

Phase II Independent Variable Associations to Case Management Claims: Regression analysis shows that being age one as compared to 12 months or younger or speaking Spanish as compared to English is associated with lower case management claims. Having higher illness severity, fall or spring season as compared to summer, speaking "other" language as compared to English, or being age 2–20 as compared to 12 months or younger is associated with having higher case management claims (see regression table in Appendix I).

Case management claims per 1,000 member months, comparing Phase III to Classic CCS comparison group in pre- versus post-period

Table 312 provides comparisons of differences in case management claims between the Phase III and Classic CCS comparison groups during the pre- and post-implementation periods separately. During the pre-period, the odds of a case management claim in the Phase III group were 1.22 times greater than in the Classic CCS comparison ($p < .001$). Likewise, during the post-period, the odds of a case management claim in the Phase III group were 1.58 times greater than in the Classic CCS comparison group ($p < .001$).

Table 312: Case Management Claims per 1,000 Member Months, Comparing Phase III to Classic CCS Comparison Group in Pre- versus Post-Period

	Case Management Claims per 1,000 Member Months		Adjusted Odds Ratios*	
Period	Phase III Group	Classic CCS Comparison Group	(95% CI) Phase III Group vs. Classic	*P*-value
Pre-WCM Implementation	87	56	1.22 (1.09, 1.37)	<.001
Post-WCM Implementation	132	62	1.58 (1.42, 1.75)	<.001

*Adjusted for CDPS, race, language, age, and gender.

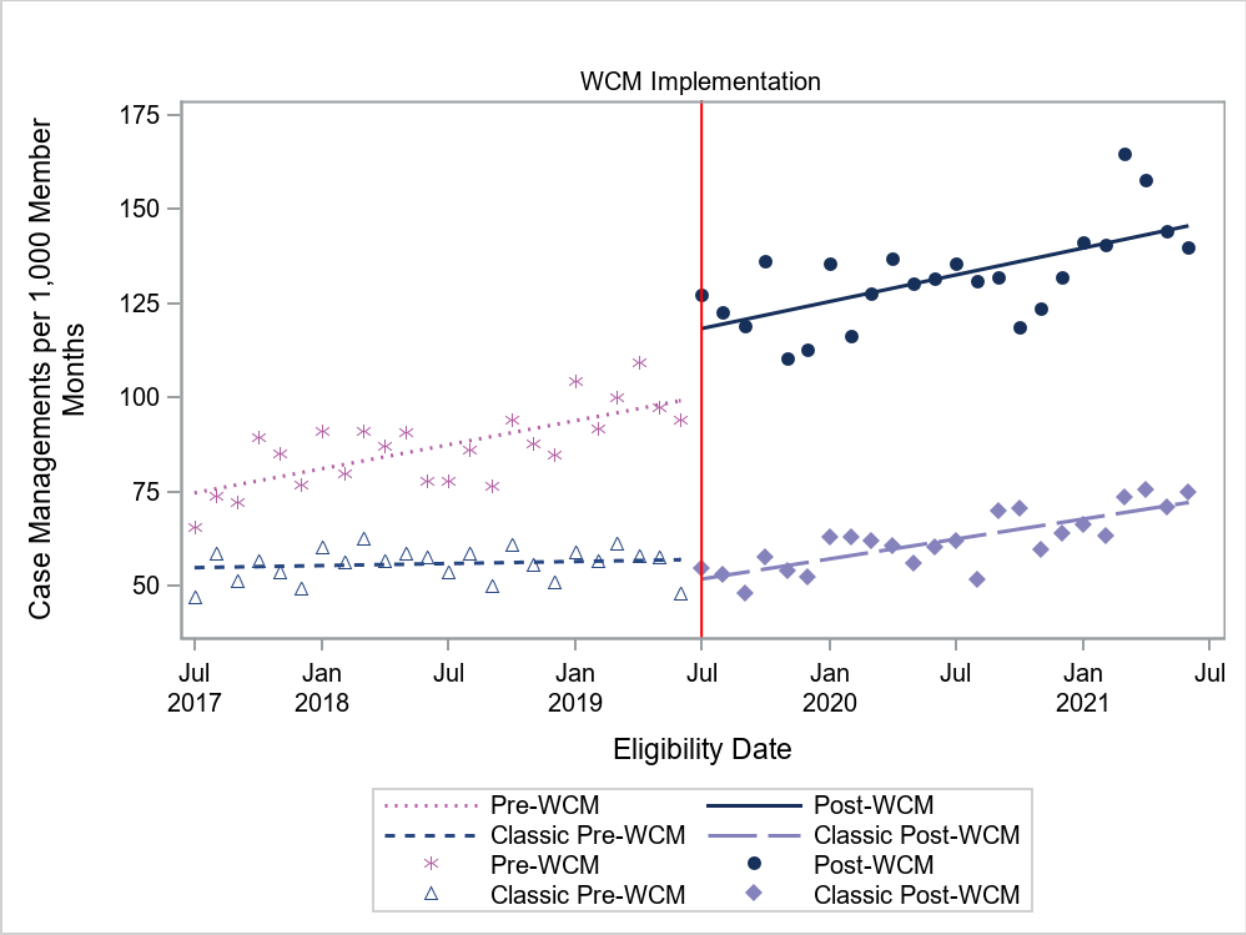
Table 313 provides comparisons of the pre- to post-WCM implementation periods for the Phase III and Classic CCS comparison groups separately. For the Phase III group, the odds of a case management claim during the post-period were 1.47 times greater than during the pre-period ($p < .001$). Likewise, for the CCS comparison group, the odds of a case management claim were 1.14 times greater than for the pre-period ($p = .002$). Give the greater increase in the Phase II group than the Classic CCS comparison group, the Difference in Differences is significant ($p < .001$).

Table 313: Case Management Claims per 1,000 Member Months, Comparing Phase III in Pre- versus Post-Period, Classic CCS Comparison Group in Pre- versus Post-Period, and DiD Analysis

	Case Management Claims per 1,000 Member Months		Adjusted Odds Ratios*	
Group	Pre-WCM Implementation	Post-WCM Implementation	(95% CI) Post- vs. Pre-Period	*P*-value
Phase III Group	87	132	1.47 (1.37, 1.58)	<.001
Classic CCS Comparison Group	56	62	1.14 (1.05, 1.23)	.002
Difference in Differences			1.29 (1.16, 1.44)	<.001

*Adjusted for CDPS, disability, race, language, age, and gender.

Figure 88: Case Management Claims per 1,000 Member Months, with Trend Line Over Time for Phase III and Classic CCS Comparison Groups in Pre- versus Post-Period



Trend Statement for Case Management Claims in Phase III: The slopes in the pre-period are statistically significant (p = .012), and thus the parallel slopes assumption of the DiD model is not satisfied (see Appendix I). As such, the pre-to-post differences may be due to underlying trends and not the result of the WCM implementation. Results should be interpreted with caution.

Phase III Independent Variable Associations to Case Management Claims: Regression analysis shows that speaking "other" language as compared to English or being one year old as compared to 12 months or younger is associated with having lower case management claims, while having higher illness severity, speaking Spanish as compared to English, being age 12–20 as compared to 12 months or younger, or being female is significantly associated with having higher claims (see regression table in Appendix I).

Overall summary of case management claims per 1,000 member months results for HPSM WCM and Phase I–Phase III

Case management claims were significantly higher in all WCM study groups as compared to the Classic CCS comparison groups post-WCM implementation except for Phase I. In the Phase I study group, there were no significant differences in the case management claims between the Phase I and Classic CCS comparison groups.

Durable Medical Equipment Time to Referral Approval

Overview: UCSF received referral data from four of the participating WCM health plans. Two of them identified which referrals were DME referrals. Claims data could not be linked with the data provided by the plans. The average times from DME referral request to decision are listed in Table 314 and Table 315 below. The time to referral approval decreased in HPSM WCM. In Phase III the average referral time increased by approximately one day post-WCM implementation. UCSF did not receive data on when a client received their DME order.

Table 314: HPSM WCM DME Average Referral Decision Time

HPSM WCM DME Referral Time	
Year	**Average Days**
WCM Pre-Implementation Year -2	4.1
WCM Pre-Implementation Year -1	8.1
WCM Post-Implementation Year +1	5.0
WCM Post-Implementation Year +2	3.3

Table 315: Phase III DME Average Referral Decision Time

Phase III DME Referral Time	
Year	**Average Days**
WCM Pre-Implementation Year -2	2.3
WCM Pre-Implementation Year -1	2.2
WCM Post-Implementation Year +1	3.2

Phase III DME Referral Time	
Year	Average Days
WCM Post-Implementation Year +2	3.7

Special Care Center Visits within 90 Days of Referral Results

Special Care Center visits within 90 days per 1,000 referrals, comparing HPSM WCM to Classic CCS comparison group in pre- versus post-period

Table 316 provides comparisons of differences in Special Care Center visits within 90 days of referral between the HPSM WCM and Classic CCS comparison groups during the pre- and post-implementation periods separately. During the pre-period, the odds of a Special Care Center visit within 90 days in the HPSM WCM group were 60% lower than in the Classic CCS comparison ($p < .001$). However, during the post-period, the odds of a Special Care Center visit within 90 days in the HPSM WCM group were 2.84 times greater than in the Classic CCS comparison group ($p < .001$).

Table 316: Special Care Center Visits within 90 Days per 1,000 Referrals, Comparing HPSM WCM to Classic CCS Comparison Group in Pre- versus Post-Period

	SCC Visit within 90 Days per 1,000 Referrals		Adjusted Odds Ratios*	
Period	HPSM WCM Group	Classic CCS Comparison Group	(95% CI) HPSM WCM Group vs. Classic	*P*-value
Pre-WCM Implementation	311	570	0.37 (0.20, 0.67)	<.001
Post-WCM Implementation	789	510	2.84 (2.17, 3.72)	<.001

*Adjusted for CDPS and disability.

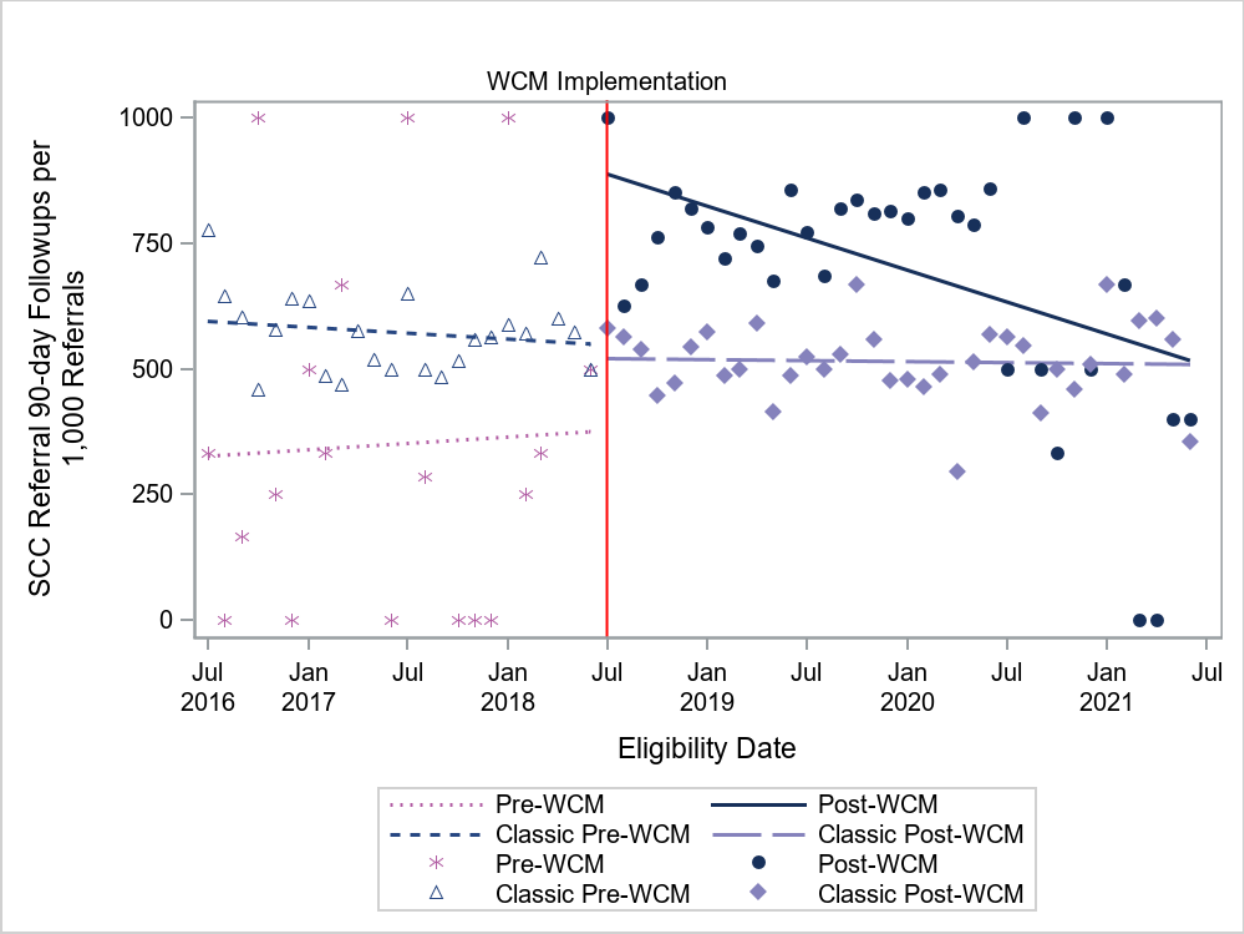
Table 317 provides comparisons of the pre- to post-WCM implementation periods for the HPSM WCM and Classic CCS comparison groups separately. For the HPSM WCM group, the odds of a Special Care Center visit within 90 days of referral during the post-period were 6.02 times greater than during the pre-period ($p < .001$). For the CCS comparison group, the odds of a Special Care Center visit within 90 days of referral during the post-period were about 20% lower than during the pre-period ($p = .003$). Given the increase in visits in the HPSM WCM group and decrease in visits in the Classic CCS comparison group, the Difference in Differences is significant ($p < .001$).

Table 317: Special Care Center Visits within 90 Days per 1,000 Referrals, Comparing HPSM WCM in Pre- versus Post-Period, Classic CCS Comparison Group in Pre- versus Post-Period, and DiD Analysis

	SCC Visit within 90 Days per 1,000 Referrals		Adjusted Odds Ratios*	
Group	Pre-WCM Implementation	Post-WCM Implementation	(95% CI) Post- vs. Pre-Period	*P*-value
HPSM WCM Group	311	789	6.02 (3.23, 11.21)	<.001
Classic CCS Comparison Group	570	510	0.78 (0.66, 0.92)	.003
Difference in Differences			7.72 (4.06, 14.67)	<.001

*Adjusted for CDPS and disability.

Figure 89: Special Care Center Visits within 90 Days per 1,000 Referrals, with Trend Line Over Time for HPSM WCM and Classic CCS Comparison Groups in Pre- versus Post-Period



Trend Statement for Special Care Center Visits within 90 days in HPSM WCM: The slopes in the pre-period are not statistically significant and thus meet the parallel assumptions criteria for the DiD model.

HPSM WCM Independent Variable Associations to Special Care Center Visits within 90 days: Regression analysis shows that having higher illness severity or having a disability is significantly associated with having higher Special Care Center visits within 90 days (see regression table in Appendix I).

Special Care Center visits within 90 days per 1,000 referrals, comparing Phase I to Classic CCS comparison group in pre- versus post-period

Table 318 provides comparisons of differences in Special Care Center visits within 90 days of referral between the Phase I and Classic CCS comparison groups during the pre- and post-implementation periods separately. During the pre-period, the odds of a Special Care Center visit within 90 days in the Phase I group were 1.26 times greater than in the Classic CCS comparison ($p < .001$). During post-period, the odds of a Special Care Center visit within 90 days in the Phase I group did not differ significantly from the Classic CCS comparison group.

Table 318: Special Care Center Visits within 90 Days per 1,000 Referrals, Comparing Phase I to Classic CCS Comparison Group in Pre- versus Post-Period

	SCC Visit within 90 Days per 1,000 Referrals		Adjusted Odds Ratios*	
Period	Phase I Group	Classic CCS Comparison Group	(95% CI) Phase I Group vs. Classic	*P*-value
Pre-WCM Implementation	687	625	1.26 (1.18, 1.35)	<.001
Post-WCM Implementation	583	556	1.09 (0.92, 1.28)	.313

*Adjusted for CDPS, race, language, and age.

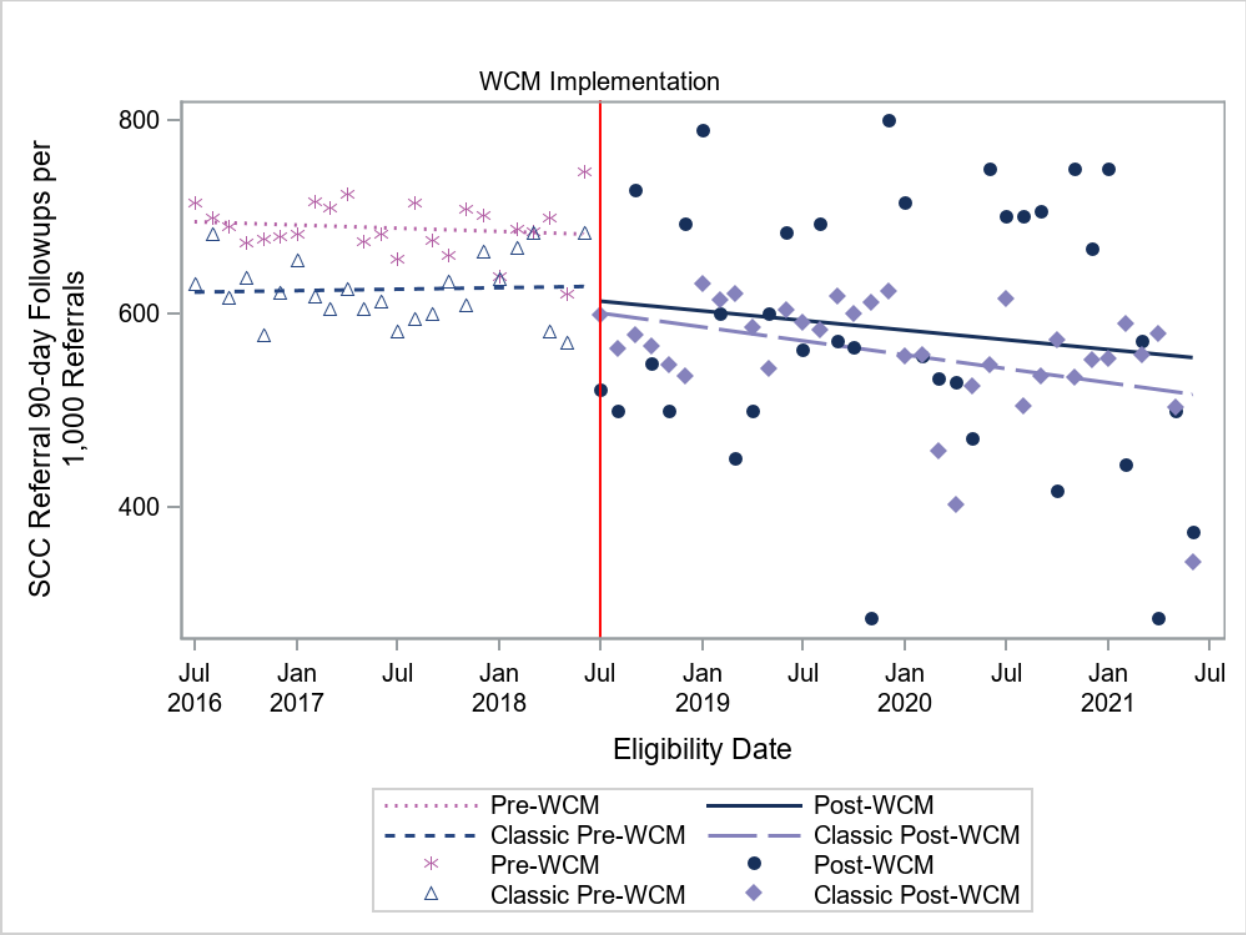
Table 319 provides comparisons of the pre- to post-WCM implementation periods for the Phase I and Classic CCS comparison groups separately. For the Phase I group, the odds of a Special Care Center visit within 90 days of referral during the post-period were 35% lower than during the pre-period ($p < .001$). For the CCS comparison group, the odds of a Special Care Center visit within 90 days of referral during the post-period were about 25% lower than for the pre-period ($p < .001$). The Difference in Differences is not significant.

Table 319: Special Care Center Visits within 90 Days per 1,000 Referrals, Comparing Phase I in Pre- versus Post-Period, Classic CCS Comparison Group in Pre- versus Post-Period, and DiD Analysis

	SCC Visit within 90 Days per 1,000 Referrals		Adjusted Odds Ratios*	
Group	Pre-WCM-Implementation	Post-WCM Implementation	(95% CI) Post- vs. Pre-Period	*P*-value
Phase I Group	687	583	0.64 (0.54, 0.76)	<.001
Classic CCS Comparison Group	625	556	0.75 (0.71, 0.79)	<.001
Difference in Differences			0.86 (0.72, 1.03)	.098

*Adjusted for CDPS, race, language, and age.

Figure 90: Special Care Center Visits within 90 Days per 1,000 Referrals, with Trend Line Over Time for Phase I and Classic CCS Comparison Groups in Pre- versus Post-Period



Trend Statement for Special Care Center Visits within 90 days in Phase I: The slopes in the pre-period are not statistically significant and thus meet the parallel assumptions criteria for the DiD model.

Phase I Independent Variable Associations to Special Care Center Visits within 90 days: Regression analysis shows that having higher illness severity, being Latinx or “other/unknown” race as compared to White, speaking any

language other than English, or being age 1–20 as compared to less than 12 months is significantly associated with having higher Special Care Center within 90 days (see regression table in Appendix I).

Special Care Center visits within 90 days per 1,000 referrals, comparing Phase II to Classic CCS comparison group in pre- versus post-period

Table 320 provides comparisons of differences in Special Care Center visits within 90 days of referral between the Phase II and Classic CCS comparison groups during the pre- and post-implementation periods separately. During the pre-period, the odds of a Special Care Center visit within 90 days in the Phase II group were about 65% lower than in the Classic CCS comparison ($p < .001$). Likewise, during the post-period, the odds of a Special Care Center visit within 90 days in the Phase II group were about 55% lower than in the Classic CCS comparison group ($p < .001$).

Table 320: Special Care Center Visits within 90 Days per 1,000 Referrals, Comparing Phase II to Classic CCS Comparison Group in Pre- versus Post-Period

	SCC Visit within 90 Days per 1,000 Referrals		Adjusted Odds Ratios*	
Period	Phase II Group	Classic CCS Comparison Group	(95% CI) Phase II Group vs. Classic	*P*-value
Pre-WCM Implementation	709	895	0.35 (0.32, 0.38)	<.001
Post-WCM Implementation	796	915	0.45 (0.38, 0.54)	<.001

*Adjusted for season, CDPS, disability, race, language, age, and gender.

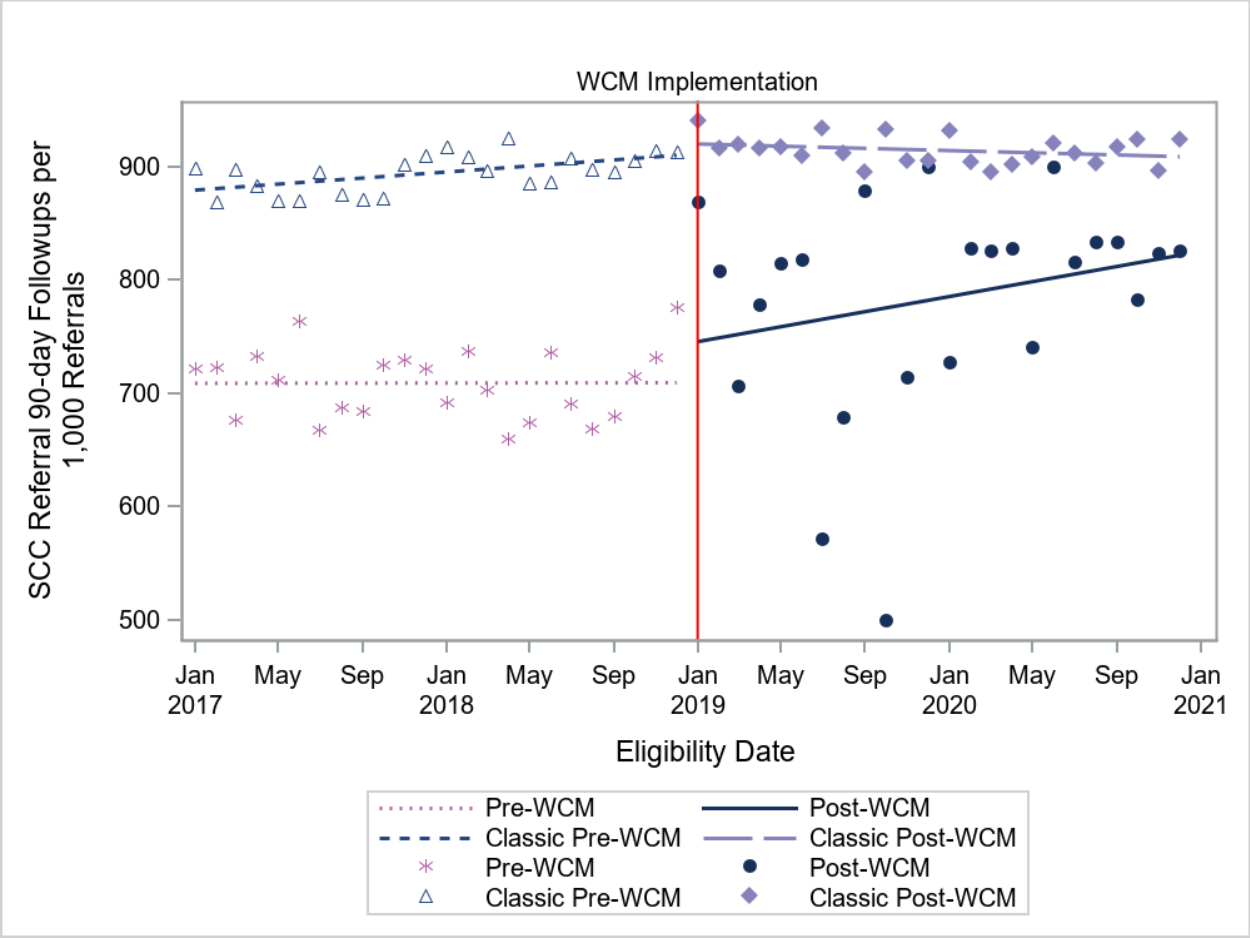
Table 321 provides comparisons of the pre- to post-WCM implementation periods for the Phase II and Classic CCS comparison groups separately. For the Phase II group, the odds of a Special Care Center visit within 90 days of referral during the post-period were 1.52 times greater than for the pre-period ($p < .001$). Likewise, for the CCS comparison group, the odds of a Special Care Center visit within 90 days of referral during the post-period were 1.17 times greater than during of the pre-period ($p < .001$). Given the greater increase in the Phase II group than the Classic CCS comparison group, the Difference in Differences is significant ($p = .003$).

Table 321: Special Care Center Visits within 90 Days per 1,000 Referrals, Comparing Phase II in Pre- versus Post-Period, Classic CCS Comparison Group in Pre- versus Post-Period, and DiD Analysis

	SCC Visit within 90 Days per 1,000 Referrals		Adjusted Odds Ratios*	
Group	Pre-WCM Implementation	Post-WCM Implementation	(95% CI) Post- vs. Pre-Period	*P*-value
Phase II Group	709	796	1.52 (1.29, 1.79)	<.001
Classic CCS Comparison Group	895	915	1.17 (1.12, 1.22)	<.001
Difference in Differences			1.30 (1.10, 1.55)	.003

*Adjusted for season, CDPS, disability, race, language, age, and gender.

Figure 91: Special Care Center Visits within 90 Days per 1,000 Referrals, with Trend Line Over Time for Phase II and Classic CCS Comparison Groups in Pre- versus Post-Period



Trend Statement for Special Care Center Visits within 90 days in Phase II: The slopes in the pre-period are statistically significant (p = .040) and thus do not meet the parallel slopes assumption for the DiD model. As such, the pre-to-post differences may be due to underlying trends and not the result of the WCM implementation. Results should be interpreted with caution.

Phase II Independent Variable Associations to Special Care Center Visits within 90 days: Regression analysis shows that winter season as compared to summer, having a disability, having higher illness severity, being any other race as compared to White, speaking Spanish as compared to English, or being age 2–20 as compared to less than 12 months is significantly associated with having higher Special Care Center visits within 90 days (see regression table in Appendix I).

Special Care Center visits within 90 days per 1,000 referrals, comparing Phase III to Classic CCS comparison group in pre- versus post-period

Table 322 provides comparisons of differences in Special Care Center visits within 90 days of referral between the Phase III and Classic CCS comparison groups during the pre- and post-implementation periods separately. During the pre-period, the odds of a Special Care Center visit within 90 days in the Phase III group were about 25% lower than in the Classic CCS comparison ($p < .001$). Likewise, during the post-period, the odds of a Special Care Center visit within 90 days in the Phase III group were about 75% lower than in the Classic CCS comparison group ($p < .001$).

Table 322: Special Care Center Visits within 90 Days per 1,000 Referrals, Comparing Phase III to Classic CCS Comparison Group in Pre- versus Post-Period

	SCC Visit within 90 Days per 1,000 Referrals		Adjusted Odds Ratios*	
Period	Phase III Group	Classic CCS Comparison Group	(95% CI) Phase III Group vs. Classic	*P*-value
Pre-WCM Implementation	669	737	0.75 (0.70, 0.81)	<.001
Post-WCM Implementation	314	670	0.23 (0.21, 0.25)	<.001

*Adjusted for season, CDPS, disability, race, language, age, and gender.

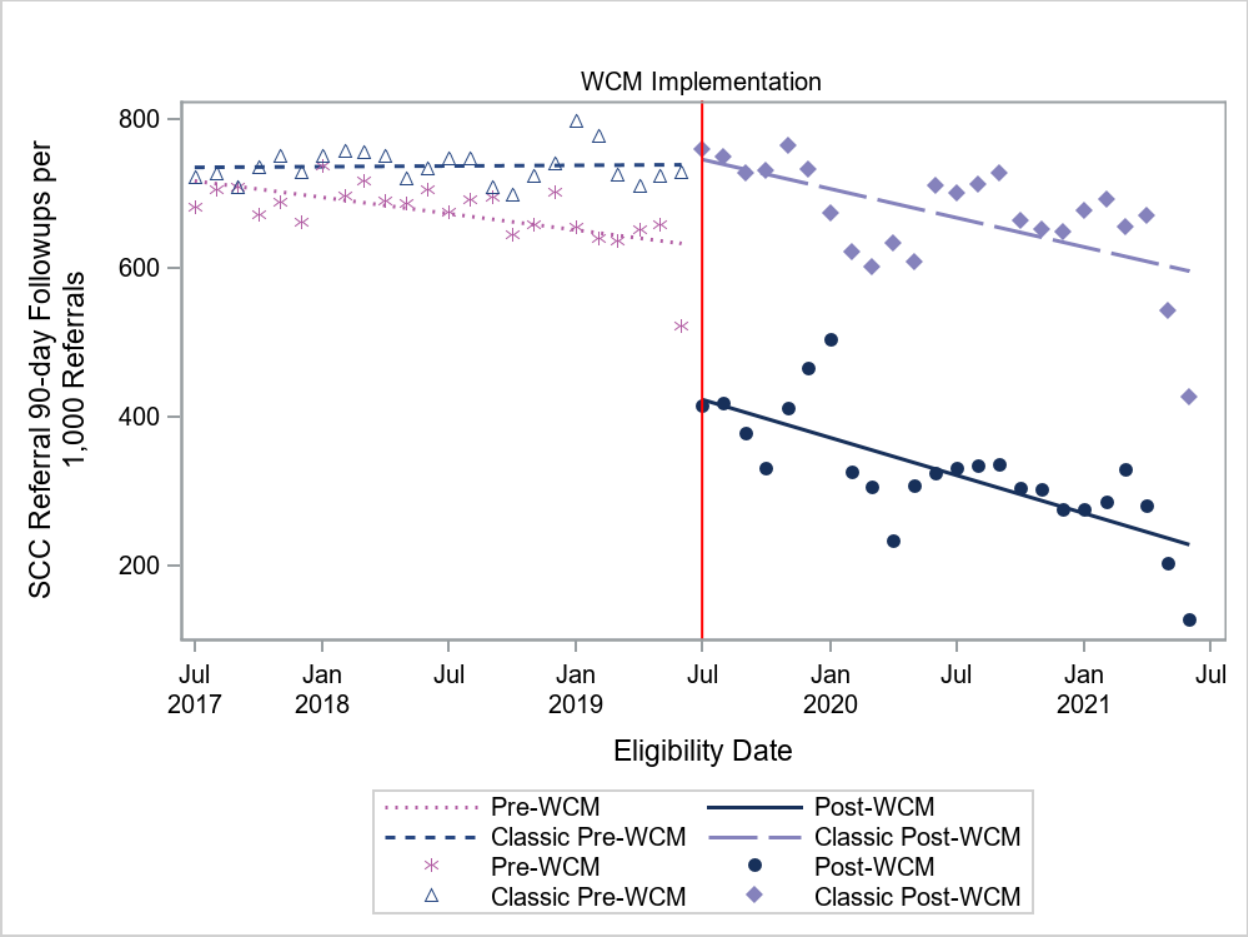
Table 323 provides comparisons of the pre- to post-WCM implementation periods for the Phase III and Classic CCS comparison groups separately. For the Phase III group, the odds of a Special Care Center visit within 90 days of referral during the post-period were about 80% lower than during the pre-period ($p < .001$). Likewise, for the CCS comparison group, the odds of a Special Care Center visit within 90 days of referral during the post-period were about 30% lower than during the pre-period ($p = .003$). Given the greater decrease in the Phase III group than the Classic CCS comparison group, the Difference in Differences is significant ($p < .001$).

Table 323: Special Care Center Visits within 90 Days per 1,000 Referrals, Comparing Phase III in Pre- versus Post-Period, Classic CCS Comparison Group in Pre- versus Post-Period, and DiD Analysis

	SCC Visit within 90 Days per 1,000 Referrals		Adjusted Odds Ratios*	
Group	Pre-WCM Implementation	Post-WCM Implementation	(95% CI) Post- vs. Pre-Period	*P*-value
Phase III Group	669	314	0.21 (0.20, 0.23)	<.001
Classic CCS Comparison Group	737	670	0.71 (0.67, 0.75)	<.001
Difference in Differences			0.30 (0.27, 0.34)	<.001

*Adjusted for season, CDPS, disability, race, language, age, and gender.

Figure 92: Special Care Center Visits within 90 Days per 1,000 Referrals, with Trend Line Over Time for Phase III and Classic CCS Comparison Groups in Pre- versus Post-Period



Trend Statement for Special Care Center Visits within 90 days in Phase III: The slopes in the pre-period are statistically significant ($p < .0001$) and thus do not meet the parallel slopes assumption for the DiD model. As such, the pre-to-post differences may be due to underlying trends and not the result of the WCM implementation. Results should be interpreted with caution.

Phase III independent variable associations to Special Care Center Visits within 90 days: Regression analysis shows that fall or winter season as compared to summer, having a disability, having higher illness severity, being Latinx or "other/unknown" race as compared to White, speaking Spanish as compared to English, being age 1–20 as compared to less than 12 months, or being female is significantly associated with having higher Special Care Center visits within 90 days (see regression table in Appendix I).

Overall summary of Special Care Center visits within 90 days per 1,000 referral results for HPSM WCM and Phase I–Phase III

Overall, the results on Special Care Center visits within 90 days for the four study groups varied. In the HPSM WCM and Phase II study groups, the WCM plans had a statistically significantly higher rate of Special Care Center visits within 90 days as compared to the Classic CCS comparison groups. In the Phase I study group, there were no significant differences in the Special Care Center visits within 90 days between the Phase I and Classic CCS comparison groups. In the Phase III study group, Special Care Center visits within 90 days decreased significantly in the Phase III group as compared to the Classic CCS comparison group.

Yearly Visit to Special Care Center

Overview: The proportion of clients who were seen yearly at a Special Care Center was evaluated. Due to the variation in how long clients stay in CCS, especially for short-term CCS enrollment (e.g., orthopedic injuries or NICU stay) UCSF performed a subgroup analysis of conditions that would require yearly Special Care Center visits. These conditions were:

- Cystic fibrosis
- Sickle cell disease
- Type I diabetes
- Moderate to severe congenital heart disease

Table 324 through Table 327 below show the proportion of clients meeting the yearly SCC visit requirement per WCM study group. None of the proportions for either WCM or Classic CCS changed significantly pre- versus post-WCM implementation. While there is variation between WCM study groups, visit rates were similar between the WCM groups and Classic comparisons post-WCM implementation. One notable difference was with Phase II, where Phase II rates were lower than Classic CCS and the other WCM study groups.

Table 324: HPSM WCM: Proportion of CCS Enrollees with Select Conditions That Had an Annual Special Care Center Visit

	HPSM WCM				Classic CCS			
	Pre-WCM Implementation		Post-WCM Implementation		Pre-WCM Implementation		Post-WCM Implementation	
Condition	*n*	Percentage Having SCC Visit	*n*	Percentage Having SCC Visit	*n*	Percentage Having SCC Visit	*n*	Percentage Having SCC Visit
Sickle Cell Disease					4	75.0	4	100.0
Cystic Fibrosis					3	100.0	3	100.0
Type I Diabetes			1	100.0	23	56.5	33	54.5
Moderate to Severe Congenital Heart Disease					12	66.7	12	66.7

Table 325: Phase I: Proportion of CCS Enrollees with Select Conditions That Had an Annual Special Care Center Visit

	Phase I				Classic CCS			
	Pre-WCM Implementation		Post-WCM Implementation		Pre-WCM Implementation		Post-WCM Implementation	
Condition	*n*	Percentage Having SCC Visit	*n*	Percentage Having SCC Visit	*n*	Percentage Having SCC Visit	*n*	Percentage Having SCC Visit
Sickle Cell Disease	4	50.0	3	66.7	7	100.0	7	85.7
Cystic Fibrosis	20	95.0	23	91.3	16	100.0	19	94.7
Type I Diabetes	181	92.3	181	86.2	212	86.8	231	85.7
Moderate to Severe Congenital Heart Disease	121	77.7	129	83.7	107	82.2	135	84.4

Table 326: Phase II: Proportion of CCS Enrollees with Select Conditions That Had an Annual Special Care Center Visit

	Phase II				Classic CCS			
	Pre-WCM Implementation		Post-WCM Implementation		Pre-WCM Implementation		Post-WCM Implementation	
Condition	*n*	Percentage Having SCC Visit	*n*	Percentage Having SCC Visit	*n*	Percentage Having SCC Visit	*n*	Percentage Having SCC Visit
Sickle Cell Disease	14	71.4	10	70.0	25	92.0	31	100.0
Cystic Fibrosis	19	57.9	23	65.2	23	91.3	29	82.8
Type I Diabetes	233	57.9	242	55.0	222	73.4	239	76.2
Moderate to Severe Congenital Heart Disease	119	50.4	118	48.3	88	67.0	100	73.0

Table 327: Phase III: Proportion of CCS Enrollees with Select Conditions That Had an Annual Special Care Center Visit

	Phase III				Classic CCS			
	Pre-WCM Implementation		Post-WCM Implementation		Pre-WCM Implementation		Post-WCM Implementation	
Condition	*n*	Percentage Having SCC Visit	*n*	Percentage Having SCC Visit	*n*	Percentage Having SCC Visit	*n*	Percentage Having SCC Visit
Sickle Cell Disease	10	90.0	9	100.0	49	91.8	50	90.0
Cystic Fibrosis	14	100.0	14	92.9	15	93.3	16	100.0
Type I Diabetes	339	88.5	361	78.7	334	89.8	355	89.6
Moderate to Severe Congenital Heart Disease	184	76.6	188	73.9	192	71.9	203	72.4

Overall summary of yearly visit to a Special Care Center for HPSM WCM and Phase I–Phase III

The proportion of children having a yearly Special Care Center (SCC) visit, among children with chronic conditions measured (cystic fibrosis, sickle cell disease, type 1 diabetes, and moderate to severe congenital heart disease) was high

(range 70%–100%) for most conditions in most plans. The exceptions were found in type 1 diabetes and congenital heart disease, with a rate of around 50%–55% in Phase II. The visit rate did not change pre- versus post-WCM implementation for either WCM or Classic CCS. The rates between condition groups differed; the lowest rates of SCC visit use was found among the congenital heart disease group across all study groups in both pre- and post-periods. Plans also differed in their follow-up rates, with Phase II having lower rates of yearly SCC visit as compared to both Classic CCS and the other WCM study groups for the four conditions measured.

Transition to Adult Care

Overview: This section describes the insurance continuity and clinical outcomes change of CCS clients one year before and one year after leaving the CCS program upon turning age 21. The outcome change is the compared pre- versus post-WCM implementation for each WCM study and Classic CCS comparisons.

For this evaluation, the UCSF evaluation team defines "transition to adult care" as the time when a client turns 21 years old and is discharged from the CCS program. Below are the measures shown for each WCM study group:

- Maintenance of insurance after discharge from CCS
- Seen by primary care after discharge from CCS
- Seen by specialists after discharge from CCS
- ED visits after discharge from CCS
- Hospitalization stays after discharge from CCS

HPSM WCM results

Maintenance of insurance among clients discharged from CCS after age 21, comparing HPSM WCM to Classic CCS comparison group in pre- versus post-period

Table 328 provides the proportion of clients who turned 21 and maintained their Medi-Cal in the pre- and post-WCM implementation periods for the HPSM WCM and Classic CCS comparison study groups. In the pre-WCM period, HPSM WCM had only one eligible client who turned 21 (aged out of CCS), and that person did not continue on Medi-Cal after turning 21. Among Classic CCS clients in the pre-WCM period, 94% maintained their Medi-Cal after turning 21. In the post-period, 100% of HPSM WCM clients and 96% of Classic CCS comparison group clients maintained their Medi-Cal after turning age 21. The DiD was not significant (p = .99). The majority of both HPSM WCM and Classic CCS clients maintained the same health plan (94%–100%).

Table 328: Maintenance of Insurance among Clients Discharged from CCS after Age 21, Comparing HPSM WCM to Classic CCS Comparison Group in Pre- versus Post-Period, and DiD Analysis

		Have Medi-Cal upon Age 21		
Study Group	Clients Turning 21 years	Have Medi-Cal upon Age 21	Percentage of Those >21 Years Who Maintained Medi-Cal	Percentage Maintaining Same Health Plan
Pre-HPSM WCM	1	0	0.0	
Post-HPSM WCM	4	4	100.0	100.0
Classic Pre-WCM	53	50	94.3	94.0
Classic Post-WCM	112	108	96.4	97.2

DiD:* p = .9999.
*Too few clients to calculate the AOR.

Primary care visits among clients discharged from CCS after age 21, comparing HPSM WCM to Classic CCS comparison group in pre- versus post-period

Table 329 provides a comparison of primary care visits per person-year before and after turning 21 in the pre- and post-WCM implementation periods for the HPSM WCM and Classic CCS comparison groups. In the pre-period, there was no client in the HPSM WCM who turned 21. In Classic CCS, the average number of primary care visits did not change significantly after clients turned 21. In the post-WCM period, both HPSM WCM and Classic CCS clients did not experience significant change in primary care visits after turning 21. The Difference in Differences comparing primary care visits between HPSM WCM and Classic CCS after clients turned 21 is not significant (p = .69).

Table 329: Number of Primary Care Visits among Clients Discharged from CCS after Age 21, Comparing HPSM WCM to Classic CCS Comparison Group in Pre- versus Post-Period, and DiD Analysis

		Clients Seen by Primary Care after Discharge from CCS			
		Visits per Person-Year before and after Turning 21			
Group	Have Medi-Cal upon Age 21	Year before Turning 21	Year after Turning 21	Change	*P*-value
Pre-HPSM WCM	0				
Post-HPSM WCM	4	4.02	0.00	-4.02	.31
Classic CCS Pre-WCM	50	3.06	2.96	-0.10	.94

		Clients Seen by Primary Care after Discharge from CCS			
		Visits per Person-Year before and after Turning 21			
Group	Have Medi-Cal upon Age 21	Year before Turning 21	Year after Turning 21	Change	*P*-value
Classic CCS Post-WCM	108	3.52	2.18	-1.34	.35

DiD estimate = -2.779; Z = -0.40; p = .692.

Specialist visits among clients discharged from CCS after age 21, comparing HPSM WCM to Classic CCS comparison group in pre- versus post-period

Table 330 provides a comparison of specialist visits per person-year before and after turning 21 in the pre- and post-WCM implementation periods for the HPSM WCM and Classic CCS comparison groups separately. In the pre-period, there was no client in the HPSM WCM who turned 21. In Classic CCS, the average number of specialist visits did not change significantly after clients turned 21. In the post-WCM period, both HPSM WCM and Classic CCS clients did not experience significant change in specialist visits after turning 21. The Difference in Differences comparing specialist visits between HPSM WCM and Classic CCS after clients turned 21 is not significant (p = .56).

Table 330: Number of Specialists Visits among Clients Discharged from CCS after Age 21, Comparing HPSM WCM to Classic CCS Comparison Group in Pre- versus Post-Period, and DiD Analysis

		Clients Seen by Specialists after Discharge from CCS			
		Visits per Person-Year before and after Turning 21			
Group	Have Medi-Cal upon Age 21	Year before Turning 21	Year after Turning 21	Change	*P*-value
Pre-HPSM WCM	0				
Post-HPSM WCM	4	9.50	2.00	-7.50	.12
Classic CCS Pre-WCM	50	2.73	6.88	4.15	.12
Classic CCS Post-WCM	108	2.62	3.83	1.21	.34

DiD estimate = -4.539; Z = -0.58; p = .561.

ED visits among clients discharged from CCS after age 21, comparing HPSM WCM to Classic CCS comparison group in pre- versus post-period

Table 331 provides a comparison of ED visits per person-year before and after turning 21 in the pre- and post-WCM implementation periods for the HPSM WCM and Classic CCS comparison groups separately. In the pre-period, there was no client in the HPSM WCM who turned 21. In Classic CCS, the average number of ED visits did not change significantly after clients turned 21. In the post-WCM period, both HPSM WCM and Classic CCS clients did not experience significant change in ED visits after turning 21. The Difference in Differences comparing ED visits between HPSM WCM and Classic CCS after clients turned 21 is not significant (p = .62).

Table 331: Number of ED Visits among Clients Discharged from CCS after Age 21, Comparing HPSM WCM to Classic CCS Comparison Group in Pre- versus Post-Period, and DiD Analysis

		Clients with ED Visits after Discharge from CCS			
		Visits per Person-Year before and after Turning 21			
Group	Have Medi-Cal upon Age 21	Year before Turning 21	Year after Turning 21	Change	*P*-value
Pre-HPSM WCM	0				
Post-HPSM WCM	4	3.05	3.50	0.45	.81
Classic CCS Pre-WCM	50	1.34	1.58	0.23	.45
Classic CCS Post-WCM	108	1.30	1.26	-0.04	.88

DiD estimate = 0.733; Z = 0.50; p = .618.

Hospitalization stays among clients discharged from CCS after age 21, comparing HPSM WCM to Classic CCS comparison group in pre- versus post-period

Table 332 provides a comparison of hospitalization stays per person-year before and after turning 21 in the pre- and post-WCM implementation periods for the HPSM WCM and Classic CCS comparison groups separately. In the pre-period, there was no client in the HPSM WCM who turned 21. In Classic CCS, the average number of hospitalization stays did not change significantly after clients turned 21. In the post-WCM period, both HPSM WCM and Classic CCS clients did not experience significant change in hospitalization stays after turning 21. The Difference in Differences comparing hospitalization stays between HPSM WCM and Classic CCS after clients turned 21 was not significant (p = .08).

Table 332: Number of Hospitalization Stays among Clients Discharged from CCS after Age 21, Comparing HPSM WCM to Classic CCS Comparison Group in Pre- versus Post-Period, and DiD Analysis

		Clients with Hospitalization Stays after Discharge from CCS			
		Visits per Person-Year before and after Turning 21			
Group	Have Medi-Cal upon Age 21	Year before Turning 21	Year after Turning 21	Change	*P*-value
Pre-HPSM WCM	0				
Post-HPSM WCM	4	1.77	0.00	-1.77	.21
Classic CCS Pre-WCM	50	0.44	0.55	0.10	.75
Classic CCS Post-WCM	108	0.40	0.46	0.06	.71

DiD estimate = -1.727; Z = -1.75; p = .080.

Phase I results

Maintenance of insurance among clients discharged from CCS after age 21, comparing Phase I to Classic CCS comparison group in pre- versus post-period

Table 333 provides the proportion of clients who turned 21 and maintained their Medi-Cal in the pre- versus post-WCM implementation periods for the Phase I and Classic CCS comparison study groups separately. In the pre-WCM period, 96% of Phase I clients and 95% of Classic CCS comparison group clients maintained their Medi-Cal after turning age 21. In the post-period, 98% of Phase I clients and 95% of Classic CCS comparison group clients maintained their Medi-Cal after turning age 21. The Difference in Differences is not significant (p = .20). The majority of both Phase I and Classic CCS clients maintained the same health plan (95%–97%).

Table 333: Maintenance of Insurance among Clients Discharged from CCS after Age 21, Comparing Phase I to Classic CCS Comparison Group in Pre- versus Post-Period, and DiD Analysis

		Have Medi-Cal upon Age 21		
Study Group	Clients Turning 21 Years	Have Medi-Cal upon Age 21	Percentage of Those >21 Years Who Maintained Medi-Cal	Percentage Maintaining Same Health Plan
Pre-Phase I	706	676	95.8	95.0
Post-Phase I	609	596	97.9	97.1

Classic Pre-WCM	732	692	94.5	96.1
Classic Post-WCM	625	596	95.4	96.0

DiD OR = -0.538; *p* = .1998.

Primary care visits among clients discharged from CCS after age 21, comparing Phase I to Classic CCS comparison group in pre- versus post-period

Table 334 provides a comparison of primary care visits per person-year before and after turning 21 in the pre- and post-WCM implementation periods for the Phase I and Classic CCS comparison groups separately. In the pre-period, Phase I clients did not experience any change in primary care visits after turning 21, while Classic CCS clients experienced a significant decrease in primary care visits after turning 21 (*p* = .003). In the post-WCM period, both Phase I and Classic CCS clients did not experience significant change in primary care visits after turning 21. The Difference in Differences comparing primary care visits between Phase I and Classic CCS after clients turned 21 is not significant (*p* = .13).

Table 334: Number of Primary Care Visits among Clients Discharged from CCS after Age 21, Comparing Phase I to Classic CCS Comparison Group in Pre- versus Post-Period, and DiD Analysis

		Clients Seen by Primary Care after Discharge from CCS			
		Visits per Person-Year before and after Turning 21			
Group	Have Medi-Cal upon Age 21	Year before Turning 21	Year after Turning 21	Change	*P*-value
Pre-Phase I	676	1.64	1.64	0.01	.98
Post-Phase I	596	2.66	2.21	-0.45	.22
Classic CCS Pre-WCM	692	2.39	1.55	-0.84	.003
Classic CCS Post-WCM	596	2.13	1.72	-0.41	.12

DiD estimate = -0.947; Z = -1.51; *p* = .131.

Specialist visits among clients discharged from CCS after age 21, comparing Phase I to Classic CCS comparison group in pre- versus post-period

Table 335 provides a comparison of specialist visits per person-year before and after turning 21 in the pre- and post-WCM implementation periods for the Phase I and Classic CCS comparison groups separately. In the pre-period, both Phase I and Classic CCS clients did not experience significant change in specialist visits after turning 21. Likewise, in the post-WCM period, both Phase I and Classic CCS clients did not experience significant change in specialist visits after turning

21. The Difference in Differences comparing specialist visits between Phase I and Classic CCS after clients turned 21 is not significant (*p* = .78).

Table 335: Number of Specialist Visits among Clients Discharged from CCS after Age 21, Comparing Phase I to Classic CCS Comparison Group in Pre- versus Post-Period, and DiD Analysis

		Clients Seen by Specialists after Discharge from CCS			
		Visits per Person-Year before and after Turning 21			
Group	Have Medi-Cal upon Age 21	Year before Turning 21	Year after Turning 21	Change	*P*-value
Pre-Phase I	676	2.68	2.46	-0.22	.33
Post-Phase I	596	3.35	3.39	0.04	.89
Classic CCS Pre-WCM	692	2.20	1.98	-0.22	.28
Classic CCS Post-WCM	596	2.68	2.81	0.13	.59

DiD estimate = -0.132; Z = -0.27; *p* = .784.

ED visits among clients discharged from CCS after age 21, comparing Phase I to Classic CCS comparison group in pre- versus post-period

Table 336 provides a comparison of ED visits per person-year before and after turning 21 in the pre- and post-WCM implementation periods for the Phase I and Classic CCS comparison groups separately. In the pre-period, both Phase I and Classic CCS clients did not experience significant change in ED visits after turning 21. Likewise, in the post-WCM period, both Phase I and Classic CCS clients did not experience significant change in ED visits after turning 21. The Difference in Differences comparing ED visits between Phase I and Classic CCS after clients turned 21 is not significant (*p* = .55).

Table 336: Number of ED Visits among Clients Discharged from CCS after Age 21, Comparing Phase I to Classic CCS Comparison Group in Pre- versus Post-Period, and DiD Analysis

		Clients with ED Visits after Discharge from CCS			
		Visits per Person-Year before and after Turning 21			
Group	Have Medi-Cal upon Age 21	Year before Turning 21	Year after Turning 21	Change	*P*-value
Pre-Phase I	676	1.10	1.12	0.01	.85
Post-Phase I	596	1.18	1.14	-0.04	.70
Classic CCS Pre-WCM	692	1.30	1.36	0.06	.52
Classic CCS Post-WCM	596	1.17	1.05	-0.11	.22

DiD estimate = 0.1084; Z = 0.60; p = .546.

Hospitalization stays among clients discharged from CCS after age 21, comparing Phase I to Classic CCS comparison group in pre- versus post-period

Table 337 provides comparison of hospitalization stays per person-year before and after turning 21 in the pre- and post-WCM implementation periods for the Phase I and Classic CCS comparison groups separately. In the pre-period, Phase I clients did not experience significant change in hospitalization stays after turning 21, while Classic CCS clients experienced a significant decrease in hospitalization stays after turning 21 ($p < .0001$). In the post-WCM period, both Phase I and Classic CCS clients did not experience significant change in hospitalization stays after turning 21. The Difference in Differences comparing hospitalization stays between Phase I and Classic CCS after turning 21 is not significant ($p = .07$).

Table 337: Number of Hospitalization Stays among Clients Discharged from CCS after Age 21, Comparing Phase I to Classic CCS Comparison Group in Pre- versus Post-Period, and DiD Analysis

		Clients with Hospitalization Stays after Discharge from CCS			
		Visits per Person-Year before and after Turning 21			
Group	Have Medi-Cal upon Age 21	Year before Turning 21	Year after Turning 21	Change	*P*-value
Pre-Phase I	676	0.47	0.58	0.10	.36
Post-Phase I	596	0.35	0.33	-0.03	.71

		Clients with Hospitalization Stays after Discharge from CCS			
		Visits per Person-Year before and after Turning 21			
Group	Have Medi-Cal upon Age 21	Year before Turning 21	Year after Turning 21	Change	*P*-value
Classic CCS Pre-WCM	692	0.50	0.28	-0.22	<.0001
Classic CCS Post-WCM	596	0.39	0.30	-0.08	.10

DiD estimate = -0.279; Z = -1.84; p = .066.

Phase II results

Maintenance of insurance among clients discharged from CCS after age 21, comparing Phase II to Classic CCS comparison group in pre- versus post-period

Table 338 provides the proportion of clients who turned 21 and maintained their Medi-Cal in the pre- versus post-WCM implementation periods for the Phase II and Classic CCS comparison study groups separately. In the pre-WCM period, 95% of Phase II clients and 94% of Classic CCS comparison group maintained their Medi-Cal after turning age 21. In the post-period, 95% of Phase II clients and 94% of Classic CCS comparison group maintained their Medi-Cal after turning age 21. The DiD was not significant (p = .96). The majority of both Phase II and Classic CCS clients maintained the same health plan (94%–98%).

Table 338: Maintenance of Insurance among Clients Discharged from CCS after Age 21, Comparing Phase II to Classic CCS Comparison Group in Pre- versus Post-Period, and DiD Analysis

		Have Medi-Cal upon Age 21		
Study Group	Clients Turning 21 years	Have Medi-Cal upon Age 21	Percentage of Those >21 Years Who Maintained Medi-Cal	Percentage Maintaining Same Health Plan
Pre-Phase II	532	506	95.1	96.0
Post-Phase II	261	248	95.0	98.4
Classic Pre-WCM	542	507	93.5	93.7
Classic Post-WCM	249	233	93.6	97.9

DiD estimate = 1.026; p = .957.

Primary care visits among clients discharged from CCS after age 21, comparing Phase II to Classic CCS comparison group in pre- versus post-period

Table 339 provides a comparison of primary care visits per person-year before and after turning 21 in the pre- and post-WCM implementation periods for the Phase II and Classic CCS comparison groups separately. In the pre-period, Phase II clients experienced a significant decrease in primary care visits after turning 21 (p = .04), while Classic CCS clients did not experience significant change in primary care visits after turning 21. In the post-WCM period, Phase II clients experienced a significant increase in primary care visits after turning 21 (p = .04), while Classic CCS clients did not experience significant change in primary care visits after turning 21. The Difference in Differences comparing primary care visits between Phase II and Classic CCS after turning 21 is not significant (p = .23).

Table 339: Number of Primary Care Visits among Clients Discharged from CCS after Age 21, Comparing Phase II to Classic CCS Comparison Group in Pre- versus Post-Period, and DiD Analysis

		Clients Seen by Primary Care after Discharge from CCS			
		Visits per Person-Year before and after Turning 21			
Group	Have Medi-Cal upon Age 21	Year before Turning 21	Year after Turning 21	Change	*P*-value
Pre-Phase II	506	0.91	0.62	-0.29	.04
Post-Phase II	248	0.56	1.08	0.52	.04
Classic CCS Pre-WCM	507	1.33	1.17	-0.16	.44
Classic CCS Post-WCM	233	0.76	0.91	0.15	.49

DiD estimate = 0.517; Z = 1.19; p = .234.

Specialist visits among clients discharged from CCS after age 21, comparing Phase II to Classic CCS comparison group in pre- versus post-period

Table 340 provides a comparison of specialist visits per person-year before and after turning 21 in the pre- and post-WCM implementation periods for the Phase II and Classic CCS comparison groups separately. In the pre-period, both Phase II and Classic CCS clients did not experience significant change in specialist visits after turning 21. In the post-WCM period, Phase II clients experienced a significant decrease in specialist visits after turning 21 (p = .02), while Classic CCS clients did not experience significant change in specialist visits after turning 21. The Difference in Differences comparing specialist visits between Phase II and Classic CCS after turning 21 is not significant (p = .69).

Table 340: Number of Specialists Visits among Clients Discharged from CCS after Age 21, Comparing Phase II to Classic CCS Comparison Group in Pre- versus Post-Period, and DiD Analysis

		Clients Seen by Specialists after Discharge from CCS			
		Visits per Person-Year before and after Turning 21			
Group	Have Medi-Cal upon Age 21	Year before Turning 21	Year after Turning 21	Change	*P*-value
Pre-Phase II	506	4.95	4.34	-0.61	.17
Post-Phase II	248	4.22	3.06	-1.16	.02
Classic CCS Pre-WCM	507	5.05	4.37	-0.68	.18
Classic CCS Post-WCM	233	4.12	3.30	-0.82	.11

DiD estimate = -0.425; Z = -0.39; p = .694.

ED visits among clients discharged from CCS after age 21, comparing Phase II to Classic CCS comparison group in pre- versus post-period

Table 341 provides a comparison of ED visits per person-year before and after turning 21 in the pre- and post-WCM implementation periods for the Phase II and Classic CCS comparison groups separately. In the pre-period, both Phase II and Classic CCS clients did not experience significant change in ED visits after turning 21. Likewise, in the post-WCM period, both Phase II and Classic CCS clients did not experience significant change in ED visits after turning 21. The Difference in Differences comparing ED visits between Phase II and Classic CCS after turning 21 is not significant (p = .44).

Table 341: Number of ED Visits among Clients Discharged from CCS after Age 21, Comparing Phase II to Classic CCS Comparison Group in Pre- versus Post-Period, and DiD Analysis

		Clients with ED Visits after Discharge from CCS			
		Visits per Person-Year before and after Turning 21			
Group	Have Medi-Cal upon Age 21	Year before Turning 21	Year after Turning 21	Change	*P*-value
Pre-Phase II	506	1.45	1.52	0.07	.58
Post-Phase II	248	1.22	1.37	0.15	.37

		Clients with ED Visits after Discharge from CCS			
		Visits per Person-Year before and after Turning 21			
Group	Have Medi-Cal upon Age 21	Year before Turning 21	Year after Turning 21	Change	*P*-value
Classic CCS Pre-WCM	507	1.72	1.94	0.21	.12
Classic CCS Post-WCM	233	1.17	1.24	0.06	.64

DiD estimate = 0.236; Z = 0.78; p = .435.

Hospitalization stays among clients discharged from CCS after age 21, comparing Phase II to Classic CCS comparison group in pre- versus post-period

Table 342 provides a comparison of hospitalization stays per person-year before and after turning 21 in the pre- and post-WCM implementation periods for the Phase II and Classic CCS comparison groups separately. In the pre-period, Phase II clients experienced a significant decrease in hospitalization stays after turning 21 (p = .02), while Classic CCS clients did not experience significant change in hospitalization stays after turning 21. In the post-WCM period, both Phase II and Classic CCS clients did not experience significant change in hospitalization stays after turning 21. The Difference in Differences comparing hospitalization stays between Phase II and Classic CCS after turning 21 is not significant (p = .997).

Table 342: Number of Hospitalization Stays among Clients Discharged from CCS after Age 21, Comparing Phase II to Classic CCS Comparison Group in Pre- versus Post-Period, and DiD Analysis

		Clients with Hospitalizations after Discharge from CCS			
		Visits per Person-Year before and after Turning 21			
Group	Have Medi-Cal upon Age 21	Year before Turning 21	Year after Turning 21	Change	*P*-value
Pre-Phase II	506	0.38	0.26	-0.12	.02
Post-Phase II	248	0.35	0.32	-0.03	.78
Classic CCS Pre-WCM	507	0.56	0.45	-0.11	.10
Classic CCS Post-WCM	233	0.28	0.26	-0.03	.71

DiD estimate = 0.0005; Z = 0.00; p = .997.

Phase III results

Maintenance of insurance among clients discharged from CCS after age 21, comparing Phase III to Classic CCS comparison group in pre- versus post-period

Table 343 provides the proportion of clients who turned 21 and maintained their Medi-Cal in the pre- and post-WCM implementation periods for the Phase III and Classic CCS comparison study groups separately. In the pre-WCM period, 93% of Phase III clients and 97% of Classic CCS comparison group maintained their Medi-Cal after turning age 21. In the post-period, 96% of Phase III and 97% of Classic CCS comparison group clients maintained their Medi-Cal after turning age 21. The Difference in Differences is not significant (p = .21). The majority of both Phase III and Classic CCS clients maintained the same health plan (96%–98%).

Table 343: Maintenance of Insurance among Clients Discharged from CCS after Age 21, Comparing Phase III to Classic CCS Comparison Group in Pre- versus Post-Period, and DiD Analysis

		Have Medi-Cal upon Age 21		
Study Group	Clients Turning 21	Have Medi-Cal upon Age 21	Percentage of Those >21 Years Who Maintained Medi-Cal	Percentage Maintaining Same Health Plan
Pre-Phase III	992	918	92.5	95.5
Post-Phase III	471	452	96.0	98.0
Classic Pre-WCM	718	693	96.5	96.7
Classic Post-WCM	485	470	96.9	98.3

DiD: AOR = 0.589; p = .212.

Primary care visits among clients discharged from CCS after age 21, comparing Phase III to Classic CCS comparison group in pre- versus post-period

Table 344 provides a comparison of primary care visits per person-year before and after turning 21 in the pre- and post-WCM implementation periods for the Phase III and Classic CCS comparison groups separately. In the pre-period, Phase III clients did not experience significant change in primary care visits after turning 21, while Classic CCS comparison group clients experienced a significant increase in visits after turning 21 (p < .0001). In the post-WCM period, Phase III experienced a significant increase in primary care visits after turning 21 (p = .0006), while Classic CCS clients did not experience significant change in visits after turning 21. Given the significant increase in primary care visits after turning 21 in Phase III and little change in visits for the Classic CCS group, the Difference in Differences is significant (p = .009).

Table 344: Number of Primary Care Visits among Clients Discharged from CCS after Age 21, Comparing Phase III to Classic CCS Comparison Group in Pre- versus Post-Period, and DiD Analysis

		Clients Seen by Primary Care after Discharge from CCS			
		Visits per Person-Year before and after turning 21			
Group	Have Medi-Cal upon Age 21	Year before Turning 21	Year after Turning 21	Change	*P*-value
Pre-Phase III	918	2.08	2.30	0.22	.23
Post-Phase III	452	1.62	2.33	0.71	.0006
Classic CCS Pre-WCM	693	1.41	2.45	1.04	<.0001
Classic CCS Post-WCM	470	1.62	1.88	0.26	.33

DiD estimate = 1.272; Z = 2.64; p = .009.

Specialist visits among clients discharged from CCS after age 21, comparing Phase III to Classic CCS comparison group in pre- versus post-period

Table 345 provides a comparison of specialist visits per person-year before and after turning 21 in the pre- and post-WCM implementation periods for the Phase III and Classic CCS comparison groups separately. In the pre-implementation period, Phase III experienced a significant decrease in specialist visits after turning 21 (p = .003). Likewise, Classic CCS comparison group clients also experienced a significant decrease in specialist visits after turning 21 (p = .016). In the post-WCM period, Phase III clients experienced a significant decrease in specialist visits after turning 21 (p = .016). Likewise, Classic CCS clients also experienced a significant decrease in specialist visits after turning 21 (p = .004). The Difference in Differences comparing specialist visits between Phase III and Classic CCS after turning 21 is not significant (p = .24).

Table 345: Number of Specialist Visits among Clients Discharged from CCS after Age 21, Comparing Phase III to Classic CCS Comparison Group in Pre- versus Post-Period, and DiD Analysis

		Clients Seen by Specialists after Discharge from CCS			
		Visits per Person-Year before and after turning 21			
Group	Have Medi-Cal upon Age 21	Year before Turning 21	Year after Turning 21	Change	*P*-value
Pre-Phase III	918	5.06	4.03	-1.02	.0031

		Clients Seen by Specialists after Discharge from CCS			
		Visits per Person-Year before and after turning 21			
Group	Have Medi-Cal upon Age 21	Year before Turning 21	Year after Turning 21	Change	*P*-value
Post-Phase III	452	5.59	3.75	-1.84	<.0001
Classic CCS Pre-WCM	693	4.50	3.33	-1.17	.0153
Classic CCS Post-WCM	470	3.62	2.69	-0.93	.0041

DiD estimate = -1.008; Z = -1.17; p = .241.

ED visits among clients discharged from CCS after age 21, comparing Phase III to Classic CCS comparison group in pre- versus post-period

Table 346 provides comparison of ED visits per person-year before and after turning 21 in the pre- and post-WCM implementation periods for the Phase III and Classic CCS comparison groups separately. In the pre-implementation period, Phase III clients experienced a significant increase in ED visits after turning 21 (p = .02), while the Classic CCS comparison group did not experience significant change in ED visits after turning 21. In the post-WCM period, Phase III clients did not experience a significant change in ED visits after turning 21, while Classic CCS clients experienced a significant decrease in ED visits after turning 21 (p = .04). The Difference in Differences comparing ED visits between Phase III and Classic CCS after turning 21 is not significant (p = .80).

Table 346: Number of ED Visits among Clients Discharged from CCS after Age 21, Comparing Phase III to Classic CCS Comparison Group in Pre- versus Post-Period, and DiD Analysis

		Clients with ED Visits after Discharge from CCS			
		Visits per Person-Year before and after Turning 21			
Group	Have Medi-Cal upon Age 21	Year before Turning 21	Year after Turning 21	Change	*P*-value
Pre-Phase III	918	1.11	1.36	0.24	.02
Post-Phase III	452	0.98	0.91	-0.07	.46
Classic CCS Pre-WCM	693	1.09	1.25	0.15	.10
Classic CCS Post-WCM	470	1.11	0.87	-0.24	.04

DiD estimate = 0.0054; Z = 0.25; p = .801.

Hospitalization stays among clients discharged from CCS after age 21, comparing Phase III to Classic CCS comparison group in pre- versus post-period

Table 347 provides a comparison of hospitalization stays per person-year before and after turning 21 in the pre- and post-WCM implementation periods for the Phase III and Classic CCS comparison groups separately. In the pre-period, Phase III clients experienced a significant decrease in hospitalization stays after turning 21 (p = .004), while Classic CCS comparison group clients did not experience significant change in hospitalization stays after turning 21. In the post-WCM period, Phase III experienced a significant decrease in hospitalization stays after turning 21 (p < .0001). Likewise, Classic CCS clients also experienced a significant decrease in hospitalization stays (p = .001). The Difference in Differences comparing hospitalization stays between Phase III and Classic CCS after turning 21 is not significant (p = .533).

Table 347: Number of Hospitalization Stays among Clients Discharged from CCS after Age 21, Comparing Phase III to Classic CCS Comparison Group in Pre- versus Post-Period, and DiD Analysis

		Clients with Hospitalizations after Discharge from CCS			
		Visits per Person-Year before and after Turning 21			
Group	Have Medi-Cal upon Age 21	Year before Turning 21	Year after Turning 21	Change	*P*-value
Pre-Phase III	918	0.60	0.32	-0.28	.0044
Post-Phase III	452	0.42	0.21	-0.20	<.0001
Classic CCS Pre-WCM	693	0.52	0.43	-0.09	.12
Classic CCS Post-WCM	470	0.33	0.20	-0.13	.0012

DiD estimate = 0.107; Z = 0.62; p = .533.

Overall summary of transition to adult care results for HPSM WCM and Phase I–Phase III

In this section the terms “increases,” “decreases,” and “Difference in Differences” refer to change from before to after turning 21 years of age.

Most young adults who age out of the CCS program maintain both Medi-Cal (~95%) and continuity in their health plan (~95%).

In the HPSM WCM study group, there were no significant Difference in Differences in any of the “transition to adult care” outcomes.

In the Phase I study group, there were no significant differences when comparing any of the “transition to adult care” outcomes with the Classic CCS comparison group.

In the Phase II study group, there were no significant differences in any of the “transition to adult care” outcomes when comparing to the Classic CCS comparison.

In the Phase III study group, there was a significant increase in primary care visits as compared to Classic CCS comparison group post-WCM implementation. Otherwise, Phase III did not significantly differ from Classic CCS in any of the transition outcomes.

Overall Administrative Claims Summary of Research Question 5

Case management claims were significantly higher in all WCM study groups, except for Phase I, as compared to Classic CCS comparison groups post-WCM implementation.

Time from referral placement to authorization for DME decreased in HPSM WCM and increased in Phase III.

The results for having a Special Care Center (SCC) visit within 90 days of referral in the WCM plans were mixed. In HPSM WCM and Phase II study groups, the WCM plans had a statistically significantly higher rate of SCC visits within 90 days as compared to the Classic CCS comparison groups. In the Phase I study group, there were no significant differences in the SCC visits within 90 days between the Phase I and Classic CCS comparison groups. In the Phase III study group, Special Care Center visits within 90 days decreased significantly in the Phase III as compared to the Classic CCS comparison group.

The rate of a yearly visit to an SCC was high (70%–100%) and did not change post-WCM implementation for the four conditions studied (cystic fibrosis, sickle cell disease, type 1 diabetes, and moderate to severe congenital heart disease) across the different WCM study groups and Classic CCS comparison groups. The exception to this rate was in Phase II for type 1 diabetes and congenital heart disease (50%–55%), which had lower rates as compared to both the other WCM study groups and Classic CCS comparison groups.

The rate of an annual SCC visit between plans differed; the lowest rates was found among the congenital heart disease group. Phase II also had lower rates as compared to both Classic CCS and the other WCM study groups for the four conditions measured.

Transition to adult care outcomes for primary care visits significantly increased in Phase III as compared to Classic CCS comparison group. Otherwise, all transition to adult care outcomes in the WCM plans remained unchanged as compared to their respective Classic CCS comparison groups.

H. Summary of Research Findings

Overview: Key findings of the report results are summarized below, including analytic results of grievances, appeals, and state fair hearings, as well as interviews, the family survey and administrative claims analysis. Please refer to the main methods and results section immediately preceding this summary for the full description of all variables measured and discussion of results.

Research Question 1: What is the impact of the WCM on children's access to CCS services?

Overall Results Summary for Research Question 1 (RQ1)

Overall, most families were able to keep both their primary care and specialty care providers after implementation of the WCM. Primary care, specialty, and subspecialty results were mixed depending on the MCP. The rates of inpatient admission and readmission were either unchanged or increased relative to the Classic CCS comparison groups. Hospitalization rates and hospital readmission rates were either largely unchanged or decreased in the WCM as compared to Classic CCS comparison groups. There was also an increased rate of post-hospitalization outpatient follow-up visits and a decreased length of stay experienced across the WCM as compared to Classic CCS comparison groups. While further work on why ED visits increased relative to Classic CCS is warranted, hospitalizations appear stable, with high follow-up visit rates post-WCM implementation.

RQ1: Results from Grievances and Appeals Analysis

With the implementation of the WCM, CCS clients in the WCM now had access to a formalized grievance process through their MCP for CCS-related issues and services, whereas in Classic CCS, clients could only file an appeal. Therefore, only WCM clients could file a grievance for CCS-related issues. For evaluation purposes, the evaluation team made the assumption that grievance reporting for CCS-related and CCS-unrelated matters were similar between WCM and Classic comparisons. Based on this assumption, grievances in WCM are expected to be higher due to that difference in reporting. Overall, the number of grievances were minimal for both WCM and CCS. Due to low reporting, rates were reported per 100,000 member months.

- Only those clients in the HPSM WCM experienced a slightly larger increase in grievances per 100,000 member months pre- versus post-HPSM WCM implementation than did their Classic CCS comparison group counterparts. (Low total counts in HPSM both pre- and post-WCM implementation limit the interpretability of this finding.)
- Clients in Phases I, II, and III experienced a smaller pre- versus post-WCM implementation increase in accessibility grievances per 100,000 member months than did their Classic CCS comparison group counterparts.

RQ1: Results from Key Informant Interviews

- Some key informants (KIs) reported that after transition to WCM, CCS programs experienced decreased referrals into the program, mainly for neonatal intensive care unit (NICU) and High-Risk Infant Follow-Up (HRIF), leading to an overall decrease in their CCS program's total caseload after the transition to the WCM.
- KIs noted that the WCM increased access to care due to changes in the authorization process; this resulted in more streamlined access to providers and durable medical equipment (DME).
- Other KIs noted that the WCM decreased access to care due to changes in the referral process that led to inefficiencies and delayed access to specialty care and MTU services.
- Access to DME was mixed in the WCM — some KIs reported better, more streamlined access, and others reported increased delays in obtaining DME.

RQ1: Results from Telephone Survey of Families (continuity of care questions were administered only to WCM participants and not to Classic CCS clients*)

- **Access to Referrals:** The majority of respondents in all study groups (67%) did not experience a problem in obtaining a referral. The differences between clients in the WCM study groups and Classic CCS were not statistically significant.
- **Needing a Referral for Services:** Across all WCM study groups, 44% of respondents reported needing a referral. There was no statistical difference among WCM study groups or between the WCM and Classic CCS comparison group respondents.
- **Primary Care Provider:** A majority of respondents in all WCM study groups (87%) reported having a personal doctor or nurse. A significantly higher percentage of Phase II respondents (92%) indicated having a personal doctor or nurse than Classic CCS respondents (86%).

- **Primary Care Services:** The WCM study groups did not significantly differ from the Classic CCS group in the reported frequency of primary care doctor visits.
- **Continuity* of Primary Care Providers:** The majority of respondents in all WCM study groups (90%) were able to continue seeing their same primary care provider. The WCM study groups did not differ from each other with respect to continuity of primary care provider.
- **Continuity* of Specialty Care Providers:** The vast majority of respondents in all WCM study groups (94%) reported being able to see the same specialists after transitioning to the WCM. The WCM study groups did not differ from each other with respect to continuity of specialty care providers.
- **Access to Getting Appointments with Specialists:** Since the implementation of the WCM, a significant percentage of respondents across all WCM study groups (78%) reported that it was “usually easy” or “always easy” to get an appointment. Fewer Phase III respondents (71%) indicated that it was “usually easy” or “always easy” to get a specialist appointment compared to the Classic CCS comparison groups (79%). The other WCM study group respondents did not differ from Classic CCS comparison group respondents.
- **Unmet Need for Specialty Services:** The majority of respondents in all WCM study groups (87%) were able to get all the specialist services they needed. The differences between the WCM study groups and Classic CCS comparison groups were not statistically significant.
- **Access to Authorizations:** The majority of respondents in all WCM study groups (61%) reported that obtaining an authorization was “about the same.”
- **Access to Behavioral Health Services:** While the majority of respondents in all WCM study groups (58%) indicated that it was “usually easy” or “always easy” to get behavioral health treatment or counseling, a significant proportion (42%) indicated that it was “never easy” or “sometimes easy.” The differences between all WCM study groups and Classic CCS comparison groups were not statistically significant.
- **Behavioral Health Unmet Needs:** The majority of respondents in all WCM study groups (76%) reported that their behavioral or mental health services needs had been met. Compared to Classic CCS (68%), significantly more respondents in Phase I (78%), Phase II (80%), and Phase III (87%) reported that their mental health services needs were met.
- **Access to Durable Medical Equipment:** Since transitioning to WCM, significantly more respondents in Phase II (34%) and Phase III (39%) reported that it was “always easy” to obtain medical equipment and supplies compared to Classic CCS comparison respondents (23%). The differences between the other WCM study groups and Classic CCS comparison group respondents were not significant.

- **Unmet Needs for Medical Equipment:** Phase I and Phase II respondents (19% each) were less likely to report unmet needs for medical equipment and supplies compared to Classic CCS comparison group respondents (26%). This difference was statistically significant. The differences between the other WCM study groups and Classic CCS comparison group respondents were not significant.
- **Continuity* of Pharmacy Services:** The majority of respondents in all WCM study groups (90%) indicated they were able to keep the same pharmacy after the transition to the WCM. The differences between the WCM study groups and Classic CCS comparison group respondents were not statistically significant.
- **Delay Getting Prescription Medications:** The majority of respondents in all WCM study groups (76%) indicated that in the past six months they did not experience delays receiving a prescription medication. The differences between WCM study groups and Classic CCS comparison groups were not statistically significant.
- **Unmet Needs for Prescribed Medication:** The majority of respondents in all WCM study groups (92%) indicated their prescription needs have been met. The differences between WCM study groups and Classic CCS comparison group respondents were not statistically significant.
- **Continuity* of Location of Therapy Services:** The majority of clients across all WCM study groups (90%) did not experience a change in the location of therapy services after entering the WCM.
- **Access to Therapy Service Appointments:** Since the implementation of the WCM, a greater number of respondents in the WCM study groups (42%) reported that it was “always easy” to get a medical therapy services appointment for the client compared to Classic CCS comparison group respondents (30%). The distribution in the ease of obtaining therapy services for Phase II respondents significantly differed from the Classic CCS comparison group respondents. A higher percentage of Phase II respondents (76%) indicated it was “usually easy” or “always easy” to obtain a medical therapy appointment than Classic CCS comparison group respondents (66%) since the implementation of WCM.
- **Unmet Need for Medical Therapy Services:** While the majority of respondents in all WCM study groups reported that their medical therapy services needs were met (65%), a large percentage of respondents reported unmet needs (35%). There were no statistically significant differences between the WCM study groups and Classic CCS comparison groups.
- **Access to Transportation Services:** The distribution between the WCM study groups and Classic CCS comparison group respondents did not differ significantly in how they responded to the ease of getting transportation for their child’s healthcare appointments. Although not significant, a large percentage of Phase III respondents (35%) indicated it was “never easy” to get transportation for their child’s healthcare appointments compared to Classic CCS comparison group respondents (13%).

- **Access to Transportation Services — Missed Appointments:** Approximately a third of respondents (31%) in both WCM and Classic CCS reported missing health or therapy appointments because of transportation problems. The difference between WCM study groups and Classic CCS comparison group respondents was not significant.
- **Access to Interpreter Services:** The majority of respondents in all WCM study groups (80%) reported that, if needed, they were “usually” or “always” able to have a professional interpreter. A greater percentage of Phase I respondents (83%) reported they were “usually” or “always” able to have a professional interpreter compared to Classic CCS comparison groups (78%).
- **Emergency Department Visits Due to Lack of Access to Provider:** Across all WCM study groups, a minority of respondents (~20%) indicated that the client had to go the emergency department because it was too difficult to see another doctor. Compared to Classic CCS comparison group respondents (21%), fewer Phase II clients (17%) went to the emergency department because it was too difficult to see another doctor.

RQ1: Results from Claims Data Analysis

Access to clinical services was measured by evaluating the referral patterns into CCS, specialty network adequacy, primary care/EPSDT (Early and Periodic Screening, Diagnostic, and Treatment) visits, specialty care visits, CCS provider visits, mental health visits, DME claims, and pharmacy claims. Health outcomes reported included ED visits, ED follow-up, hospitalizations, and hospital follow-up. The section summarizes the Difference in Differences (DiD) analysis findings comparing change in the WCM study group post-WCM implementation as compared to the propensity score–matched Classic CCS comparison group. Please refer to the results section to see the pre-to-post changes experienced by each WCM study group.

- **Access to CCS:** Overall enrollment decreased in Phase II and Phase III as compared to Classic CCS comparison groups and increased in both Classic CCS and Phase I post-implementation. New enrollment decreased in all phases as compared to Classic CCS comparison groups. In the WCM, the numbers of those denied were also significantly lower than that of Classic CCS, with the exception of Phase III, where Classic CCS had very low denial rates (<8%, compared to 30%–40% for the other Classic CCS comparison groups).
- **Mortality:** Death was rare (<0.3% per year) in both WCM and Classic CCS, and death rates were stable after WCM implementation.
- **Referral Network and Referral Patterns:** The number of Special Care Centers (SCCs), CCS Paneled Providers, and CCS specialty providers in-network increased post-WCM implementation for almost all phases. The majority of visits were seen in-network, though there was variation between the MCPs. The proportion of visits seen in-network

post-WCM implementation ranged from 52% to 100% depending on provider group and WCM study group, with the majority of plans having SCC and CCS Paneled Provider in-network visit rates of 92%–98%. Between 17% and 59% of individual SCCs actively seeing patients in the WCM were out of network post-WCM implementation. Between 19% and 41% of CCS Paneled Providers who saw CCS clients were out of network. Between 4% and 26% of specialist providers seen were out of network, and approximately 20%–35% of primary care providers were out of network. The actual number of listed providers in-network with a claim with a CCS client was approximately 25%–50% for CCS Paneled Providers and 17%–40% for pediatric specialists. Therefore, while there is a large proportion of providers being seen who are out of network, these providers also make up only a small number of visits overall. Specialty providers with the highest client-to-provider ratio (>1,200 clients per provider) included behavioral pediatrics, pediatric neurodevelopmental disabilities, pediatric dermatology, pediatric rehabilitation, pediatric ophthalmology, and pediatric sports medicine.

- **Travel Distance:** The relationship between WCM study group and travel distance to specialty care, Special Care Centers, and primary care was complex. Absolute travel distance to Special Care Centers increased by approximately 5 miles on average after WCM implementation in Phase I and Phase II ($p < .001$) and absolute travel distance to primary care decreased by 10 miles in Phase II after WCM implementation. However, DiD results showed a relative increase in distance traveled in WCM study groups compared to Classic CCS counties driven by significantly larger decreases in distance traveled by the Classic CCS comparison group. The absolute travel distance experienced by clients in Phase III was significantly lower than the travel distance for Phase I and Phase II clients (average 11.6 miles in Phase III for all visits vs. 40.9 and 51.8 in Phase I and Phase II, respectively, in the post-WCM implementation time period).
- **Factors Associated with Travel Distance:** Across provider visit types, non-White racial and ethnic groups and those who did not speak English consistently experienced shorter travel distance to CCS providers and CCS Special Care Center providers, as compared to those who were White and spoke English, except for Native Americans in Phase II, who experienced longer travel distances as compared to White people. Those with higher illness severity experienced longer travel distances across all visit types.
- **Primary Care Visits:** In the pre- to post-WCM implementation period, primary care visits per 1,000 member months (MM) increased in the HPSM WCM (+412 visits), Phase I (+117 visits), and Phase II (+27 visits) and decreased in Phase III (-33 visits). The HPSM WCM had 1.68 times higher odds ($p = .035$), and Phase I had 1.08 times higher odds ($p < .001$) of having a primary care visit as compared to the Classic CCS comparison group post-WCM implementation. Phase II had 11% lower odds ($p < .001$) of having a primary care visit as compared to the Classic CCS comparison group. Phase III did not differ from the Classic CCS comparison group post-WCM implementation.

- **Well-Child Care Visits for 0–15 Months:** The rate of children having six visits by age 15 months per 100 was low across all WCM study groups. Only 22%–38% of children met the measure post-WCM implementation. Pre- to post-WCM implementation, Phase I increased the number of children meeting the measure (+4 children per 100), while decreases were seen in Phase II (10 children less per 100) and Phase III (1 child less per 100). The DiD analyses showed no statistically significant impact of any of the WCM study groups on well-child visits for 0–15 months when compared to the Classic CCS comparison group post-WCM implementation.
- **Well-Child Care Visits for 0–30 Months:** Over 70% of eligible children in all phases met the 0–30 months well-child visit (WCV) measure of two well-child visits. Increases in the number of children meeting the measure were seen with Phase I (+11 children per 100) and Phase III (+13 children per 100); there was no change in Phase II. In the DiD analysis, Phase I experienced 1.8 times higher odds of well-child visits for 0- to 30-month-olds ($p < .001$) compared to the Classic CCS comparison group, while no difference was noted for other phases as compared to the Classic CCS comparison groups. The HPSM WCM group had a small sample size, so analyses could not be performed.
- **Well-Child Care Visits for 3- to 6-Year-Olds:** Over 65% of eligible children in all WCM study groups met the 3- to 6-year-olds WCV measure. In the DiD analysis, Phase I had 1.53 times higher odds ($p < .001$), and Phase III had 1.23 times higher odds ($p = .002$) of having a well-child visit for 3- to 6-year-olds as compared to Classic CCS counties post-WCM implementation. No difference was noted in Phase II. The HPSM WCM group had a small sample size, so analyses could not be performed.
- **Well-Child Care Visits for 12- to 20-Year-Olds:** Over 42% of eligible children in all phases met the 12- to 20-year-olds WCV measure. In the DiD analysis, Phase I had 1.32 times higher odds ($p < .001$), and Phase III had 1.11 times higher odds ($p = .003$), while Phase II had 9% lower odds ($p = .043$) of having a well-child visit for 12- to 20-year-olds as compared to Classic CCS comparison groups post-WCM implementation. The HPSM WCM group had a small sample size, so analyses could not be performed.
- **CCS Paneled Provider Visits:** In the pre- to post-period, CCS provider visits per 1,000 MM increased in HPSM WCM (+828 visits), Phase I (+53 visits), and Phase II (+105 visits), while they decreased in Phase III (-343 visits). In the DiD analysis, the HPSM WCM had 1.89 times higher odds ($p = .009$), and Phase II had 1.07 times higher odds ($p < .001$) of having a CCS provider visit as compared to the Classic CCS comparison group post-WCM implementation. Phase I had 7% lower odds ($p < .001$), and Phase III had 47% lower odds ($p < .001$) of having a CCS provider visit as compared to the Classic CCS comparison group.
- **Specialists Visits:** In the pre- to post-period, specialist visits per 1,000 MM increased in the HPSM WCM (+677 visits) and decreased in Phase I (-27 visits), Phase II (-1 visit), and Phase III (-80 visits). In the DiD analysis, the HPSM WCM had 2.4 times higher odds of specialist visits as compared to the Classic CCS comparison groups post-WCM implementation ($p < .001$). Phase I had 7% lower odds ($p = .004$), and Phase III had 10% lower odds ($p < .001$)

of specialist visits as compared to Classic CCS comparison groups post-WCM implementation. No significant difference was noted in Phase II.

- **Mental Health Visits:** In the pre- to post-period, mental healthcare visits per 1,000 MM increased in the HPSM WCM (+143) and in all WCM study groups: Phase I (+43), Phase II (+26), and Phase III (+107). In the DiD analysis, only Phase III had significantly improved odds of mental health visits (1.10 times greater odds, $p = .01$) as compared to the Classic CCS comparison group. The HPSM WCM had a trend toward higher odds (AOR 3.43, $p = .074$) compared to Classic CCS comparison group but did not reach statistical significance. No statistically significant difference was observed for Phase I or Phase II.
- **Durable Medical Equipment Use:** In the pre- to post-period, durable medical equipment claims per 1,000 MM increased in all WCM study groups: Phase I (+12 claims), Phase II (+29 claims), and Phase III (+10 claims). Only Phase III had a significant 9% lower odds of durable medical equipment claims compared to the Classic CCS comparison group post-WCM implementation ($p = .046$). There was no significant difference in Phases I and II as compared to the Classic CCS comparison groups. The HPSM WCM group had a small sample size, so analyses could not be performed.
- **In-Home Supportive Services Use:** In the pre- to post-period, receipt of In-Home Supportive Services (one or more days in any given month) per 1,000 MM increased in all groups: HPSM WCM (+77 months with receipt of IHSS), Phase I (+10 months with receipt of IHSS), Phase II (+14 months with receipt of IHSS), and Phase III (+12 months with receipt of IHSS). In the DiD analysis, HPSM WCM had 2.84 times higher odds ($p = .002$), Phase II had 1.06 times higher odds ($p < .001$), and Phase III had 1.04 times higher odds ($p < .001$) of having In-Home Supportive Services claims post-WCM implementation when compared to Classic CCS comparison groups. No significant difference was noted for Phase I.
- **Pharmacy Claims (e.g. medications, prescription supplies):** In the pre- to post-period, pharmacy claims per 1,000 MM increased in the HPSM WCM (+1,060 claims) and decreased in all other WCM study groups: Phase I (-38 claims), Phase II (-32 claims), and Phase III (-18 claims). In the DiD analysis, as compared to Classic CCS comparison groups, Phase I and Phase II had lower odds of pharmacy claims by 4% and 8%, respectively ($p < .01$), while the HPSM WCM had higher odds by 4.47 times ($p = .003$). No significant difference was noted in Phase III.
- **Emergency Department Visits:** In the pre- to- post-period, ED visits per 1,000 MM increased in HPSM WCM (+45 visits) and decreased in all other WCM study groups: Phase I (-15 visits), Phase II (-8 visits), and Phase III (-15 visits). In the DiD analysis, compared to the Classic CCS comparison groups, there were significantly higher odds for ED visits for the HPSM WCM (AOR 3.17, $p < .001$) and Phase II (AOR 1.21, $p < .001$) post-WCM implementation, while no significant change was noted for Phases I and III.

- **Emergency Department Visits with Follow-Up:** In the pre- to- post-period, ED visits with follow-up visit claims per 100 ED visits increased in the HPSM WCM (+11 visits), Phase I (+2 visits), and Phase III (+1 visit) and was unchanged in Phase II. In the DiD analysis, no significant difference was noted post-WCM implementation for ED visits with follow-up visits between any of the WCM study groups and Classic CCS comparison groups.
- **All-Cause Hospitalizations:** In the pre- to post-period, hospitalizations (or inpatient admission) claims per 1,000 MM increased in the HPSM WCM (+22 hospitalizations) and decreased in all other WCM study groups: Phase I (-3 hospitalizations), Phase II (-4 hospitalizations), and Phase III (-4 hospitalizations). In the DiD analysis, compared to Classic CCS, the HPSM WCM had 2.66 times greater odds of a hospitalization ($p = .017$), while Phase III had 14% lower odds ($p < .001$) of hospitalizations post-WCM implementation; no significant difference was noted in Phases I and II.
- **Hospital Outpatient Follow-Up Visit within 28 Days after Discharge:** Outpatient follow-up visits rates were high, with greater than 90% of hospitalizations having a follow-up visit within 28 days across all WCM study groups and Classic CCS comparison groups. Compared to Classic CCS, the HPSM WCM had 15.1 times higher odds of hospital outpatient follow-up after discharge ($p < .001$), Phase I had 1.79 times higher odds ($p < .001$), and Phase II had 1.65 times higher odds ($p < .001$), while no significant difference was noted for Phase III post-implementation.
- **30-Day All-Cause Hospital Readmission Rates:** Pre- to post- period readmission rates per 100 discharges increased slightly in most of the WCM study groups: Phase I (+2 readmissions), Phase II (+2 readmissions), and Phase III (+1 readmission). The HPSM WCM rate decreased by 51%, but there were very few admissions. In the DiD analysis, only Phase III was significant, with 15% lower odds ($p = .027$) of hospital readmission compared to Classic CCS comparison groups post-WCM implementation, while no significant difference was noted in Phase I and Phase II. The HPSM WCM group had a small sample size, so analyses could not be performed.
- **Hospital Length of Stay:** The average hospital LOS decreased in all WCM study groups: HPSM WCM (-1.9 days), Phase I (-2.4 days), Phase II (-1.2 days), and Phase III (-1.4 days). Phase III had 17% lower likelihood of hospital LOS ($p < .001$) as compared to the Classic CCS comparison group post-WCM implementation, while there was no difference in LOS for the other three study groups.
- **Special Care Center Use:** In the pre- to post-period, Special Care Center visits per 1,000 MM increased in the HPSM WCM (+391 visits) and Phase I (+24 visits) and decreased in Phase II (-13 visits) and Phase III (-94 visits). In the DiD analysis, Special Care Center visits increased significantly for the HPSM WCM (AOR 6.16, $p < .001$) and Phase I (AOR 1.05, $p = .033$), while they decreased for Phase II (12% lower odds, $p < .001$) and Phase III (19% lower odds, $p < .001$) compared to the Classic CCS comparison groups post-WCM implementation.

Table 348 below summarizes the overall relationship of the DiD outcome comparing the WCM to the Classic CCS comparison group for all WCM study groups for Research Question 1. The arrows indicate the impact of the WCM on the **change in outcomes post-WCM implementation** and does not indicate the absolute value differences between the WCM study groups and Classic CCS comparison groups. **Up arrows indicate higher or increased change in outcome** as compared to the Classic CCS comparison groups post-WCM implementation. **Down arrows indicate decreased or lower change in outcome** as compared to the Classic CCS comparison group post-WCM implementation. An "ND" indicates no statistical difference between the WCM study groups and Classic CCS comparison group post-WCM implementation. **The arrows DO NOT indicate whether a measure was better or worse, nor do they indicate absolute values.** Green indicates a desired outcome, red indicates poor outcome, and no color indicates direction is neutral. Any pre-to-post changes by WCM study groups are noted in the summary above and in the results section. Absolute values can be found in the results section.

Table 348: Research Question 1: Difference in Differences Outcome Summary for WCM Study Groups as Compared to Classic CCS

Measure	HPSM WCM	Phase I	Phase II	Phase III
Outpatient Visits				
CCS Paneled Provider Visits	↑	↓	↑	↓
Specialist Visits	↑	↓	ND	↓
Specialty Care Center Visits	↑	↑	↓	↓
Mental Health Care Visits (low/med, high severity)	ND	ND	ND	↑
Primary Care Visits	↑	↑	↓	ND
Well-Child Visits (0–15 months)	*	ND	ND	ND
Well-Child Visits (0–30 months)	*	↑	ND	ND
Well-Child Visits (3–6 years)	*	↑	ND	↑
Well-Child Visits (12–20 years)	*	↑	↓	↑
Ancillary Services				
Durable Medical Equipment (DME)	*	ND	ND	↓
In-Home Supportive Services (IHSS)	↑	ND	↑	↑
Pharmacy	↑	↓	↓	ND
Outcomes				
ED Visits	↑	ND	↑	ND
ED with Follow-Up	ND	ND	ND	ND
Hospitalizations	↑	ND	ND	↓
Hospitalization with Follow-Up	↑	↑	↑	ND
Hospital Length of Stay	ND	ND	ND	↓
Hospital Readmissions	*	ND	ND	↓
Travel Distance†				
Travel to Overall Visits	ND	↑	ND	↑
Travel to Specialists	ND	↑	ND	↑
Travel to CCS Paneled Providers	ND	↑	ND	↑
Travel to SCC	ND	ND	↑	↑
Travel to Primary Care	ND	↑	↓	↑

Measure	HPSM WCM	Phase I	Phase II	Phase III

ND = no statistical difference.
↑ Outcome increased or higher as compared to Classic CCS comparison group post-WCM implementation.
↓ Outcome decreased or lower as compared to Classic CCS comparison group post-WCM implementation.
*Too few *n* to perform difference in Difference (DiD) model.
†Most of the ↑ differences were due to larger decreases in travel distance experienced by the Classic CCS comparison group as compared to the WCM study groups.
Green indicates desired outcome, red indicates poor outcome, and no color indicates direction is neutral.

COVID-19 Pandemic Impact on Access to Care: The COVID-19 pandemic interrupted healthcare services during the WCM evaluation, with decreasing visit utilization in both WCM and Classic CCS comparison groups. This utilization did improve over time.

Research Question 2: What is the impact of the WCM on patient and family satisfaction?

Overall Results Summary for Research Question 2 (RQ2)

Overall, on most measures of satisfaction, the majority of respondents in all WCM study groups indicated they were "satisfied" or "very satisfied" with the services they have been receiving.

RQ2: Overall Grievances, Appeals, and State Fair Hearings Results

Both grievances and appeals can be filed with an MCP, but only CCS clients in the WCM can file a grievance for both CCS- and non-CCS-related issues. Classic CCS clients can file only an appeal or state fair hearing and cannot file a CCS grievance. Unfortunately, for those CCS clients in the WCM, specificity about whether a grievance was a CCS-related issue could not be separated from general issues. To evaluate whether general trends could be isolated to a WCM MCP, the UCSF evaluation team compared the grievances reported by Classic CCS clients to their respective non-WCM plans to help control for general trends in Medi-Cal managed care. The expectation would be that WCM CCS clients would have more grievances generally, as CCS WCM clients now can also file CCS-specific grievances, and the comparison would allow for controlling for trends that may be independent of the WCM. Direct WCM to Classic CCS comparisons were not made for grievances. Rather, the Differences in Differences analysis was used to see if there were different trajectories of

grievances between the WCM and Classic CCS MCP participants. The UCSF evaluation team would caution against any direct comparisons of the number of grievances filed between the WCM and Classic CCS MCPs due to the differences in grievance reporting.

- Variable numbers and types of grievances were filed throughout all three years and among all phases of the WCM when looking at "timely access," "transportation," "DME," "WCM provider," and "other" grievances in HPSM WCM and Phase I, Phase II, and Phase III.
- The most grievances were filed in Phase III (*n* = 1,162), and the fewest were filed in HPSM WCM (*n* = 50).
- The type of grievance filed most often among all Phases of the WCM were "other" grievances (*n* = 350), then "WCM provider" grievances (*n* = 279). "DME" grievances (*n* = 81) were filed the least often.
- Like grievances, most of the appeals were filed in Phase III (*n* = 210), and the least number of appeals (*n* = 82) were filed by HPSM WCM. Among all phases, appeals trended downward in Phases I and II, were variable throughout all three years of Phase III, and increased throughout the three years of HPSM WCM.
- Among all phases, Phase III had the most state fair hearings (SFHs) per one million member months, whereas both HPSM WCM and Phase I had the fewest. The absolute number of SFHs in each phase decreased pre- to- post-WCM regardless of study group. The SFHs per one million member months also decreased in every phase pre- to post-WCM except for Phase III, which had a more than threefold increase pre- to post-WCM, despite the decrease in total number of SFHs reported.
- "Withdrawal" and "denied" are the most frequent SFH final dispositions among all phases and study groups, signaling that the majority of the SFH outcomes were in favor of the health plans.

RQ2: Results from Parent and Guardian Interviews

- Parents who were interviewed had varied feelings about their overall satisfaction with the WCM. Satisfaction depended on whether their children received needed services and how straightforward or difficult it was for parents to navigate the processes for doing so. Some parents, for example, did not notice any changes between pre- and post-WCM implementation. These parents were typically satisfied with WCM because their child was still receiving services and did not experience any disruptions in care.
- Conversely, the parents who were dissatisfied with the WCM typically had encountered challenges regarding one or more services that were key to their child's care. For some parents, dissatisfaction was driven by difficulties they experienced in securing transportation to and from appointments for their child. Other parents explicitly noted barriers they had experienced receiving pharmacy, laboratory, or therapy services. Parents had been told that nothing would

change regarding their child's care and access to services after transitioning into the WCM, but they felt this was not the case.

- Parents indicated that the process of obtaining authorizations was more difficult under the WCM than had been in Classic CCS, frequently citing examples of a particular item or service that had been difficult to authorize. Many of these examples concerned DME or services from pharmacies (e.g., specific medications or items, such as sanitary wipes). One parent also noted that it was difficult to obtain authorization for Applied Behavior Analysis therapy. These parents felt that providers were less informed about the MCP authorization process than they had been in Classic CCS.
- An additional concern was that within the WCM, service authorizations for various services did not consistently expire on the same day as in Classic CCS. This was a hardship for parents who needed to track expiration dates of multiple authorizations for their child rather than just seeking renewals for all authorizations on the same day, once per year.
- Before the WCM, most parents were very happy with their CCS case workers in their counties. They felt that they had strong relationships with their case workers and could reach out directly to them with questions. Some other parents had no relationship with a case worker from their county before transitioning to the WCM.
- Following the transition to the WCM, most parents noted that it was more difficult to access case management services. They had to contact a general telephone number at their MCP and then navigate a phone tree to access the appropriate department, all of which took more time and multiple phone calls. Several WCM CCS client parents resorted to calling their county's CCS office when they were confused or needed help.

RQ2: Results from Telephone Survey of Families

- **Overall Satisfaction with the WCM:** Since transitioning to the WCM, significantly fewer Phase II respondents (81%) indicated they were "satisfied" or "very satisfied" with their MCP compared to Classic CCS comparison group respondents (83%). Fewer Phase II respondents (8%) were "dissatisfied" or "very dissatisfied" compared to the Classic CCS comparison group respondents (9%), more Phase II respondents (11%) were more likely to be "neither satisfied nor dissatisfied" with their health plan compared to the Classic CCS comparison group respondents (8%). The HPSM WCM, Phase I, and Phase III respondents did not significantly differ from the Classic CCS comparison group in their satisfaction with their MCP.
- **Satisfaction with Medical Equipment:** The majority of respondents across all WCM study groups (77%) indicated they were "satisfied" or "very satisfied" with the medical equipment or supplies they have been receiving. The differences between the WCM and Classic CCS comparison groups were not statistically significant.

- **Satisfaction with Specialty Services:** The majority of respondents across all WCM study groups (88%) indicated they were “satisfied” or “very satisfied” with the specialty services they have been receiving. The differences between the WCM and Classic CCS comparison groups were not statistically significant.
- **Satisfaction with Medical Therapy Services:** The majority of survey respondents across all WCM study groups (74%) were “satisfied” or “very satisfied” with the therapy services they were receiving. There were no statistically significant differences between the WCM and Classic CCS comparison groups.
- **Satisfaction with Communication with Doctor:** Since transitioning to the WCM, fewer Phase I respondents (33%) indicated they are “very satisfied” with the communication they have with their doctors and healthcare providers than Classic CCS comparison groups respondents (38%). However, a greater percentage of Phase I respondents (50%) indicated being “satisfied” with the communication they have with their doctors and healthcare providers compared to the Classic CCS comparison group respondents (45%). The difference between HPSM WCM, Phase II, and Phase III respondents and the Classic CCS comparison group respondents was not significant.
- **Grievances and Appeals:** Most respondents (97%) did not file an appeal, grievance, or complaint about their child’s healthcare. The differences between the WCM study groups and Classic CCS comparison groups were not significant.

Research Question 3: What is the impact of the WCM on provider and administrator satisfaction with the delivery of services and reimbursement?

Overall Results Summary for Research Question 3 (RQ3)

In a small convenience sample of providers and administrators serving CCS clients in both the WCM and Classic CCS recruited from two specialty list servers, provider views on services provided to CCS clients in the WCM were mixed. The most positive responses were found with pharmacy and case management services. The most dissatisfaction with services was found with DME, overall timeliness to services, overall quality of services, and overall access to services. The KIs indicated dissatisfaction with the Medi-Cal reenrollment process and CCS staff workloads immediately after the WCM was implemented, which could be consistent with the finding from the provider and administrator survey regarding DME services. Reimbursement in this sample of providers and administrators did not appear to be a major issue, although almost a third could not comment on or did not answer the reimbursement question in the provider survey. Most providers and administrators felt they were able to maintain or improve services to clients in the WCM when compared to Classic CCS clients. While results were generally positive, the providers and administrators findings cannot be generalized to the

universe of providers and administrators who serve children in the WCM due to a low response rate. However, it is notable that the providers and administrators survey mirrored findings found in the KI interviews.

RQ3: Results from Key Informant Interviews

- KIss reported their dissatisfaction with both the Medi-Cal reenrollment process and the increased CCS staff workload immediately after the WCM implementation.
- CCS staff described their dissatisfaction with the increased workloads immediately after the WCM was implemented.
- All DME vendors spoke about their satisfaction with a more efficient authorization process in the WCM.

Research Question 4: What is the impact of the WCM on the quality of care received?

Overall Results Summary for Research Question 4 (RQ4)

In general, since transitioning to the WCM the majority of respondents indicated that the quality of care as measured across overall quality, primary care, specialty care, medical therapy, pharmacy, DME, and behavioral health received was "about the same" since implementation of the WCM. There were no significant differences among the WCM study groups in perceived quality of care post-WCM implementation.

RQ4: Results from Grievances Data Analysis

Over 90% of Classic CCS clients are in MCPs but are unable to file grievances for CCS-related issues (as only appeals and state fair hearings can be filed in Classic CCS). With the implementation of the WCM, CCS clients now could file grievances for both WCM and for general care within the MCPs. To know whether increases in grievances were due to general trends within managed care, the UCSF evaluation team compared grievances through a Difference in Differences analysis of the WCM as compared to a baseline grievances rate within managed care generally. The grievances data sets did not allow the evaluation team to isolate "CCS-only" grievances. The UCSF evaluation team postulated that since CCS clients in the WCM could now file grievances, there may be an increase in grievances filed among the WCM plans as compared to Classic CCS. The comparison group allowed the evaluation team to control for statewide trends observed in Medi-Cal MCPs. The UCSF evaluation team would caution against any direct comparisons of the number of grievances filed between the WCM and Classic CCS MCPs due to the differences in grievance reporting.

- The rate of grievances related to quality of care increased for WCM counties when compared to the rates of grievances found in Classic CCS counties, post-implementation for HPSM, Phase II, and Phase III cohorts.
- The rate of grievances related to quality of care were smaller in Phase I when compared to their Classic CCS county counterparts.

RQ4: Results from Key Informant Interviews

- Key informants reported that the WCM had an impact on both provider and DME quality, whereby CCS clients in the WCM had increased access to an expanded MCP network of providers and DME vendors, but some of these providers and vendors were less qualified to work with CCS clients because they were not specialized or experienced in working with children with complex chronic conditions.

RQ4: Results from Telephone Survey of Families

- **Overall Healthcare Quality in the WCM:** Since transitioning to WCM, the majority of respondents in Phase I (62%), Phase II (67%), and Phase III (62%) indicated that the quality of health services was “about the same.” Phase I respondents (86%) were significantly more likely to indicate that the quality of health services was “about the same” or “better” since the transition to the WCM compared to Phase II respondents (81%). Depending on WCM study group, between 3% and 10% stated it was worse.
- **Quality of Primary Care Services:** Since transitioning to WCM, the majority of respondents in Phase I (74%), Phase II (81%), and Phase III (74%) indicated that primary care services were “about the same.” The differences among Phase I, Phase II, and Phase III WCM study groups were not significant. Across WCM study groups, 4% or less stated it was worse.
- **Quality of Specialist Services:** Since transitioning into WCM, the majority of respondents in Phase I (75%), Phase II (80%), and Phase III (78%) indicated that specialty care services were “about the same.” The differences among Phase I, Phase II, and Phase III WCM study groups were not significant. Across WCM study groups, 4% or less stated it was worse.
- **Quality of Medical Therapy Services:** Since transitioning into WCM, the majority of respondents in Phase I (75%), Phase II (83%), and Phase III (71%) indicated that medical therapy services were “about the same.” There were no differences between study groups. Across WCM study groups, less than 8% thought it was worse.
- **Quality of Pharmacy Services:** Since transitioning to WCM, the majority of respondents in Phase I (81%), Phase II (84%), and Phase III (82%) indicated that pharmacy services were “about the same.” The differences among Phase I,

Phase II, and Phase III WCM study groups were not significant. Across WCM study groups, 7% or less thought it was worse.

- **Quality of DME and Supplies:** Since transitioning to WCM, the majority of respondents in Phase I (74%), Phase II (77%), and Phase III (71%) indicated that the quality of medical equipment and supply services were "about the same." The differences among Phase I, Phase II, and Phase III WCM study groups were not significant. Depending on WCM study group, between 2% and 11% thought it was worse.
- **Quality of Behavioral Health Services:** Across all WCM study groups, approximately 59% of respondents indicated that behavioral health services were "about the same" since the transition to the WCM, and 11% indicated behavioral services were "better since the transition." The differences among Phase I, Phase II, and Phase III WCM study groups were not significant. Depending on WCM study group, between 1% and 6% thought it was worse.

RQ4: Results from Claims Analysis

Quality of care was assessed through three measures: rates of depression screening, and childhood and adolescent vaccination rates. HPSM provided data-related control of HbA1c measure. However, there were too few clients with diabetes in the HPSM WCM evaluation group, and there was no comparison group to perform an analysis against.

The results below highlight the Difference in Differences analysis comparing change in the WCM study group post-WCM implementation as compared to the propensity score–matched Classic CCS group. Of note, this design robustly accounts for the overall decrease in preventive care measures that occurred in 2020 associated with the COVID-19 pandemic.

- **Depression Screening:** Overall, screening rates were very low in all WCM study groups (HPSM WCM: 58%, Phase I: 10%, Phase II: 3%, Phase III: 21%) and Classic CCS (12% or less in all CCS control groups) in the post-WCM implementation period. In the pre- to post-period, depression screening rates per 100 clients increased in HPSM WCM (+58 screened), Phase I (+9 screened), and Phase II (+2 screened) and decreased in Phase III (-1 screened). In the DiD analysis, Phase I had 7.32 times higher odds ($p < .001$), and Phase II had 2.38 times higher odds ($p < .001$) of depression screening, while Phase III had 57% lower odds ($p < .001$) as compared to the Classic CCS comparison groups. The HPSM WCM group had a small sample size, so analyses could not be performed.
- **Childhood Vaccination Rates:** Childhood vaccination rates were low (approximately 25%–30%) across all WCM study groups. The low rate was largely driven by low influenza and rotavirus vaccine rates. Phase I had 1.67 times higher odds of childhood vaccinations post-WCM implementation as compared to the Classic CCS comparison group ($p < .001$). No significant changes were noted in childhood immunizations in other WCM study groups post-WCM implementation.

- **Adolescent Vaccination Rates:** Adolescent vaccine rates were low (~30%) across all WCM study groups. The low rate was largely due to the low uptake of the HPV (human papillomavirus) vaccine in CCS clients. There were no significant changes noted in adolescent immunizations in any of the WCM study groups as compared to the Classic CCS comparison groups post-WCM implementation. The HPSM WCM group had a small sample size, so analyses could not be performed.

Table 349 (below) summarizes the overall relationship of the DiD outcome, comparing the WCM to the Classic CCS comparison group for all WCM study groups for Research Question 4. The arrows indicate the impact of the WCM on the **change in outcomes post-WCM implementation** and does not indicate the absolute value differences between WCM study groups and Classic CCS comparison groups. **Up arrows indicate higher or increased change in outcome** as compared to the Classic CCS comparison groups post-WCM implementation. **Down arrows indicate decreased or lower change in outcome** as compared to the Classic CCS comparison group post-WCM implementation. An "ND" indicates no statistical difference between the WCM study groups and Classic CCS comparison group post-WCM implementation. **The arrows DO NOT indicate whether a measure was better or worse, nor do they indicate absolute values.** Green indicates a desired outcome, red indicates poor outcome, and no color indicates direction is neutral. Any pre-to-post changes by WCM study groups are noted in the summary above and in the results section. Absolute values can be found in the results section.

Table 349: Research Question 4: Difference in Differences Outcome Summary for WCM Study Group as Compared to Classic CCS

Outcome	HPSM WCM	Phase I	Phase II	Phase III
Outpatient Visits				
Depression Screening	*	↑	↑	↓
Childhood Vaccinations	*	↑	ND	ND
Adolescent Vaccinations	*	ND	ND	ND

ND = no statistical difference.
↑ Outcome increased or higher as compared to Classic CCS comparison group post-WCM implementation.
↓ Outcome decreased or lower as compared to Classic CCS comparison group post-WCM implementation.
*Too few *n* to perform Difference in Differences model.

Research Question 5: What is the impact of the WCM on care coordination?

Overall Results Summary for Research Question 5 (RQ5)

As part of the CCS redesign process and development of the Whole Child Model, the first two key goals in WCM implementation were to (1) implement a patient- and family-centered approach and (2) improve care coordination through an organized delivery system.[54] Not surprisingly during the evaluation, care coordination as executed by high-quality case management was reiterated across families and key stakeholders as a critical core of CCS, and a crucial component for the overall care of the client. Care coordination through an organized delivery system is also a core function of Medi-Cal managed care health plans. For the majority of items evaluating the impact of the WCM study groups on care coordination, there were no significant differences between the WCM and Classic CCS. Even though many aspects of care coordination / case management services were not significantly different among WCM study groups and Classic CCS comparison groups, they might benefit from a more in-depth look at how to improve them.

RQ5: Results from Key Informant Interviews

Case management responsibilities transitioned from county CCS programs to the MCPs in the WCM. This had an impact on:

- **Medical Therapy Units:** Due to the fact that a CCS case manager was no longer attending medical therapy conferences (MTCs) in the WCM, any needed DME or specialty services recommended during the MTC were not authorized or accessed as quickly when compared to Classic CCS.
- **Transportation:** In the WCM CCS clients had MCP case managers, but they were unable to provide the level of assistance that was previously provided by CCS case managers who knew and anticipated their transportation needs and helped to coordinate scheduling and timely reimbursement.
- **Adult Transition Services:** The MCP case management staff was well prepared to help CCS clients when they turned 21, aged out of the CCS program, and transitioned to adult care and providers because these CCS clients were already working with the MCP case managers who had access to their history of adolescent care and services.

[54] "CSS Whole Child Model," DHCS.

RQ5: Results from Telephone Survey of Families

- **Impact on Care Coordination Help:** The majority of respondents in all WCM study groups (69%) were "usually" or "always" able to get as much help as they wanted with arranging or coordinating healthcare. The differences between the WCM study groups and Classic CCS comparison group were not statistically significant.
- **Impact on Quality-of-Care Coordination / Case Management Services:** Since transitioning to WCM, the majority of respondents in Phase I (71%), Phase II (67%), and Phase III (84%) indicated that care coordination / case management services were "better since the transition" or "about the same." A large percentage of HPSM WCM respondents (55%) indicated "don't know" and were unable to state whether there was a change in the quality-of-care coordination / case management services received. This may be because the survey captured HPSM respondents who participated in the CCS Demonstration Project, which was implemented more than six years before administration of the telephone survey. The HPSM WCM respondents (42%) indicated that care coordination / case management services were "better since the transition" or "about the same." The HPSM WCM response distribution accounts for the significant difference between the other WCM study groups. The differences among Phase I, Phase II, and Phase III WCM study groups were not significant.
- **Impact on Care Coordination Assistance with Activities:** Phase III clients' care coordinator / case manager assisted on average with the fewest activities (mean = 1.6), which was significantly fewer than the mean number of activities a care coordinator / case manager provided to Classic CCS comparison group respondents (mean = 1.8). The care coordinator / case manager assistance provided to clients in the HPSM WCM, Phase I, and Phase II did not significantly differ from the Classic CCS comparison group clients.
- **Know How to Contact Care Coordinator / Case Manager:** The majority of respondents in all WCM study groups (72%) reported knowing how to contact their care coordinator / case manager either by having "direct contact information," "a general number," or going "through the phone tree to find someone to talk to." Compared to Classic CCS comparison group respondents, Phase III respondents were significantly less likely to know how to contact their care coordinator/case manager.
- **Impact on Care Coordination Communication:** The largest percentage of respondents in all WCM study groups met with their care coordinator / case manager to discuss healthcare or service needs either "every few months" (39%) or "never" (35%). The differences between the WCM study groups and Classic CCS comparison groups were not statistically significant.
- **Impact on Care Coordination Knowledge of Child's Medical History:** A majority of respondents in all WCM study groups (60%) indicated the care coordinator / case manager demonstrated knowledge of important information

related to the client's medical history "usually" or "always." The differences between the WCM study groups and Classic CCS comparison groups were not statistically significant.

- **Impact on Care Coordination Satisfaction:** A majority of respondents in all WCM study groups (67%) indicated they were "satisfied" or "very satisfied" with the care coordination / case management they have received. Compared to Classic CCS comparison group respondents (72%), significantly fewer Phase II respondents (51%) indicated they were "satisfied" or "very satisfied" with the care coordination / case management they have received. Phase II respondents indicated "neither satisfied nor dissatisfied" more often (24%) than Classic CCS comparison group respondents (11%). Similarly, more Phase II respondents (25%) responded they were "dissatisfied" or "very dissatisfied" with the care coordination / case management services compared to the Classic CCS comparison group respondents (17%).
- **Impact on Care Coordination of Medical Procedures:** The majority of respondents in all WCM study groups (96%) reported that their doctors did not order unnecessary medical tests or procedures because they had already been done by another provider. While Phase I differed significantly from the Classic CCS comparison group, it is unlikely that the difference is meaningful. The differences between the HPSM WCM, Phase II, Phase III, and Classic CCS comparison groups were not significant.
- **Discussed Adult Transition:** The transition to healthcare providers who care for adults rather than children is important for many families as their children approach aging out of CCS when they turn 21. Among those with a client 12 years and older, almost two-thirds of respondents (62%) across WCM study groups indicated that they "did not discuss, and it would have been helpful" to discuss the shift to adult care with their provider. There were no significant differences between the WCM study groups and Classic CCS comparison groups.

RQ5: Results from Claims Analysis

The section below summarizes the Difference in Differences analysis comparing change in the WCM study group post-WCM implementation as compared to the propensity score–matched Classic CCS comparison group for case management claims and transition to adult care (discharge from CCS at age 21) health outcomes. Please refer to the results section for the full results for each WCM study group.

- **Case Management:** In the pre- to post-period, case management claims per 1,000 MM increased in HPSM WCM (+91), Phase I (+5), and Phase III (+45) and decreased in Phase II (-6). In the DiD analysis, case management claims increased in all WCM study groups except for Phase I as compared to the Classic CCS comparison group post-WCM implementation. The HPSM WCM had 5.93 times higher odds ($p = .031$), Phase II had 1.35 times higher odds ($p < .001$), and Phase III had 1.29 times higher odds ($p < .001$) of having a case management claim as compared to

their respective Classic CCS comparison groups post-WCM implementation. There was no change in Phase I case management claims as compared to the Classic CCS comparison group.

- **Transition to Adult Care Outcomes:** After discharge from CCS at age 21, 95%–100% of clients in all WCM study groups maintained Medi-Cal. Primary care visits ranged from 1.08 to 2.33 visits per person-year, specialist visits ranged from 3.04 to 3.75 visits per person-year, ED visits ranged from 0.91 to 1.37 visits per person-year, and hospitalization stays ranged from 0.21 to 0.33 admissions per person-year post-WCM implementation. There were no observations in the HPSM WCM. Phase III experienced 3.55 times higher odds of having primary care visits after discharge from CCS as compared to the Classic CCS comparison group post-WCM implementation (p = .009). There was no significant change in any other transition to adult care outcomes for Phase III. Other WCM study groups had no significant impact on any of the transition to adult care outcomes when compared to the Classic CCS groups.
- **Special Care Center Visit within 90 Days after Referral Being Placed:** Pre- to post-period, the rate of Special Care Center (SCC) visits within 90 days after a referral was placed per 1,000 referrals increased in HPSM WCM (+478) and Phase II (+87) and decreased in Phase I (-104) and Phase III (-355). In the DiD analysis, after WCM implementation, the HPSM WCM had 7.72 times higher odds (p < .001) and Phase II had 1.30 times higher odds (p = .003), while Phase III had 70% lower odds (p < .001) of SCC visits within 90 days of a referral being placed as compared to the Classic CCS comparison group. No significant change was noted in Phase I.
- **Yearly Visit to Special Care Center:** The rate of yearly visit to a Special Care Center was high (>65%) and did not change post-WCM implementation for the four conditions studied (cystic fibrosis, sickle cell disease, type 1 diabetes, and moderate to severe congenital heart disease) across the different WCM study groups and Classic CCS comparison group. The exception to this rate was in Phase II for congenital heart disease and type 1 diabetes (50%–55%), which had lower rates as compared to both the other WCM study groups and Classic CCS comparison group.

Table 350 (below) summarizes the overall relationship of the DiD outcome comparing the WCM to the Classic CCS comparison group for all WCM study groups for Research Question 5. The arrows indicate the impact of the WCM on the **change in outcomes post-WCM implementation**, and does not indicate the absolute value differences between WCM study groups and Classic CCS comparison groups. **Up arrows indicate higher or increased change in outcome** as compared to the Classic CCS comparison groups post-WCM implementation. **Down arrows indicate decreased or lower change in outcome** as compared to the Classic CCS comparison group post-WCM implementation. An "ND" indicates no statistical difference between the WCM study groups and Classic CCS comparison groups post-WCM implementation. **The arrows DO NOT indicate whether a measure was better or worse, nor do they indicate higher or lower absolute values.** Green indicates a desired outcome, red indicates poor outcome, and no color indicates

direction is neutral. Any pre-to-post changes by WCM study groups are noted in the summary above and in the results section. Absolute values can be found in the results section.

Table 350: Research Question 5: Difference in Differences Outcome Summary for WCM Study Group as Compared to Classic CCS

Outcome	HPSM WCM	Phase I	Phase II	Phase III
Case Management	↑	ND	↑	↑
SCC Visit within 90 Days of Referral	↑	ND	↑	↓
Transition to Adult Care: Maintenance of insurance	ND	ND	ND	ND
Transition to Adult Care: Primary Care Visit	ND	ND	ND	↑
Transition to Adult Care: Specialist Visit	ND	ND	ND	ND
Transition to Adult Care: ED Visit	ND	ND	ND	ND
Hospitalizations	ND	ND	ND	ND

↑ Outcome increased or higher as compared to Classic CCS comparison group post-WCM implementation.
↓ Outcome decreased or lower as compared to Classic CCS comparison group post-WCM implementation.
• Green indicates desired outcome, red indicates poor outcome, and no color indicates direction is neutral.

I. Conclusions and Discussion

Overall Summary

A select number of Medi-Cal managed care health plans (MCPs) served children in California Children's Services (CCS) through the implementation of the Whole Child Model (WCM). Each of these MCPs serves a geographically and demographically unique group of children across California. In addition, CCS clients have a breadth of healthcare management and payment needs, ranging from payment for a single procedure (e.g., complicated fracture that requires surgery), to managing a single organ system medical condition (such as diabetes, sickle cell disease, or cystic fibrosis), to managing a complex multisystem treatment plan for a medically fragile child (e.g., a child with cerebral palsy, intellectual disability, or seizure disorder with tracheostomy and gastrostomy tube). In order to meet its local client needs, each MCP undertook a different method to implement the WCM. Given the regionalized healthcare system for children's specialty care across California, it is not surprising that each MCP had unique challenges and experienced different outcomes.

The Whole Child Model had six main goals set forth in the California Children's Services (CCS) Redesign:

1. Implement a patient- and family-centered approach
2. Improve care coordination through an organized delivery system
3. Maintain quality
4. Streamline care delivery
5. Build on lessons learned
6. Be cost-effective (not included in this report)

This evaluation assessed the overall impact of the implementation of the WCM across California. The WCM was either positive or neutral in terms of access, and quality. This evaluation was a broad study of the CCS program and while disability, illness severity, and demographics were accounted for in the analysis, the evaluation did not specifically stratify and focus on specific subpopulations such as those with severe disabilities and or those with significant subspecialty needs. There are likely specific groups that experienced differential outcomes within the WCM that may not have been captured due to the lower prevalence of high-complexity conditions. Future research would be helpful to ensure that the WCM addresses the needs of children with significant medical complexity. With this caveat, in general, the WCM was successful in meeting the overall goals set forth through maintaining access to primary and specialty care for the general

CCS population and meeting CCS specialty needs, with stable health outcomes and maintaining and improving client satisfaction with, and perceived quality of, CCS-related care.

Additional areas for continued improvement include: (1) ensuring adequate pediatric specialty–focused case management to meet the needs of CCS clients, (2) investigating and addressing decreased enrollment into CCS observed in the WCM, (3) investigating health differences found among those with higher illness severity/medical complexity, (4) investigating differences in outcomes and medical care utilization found by race and language, and (5) addressing mental health service needs statewide for CCS clients. Conclusions per research question addressing these goals are discussed below, successes are noted as well as identifying specific areas of improvement to better achieve the goals of the WCM. Lessons learned and findings from this evaluation can then be used to continue to strengthen and improve the WCM program and any subsequent implementation of the WCM program.

Impact of COVID-19 Public Health Emergency (PHE) on the WCM Evaluation

It is important to note that this evaluation began measuring health outcomes of CCS clients in 2016 through June 30, 2021, and the COVID-19 PHE started in January of 2020. The PHE had marked impacts on the health of children and access to care. The UCSF evaluation team made adaptations of the survey (e.g., to focus on work loss related to childcare due to the impact of the COVID-19 pandemic) and used statistical techniques to mitigate the effect of the COVID-19 pandemic on the outcomes measured (e.g., Difference in Differences analysis). That said, there may be differential effects of the COVID-19 pandemic on different counties that could not be controlled for by statistical modeling (e.g., as adoption of telehealth to augment access to care). All WCM and Classic CCS (fee-for-service) comparison groups noted decreased healthcare utilization during the early months of the pandemic. The impact of the COVID-19 pandemic should be considered when interpreting the absolute change in outcomes of both the WCM MCPs and Classic CCS comparison groups.

Overall Conclusions and Discussion Across all Research Questions

Conclusions and Discussion Based on Research Question 1: What is the impact of the WCM on children's access to CCS services?

The WCM was able to maintain access to specialty care and primary care services for clients. This included an improvement in follow-up visits after hospitalization. Classic CCS and WCM fared similarly in almost all health access measures evaluated. Below, some potential strategies for improvement are noted.

Enrollment

Overall, enrollment in the CCS program decreased over time for all WCM phases except Phase I, and *new* enrollment decreased for all phases. There was a disproportionately large decrease in infant enrollment proportion in Phase II and Phase III WCM counties when compared to Classic CCS counties. As this evaluation included only data of those who actually enrolled in the CCS program, this evaluation was limited in its ability to ascertain the exact reason for the noted decrease in enrollment, although KI findings suggested that CCS referrals for neonatal intensive care unit (NICU) admissions and High-Risk Infant Follow-Up (HRIF) services decreased and highlighted this area as an important one for further investigation. Potential strategies to mitigate these issues included:

- Implementing state oversight of NICU eligibility determinations in the Whole Child Model (WCM), for both dependent and independent counties, with monitoring and further guidance from the state, as needed, on this process.
- Encouraging MCPs to proactively identify potentially eligible clients (e.g., through a formalized screening process) for eligibility determination and to refer potential clients to CCS.
- Arranging for DHCS to work with WCM managed care plans to identify discrepancies found in enrollment as compared to Classic CCS or other MCPs.

General Access to Care: Provider Access, Authorizations, and Grievances

The WCM was successful in ensuring provider access and authorizations, with decreases in grievances reported in access in WCM counties as compared to total access grievances filed by Classic CCS clients in non-WCM MCPs.

Overall access to care was maintained in the WCM, with high rates of continuity with primary care and specialty care, and high rates of authorization approval following WCM implementation. Most WCM clients (90% or more) reported being able

to keep their primary care physicians and specialists after WCM implementation. In addition, there were lower rates of grievances related to access to care for WCM when compared to the Classic CCS group.

In evaluating the impact of the WCM on CCS authorizations, about 80% of clients reported that obtaining authorizations for services was the same or improved post-WCM implementation. More respondents in Phase II and Phase III (~14%) reported that obtaining authorizations was "worse since the transition" compared to Phase I respondents (9%). The differences in both satisfaction and dissatisfaction with authorizations found between MCPs in Phase I and MCPs in Phase II and Phase III are potential target areas for MCP improvement. In the future, MCPs could work with more successful MCPs in the WCM to emulate their authorization successes.

Access grievances filed by clients in MCPs had increased in the general CCS population. Those clients in Phases I, II, and III experienced a smaller increase in grievances pre- versus post-WCM implementation when compared to their Classic CCS county counterparts in non-WCM MCPs. This lower number is notable, given that WCM grievances include both CCS-specific grievances, and Classic CCS includes only MCP-related grievances. While accessibility grievances increased only for clients in the HPSM WCM pre- versus post-WCM implementation**,** low total counts in the HPSM WCM both pre- and post-WCM implementation and the change in the study populations pre- versus post-WCM implementation limit the interpretability of this finding.

Network Adequacy

Overall, each WCM study group was able to increase the numbers of in-network pediatric providers across all provider groups, with the majority of visits being seen in-network. Phase III demonstrated a decrease in CCS Paneled Providers and lower rates of visits in-network, though Phase III had high rates of CCS paneled pediatric medical specialists seen in-network. Some of the lower rates may have been due to recent changes in NPI reporting and will need further verification. Specialist visits were unaffected by the change in NPI for Phase III. The number of providers actively providing services for CCS clients increased in-network. Despite the increase, there still remains a significant proportion of providers offering services out of network, though these out-of-network providers represented a small proportion of visits overall. This may be because CCS clients were allowed to stay with their specialty care provider for at least one year after transition to the WCM. Longer-term monitoring would be needed to see if there is a shift to more in-network providers or if more pediatric specialists and Special Care Centers enter the network.

Many of the pediatric providers in-network, including those who were CCS paneled, did not have a visit with a CCS client within the study period. In addition, there were some pediatric specialties that had high client-to-provider ratios (>1,200 CCS clients per provider). Some KIs indicated that there may have been insufficient providers in the MCP networks to

meet the specialized needs of CCS clients, which could lead to delays in obtaining services, which also could be due to known pediatric specialty provider shortages.[55] Specifically, it was noted that there was a lack of pediatric DME providers in California who had expertise in fitting, fixing, and obtaining custom pediatric equipment. When evaluating in-network versus out-of-network providers, the CCS clients in the WCM still had a significant number (almost 25%–50%) of their visits with non-Paneled Providers, which would have required additional authorizations. The adequacy of the DME and provider networks, including pediatric specialty care providers serving CCS clients, should be continuously assessed for network adequacy and timely access to care.

The evaluation highlighted potential areas that may improve the experience in network adequacy:

- WCM plans could contract with out-of-network pediatric DME vendors to ensure that pediatric DME needs are met by all WCM MCPs. This is especially important for items such as customized pediatric walkers, wheelchairs, and orthotics, which require highly specialized expertise that may not be found with general DME vendors.
- MCPs can continue to work to ensure pediatric specialty provider participation for CCS clients within the WCM MCPs. Direct focus on recruitment of behavioral pediatrics, pediatric neurodevelopmental disabilities, pediatric dermatology, pediatric rehabilitation, pediatric ophthalmology, pediatric rheumatology, and pediatric sports medicine would decrease ratios of CCS clients to providers.
- Assess and determine the optimal CCS client-to-provider ratio for network adequacy within the WCM. Currently, it is unclear whether the 1,200-to-1 ratio used for adults and children[56] is appropriate for the CCS population.

Travel to Visits

The WCM clients experienced longer travel time to SCCs and mixed outcomes regarding travel time for specialty visits. Despite 90%–95% of CCS client families reporting that they kept the same providers, there appear to be significant changes in travel patterns. There were significant decreases in travel noted in both WCM study groups and Classic CCS comparison groups, except for Special Care Centers, where travel generally increased for all WCM study groups. The changes were more pronounced in Classic CCS counties. This may have been due to decreased travel in general for clinic visits since the start of the pandemic. It is unclear why Classic CCS counties experienced such decreases in travel distance across the various provider types. While the DiD is notable for some differences, it seems that in general, the travel time either stayed the same or decreased across all provider types except, again, for Special Care Center visits.

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[55] Turner, Ricketts, and Leslie, “Comparison of Number and Geographic Distribution.”

[56] *Medi-Cal Annual Network Certification*, DHCS.

Not surprisingly, the HPSM WCM and Phase III groups, located in densely populated areas and urban centers near children's hospitals, had the lowest travel distance, as compared to the Phase I, Phase III, and Classic CCS comparison groups, which are located much farther away from children's hospitals. The change in the HPSM WCM is not surprising, as the pre-WCM implementation group in HPSM WCM is likely due to the change in demographic from the pre- versus post-WCM period (more newborns pre-WCM period versus general CCS clients in the post-WCM period).

People of color and those who did not speak English consistently experienced shorter travel distances across provider visit types as compared to those who were White and English speaking. It is unclear whether the findings are because people of color and those do not speak English live closer to specialists and thus did not need to travel far, if people of color and non-English-speaking clients choose the closest specialist, or whether non-English-speaking clients and clients of color are having difficulty getting to care at centers farther away from their home. Further investigations are needed to understand whether this is simply a geographic issue of where people of color and non-English-speaking clients live, or whether there may be a difference in access to providers for such clients.

Behavioral Health

Unmet behavioral health needs can potentially complicate medical management. Generally, CCS will cover behavioral healthcare needs if it compromises the underlying CCS qualifying condition. Based on this evaluation, behavioral health needs and unmet needs were prevalent in the CCS population. Forty percent of respondents across all WCM study groups indicated that it was "never easy" or "sometimes easy" to get behavioral health treatment or counseling and 25% across WCM study groups had an unmet need. However, claims data analysis demonstrated stable or increased rates of mental health visit rates for WCM study groups. In addition, compared to Classic CCS, significantly more respondents in Phase I, Phase II, and Phase III WCM study groups reported that their mental health services needs were met. Even with the increased access and the decrease in unmet mental healthcare needs demonstrated in the WCM study groups, more work needs to be done to ensure seamless access to behavioral health services for CCS clients.

While mental health services in the WCM appear to have decreased unmet needs as compared to Classic CCS, deficiencies in mental health access remain. The UCSF evaluation team findings suggest that:

- Many respondents, 42%, indicated that it was "never easy" or "sometimes easy" to obtain behavioral health services. To increase behavioral health services access for WCM CCS clients to meet the behavioral health needs of WCM CCS clients, DHCS could work with mental and behavioral health professionals to become in-network for the MCPs (noted with low network numbers in network adequacy within the WCM).

Medical Equipment and Supplies

Durable medical equipment (DME) is a key area of need for many CCS clients. Ordering and receiving DME is a complex process, given the need to assess for the appropriate equipment, potentially customize the order for the patient, coordinate ordering with the specialty vendor, and ensure the client receives the appropriate equipment and supplies.[57]

Key informants reported that the WCM increased access to care due to changes in the authorization process that resulted in more streamlined access to both providers and DME. The DME vendors all indicated improved and more streamlined DME authorization processes. Survey data showed that families reported that their overall DME needs were largely met, and families reported fewer unmet needs than Classic CCS families. While DME use increased for both the WCM study groups and Classic CCS comparison groups, based on the Difference in Differences analysis of the claims data, DME use was either unchanged or lower relative to Classic CCS.

It is unclear whether increases or decreases in DME use indicate poorer access or better care coordination and ordering efficiency. In this evaluation, families generally reported low unmet DME need. Due to the complexity of authorizations and types of custom DME required, a different approach to evaluating DME may be needed. For example, focusing on DME subtypes (custom orthotics vs. wheelchair vs. hospital equipment) may elucidate a better understanding of DME access for CCS clients. Additional study would be required to fully assess impacts to DME access.

Health Outcomes: Emergency Department Visits and Hospitalizations

Overall, ED visits were mixed, with half of the WCM study groups having no change and the other half noting a decrease in visit rates but higher odds of ED visit as compared to the Classic CCS comparison group. Hospitalization rate data were mixed, hospital length of stay had either stayed the same or decreased, and the follow-up rates after hospitalization either improved or stayed the same. Overall, health outcomes appear to have been either unchanged or improved post-WCM implementation. Further work should be invested in ED visit use improvements.

Impact of Disability, Illness Severity, Race, and Language on Utilization

Having a disability as measured by the Children with Disabilities Algorithm, and having higher illness severity as measured by Chronic Illness and Disability Payment System (CDPS) score, were associated with more ED visits and hospitalizations. Having a childhood disability as compared to having no disability was associated with lower outpatient

[57] Emanuel, Lilienfeld, and Rosellini, *Helping Families*.

clinic use. Differences in healthcare utilization by race and language spoken were mixed. General notable trends seen across the measures:

- Those who identified as Black had higher ED visit rates and hospitalizations, with lower primary care use and lower IHSS services across the WCM study groups compared with those who did not identify as Black.
- Children from Spanish-speaking households had a general trend toward lower hospitalizations, higher rates of follow-up visit following hospital discharge, lower ED visit rate, lower use of IHSS services, lower pharmacy use (prescription drugs and prescription supplies), higher rates of primary care provider and well-child visits, and lower rates of mental healthcare use as compared to English-speaking families. Specialist and CCS Paneled Provider use was mixed among Spanish speakers across the different WCM study groups.
- Respondents who identified as Latinx trended toward higher rates of ED use, higher rates of well-child visits, lower rates of CCS provider use, and lower rates of IHSS and outpatient prescription drug use as compared to those identifying as White.
- People of color and non-English speakers, and those with low illness severity, generally had significantly less travel distance to providers as compared to those who were White, English speaking, and with higher illness severity.

Conclusions and Discussion Based on Research Question 2: What is the impact of the WCM on patient and family satisfaction?

In the evaluation of family satisfaction through the statewide family survey, a qualitative study of both families and key informants, many families showed that satisfaction with the WCM was the same or higher than that of Classic CCS. Grievances were difficult to interpret, given that Classic CCS clients had no grievances process, though overall rates of grievances decreased, and state fair hearings were exceedingly rare. Overall, the goal of meeting family-centered care appeared largely met. That said, there were also key areas that families identified that could use improvement. Families stressed the importance of ensuring that MCPs view parents as valuable partners in care, which was corroborated by KIs, who indicated that families helped guide productive changes within the MCP (e.g., in the development of a CCS-specific formulary that led to improvements in medication receipt for clients), and thus continued inclusion of families in the WCM process was identified as key element to ensuring success of the program.

Grievances, Appeals, and State Fair Hearings

Variable numbers and types of grievances were filed throughout all three years and among all phases of the WCM when looking at “timely access,” “transportation,” “DME,” “WCM provider,” and “other” grievances, with most grievances filed in Phase III. The number of appeals trended downward over time in Phase I and Phase II but was variable in Phase III, and

the HPSM WCM had an increase in appeals. This is difficult to interpret, as there were different types of CCS client types in the pre-WCM period (mostly newborn clients) as compared to the post-WCM period, which enabled a client base that was more similar to the general CCS population. In addition, with the implementation of the WCM, CCS clients in the WCM now had access to a formalized grievance process through their MCP for CCS-related issues and services, whereas in Classic CCS, clients could only file an appeal, making direct comparisons between WCM and Classic CCS also difficult to interpret. Thus, it may be that the number of appeals now matched that of the general CCS population.

The number of state fair hearings (SFHs) were exceedingly rare and had to be reported per one million member months. Among all WCM study groups, Phase III had the most SFHs per one million member months, whereas Phase I and HPSM WCM had the least. The number of SFHs in each phase decreased from pre- to post-WCM, regardless of the study group. The SFHs per one million member months also decreased in every phase pre- to post-WCM, except for Phase III, which had a more than threefold increase in SFH pre- to post-WCM. That said, given that SFHs were very rare, it is not clear that this rate change was clinically significant. The most frequent disposition of SFHs were “withdrawal” and “denied,” signaling that the majority of SFH outcomes were in favor of the health plans.

Family Experience

Families of clients were generally satisfied with the WCM. Overall, the WCM either improved or was unchanged from services provided by Classic CCS. On most measures of satisfaction, the majority of respondents in all WCM study groups indicated they were “satisfied” or “very satisfied” with the services they have been receiving. Two areas where differences appeared between a WCM study group and its Classic CCS comparison group concerned “provider communication” and “global rating of healthcare.” On the item assessing respondents' satisfaction with their health plan, fewer Phase II respondents were “satisfied” or “very satisfied” with their health plan than Classic CCS comparison group respondents.

Of note, the analyses also found that Black, White, and English-language respondents were more likely to report that care was worse after WCM implementation than respondents in other racial and language groups. While it may be the WCM is improving care to certain populations of color and non-English speakers, continuing work is needed to ensure that the reason for the finding is that populations of color and non-English speakers are advocating for their needs and having their needs met rather than not voicing their needs. There must be continued work to ensure that families caring for children with higher illness severity, populations of color, and those who cannot communicate in English are represented and can provide input into the WCM to help facilitate the future success of the WCM program.

Conclusions and Discussion Based on Research Question 3: What is the impact of the WCM on provider and administrator satisfaction with the delivery of services and reimbursement?

The WCM implementation had many different components and therefore impacted providers and administrators differently. In some areas the WCM was clearly beneficial. The DME vendors were quite satisfied with a quicker and more efficient authorization process in the WCM, as compared to the lengthy DME authorization process in Classic CCS. There were other areas where further work could be done to improve the provider and administrator experience. Key informants from the CCS county programs reported dissatisfaction with the lengthy and time-consuming Medi-Cal reenrollment process. Key informants from the CCS county programs were also dissatisfied with the increased CCS staff workload they experienced immediately after the WCM implementation and suggested more funding support to account for this unanticipated increased workload.

Providers were mixed on reimbursement, which likely depends on what services are rendered and billed for. While the provider and administrator survey was limited in its small sample size, the respondents represented hospitals and services that serve many CCS clients statewide. While the provider survey cannot be generalized to all service providers and pediatric systems that serve in the WCM, it does provide insight to potential strengths and areas of improvement. The survey results mirrored findings of the key informant interviews — providers indicated satisfaction with DME generally, but some dissatisfaction may stem from difficulties with providers and administrators and differences in provider networks. Overall, based on the evaluation findings, MCPs and DHCS should continue to work closely with the breadth of providers (specialists, DME providers, pharmacies, hospital systems), especially during implementation to ensure processes are in place to improve the provider experience in the WCM. Specific areas that were noted in the evaluation included these:

- Given the diverse needs of clients and providers, MCPs frequently communicate with all providers — clinicians (e.g., nurses, physicians, therapists), DME providers, and pharmacy providers — about the care and services needed by CCS clients to ensure adequate service delivery.
- Should there be expansion of the WCM, DHCS should work with CCS counties to provide the appropriate supports and resources to address the potential increased workload of CCS program staff during and immediately after the transition to the WCM. This includes the staff time needed to address CCS client questions about the WCM, and to obtain appropriate documentation from the MCPs for conducting annual medical reviews.
- MCPs should have full access to CMSNet to assist with communication about case management across all parties involved with a client's care.

- While there is a Medi-Cal provider manual requirement for medical supply distribution, the process of submitting the initial authorization and another authorization for additional supply can be onerous to providers. To streamline service delivery, MCPs could revisit the quantities of some of the medical supplies allowed as reimbursable items for CCS clients (e.g., diapers) or expedite the additional authorization process.

Conclusions and Discussion Based on Research Question 4: What is the impact of the WCM on the quality of care received?

Maintenance of quality of care was measured through family survey, grievances, and health quality measures through claims. Overall, the quality of CCS-level specialty care and services received by clients in the WCM appeared to be stable and similar to that of Classic CCS clients. The majority of survey respondents in each WCM study group indicated that since the transition to WCM, the quality of services remained the same, although care delivery varied some among the different WCM study groups. While the large majority of respondents reported that quality of care remained the same or improved after WCM implementation, it is nevertheless important to understand the factors that contributed to the experience of those respondents who reported that quality of care decreased. The subgroup analyses of clients who reported worse quality of care examined whether any specific characteristics were associated with quality of care showed that those with poor health and those with increased specialty needs appeared to be more vulnerable to a decrease in quality of care following WCM implementation. This suggests that future implementations of the WCM should ensure that MCPs carefully support this highly vulnerable population during implementation to prevent deterioration of their quality of care. A more focused investigation would be needed to evaluate the impact of the WCM on the more medically complex patients in how best to support their needs. The investigation could then evaluate whether simple actionable drivers, such as DME access or appointment assistance, were primary drivers for decreased perceived quality of care or if there were greater system-level complexities that needed to be addressed to improve quality.

Grievances were very rare and had to be reported per 100,000 member months, and while there were differences, they were small. Clients in Phase I experienced a smaller relative increase in quality-of-care grievances pre- versus post-WCM implementation than did their Classic CCS county counterparts. Clients in the HPSM WCM, Phase II, and Phase III all experienced a larger increase in grievances related to the quality of care, and pre- versus post-WCM implementation, than did their Classic CCS county counterparts. Interpretation for this is difficult because Classic CCS clients cannot file grievances for CCS-related care. Based on the family survey, there were no differences among the different WCM study groups and CCS comparison group in the proportion who filed a grievance, and general satisfaction was high. Therefore, the relative increase in grievances may not indicate worse perceived care as compared to classic CCS.

Overall quality of care in claims was measured by using National Quality Forum standards for quality of care in depression screening, vaccinations, and well-child visits. The UCSF evaluation team was unable to evaluate HEDIS (Healthcare Effectiveness Data and Information Set) measures for HbA1c, vaccinations, and depression screening, as UCSF did not have full access to clinical data. Instead, it had to approximate HEDIS measures through administrative claims data. As UCSF did not have HbA1c data for the majority of WCM clients, UCSF could not report on HbA1c outcomes. When it came to quality measures for immunizations and depression screening, the WCM did very well in having higher claims for depression screening. The WCM had only modest impact in improving vaccine rates. Vaccination rates in the CCS population were very low in general and could be improved. There were specific vaccines related to poor uptake (specifically rotavirus, HPV, and influenza). Therefore, areas of improvement based on this evaluation were identified:

- In order to measure clinical quality outcomes for CCS clients, MCPs would need to oversample CCS clients on these measures for long-term monitoring of these domains or focus quality measure reporting on the CCS client population.
- The evaluation team would not recommend use of HbA1c as a metric for pediatric diabetes quality for the MCPs in the WCM. HbA1c would be a measure of quality of pediatric specialty care center diabetes care. Pediatric diabetes is not managed the same as adult diabetes. Measures such as ensuring visits to a Special Care Center, or ensuring screening (blood pressure screening, diabetes retinopathy screening) would be a better health plan measure of quality. The evaluation team would suggest working with the CCS specialty groups to determine the best quality measures for diabetes care in children.
- The CCS population's low vaccination rate seemed to be driven by three main vaccines related to poor uptake: rotavirus, influenza, and human papillomavirus. Ensuring that the MCPs promote these vaccinations would likely raise vaccination rates significantly for both childhood and adolescent vaccinations in the WCM CCS population.

Conclusions and Discussion Based on Research Question 5: What is the impact of the WCM on care coordination?

A core goal of the WCM was to "improve care coordination through an organized delivery system." The evaluation measured care coordination through reports from key informant interviews, a family survey, and claims through measures of case management. The evaluation also looked at transition to adult care through the claims analysis, as case management is often needed for the transition out of CCS services. Not surprisingly, care coordination as executed by high-quality case management has been identified across families and key stakeholders as a critical core of the CCS program. One of the themes heard most frequently from the family and KI interviews was that CCS case management was much different from MCP case management. In MCPs, case managers were not as easily accessible to the CCS clients, and MCP case management was neither centralized nor coordinated by one person but instead was fragmented, and CCS clients accessed case management services through a telephone triage system. This evaluation of care

coordination showed that the WCM MCPs were variable in their success in implementing CCS-level care coordination / case management.

Although the majority of family interviewees had good relationships with their care coordinators, once transitioned to the WCM, they had more difficulty with contacting case management. This was corroborated by the KIs, as one of the themes heard most frequently from the KI interviews was that CCS case management was much different from MCP case management. As stated above, MCP case managers were not as easily accessible to CCS clients, and MCP case management was fragmented, with CCS clients accessing case management services through a phone triage system.

Also, since CCS was no longer responsible for case management in the WCM, it stopped sending a public health nurse to the medical therapy conference. Some KIs noted that this meant that any needed DME or specialty services recommended during the conference were not authorized or accessed as quickly, decreasing care coordination and delaying access for these medically complex pediatric patients. Therefore, the loss of the public health nurse at the medical therapy conference and changes in case management removed some continuity of care for care coordination, especially for the more medically vulnerable.

For the majority of family survey items evaluating the impact of the WCM on care coordination, there were no significant differences between the WCM study groups and Classic CCS comparison groups. Even though many aspects of care coordination / case management services were not significant among WCM study groups and Classic CCS comparison groups, they might benefit from a more in-depth look at how to improve them. For example, high numbers of CCS clients indicated that the case manager was not familiar with the child's medical condition. Improvements in information transfer on the plan level may be useful in addressing this deficiency.

Case management claims in the WCM increased as compared to the Classic CCS comparison group. This is not surprising, as Classic CCS case management is also captured in CMSNet and not fully by claims. As these are different reporting systems, it is difficult to compare case management through CMSNet versus case management experienced in the MCP through claims data alone. Given a third of clients were not satisfied with care coordination in the WCM, additional work is needed to continue to improve these services and consolidate the data systems used by both MCPs and CCS. For example, future work should evaluate the impact of care coordination through a multidisciplinary care team and specialized case management for those with medical complexity.

Transition out of CCS to Adult Care Outcomes (health utilization after turning 21 and discharge from the CCS program)

Overall, a significantly high proportion of WCM clients (95%) who turned 21 within the study period stayed in Medi-Cal, and of those, 95% stayed within their respective health plans. While the MCPs are well poised to coordinate the transition of care for young adults who age out of the CCS program due to having pediatric and adult primary care and specialty care under one roof, very little difference was found in transition outcome measures with the implementation of the WCM. Of note, families want transition planning, yet 62% did not receive it based on the family survey report; thus, it is not surprising no changes were noted. Learning how MCPs can improve transition planning could impact outcomes. For example, increased access to adult care transition planning services[58] would likely mitigate the reported demand for transition to adult healthcare services and lead to improved use of preventive services within the WCM.

Based on the evaluation, while care coordination was largely similar to that of Classic CCS, MCPs' clients varied in their reported levels of satisfaction in the family survey, indicating areas for quality improvement or for future WCM programs.

- The WCM MCPs successful in generating case management provisions that were similar to Classic CCS could serve as exemplars for future WCM MCPs. For implementation of the WCM, every MCP hired CCS staff and worked closely with CCS to try to ease the transition from the Classic CCS model to the WCM.
- Due to differential success in meeting client needs, MCPs rated low in client satisfaction with care coordination may want to adopt strategies from the WCM MCPs that have had greater success, and future participating MCPs could coordinate with MCPs that had high family satisfaction with the WCM to learn from key successes in implementation.
- Having a tiered case management system that would allow patients who have high needs / high disease burden to have direct access to a dedicated CCS case manager in the MCP, similar to that of the current Classic CCS case management structure, may meet client need while containing cost.
- In the absence of a public health nurse at the medical therapy conference, inclusion of a case manager within the MCP that can attend the conference and coordinate with the family and Medical Therapy Units could help to expedite and coordinate authorizations for and access to DME. This was successfully implemented in one of the WCM MCPs and can serve as a model for the other WCM plans.
- Improving and standardizing the transition preparation process across the WCM MCPs would help meet the adult transition needs of CCS clients identified in this evaluation.

[58] Schmidt et al., "Outcomes."

J. Appendices

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