Mathematica®
Progress Together

California Home and Community-Based Services Gap Analysis Report

Appendices

January 31, 2025

This page has been left blank for double-sided copying.

Contents

Exhibits

Acronyms

ACS	American Community Survey
ADHC	adult day health center
ADL	activities of daily living
AIAN	American Indian or Alaska Native
ALW	Assisted Living Waiver
ARF	Adult Residential Facility
ARFPSHN	Adult Residential Facility for Persons with Special Health Care Needs
CalAIM	California Advancing and Innovating Medi-Cal
CANHR	California Advocates for Nursing Home Reform
CBAS	community-based adult services
CBO	community-based organization
CCA	care coordination agency
CCT	California Community Transitions
CDA	California Department of Aging
CDPH	California Department of Public Health
CEAC	counties with extreme access considerations
CHCS	The Center for Health Care Strategies
CLHF	congregate living health facility
CMS	Centers for Medicare & Medicaid Services
CN	continuous nursing
CNC	continuous nursing care
COHS	county organized health systems
CS	Community Supports
DD	developmentally disabled
DHCS	California Department of Health Care Services
D-SNP	Dual Eligible Special Needs Plan
DSS	California Department of Social Services
DUA	data use agreement
ECM	Enhanced Care Management
EMR	electronic medical records
FFS	fee-for-service
HCBA	Home and Community-Based Alternatives Waiver
HCBS	home and community-based services
HCBS-DD	Home and Community-Based Services Waiver for Californians with Developmental Disabilities
HCPCS	Healthcare Common Procedure Coding System
HHA	home health agency

HIPAA	Health Insurance Portability and Accountability Act
HIV/AIDS	human immunodeficiency virus/acquired immunodeficiency syndrome
IADL	instrumental activities of daily living
ICF	intermediate care facility
ICF/DD	intermediate care facilities for the developmentally disabled
IHSS	in-home supportive services
INP	individual nurse provider
ISCD	Integrated Systems of Care Division
LGBTQIA+	individuals who identify as lesbian, gay, bisexual, transgender, queer, questioning, intersex, and/or asexual
LTC	long-term care
LTSS	long-term services and supports
MCP	managed care plan
MCQMD	Managed Care Quality and Monitoring Division
MCWP	Medi-Cal Waiver Programs
MLTSS	managed long-term services and supports
MMC	Medi-Cal managed care plan
MMP	Medicare Medi-Cal plan
MOU	memorandums of understanding
MSSP	Multipurpose Senior Services Program
NON-PROF	non-profit organization
NWD	No Wrong Door
OMII	Office of Medicare Innovation and Integration
PACE	Program for All-Inclusive Care for the Elderly
PCA	personal care agencies
PERS	Personal Emergency Response System
PROF CORP	professional corporation
RCFE	Residential Care Facilities for the Elderly
RCFE-ARF	Residential Care Facilities for the Elderly-Adult Residential Facilities
SDP	Self-Determination Program
SNF	skilled nursing facility
TCM	targeted case management
WA	waiver agency
WPCS	waiver personal care services

Appendices

This page has been left blank for double-sided copying.

Appendix A

California Statewide HCBS and LTSS Gap Analysis and Multi-Year Roadmap Objectives and Research Questions

This page has been left blank for double-sided copying.

The California Department of Health Care Services (DHCS) and stakeholders identified five objectives to inform the statewide home and community-based services (HCBS) and long-term services and supports (LTSS) gap analysis and multi-year roadmap initiative. Mathematica developed 14 analytic questions across these five objectives (Exhibit A.1). The report is organized by broad themes that tie the gap analysis and roadmap together, and under which we address the objectives and research questions listed in Exhibit A.1.

Exhibit A.1. Objectives and research questions addressed in the California Statewide HCBS Gap Analysis and Multi-year Roadmap

Objective	Research question	Methods to address question
Objective 1: Reduce inequities in access and services	Who are the current and future users of HCBS in California? Where do they live? How do their service needs differ by age, Medicaid eligibility, type of disability, and level of need?	*Current Medi-Cal LTSS users:* • Descriptive statistics of LTSS users, including total counts and demographic information, such as county of residence • Geospatial analyses to map the geographic patterns of current LTSS users *Future LTSS users:* • Demographic projections and models to predict the number of Californians with: (1) an ADL limitation; (2) an ADL limitation and Medi-Cal enrollment; and (3) Medi-Cal LTSS use in 5, 10 and 15 years

	Who are the current providers of HCBS in California? Where are they located, and what is their distribution relative to people who need HCBS?	• Descriptive information to document the list of LTSS providers by program
		• Geospatial analyses showing:
		  ○ Ratio of LTSS users to providers by program and county
		  ○ Provider market saturation by program and county

	Which types of HCBS are limited or unavailable in each county of California?	• Geospatial analyses • Qualitative interviews with HCBS waiver and provider agencies, MCPs, and consumer organizations to assess gaps in accessing and receiving HCBS
Objective 2: Meeting client needs	What are current HCBS use patterns and how have they changed over time?	• Descriptive statistics examining LTSS user over time by Medi-Cal category • Mixed methods to assess capacity and standardized metrics
	What policy and program changes are needed to expand HCBS providers' capacity and improve service quality?	
	What are standardized metrics of use that best measure HCBS availability?	

Objective	Research question	Methods to address question
Objective 3: Program integration and increased coordination	How prepared are HCBS providers to fully integrate services into the managed care system by 2027?	• Mixed methods to assess care coordination and integration capabilities
	What resources would support providers, managed care plans (MCPs), and CBOs in making this transition?	
Objective 4: Quality improvement[a]	What are the current capabilities in California's approach to quality measurement and monitoring of HCBS programs? What are the gaps?	• Mixed methods to assess care coordination and integration capabilities • Qualitative interviews with DHCS staff
	What are strengths and weaknesses of current performance improvement efforts and how can they be strengthened? What are the potential hindrances to quality measurement efforts, such as staff turnover and lack of timely data) and how can they be mitigated (for example, through staff training or more timely data feedback loops)?	
	What quality improvement resources are available for providers? What additional resources could be useful for providers?	
Objective 5: Streamlined access	What are the barriers to accessing HCBS in California? Can these barriers be addressed through improvements to the statewide information and referral system?	• Geospatial analyses • Survey on provider capacity, including use of waiting lists and staff shortages • Qualitative interviews with HCBS waiver and provider agencies, MCPs, and consumer organizations to assess gaps in accessing and receiving HCBS
	How can DHCS implement a universal baseline assessment to measure level of need consistently and fairly, and use the results to direct individuals to appropriate programs?	
	What are the components to this NWD system and how much will it cost DHCS to implement? Who are the other state agencies who would need to partner with DHCS if the state wanted to pursue a robust NWD system?	

Note: These objectives and analytic questions were identified by DHCS and other stakeholders.

[a] This objective was addressed in a separate report to DHCS that covered quality measurement.

ADL = activities of daily living; CBO = community-based organization; DHCS = Department of Health Care Services; HCBS = home and community-based services; MCP = managed care plan; NWD = No Wrong Door

Appendix B

Quantitative Analytic Methodology

This page has been left blank for double-sided copying.

Appendix B.1: Methods for Descriptive Profiles of Current LTSS Users

A. Data source

To create the LTSS user profiles, Mathematica used five data files that DHCS supplied:

- **IHSS, CBAS, MSSP, ALW, HCBA, skilled nursing facility (SNF), Custodial care, ICF, Subacute care (select HCBS programs and LTC stays)**
  - **ELIG_LTSS**, which is a member-month-level file that contains demographic, eligibility, and enrollment characteristics of members who used LTSS at any time from 2017 to 2021.
  - **LTSS_FLAGS**, which is a member-level file from DHCS that contains binary indicators of program and waiver enrollment for members who used LTSS at any time from 2017 to 2021.
- **PACE**
  - **Enrollment_PACE_Data**, which is a member level file that contains binary indicators of PACE program enrollment.
- **CCT**
  - **CCT-Access**, which is a member-level file that contains program information about CCT participants.
  - **MISSDSS**, which is a member-level file that contains demographic, eligibility and enrollment characteristics of CCT participants.

B. Identifying LTSS user characteristics

Select HCBS programs and LTC stays. Mathematica processed the data for each calendar year separately, keeping only the members who had evidence of enrollment in at least one HCBS program [sum(M25_ALW, M26_CBAS, M31_HCBA, M35_IHSS, M42_MSSP) > 0] or had at least one LTC stay (M8A_LTC > 0). Members younger than 18 as of the first day of each calendar year were dropped.

PACE. All members in the file were included.

CCT. Mathematica included only members with a valid StartDate1 (date of transition into the community) in the CCT-Access tab between January 1, 2017 and December 31, 2021. These rows were merged with the MISSDSS file to obtain demographic, eligibility and enrollment information.

The project team created member-level characteristics following the logic presented in Exhibit B.1.1.

Exhibit B.1.1. Approach for defining LTSS user characteristics

Characteristic	Categories	Select HCBS programs and LTC stays	PACE	CCT
Age	We calculated the **mean age** for LTSS users.	Mathematica calculated age for each member using their birth date (BIRTH_DT) and the first day of each calendar year.	Same as elect HCBS programs and LTC stays	Mathematica calculated age at start of CCT participation using "StartDate1" and "Birth Date."
Gender	**Male** or **Female**	Mathematica assigned each member to the gender value (GENDER_CD) that appeared on the plurality of their Medi-Cal-eligible months that year.	Same as elect HCBS programs and LTC stays	Mathematica assigned each member a gender value according to the variable "Gender Code."
Race and ethnicity	**American Indian/Alaska Native:** ETHNIC_CD = 5 **Asian:** ETHNIC_CD = 4, A, 7, C, F, H, J, K, N, T, or V **Black:** ETHNIC_CD = 3 **Hispanic:** ETHNIC_CD = 2 **Native Hawaiian or Other Pacific Islander:** ETHNIC_CD = R, P, or M **White:** ETHNIC_CD = 1 **Other race:** ETHNIC_CD = Z **Asked but no answer/Unknown:** ETHNIC_CD = 8, 9, or null	Mathematica assigned each member to the race and ethnicity value (ETHNIC_CD) that appeared on the plurality of their Medi-Cal-eligible months that year.	Same as elect HCBS programs and LTC stays	Mathematica assigned race and ethnicity values using the variable "Ethnicity Code."
Primary spoken language	**Armenian:** LANG_CD = E **Cantonese, Mandarin, and other Chinese languages:** LANG_CD = 2, B, or C **English:** LANG_CD = 7 **Farsi:** LANG_CD = U **Korean:** LANG_CD = 4 **Other:** LANG_CD = 0, R, D, H, N, 5, 3, 6, A, F, G, I, J, K, L, M, P, Q, S, T, W, or X **Spanish:** LANG_CD = 1 **Unknown:** LANG_CD = 8, 9, Y, or null **Vietnamese:** LANG_CD = V	Mathematica assigned each member to the primary spoken language value (LANG_CD) that appeared on the plurality of their Medi-Cal-eligible months that year.	Same as elect HCBS programs and LTC stays	Mathematica assigned primary spoken language values using the variable "Language Code."

Characteristic	Categories	Select HCBS programs and LTC stays	PACE	CCT
Dual eligibility status	**Dually enrolled in Medicare:** Medicare A = yes or Medicare B = yes **Not dually enrolled in Medicare:** Medicare A = no and Medicare B = no	Mathematica assigned each member to a dual-eligibility status based on the values for Medicare A and Medicare B that appeared on the plurality of their Medi-Cal-eligible months that year.	Mathematica assigned each member to a dual-eligibility status based on the values for MC_STAT_A_B_DESC and Medicare B that appeared on the plurality of their Medi-Cal-eligible months that year.	Mathematica assigned each member to a dual-eligibility status based on the values for "MedicareA_RC" and "MedicareB_RC."
MCP enrollment	**Enrolled in a MCP:** PLAN_PARENT <> "Fee For Service" and <> null **Not enrolled in a MCP:** PLAN_PARENT = "Fee For Service" or null	Mathematica assigned each member to a managed care enrollment status based on their value for plan name (PLAN_PARENT) that appeared on the plurality of their Medi-Cal-eligible months that year.	Mathematica considered all PACE members to be in a MCP because PACE is a managed care program.	Mathematica assigned each member a managed care enrollment status based on the values for "Plan Code."
Medicaid eligibility group	**ACA Expansion Adults:** AID_CD = 7U, 8L, K2, K3, K4, K5, K6, K7, K8, K9, L1, L6, L7, M1, M2, N0, N5, N6, N7, N8, N9 **Aged, Blind, or Disabled:** AID_CD = 10, 13, 14, 16, 17, 18, 20, 23, 24, 26, 27, 28, 36, 55, 60, 63, 64, 66, 67, 68, 80, 1E, 1H, 1U, 1X, 1Y, 2E, 2H, 5J, 5R, 6A, 6C, 6E, 6G, 6H, 6J, 6N, 6P, 6R, 6S, 6U, 6V, 6W, 6X, 6Y, 8A, 8C, 8D, 8G, C1, C2, C3, C4, C7, C8, D2, D3, D4, D5, D6, D7, F1, F2, F3, F4, G0, G3, G4, G9, J1, J2, J3, J4, J5, J6, J7, or J8 **Low-income families:** AID_CD = 30, 32, 33, 34, 35, 37, 38, 39, 54, 59, 3A, 3C, 3D, 3E, 3F, 3G, 3H, 3L, 3M, 3N, 3P, 3R, 3T, 3U, 3V, 3W, 5T, 5W, 7S, C5, C6, G1, G2, G5, G6, G7, G8, K1, M3, M4, or R1	Mathematica assigned each member to the Medicaid eligibility group value (AID_CD) that appeared on the plurality of their Medi-Cal-eligible months that year.	Same as elect HCBS programs and LTC stays	Mathematica assigned Medicaid eligibility group values using the variable "Aid Code."

Characteristic	Categories	Select HCBS programs and LTC stays	PACE	CCT
	Other:[a] AID_CD = 0L, 0P, 0U, 0V, 0W, 0X, 0Y, 7H, 8H, 03, 04, 06, 07, 4A, 47, 69, 72, 74, 82, 83, 7A, 7C, 7J, 7K, 7T, 7W, 8U, 8V, C9, D1, P0, P5, P6, P7, P8, P9, 4M, 4U, 40, 42, 43, 45, 46, 49, 2A, 2P, 2R, 2S, 2T, 2U, 4C, 4F, 4G, 4H, 4K, 4L, 4N, 4S, 4T, 4W, 5K, 5L, 7X, 8N, 8P, 8R, 8T, E6, H1, H2, H3, H4, H5, M5, M6, T0, T1, T2, T3, T4, T5, T6, T7, T8, T9, 0D, 0E, 0G, 2C, 9H, E7, 44, 48, 58, 76, 86, 87, 5F, D8, D9, M0, M7, M8, M9, 0M, 0N, 4E, 5C, 5D, 5E, 7D, 7F, 7G, 8E, 8W, 8X, H0, H6, H7, H8, H9, P1, P2, P3, P4, or V2, 01, 02, 05, 08, 09, 11, 12, 21, 22, 31, 41, 50, 53, 61, 62, 71, 73, 77, 81, 84, 85, 88, 89, 0A, 0F, 0H, 0R, 0T, 1A, 1F, 1V, 2F, 2K, 2L, 2M, 2N, 2V, 3S, 4P, 4R, 4V, 5V, 6F, 6K, 6M, 6T, 7M, 7N, 7P, 7R, 7V, 8F, 8Y, 9A, 9C, 9D, 9J, 9K, 9M, 9N, 9R, 9V, 9W, 9X, A1, F0, F5, F6, F7, F8, F9, R2, R3, R4, R5, R6, R7, R8, R9, X1, X2, X3, X4, X5, X6, X7, or X9 **Aid code missing or not certified (Unknown):** AID_CD = null or AID_CD not equal to any of the values above			
Institutional long-term care use		Mathematica determined whether a member had an LTC stay using individual LTC flags (M81B_YR_SNF, M81E_YR_SUBACUTE, M81F_YR_ICF, M81G_YR_CUSTODIAL). If the sum of the LTC flags was > 0, then the member used institutional long-term care that year.	n.a.	n.a.

Characteristic	Categories	Select HCBS programs and LTC stays	PACE	CCT
County of beneficiary residence		Mathematica assigned each member to the county value (CNTY_RES_CD) that appeared on the plurality of their Medi-Cal-eligible months that year.	Same as elect HCBS programs and LTC stays	Mathematica assigned each member to their "County Residence Code."

Note: Select HCBS programs include IHSS, CBAS, MSSP, ALW, and HCBA and LTC stays include SNF, custodial care, ICF, and subacute care. If the plurality method resulted in a tie, Mathematica used the most recent of the value in the tie (that is, the most recent ELIG_DT in the group of records). If the plurality method resulted in a null value, the next most common non-missing value was used.

[a] Other includes other, children, State Children's Health Insurance Program beneficiaries, pregnant people, and those with presumptive eligibility.

ALW = Assisted Living Waiver; CBAS = Community-Based Adult Services; CCT = California Community Transitions; HCBA = Home and Community-Based Alternatives Waiver; HCBS = home and community-based services; ICF = intermediate care facility; IHSS = In-Home Supportive Services; LTC = long-term care; LTSS = long-term services and supports; MCP = managed care plan; MSSP = Multipurpose Senior Services Program; PACE = Program of All-Inclusive Care for the Elderly; SNF = skilled nursing facility.

C. Creating LTSS user categories

Mathematica classified each member into user categories based on their inclusion in the PACE and CCT data files and/or their enrollment in HCBS programs and use of LTC based on IHSS files (Exhibit B.1.2). By design, the categories from the IHSS file align with those in the Phase 1 LTSS Dashboard.[1] Members could be included in more than one category.

Exhibit B.1.2. Definitions for LTSS user categories

LTSS category	Logic
Any LTSS	All members in the PACE file, CCT file, or IHSS files with evidence of enrollment in at least one HCBS program [sum(M25_ALW, M26_CBAS, M31_HCBA, M35_IHSS, M42_MSSP) > 0] or with at least one long-term care stay (M8A_LTC > 0)
IHSS	Members in the IHSS files for whom M35_IHSS = 1
CBAS	Members in the IHSS files for whom M26_CBAS = 1
PACE	Members in the PACE file
MSSP	Members in the IHSS files for whom M42_MSSP = 1
HCBA	Members in the IHSS files for whom M31_HCBA = 1
ALW	Members in the IHSS files for whom M25_ALW = 1
CCT	Members in the CCT files with a valid "StartDate1"
SNF	Members in the IHSS files for whom M81B_YR_SNF = 1
Custodial care	Members in the IHSS files for whom M81G_YR_CUSTODIAL = 1
ICF	Members in the IHSS files for whom M81F_YR_ICF = 1
Subacute	Members in the IHSS files for whom M81E_YR_SUBACUTE = 1

Note: LTSS user categories were based on data elements from the LTSS flags file for 2017 to 2021.

[1] The dashboard is available at https://www.dhcs.ca.gov/dataandstats/dashboards/Pages/LTSS-Dashboard.aspx.

ALW = Assisted Living Waiver; CBAS = community-based adult services; CCT = California Community Transitions; HCBA = Home and Community-Based Alternatives Waiver; HCBS = home and community-based services; ICF = intermediate care facility; LTSS = long-term services and supports; IHSS = In-Home Supportive Services Program; LTSS = long-term services and supports; MSSP = Multipurpose Senior Services Program; PACE = Program of All-Inclusive Care for the Elderly; SNF = skilled nursing facility.

Appendix B.2: Methods for Identifying IHSS Recipient Characteristics and Authorized Services

A. Initial data processing

To create the IHSS recipient profile, Mathematica used an extract of IHSS recipient management data supplied by DHCS. We used the four recipient data tables to create one recipient-level file that contains information on a recipient's demographic characteristics, eligibility, functional status, and IHSS service authorization from the most recent record update between 2022 and 2023.

To align with the Department of Social Services' (DSS) business rules, Mathematica only kept records where CASE_STATUS = "Eligible," "Presumptive Eligible," or "Leave." To focus on IHSS recipients covered by Medi-Cal, Mathematica only included records where FUNDING_AID_CD = IPO1, IPO2, IPO3, IPO4, IPO5, PCSP, or CFCO. Finally, Mathematica removed records for IHSS recipients under the age of 18.

The resulting records had a timeframe of December 13, 2022, through May 18, 2023.

B. Identifying IHSS recipient characteristics

The project team created recipient-level characteristics following the logic presented in Exhibit B.2.1.

Exhibit B.2.1. Approach for defining IHSS recipient characteristics

Characteristic	Logic
Age	Mathematica calculated age for each beneficiary using their birth date (BIRTH_DT) and the first day of each calendar year.
Impairment level	Mathematica assigned impairment level to individuals as follows: **Severely impaired:** IMPAIRMENT_LEVEL = S **Non-severely impaired:** IMPAIRMENT_LEVEL = N
SSI status	Mathematica assigned SSI status to individuals using the IHSS aid code as follows: **SSI recipient:** IHSS_AID_CD = PI001, PI003, or PI005 **Not an SSI recipient:** IHSS_AID_CD = PI002, PI004, or PI006
IHSS program	Mathematica condensed aid code values into the following three categories: **Personal Care Services Program:** FUNDING_AID_CD = PCSP **Community First Choice Option:** FUNDING_AID_CD = CFCO **IHSS Plus Option:** FUNDING_AID_CD = IPO1, IPO2, IPO3, IPO4, or IPO5

Characteristic	Logic
Race and ethnicity	Mathematica condensed race and ethnicity values into the following eight categories: **American Indian/Alaska Native:** ETHNIC_CD = 5 **Asian:** ETHNIC_CD = 4, 7, A, C, F, H, J, K, N, T, or V **Black:** ETHNIC_CD = 3 **Hispanic:** ETHNIC_CD = 2 **Native Hawaiian or Other Pacific Islander:** ETHNIC_CD = R, P, or M **White:** ETHNIC_CD = 1 **Other race:** ETHNIC_CD = Z **Asked but no answer/Unknown:** ETHNIC_CD = 8, 9, or null
Gender identity	Mathematica condensed gender identity values into the following three categories: **Male:** GENDER_IDENTITY = SGI1 **Female:** GENDER_IDENTITY = SGI2 **Transgender, non-binary, or another gender identity:** GENDER_IDENTITY = SGI3, SGI4, SGI5, SGI7
Sexual orientation	Mathematica condensed sexual orientation values into the following two categories: **Straight or Heterosexual:** SEXUAL_ORIENTATION = SXO1 **Gay or Lesbian, Bisexual, Queer, or Another Sexual Orientation:** SEXUAL_ORIENTATION = SXO2, SXO3, SXO4, SXO5

IHSS = In-home services and supports; SSI = supplemental security income.

C. Creating IHSS measures

Mathematica identified recipients' functional status by area and authorized hours by service.

Exhibit B.2.2. Definitions for functional status by area

Area	Functional status	Logic
Housework	# that are independent	# with FUNC_RANK_HOUSEWORK = 1
	# that require verbal assistance	# with FUNC_RANK_HOUSEWORK = 2
	# that require some human help	# with FUNC_RANK_HOUSEWORK = 3
	# that require lots of human help	# with FUNC_RANK_HOUSEWORK = 4
	# that cannot perform the function	# with FUNC_RANK_HOUSEWORK = 5
Laundry	# that are independent	# with FUNC_RANK_LAUNDRY = 1
	# that require lots of human help	# with FUNC_RANK_LAUNDRY = 4
	# that are dependent	# with FUNC_RANK_LAUNDRY = 5
Shopping and errands	# that are independent	# with FUNC_RANK_SHOPANDERRANDS = 1
	# that require some human help	# with FUNC_RANK_SHOPANDERRANDS = 3
	# that are dependent	# with FUNC_RANK_SHOPANDERRANDS = 5
Meal preparation and cleanup	# that are independent	# with FUNC_RANK_MEALPREPCLEANUP = 1
	# that require verbal assistance	# with FUNC_RANK_MEALPREPCLEANUP = 2
	# that require some human help	# with FUNC_RANK_MEALPREPCLEANUP = 3
	# that require lots of human help	# with FUNC_RANK_MEALPREPCLEANUP = 4
	# that are dependent	# with FUNC_RANK_MEALPREPCLEANUP = 5
	# that require paramedical services	# with FUNC_RANK_MEALPREPCLEANUP = 6

Area	Functional status	Logic
Ambulation	# that are independent	# with FUNC_RANK_AMBULATION = 1
	# that require verbal assistance	# with FUNC_RANK_AMBULATION = 2
	# that require some human help	# with FUNC_RANK_AMBULATION = 3
	# that require lots of human help	# with FUNC_RANK_AMBULATION = 4
	# that are dependent	# with FUNC_RANK_AMBULATION = 5
Bathing and grooming	# that are independent	# with FUNC_RANK_BATHANDGROOM = 1
	# that require verbal assistance	# with FUNC_RANK_BATHANDGROOM = 2
	# that require some human help	# with FUNC_RANK_BATHANDGROOM = 3
	# that require lots of human help	# with FUNC_RANK_BATHANDGROOM = 4
	# that are dependent	# with FUNC_RANK_BATHANDGROOM = 5
Dressing	# that are independent	# with FUNC_RANK_DRESSING = 1
	# that require verbal assistance	# with FUNC_RANK_DRESSING = 2
	# that require some human help	# with FUNC_RANK_DRESSING = 3
	# that require lots of human help	# with FUNC_RANK_DRESSING = 4
	# that are dependent	# with FUNC_RANK_DRESSING = 5
Bowel, bladder, and menstrual care	# that are independent	# with FUNC_RANK_BWLBLDRANDMNSTRL = 1
	# that require verbal assistance	# with FUNC_RANK_BWLBLDRANDMNSTRL = 2
	# that require some human help	# with FUNC_RANK_BWLBLDRANDMNSTRL = 3
	# that require lots of human help	# with FUNC_RANK_BWLBLDRANDMNSTRL = 4
	# that are dependent	# with FUNC_RANK_BWLBLDRANDMNSTRL = 5
	# that require paramedical services	# with FUNC_RANK_BWLBLDRANDMNSTRL = 6
Transfer	# that are independent	# with FUNC_RANK_TRANSFER = 1
	# that require verbal assistance	# with FUNC_RANK_TRANSFER = 2
	# that require some human help	# with FUNC_RANK_TRANSFER = 3
	# that require lots of human help	# with FUNC_RANK_TRANSFER = 4
	# that are dependent	# with FUNC_RANK_TRANSFER = 5
Feeding	# that are independent	# with FUNC_RANK_FEEDING = 1
	# that require verbal assistance	# with FUNC_RANK_FEEDING = 2
	# that require some human help	# with FUNC_RANK_FEEDING = 3
	# that require lots of human help	# with FUNC_RANK_FEEDING = 4
	# that are dependent	# with FUNC_RANK_FEEDING = 5
	# that require paramedical services	# with FUNC_RANK_FEEDING = 6
Respiration	# that are independent	# with FUNC_RANK_RESPIRATION = 1
	# that are dependent	# with FUNC_RANK_RESPIRATION = 5
	# that require paramedical services	# with FUNC_RANK_RESPIRATION = 6
Memory	# that are independent	# with FUNC_RANK_MEMORY = 1
	# that require verbal assistance	# with FUNC_RANK_MEMORY = 2
	# that are dependent	# with FUNC_RANK_MEMORY = 5

Area	Functional status	Logic
Orientation	# that are independent	# with FUNC_RANK_ORIENTATION = 1
	# that require verbal assistance	# with FUNC_RANK_ORIENTATION = 2
	# that are dependent	# with FUNC_RANK_ORIENTATION = 5
Judgment	# that are independent	# with FUNC_RANK_JUDGEMENT = 1
	# that require verbal assistance	# with FUNC_RANK_JUDGEMENT = 2
	# that are dependent	# with FUNC_RANK_JUDGEMENT = 5

For data on authorized services, Mathematica calculated four measures for each service, as well as for IHSS overall:

Authorized hours for the given service. We used the AUTH_TO_PURCHASE variable for the IHSS overall and variables with the "_ATP" suffix for each service (see Exhibit B.2.3) to calculate authorized hours. Because the data was stored in minutes, we divided each value by 60 to obtain the number of hours. For services originally reported in weekly values, we multiplied by 4.33 to transform into monthly values.

Number of IHSS recipients with authorized hours for the given service. After calculating the number of hours authorized per recipient per service, we identified the number of unique recipients with more than 0 authorized hours.

Percentage of total IHSS recipients with authorized hours for the given service. After calculating the number of unique recipients with authorized hours for each service, we divided by the total number of IHSS recipients to obtain the percentage with authorized hours for each service.

Authorized hours per IHSS recipient per month. We summed the total number of hours authorized per service across all recipients and divided by the number of unique recipients of the given service to obtain the authorized hours per recipient per month.

Exhibit B.2.3. IHSS variables by service

Category	Service	Variable for calculations	Original units
Total	All IHSS	AUTH_TO_PURCHASE	Monthly
Domestic services	Domestic services	DMSTSRV_ATP	Monthly
	Meal preparation	MEALPREP_ATP	Weekly
	Meal clean-up	MEALCLUP_ATP	Weekly
	Routine laundry	LAUNDRY_ATP	Weekly
	Shopping for food	SHOPFOOD_ATP	Weekly
	Other shopping and errands	OTHRSHOP_ATP	Weekly
Non-medical personal care services	Respiration assistance	RSPRTN_ATP	Weekly
	Bowel and bladder care	BWLBLDR_ATP	Weekly
	Feeding	FEEDING_ATP	Weekly
	Routine bed baths	RTBEDBATH_ATP	Weekly
	Dressing	DRESSING_ATP	Weekly
	Menstrual care	MSTRLCARE_ATP	Weekly

Category	Service	Variable for calculations	Original units
	Ambulation and getting in and out of vehicles	AMBULATN_ATP	Weekly
	Transfer (moving in and out of beds, on and off seats)	TRNSFR_ATP	Weekly
	Bathing, oral hygiene, and grooming	BTORLHYGR_ATP	Weekly
	Repositioning and rubbing skin	RUBSKINREP_ATP	Weekly
	Care of and assistance with prosthetic devices and help setting up medications	CRASISPR_ATP	Weekly
Special circumstances	Heavy cleaning	HVYCLNG_ATP	Monthly
	Yard hazard abatement	YRDHZDABT_ATP	Monthly
	Removal of snow or ice	RMVSNWICE_ATP	Monthly
	Teaching and demonstration	TCHDMST_ATP	Monthly
Other	Accompaniment to medical services	ACCMEDAPP_ATP	Weekly
	Accompaniment to alternative services	ACCALTRSC_ATP	Weekly
	Paramedical services	PARAMDCL_ATP	Weekly
	Protective supervision	PTCVSPVN_ATP	Weekly

IHSS = In-home services and supports.

Appendix B.3: Methods for Identifying LTSS Use Patterns

A. Initial data processing

Mathematica used Medi-Cal claims data from 2017 to 2021 to examine LTSS use patterns.[2] Mathematica dropped claims that indicated the age of the member was below 18, since the analyses were focused on people age 18 and older.

B. Identifying facility use

Mathematica used the LTSS Dashboard Measure Specifications document to identify logic for SNF, subacute care, ICF, and custodial care use in claims. The team applied the hierarchical rules used by DHCS to consolidate individual claims that were identified as multiple institutional types for a member as single type.

C. Identifying HCBS program use

1. In-Home Supportive Services

Mathematica used guidance received from DHCS on June 22, 2023, to identify IHSS claims:

- PGM_CD=01 or
- PGM_CD=08 and AID_CD is 2K, 2L, 2M, or 2N

[2] Data on service use was not available for PACE or CCT users.

Note that the LTSS dashboard measure specifications document includes the FI Claim Type Code, which Mathematica does not have in its data. The project team will update the IHSS results with the additional IHSS utilization data.

2. Community-Based Adult Services

Mathematica used the Community-Based Adult Services (CBAS): Billing Codes and Reimbursement Rates (community cd) (ca.gov) document to identify procedure codes that indicate CBAS program use:

- PROC_CD = H2000 (comprehensive multidisciplinary evaluation)
- PROC_CD = S5102 (day care services, adult; per diem)
- PROC_CD = T1023 (screening)
- PROC_CD = S5136 and any MODIFIER_1 – MODIFIER_4 = CR or CS (companion care, adult)
- PROC_CD = Q5001 and any MODIFIER_1 – MODIFIER_4 = CR or CS (home health care)

3. Home and Community-Based Alternatives

Mathematica used the Home and Community-Based Services (HCBS) Billing Codes and Reimbursement Rates (home cd) (ca.gov) document that DHCS shared on July 13, 2023, to identify procedure codes that indicate HCBA use:

- PROC_CD = T1016 (case management services)
- No billing codes listed for comprehensive care management
- PROC_CD = G9012 (transitional case management)
- PROC_CD = S9122 and any MODIFIER_1 – MODIFIER_4 = H (private duty nursing services)
- PROC_CD = S9123 (private duty nursing services
- PROC_CD = S9124 (private duty nursing services)
- PROC_CD = T1019 (waiver personal care services)
- PROC_CD = H0045 and any MODIFIER_1 – MODIFIER_4 = U4 or U5 (home respite)
- PROC_CD = T1005 (home respite)
- PROC_CD = T2033 and any MODIFIER_1 – MODIFIER_4 = U8 (DD/CNC non-ventilator dependent services)
- PROC_CD =T2033 and any MODIFIER_1 – MODIFIER_4=U9 (DD/CNC ventilator dependent)
- PROC_CD = T2017 (habilitation services)
- PROC_CD = T2033 and any MODIFIER_1 – MODIFIER_4 = U1, U2, U3, U4, or U5 (continuous nursing and supportive services-congregate living health facility (CLHF))
- PROC_CD = H0045 and any MODIFIER_1 – MODIFIER_4 = U1, U2, or U3 (facility respite—CLHF)
- PROC_CD = T2038 (community transition services)
- PROC_CD = S5165 (environmental accessibility adaptations)

- PROC_CD = S5111 (family/caregiver training)
- PROC_CD = T2035 (medical equipment operating expense—utility bill reimbursement)
- PROC_CD = S5160 (PERS installation and testing)
- PROC_CD = S5161 (emergency response system; service fee, per month, excludes installation and testing)

4. Assisted Living Waiver

Mathematica used the Assisted Living Waiver Reimbursement Rates (ca.gov) document to identify procedure codes that indicate ALW program use:

- PROC_CD = T2031 and any MODIFIER_1 – MODIFIER_4 = U1 (Tier 1 assisted living services; waiver, per diem)
- PROC_CD = T2031 and any MODIFIER_1 – MODIFIER_4 = U2 (Tier 2 assisted living services; waiver, per diem)
- PROC_CD = T2031 and any MODIFIER_1 – MODIFIER_4 = U3 (Tier 3 assisted living services; waiver, per diem)
- PROC_CD = T2031 and any MODIFIER_1 – MODIFIER_4 = U4 (Tier 4 assisted living services; waiver, per diem)
- PROC_CD = T2031 and any MODIFIER_1 – MODIFIER_4 = U5 (Tier 5 assisted living services; waiver, per diem)
- PROC_CD = T2017 and any MODIFIER_1 – MODIFIER_4 = U4 (habilitation, residential, waiver)
- PROC_CD = G9001 (transitional care coordination from a nursing facility)
- PROC_CD = T2024 (augmented plan of care development and follow-up)
- PROC_CD = G9002 (care coordination)

5. Multipurpose Senior Services Program

Mathematica used the MSSP Code-Conversion-Crosswalk_32486.01 (ca.gov) document to identify procedure codes that indicated MSSP use and guidance from DSS about the current list of codes and categories to group codes:[3]

- Adult day
  - PROC_CD = Z8554 (adult day care: day)
  - PROC_CD = Z8555 (adult day care: hour)
- Other assistance
  - PROC_CD = Z8556 (minor home repair/maintenance)

[3] As of July 1, 2023, MSSP billing codes transitioned from local codes to national Healthcare Common Procedure Coding System (HCPCS). Since these analyses cover 2017-2021, the billing codes reflect those prior to the transition.

  - PROC_CD = Z8557 (non-medical home equipment)
  - PROC_CD = Z8599 (temporary lodging)
- Community transition services
  - PROC_CD = Z8558 (emergency move)
  - PROC_CD = Z8598 (restoration of utility service)
- Supplemental personal care, chore, and protective services
  - PROC_CD = Z8559 (chore: day)
  - PROC_CD = Z8560 (chore: hour)
  - PROC_CD = Z8603 (chore: one time only)
  - PROC_CD = Z8561 (personal care: day)
  - PROC_CD = Z8562 (personal care: hour)
  - PROC_CD = Z8563 (personal care: visit)
  - PROC_CD = Z8567 (protective supervision: day)
  - PROC_CD = Z8568 (protective supervision: hour)
- Consultative clinical services
  - PROC_CD = Z8572 (purchased case management: visit)
  - PROC_CD = Z8573 (purchased case management: hour)
  - PROC_CD = Z8592 (purchased case management: one time only)
- Respite
  - PROC_CD = Z8574 (respite in-home care: day)
  - PROC_CD = Z8575 (respite in-home care: hour)
  - PROC_CD = Z8591 (respite out-of-home care: day)
  - PROC_CD = Z8576 (respite out-of-home care: hour)
- Transportation
  - PROC_CD = Z8597 (transportation: one-way trip)
  - PROC_CD = Z8593 (transportation: hour)
- Nutritional services
  - PROC_CD = Z8580 (meals congregate)
  - PROC_CD = Z8581 (meals home delivered)
  - PROC_CD = Z8582 (food)
- Counseling and therapeutic services
  - PROC_CD = Z8564 (health care: day)

  - PROC_CD = Z8565 (health care: hour)
  - PROC_CD = Z8566 (health care: visit)
  - PROC_CD = Z8583 (social reassurance: hour)
  - PROC_CD = Z8595 (social reassurance: day)
  - PROC_CD = Z8596 (social reassurance: month)
  - PROC_CD = Z8584 (therapeutic counseling)
  - PROC_CD = Z8585 (money management: visit)
  - PROC_CD = Z8586 (money management: hour)
- Communication
  - PROC_CD = Z8587 (communication translation)
  - PROC_CD = Z8588 (communication device: one time only)
  - PROC_CD = Z8589 (communication device: month)
- Care management
  - PROC_CD = Z8550 (case management expenses)
  - PROC_CD = Z8551 (administrative expenses)
  - Z8600 (TCM: day)

D. Identifying length of LTSS use

Mathematica limited claims for each calendar year to only include claims that had a svc_from_dt in the same year. After flagging relevant claims for each LTSS type (SNF, ICF, custodial care, subacute care, CBAS, ALW, IHSS, HCBA, MSSP) based on the logic listed above, the project team calculated the number of months of use for each beneficiary based on svc_from_dt and svc_to_dt for each specific type. If the service end date was in a future year, the project team set the end date to December of the current year to have a maximum of 12 months of service use in each calendar year. For example, the project team considered a claim with a svc_from_dt of May 2019 and a svc_to_dt of May 2020 to have eight months of service use in 2019 (that is, from May 2019 to December 2019). The project team also calculated the number of months of use for each LTSS type across years all years in the analysis to report average length of use by program between 2017 and 2021.

Appendix B.4: Methods for Forecasting Future LTSS Users in California

A. Data

1. American Community Survey

To model factors that predict having any activities of daily living (ADL) limitations plus Medi-Cal enrollment, Mathematica used American Community Survey (ACS) data from 2008 to 2019 (the most recently available individual data that have consistently measured any ADL limitations and race and ethnicity). These data include self-reported information on age, sex, race and ethnicity, county, Medicaid

enrollment, and ADL limitations. The project team selected the ACS over other population-based surveys, such as the California Health Information Survey, because the ACS has the largest sample of California respondents among available instruments.

a. ADL limitations

The ACS contains three questions on ADL limitations:

1. Because of a physical, mental, or emotional condition, do you have serious difficulty concentrating, remembering, or making decisions?
2. Do you have difficulty dressing or bathing?
3. Because of a physical, mental, or emotional condition, do you have difficulty doing errands alone, such as visiting a doctor's office or shopping?

The project team identified people as having an ADL limitation if they answered "yes" to any of these three questions.

b. Sample restrictions

Each year of data constitutes a one (1) percent sample of the United States. Mathematica limited the data to people who lived in California and were at least 18 years old.

c. County suppression

The ACS suppresses counties with an estimated population of fewer than 100,000 residents and groups them into one "other" category. These included Alpine, Amador, Calaveras, Colusa, Del Norte, Glenn, Inyo, Lake, Lassen, Mariposa, Mendocino, Modoc, Mono, Monterey, Nevada, Plumas, San Benito, Sierra, Siskiyou, Sutter, Tehama, Trinity, Tuolumne, and Yuba.[4]

d. Coding race and ethnicity

Mathematica used answers to a question on race and ethnicity to code the data into seven categories:

1. White (if their race was White, and they were not Hispanic)
2. Black (if their race was Black/African American, and they were not Hispanic)
3. American Indian or Alaska Native (if their race was American Indian or Alaska Native, and they were not Hispanic)
4. Asian (if they were Chinese, Japanese, or other Asian or Pacific Islander, and they were not Hispanic)
5. Multiracial (if they were two or more listed races and not Hispanic)
6. Hispanic (if they were any race, and they were Hispanic)
7. Other (if they were not Hispanic, and no other race was specified)

[4] See the note in the modeling section on how Mathematica arrived at estimates for these counties.

2. Medi-Cal data

To predict Medi-Cal LTSS users, Mathematica used Medi-Cal enrollment and LTSS flags data from calendar years 2017–2021 that were provided by DHCS. The project team's populations of LTSS users aligned with those incorporated in the Phase 1 LTSS Dashboard and included people with long-term care stays or in select HCBS programs. LTC stays included skilled nursing facility, subacute care, intermediate care facility, and custodial care. Select HCBS programs included IHSS, CBAS, HCBA, ALW, and MSSP.

3. Department of Finance Projections

Mathematica used 2020-2040 data from the California Department of Finance Projections. The U.S. Census Bureau's blended base—a combination of Census 2020 PL94, the 2020 Demographic Analysis, and the Census Bureau's Vintage 2020 estimates—informed these population estimates, which were published in December 2022. For more information, see https://dof.ca.gov/forecasting/demographics/projections/.

Mathematica restricted the data to 2020-2040 and to the adult population ages 18 and over. To align with the race categories from the ACS, the project team combined the Native Hawaiian or Pacific Islander, non-Hispanic group with the Asian, non-Hispanic group to create an Asian or Pacific Islander group.

B. Model

To develop the model, Mathematica split the ACS data into train, validation, and test data sets and compared the performance of several models (such as lasso vs. ridge[5]) using the validation data. The project team did hyperparameter tuning with the regularization penalty value and used cross-validation folds to prevent overfitting.

For the models of any ADL limitation and any ADL limitation plus Medi-Cal enrollment, the project team fit a ridge regression model that included indicators for race and ethnicity interacted with an indicator for sex and a spline in age. The spline was a cubic polynomial split at ages 45 and 70. The team also included indicators for county, which allows particular counties to have a higher or lower probability of the outcome, controlling the demographics of their population.[6]

For the Medi-Cal LTSS user model, Mathematica estimated the proportion of people in each county in four age buckets (ages 18 to 64, ages 65 to 74, ages 75 to 84, and age 85 and older) who were LTSS users from 2017 to 2021. The project team then applied that proportion to the California Department of Finance Projections of population demographics (based on age and county) from 2020 to 2040.[7] The team can provide county-specific projections for Medi-Cal LTSS users upon request.

[5] See https://parsnip.tidymodels.org/reference/logistic_reg.html.

[6] For counties suppressed in the ACS data, Mathematica estimated a general effect of being in any of those counties. The project team's population projections for those counties are based on that general effect along with the estimated probability of the people in that county having an ADL or having an ADL plus being enrolled in Medi-Cal, in accord with their demographics.

[7] We are unable to directly compare 2020 projections with 2020 actuals because we did not use data after 2019 to build the model, as the methodology for measuring ADL limitations changed in 2020, making the data inconsistent with prior year data used in our modeling strategy.

C. Additional tables and figures

Exhibit B.4.1. Characteristics of potential future LTSS users in California

Characteristic	Any ADL limitation				Any ADL limitation and Medi-Cal enrollment			
	2020[a]	2025	2030	2040	2020[a]	2025	2030	2040
Race/ethnicity								
White, non-Hispanic	46%	44%	43%	40%	37%	35%	33%	29%
Black, non-Hispanic	9%	9%	9%	8%	11%	10%	10%	9%
AIAN, non-Hispanic	1%	1%	1%	1%	1%	1%	1%	1%
Asian, non-Hispanic	13%	13%	13%	14%	15%	16%	16%	17%
Multiracial, non-Hispanic	3%	3%	3%	3%	3%	3%	3%	3%
Hispanic	29%	31%	32%	35%	33%	35%	37%	40%
Sex								
Male	44%	43%	43%	42%	43%	42%	42%	40%
Female	56%	57%	57%	58%	57%	58%	58%	60%
Age								
18–64	49%	44%	39%	32%	55%	50%	45%	38%
65–74	18%	18%	18%	15%	17%	18%	18%	16%
75–84	18%	21%	24%	25%	16%	18%	21%	24%
85+	16%	17%	20%	28%	12%	14%	16%	23%

Source: Mathematica used Medi-Cal enrollment and LTSS flags data from calendar years 2017–2021 and ACS data from calendar years 2008–2019 to create analytic models. The project team used California Department of Finance projections from 2020 to 2040 as inputs to models to project populations.

Note: The sample is restricted to people ages 18 and older.

[a] The numbers from 2020 are based on projections from the model, not actual counts.

ACS = American Community Survey; ADL = activity of daily living; AIAN = American Indian or Alaska Native; LTSS = long-term services and supports.

Exhibit B.4.2. County estimates of the projected population with any ADL limitation in California

County	Population with any ADL limitation						Percentage with any ADL limitation				
	2020[a]	2025	2030	2040	Change[b]	% Change[b]	2020a	2025	2030	2040	Pp change[b]
Alameda	104,770	118,125	134,141	169,509	64,739	62%	8%	8%	9%	11%	3pp
Alpine	103	122	137	152	49	48%	11%	12%	13%	16%	5pp
Amador	3,424	3,824	4,213	4,795	1,371	40%	11%	12%	13%	14%	3pp
Butte	20,679	23,986	25,726	28,569	7,890	38%	13%	13%	13%	14%	1pp
Calaveras	4,094	4,574	5,105	5,927	1,833	45%	11%	12%	14%	16%	5pp
Colusa	1,412	1,593	1,754	2,053	641	45%	9%	9%	10%	11%	2pp
Contra Costa	76,941	87,782	100,049	126,225	49,284	64%	8%	9%	10%	12%	4pp
Del Norte	2,057	2,120	2,226	2,369	312	15%	9%	10%	10%	11%	2pp
El Dorado	13,650	15,134	17,002	20,454	6,804	50%	9%	10%	10%	12%	3pp
Fresno	75,340	82,469	91,720	110,008	34,668	46%	10%	11%	11%	12%	2pp
Glenn	1,932	2,059	2,209	2,530	598	31%	9%	9%	10%	11%	2pp
Humboldt	13,026	13,961	14,953	16,382	3,356	26%	12%	13%	14%	15%	3pp
Imperial	16,228	18,118	20,088	24,281	8,053	50%	12%	13%	13%	15%	3pp
Inyo	1,590	1,688	1,836	2,140	550	35%	11%	12%	13%	15%	4pp
Kern	60,141	66,736	74,401	89,573	29,432	49%	9%	9%	10%	11%	2pp
Kings	10,457	11,234	12,278	14,231	3,774	36%	10%	10%	10%	11%	1pp
Lake	5,102	5,417	5,766	6,232	1,130	22%	10%	11%	11%	12%	2pp
Lassen	2,112	2,284	2,395	2,563	451	21%	9%	9%	10%	11%	2pp
Los Angeles	688,379	769,010	862,615	1,068,150	379,771	55%	9%	9%	10%	12%	3pp
Madera	11,998	13,623	15,203	18,284	6,286	52%	10%	11%	11%	12%	2pp
Marin	15,248	17,161	19,235	22,867	7,619	50%	7%	8%	9%	11%	4pp
Mariposa	1,698	1,826	1,980	2,275	577	34%	11%	12%	13%	16%	5pp
Mendocino	6,648	7,332	8,114	9,209	2,561	39%	10%	10%	11%	13%	3pp
Merced	21,821	24,288	27,096	33,036	11,215	51%	11%	11%	12%	13%	2pp
Modoc	834	899	955	979	145	17%	11%	12%	13%	14%	3pp

County	Population with any ADL limitation						Percentage with any ADL limitation				
	2020[a]	2025	2030	2040	Change[b]	% Change[b]	2020a	2025	2030	2040	Pp change[b]
Mono	829	1,014	1,212	1,602	773	93%	8%	9%	10%	13%	5pp
Monterey	28,030	31,286	35,157	43,255	15,225	54%	9%	9%	10%	11%	2pp
Napa	10,133	11,271	12,484	14,731	4,598	45%	9%	10%	11%	12%	3pp
Nevada	8,751	9,723	10,736	12,306	3,555	41%	11%	12%	13%	14%	3pp
Orange	166,728	187,773	210,722	260,972	94,244	57%	7%	7%	8%	10%	3pp
Placer	25,108	28,645	32,613	40,056	14,948	60%	8%	8%	9%	10%	2pp
Plumas	1,698	1,930	2,051	2,124	426	25%	11%	12%	13%	15%	4pp
Riverside	164,961	190,588	218,788	279,700	114,739	70%	9%	9%	10%	12%	3pp
Sacramento	119,887	132,681	148,444	181,154	61,267	51%	10%	11%	11%	12%	2pp
San Benito	3,976	4,421	5,060	6,470	2,494	63%	8%	9%	10%	11%	3pp
San Bernardino	143,375	161,016	181,154	224,045	80,670	56%	9%	9%	10%	11%	2pp
San Diego	200,862	221,796	248,861	306,829	105,967	53%	8%	8%	9%	11%	3pp
San Francisco	68,431	73,888	81,786	98,416	29,985	44%	9%	10%	10%	12%	3pp
San Joaquin	57,861	65,071	73,697	91,331	33,470	58%	10%	11%	11%	13%	3pp
San Luis Obispo	19,171	21,439	23,891	28,616	9,445	49%	8%	9%	10%	12%	4pp
San Mateo	43,800	49,088	55,275	67,972	24,172	55%	7%	8%	8%	10%	3pp
Santa Barbara	27,122	29,469	32,445	39,286	12,164	45%	8%	8%	9%	10%	2pp
Santa Clara	109,339	125,077	142,902	181,323	71,984	66%	7%	8%	8%	10%	3pp
Santa Cruz	16,688	18,999	21,578	26,478	9,790	59%	8%	9%	9%	11%	3pp
Shasta	18,700	19,519	20,681	22,461	3,761	20%	13%	14%	14%	15%	2pp
Sierra	306	324	330	342	36	12%	11%	13%	14%	15%	4pp
Siskiyou	3,834	3,989	4,215	4,417	583	15%	11%	11%	12%	13%	2pp
Solano	31,796	36,205	40,879	50,118	18,322	58%	9%	10%	11%	12%	3pp
Sonoma	34,984	40,367	46,014	56,727	21,743	62%	9%	9%	10%	12%	3pp
Stanislaus	41,838	46,379	51,331	61,056	19,218	46%	10%	11%	11%	12%	2pp
Sutter	6,589	7,091	7,792	9,145	2,556	39%	9%	9%	10%	10%	1pp
Tehama	4,779	5,003	5,305	5,796	1,017	21%	10%	10%	10%	11%	1pp

County	Population with any ADL limitation						Percentage with any ADL limitation				
	2020[a]	2025	2030	2040	Change[b]	% Change[b]	2020a	2025	2030	2040	Pp change[b]
Trinity	1,273	1,342	1,410	1,435	162	13%	12%	12%	13%	15%	3pp
Tulare	30,647	33,987	37,864	45,444	14,797	48%	9%	9%	10%	11%	2pp
Tuolumne	4,642	4,986	5,426	6,075	1,433	31%	11%	12%	13%	14%	3pp
Ventura	52,926	59,242	66,339	81,519	28,593	54%	8%	9%	9%	11%	3pp
Yolo	12,930	14,739	16,578	20,357	7,427	57%	8%	8%	8%	9%	1pp
Yuba	4,670	5,058	5,604	6,724	2,054	44%	8%	8%	9%	10%	2pp

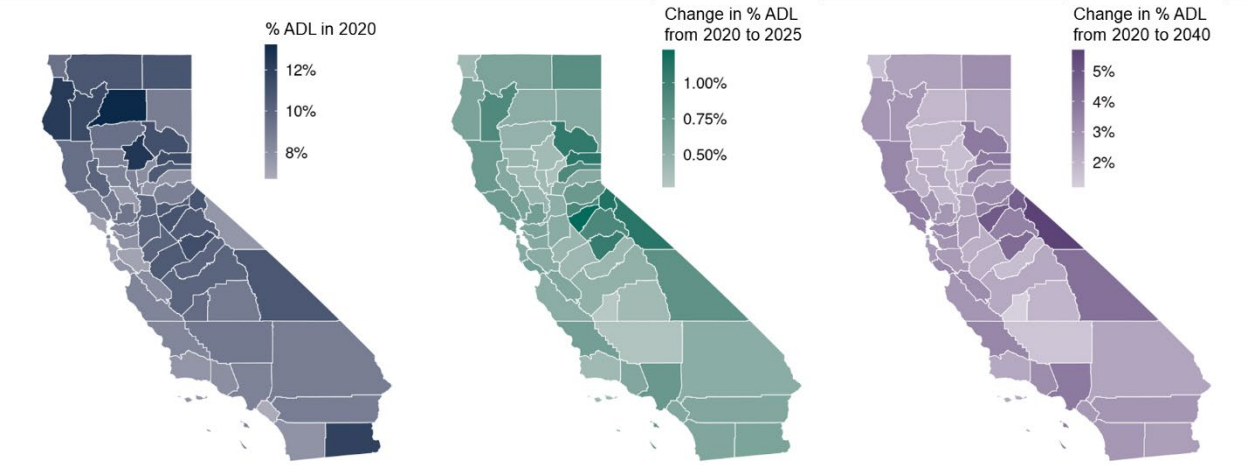
Source: Mathematica used Medi-Cal enrollment and LTSS flags data from calendar years 2017–2021 and ACS data from calendar years 2008–2019 to create analytic models. The project team used California Department of Finance projections from 2020 to 2040 as inputs to models to project populations.

[a] The numbers from 2020 are based on projections from the model.

[b] Mathematica calculated change, percent change, and percentage-point change from 2020 to 2040.

ACS = American Community Survey; ADL = activity of daily living; LTSS = long-term services and supports; pp = percentage point

Exhibit B.4.3. Forecasts of people with ADL limitations in California

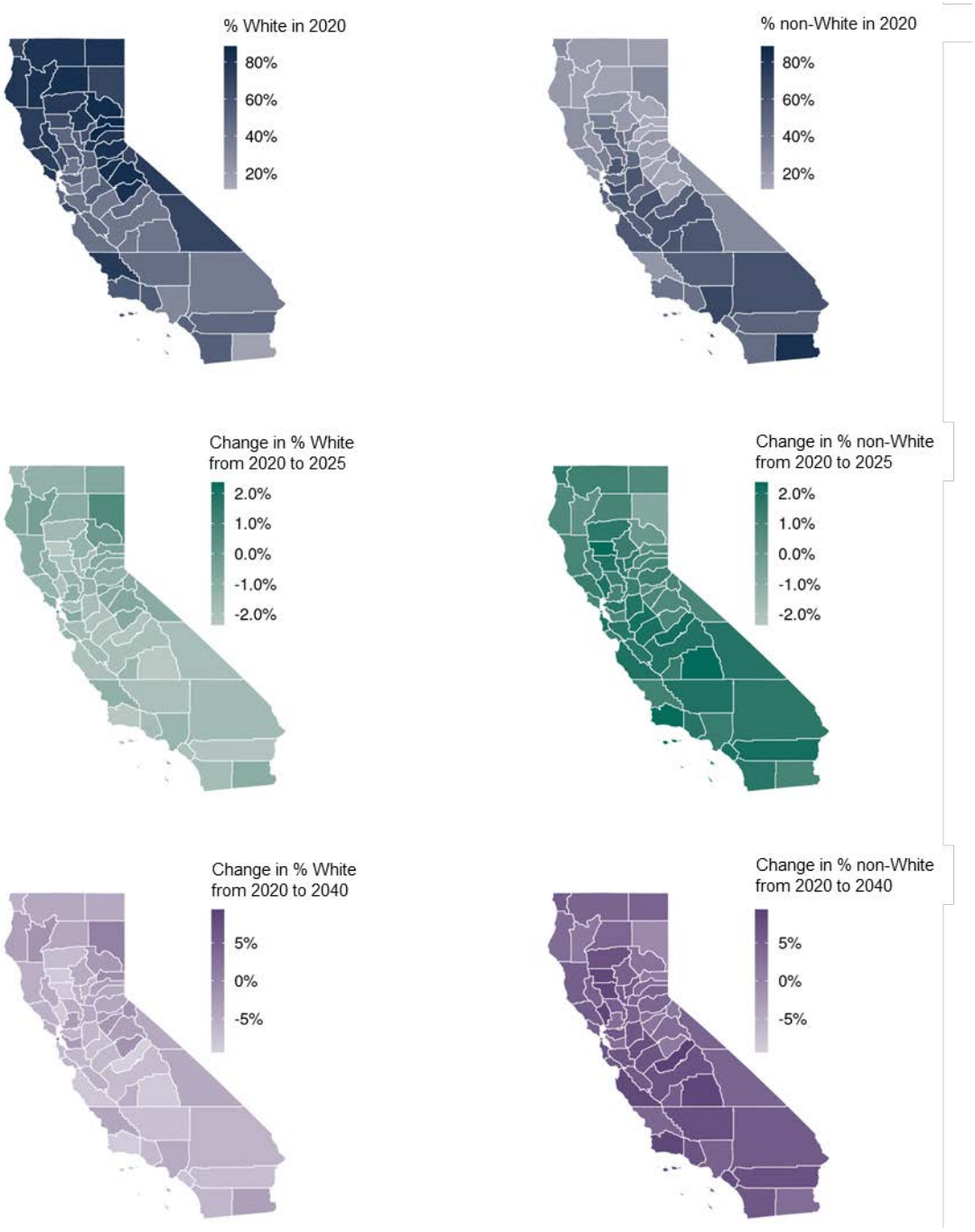


Source: Mathematica used ACS data from calendar years 2008–2019 to create analytic models. The project team used California Department of Finance projections from 2020 and 2040 as inputs to models to project populations.

Note: The numbers from 2020 are based on projections from the model, not actual counts. The sample is restricted to people ages 18 and older.

ACS = American Community Survey; ADL = activity of daily living.

Exhibit B.4.4. Racial identity of people with ADL limitations in California

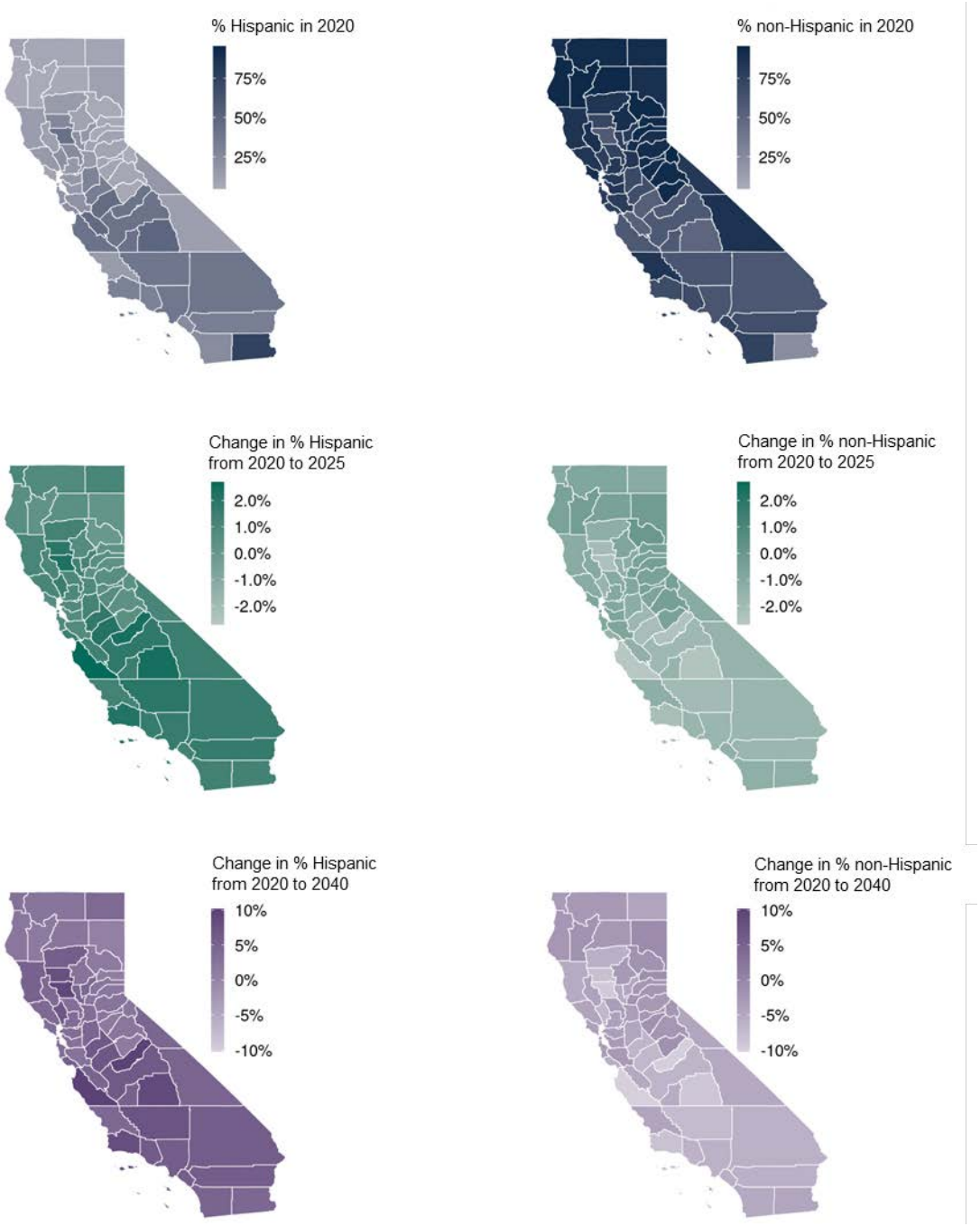


Source: Mathematica used ACS data from calendar years 2008–2019 to create analytic models. The project team used California Department of Finance projections from 2020 and 2040 as inputs to models to project populations.

Note: The numbers from 2020 are based on projections from the model, not actual counts. The sample is restricted to people ages 18 and older.

ACS = American Community Survey; ADL = activity of daily living.

Exhibit B.4.5. Ethnic identity of people with ADL limitations in California



Source: Mathematica used ACS data from calendar years 2008–2019 to create analytic models. The project team used California Department of Finance projections from 2020 and 2040 as inputs to models to project populations.

Note: The numbers from 2020 are based on projections from the model, not actual counts. The sample is restricted to people ages 18 and older.

ACS = American Community Survey; ADL = activity of daily living.

Appendix B.5: Methods for Identifying Current LTSS Providers

A. Data sources and processing steps

Mathematica obtained provider lists from DHCS and open data portal sources as of 2023 (Exhibit B.5.1). These datasets included current cross-sections of providers because Mathematica did not have historical datasets that could have included providers that operated in 2017–2021 (the timeframes for our analyses of Medi-Cal LTSS users, based on eligibility and claims data). Mathematica excluded providers that were listed as closed from any data sources that contained an indication of the operational status of the provider.

Exhibit B.5.1. Provider types by data source

Source	Provider types	Notes
ISCD Enrolled Providers list	RCFE-ARF, CLHF, CCA, INP, PCA, NON-PROF, PROF CORP	Provided by DHCS in February 2023. Did not include HCBC BENEFIT PROVIDERS because these are approved only for benefits like personal emergency response systems.
Licensed and Certified Healthcare Facility Locations: Licensed and Certified Healthcare Facility Listing – Datasets – California Health and Human Services Open Data Portal	ADHC, CLHF, HHA, ICF, SNF	Accessed February 2023. Dropped records listed with certification for Medicare only.
Community Care Licensing – Residential Elder Care Facility Locations: Community Care Licensing - Residential Elder Care Facility Locations - Datasets - California Health and Human Services Open Data Portal	RCFE-ARF	Accessed February 2023.
Community Care Licensing – Adult Residential Facility Locations: Community Care Licensing - Adult Residential Facility Locations - Datasets - California Health and Human Services Open Data Portal	Adult Day Program, ARFPSHN, Adult Residential, Residential Care Facility for the Chronically Ill, Social Rehab Facility	Accessed February 2023.
ALW Assisted Living Facilities: ALW Assisted Living Facilities | ALW Assisted Living Facilities | DHCS GIS Data Hub (ca.gov)	ALW	Accessed February 2023.
Medi-Cal FFS Provider Listing: Medi-Cal FFS Provider Listing - Datasets - California Health and Human Services Open Data Portal	ADHC, Home and Community Based Services Nursing Facility, HHA, MSSP, PCA, RCFE	Accessed February 2023.
ALW Program Participating Facilities, RCFE and ARF: List-of-RCFE ARF-facilities.pdf (ca.gov)	ALW	Accessed February 2023.
Home and Community-Based Alternatives (HCBA) Waiver, List of Participating Congregate Living Health Facilities: List-of-CLHF-facilities.pdf (ca.gov)	CLHF	Accessed February 2023.
CBAS provider dataset	ADHC	Provided by DHCS in Fall 2023.
MSSP roster	MSSP	Provided by DHCS in Fall 2023.

Source	Provider types	Notes
Regional- or county-level waiver agencies roster	Regional- or county-level waiver agencies	Provided by DHCS in Fall 2023.
ALW Care Coordination Agencies roster	CCA	Provided by DHCS in Fall 2023.
Adult Residential Facilities file	RCFE-ARF	Provided by DHCS in Fall 2023.
PACE plan list: California-PACE-Plans-Zip-Codes-Dec2023.pdf	PACE	Plan list accessed December 2023. Crosswalk of plans to PACE organizations provided by DHCS in Winter 2024.
Additional data sources		
IHSS Provider Management File	IHSS	Provided by DHCS in Summer 2023. Processed and analyzed separately from other data sources for other provider types. The Provider Management File was limited to providers whose status was "Active" with a record update date listed in 2023. Focused on non-relative providers for geospatial analyses.

Note: CCT uses designated Lead Organizations who employ or contract with transition coordinators who work directly with the members, support networks, and providers to facilitate and monitor members' transitions from facilities to the community settings of their choice. As of February 2024, there were 20 CCT Lead Organizations serving across the state. See https://www.dhcs.ca.gov/services/ltc/Documents/CCT-LO-Website-List-Feb2024.pdf.

ADHC = adult day health center; ALW = Assisted Living Waiver; ARFPSHN = Adult Residential Facility for Persons with Special Health Care Needs; CBAS = Community-Based Adult Services; CCA = Care Coordination Agencies; CLHF = congregate living health facilities; DHCS = Department of Health Care Services; FFS = fee-for-service; HCBA = Home and Community-Based Alternatives; HHA = home health agency; ICF = intermediate care facility; IHSS = In-Home Supportive Services; INP = individual nurse provider; ISCD = Integrated Systems of Care Division; MSSP = Multipurpose Senior Services Program; NON-PROF = non-profit organization; PACE = Program of All-Inclusive Care for the Elderly; PCA = personal care agencies; PROF CORP = professional corporation; RCFE = Residential Care Facilities for the Elderly; RCFE-ARF = Residential Care Facilities for the Elderly-Adult Residential Facilities; SNF = skilled nursing facility.

After downloading each file and applying the limitations listed in Exhibit B.5.1, Mathematica dropped variables from each file that were not needed for the analysis, cleaned data types and format, appended files, and applied rules to the full data to de-duplicate records.[8] Specifically, the following steps were applied:

1. Renamed variables as needed across files to match. These included changes like renaming "Facility City" to "City" so that columns across files would all have a column name of "City" to reflect the city for the provider address.
2. Performed data cleaning to allow for checks across records. This included standardizing the data type or format, and standardizing address values (for example, replacing "Expressway" with "Expy") so matching addresses could be properly identified.

[8] As listed in Exhibit B.5.1, the IHSS Provider Management File was processed separately, so these steps for cleaning and de-duplicating records do not apply to the IHSS file.

3. Standardized naming convention for provider type values based on input from DHCS and other departments as needed (Exhibit B.5.2).
4. Cleaned string variable values (for example, if "County" was indicated as "Riversdie" we replaced that with "Riverside").

Exhibit B.5.2. Provider type standardized naming

Original name from source data	New name
HOME HEALTH AGENCY	HHA
INP	INP (same)
RCFE-ARF	RCFE-ARF (same)
CLHF	CLHF (same)
PCA	PCA (same)
CCA	CCA (same)
NON-PROF	NON-PROF (same)
PROF CORP	PROF CORP (same)
Residential Care for the Elderly	RCFE-ARF
Adult Residential	RCFE-ARF
HOME HEALTH AGENCIES	HHA
Adult Day Program[a]	ADHC
SKILLED NURSING FACILITY	SNF
INTERMEDIATE CARE FACILITY-DD/H/N/CN/IID	ICF
RESIDENTIAL CARE FACILITIES FOR THE ELDELRY (RCFE)	RCFE-ARF
ALW	RCFE-ARF
Social Rehab Facility	RCFE-ARF
ADULT DAY HEALTH CARE	ADHC
ADULT DAY HEALTH CARE CENTERS	ADHC
CONGREGATE LIVING HEALTH FACILITY	CLHF
HOME AND COMMUNITY BASED SERVICES NURSING FACILITY	CLHF
RCFE-Continuing Care	RCFE-ARF
Adult Res Facility for Persons with Special Health Care Needs (ARFPSHN)	ARFPSHN
PERSONAL CARE AGENCY	PCA
MULTIPURPOSE SENIOR SERVICES PROGRAM	MSSP
Residential Care Facility for the Chronically ill	RCFE-ARF
INTERMEDIATE CARE FACILITY	ICF
Regional- or county-level waiver agencies	Regional- or county-level waiver agencies
CCA	CCA (same)
PACE	PACE (same)

ADHC = adult day health center; ARFPSHN = Adult Residential Facility for Persons with Special Health Care Needs; CBAS = Community-Based Adult Services; CCA = Care Coordination Agencies; CLHF = congregate living health facilities; HHA = home health agency; ICF = intermediate care facility; INP = individual nurse provider; MSSP = Multipurpose Senior Services Program; NON-PROF = non-profit organization; PACE = Program of All-Inclusive Care for the Elderly; PCA = personal care agencies; PROF CORP =

professional corporation; RCFE-ARF = Residential Care Facilities for the Elderly-Adult Residential Facilities; SNF = skilled nursing facility.

[a]Adult Day Program facilities are licensed by the Department of Social Services, whereas Adult Day Health Centers are licensed by the Department of Public Health. Adult Day Health Centers can be certified to participate in CBAS.

5. Dropped records where state was listed as anything other than California or blank.

6. Flagged the following subsets of providers for program-specific analyses: ADHCs participating in CBAS, RCFE-ARFs participating in ALW, CLHFs participating in HCBA. This allowed for an analysis of the broad pool of the provider types in addition to the specific ones that are actively participating in the respective HCBS programs.

7. Implemented checks for duplicate records in the following order:[9]

a. Dropped the duplicate(s) when NPI, PROVIDER NAME, PROVIDER TYPE, ADDRESS, ADDRESS 2, CITY, ZIP, COUNTY, and STATE were the same across multiple records. Prioritized dropping the record(s) with missing information on LATITUDE or LONGITUDE. 0 rows were dropped.

b. Dropped the duplicate(s) when NPI, PROVIDER NAME, PROVIDER TYPE, ADDRESS, CITY, ZIP, COUNTY, and STATE were the same across multiple records. Prioritized dropping the record(s) with missing information on LATITUDE or LONGITUDE; prioritized dropping the record(s) with missing ADDRESS 2 as secondary condition if LATITUDE and LONGITUDE were populated. 149 rows were dropped.

c. Dropped the duplicate(s) when NPI, PROVIDER TYPE, ADDRESS, CITY, ZIP, COUNTY, and STATE were the same across multiple records (did not require a match on PROVIDER NAME). Prioritized dropping the record(s) with missing information on LATITUDE or LONGITUDE; prioritized dropping the record(s) with missing ADDRESS 2 as secondary condition if LATITUDE and LONGITUDE were populated. 33 rows were dropped.

d. Dropped the duplicate(s) with PROVIDER TYPE equal to ADHC in cases where PROVIDER NAME, ADDRESS, CITY, ZIP, COUNTY, and STATE matched but PROVIDER TYPE was equal to CBAS in one record and ADHC in the other record in order to retain the more specific designation of CBAS-enrolled ADHCs. 56 rows were dropped.

e. Dropped the duplicate(s) with PROVIDER TYPE equal to RCFE-ARF in cases where PROVIDER NAME, ADDRESS, CITY, ZIP, COUNTY, and STATE matched but PROVIDER TYPE was equal to ALW in one record and RCFE-ARF in the other record in order to retain the more specific designation of ALW-enrolled RCFE-ARFs. 169 rows were dropped.

f. Dropped the duplicate(s) with PROVIDER TYPE equal to CHLF in cases where PROVIDER NAME, ADDRESS, CITY, ZIP, COUNTY, and STATE matched but PROVIDER TYPE was equal to HCBA Waiver in one record and CLHF in the other record in order to retain the more specific designation of HCBA-enrolled CLHFs. 3 rows were dropped.

[9] As part of these steps, Mathematica did a manual review and website search of a subset of records that matched based on ADDRESS, CITY, ZIP, COUNTY, STATE, but had (1) same NPI and different PROVIDER TYPE, or (2) different NPI and same PROVIDER TYPE to flag records to drop and keep; record counts that were dropped through this process are encompassed in the counts listed.

g. Dropped the duplicate(s) with blank NPI in cases where ADDRESS, CITY, ZIP, COUNTY, STATE, PROVIDER NAME, and PROVIDER TYPE matched but NPI was filled in one record and blank in the other record. 12,475 rows were dropped.

h. Dropped the duplicate(s) where PROVIDER NAME, PROVIDER TYPE, ADDRESS, CITY, ZIP, COUNT, and STATE match but FACILITY STATUS was LICENSED in one record and is missing for the other record. 3 rows were dropped.

8. Kept all records where NPI was the same across records but ADDRESS, ADDRESS 2, CITY, ZIP, COUNTY, and STATE were different.

After implementing cleaning and de-duplicating steps, HHA records from the provider dataset were merged to the 2021 LTSS claims that were identified for the populations of focus in the LTSS user analyses. Mathematica flagged HHA records from the provider dataset that were present as billing on a relevant LTSS claim, in order to examine the subset of HHAs that were observed as actively billing in 2021 in addition to the full set of HHAs that were identified from the source files.

B. Counts of providers and categorizing by program

After the merges and processing steps, Mathematica identified the count of providers by type (Exhibit B.5.3).

Exhibit B.5.3. Provider counts by type

Provider type	Count
ADHC	1,418
CBAS-participating ADHC	285
ARFPSHN	101
CCA	39
CLHF	301
HCBA Waiver-participating CLHF	180
HHA	3,060 (1,259 identified billing in 2021 LTSS claims)
ICF	1,015
IHSS non-relative providers	255,784
INP	843
MSSP	37
Non-Prof	25
PACE Organizations	27
PCA	90
Prof Corp	4
RCFE-ARF	16,532
ALW-participating RCFE-ARF	917
Regional- or county-level waiver agencies	9
SNF	1,195

ADHC = adult day health center; ARFPSHN = Adult Residential Facility for Persons with Special Health Care Needs; CCA = Care Coordination Agencies; CLHF = congregate living health facilities; HHA = home health agency; ICF = intermediate care facility; INP =

individual nurse provider; NON-PROF = non-profit organization; PACE = Program of All-Inclusive Care for the Elderly; PCA = personal care agencies; PROF CORP = professional corporation; RCFE-ARF = Residential Care Facilities for the Elderly-Adult Residential Facilities; SNF = skilled nursing facility.

Mathematica then grouped provider types by LTSS program based on the types that are eligible to bill for each program, in order to analyze relevant provider availability by program (Exhibit B.5.4).

Exhibit B.5.4. Provider types and analytic approach by LTSS program

Program	Provider types allowed to bill and available in data	Number of providers	Analytic approach
IHSS	• IHSS non-relative providers (individuals)	• Total non-relative providers: 255,784	Limited geospatial analyses to non-relative providers because they represent a potential pool of workers, who may be more likely than relatives to continue working as IHSS providers following program exit or death of the person they cared for. In addition, because non-relative personal care assistants are already certified as IHSS workers, the Public Authorities which screen, approve, and train people to serve IHSS clients can identify which of these IHSS workers are available to serve other IHSS clients who do not have relatives who can serve them.[a]
CBAS	• ADHC – ADHC participating in CBAS – ADHC not participating in CBAS	• Total relevant providers including all ADHCs (those that did and did not participate in CBAS): 1,703 • Total relevant providers including only ADHCs participating in CBAS: 285	Examined subsets of providers: **1.** Total relevant providers including all ADHCs (those that did and did not participate in CBAS) **2.** Total relevant providers including only ADHCs participating in CBAS
ALW	• CCA • RCFE-ARF – RCFE-ARF participating in ALW – RCFE-ARF not participating in ALW • HHA – HHAs that had any Medi-Cal billing in 2021 – HHAs that had no Med-Cal billing in 2021	• Total relevant providers including CCAs, all RCFE-ARFs (those that did and did not participate in ALW), and actively billing HHAs: 18,747 • Total relevant providers including CCAs, only RCFE-ARF participating in ALW, and actively billing HHAs: 2,215 • Additional non-actively billing HAAs: 1,801	Examined subsets of providers: **1.** Total relevant providers including CCAs, all RCFE-ARFs (those that did and did not participate in ALW), and actively billing HHAs **1.a**. Total relevant providers including CCAs, all RCFE-ARFs (those that did and did not participate in ALW), and both actively and non-actively billing HHAs **2.** Total relevant providers including CCAs, only RCFE-ARF participating in ALW, and actively billing HHAs

Program	Provider types allowed to bill and available in data	Number of providers	Analytic approach
			2.a. Total relevant providers including CCAs, only RCFE-ARF participating in ALW, and both actively and non-actively billing HHAs
MSSP	• MSSP sites	• Total MSSP sites: 37	Grouped 2021 MSSP procedure codes into 11 categories and identified whether or not each site billed for each category in 2021 Medi-Cal claims
HCBA	• PROF CORP • NON-PROF • INP • PCA • Regional- or county-level waiver agencies • CLHF – CLHF participating in HCBA – CLHF not participating in HCBA • HHA – HHAs that had any Medi-Cal billing in 2021 – HHAs that had no Med-Cal billing in 2021	• Total relevant providers including PROF CORPs, NON-PROFs, INPs, PCAs, Regional- or county-level waiver agencies, all CLHFs (those that did and did not participate in HCBA), and actively billing HHAs: 2,711 • Total relevant providers including PROF CORPs, NON-PROFs, INPs, PCAs, Regional- or county-level waiver agencies, only CLHFs that participated in HCBA, and actively billing HHAs: 2,410 • Additional non-actively billing HHAs: 1,801	Examined subsets of providers: **1.** Total relevant providers including PROF CORPs, NON-PROFs, INPs, PCAs, Regional- or county-level waiver agencies, all CLHFs (those that did and did not participate in HCBA), and actively billing HHAs **1.a**. Total relevant providers including PROF CORPs, NON-PROFs, INPs, PCAs, Regional- or county-level waiver agencies, all CLHFs (those that did and did not participate in HCBA), and both actively and non-actively billing HHAs **2.** Total relevant providers including PROF CORPs, NON-PROFs, INPs, PCAs, Regional- or county-level waiver agencies, only CLHFs that participated in HCBA, and actively billing HHAs **2.a.** Total relevant providers including PROF CORPs, NON-PROFs, INPs, PCAs, Regional- or county-level waiver agencies, only CLHFs that participated in HCBA, and both actively and non-actively billing HHAs
PACE	• PACE organizations	• Total PACE organizations: 27	Examined ZIP code service areas for PACE organizations
Institutional	• SNF • ICF • ARFPSHN	• Total institutional: 2,311	Examined all LTSS institutional types

Note: CCT uses designated Lead Organizations who employ or contract with transition coordinators who work directly with the members, support networks, and providers to facilitate and monitor members' transitions from facilities to the community settings of their choice. As of February 2024, there were 20 CCT Lead Organizations serving across the state. See https://www.dhcs.ca.gov/services/ltc/Documents/CCT-LO-Website-List-Feb2024.pdf.

[a]See https://www.capaihss.org/public-authorities/roles/.

ADHC = adult day health center; ALW = Assisted Living Waiver; ARFPSHN = Adult Residential Facility for Persons with Special Health Care Needs; CBAS = Community-Based Adult Services; CCA = Care Coordination Agencies; CCT = California Community Transitions; CLHF = congregate living health facilities; HCBA = Home and Community-Based Alternatives; HHA = home health agency; ICF = intermediate care facility; IHSS = In-Home Supportive Services; INP = individual nurse provider; MSSP = Multipurpose Senior Services Program; NON-PROF = non-profit organization; PACE = Program of All-Inclusive Care for the Elderly; PCA = personal care agencies; PROF CORP = professional corporation; RCFE-ARF = Residential Care Facilities for the Elderly-Adult Residential Facilities; SNF = skilled nursing facility.

Appendix B.6: Methods for the Provider Survey

A. Survey development

To fill gaps in data about the professional and non-professional staff who provided HCBS in the current Medi-Cal provider data sources, Mathematica conducted a provider survey to address two analytic questions: (1) what is the capacity of community-based providers to serve Medi-Cal beneficiaries who need HCBS in terms of number of staff employed and clients served, and (2) to what extent are providers limited in their ability to meet service demand due to staff shortages or state-established caps on the number of people who can enroll in HCBS waivers. Exhibit B.6.1 summarizes the features of the provider survey.

Exhibit B.6.1. Survey design summary

Survey design	Information
Sample	• Providers who were actively operating and serving California communities. • Providers who were currently licensed by the California Department of Public Health (CDPH) and/or a current U.S. Department of Health and Human Services' Centers for Medicare & Medicaid Services (CMS) certification (as appropriate for the types of services they provide). • Providers who primarily serve clients ages 18 or older. • Providers who serve clients who live in home or community-based settings. • Providers who listed a valid administrator, representative, or company contact email.
Field period duration	6 weeks (12/4/2023 – 1/16/2024)
Sampling strategy	Non-probability sampling
Response rate	9.96% (*n* = 1,971) of eligible providers (qualified sample size, *n* = 19,798)
Mode	Self-administered, Confirmit web survey hosted by Mathematica
Language	English only
Average survey length	~10 minutes
Number of questions	20 questions (14 primary questions, 6 follow-up questions)
Incentive	$0

Survey questions were designed to obtain missing information in the current Medi-Cal provider data sources related to the number of professional and non-professional staff providing HCBS to have a more complete and accurate understanding of provider capacity to serve Medi-Cal beneficiaries who need HCBS. The survey contained 20 questions. The majority of questions (14 questions) were universally relevant to all provider types. For any question not relevant to a provider based on the type of provider or their answer to a gate-keeping question (6 questions), skip logic was utilized to decrease burden. See the full survey

B. Data collection and recruitment

The self-administered, web-based survey launched on December 4th, 2023, and closed on January 16th, 2024, for 6 weeks in the field. The survey took respondents an average of 10 minutes and 33 seconds to complete.

1. Recruitment

Using the provider lists procured for the task, Mathematica contacted the listed provider administrator or representative via email. We sent one invitation email and four follow-up email reminders over the duration of the field period (Exhibit B.6.2). Each email was addressed to the provider's name and contained a unique direct URL which enabled the listed contact to click a hyperlink and enter the survey without logging in. The invitation email explained who Mathematica is, our relationship with DHCS and the project, the purpose of the survey, and included an attached letter of support signed by officials from DHCS, CDPH, and the California Department of Aging (CDA) on official DHCS letterhead stating their support for the survey and the Gap Analysis Initiative. Because we could only accept one response per agency, we encouraged provider leaders to discuss their responses to the questions together, using a PDF version of the survey for reference.

Exhibit B.6.2. Weekly fielding communications schedule

Field period week	Type of communication
Week 1	Invitation email with provider specific URL, ID, and password. Attachments: DHCS invitation letter and PDF version of survey
Week 2	Email reminder #1 with provider specific URL, ID, and password
Week 3	Email reminder #2 with provider specific URL, ID, and password.
Week 4	No communication
Week 5	Email reminder #3 with provider specific URL, ID, and password.
Week 6	Email reminder #4 with provider specific URL, ID, and password.
Week 7	Close survey

C. Sample and data cleaning

To ensure the survey targeted California agencies administrators or representatives who serve Medi-Cal clients in specific HCBS programs (Exhibit B.6.3), we used the following sample inclusion criteria:

- Providers who were actively operating and serving California communities.
- Providers who were currently licensed by the CDPH and/or a current U.S. Department of Health and Human Services' Centers for Medicare & Medicaid Services (CMS) certification (as appropriate for the types of services they provide).
- Providers who serve clients ages 18 or older.
- Providers who serve clients who live in home or community-based settings, specifically; HCBA, Adult day health/CBAS, CCT, HHA, PCA, CCA, MSSP, RCFE, and ARF locations.
- Providers who listed a valid administrator, representative, or company contact email.

Exhibit B.6.3 Inclusion and data sources by provider type

Provider type	Data Source(s)
Included	
ARF locations	• ISCD Enrolled Providers List via provider dataset • Open data portal: – Adult Residential Facilities dataset • ARF Licensing Status dataset
HCBA	• DHCS provided Regional- or county-level waiver agencies dataset
Adult day health/ CBAS	• ISCD Enrolled Providers List via provider dataset • DHCS provided CBAS provider dataset • Open data portals: – CDPH Licensed and Certified Healthcare Facility Locations dataset – Adult Residential Facilities dataset – ARF Licensing Status dataset
CCA	• ISCD Enrolled Providers List via provider dataset • Open data portal: – ALW Care Coordination Agencies dataset
CCT	• DHCS provided CCT Roster
HHA	• ISCD Enrolled Providers List via provider dataset • DHCS provided EVV HHA provider dataset • Open data portal: – CDPH Licensed and Certified Healthcare Facility Locations dataset – Home Care dataset
MSSP	• DHCS provided MSSP Roster dataset
PCA	• ISCD Enrolled Providers List via provider dataset • DHCS provided Personal Care Agencies dataset • Open data portal: – Home Care dataset
RCFE	• ISCD Enrolled Providers List via provider dataset • Open data portal: – Residential Elder Care Facility dataset – RCFE_Licence Status dataset
Excluded	
County-level IHSS employer of record	
Child care home (more than 8 children)	
Pediatric day health & respite care facility	
HCBA Benefit Providers	
Providers in managed care network data	
SNF	
CLHF	
LTC facility	

Provider type	Data Source(s)
ARFPSHN	
INP	
Intermediate care facility or Intermediate care facility (DD/H/N/CN/IID)	

ALW = Assisted Living Waiver; ARF = Adult Residential Facility; ARFPSHN = Adult Residential Facility for Persons with Special Health Care Needs; CBAS = Community-Based Adult Services; CCA = Care Coordination Agencies; CDPH = California Department of Public Health; CLHF = congregate living health facilities; DD = developmentally disabled; DHCS = California Department of Health Care Services; HCBA = Home and Community-Based Alternatives; HHA = home health agency; IHSS = In-Home Supportive Services; INP = individual nurse provider; ISCD = integrated systems of care division; LTC = long-term care; MSSP = Multipurpose Senior Services Program; PCA = personal care agencies; RCFE = Residential Care Facilities for the Elderly; SNF = skilled nursing facility

1. Sample size

Based on the criteria outlined above, 20,527 providers were deemed initially eligible for the survey and were sent an invitation email (see Exhibit B.6.4 for a summary by provider type).

Exhibit B.6.4. Sample size by provider type

Provider type	Initial sample size	Post-fielding sample size
HCBA	17 (0.08%)	17 (0.09%)
CBAS	1,213 (5.91%)	1,151 (5.81%)
CCT	17 (0.08%)	15 (0.08%)
HHA	3,531 (17.20%)	3,442 (17.39%)
PCA	2,057 (10.02%)	1,984 (10.02%)
CCA	28 (0.14%)	27 (0.14%)
MSSP	35 (0.17%)	34 (0.17%)
RCFE-ARF	13,629 (66.40%)	13,128 (66.31%)
Total	**20,527**	**19,798**

2. Post-fielding sample cleaning

Once fielding closed, Mathematica prepared the file for analysis. Prior to fielding, we observed notable inconsistencies in key variables (for example, email addresses, physical addresses, facility closure information, provider type) within the sample, so we reviewed the sample using survey responses and found 730 providers that did not meet the sample inclusion criteria.[10] These agencies were removed from the sample, and the remaining 19,798 providers were deemed qualified to participate.

[10] Specifically, 704 agencies were found to have invalid emails (for example, email delivery failed, no backup email was available in the sample or in the return message) and 25 providers were deemed ineligible through email communications with the administrator (for example, the site was closed, or they told us they did not accept Medi-Cal). Through our Confirmit programming software, we were able to determine that 98.28 percent (n = 19,456) of the emails were valid, while 1.72 percent (n = 341) were of an unknown validity, that is, the receiving server did not provide a response that indicated the status of the email (for example, sent, delivery failure). However, the email's validity does not indicate that it was received as several administrators reported that our communication emails were blocked or sent to spam by their internal IT filters. These issues could have contributed to the survey's low response rate.

3. Data file cleaning

Following best practices, we examined the survey data to determine eligibility, refusal, open-ended responses, out-of-bound responses, and skip pattern errors.

Defining complete. To determine which cases should be considered for analysis, we defined what constituted a *complete*. Using predetermined survey logic and the inclusion criteria outlined above, we used the following logic to determine if a case was a *complete*: (1) the respondent completed, at minimum section B (completed section B, Communities and Clients Served only, *n* = 162; completed section C, Staffing Needs only, *n* = 44; true completes, *n* = 1,765), and (2) the respondent did not refuse participation by emailing or unsubscribing to Mathematica communication. This process resulted in 17,827 ineligible cases (refusals, *n* = 130; partial completes, *n* = 414; not started, *n* = 17,283). We coded 1,971 cases as *complete* and used them for the analysis.

Recoding provider type. To ensure all reported provider types were accounted for (question Z2a), we reviewed all open-ended responses reported, that is, the participant selected 'other' and wrote a response within the open text field. Within completed cases, 89 responses reported an open-ended response. Based on the information provided, 46 cases were back-coded so that the write-in response was accounted for within the set categorical response option (Exhibit B.6.5). That is, *other* was reset to 0 and the corresponding answer choice, for example CBAS, was given a value of 1 when it was previously 0. If the corresponding answer choice was already selected, that is it had a value of 1, no changes were made to its value. Answer options were not back-coded when the write-in answer was not meaningful to the analysis or did not match an eligible provider type (for example, a skilled nursing facility).

Exhibit B.6.5. Provider type back-coding

New provider type	Number of cases back-coded
HCBA	0
CBAS	38
CCT	0
HHA	0
PCA	0
CCA	3
MSSP	0
RCFE	4
ARF	1
Total	**46**

Coding provider service type. Respondents were asked to report all provider types located at the address (question Z2a) and could select multiple provider types from a set list which included a variety of provider types who deliver and a wide range of services. Due to the differences of some of these provider types, not all were not comparable; Therefore, it was essential that we organize the results to compare similar provider types at the provider type level and the provider service level (Exhibit B.6.6). For respondents who reported more than one type of service (*n* = 36), we could not determine how many staff, clients, or services are specific to each service or provider type, as they were not asked to separately

report numbers for each program/provider. This grouping method removes the need to count responses for these providers twice, which would artificially inflate the total counts.

Exhibit B.6.6. Provider service type coding

Provider service category	Provider types included
Waiver management only	Respondent selected only one of the following waivers: CCT, CCA, MSSP, HCBA Respondent selected more than one waiver: Manage multiple waivers
Direct care services only	Respondent selected only one of the following services: CBAS, HHA, PCA Respondent selected more than one service: Multiple direct care services
Residential setting only	Respondent selected one or more of the following living settings: RCFE, ARF
Direct care services and waiver management	Respondent selected at least one provider type from both direct care services (CBAS, HHA, PCA) and waiver management (CCT, CCA, MSSP, HCBA)
Direct care services and residential setting	Respondent selected at least one provider type from both direct care services (CBAS, HHA, PCA) and residential setting (RCFE, ARF)

Recoding county. County (question B1) was deemed a high priority question; thus, we reviewed all cases to ensure this information was complete and found 36 cases were missing the county the provider served. We used the provider's address (either the confirmed or respondent updated address in question Z1) to determine the county they were physically located in, then back-coded B1 with this answer. It is possible that the provider may serve more than just the county in which they are located, therefore, we may be undercounting the number of providers serving various areas.

Coding region. Respondents were asked to report all California counties they serve at the listed address (question Z1) and could select multiple counties provider types from a set list. A majority of providers indicated that they only provided services in the county in which they were located (82.04%, n = 1,617); however, 17.96% (n = 354) reported serving multiple counties. To simplify the results, we recoded counties into ten regions (Exhibit B.6.7).

Exhibit B.6.7. Region coding

Region category	Counties included
Superior California	Butte, Colusa, El Dorado, Glenn, Lassen, Modoc, Nevada, Placer, Plumas, Sacramento, Shasta, Sierra, Siskiyou, Sutter, Tehama, Yolo, Yuba
North Coast	Del Norte, Humboldt, Lake, Mendocino, Napa, Sonoma, Trinity
San Francisco Bay Area	Alameda, Contra Costa, Marin, San Francisco, San Mateo, Santa Clara, Solano
Northern San Joaquin Valley	Alpine, Amador, Calaveras, Madera, Mariposa, Merced, Mono, San Joaquin, Stanislaus, Tuolumne
Central Coast	Monterey, San Benito, San Luis Obispo, Santa Barbara, Santa Cruz, Ventura
Southern San Joaquin Valley	Fresno, Inyo, Kern, Kings, Tulare
Inland Empire	Riverside, San Bernardino
Los Angeles County	Los Angeles
Orange County	Orange
San Diego-Imperial	Imperial, San Diego

Coding rurality. We classified rurality according to the county type designations used in CMS's network adequacy assessment, 42 CFR 422.116(c),[11] where each county's rurality is classified into one of the five types (large metro, metro, micro, rural or counties with extreme access considerations (CEAC)) using county population size and density. The five types could then be combined into urban (large metro or metro), suburban (micro), and rural (rural or CEAC).

Recoding staff. Respondents were asked a wide variety of questions about the number and type of staff employed, and open positions, located or associated with the reported address (questions A1 and C1). For the purposes of this survey, we asked respondents about staff who provided direct client care, that is, those who provide health care services or assistance in performing daily living activities directly to clients in person, or who conduct assessments and provide care management services. Due to the wide range of services offered by respondents, we grouped similar staff types into staff categories (Exhibit B.6.8).

Exhibit B.6.8. Staff coding

Staff category	Staff types included
Direct care provider services	Attendant Care Provider, Home Health Assistant, Homemaker Provider, Personal Care Service Worker
Nursing and medical services	Nurse's Aide, Licensed Vocational Nurse, Medical Assistant, Nutrition Services Aide
Therapy and rehabilitation services	Occupational Therapist, Occupational Therapist Aide, Occupational Therapist Assistant, Physical Therapist, Physical Therapist Aide, Physical Therapist Assistant, Rehabilitation Aide, Speech Language Pathologist, Speech Language Pathologist Aide
Social work and case management services	Social Work Case Manager, Social Worker Aide, Social Worker Assistant, Supervising Care Manager, Nurse Care or Case Manager

Recoding language. Respondents were asked to report which languages at least one direct care staff member spoke (question A2). For this analysis and to simplify the results, we condensed the languages into eight categories (Exhibit B.6.9).

Exhibit B.6.9. Language coding

Language category	Languages included
Armenian	Armenian
Chinese languages	Mandarin and other Chinese languages
English	English
Farsi	Farsi
Korean	Korean
Spanish	Spanish
Vietnamese	Vietnamese
Other	American Sign Language, Arabic, Cambodian, French, Hebrew, Hindi, Ilacano, Italian, Japanese, Khmer, Lao, Other sign language, Polish, Portuguese, Punjabi, Russian, Samoan, Tagalog (including Filipino), Thai, Turkish, Mien, Hmong, Other

[11] https://www.ecfr.gov/current/title-42/chapter-IV/subchapter-B/part-422/subpart-C/section-422.116

D. Results

Of the 19,798 providers that were deemed qualified to complete the survey, 12.7 percent opened the survey but did not complete it (*n* = 2,515) and 10 percent completed the survey (*n* = 1,971). Descriptive statistics were used to analyze the responses. Data were expressed as absolute number of respondents and percentage of total, or mean ± standard deviation, where appropriate. We did not weight or otherwise adjust the results.

Of the 1,971 providers who responded to the survey, 29 (1.5 percent) only provided waiver case management services, 448 (22.7 percent) only provided direct care services, and 1,484 (74.3 percent) only provided residential care services only within their licensed facility to older adults or adults under age 65 with disabilities (Table V.1). Ten providers (0.01 percent) in the total sample provided more than one of these service types.

Detailed results are shown in Exhibits B.6. 10 –19. All results are column percentages unless otherwise noted. Summaries and discussion of the results can be found in Chapter IV of the accompanying report.

Exhibit B.6.10. Counts by HCBS provider group

Provider group	Waiver management only							Direct care services only						Residential settings only	
Provider type	CCT	CCA	MSSP	HCBA	Manage multiple waivers [a]	Total	Direct care services and waiver management	CBAS	HHA	PCA	Provides multiple direct care services [b]	Total	Direct care services and residential settings	RCFE-ARF	Overall total
Total (%)	1 (0.05)	5 (0.25)	8 (0.41)	10 (0.51)	5 (0.25)	29 (1.50)	6 (0.30)	166 (8.42)	120 (6.09)	141 (7.15)	21 (1.07)	448 (22.7)	4 (0.20)	1484 (75.29)	1971

[a] Majority of providers are both CCA and MSSP

[b] Majority of providers are both HHA and PCA

CBAS = Adult Day Health/ Community-Based Adult Services; CCA = Care Coordination Agencies; CCT = California Community Transitions; HCBA = Home and Community-Based Alternatives; HHA = Home Health Agency; MSSP = Multipurpose Senior Services Program; PCA = Personal Care Agencies; RCFE-ARF = Residential Care for the Elderly or Adult Residential Facility Locations.

1. Current staffing

Exhibit B.6.11. Individual current full-time staffing by HCBS provider group

Provider group	Waiver management only						Direct care services and waiver management	Direct care services only					Direct care services and residential settings	Residential settings only	Overall
Provider type	CCT	CCA	MSSP	HCBA	Manage multiple waivers	Total		CBAS	HHA	PCA	Provides multiple direct care services	Total		RCFE-ARF	
Direct care provider services															
Total (%)	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	150 (69.12)	1230 (58.07)	214 (12.31)	2053 (89.96)	286 (30.52)	3783	31 (32.63)	8966 (77.53)	12930 (67.40)
Average	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	25	7.41	1.78	14.56	13.62	8.44	7.75	6.04	6.35
Nursing and medical services															
Total (%)	n.a.	1 (3.45)	n.a.	n.a.	n.a.	1	7 (3.23)	156 (7.37)	616 (35.44)	51 (2.23)	183 (19.53)	1006	10 (10.53)	1031 (8.92)	2055 (10.71)
Average	n.a.	0.2	n.a.	n.a.	n.a.	0.03	1.17	0.94	5.13	0.36	8.71	2.25	2.5	0.69	1.64
Therapy and rehabilitation services															
Total (%)	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	3 (1.38)	222 (10.48)	385 (22.15)	1 (0.04)	220 (23.48)	828	4 (4.21)	91 (0.79)	926 (4.83)
Average	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	0.5	1.34	3.21	0.01	10.48	1.85	1	0.06	1.38
Social work and case management services															
Total (%)	8 (100.0)	28 (96.55)	74 (100.0)	8 (100.0)	113 (100.0)	231	57 (26.27)	510 (24.08)	523 (30.09)	177 (7.76)	248 (26.47)	1458	50 (52.63)	1476 (12.76)	3272 (17.06)
Average	8	5.6	9.25	0.8	22.6	7.97	9.5	3.07	4.36	1.26	11.81	3.25	12.5	0.99	7.48
Overall full-time staffing															
Total	8	29	74	8	113	232	217	2118	1738	2282	937	7075	95	11564	19183
Average	8	5.80	9.25	0.80	22.60	9.29	36.17	12.76	14.48	16.18	44.62	22.01	23.75	7.79	16.85

Note: Cells marked as "S" in the table represent that the member counts were not shown for counts less than 11 (1-10) to protect confidentiality in accordance with the DHCS DDG v2.2.

CBAS = Adult Day Health/ Community-Based Adult Services; CCA = Care Coordination Agencies; CCT = California Community Transitions; HCBA = Regional or County-Level Waiver Agencies; HHA = Home Health Agency; MSSP = Multipurpose Senior Services Program; PCA = Personal Care Agencies; RCFE-ARF = Residential Care for the Elderly or Adult Residential Facility Locations; n.a. = not applicable.

Exhibit B.6.12. Individual current part-time staffing by HCBS group

Provider group	Waiver management only							Direct care services only						Residential settings only	Overall
Provider type	CCT	CCA	MSSP	HCBA	Manage multiple waivers	Total	Direct care services and waiver management	CBAS	HHA	PCA	Provider multiple direct care services	Total	Direct care services and residential settings	RCFE-ARF	
Direct care provider services															
Total (%)	n.a.	5 (11.9)	n.a.	n.a.	n.a.	5	630 (98.9)	376 (59.68)	348 (15.44)	4374 (97.16)	557 (62.03)	5655	5 (21.74)	3063 (76.86)	9358 (71.7)
Average	n.a.	1	n.a.	n.a.	n.a.	0.17	105	2.27	2.9	31.02	26.52	12.62	1.25	2.06	14.34
Nursing and medical services															
Total (%)	n.a.	3 (7.14)	n.a.	n.a.	n.a.	3	n.a.	37 (5.87)	737 (32.7)	71 (1.58)	208 (23.16)	1053	4 (17.39)	356 (8.93)	1416 (10.85)
Average	n.a.	0.6	n.a.	n.a.	n.a.	0.1	n.a.	0.22	6.14	0.5	9.9	2.35	1	0.24	1.55
Therapy and rehabilitation services															
Total (%)	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	93 (14.76)	732 (32.48)	2 (0.04)	67 (7.46)	894	0 (0.0)	121 (3.04)	1015 (7.78)
Average	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	0.56	6.1	0.01	3.19	2	0	0.08	0.83
Social work and case management services															
Total (%)	1 (100.0)	34 (80.95)	10 (100.0)	63 (100.0)	7 (100.0)	115	7 (1.10)	124 (19.68)	437 (19.39)	55 (1.22)	66 (7.35)	682	14 (60.87)	445 (11.17)	1263 (9.68)
Average	1	6.8	1.25	6.3	1.4	3.97	1.17	0.75	3.64	0.39	3.14	1.52	3.5	0.3	2.47
Overall part-time staffing															
Total	1	42	10	63	7	123	637	630	2254	4502	898	8284	23	3985	13052
Average	1	8.40	1.25	6.30	1.40	3.67	106.17	3.80	18.78	31.93	42.76	24.32	5.75	2.69	19.19

Note: Cells marked as "S" in the table represent that the member counts were not shown for counts less than 11 (1-10) to protect confidentiality in accordance with the DHCS DDG v2.2.

CBAS = Adult Day Health/ Community-Based Adult Services; CCA = Care Coordination Agencies; CCT = California Community Transitions; HCBA = Regional or County-Level Waiver Agencies; HHA = Home Health Agency; MSSP = Multipurpose Senior Services Program; PCA = Personal Care Agencies; RCFE-ARF = Residential Care for the Elderly or Adult Residential Facility Locations; n.a. = not applicable.

Exhibit B.6.13. Languages spoken by any staff by HCBS provider group

Provider group	Waiver management only						Direct care services and waiver management	Direct care services only					Direct care services and residential settings	Residential settings only	Overall
Provider type	CCT	CCA	MSSP	HCBA	Manage multiple waivers	Total		CBAS	HHA	PCA	Provider multiple direct care services	Total		RCFE-ARF	
Armenian (%)	0 (0.0)	1 (7.69)	1 (4.17)	1 (4.17)	0 (0.0)	3	1 (5.56)	8 (1.84)	29 (7.55)	7 (1.9)	3 (4.05)	47	0 (0.0)	46 (1.5)	97 (2.18)
Chinese Languages (%)	0 (0.0)	2 (15.38)	1 (4.17)	1 (4.17)	2 (11.76)	6	2 (11.11)	15 (3.45)	23 (5.99)	23 (6.23)	4 (5.41)	65	0 (0.0)	54 (1.76)	127 (2.86)
English (%)	1 (25.0)	4 (30.77)	8 (33.33)	8 (33.33)	5 (29.41)	26	5 (27.78)	153 (35.17)	103 (26.82)	121 (32.79)	21 (28.38)	398	3 (33.33)	1339 (43.54)	1771 (39.83)
Farsi (%)	1 (25.0)	0 (0.0)	0 (0.0)	1 (4.17)	0 (0.0)	2	1 (5.56)	11 (2.53)	24 (6.25)	14 (3.79)	6 (8.11)	55	0 (0.0)	29 (0.94)	87 (1.96)
Korean (%)	0 (0.0)	0 (0.0)	1 (4.17)	0 (0.0)	1 (5.88)	2	0 (0.0)	6 (1.38)	13 (3.39)	9 (2.44)	2 (2.7)	30	0 (0.0)	22 (0.72)	54 (1.21)
Spanish (%)	1 (25.0)	3 (23.08)	8 (33.33)	9 (37.5)	5 (29.41)	26	5 (27.78)	123 (28.28)	88 (22.92)	98 (26.56)	18 (24.32)	327	4 (44.44)	582 (18.93)	944 (21.23)
Vietnamese (%)	0 (0.0)	0 (0.0)	1 (4.17)	1 (4.17)	1 (5.88)	3	1 (5.56)	11 (2.53)	17 (4.43)	12 (3.25)	3 (4.05)	43	0 (0.0)	28 (0.91)	75 (1.69)
Other (%)	1 (25.0)	3 (23.08)	4 (16.67)	3 (12.5)	3 (17.65)	14	3 (16.67)	108 (24.83)	87 (22.66)	85 (23.04)	17 (22.97)	297	2 (22.22)	975 (31.71)	1291 (29.04)
Armenian (%)	0 (0.0)	1 (7.69)	1 (4.17)	1 (4.17)	0 (0.0)	3	1 (5.56)	8 (1.84)	29 (7.55)	7 (1.9)	3 (4.05)	47	0 (0.0)	46 (1.5)	97 (2.18)
Chinese Languages (%)	0 (0.0)	2 (15.38)	1 (4.17)	1 (4.17)	2 (11.76)	6	2 (11.11)	15 (3.45)	23 (5.99)	23 (6.23)	4 (5.41)	65	0 (0.0)	54 (1.76)	127 (2.86)

Note Counts represent the overall number of provider types (e.g., number of CCTs or CCAs), based on at least one staff member within the overall provider group speaking the listed language.

CBAS = Adult Day Health/ Community-Based Adult Services; CCA = Care Coordination Agencies; CCT = California Community Transitions; HCBA = Regional or County-Level Waiver Agencies; HHA = Home Health Agency; MSSP = Multipurpose Senior Services Program; PCA = Personal Care Agencies; RCFE-ARF = Residential Care for the Elderly or Adult Residential Facility Locations; n.a. = not applicable.

2. Staffing shortages

Exhibit B.6.14. Staffing shortages by HCBS provider group

Provider group	Waiver management only						Direct care services and waiver management	Direct care services only					Direct care services and residential settings	Residential settings only	Overall
Provider type	CCT	CCA	MSSP	HCBA	Manage multiple waivers	Total		CBAS	HHA	PCA	Provider multiple direct care services	Total		RCFE-ARF	
Experienced staff vacancies or shortages in the past 6 months															
Yes (%)	1 (100.0)	2 (50.0)	7 (87.5)	3 (33.33)	2 (50.0)	15 (57.69)	3 (60.0)	90 (67.16)	48 (55.17)	77 (66.38)	16 (88.89)	231 (65.07)	4 (100.0)	478 (36.41)	731 (42.92)
No (%)	0 (0.0)	2 (50.0)	1 (12.5)	6 (66.67)	2 (50.0)	11 (42.31)	2 (40.0)	44 (32.84)	39 (44.83)	39 (33.62)	2 (11.11)	124 (34.93)	0 (0.0)	835 (63.59)	972 (57.08)
Overall total	1	4	8	9	4	26	5	134	87	116	18	355	4	1313	1703
Number of unfilled staff vacancies in the past 6 months															
Total (%)[a]	3 (5.08)	6 (10.17)	15 (25.42)	18 (30.51)	17 (28.81)	59 (100.0)	20	413 (20.52)	508 (25.24)	913 (45.36)	179 (8.89)	2013 (100.0)	48 (100.0)	1179 (100.0)	3319
Average	3	3	2.14	6	8.5	3.93	10	4.64	12.1	13.04	11.19	9.28	12	2.55	7.35

[a] This is a row percent within each provider group (waiver management only, direct care services and waiver management, direct care services only, direct care services and residential settings, residential settings only).

CBAS = Adult Day Health/ Community-Based Adult Services; CCA = Care Coordination Agencies; CCT = California Community Transitions; HCBA = Regional or County-Level Waiver Agencies; HHA = Home Health Agency; MSSP = Multipurpose Senior Services Program; PCA = Personal Care Agencies; RCFE-ARF = Residential Care for the Elderly or Adult Residential Facility Locations.

Exhibit B.6.15. Vacancies by HCBS provider group

Provider group	Waiver management only						Direct care services and waiver management	Direct care services only					Direct care services and residential settings	Residential settings only	Overall
Provider type	CCT	CCA	MSSP	HCBA	Manage multiple waivers	Total		CBAS	HHA	PCA	Provider multiple direct care services	Tota		RCFE-ARF	
Overall number of employees															
Total	9	71	84	71	120	355	854	2748	3992	6784	1835	15359	118	15549	32235
Average	9	14.2	10.50	7.10	24.00	12.96	142.33	16.55	33.27	48.11	87.38	46.33	29.50	10.48	36.04
Overall number of current staff openings															
Total	3	2	8	7	10	30	120	464	796	2202	1593	5055	50	1462	6717
Average	3	0.4	1	0.7	2	1.42	20	2.8	6.63	15.62	75.86	25.23	12.5	0.99	11.79
Percentage of staff openings to current employee workforce															
Overall percentage	33.33	2.82	9.52	9.86	8.33	8.45	14.05	16.89	19.94	32.46	86.81	32.91	42.37	9.40	20.84
Average percentage	33.33	2.82	9.52	9.86	8.33	10.96	14.05	16.92	19.93	32.46	86.82	54.46	42.37	9.45	32.71

Note: Cells marked as "S" in the table represent that the member counts were not shown for counts less than 11 (1-10) to protect confidentiality in accordance with the DHCS DDG v2.2.

CBAS = Adult Day Health/ Community-Based Adult Services; CCA = Care Coordination Agencies; CCT = California Community Transitions; HCBA = Regional or County-Level Waiver Agencies; HHA = Home Health Agency; MSSP = Multipurpose Senior Services Program; PCA = Personal Care Agencies; RCFE-ARF = Residential Care for the Elderly or Adult Residential Facility Locations.

Exhibit B.6.16. Current open or unfulfilled staff positions by HCBS provider group

Provider group	Waiver management only						Direct care services and waiver management	Direct care services only					Direct care services and residential settings	Residential settings only	Overall
Provider type	CCT	CCA	MSSP	HCBA	Manage multiple waivers	Total		CBAS	HHA	PCA	Provider multiple direct care services	Total		RCFE-ARF	
Direct care provider services															
Total (%)	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	109 (90.83)	391 (84.27)	59 (7.41)	2145 (97.41)	473 (29.69)	3068	28 (56.0)	1223 (83.65)	4428 (65.92)
Average	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	18.17	2.36	0.49	15.21	22.52	6.85	7	0.82	5.55
Nursing and medical services															
Total (%)	1 (33.33)	n.a.	n.a.	n.a.	n.a.	1	4 (3.33)	22 (4.74)	500 (62.81)	17 (0.77)	255 (16.01)	794	2 (4.0)	63 (4.31)	864 (12.86)
Average	1	n.a.	n.a.	n.a.	n.a.	0.03	0.67	0.13	4.17	0.12	12.14	1.77	0.5	0.04	1.56
Therapy and rehabilitation services															
Total (%)	2 (66.67)	n.a.	n.a.	n.a.	n.a.	2	1 (0.83)	15 (3.23)	129 (16.21)	10 (0.45)	831 (52.17)	985	n.a.	38 (2.6)	1026 (15.27)
Average	2	n.a.	n.a.	n.a.	n.a.	0.07	0.17	0.09	1.08	0.07	39.57	2.2	n.a.	0.03	3.58
Social work and case management services															
Total (%)	n.a.	2 (100.0)	8 (100.0)	7 (100.0)	10 (100.0)	27	6 (5.0)	36 (7.76)	108 (13.57)	30 (1.36)	34 (2.13)	208	20 (40.0)	138 (9.44)	399 (5.94)
Average	n.a.	0.4	1	0.7	2	0.93	1	0.22	0.9	0.21	1.62	0.46	5	0.09	1.10
Overall part-time staffing															
Total	3	2	8	7	10	30	120	464	796	2202	1593	5055	50	1462	6717
Average	3	0.40	1	0.70	2.00	1.42	20.00	2.80	6.63	15.62	75.86	25.23	12.50	0.99	11.79

CBAS = Adult Day Health/ Community-Based Adult Services; CCA = Care Coordination Agencies; CCT = California Community Transitions; HCBA = Regional or County-Level Waiver Agencies; HHA = Home Health Agency; MSSP = Multipurpose Senior Services Program; PCA = Personal Care Agencies; RCFE-ARF = Residential Care for the Elderly or Adult Residential Facility Locations; n.a. = not applicable.

3. Clients served and limits on meeting service demand

Exhibit B.6.17. Clients served by HCBS provider group

Provider group	Waiver management only						Direct care services and waiver management	Direct care services only					Direct care services and residential settings	Residential settings only	Overall
Provider type	CCT	CCA	MSSP	HCBA	Manage multiple waivers	Total		CBAS	HHA	PCA	Provider multiple direct care services	Total		RCFE-ARF	
Number of individual clients served in the last 6 months															
Total (%)[a]	23 (0.11)	1265 (5.88)	1371 (6.38)	17411 (80.97)	1433 (6.66)	21503 (100.00)	1514	9518 (25.92)	15074 (41.05)	8411 (22.91)	3715 (10.12)	36718 (100.00)	120	12619	72474
Average	23	316.25	171.38	2176.38	286.6	594.72	302.8	67.03	158.67	73.78	185.75	98.97	60	9.34	319.24
Number of billable client interactions in the last 6 months [b]															
Total (%)[a]	NA	5457 (18.40)	7624 (25.71)	3490 (11.77)	13081 (44.12)	29652 (100.00)	30979	430463 (39.00)	285239 (25.84)	315147 (28.55)	73032 (6.62)	1103881 (100.00)	134	152248	1316894
Average	NA	1364.25	953	436.25	3270.25	1235.5	7744.75	3236.56	3565.49	3183.3	4868.8	3375.78	44.67	134.97	2618.39

[a] This is a row percent within each provider group (waiver management only, direct care services and waiver management, direct care services only, direct care services and residential settings, residential settings only).

[b] This was defined as client assessments, interactions, or visits completed by provider staff that could either be directly billed for or met Waiver service requirements.

CBAS = Adult Day Health/ Community-Based Adult Services; CCA = Care Coordination Agencies; CCT = California Community Transitions; HCBA = Regional or County-Level Waiver Agencies; HHA = Home Health Agency; MSSP = Multipurpose Senior Services Program; PCA = Personal Care Agencies; RCFE-ARF = Residential Care for the Elderly or Adult Residential Facility Locations; NA = not available.

Exhibit B.6.18. Underserved clients by HCBS provider group

Provider group	Waiver management only						Direct care services and waiver management	Direct care services only					Direct care services and residential settings	Residential settings only	Overall
Provider type	CCT	CCA	MSSP	HCBA	Manage multiple waivers	Total		CBAS	HHA	PCA	Provider multiple direct care services	Total		RCFE-ARF	
Number of clients unable to serve due to staff vacancies in the last 6 months [a]															
Total (%)[b]	0 (0.00)	0 (0.00)	118 (5.01)	2185 (92.74)	53 (2.25)	2356 (100.00)	167	630 (11.63)	3189 (58.86)	1213 (22.39)	386 (7.12)	5418 (100.00)	24	352	8317
Average	0	0	19.67	728.33	26.5	168.29	55.67	8.08	75.93	17.84	24.12	26.56	6	0.81	80.25
Provider maintained a client waiting list in the last 6 months															
Yes (%)	0 (0.0)	4 (100.0)	8 (100.0)	9 (100.0)	4 (100.0)	25 (96.2)	2 (40.0)	71 (54.62)	14 (16.87)	28 (24.56)	6 (33.33)	119 (34.5)	1 (33.33)	184 (14.64)	331 (20.23)
No (%)	1 (100.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	1 (3.80	3 (60.0)	59 (45.38)	69 (83.13)	86 (75.44)	12 (66.67)	226 (65.5)	2 (66.67)	1073 (85.36)	1305 (79.77)
Overall total	1	4	8	9	4	26	5	130	83	114	18	345	3	1257	1636
Number of clients currently on the waiting list															
Total (%)[b]	n.a.	1254 (47.74)	134 (5.10)	1018 (38.75)	221 (8.41)	2627 (100.00)	152	1020 (37.06)	1059 (38.48)	584 (21.22)	89 (3.23)	2752 (100.00)	30	613	6174
Average	n.a.	313.5	16.75	113.11	55.25	105.08	76	14.57	81.46	22.46	14.83	23.93	30	3.56	67.41
Average time to get off waiting list (months)															
Average	n.a.	21	7.5	4.78	5	8.28	7	6.55	5.69	2	6.33	5.46	NA	7.02	7.29

CBAS = Adult Day Health/ Community-Based Adult Services; CCA = Care Coordination Agencies; CCT = California Community Transitions; HCBA = Regional or County-Level Waiver Agencies; HHA = Home Health Agency; MSSP = Multipurpose Senior Services Program; PCA = Personal Care Agencies; RCFE-ARF = Residential Care for the Elderly or Adult Residential Facility Locations; n.a. = not applicable.

[a] For most providers, this number is very similar to the number of clients currently on the waiting list. It is likely that this number is affected by or strongly reflects the HCBS waiver waiting list.

[b] This is a row percent within each provider group (waiver management only, direct care services and waiver management, direct care services only, direct care services and residential settings, residential settings only).

Exhibit B.6.19. Medi-Cal participation by HCBS provider group

Provider group	Waiver management only						Direct care services and waiver management	Direct care services only					Direct care services and residential settings	Residential settings only	Overall
Provider type	CCT	CCA	MSSP	HCBA	Manage multiple waivers	Total		CBAS	HHA	PCA	Provider multiple direct care services	Total		RCFE-ARF	
Provider set limits on number of Medi-Cal clients that could be served in the last 6 months [a]															
Yes (%)	0 (0.0)	1 (25.0)	6 (75.0)	n.a.	0 (0.0)	7 (41.18)	2 (40.0)	2 (1.74)	11 (13.92)	6 (6.52)	6 (33.33)	25 (8.22)	1 (25.0)	81 (6.95)	116 (7.75)
No (%)	1 (100.0)	3 (75.0)	2 (25.0)	n.a.	4 (100.0)	10 (58.82)	3 (60.0)	113 (98.26)	68 (86.08)	86 (93.48)	12 (66.67)	279 (91.78)	3 (75.0)	1085 (93.05)	1380 (92.25)
California Waiver programs provider participated in the last 6 months [b]															
ALW (%)	0 (0.0)	4 (100.0)	4 (25.0)	0 (0.0)	2 (25.0)	10 (26.32)	1 (25.0)	1 (1.14)	6 (17.14)	3 (9.09)	1 (9.09)	11 (6.56)	0 (0.0)	139 (21.42)	161 (18.7)
CBAS (%)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	58 (65.91)	1 (2.86)	1 (3.03)	0 (0.0)	60 (35.93)	1 (33.33)	249 (38.37)	310 (36.0)
HCBA (%)	0 (0.0)	0 (0.0)	4 (25.0)	8 (88.89)	2 (25.0)	14 (36.84)	1 (25.0)	22 (25.0)	17 (48.57)	13 (39.39)	6 (54.55)	58 (34.73)	2 (66.67)	190 (29.28)	265 (30.78)
IHSS (%)	1 (100.0)	0 (0.0)	0 (0.0)	0 (0.0)	1 (12.5)	2 (5.26)	0 (0.0)	6 (6.82)	10 (28.57)	6 (18.18)	1 (9.09)	23 (13.77)	0 (0.0)	59 (9.09)	84 (9.76)
MSSP (%)	0 (0.0)	0 (0.0)	8 (50.0)	1 (11.11)	3 (37.5)	12 (31.58)	2 (50.0)	1 (1.14)	1 (2.86)	10 (30.3)	3 (27.27)	15 (8.98)	0 (0.0)	12 (1.85)	41 (4.76)
Total	1	4	16	9	8	38	4	88	35	33	11	167	3	649	861

[a] The pattern of responses leave researchers to believe that participants did not understand this question and therefore, answered incorrectly. For example, MSSP providers were likely referring to the number of people on waiting lists for MSSP waiver enrollment.

[b] The pattern of responses leave researchers to believe that participants did not understand this question and therefore, answered incorrectly.

CBAS = Adult Day Health/ Community-Based Adult Services; CCA = Care Coordination Agencies; CCT = California Community Transitions; HCBA = Regional or County-Level Waiver Agencies; HHA = Home Health Agency; MSSP = Multipurpose Senior Services Program; PCA = Personal Care Agencies; RCFE-ARF = Residential Care for the Elderly or Adult Residential Facility Locations; n.a. = not applicable.

Appendix C

Qualitative Data Collection and Analysis

This page has been left blank for double-sided copying.

Appendix C.1: Methods for Qualitative Interviews to Assess Barriers to HCBS Access

Mathematica conducted qualitative interviews and listening sessions to help interpret and contextualize its analysis of Medi-Cal administrative data related to gaps in access to HCBS. The findings also helped to address issues and questions raised by DHCS and stakeholders that could not be assessed through administrative data, such as various ways to measure unmet need, workforce-related challenges, and provider capacity to deliver culturally competent care. The qualitative findings will be used to develop recommendations in the Multi-year Roadmap to addressing identified gaps. See **Exhibit C.1.1** for the analytic questions and methods used to address them.

Exhibit C.1.1. Key questions and methods

Analytic questions	Methods
What factors contribute to certain types of long-term services and supports (LTSS) being limited or unavailable in various counties of California? What policy and program changes are needed to expand HCBS providers' supply and ability to improve service quality?	• Key informant interviews with DHCS staff members • Key informant interviews with provider and waiver agency representatives • Key informant interviews with managed care plans • Key informant interviews with advocacy organizations and associations

Note: Waiver agencies refer to regional or county-level waiver agencies and provider agencies refer to home health or personal care agencies.

A. Data collection

To identify drivers of gaps in services and develop program and policy solutions, we conducted key informant interviews between February and April 2024 with representatives from DHCS staff, waiver agencies, provider agencies, MCPs, and advocacy organizations and associations. The discussions focused on factors affecting access to care, such as barriers to expeditious enrollment into HCBS programs; delays in the initiation of HCBS service delivery; providers' capacity to provide person-centered care in a culturally-sensitive and linguistically-appropriate manner; obstacles to the delivery of all services and supports authorized in person-centered care plans; policies that affect equitable needs-based access to HCBS, and information sharing between providers, health plans, waiver agencies, and the state. Interviews also focused on facilitators and potential solutions to address gaps in HCBS access and these findings will be integrated into the Multi-year Roadmap.

The sections that follow describe the methods used to develop interview questions.

1. Interview topics

Mathematica created semi-structured interview guides for each respondent group in collaboration with DHCS. For each group, Mathematica tailored the questions to each group's roles and responsibilities. For example, DHCS staff were asked about state-level policy barriers, while provider agencies were asked about program-level operational barriers. **Exhibit C.2.2** summarizes each respondent groups' interview structure and **Exhibit C.2.3** lists the interview themes and topics by respondent group. As relevant, Mathematica incorporated themes learned from one group into another group's interview protocols.

Exhibit C.2.2. Interview format and number, by respondent group

Group	Format (all virtual)	Number of interviews
DHCS staff members who oversee HCBS programs	Key informant interviews (grouped by division or team at DHCS*)	3
Waiver agencies	Key informant interviews (one or two people per interview)	4
Providers and provider agencies	Key informant interviews (one or two people per interview)	7
Managed care plans	Key informant interviews (one or two people per interview per plan)	6
Advocacy groups	Key informant interviews (one or two people per interview)	6
Family caregivers (paid and unpaid)	Consumer listening sessions (eight to twelve people per session)	2
Total		**26**

*DHCS Agencies included: Integrated Systems of Care Division (ISCD), Office of Medicare Innovation and Integration (OMII), Managed Care Quality and Monitoring Division (MCQMD).

Exhibit C.2.3. Interview themes and topics, by respondent group

Theme/topic	DHCS staff	Provider agency	Waiver agency	Managed care plans	Advocacy organization	Caregiver listening sessions
Barriers to enrollment in and access to HCBS programs [with probes for disparities]	X	X	X	X	X	X
Reasons for lack of access to waiver services or long waitlists in certain counties and geographic areas	X	X	X	X	X	X
Barriers and facilitators for sharing information across HCBS stakeholders		X	X	X		
Concerns and considerations regarding the transition to managed long-term services and supports (MLTSS) for certain HCBS programs	X				X	
Facilitators or challenges related to state reporting requirements		X	X	X		
Recommendations to address unmet needs for people who cannot receive waiver services or	X	X	X	X	X	X

Theme/topic	DHCS staff	Provider agency	Waiver agency	Managed care plans	Advocacy organization	Caregiver listening sessions
are on a waitlist for services						
Recommendations for expanding provider supply and improving service quality	X	X	X	X	X	
Recommendations for expanding access to services	X	X	X	X	X	X
Awareness and use of caregiver-specific services such as respite and training						X

2. Interviews with DHCS staff

Mathematica conducted three key informant interviews with select DHCS staff members who have responsibilities for oversight and administration of HCBS programs: (1) Integrated Systems of Care Division (ISCD), (2) the Office of Medicare Innovation and Integration (OMII), and (3) the Managed Care Quality and Monitoring Division (MCQMD).

3. Interviews with representatives from provider agencies

Mathematica conducted key informant interviews with seven provider agencies participating in a variety of waivers and programs: home health agencies, personal care agencies, care coordination agencies, adult residential facilities, and CLHFs. Mathematica identified the majority of the provider interviewees through the DHCS California Home Care Provider Survey that was fielded from December 4, 2023, through January 12, 2024. When applicable, survey results were also used to tailor the interview guide to each provider agency interviewed.

Sample selection

Mathematica reviewed results from the DHCS California Home Care Provider Survey and selected provider agencies based on the following criteria.

1. Agencies that met the criteria for the DHCS California Home Care Provider Survey (see Appendix B.6 for the qualifying criteria). Respondents to the provider survey could indicate their willingness to participate in interviews, so we started with those who have indicated such willingness.
2. Agencies and caregivers who primarily serve clients living in community settings (such as home health agencies, employers of record for people self-directing services under the In-Home Supportive Services (IHSS) Program, IHSS providers, personal care agencies, and family caregivers).
3. Geographic region (rural, urban/suburban) was further used to stratify sample selection.

4. Agencies who reported at least 20 percent of their clients were Medi-Cal recipients.[12]
5. Agencies that provided a range of HCBS programs and through a range of waivers.
6. Agencies that indicated that they had staff vacancies during the past 6 months and/or that they had to place a limit on the number of Medi-Cal clients they could serve due to staffing shortages.

High-level characteristics about interviewed provider agencies are summarized in **Exhibit C.2.4.** One agency was eligible for the survey and met interview inclusion criteria, but missed the survey submission window and was identified after the survey concluded.

Mathematica also selected two CLHFs that participate in the HCBA waiver program. CLHFs were chosen to represent a geographically diverse sample from other HCBA program participants who were selected through the survey. The two CLHFs did not participate in the provider survey.

Exhibit C.2.4. Provider agency interviewee characteristics

Agency types represented	Counties served	HCBS waiver and program participation
• Adult residential facility • California community transitions • Care coordination agency • CLHF[a] • Home care agency • Home health agency • Personal care agency • Residential care facility for the elderly	Alameda, Contra Costa, Del Norte, Fresno, Humbolt, Imperial, Kern, Lassen, Los Angeles, Marin, Modoc, Napa, Orange, Riverside, San Bernardino, San Diego, San Francisco, San Mateo, Santa Barbara, Santa Clara, Shasta, Siskiyou, Tehama, Tulare, Yolo	MCWP, ALW, CBAS, HCBA, IHSS, MSSP

[a] Identified using DHCS' list of CLHFs participating in the HCBA waiver program, that was last updated in November 2023.

ALW = Assisted Living Waiver; CBAS = Community-Based Adult Services; CLHF = congregate living health facility; HCBA = Home and Community-Based Alternatives waiver; IHSS = In-Home Supportive Services; MCWP = Medi-Cal Waiver Program; MSSP = Multipurpose Senior Services Program

4. Interviews with representatives from waiver agencies

Mathematica conducted key informant interviews with four regional or county-level waiver agencies. Mathematica identified most interviewees through the DHCS California Home Care Provider Survey that was fielded from December 4, 2023, through January 12, 2024. Survey results were also used to tailor the interview guide to each provider agency interviewed.

Sample selection

Mathematica reviewed results from the DHCS California Home Care Provider Survey and selected waiver agencies based on the same criteria in the provider sample selection section above. High-level characteristics about interviewed waiver agencies are summarized in **Exhibit C.2.5**. One PACE organization was eligible for the survey and met interview inclusion criteria, but missed the survey submission window and was identified after the survey concluded.

[12] According to Definitive Health Care, the average payer mix in California is about 20 percent Medi-Cal. See https://www.definitivehc.com/resources/healthcare-insights/hospital-payor-mix-state.

Exhibit C.2.5. Waiver agency interviewee characteristics

Agency types represented	Counties served	HCBS program participation
• PACE Organization[a] • Regional or county-level waiver agency	Contra Costa, El Dorado, Fresno, Humboldt, Kern, Madera, Merced, Monterey, Nevada, Placer, Sacramento, San Francisco, San Joaquin, San Mateo, Sierra, Sonoma, Stanislas, Sutter, Tulare, Ventura, Yolo, Yuba	HCBA, IHSS, MSSP, PACE

[a] The PACE Organization did not complete the provider survey but was selected as an additional interviewee to represent a broader range of waiver agencies and geographic areas.

HCBA = Home and Community-Based Alternatives waiver; IHSS = In-Home Supportive Services; MSSP = Multipurpose Senior Services Program; PACE = Program of All-Inclusive Care for the Elderly

5. Interviews with representatives from managed care plans

Mathematica conducted key informant interviews with six MCPs, selecting a combination of county organized health systems (COHS) and commercial networks.

Recruitment

We recruited participants from the Medi-Cal Managed Care Health Plan Directory. Mathematica interviewed the six MCPs identified in **Exhibit C.2.6**. MCPs were selected to represent both county-organized health systems (COHS) and commercial networks as well as a range of geographic regions, including both rural and urban areas.

Exhibit C.2.6. MCP interviewee characteristics

MCP types represented	Counties served
• COHS[a] • Non-COHs • Commercial networks	Butte, Calaveras, Colusa, Del Norte, Glenn, Humboldt, Inyo, Lake, Lassen, Los Angeles, Marin, Mariposa, Mendocino, Modoc, Mono, Napa, Nevada, Placer, Plumas, Sacramento, San Diego, San Joaquin, San Mateo, Shasta, Sierra, Siskiyou, Solano, Sonoma, Stanislaus, Sutter, Tehama, Trinity, Tulare, Tuolumne, Ventura, Yolo, Yuba

[a] COHS were identified using DHCS' list of Medi-Cal MCP COH providers, that was last updated in December 2023.

COHS = county organized health system

6. Interviews with advocacy organizations

Mathematica conducted six interviews with organizations who advocate for individuals who provide direct care as well as the Medi-Cal beneficiaries they serve.

Recruitment

In collaboration with DHCS, Mathematica identified and conducted interviews with the following advocacy organizations: 1) Bet Tzedek, 2) California Advocates for Nursing Home Reform (CANHR), 3) California Health Care Foundation, 4) Disability Rights California, 5) Justice in Aging, and 6) Service Employment International Union (SEIU).

The full set of interview protocols is available

B. Data analysis

Following the interviews, Mathematica used the qualitative data analysis program, NVivo, to deductively and inductively code key themes, corresponding to the analytic questions, in the interview transcripts. The themes were aggregated into a codebook that was iteratively built upon coding a select subset of interviews. All coded themes in each transcript were reviewed at least twice by the research team for intercoder agreement and alignment. Mathematica then extracted the major themes to inform the quantitative findings and identify root causes of critical gaps in the gap analysis report.

Appendix C.2: Methods for Stakeholder and Consumer Listening Sessions to Assess Barriers in HCBS Access

The Center for Health Care Strategies (CHCS), a partner to Mathematica, led the stakeholder and consumer engagement portion of the Gap Analysis, including stakeholder meetings and listening sessions with consumers.

This section describes the methods used to gather, analyze, and summarize feedback from the various stakeholder and consumer engagement activities that informed the findings presented in this Report.

A. Stakeholder engagement

1. Purpose

CHCS conducted stakeholder engagement activities between January 2023 through March 2024 to gather input and feedback to shape and inform the DHCS Gap Analysis and Multi-Year Roadmap. In all, 946 stakeholders were engaged over this timeframe.

2. Recruitment and participation

CHCS, Mathematica, and DHCS worked in partnership to develop a main stakeholder listserv with contact information for all relevant internal departments and existing policy groups/boards/bodies. The project has a dedicated email address (HCBSGapAnalysis@dhcs.ca.gov) where stakeholders/members of the public are welcome to ask questions or make comments about DHCS HCBS Gap Analysis and Multi-Year Roadmap project, as well as request to be added to the stakeholder listserv. To inform stakeholders about upcoming public meetings, dates, times, and agendas were posted on DHCS' website at least three months in advance, and email invitations (including a registration link) were sent to the stakeholder listserv at least six weeks in advance. For existing stakeholder meetings with regularly scheduled monthly or quarterly meetings, CHCS reached out to meeting coordinators and requested time on agendas at least one month in advance.

3. Stakeholder sessions

CHCS conducted a variety of engagement activities to gather feedback from stakeholders, including: 1) large, public stakeholder meetings with comment open to the public; 2) quarterly updates with existing stakeholder workgroups/advisory committees, and 30) small group consultations with stakeholders and advocates. See **Exhibit C.2.1** for details.

Exhibit C.2.1. Stakeholder and consumer engagement activities (January 2023–March 2024)

Engagement activity	Meeting type and date	Number of attendees
Large bi-annual public updates with comment open to the public	• Public Stakeholder Engagement Meeting #1 (January 2023) • Public Stakeholder Engagement Meeting #2 (July 2023) • Public Stakeholder Engagement Meeting #3 (January 2024)	258 218 254
Quarterly updates with comment for existing stakeholder workgroups/advisory committees	• Joint meeting with CDA and DHCS Advisory Committees (June 2023)	Approximately 200
Small group consultations with individuals or groups identified by DHCS to solicit feedback in response to specific questions	• DHCS Small Group Consultation with advocates (May 2023) • Small Group Consultation with parents of children with special health needs (March 2024)	16
Total		**946 Stakeholders**

Updates and progress reports on the DHCS HCBS Gap Analysis and Multi-Year Roadmap project were provided at stakeholder meetings throughout this timeframe, including quarterly (to align with key stakeholder groups' existing meeting cadence), bi-annually to include the public, and on an ad hoc basis. In all cases, ample time was given for questions, comments, and feedback on the project. For public stakeholder meetings, at least one-third of the meeting time was dedicated to public comment and questions to ensure as many participants as possible could weigh in if desired.

All stakeholder meetings were made accessible for attendees with disabilities through the following accommodations:

- Speakers provided visual descriptions of themselves;
- American Sign Language (ASL) Interpreters and Communication Access Realtime Translation (CART) Reporters were available at public stakeholder meetings;
- Participants could ask questions aloud or via the Chat function; and
- Meeting slides were formatted to meet 508 compliance.

After all stakeholder meetings, CHCS collected and reviewed meeting transcripts and Zoom Chat transcripts that were sent post-meetings and prepared them for coding.

4. Limitations

Outreach for public stakeholder meetings and quarterly updates included email and public postings on DHCS' website, however, some stakeholders may not have received notice of meetings or been able to attend. Additionally, stakeholder meetings were not representative of the totality of the population using or advocating for HCBS services in California.

B. Consumer engagement

1. Purpose

CHCS executed a subcontract with Ad Lucem Consulting to plan, convene, and analyze consumer listening sessions for the DHCS HCBS Gap Analysis and Multi-Year Roadmap project. **In all, 100 consumers were engaged between January 2023–March 2024.**

The purpose of the consumer listening sessions was to hear from Californians about their experiences accessing and using home and community-based services and any gaps or challenges with their services.

There were several inclusion criteria for the people engaged in listening sessions:

1. Aged 18 or older (Medi-Cal and non-Medi-Cal recipients)
2. Reported some impairment in Activities of Daily Living (ADL) or Independent Activities of Daily Living (IADL)
3. Used or needed HCBS
4. Caregivers of these individuals (both IHSS (paid) and unpaid, informal)

Listening session discussion guides were designed to gather information on the following to inform the Gap Analysis and Multi-Year Roadmap:

- Consumers' need for HCBS
- Consumers' use of HCBS
- Experiences and challenges in accessing HCBS and pathways to access
- Unmet needs or gaps in HCBS
- Consumers' perceptions and thoughts about the quality of HCBS
- Other topics as they emerge from the sessions

2. Recruitment and participation

A specific emphasis was placed on consumer listening session participants being as diverse as possible. Recruitment focused on ensuring participants varied in terms of HCBS need, age, geography, race/ethnicity, gender, disability, and language.

Consumer listening session participants were recruited through "host organizations," which included community-based organizations, Area Agencies on Aging, Caregiver Resource Centers, and other community organizations serving older adults and individuals with disabilities. CHCS and Ad Lucem Consulting sought out host organizations that served the target populations (e.g., IHSS providers, informal caregivers, Medi-Cal recipients receiving HCBS) and held initial phone calls to describe the goals of the listening session, the target population, examples of discussion questions, and the process for recruiting and convening the listening session. For scheduling, host organizations recommended dates and one was chosen after comparing schedules with Ad Lucem and listening session facilitators. Recruitment for listening sessions was conducted by host organizations. Strategies for recruitment varied but was typically

done by emailing out and posting flyers announcing the listening session date and time, or through personal outreach to individuals the host organization thought could be interested in participating. Host organizations each received $2,000 to compensate their time and effort in recruiting listening session participants.

3. Data collection

Host organizations helped all consumer listening session participants complete a brief survey to capture key data about the participants and their care. The following demographic and descriptive variables were included:

- Type of HCBS services used in the last six months
- Age
- Gender
- Race/ethnicity
- Sexual orientation
- Health insurance coverage

4. Consumer listening session details

All listening sessions lasted one hour and were hosted virtually via Zoom. Two facilitators joined each listening session and used a predetermined discussion guide which asked questions about the HCBS they received in their homes, services they needed but didn't receive, any disparities they may have experienced based on their gender/age/race/ethnicity/language/sexual orientation/gender identity, and what they wish they could improve in the HCBS system. All listening session participants received a $100 Visa gift card by mail approximately one week after the session concluded. In total, about 100 people participated across the listening sessions.

Consumer listening sessions were audio recorded and professionally transcribed. Transcripts from listening sessions conducted in Mandarin, Cantonese, and Spanish were translated into English.

Exhibit C.2.2 provides details on the consumer listening session dates, locations, populations of focus for recruitment, and the languages in which they were conducted.

Exhibit C.2.2. Consumer listening session dates, locations, populations, and languages

Location/date	Host organization	Population	Language
Imperial County June 22, 2023	Access to Independence of San Diego (AISD)	Adults 18+ with disabilities and caregivers/personal attendants, Medi-Cal recipients	Spanish
San Mateo County June 29, 2023	Self-Help for the Elderly	Adults 65+ and caregivers/personal attendants, non-Medi-Cal recipients	Cantonese
Salinas County July 7, 2023	Alliance on Aging and Active Seniors	Adults 65+ and caregivers/personal attendance, Medi-Cal and non-Medi-Cal recipients	Spanish
Fresno/Madera Counties	Fresno-Madera Agency on Aging	Adults 65+, non-Medi-Cal recipients	English

Location/date	Host organization	Population	Language
August 24, 2023			
San Joaquin County August 29, 2023	California In-Home Supportive Services Consumer Alliance (CICA)	Adults 18-64, Medi-Cal recipients, In-Home Supportive Services (IHSS) recipients	English
Los Angeles County September 9, 2023	Chinese Parents for the Disabled (CPAD)	Caregivers (parents) of adult children 18+ with disabilities	Mandarin
Statewide January 25, 2024	CICA	Adults 18-64, Medi-Cal recipients, IHSS recipients	English
Greater Sacramento Region March 21, 2024	Area Agency on Aging 4	Unpaid, informal caregivers 18+ of Medi-Cal care recipients 65+; care recipients have IHSS providers or receive personal care services through other HCBS, but need additional care from unpaid, informal caregivers	English
Orange/Los Angeles/San Diego Counties March 26. 2024	Orange, Los Angeles, and San Diego Counties Caregiver Resource Centers	Unpaid, informal caregivers 18+ of non-Medi-Cal care recipients 65+ who need but are not receiving formal/paid HCBS	Spanish
Fresno County March 27. 2024	Valley Caregiver Resource Center	Unpaid, informal caregivers 18+ of non-Medi-Cal care recipients 65+ who need but are not receiving formal/paid HCBS	English

5. Limitations

The participants in the consumer listening sessions were not randomly selected. While diversity was prioritized, consumer listening session participants were not representative of the totality of the population using HCBS services in California. All the consumer listening sessions during the reporting period were virtual, thus leaving out individuals who did not have access to Zoom technology.

C. Analysis

1. Code development

In August 2023, CHCS developed a codebook for the analysis of the various stakeholder and community engagement activities. The codebook included both descriptor codes (e.g., location of session, language, type of program or service, demographics) and analytic codes (e.g., equity, provider service quality and capacity, barriers/gaps/lack of access to HCBS, unmet need, limited/unavailable services). For codes that needed to be broken down into a few components, child codes were used. For example, the code "HCBS Quality" included the following child codes: "Quality measurement," "Performance Improvement," and "Provider Quality Improvement Resources."

CHCS used Dedoose software, a web-based qualitative research tool to analyze all stakeholder input and consumer listening session input including: meeting transcripts, meeting Zoom Chats, consumer listening session transcripts, and meeting summaries. CHCS reviewed each data type and tagged relevant excerpts with a corresponding code. Two CHCS staff used the initial codebook to independently code the same two consumer listening session transcripts, and then met to compare coding results and discuss where codes were not in alignment. CHCS then revised the codebook to combine similar codes and refine all code definitions. The rest of the data were then coded using the revised codebook.

2. Analysis of consumer listening sessions

Ad Lucem Consulting recorded all listening sessions which were then transcribed. For the listening sessions that were not conducted in English, the transcripts were translated into English.

Ad Lucem Consulting used ATLAS.ti, a computer-assisted qualitative data analysis software to code and analyze consumer listening session transcripts. Ad Lucem Consulting then prepared summaries and a detailed Docudeck for the first six consumer listening sessions (June-September 2023) to summarize demographic survey data and the preliminary themes that emerged from session discussions. Codes were grouped according to themes and findings were presented in bullet form accompanied by illustrative quotes. Preparing listening session summaries and the Docudeck in this way allowed cross-cutting themes to emerge and highlighted the diverse perspectives from across sessions.

Participants' self-reported responses to demographic survey questions were analyzed in Excel to generate demographic and personal characteristic charts included in the summaries. Participants' names and personal information was kept confidential, and findings were not linked with identifiers.

This page has been left blank for double-sided copying.

References

Aging and Disability Business Institute. "Readiness Assessment." n.d. https://www.aginganddisabilitybusinessinstitute.org/assessment-tools/readiness-assessment/.

California Association of Public Authorities for In-Home Supportive Services. "Importance of Public Authorities." n.d. https://www.capaihss.org/public-authorities/roles/.

California Department of Finance. "Projections." 2024. https://dof.ca.gov/forecasting/demographics/projections/.

California DHCS. "ALW Assisted Living Facilities." Updated May 9, 2024. https://gis.dhcs.ca.gov/datasets/CADHCS::alw-assisted-living-facilities/explore?location=35.515959%2C-119.604316%2C6.99&showTable=true.

California DHCS. "Assisted Living Waiver (ALW) Program Participating Facilities." Updated January 11, 2024. https://www.dhcs.ca.gov/services/ltc/Documents/List-of-RCFE-facilities.pdf.

California DHCS. "Assisted Living Waiver Reimbursement Rates." Updated December 16, 2023. https://www.dhcs.ca.gov/services/ltc/Documents/ALW-Reimbursement-Rates-2024.pdf.

California DHCS. "California Community Transitions (CCT) Lead Organizations' Contact Information." Updated February 2024. https://www.dhcs.ca.gov/services/ltc/Documents/CCT-LO-Website-List-Feb2024.pdf.

California DHCS. "California PACE Plans." Updated January 2024. https://www.dhcs.ca.gov/individuals/Documents/California-PACE-Plans-Zip-Codes-Dec2023.pdf.

California DHCS. "Community-Based Adult Services (CBAS): Billing Codes and Reimbursement Rates." February 2023. https://mcweb.apps.prd.cammis.medi-cal.ca.gov/assets/EEC5D6FF-D097-4463-8290-52BD3F4F481B/communitycd.pdf?access_token=6UyVkRRfByXTZEWIh8j8QaYylPyP5ULO.

California DHCS. "Home and Community-Based Alternatives (HCBA) Waiver: List of Participating Congregate Living Health Facilities (CLHF)." Updated February 9, 2024. https://www.dhcs.ca.gov/services/Documents/List-of-CLHF-facilities.pdf.

California DHCS. "Home and Community-Based Services (HCBS): Billing Codes and Reimbursement Rates." May 2024. https://mcweb.apps.prd.cammis.medi-cal.ca.gov/assets/2F1C6A6A-98C6-4E83-9308-CA1BBC16669C/homecd.pdf?access_token=6UyVkRRfByXTZEWIh8j8QaYylPyP5ULO.

California DHCS. "Long-Term Services and Supports (LTSS) Dashboard Measure Specifications." Updated December 7, 2022. https://www.dhcs.ca.gov/services/Documents/LTSS-Dashboard-Metric-Measures-Specifications-030223.pdf.

California DHCS. "MCP: County Organized Health Systems (COHS)." Updated December 2023. https://mcweb.apps.prd.cammis.medi-cal.ca.gov/assets/9BF41B56-5B24-4965-96E6-9F2892DB5AC1/mcpcohs.pdf?access_token=6UyVkRRfByXTZEWIh8j8QaYylPyP5ULO.

California DHCS. "Medi-Cal Long-Term Services and Supports Dashboard." n.d. https://www.dhcs.ca.gov/dataandstats/dashboards/Pages/LTSS-Dashboard.aspx.

California DHCS. "Medi-Cal Managed Care Health Plan Directory." n.d. https://www.dhcs.ca.gov/individuals/Pages/MMCDHealthPlanDir.aspx.

California DHCS. "Multipurpose Senior Services Program (MSSP) Code Conversion – Policy Effective January 1, 2024."n.d. https://mcweb.apps.prd.cammis.medi-cal.ca.gov/assets/FEBE7E87-4454-4E23-84E3-FD31221A6EA9/mssp-code-conversion-crosswalk.pdf?access_token=6UyVkRRfByXTZEWIh8j8QaYylPyP5ULO.

California DHCS. "PATH." n.d. https://www.ca-path.com/ta-marketplace.

California Health and Human Services (CalHHS). "Community Care Licensing – Adult Residential Facility Locations." Updated March 15, 2022. https://data.chhs.ca.gov/dataset/community-care-licensing-adult-residential-facility-locations.

California Health and Human Services (CalHHS). "Community Care Licensing – Residential Elder Care Facility Locations." Updated August 25, 2022. https://data.chhs.ca.gov/dataset/community-care-licensing-residential-elder-care-facility-locations.

California Health and Human Services (CalHHS). "Licensed and Certified Healthcare Facility Listing." Updated May 30, 2024. https://data.chhs.ca.gov/dataset/healthcare-facility-locations.

Centers for Medicare & Medicaid Services (CMS). "Financial Alignment Capitate Readiness Review: New York State Fully Integrated Duals Advantage (FIDA) Readiness Review Tool." n.d. https://www.cms.gov/Medicare-Medicaid-Coordination/Medicare-and-Medicaid-Coordination/Medicare-Medicaid-Coordination-Office/FinancialAlignmentInitiative/Downloads/NYRRTool.pdf.

Centers for Medicare & Medicaid Services (CMS). "Financial Alignment Capitate Readiness Review: Virginia Readiness Review Tool." n.d. https://www.cms.gov/Medicare-Medicaid-Coordination/Medicare-and-Medicaid-Coordination/Medicare-Medicaid-Coordination-Office/FinancialAlignmentInitiative/Downloads/VARRTool.pdf.

Code of Federal Regulations. "Title 42: 442.116 Network Adequacy." January 28, 2005. https://www.ecfr.gov/current/title-42/chapter-IV/subchapter-B/part-422/subpart-C/section-422.116.

Definitive Health Care. "Hospital Payor Mix by State." April 10, 2023. https://www.definitivehc.com/resources/healthcare-insights/hospital-payor-mix-state.

Parsnip. "Logistic Regression." n.d. https://parsnip.tidymodels.org/reference/logistic_reg.html.

This page has been left blank for double-sided copying.

Mathematica Inc.

Our employee-owners work nationwide and around the world.

Find us at **mathematica.org** and **edi-global.com**.