Aggregate Public Hospital System Annual Report on California's 1115 Medicaid Waiver's Delivery System Reform Incentive Program Demonstration Year 8

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I. Introduction

California's *Bridge to Reform* (Section 1115 Medicaid Demonstration Waiver approved by Centers for Medicare & Medicaid Services (CMS) for funding from November 1, 2010 through October 31, 2015, has now completed its third of five years. The *Bridge to Reform* includes multiple components, including early coverage expansion to more than half a million low-income people through California's counties, the shift of almost all components of the Medi-Cal program from Medi-Cal fee-for-service to Medi-Cal managed care including Seniors, Persons with Disabilities and rural counties, and the *Delivery System Reform Incentive Program* (DSRIP), an incentive program to improve care delivery and patient health outcomes in 21 public health care systems (PHSs).[1] This report aggregates the 21 individual PHS reports on their activities funded through DSRIP during the period July 1, 2012 – June 30, 2013, called Demonstration Year (DY) 8.[2]

A. Overview of the Delivery System Reform Incentive Program

The DSRIP was developed within the framework of the Triple-Aim: (1) better care for individuals, (2) better health for populations, and (3) lower growth in expenditures. The purpose of the DSRIP is to support PHS capacity and initiatives to make meaningful improvements in the quality of care and the health of patients they serve. Up until 2010, PHSs had engaged in pilot improvement projects, often through the California Health Care Safety Net Institute (SNI), to enhance care for patients with chronic conditions, to improve access to primary and specialty care and to engage patients in strategies to lessen their risk of hospitalizations and reduce their usage of the emergency department. These early pilot projects, though successful, were not of the scope or scale needed to sufficiently address the imminent demands of health care reform. Therefore, the Waiver Special Terms and Conditions (STCs) specifically charged PHSs to develop five-year DSRIP plans that encompassed their entire system – outpatient, inpatient, primary, and specialty care – and commit to ambitious plans that will dramatically improve the services provided to patients. The plans were to be rooted in evidence-based medicine and in the lessons learned about successful ways to improve care in order to make PHSs more efficient, coordinated, and patient-centered.[3]

When approved in 2010, the scope of the DSRIP was unprecedented: if all PHSs meet each of their milestones, they are eligible for a total of $3.3 billion in federal incentive payments from 2010-2015. Each PHS must commit to providing the non-federal share of those incentive payments, meaning that the PHSs themselves have committed to providing more than $3 billion in matching funds.

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[1] Please see Appendix A for a list of the 21 PHSs in California. In the 2010 Section 1115 Medicaid Waiver, these entities are defined as Designated Public Hospitals (PHSs) and were referred to as such in previous Aggregate Reports.. However, due to the intensive systemic changes described in this report, "hospitals" is no longer the most accurate term – thus the usage of Public Health Care Systems (PHSs) instead of PHSs..

[2] This Demonstration Year (DY) is called DY 8 as Waiver funds build on a previous five-year waiver that covered the time period 2005-2010, and included DYs 1-5. DY 6, a part of this 1115 *Bridge to Reform* was funded from November 2010 – July 2011.

[3] Please see Waiver II-WOO 193/9, Section V(B)(c), at http://www.dhcs.ca.gov/provgovpart/Documents/Waiver%20Renewal/CA%20Special%20Terms%20%20Conditions.pdf.

CAPH member PHSs[4] were prime for participation in DSRIP because they are the center of the state's health care safety net, delivering care to more than 2.5 million Californians each year. They deliver over 10 million outpatient visits per year and operate more than half of the state's top-level trauma centers and almost half of the state's burn centers. They provide almost one third of the care provided to California's Medi-Cal population and provide nearly half of all hospital care to the state's seven million uninsured residents. Public health care systems also have large residency and training programs, with forty-three percent of new doctors in the state trained in public hospitals. Once STCs for the DSRIP were approved in 2011, California's 21 PHSs submitted 17 five-year DSRIP plans[5] outlining their intended strategies for performance improvement to the State of California's Department of Health Care Services (DHCS) and to CMS. The plans describe in detail each PHS commitment to demonstrate significant progress across four categories:

Category 1	Category 2	Category 3	Category 4	Category 5
Infrastructure Development	Innovation & Redesign	Population-Focused Improvement	Urgent Improvements in Care	HIV Transition Projects

Within each of these four broad categories, DSRIP plans require each PHS to commit to multiple, large-scale projects that will transform patient care. On average, public health care systems are carrying out 15 projects simultaneously, which span all four Categories noted above, with an average of 217 milestones per hospital system over five years. Projects in Categories 1 and 2 focus on planning, process improvements and infrastructure building, while projects in Categories 3 and 4 are designed to address population health and outcomes. The DSRIP STCs specify that PHSs should emphasize projects in Categories 1 and 2 in the earlier years of the Waiver program, and Categories 3 and 4 in later years, so that the necessary structures and processes are in place to enable improved care and outcomes. As a result, in DY 6 and DY 7, plans tend to focus on projects that lay the groundwork for important delivery system transformation. In DY 9 and 10, projects are more heavily tilted toward population health and outcomes milestones. DY 8 is the beginning of the shift from infrastructure building to demonstrating health outcomes.

The DSRIP was intentional in setting expectations that individual projects within these four categories are interconnected, and oriented toward integrated care delivery. The STCs state that while "each improvement project is distinct, all of the proposed improvement

[4]The 2010 Section 1115 Medicaid Waiver includes the 18 CAPH member PHSs and three University of California Medical Center non-CAPH member PHSs that were not historically Disproportionate Share Hospitals (DSHs) (i.e. UC Irvine, UC Davis, and UC San Diego). CAPH's membership includes all 21.

[5] California's 21 PHSs submitted 17 DSRIP plans, as some were joint plans submitted by more than one PHS. For example, Los Angeles County Department of Health Services submitted one DSRIP plan encompassing Harbor/University of California Los Angeles Medical Center, Olive View/ University of California Medical Center, and Rancho Los Amigos National Rehabilitation Center. Similarly, University of California Los Angeles Medical Center submitted one DSRIP plan encompassing University of California Los Angeles Medical Center – Ronald Regan, and University of California Los Angeles Medical Center – Santa Monica. Throughout this report, language describing 21 PHSs and/or 17 DSRIP plans will be used interchangeably to reflect full participation in DY 7.

projects are oriented to creating more integrated, coordinated delivery systems; and being an integrated delivery system allows PHS systems to more fully enact improved patient experience, population health and cost control."

To support cross-project connections, the STCs specifically require all DSRIP plans to describe how projects are related to and support the work of one another. In particular, for each Category 1 and 2 project, PHSs are required to describe how the project "supports, reinforces, enables, and is related to other projects and interventions within the PHS system plan."

The DSRIP is structured so that incentive payments are made only after a PHS reports achievement (or partial achievement) of a milestone. To measure ongoing progress, PHSs are required to submit three reports to the State for review each year (two semi-annual reports and one annual report). The reports include submission of data for each milestone, and are accompanied by a narrative description of overall project implementation progress. Together with the quantitative data, the report narratives provide insight regarding approaches taken to test, refine and improve upon specific interventions, as well as lessons learned, barriers that have been encountered, how those barriers have been addressed, and how projects have informed the modification and scaling up of other projects. Also, included in the annual report is a description of the degree to which each project contributed to the advancement of broad system reform, relevant to the patient population that was included in the PHS's DSRIP plan, and includes a section for highlighting each PHS's participation in shared learning.

After the initial formulation of the DSRIP program, a subsequent new Category 5: HIV Transition Projects was added, with two subcategories

- Category 5a – Improvements in Infrastructure and Program Design
- Category 5b – Improvements in Clinical and Operational Outcomes

Unlike the five year time frame for the first four categories, Category 5 projects are 18 months in length.

B. Purpose of This Report

DSRIP protocols require an Aggregate Annual Report documenting progress made across all 21 PHSs, summarizing metric reporting, shared learning activities, outcome data (if applicable) and system-level change supported by the DSRIP.[6] This DSRIP Aggregate Report for DY 8 was written for this purpose. As such, this report is neither an evaluation nor an audit of the DSRIP; rather, it provides aggregate-level information based on the individual PHS DSRIP reports and illustrative examples submitted to the State for the demonstration year. For more detailed information on the PHSs' next steps (i.e., milestones and report content for DYs 9 and 10), please reference individual five-year DSRIP plans for

[6] Please see Waiver II-WOO 193/9, Attachment P, Section IV(3), at http://www.dhcs.ca.gov/Documents/CA_3_17_AttachmentP_DSRIP0001.pdf.

each PHS.[7] Final results of the DSRIP program, including whether PHSs' initial goals were achieved, will be summarized in the Annual Aggregate Report for DY 10.

In addition to this introductory section, the DSRIP Aggregate Report for DY 8 includes the following sections:

- Section II describes the PHSs' reported aggregate results of milestones and progress on all projects in DY 8;
- Section III lists the multiple shared learning and innovation activities reported by the PHSs for DY 8; and
- Section IV draws general conclusions about the progress made toward system reform for DY 8.

C. About the California Health Care Safety Net Institute

The STCs require that the State must compile annual reports documenting progress made detailing system change supported by DSRIP, and may retain a non-profit entity with the necessary expertise to do so. The State selected the California Health Care Safety Net Institute (SNI) based on SNI's expertise on California PHSs' quality improvement efforts, and experience in managing quality data. Established in 1999, SNI supports California's PHSs in the development and spread of innovative strategies, and helps PHSs obtain expertise and peer support, thereby enabling them to fully achieve their potential as integrated delivery systems.[8] SNI has conducted quality improvement programs with California PHSs specifically aimed at accelerating delivery system transformation in specific areas aligned with DSRIP such as Patient Experience, Patient-Centered Medical Homes, Building Performance Improvement Capacity, Lean, and reducing hospital acquired infections such as CLABSI and Sepsis.

SNI has vast experience working with PHS quality and efficiency data, including publicly reported data. For purposes of benchmarking, trending and measuring progress toward meeting statewide public hospital system goals in quality improvement, SNI collects public health care system data on clinical, process and outcome measures.[9] SNI regularly shares this data with public health care systems and helps them analyze and interpret the data to identify opportunities for improvement.

[7] Please see http://www.dhcs.ca.gov/provgovpart/Pages/DSRIP1.aspx.
[8] For more information, please see http://www.safetynetinstitute.org.
[9] Per the Waiver Terms and Conditions, "The State, in collaboration with the participating PHS systems, may retain a non-profit entity with the necessary expertise on California public health care systems' quality improvement efforts and capacity to manage the data reports to assist in the development and management of the annual PHS aggregate progress report to be submitted to CMS." (Waiver II-WOO 193/9, Attachment P, Section IV(A)(3), at http://www.dhcs.ca.gov/Documents/CA_3_17_AttachmentP_DSRIP0001.pdf.

II. Aggregate Results of Progress

A. Executive Summary

PHS DY 8 reports describe health care systems in the midst of fundamental transformation – disrupting old ways and building new ones at the same time and revealing a huge investment in human, physical and technological infrastructure. Three years into the DISRP program, the vision of person-centered, population-based care is clarifying – "the right care at the right place at the right time." However, narratives from DSRIP reports suggest that the enormity of the task and the length of the journey to get there are also getting clearer. The DY 7 report summarized the work as "sowing seeds." In DY 8, PHSs are understanding that those seeds will grow into massive "trees," creating an entirely new ecosystem that will take years to develop and mature. To extend the metaphor and summarize PHSs' reflections of DSRIP systemic change, as of DY 8, DSRIP projects have helped public health care systems to become tender saplings taking root amidst and through the entrenched overgrowth of fragmented and inefficient care.

This Aggregate Report summarizes DY 8 progress within each of the five DSRIP Categories:

- Category 1: Infrastructure Development
- Category 2: Innovation & Redesign
- Category 3: Population-Focused Improvement
- Category 4: Urgent Improvement in Care
- Category 5: HIV Transition Projects
    - Category 5a: Improvements in Infrastructure and Program Design
    - Category 5b: Improvements in Clinical and Operational Outcomes

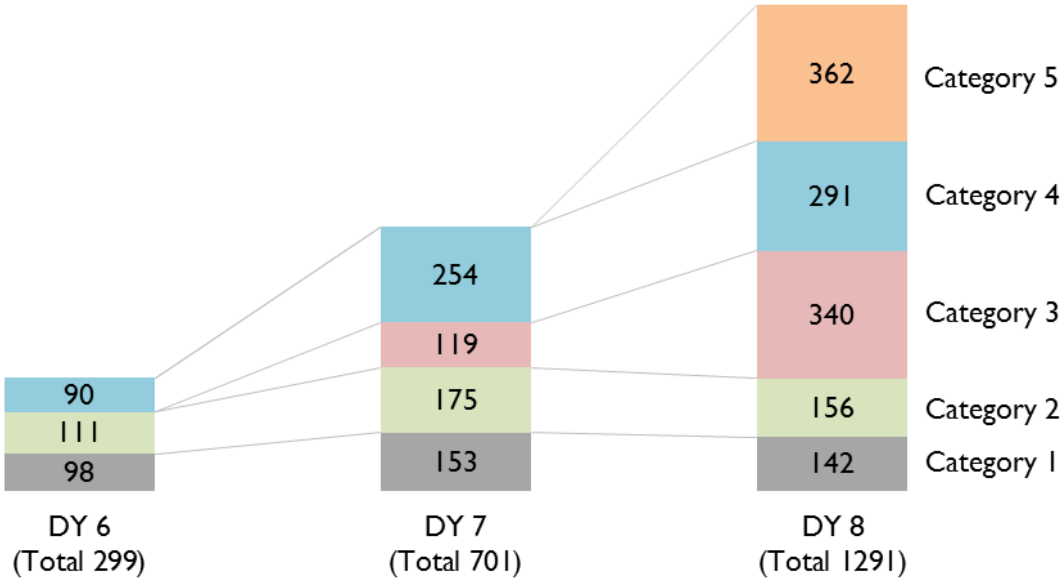
For the first four categories, the DY 8 report covers the third of five years; for the fifth category, it covers the first two of three six-month periods.

This report reveals the considerable breadth and depth of transformation activities underway in California's PHSs. In addition to the daily responsibilities of caring for the medical needs of the neediest Californians, PHS dedicated staff and financial resources towards meeting 1316 distinct milestones. In DY 8, PHSs collectively achieved 1291 milestones, 98.1% of the total.

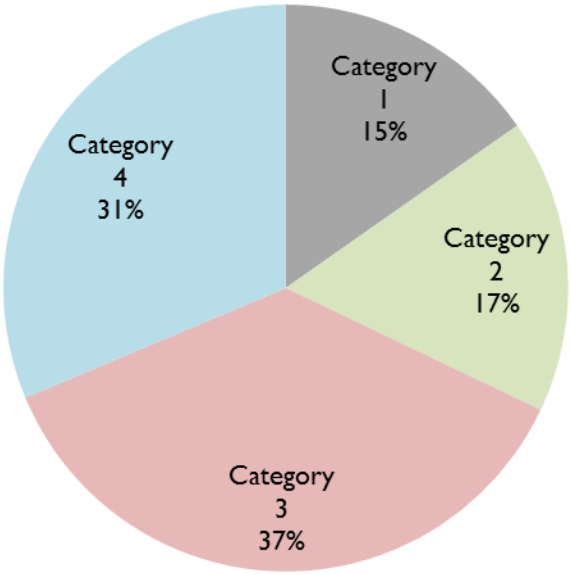
The figures below show the growth in the number of milestones undertaken during DY 8. The Category 5 milestones added to the DSRIP program certainly account for much of the growth. However, the growth pattern among the first four categories reflect the trend expected at DSRIP's formation – the number of milestones dedicated to infrastructure development and redesign (Categories 1 and 2) were greater in DSRIP's initial years, the years of "sowing seeds." In DY 8, the number of those milestones decreased and the number of milestones dedicated to reporting and improving outcomes increased substantially. The number of Category 3 milestones grew the most, as DY 8 is the first year that all PHSs reported patient experience indicators and all of the population-focused improvement measures for the first time. Categories 3 and 4 milestones now account for

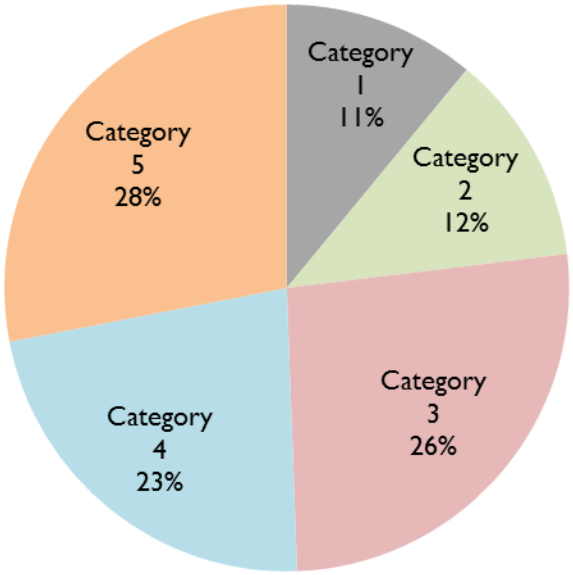
over two-thirds of all Categories 1-4 milestones, and over half of the total number of milestones.

Figure 1: Milestone Counts by DY and Category



Figures 2 and 3: Percentage of DY 8 Milestones by Category





Category 1: Infrastructure Development

PHS activity in DY8 on can be characterized as a transition from getting the foundational elements of infrastructure in place to beginning to use their capacities in a systematic fashion. As a result, the essential model of care delivery in PHS is changing from episodic, reactive patient visits and admissions to evidence-based, data-driven population health management. The investments in human, physical and disease management registry resources are beginning to produce their dividends. Thousands of staff were trained in new systems of care and expanded their own roles in those systems. PHSs not only trained and re-trained current staff, but also hired newly-needed expertise in data analysis and performance improvement. At least 40,000 primary care visits were added (10,000 more than were added in DY 7) through increasing clinic space and added clinic hours. Finally, all PHSs deepened and spread their reliance on disease management registries in their transformation to population health management. A challenge, however, is that most EHRs do not have robust registry functionality, nor readily interface with stand alone registries.

Category 2: Innovation and Redesign

Four major themes arose from PHS activities in DY 8.

First, increasing activities incorporated the patients' experience of their care, be it in asking for their feedback in surveys and focus groups, or in actively engaging chronically ill patients in planning and managing their care.

Second, PHSs continued to work to transform their primary care clinics into Medical Homes, creating ongoing relationships between patients and their primary care teams and proactively reaching out to patients, reminding them of needed screenings and lab tests. Some PHSs innovated in how they scheduled visits and used their non-clinical staff more effectively. In particular, primary care teams used evidence-based Chronic Care Model techniques in helping their chronically ill patients live healthily with their conditions.

Third, departments and services within PHSs worked to break down silos and create integrated, seamless systems of care. Inpatient and primary care coordinated to reduce unnecessary readmissions. Primary and specialty care providers improved their communication, using technology to make referrals and consults more effective and efficient. Behavioral and physical health providers also improved their communication and some PHSs co-located these services, making it easier for patients needing both kinds of services.

Finally, in managing the multitude of changes going on at the same time, in getting ready for market changes in the implementation of the Affordable Care Act, and in coming to understand the magnitude of the changes and the length of time necessary to make them, PHSs are looking to more comprehensive, system-wide transformation strategies.

Category 3: Population-Focused Improvement

In DY8, PHSs reported on the entire set of 20 population-based metrics, including the patient/care giver experience domain, more than tripling the number of metrics from the previous year. In DY 7, PHSs reported on a subset of six measures -- two from care coordination, two from preventive health and two from at-risk population domains.[10] From DSRIP's conception, DY8 was projected to be a pivotal year – after two years of investing in the infrastructure and redesigning care, for the first time PHS could begin to demonstrate improvements in quality resulting from those investments.

Like any endeavor of this magnitude, initial successes often reveal unexpected challenges. The success in reporting Category 3 measures stems directly from the infrastructure and innovation put in place through Categories 1 and 2 projects. However, the reports have given PHSs another challenge – to validate the accuracy of their data and compare it to both previous years and other PHSs. In order to report comparable data, there are three main challenges to surmount:

1. The simultaneous and uneven implementation of electronic health records (EHRs) and the difficulty in using EHRs to report consistent, comparable population-based data
2. The amount and intensity of data expertise demanded – training current staff on population-based methods and hiring expertise to configure information technology to collect, aggregate, analyze, and report accurately
3. The modifications and clarifications in definitions of performance metrics, where clinical experts', specialty societies' and regulatory agencies' slightly varied recommendations can manifest in comparable results of a specific metric

In DY 8, PHSs made tremendous strides in collecting and reporting population-focused improvement metrics. However, comparable performance measurement year to year and across multiple PHSs relies the on the specificity of data definitions and accuracy of the data captured and reported by each PHS. The results in DY8 data reveal the ongoing need to improve the quality of data in order to improve the quality of care. Thus, what was expected to be the harvesting from the seeds sown in previous years turned out to reveal tender saplings just beginning to take root.

Category 4: Urgent Improvement in Care

In DY8, PHSs made considerable progress towards the three-part goal of Category 4--implementing interventions which are 1) impactful on the patient population, 2) evidence-based and 3) meaningful to the patient population. In DY7, PHSs more than doubled the number of milestones completed as compared to the previous year, sowing the seeds for improvements. In DY8, PHSs saw those seeds sprout – measurable improvements in specific metrics. However, like the work in Category 3, these sprouts need intense and

[10] Appendix C summarizes Category 3 measures.

constant attention as they take root amidst the entrenched, established means of delivering care. For example, data reporting varied depending on the intervention.

PHSs implemented evidence-based practices towards meeting the Category 4 goal, such as visible, accessible work orders and protocols. PHSs emphasized the importance of establishing clear staff responsibilities and accountability structures. Correspondingly, staff must be trained and retrained, and particularly providers must buy-in to the new protocols. No category activities demanded more collaboration between departments than those in Category 4.

Timely and accurate documentation is essential to successful interventions. Sepsis documentation provides an illustrative example of how PHSs addressed and met documentation challenges. From DSRIP's beginning, sepsis was acknowledged to be an arena for learning, testing and innovation. Not until mid-DY 8, in January 2013, did national consensus form around the National Quality Forum's standardized methodology for reporting sepsis bundle compliance. However, understanding the need for comparable data year to year and among PHSs, in April 2012, PHSs, along with DHCS and CMS, agreed on using two ICD-9 codes (severe sepsis and septic shock) as a standardized measure. Thus, DY 8 data is more comparable than DY 7. Yet, sepsis has more complexity than those codes, and the fact that PHSs are using various data definitions for reporting other components allows for the learning laboratory for performance measurement initially envisioned in the DSRIP program. Changes to Category 4 as a result of the Mid Point Assessment, will be implemented in DY 9 and will further improve comparability.[11]

Category 5: HIV Transition Projects

For DY8, PHSs reported on the first two six-month periods out of three total for Category This category, with its subcategories: Category 5a: Improvements in Infrastructure and Program Design; and Category 5b: Improvements in Clinical and Operational Outcomes, was added for the HIV patient population, transferring components of the Ryan White program into the DSRIP program. The projects in Category 5a paralleled those in Categories 1 and 2, and Category 5b established metrics and collected baseline data for clinical and operational outcomes in the care of HIV patients.

Overall, DY 8 reports highlight the depth and breadth of change within 21 PHSs that is continuing to take root, flourish, and fundamentally change many structures and processes of providing care to patients in public hospitals. Over and above the many significant changes on performance metrics visible in this report is the expanding capacity of health care systems to accelerate their system transformation through

- Spread of data-driven population health monitoring across conditions and across departments
- Collaboration between departments, with other PHSs and with partners in their communities

[11] This past August marked the end of the DSRIP Mid-Point Assessment. Metrics from Categories 3 and 4 were re-evaluated and modified to ensure standardization and robust and appropriate improvement target setting methodologies. Many of the changes go into effect in DY 9

- Ambitious training programs for current staff and hiring new expertise
- Utilization of information technology with increasing sophistication and
- Adoption of system-wide transformation strategies.

PHSs also faced significant challenges in DY 8 including reconfiguring information technology to collect, report and utilize reliable data in a timely way, getting buy-in and sustaining the attention of current staff, hiring new expertise, and redesigning workflows in constrained physical space.

In aggregate, DY8 PHS reports provide an in-depth and detailed examination of their capacity to change, and to undertake many different types of change simultaneously. In comparison to the prior year, changes have deepened and broadened. In the next year of the DSRIP program, it is expected that the process of consolidating multiple changes will be even more evident and deeply rooted.

B. Category 1: Infrastructure Development

PHS activity in DY 8 on *Category 1: Infrastructure Development* can be characterized as a transition from getting the foundational elements of infrastructure in place to beginning to use its capacities in a systematic fashion. The essential model of care delivery is changing from episodic, reactive patient visits and admissions to evidence-based, data-driven population health management. The investments in human, physical and disease management registry resources are beginning to produce their dividends.

Every project in all categories requires training of staff to a new workflow, a new data skill, a new team-based approach, a new enhancement to information technology and multiple other new functionalities. Thousands of hours were spent training current staff to new skills and new roles. In addition, positions were added for individuals with expertise in system change, quality improvement and data analytics. And the number of primary care residency slots increased, and primary care physicians were trained to lead performance improvement activities.

Many PHSs completed redesign and expansion of their physical space to expand primary care capacity. This occurred both on current sites and in new sites with mobile vans and in schools. PHSs also expanded capacity by increasing access through more efficient scheduling and innovative uses of technology. A conservatively estimated 40,000 primary care visits were added in DY 8, 10,000 more than were added in DY 7.

Just as trained staff is an essential component of system change, the implementation of information technology is essential to producing the data at the heart of population management. And that implementation is not an event, but a series of interactive events increasing in complexity and scope. In DY 8, PHSs were in the midst of those iterations in their implementations of both registries, supported in part by DSRIP, and electronic health records (EHRs), supported in part by EHR incentive payments. PHSs spread their registries to many more primary and specialty care providers, shared data across departments, increased the numbers of patients in registries, included more chronic conditions in their registries and generated and utilized more reports and more accurate reports. PHSs developed data dashboards so that provider teams and PHS leaders monitor their performance on a timely basis. Some PHSs expanded their registry functionality to generate data on race, ethnicity and language to inform work in reducing health disparities. Two PHSs introduced more complex risk-stratification functionality, essential to targeted use of resources to meet the Triple Aim. The progress made during DYs 6-8 made built the capacity for PHS reporting on Category 3 measures.

However, now that PHSs are beginning to generate and utilize population-based data, the enormity of the challenge to get accurate, reliable data is daunting. First, PHS noted that EHRs, even the most robust ones, do not have good registry functionality. Certified EHRs are now hard-wired to capture “Meaningful Use” data elements, but the ability to generate other kinds of reports requires sophisticated expertise. So PHSs have both registries and

EHRs – two different products that do not interface well. As awareness of the importance of data-driven improvements has increased, so has the frustration in getting good data.

1.1 Implement and Utilize Disease Management Registry Functionality

Robust disease registries with the capacity to provide accurate, timely information about patient health are foundational to PHSs' capacity to manage individual and population health. They are a prerequisite for managing panels of patients in health homes. Given the centrality of registries to care management and influencing outcomes, it is not surprising that their development is an important goal for eleven public health care systems. The purpose of this project is to implement and use disease registries that support panel management and coordination of care to improve individual and population health.

Eleven public health care systems completed a total of 33 milestones related to implementing/utilizing disease management registry functionality:

1. Alameda Health System (AHS)
2. Arrowhead Regional Medical Center (ARMC)
3. Kern Medical Center (KMC)
4. Los Angeles Department of Health Services (LADHS)
5. Riverside County Regional Medical Center (RCRMC)
6. Santa Clara Valley Medical Center (SCVMC)
7. San Joaquin General Hospital (SJGH)
8. University of California Davis Medical Center (UCD)
9. University of California Irvine Medical Center (UCI)
10. University of California San Diego Health System (UCSD)
11. University of California San Francisco Medical System (UCSF)

<u>DY 8 Milestones Accomplished:</u>

DY 8 Milestones fall within the five categories listed below:

1. Developing registries and infrastructure for them including staffing
   - ✓ Expanded chronic disease management program team
   - ✓ Integrated refresher training into ambulatory care annual training plan
2. Populating registries
   - ✓ Ensured at least 70% of all known diabetics are entered in the registry
3. Expanding registries across sites and conditions
   - ✓ Implemented a functional disease registry at 50% of primary care sites
   - ✓ Reviewed future registry platforms and selected registry platform for congestive heart failure
   - ✓ Expanded registry functionality to other areas
   - ✓ Spread registry functionality and training to inpatient floors and six outpatient clinic sites
4. Use registries to monitor and manage health
   - ✓ Generated registry based reports for each provider
   - ✓ Created reports for clinicians and providers regarding monitoring and managing key health indicators

- ✓ Gave 90% of providers monthly registry reports on patients with diabetes and hypertension
- ✓ Employed registry data to identify racial/ethnic, socioeconomic and other disparities

Metrics referenced in DY 8 reports as potential indicators of improvement include:

- Percentage of primary care sites using the functional disease registry
- Number of specialty practices that can use the registry
- Number of conditions included in the registry
- Percentage of patients with defined conditions in the registries
- Production of registry reports
- Ability to generate reminders from registries
- Percentage of providers using registries to improve care

Progress and Impact

DY 8 has witnessed important developments in registry functionality. The concentration of activities in DY 6 and 7 focused on installing software for registries, training staff, and populating the registries. In DY 8 the focus for most sites has decisively shifted to using the software to manage patient and population health to influence outcomes. Within this shift in emphasis, many sites continue to install software, train staff, work out kinks, develop interfaces with other health system software, and extend registry functionality to other clinics and health conditions.

Many sites report great satisfaction in new capabilities fueled by registries. SJGH reports, for example, "The physicians have found the registry very helpful in continuity of care as patients in need of certain services can be identified and targeted for outreach and followed up by the panel management staff, saving the physician time. Panel management staff can not only identify the patients but also can call them and actually schedule their services. The tool has become so popular that ten additional site licenses had to be purchased in the last fiscal year."

The following sections describe sites' activities at different stages in the process of developing registry functionality.

Installation of registry management software and registry population
Many sites installed new software in DY 7 and DY 8 to build registry management capacity and others continue to do so. RCRMC, for example, reports an upcoming shift to i2i Tracks.[12] Most sites have populated their registry with at least one clinical population, generally starting with diabetes, and have turned their attention to additional populations. ARMC, for example, has populated their registry with patients at two health clinics who have had two or more visits and have now registered 4,446 diabetic patients against their

[12] Appendix D provides a summary of registry implementation among CA PHSs

goal of 800. Most sites are concentrating on "inreach" (populating panels with patients who come to their clinics) and will later focus on "outreach" (to patients who have dropped out of care).

Interface
With registry software in place at most sites, a next issue firmly on the radar in DY 8 is the interface between registry management software and software used for other functions such as pharmacy and labs. A number of sites reported that the interface with clinical laboratories is difficult to achieve. As AHS describes this issue, "A significant challenge that we continue to struggle with is AHS's multiple computer systems, applications and interoperability ... We will need to build an interface between the health registry, the electronic health record systems, and some clinical applications like radiology for mammograms and laboratory for Pap results. This will likely be an ongoing challenge into the future."

Spread to new clinics and health conditions
DY 8 has seen sites expand registries to more clinics and additional health conditions. Health conditions and screenings monitored through registries now include congestive heart failure, asthma, HIV, mammography, depression screening, tobacco use, blood pressure, retinal eye exams, blood pressure, coordination of primary care and behavioral health, chronic pain, chronic kidney disease, colorectal cancer, cervical cancer screening, and pediatric asthma.

Training
Training continues in DY 8 but is generally now more advanced, often focused on skill building to use the data in the registries. AHS, for example, is giving a Panel Management Refresher Training that builds from basic training previously provided. "This year's milestone is intended to be an indicator of how the panel management program is being sustained and hard-wired into regular clinic practice," they explain. The training includes all staff across discipline and functions – physicians and midlevel practitioners, medical assistants, eligibility clerks, nurses, front office staff, and management. They point out that through this broad-based training they construct an important bridge toward patient centered medical homes.

Report production
A major step forward in DY 8 is that many sites are now using their registries to generate reports. Several produce patient visit summaries (PVS) prior to a patient meeting with a provider, enabling the provider to know when, for example, patients are not up on immunizations, screenings, treatments, etc. LADHS reports that their panel management program is robust at four adult medicine clinics where 16,000 clients benefited in DY 8 from the patient visit summaries provided to physicians.

Developing and testing protocols for data input, algorithms for extracting data, and workflows for use of data
Producing reports from registries relies on many prior decisions. Every step in the process of data input, management and usage requires agreement among many stakeholders about

which data are important, how they are input, what they mean, under what circumstances they trigger alerts and alarms, and who is responsible for acting when alerts and alarms are triggered. LADHS reports, for example, that they added more than 300 clinical decision support rules to i2i in DY 8.

Restructuring roles and responsibilities
Accompanying the new capabilities that come with registries, PHSs need to decide where responsibility for the many facets of registry development, utilization, and maintenance are located. Different models are visible. AHS uses a panel management coordinator assigned to each clinic that interacts with providers and care teams on a daily basis including in morning huddles and rounding in the clinic. SJGH has a dedicated "i2i Tracks coordinator/super-user" responsible for training new and current staff, running complex reports, and troubleshooting. RCRMC suggests that in retrospect, their registry development process may have been more complicated than it needed to be as a result of creating a process with responsibility divided among many different departments.

Managing patient and population health
The gold ring at the end of implementing registries is the capacity to manage individual and population health to influence outcomes. Examples are beginning to shine. Patient visit summaries described above are routinely produced at AHS and LADHS. At AHS each clinic has identified one indicator (for example foot exams for diabetics) to drive improvement (foot exams improved from 8% to 32%). They have also experimented with outreach to get high-risk diabetes patients into treatment by calling and sending letters, which resulted in getting ten out of 64 patients contacted to visit the clinic. Two sites reported that they have done some work at the population level. SCVMC, for example, has studied health disparities by race, ethnicity and other demographic indicators.

Innovations
Several sites report innovative uses of their registries. For example UCD has included patient experience data in their registry. SFGH uses a patient advisory committee at one of their clinics to help with the interface between data and patients. They have advised, for example, on a graphic placed in the lobby to promote colorectal screening and on how physicians can motivate patients. SFGH is also beginning to utilize "data walls" where clinic performance on quality metrics is displayed for all of the staff and patients to view. Several sites are discussing how to document visits that are not face-to-face.

Lessons
Several sites report insights about registry development and use.

- "One of the most important lessons we have learned is that a high-functioning, fully operationalized EMR takes many years to implement and optimize for data acquisition, optimal workflow, and ease of use for both providers and patients." (SFGH)
- "We recognize that regular use and effective use (of registries) are not necessarily synonymous." (LADHS) This insight prompted tracking not only how frequently

staff log into i2i but also when there are changes in treatments or performance on a preventive measure.

- "Accurate and timely data are necessary but not sufficient to improve performance. Acquiring these data elements has been challenging even in the setting of an EMR and did require substantial focus. However, to make large improvements in performance requires similar focus on the detailed processes required to achieve these ends." (SFGH)

1.2 Expand Primary Care

To compete for patients when they are able to choose their providers requires that health systems have capacity to see patients within a reasonable period of time. The purpose of this project is to create capacity to see additional primary care patients.

Eleven public health care systems completed 30 out of 32 potential milestones related to implementing/utilizing disease management registry functionality:

1. Alameda Health System (AHS)
2. Arrowhead Regional Medical Center (ARMC)
3. Contra Costa Regional Medical Center (CCRMC)
4. Kern Medical Center (KMC)
5. Riverside County Regional Medical Center (RCRMC)
6. Santa Clara Valley Medical Center (SCVMC)
7. San Francisco General Hospital (SFGH)
8. San Joaquin General Hospital (SJGH)
9. San Mateo Medical Center (SMMC)
10. University of California Irvine Healthcare (UCI)
11. University of California San Francisco Medical Center (UCSF)

<u>DY 8 Milestones Accomplished:</u>

DY 8 Milestones fall within the four categories listed below:

1. Increasing the square footage of space available for primary care
   - ✓ Began construction of a 7,000 square feet family medicine clinic
2. Increasing use of existing space
   - ✓ Expanded mobile health clinic program by adding 3 new sites
   - ✓ Expanded school/community-based clinics program
3. Increasing efficiency of access to primary care
   - ✓ Increased access to primary care by reducing third next available appointments by 5%
   - ✓ Established a 24/7 nurse advice telephone line for all primary care clinic sites' patients
   - ✓ Improved capacity and access to the senior population by collaborating with other programs
4. Using new technologies to increase access
   - ✓ Implemented remote patient monitoring technologies with patient-centered care
5. Hiring additional primary care staff
   - ✓ Recruited additional primary care providers

<u>Metrics reference in DY 8 reports as potential indicators of improvement include:</u>

- Increases in square footage available for primary care
- Third next available adult appointment available within 7 calendar days
- Reductions in no-shows
- Documentation of expanded clinic hours

- Nurse advice line utilization to avert urgent care visit
- Percentage of patients remotely monitored

Progress and Impact

A conservative estimate of the increase in primary care visits since baseline is 40,000, a figure 10,000 higher than in DY 7. This number is conservative because not all of the 11 PHSs participating in this category reported their increases.

Strategies that sites employ to increase their primary care capacity include adding space and/or opportunity to access primary care through building new clinic sites, scheduling new clinics in existing clinic buildings, expanding existing clinics, taking mobile health units to new venues, expanding hours of existing clinics, hiring additional providers, increasing efficiencies through scheduling innovations, and utilizing methods of remote electronic contact such as telephone services, email, and iPad visits. These categories are described in more detail below.

Creating additional space

Many sites are adding to existing clinic space by building new buildings or expanding the space available in current facilities. AHS has developed a same day clinic in Oakland and expanded its Newark Clinic to add six additional exam rooms. ARMC has created a new clinic, the Medical Office Building Clinic and expanded its Westside Family Medical Center by close to 8,000 square feet. SJGH has added a new clinic at their California Street site, and RCRMC has increased access to their services by adding five new sites for their mobile health units and additional exam rooms to existing clinic space.

Hiring new staff

Additional staff is essential to being able to serve new clients, and many sites report on the personnel they have added to meet increased demand. ARMC, for example, hired four new providers, six clinic assistants, an LVN, an RN, and four office assistants to staff its new Medical Office Building Clinic. SMMC hired two new physicians to expand their primary care capacity, and SFGH has hired three new primary care providers.

A number of sites describe difficulties that they have experienced hiring new staff, pointing out that overall demand for primary care physicians and the relatively low wages paid by county systems create a challenging hiring environment. Even some sites such as SCVMC report that while they have hired new physicians, they have lost others. SFGH reports a large portion of primary care physicians working for the county is over 60, and replacement will be an ongoing challenge. They report some recruiting successes by including medical school loan repayment as part of their offer package.

Increasing clinic hours

Small changes made across multiple clinics can add important capacity, and a strategy used by many sites to increase access is to expand clinic hours, sometimes by as few as 15 minutes per day. This is sometimes a controversial strategy. In Kern County, for example,

pediatricians have refused to expand clinic hours when there is not back up from labs and pharmacy.

Efficient scheduling
Several PHSs report achieving efficiencies through scheduling innovations, thus serving more individuals with the same resources. CCRMC, for example, rolled out a new appointment model that allows for greater control over the appointment scheduling system and results in more appointments with primary care providers. They have reduced no shows by 700 patients per month, decreased the wait time for third next available appointments (TNAAs) from 13.2 days to 10.2 days, and increased their family practice continuity rate from 67% to 74%, resulting in 1,000 more patients per month who have appointments with their primary care provider as a result of this change.

SCVMC has reduced their TNAA to less than 48 hours in three primary care clinics, KMC has met their target to provide 40% of patients requesting urgent appointments with an appointment in the primary care clinic within three days of the request, and SMMC has achieved their goal of reducing TNAAs to within seven calendar days for urgent appointments in at least two primary care clinics for three months. This was exceeded in DY 7.

Electronic triage and appointments
A number of sites are working creatively to increase access to primary care through electronic media. Several sites have initiated telephone advice and referral lines. AHS has a new (2012) round-the-clock nurse advice telephone line that will be evaluated in 2014-2015 to determine its impact on utilization, patient experience and sustainability. Similarly, SFGH manages a nurse advice line that received over 20,000 calls last year and, through training, has increased the appropriateness of calls from 36% to 59%. Their hope is that 55% of people who cannot get a provider appointment within 24-72 hours will be able to be helped through this advice line rather than through urgent care.

UCSF has developed a web-based patient portal, "My Chart" through which patients can request medical advice from their providers. In the last fiscal year, patients made 53,097 requests for medical advice, distinct from asking for prescription refills and appointments. Providers have to carefully balance the time they devote to portal requests with in-person meetings because only the latter generate reimbursements.

UCI is exploring the value of iPad visits with seniors participating in the senior medical home who have been discharged from the hospital and are at high-risk of readmission. Patients are given an iPad mini at discharge, and are required to have an audio visual iPad visit with providers within 24 hours of hospital discharge. They are followed remotely for the next month, after which they return the iPad.

Interface with registries and medical homes
Several sites discussed efforts to increase primary care capacity as a stepping-stone to creating and managing medical care through panel management in medical homes using registries. Tracking panel dynamics (additions, deletions, and total paneled patients) as

well as scoring patients according to the complexity of their conditions is important in order to efficiently use panels that maintain an ambitious but appropriately balanced panel size.

Lessons

- Doubling physical space or exam rooms does not necessarily double capacity. Pre-existing space constraints such as over crowding need to be considered when estimating the additional primary care capacity that will be added.
- Changing demographics influence demand. A clinic in southern Alameda County, for example, was originally placed in a poor neighborhood that over time became increasingly prosperous, dampening local demand for services.
- Installation of new electronic health record systems temporarily suppresses productivity. UCSF is the only system to report that they have both experienced and recovered from this productivity slump. Others anticipate it or are experiencing it.

1.3 Increase Training of Primary Care Work Force

A shortage of primary care physicians throughout the state is greatly heightened in California's medically underserved areas. Many primary care physicians are not trained in improvement methodologies or in technologies and methods enabled by electronic innovations. It is increasingly important for clinical staff to understand and be able to lead efficiency improvement initiatives. The purpose of this improvement area is to leverage the role of California's public health care system that trains 43% of the state's physicians to increase the numbers of medical personnel working in primary care and to assure that they are prepared to provide leadership attentive to both the quality and efficiency of primary care.

Eight public health care systems completed a total of 17 out of 18 possible milestones related to increasing the training of the primary care workforce:

1. Arrowhead Regional Medical Center (ARMC)
2. Contra Costa Regional Medical Center (CCRMC)
3. Natividad Medical Center (NMC)
4. Riverside County Regional Medical Center (RCRMC)
5. San Francisco General Hospital (SFGH)
6. University of California Irvine Healthcare (UCI)
7. University of California Los Angeles Medical Center (UCLA)
8. Ventura County Medical Center (VCMC)

DY 8 Milestone Accomplished:

- ✓ Increased the number of primary care trainees
- ✓ Included 100% of first year residents in quality improvement projects
- ✓ Increased primary care training in continuity clinics
- ✓ Trained primary care residents in medical home model
- ✓ Increased primary care rotations for physician assistant students
- ✓ Hired and trained congestive heart failure and diabetes coaches
- ✓ Enrolled graduates from foreign medical schools (International Medical Graduates or IMGs) to train for US licenses
- ✓ Included IMGs in primary care quality improvement projects

The metrics referenced in DY 8 reports as potential indicators of improvement included:

- Number of primary care trainees and students
- First year resident class size
- Number of physician assistant trainees
- Number of coaches trained to provide chronic care coaching

Progress and Impact

From physicians to volunteers, PHSs are increasing the numbers of providers available to deliver primary care and provide support to chronic care patients. Some are also training new primary care providers to lead quality improvement initiatives and use advanced

methods of monitoring, communication, and patient management using electronic methods. These are described below.

Training residents and other trainees to work in primary care settings
ARMC and RCRMC serve an area of the state that is particularly medically underserved. RCRMC points out that the Inland Empire is nationally known as a medically underserved area second only to the Mississippi Delta. ARMC has added two primary care residents. RCRMC has added three residents in primary care, twelve in their internal medicine residency program, and eleven students to the primary care rotations for physician assistants (PAs). They point out that especially because of physician shortages, PAs will likely play an important role performing routine medical interventions. ARMC and NMC have both found residents from an osteopathic medical school to be especially helpful both as trainees and future providers. Another promising development has been opening a medical school at UC Riverside that in its first year admitted 50 medical students.

Elsewhere in the state, NMC increased the number of residents from six to eight. A request to expand their family medicine residency program by two residents was turned down by the Accreditation Council for Graduate Medical Education because they could not ensure adequate patient volume and mix with existing clinic constraints. NMC is building a 20,000 square foot clinic on the hospital campus that they are hopeful will allow them to reapply and meet the benchmark to add two residents. SFGH has expanded both their primary care and their family and community medicine residencies by two residents each for a total of four.

Through its International Medical Graduate (IMG) program, UCLA has the goal to enable IMGs to gain admittance to a California family residency training program and subsequently serve in California's medically underserved areas where their bilingual and bicultural skills will improve the quality of healthcare. A significant advance this year was legislation passed to allow IMGs enrolled in the UCLA program to function as medical students under the supervision of UCLA faculty.

UCI has embraced the notion of coaching as an important approach to helping patients manage their own care. In this past year they have trained both nurses and six volunteers to provide coaching to patients with diabetes and congestive heart failure. They estimate that each volunteer can handle 15 diabetes patients able to benefit from training. To meet changing demographics, UCI has also trained 77 new providers throughout their system (medical, nursing, pharmacy, and public health) to have a geriatric focus.

Training Trainees in Quality Improvement and Electronic Tools
Several sites are taking seriously the need to assure that primary care trainees are able to lead quality improvement initiatives. CCRMC has required 100% of their first year residents to participate in quality improvement projects with the goal of having family medicine residents able to lead improvement efforts across CCRMC. SFGH and VCMC also require residents to undertake a quality improvement project. A benefit beyond training is that residents' final reports are presented within the hospital, and some go on to win honors at regional and national symposia and conferences.

UCI has created a curriculum that trains care coordination through electronic media including telemedicine, electronic health records, and patient remote monitoring. This curriculum is being integrated with resident training.

1.4 Enhance Performance Improvements and Reporting Capacity

In order to build and sustain system-wide capacity for enduring change, all health care systems are putting in place and testing the structures, processes, and electronic supports that best achieve performance improvement.

Five public health care systems completed a total of 14 milestones related to enhancing performance improvement and reporting capacity:

1. Alameda Health System (AHS)
2. Los Angeles Department of Health Services (LADHS)
3. San Francisco General Hospital (SFGH)
4. University of California San Francisco Medical Center (UCSF)
5. Ventura County Medical Center (VCMC)

DY 8 Milestone Accomplished:

- ✓ 90% of providers received monthly registry reports on their patients with diabetes and hypertension
- ✓ Participated in University Health System Collaboration (UHC) and other statewide, public health care system or national clinical database for standardized data sharing
- ✓ Shared quality dashboard or scorecard with organizational leadership
- ✓ Trained 70% of new employees and at least 200 existing staff on Culture of Excellence curriculum
- ✓ At least five patients and family members participated in Culture of Excellence training programs
- ✓ Hired and trained a staff in proven quality and efficiency improvement principles, tools, & processes
- ✓ Implemented quality improvement data systems, collection and reporting capabilities
- ✓ Designated additional physicians to participate in performance improvement processes

The metrics referenced in the DY 8 reports as potential indicators of improvement included:

- Registry reports
- Participation in collaborative quality reporting efforts
- Developing and sharing quality dashboards
- Number of employees, patients and family members trained in Culture of Excellence
- HR documentation of staff roles dedicated to quality work

Progress and Impact

DY 8 progress—developing a variety of structures and processes to measure, report, and drive quality improvement—is evident in the sections below that describe them. With many no longer just in the planning and early implementation phases, the demonstrated effectiveness of these tools is also woven into progress reports of many of the other DY 8 categories.

Dashboards

Dashboards provide an easy, at-a-glance method of communicating goals and progress toward those goals. Four of the five reporting sites specifically mention that they are posting dashboards that include quality measures. LADHS, SFGH, UCSF and VCMC have all listed dashboards as an important component of their efforts not only to drive improvements but also to be transparent about them. It is not unusual to have multiple dashboards for different purposes. SFGH has 16 service-specific inpatient dashboards published quarterly.

System-wide structures

AHS continues to build out its change structures that are housed in a new system transformation center. Developments this year include a finished plan for an integrated clinical informatics program for auditing patient safety and quality data; a newly reorganized and invigorated quality department to improve the use of data to support improvement; and a quality and performance improvement unit through which eventually all patient care departments will set improvement goals, associated metrics, a process for testing improvements and a regular reporting schedule. A significant accomplishment has been to establish a Change Bureau to align the many diverse change activities occurring at AHS. The Change Bureau decides which proposals for change efforts to prioritize and assign resources.

SFGH reports that they have mounted an initiative to improve clinical care across the hospital and their affiliated community oriented clinical care (COPC) sites. Over 52 multidisciplinary staff formed eight teams to lead this effort including some of the health care system's most illustrious practitioners and researchers. They are focusing on nine improvement areas.

Lean management

Many health care systems are adopting "the Toyota Management System", also known as Lean Management, as a central system-wide structured approach for initiating and managing change across the many departments and services in their health systems. Four of the five health care systems reporting on this goal (AHS, LADHS, SFGH, and VCMC) describe Lean management events such as kaizen and value stream mappings as part of their improvement efforts. SFGH has trained two patients in Lean techniques.

Connecting internal and external quality measures

Some sites specifically mention the interface between the quality measures that they collect and quality standards set by external bodies. LADHS, for example, reports on their

participation in the University Health System Collaborative (UHC) and database. This alliance among 110 academic medical centers and 250 affiliated hospitals including 37 public health care systems provides quality reports assessing each facility's performance on quality and safety measures. This report allows LADHS to compare their performance to other members of the collaborative. Based on these and other measures, LADHS posts a quality dashboard on their website and tracks visits to the quality portion of the website. SFGH's dashboard has been developed to align with the health care system's own strategic priorities and the joint commission's core measure set.

Software to support data management

UCSF reports using a new software tool, Carefx, as a first foray into building a business intelligence platform. The experience has resulted in many positive developments to support this new capacity such as interdepartmental relationships and identifying the need for a formal data governance structure. They have also identified limitations to the tool and have acquired new software, QlikView, that more adequately addresses their needs.

1.5 Expand Specialty Care Capacity

Many public health care systems are hampered in their desire to provide comprehensive, high quality health care by lack of capacity to expediently refer their patients to specialty care. The purpose of this project is to increase specialty care availability.

Six public health care systems completed a total of 12 milestones related to expanding specialty care capacity:

1. Alameda Health System (AHS)
2. Arrowhead Regional Medical Center (ARMC)
3. Kern Medical Center (KMC)
4. Riverside County Regional Medical Center (RCRMC)
5. San Francisco General Hospital (SFGH)
6. University of California Los Angeles Medical Center (UCLA)

DY 8 Milestones Accomplished:

- ✓ Increased the number of outpatient specialty encounters
- ✓ Trained primary care providers, specialists and staff on processes, guidelines and technology for referrals and consultation
- ✓ Increased the number of available specialty appointments
- ✓ Based on a gap analysis, established additional specialty care availability for the most impacted medical specialties
- ✓ Hired new specialists
- ✓ Increased the number of specialist providers and/or clinic
- ✓ Created a task force to provide oversight on specialty clinic timeliness of access, capacity, productivity, and efficiency and set goals for new investments

The metrics referenced in the DY 8 reports as potential indicators of improvement included:

- Number of outpatient specialty encounters over baseline
- Documentation of training and guidelines for specialty referrals
- Efficiency of specialty care scheduling

Progress and Impact

DY 8 reports describe a series of strategies to increase access to specialty care that draw on many of their new capacities to manage patient care through data and undertake improvement initiatives. Strategies include making more efficient use of existing resources, hiring additional staff, and creating additional clinic space to add specialty capacity. These are described in the sections that follow. Most sites use a combination of these strategies.

Highlights of capacity built include: AHS reports a 34% cumulative growth in specialty care clinic encounters across multiple specialties. ARMC has increased the availability of specialty care appointments by 10% and in urology, where they have added practitioners, they report an aggregated increase of 23% in DY 8. SFGH has added physician capacity in five specialty clinics.

Achieving efficiencies
All sites report on efforts they have undertaken to assure that their specialty clinics are used as efficiently as possible as a first step in increasing capacity. These measures also provide indications of whether further expansion through adding staff and space are necessary.

ARMC is using software (Automated Referral Technology System or ARTS) that tracks referrals to specialty care and allows their staff to better understand where bottlenecks exist, how to more efficiently coordinate specialty referrals, and where additional providers may be needed. In tandem with this, they have developed guidelines for the referral process in each specialty. After testing the guidelines and making changes based on the feedback they received, they have trained 90% of their primary care providers and 50% of specialty care providers on how to use the guidelines.

KMC was experiencing many inappropriate referrals to their specialty services and therefore convened a working group to address this problem. As a result of the taskforce recommendations, each of the affected specialties has developed its own referral guidelines using a common referral template so that there is a uniform process that allows for differences among the specialties. This group process has been so successful that it has expanded as they have proceeded. For example, the workgroup identified that a large number of orthopedic and neurology referrals should more appropriately be referred to physical therapy, so physical therapy was added to the workgroup and has contributed to developing solutions to the inappropriate referrals.

Congestive heart failure (CHF) is the leading cause of death in Riverside County. To address this problem and to decrease hospital readmissions by CHF patients, RCRMC staff identified the strategy of increasing attendance at an outpatient CHF clinic and has succeeded in increasing the number of patient attendees from a baseline of eight to eighteen per week. Transportation is a limiting factor for patients, and to reduce this barrier, staff has worked to assure that patients can draw on hospital or county transportation resources. They note however that many CHF patients are homeless or sick with addictions and these complex conditions limit patient participation in the clinic.

Similar to KMC, a task force at SFGH was charged with reviewing data on specialty clinic referral volume, wait times and productivity to prioritize expansions in specialty capacity. Based on data driven business plans, physician capacity was boosted in five specialty clinics. SFGH also reports achieving important efficiencies through employing Lean management to accomplish such achievements as decreasing wait times from 150 minutes to 70 minutes and driving patient experience ratings to above 90%. The clinic has implemented 20 pieces of standard work for teamwork and communication.

Paradoxically, taking specialty care providers away from direct service and providing them with administrative time can expand access to specialty care. A lesson learned from AHS has been that giving a provider eight hours of administrative time each month to contact

patients for follow-up, make prescriptions and manage other pending issues adds substantially to the efficiency of the clinic.

Staff and Space

There are times when a careful analysis of referrals and workflow indicates that additional staffing and space are needed. Many sites have added specialty care providers to achieve the level of capacity that they require. AHS, for example, has added two locations where specialty care is provided, at a new specialty care clinic at Eastmont and in the new Highland Care Pavilion. Both are felt to add exciting new potential to the health care system. As they describe the new specialty clinics at the Pavilion, "One of the patient-centered design features of the new building is the location of specialty clinics near a related service or lab. For example, the new infusion centers are next to the hematology-oncology clinic so providers working in the clinic can easily check on their patients receiving infusions and be able to answer questions."

1.6 Enhance Interpretation Services and Culturally Competent Care

Communicating effectively across language differences is a threshold for effective patient-provider communication, which in turn is a key to medical excellence. The purpose of this project is to expand the capacity of participating PHSs to provide the interpretation services necessary for culturally competent care.

Five public health care systems completed a total of 14 milestones related to enhancing interpretation services and culturally competent care:

1. Contra Costa Medical Center (CCRMC)
2. Kern Medical Center (KMC)
3. Natividad Medical Center (NMC)
4. University of California San Diego Health System (UCSD)
5. Ventura County Medical Center (VCMC)

DY 8 Milestones Accomplished:

- ✓ Upgraded interpretation units function on a wireless network
- ✓ Provided 3,000 interpreter encounters per month
- ✓ Trained 20 additional staff to improve cultural competency in outpatient areas
- ✓ Trained 50% of direct patient care to appropriately utilize health care interpreters

The metrics referenced in the DY 8 reports as potential indicators of improvement included:

- Number of trained cultural competence champions in outpatient care areas who have completed a training course as evidenced by training materials and number of staff/providers trained
- Number of video or audio conferencing units compared to baseline
- Average number of interpreter encounters per month

Progress and Impact

DY 8 reports bring to the fore that technology-assisted interpretation, especially remote visual interpretation using wireless devices, is advancing rapidly. Hence increasing interpretation capacity relies upon acquiring and maintaining up-to-date equipment as well as deploying the equipment to where it can most effectively be used, training staff in how to use it, and monitoring its usage.

All five sites reported on the number of interpretation encounters occurring each month that together totaled over 12,000 encounters per month, far surpassing baselines (not reported by all sites), encounters in DY 7 (also not uniformly reported) and expectations.

All sites reported that they have added to their interpretive equipment and upgraded to make it wireless. At CCRMC, where nearly half of the patients speak a language other than English as their primary language, there are now over 140 video interpretation units that have been improved by recent upgrades in roaming capacity and longer battery life. iPads

have also started to be used to access the Health Care Interpreter Network (HCIN) during public health nurse home visits. Training is ongoing.

NMC reports that in 2010 no departments were using health care interpretation technology for interpreter services. They joined the Health Care Interpreters Network and 11 of the 17 departments identified as being able to benefit from interpretation technology now have it. NMC has emphasized translation from Mexican indigenous languages and have offered courses and internships to indigenous language speakers. As a result, they have become an important resource for other hospitals for these languages. Training for other staff in interpretation continues, and in the past year they have provided a 40-hour course to two full-time interpreters and 52 dual-role staff.

UCSD has expanded access to interpretation technology by contracting with the vendor LAN (Language Access Network) that provides audio access to 200+ languages and video access to 30+ languages. Over 200 staff has been trained to use this equipment. VCMC has purchased two mobile, wireless units to utilize the Health Care Interpreters Network services. They have started to track face-to-face interactions with trilingual interpreting services as part of an improvement process on these complex communication encounters.

KMC implemented a cultural competence program not based on language competence alone by implementing the U.S. DHHS-Minority Health Service program, "Culturally Competent Nursing Care: A Cornerstone of Caring." In DY 8 they trained ten staff to become designated champions to improve cultural competence through leading cultural competence education programs and projects.

Lessons
High quality interpretive services require ongoing vigilance to equipment, upgrades, encouraging staff use, quality of the interpretation and monitoring of usage.

1.7 Enhance Urgent Medical Advice

Patients access urgent medical services when a health problem occurs for which they cannot receive other types of timely, responsive treatment. The goal of this project is to provide advice to patients to help them receive appropriate care, which may or may not be urgent care.

One public health care system completed a total of three milestones related to enhancing performance improvement and reporting capacity:

1. Kern Medical Center (KMC)

DY 8 Milestone Accomplished:

- ✓ Increased the number of patients using the nurse advice line by 25% over baseline
- ✓ Increased the number of patients calling the nurse advice line who were redirected from the emergency department to non-urgent resources
- ✓ Distributed 10,000 educational newsletters with proactive health information addressing issues commonly discussed on the nurse advice line and topics searched for in the health information library

The metrics referenced in the DY 8 reports as potential indicators of improvement included:

- Utilization report for nurse advice line
- Percent of patients redirected to non emergent resources from the advice line
- Number of newsletters sent to patients

Progress and Impact

KMC's nurse advice line for their low-income health program patients was developed in 2010. A year later they identified a glitch in the call routing system that mistakenly re-routed calls to a message line. To take this problem into account, a new baseline for the number of calls coming into the advice line against which to measure increases was recalculated in DY 7at 81 calls per month. This average increased to 143 calls per month in DY 8, exceeding the goal of 25%. KMC enumerates the percentages of patients that call with the intent of going to the emergency department but are diverted to other resources such as a visit with their primary care provider, contacting a pharmacist or using home care instructions. The percentage of callers diverted to lower levels of care than the ED increased from 51% in DY 7 to 65% in DY 8.

As another strategy to divert inappropriate urgent care utilization, KMC publishes a quarterly educational newsletter distributed to 15,000 members of the low-income health program. This newsletter intentionally covers many of the topics that people call the nurse advice line about in a continuing education effort as well as covering other health promotion and disease prevention topics.

1.8 Enhance Coding and Documentation for Quality Data

Correct coding and documentation are foundational to accurate tracking of information about patients and their care and undergird PHSs' capacity to use data to understand and manage care. The purpose of this project is to improve the quality of coding and documentation. Other DSRIP projects such as 1.9 Collect REAL data and 3.2 Care Coordination focus on specific areas of coding and documentation improvement.

Two public health care systems completed a total of three milestones related to enhancing performance improvement and reporting capacity:

1. Los Angeles Department of Health Services (LADHS)
2. University of California San Diego Health System (UCSD)

DY 8 Milestone Accomplished:

- ✓ Developed and delivered an education plan or curriculum for coding and established baseline for mean number of diagnoses coded per inpatient case
- ✓ Trained staff on ICD-10
- ✓ Modified existing clinical documentation improvement tools for ICD-10

The metrics referenced in the DY 8 reports as potential indicators of improvement included:

- Documentation of education plan or curriculum related to coding and documentation
- Baseline established for average number of diagnoses coded per inpatient case
- Improvement tools updated for ICD-10

Progress and Impact

LADHS implemented an expansive training program to improve the performance of coders in both inpatient and outpatient settings. To assure this effort continues to have traction in the future, they also developed a continuous documentation improvement process. A plan to train new coders entering the health system was part of their approach for going forward with new safeguards in place. LADHS has also identified a "physician champion" for physician documentation and purchased a series of online classes to improve documentation as conversion to ICD-10 approaches.

UCSD has undertaken an ambitious, multi-year training program to prepare their staff for implementation of ICD-10 in October 2014. To accomplish this, they created 18 teams of coders and clinical documentation specialists who have all completed ICD-10 training. They have provided additional training to nurses. Also to prepare for this conversion, the health system conducted an inventory and assessment of tools available for education on this topic. A particularly useful tool is one that includes the capacity to convert from ICD-9 to ICD-10.

1.9 Collect Accurate Race, Ethnicity and Language (REAL) Data to Reduce Disparities

Collecting accurate information on race, ethnicity and language is essential at the patient level to provide culturally relevant and appropriate services including referrals to interpretation services. It is essential at the population level in order to analyze and identify ways in which health outcomes vary by these variables in order to reduce disparities. DSRIP projects describe ways in which REAL data is already beginning to be used to identify and address disparities. This project is highly related to expanding interpretive services, enhancing coding and documentation and risk stratification.

Three public health care systems completed three out of four possible milestones related to enhancing performance improvement and reporting capacity:

1. Contra Costa Regional Medical Center (CCRMC)
2. San Mateo Medical Center (SMMC)
3. University of California Davis Medical Center (UCD)

DY 8 Milestone Accomplished:

- ✓ Accurate REAL data fields entered in EHRs for target percentages of patients
- ✓ REAL data fields verified in EHRs

The metrics referenced in the DY 8 reports as potential indicators of improvement included:

- Percentage of patients with REAL data included in their electronic health records
- Percentage of patients whose REAL data has been verified

Progress and Impact

PHSs are enthusiastic about the capability they are building and making anticipated progress entering and validating REAL data. UCD met their goal to have 50% of patients with REAL data fields recorded, CCRMC has met their goal of 60% of patients, and SMMC reports that 70% are recorded.

Sites also pointed to challenges they have experienced obtaining and entering the demographic data and verifying its accuracy. Challenges have included needing to re-verify REAL data from patients when data was imported into new electronic health record software, running into other unexpected software problems, creating and implementing REAL standard work instructions to make the process uniform across different clinics and departments, assuring compatibility of REAL data fields with those required by other reporting agencies such as the Office of Management and Budget/Office of Statewide Health Planning and Development, getting staff buy-in on the importance of and processes for gathering these data points, and assuring ongoing quality of the data.

Two sites report they have started to realize the ultimate benefit from accurate REAL data, which is to be able to identify and therefore improve health disparities. SMMC has conducted analyses by ethnicity and age, for example, to learn that younger patients, particularly from Central American, Chinese, Filipino, Latino, and Mexican ethnicities, have

significantly higher LDL than patients 65 and over. This difference does not hold for patients identified as white and Black. This information can now be used to develop tools and protocols to reduce this disparity. UCD reports that they have drafted the first REAL report on mammography utilization, and they are preparing two-hour webinars about it that will go live in January 2014.

1.10 Introduce Telemedicine

An important strategy for increasing access to both primary and specialty care, especially for those hospitals serving rural areas, is to develop the capacity for remote consultations. Telemedicine can also be used to relieve pressure during periods of high utilization. The purpose of this project is to introduce or expand telemedicine services. It is highly related to the two other infrastructure development projects of expanding access to both primary and specialty care.

Two public health care systems completed a total of four milestones related to enhancing performance improvement and reporting capacity:

1. University of California Irvine Healthcare (UCI)
2. University of California San Diego Health System (UCSD)

DY 8 Milestone Accomplished:

- ✓ Ten individuals had electronic consultations
- ✓ Expanded telemedicine program to an additional clinic
- ✓ Expanded telemedicine program to an additional specialty service

The metrics referenced in the DY 8 reports as potential indicators of improvement included:

- Number of electronic consultations
- Number of services or specialties supported by telemedicine

Progress and Impact

Accomplishments include improving, expanding, and establishing baselines for telemedicine encounters.

UCI reports that telemedicine carts were bought and configured with DSRIP funds in DY 7. In this past year telemedicine sessions were held between the UCI senior health center and two remote skilled nursing facilities. Although there were initial challenges with technology and staff training, feedback from both UCI physicians and senior health center staff and patients has been positive.

The UCSD has an overall goal of providing care to more patients by expanding the use of telemedicine services linking UCSD specialists (the hub) with community partners (the spokes). To test this model they developed a tele-neurology clinic with a Palm Springs partner and a tele-hepatology consultation service with Adventist Health. In DY 7 a tele-pain medicine clinic was initiated with a Catalina Island facility.

In DY 8 UCSD has continued to explore telemedicine capacity. Based on an agreement with Clinicas de Salud del Pueblo, UCSD has been providing endocrinology consultations to patients at this clinic, providing 77 telemedicine new and return patient evaluations in DY 8. In this past year UCSD has also experimented with tele-medicine in the ER when there

are surges in volume and remote providers can increase their capacity to see patients. Patients are eligible if they are otherwise deemed safe to be triaged to the ED waiting room.

To gauge growth and development of their tele-medicine clinics UCSD established a baseline as a percentage of all e-consultations across the specialties of hepatology, neurology, pain medicine and psychiatry as a percentage of all ambulatory visits, resulting in a baseline rate of .45% e-consultations.

1.11 Develop Risk Stratification Capabilities/Functionalities

An important patient and panel management capacity is the ability to assign risk. This enables providers to identify who in their caseload is high risk, to appropriately monitor their health conditions, and to intervene when necessary. Risk stratification also enables panel monitors to assure that high-risk patients and conditions are distributed appropriately among panels. The purpose of this project is to develop and expand risk stratification capabilities. This project is highly related to the other Category 1 projects of increasing disease management registry functionality and enhancing performance improvement and reporting capacity.

Two public health care systems completed a total of five milestones related to developing risk stratification capacities.

1. Los Angeles Department of Health Services (LADHS)
2. University of California Irvine Medical Center (UCI)

DY 8 Milestone Accomplished:

- ✓ Implemented risk stratification to identify patient populations who would benefit from medical homes, disease, management programs, remote monitoring and other special programs
- ✓ Used risk stratification methodologies, produced patient-level risk scores and assigned patients to the appropriate medical home, disease management program or other specialized programs

The metrics referenced in the DY 8 reports as potential indicators of improvement included:

- Documentation of risk stratification tool
- Documented process for integrating risk scores in continuous quality improvement processes
- Number of patients assigned to specialized programs based on risk scores

Progress and Impact

PHSs report that risk stratification capacities are already proving useful as a means of balancing provider panels and assuring that high risk patients have access to appropriate services to manage these risks.

LADHS is conducting risk stratification within their disease management programs (DMP) and primary care medical home (PCMH) program development. In the DMP, risk stratification has occurred for diabetes, heart failure, and asthma patients based on a combination of health indicators that reflect requirements for urgent intervention such as ED or inpatient admissions. High-risk patients are selected for home remote monitoring that alerts care managers when a patient's condition worsens. Within the PCMH population, members are assigned a weighted "patient score" based on their risk profile with high-risk patients assigned a score indicating a patient may count for as much as 2.5 of a "normal" patient and low-risk patients may count for as little as .25 a "normal" patient.

LADHS has used risk algorithms to empanel patients. As a result, more than 4,000 patients have been assigned to HIV and disability medical homes, and nearly 2,000 patients have been assigned to a disease management program for diabetes, asthma or congestive heart failure. A lesson learned is that the algorithms are not as straightforward to create as staff had anticipated. The process for risk assignment has not yet been fully automated, which requires staff to communicate with patients to assure they are being assigned appropriately. The goal is to complete the automation process. UCI is also assigning patients to risk categories and has accomplished this to date for heart failure, 100 inpatient and 269 outpatient cases to date, and diabetes patients.

Lessons

Progress reports point out that there are a variety of approaches and programs for assigning risk and it is important to keep the ultimate goal for risk assignment in mind to select the appropriate tool. As one lesson, ease of obtaining information necessary to make risk assignments is an important factor to consider. UCI, for example, had explored several tools for diabetes risk assignment. One appealing tool would have required patients to provide self-reported information, and the decision was ultimately made to use a tool that could work with measures that had already been collected in the electronic health record.

C. Category 2: Innovation & Redesign

Category 2: Innovation and Redesign reports of activities in DY 8 reveal both the expansion of both the breadth and the depth of system change within California PHSs. There are four broad themes that emerge:

- Patient experience and engagement
- Medical Home and Chronic Care Model expansion
- Continuity and integration of care
- Emergence of cohesive system change strategies

In DY 8, PHSs intensified their focus on patient experience with the largest number of milestones than any other project within Category 2. PHSs increased their use metrics to measure performance in how patients experience their care – employed patient satisfaction surveys and held focus groups to collect data, established baselines to begin performance improvement measurements, and displayed data and included patient experience metrics in job descriptions to reinforce staff training. Moreover, the core components of redesigned care (e.g. team care, panel management, self-management for those with chronic conditions, and integration of physician and behavioral health) begin with the patient, not the provider, in mind. Patients are being actively engaged in their own health improvement.

Probably the key to health system redesign is strengthening primary care stature and capacity through transforming how it is delivered. Almost every PHS continued to engage their staff in transforming their primary care clinics into Medical Homes and in expanding their use of the Chronic Care Model. PHSs assigned over 50,000 individuals to a primary care team, adding them to their patient registries. Most of the activities in DY 6 and 7 focused on getting registries in place; DY 8 saw the spread of Medical Home components that rely on registry data. Many more staff were trained to think of patients as *their* patients, using data to identify them, pro-actively reach out to them and monitor their care. Ironically, staff's increasing reliance on data was frustrated by the inaccuracies of data, particularly in PHSs in midst of EHR implementation. However, with many more staff trained on data use and workflows, in DY 8 PHSs simultaneously increased the number of patients receiving care in a Medical Home Model and improved their access to care through more automated scheduling, reduced no-show rates and more efficient cycle times.

In DY 8, PHSs also took significant steps to integrate the types and locations of care. Behavioral and physical health care are being located at the same site, depression and substance abuse screenings are included in primary care visits when appropriate, and behavioral and physical health clinicians are consulting together. Another key integration is between hospital, primary care and community partners in the Care Transitions program, improving communications between clinicians in the discharge process, coaching patients and their caregivers in follow-up care and connecting them with community resources.

Finally, some PHSs identified specific, comprehensive transformation strategies (Lean, Six Sigma, Model for Improvement) so that from the C-suite to the front desks all staff are

simultaneously and continuously involved in changing how they deliver care. Given the enormity of the challenge to disrupt old ways and grow new ways, leadership is actively and strategically engaged in changing from volume-based to value-based patient-centered care.

2.1 Expand Medical Homes

The purpose of this project is to transform primary care clinics from physician-centered practices to patient-focused care teams. These efforts across the state of California are described below using the following six components known to be critical to achieving high performing primary care: data driven improvement, empanelment and panel size management, team-based care, population management, continuity of care, and prompt access to care.[13]

Thirteen public health care systems completed 30 milestones related to expanding medical homes in DY 8:

1. Alameda Health System (AHS)
2. Arrowhead Regional Medical Center (ARMC)
3. Contra Costa Regional Medical Center (CCRMC)
4. Kern Medical Center (KMC)
5. Los Angeles Department of Health Services (LADHS)
6. Riverside County Regional Medical Center (RCRMC)
7. San Francisco General Hospital (SFGH)
8. San Joaquin Medical Center (SJGH)
9. San Mateo Medical Center (SMMC)
10. University of California Davis Medical Center (UCD)
11. University of California Irvine Healthcare (UCI)
12. University of California Los Angeles Medical Center (UCLA)
13. University of California San Francisco Medical Center (UCSF)

DY 8 Milestones Accomplished:

- ✓ Data driven improvement
  - Actively managed registries for colorectal cancer screening and diabetes
- ✓ Empanelment and panel management
  - Assigned patients to medical homes
- ✓ Team-based care
  - Trained additional staff in panel management and health coaching
- ✓ Population management
  - Assigned high-risk patients to care manager teams
- ✓ Continuity of care
  - Implemented the medical home in additional primary clinics
- ✓ Prompt access to care
  - Implemented policies and procedures to enhance patient access to medical homes

The metrics referenced in the DY 8 reports as potential indicators of improvement included:

- Number of eligible patients assigned to medical homes

[13] Willard, R and Bodenheimer, T. (2012). The Building Blocks of High Performing Primary Care: Lessons from the Field. Available from http://www.chcf.org/publications/2012/04/building-blocks-primary-care

- Demonstrated progress toward application for patient centered medical home designation
- Number of staff trained in the medical home model
- Percentage of primary care visits at family care clinics
- Number of primary care patients managed through registries

Process and Impact:

Dr. Thomas Bodenheimer, a national expert on the patient centered medical home, identified six essential building blocks for transforming primary care, all of which are present in the highest performing health systems. These building blocks, listed below, are interrelated and essential:[14]

1. Data driven improvement
2. Empanelment and panel management
3. Team-based care
4. Population management
5. Continuity of care
6. Prompt access to care

Data driven improvement

Data driven improvement occurs when data are used throughout the organization to spur effective action.[15] PHS sites leveraged their EHR systems to collect baseline data about patients and deliver targeted communications to patients with overdue health maintenance issues.

In DY 8, RCRMC collected baseline data on the percent of enrolled patients that scheduled primary care visits with their medical home provider team. With an established baseline of 13%, clinic staff can work on promoting continuity of care in DY9 and DY10. Although RCRMC staff was successfully assigning patients to medical homes, they report they need to place greater emphasis on operationalizing continuity to ensure patients see their assigned medical home provider team at each visit. One challenge to accomplishing this is technology related. The registration/patient management system used by the front desk staff and schedulers does not interface seamlessly with the NextGen EHR system, so front desk staff and schedulers were unable to view medical home assignment information. During DY9, RCRMC will create a "bridge" to allow front desk staff and schedulers to view medical home assignment information.

UCSF leveraged the EHR to deliver targeted communications to patients with overdue health maintenance issues, focusing on patients who have an appointment scheduled within seven days. Panel managers call or mail patients information if they are overdue for a lab test or need to be screened for colon or breast cancer. While this outreach is an essential part of the medical home model, full implementation is challenging because

[14] Ibid.
[15] Ibid.

shortages in clinic staff often required medical assistants/panel managers to be reassigned to provide direct patient care.

Lessons learned
UCD's primary care medical home efforts are happening simultaneously with other innovation efforts, including a CMS Meaningful Use project to use EHR technology to improve patient care and the rollout of a scheduling and billing system that is compatible with the EHR. It can be a challenge for clinic leadership to manage overlapping and competing priorities.

Empanelment and Panel Management
Empanelment and panel size management occur when patients are assigned to a clinician and clinics actively manage panel size to balance capacity with demand.[16] AHS focused its efforts on empaneling high-risk patients in the emergency department, noting that when patients who need ongoing support and treatment for chronic diseases seek care in the ED, this adds to the high cost of their care and misses opportunities for comprehensive care including health promotion that would occur in their PCP. AHS identifies high-risk patients who are seen in the ED who do not have a medical home and connects them to care in a medical home through an appointment at the appropriate clinic. Building on their work in DY6 and DY 7, AHS expanded its ED navigator program in DY 8. The ED navigator coordinates appointments and referrals for patients, identifies if they have an existing PCP, links them back to their medical home if they do, and removes barriers to care. One important lesson AHS reports is the importance of filling the ED navigator role with staff that are proactive and seek to engage with the clinical team.

CCRMC focused its efforts on improving the process of empaneling patients by implementing the Primary Care Provider Central System to improve the accuracy and ease of assigning new patients to providers in DY 8. CCRMC exceed their milestone by assigning 99% of full scope Medi-Cal and Low Income Health Plan individuals to a PCP.

PHS sites made great strides empaneling patients in DY 8 by collectively assigning over 56,000 eligible patients to medical homes. At SMMC, 29,407 eligible patients (defined as those seen at the same primary care clinic at least twice in the last twelve months) were assigned to a primary care provider. SMMC's greatest challenge with panel management was continued provider and staff turnover that resulted in the transition of a number of patient panels. With a 97% medical home assignment rate in DY 7 and a 96% medical home assignment rate in DY 8, another challenge SMMC faces moving forward will be to maintain these high enrollment rates and to create a system that allows patients to easily change providers.

At SJGH, over 20,000 patients were assigned to medical homes in DY 8, greatly exceeding their goal of 400 patients. KMC assigned 5,105 eligible patients to medical homes, and UCI assigned 1,495 eligible patients.

[16] Ibid.

Team-based care

Team-based care happens when all members of interdisciplinary teams (clinicians, medical assistants, registered nurses, front desk personnel, and behaviorists) are responsible for quality of care.[17] With the goals of reducing inpatient admissions and the cost of care, improving patient satisfaction and health outcomes for high-risk patients, team-based care is essential to the medical home model.

In DY 8, several sites focused their efforts on training additional staff on the medical home model and expanding capacity at clinics. ARMC trained all staff assigned to family health centers in the patient centered medical home model and expanded implementation of the model to two remaining FHCs.

SFGH expanded its team based care capacity in DY 8 by placing one additional RN case manager at the family health center. This role is critical because the RN case manager leads an interdisciplinary team, conducts comprehensive assessments in the home, clinic, or over the phone with new patients and develops a patient-centered care plan. This role and the interdisciplinary teams help decrease admissions and ED visits for high-risk patients. SFGH also placed five additional medical assistants trained in panel management and health coaching at two primary care clinics. These staffing increases allowed SFGH to assign 75 high-risk patients to care management teams. This approach has multiple benefits: medical assistants began to see the patients as their own—building a sense of accountability—and patients developed relationships with a few consistent staff members.

UCSF assigned 210 complex, high-utilizer patients to complex care management teams. High-risk patients were identified through administrative data and referrals from primary care clinics. Staff soon found that the demand for complex care management exceeded the program's capacity. An important lesson learned is that UCSF's complex care management teams found that a patient's ability and willingness to engage in care management is crucial, especially when staff resources are limited. In the short-term, the complex care teams provide "low touch" interventions for some patients. Staff is working to refine their enrollment criteria and services to simultaneously best serve patients and utilize staff resources efficiently.

Lessons learned

UCSF also trained medical assistants in panel management and health coaching. The medical assistants implemented bi-weekly meetings to discuss challenges and best practices. Through these discussions, the medical assistants identified the need for scripts to deal with common difficult situations, and clinic teams are working to develop these "problem solving" scripts.

Population management

Actively managing various subgroups of the patient population requires knowing when patients are due for both preventive and chronic disease services and whether or not they come for a primary care visit. PHS sites expanded their use of registries to identify patients

[17] Ibid.

who were due for preventive care services. At SFGH, panel managers/health coaches actively managed registries to identify 5,650 patients due for colorectal cancer screening and 1,287 diabetic patients due for preventive services.

LADHS used the i2i registry as an alert mechanism to identify diabetic patients that could benefit from a diabetes risk reduction medication bundle. In DY 8, LADHS established a baseline of 29% of registered patients with documented risk reduction medications. This leaves significant room for improvement in DY9. LADHS also expanded the use of the i2i registry dramatically, and staff used the registry to send 8,332 preventive care letters to women overdue for mammography. For LADHS, this represents a shift in the core philosophy of care delivery. Before implementing the PCMH model, patients received preventive care only if they made an appointment and their provider remembered to order the appropriate tests.

Continuity of Care

Continuity of care happens when clinicians are required to work a minimum number of hours and days each week to ensure continuity of care, and front desk staff ensure continuity in scheduling.[18] UCSF developed the Care Support Program to identify patients with complex medical and psychosocial needs who are high utilizers of costly acute care services (emergency rooms and hospital admissions), as well as patients who are time intensive and challenging for primary care providers and clinics. To enroll the appropriate patients, staff developed enrollment criteria as well as a complex care registry; communication procedures for primary care providers; and a database to gather key process, outcome and effectiveness data. In addition, nurse practitioners and social work teams are embedded in primary care clinics, placing them in close proximity to physicians. UCSF credits this face-to-face contact with establishing good working relationships between providers and patients, which also helps create continuity of care.

Prompt Access to Care

Prompt access to care happens when practices allow patients to see providers when they need to be seen. Prompt access to care also often allows for alternatives to in-person visits with a physician, including phone visits, e-visits, and visits with non-clinician team members.[19] UCLA implemented the adult medical home model in five primary care clinics out of 20 primary care practice sites. UCLA also piloted a patient portal system to enhance access to medical homes by enabling patients to view portions of their health records and communicate with providers.

[18] Ibid.
[19] Ibid.

2.2 Expand Chronic Care Management Models

The purpose of this project is to build upon proven, innovative models of chronic care management.

Seven public health care systems completed 18 out of 19 possible milestones related to expanding chronic care management models:

1. Alameda Health System (AHS)
2. Arrowhead Regional Medical Center (ARMC)
3. Los Angeles Department of Health Services (LADHS)
4. Riverside County Regional Medical Center (RCRMC)
5. Santa Clara Valley Medical Center (SCVMC)
6. University of California Irvine Healthcare (UCI)
7. Ventura County Medical Center (VCMC)

DY 8 Milestones Accomplished:

- ✓ Trained staff in the Chronic Care Model
- ✓ Expanded the Complex Care Program and enrolled 200 medically complex patients
- ✓ Expanded the Chronic Care Model for diabetes at remaining Family Health Centers (FHCs)
- ✓ Improved the percentage of patients with self-management goals
- ✓ Expanded the number of telephone interactions between diabetic patients and the health care team
- ✓ Implemented a program to identify and manage targeted patients needing further clinical interventions to improve retinal screening and LDL-cholesterol control
- ✓ Expanded diabetes registry to include 50% of patients seen in the diabetes center

The metrics referenced in the DY 8 reports as potential indicators of improvement included:

- Number of patients enrolled in the Complex Care Program
- Number of staff trained in the Chronic Care Model
- Percentage of patients with self-management goals
- Number of telephone visits with diabetic patients

Progress and Impact:

The Chronic Care Model has been shown to improve the care of chronic illnesses and the quality of health for patients, in part by encouraging patients to become active participants in the management of their own conditions. This project builds on work in Category 1.1 Implement and Utilize Disease Management Registry project, which is an important tool for chronic care management, and it connects to Category 2.1 Expand Medical Homes, since chronic care management is a component of the patient-centered medical home.

Chronic Care Model Expansion

In DY 8, several PHSs built on work in DY 7 to implement building blocks of the Chronic Care Model. Several PHSs expanded their work to include new clinic sites, train additional

staff, and/or enroll additional patients. In DY 7, AHS launched the Hope Center to focus on patients with high utilization patterns, targeting the most costly 5% of patients. To manage their care, the Complex Care Program employs a multi-disciplinary team in a wrap-around model that includes home visits, clinic visits, and telephone calls as tools to implement care plans. In DY 8, AHS expanded its Complex Care Program to include clinic-based care management for patients already connected with a medical home, so that patients could continue to develop trusting relationships with their PCPs. Although AHS exceeded its enrollment goals (213 patients enrolled based on a target of 200 patients), they also reported the lesson that effectively providing care to this population is time and energy intensive, and providing quality care to current patients must be balanced against enrolling new patients.

In DY 8, ARMC expanded the Chronic Care Model to additional family health centers and trained all clinic staff in the principles of the Chronic Care Model. ARMC hired two chronic disease case managers in DY 7, but these staff members were soon overwhelmed because they became the providers of all care for all diabetic patients. ARMC is adapting the principles of the multidisciplinary team approach to meet its needs. Going forward, ARMC will engage all nursing staff in training and developing the skills and confidence to support patient self-management in the Chronic Care Models.

UCI accomplished three milestones related to expanding Chronic Care Models. In DY 7, UCI had only one diabetes patient enrolled in a coaching program. In DY 8, they enrolled 193 patients (35% of diabetes patients) in a coaching program that will match them with a coach who will work with them during and between clinic visits to reduce the likelihood of heart failure.

Self-management support

The goal of self-management support is to assist and sustain the patient's ability to engage in self-management behaviors that are within their own life patterns and prepare them to make effective health decisions day to day. Since patients are at the center of the patient centered medical home, involving and supporting patients in self-care is instrumental tos improving health outcomes. Several PHSs accomplished milestones related to increasing the percentage of patients with self-management goals.

In DY 7, LADHS established a baseline of 0.9%, as very few patients had documented self-management goals. In DY 8, 17% of patients with diabetes, heart failure or asthma recorded at least one self-management goal, exceeding LADHS's goal to improve by 10% over baseline.

RCRMC also exceeded its goal to increase the percentage of patients who select a self-management goal by 30% over baseline. Now, over 50% of diabetic patients have selected a self-management goal. RCRMC attributes their success to innovative approaches to assist diabetic patients improve their self-management skills. As an example, the medical home team consistently discusses goals with patients during each clinic visit. For additional coaching, care team members also implemented a program to place follow-up calls to patients. Care team members conduct a weekly PDSA cycle to explore other ways to

improve patient adoption of self-management goals. In DY9, RCRMC will shift their focus from increasing the percentage of patients who identify self-management goals to achieving those goals.

2.3 Integrate Physical and Behavioral Health Care

The purpose of this project is to integrate the inter-related components of physical and behavioral health care to better coordinate care and ensure that the patient can be treated as a whole person, potentially leading to better outcomes and experience of care.

Seven public health care systems completed 18 milestones related to integrating physical and behavioral health care:

1. Contra Costa Regional Medical Center (CCRMC)
2. Kern Medical Center (KMC)
3. Los Angeles Department of Health Services (LADHS)
4. Santa Clara Valley Medical Center (SCVMC)
5. San Francisco General Hospital (SFGH)
6. San Mateo Medical Center (SMMC)
7. Ventura County Medical Center (VCMC)

DY 8 Milestones Accomplished:

- ✓ Began construction on a new 3,000 square feet co-located primary care/mental health clinic
- ✓ Screened patients using depression and substance abuse screens
- ✓ Established policies and procedures for more robust inpatient discharge coordination with outpatient medical home providers for patients with behavioral health needs
- ✓ Increased the percentage of patients with behavioral health care needs who have access to behavioral health care
- ✓ Tracked the number of referrals from primary care providers to on-site mental health professionals
- ✓ Used joint consultations and treatment planning at co-location sites
- ✓ Provided timely wait times for initial behavioral health visits
- ✓ Implemented telepsychiatric consultations at one additional primary care clinic
- ✓ Co-located specialty mental health with a second primary clinic, without a reduction in services or payments

The metrics referenced in the DY 8 reports as potential indicators of improvement included:

- Site work plan documentation for new facility
- Number of targeted patients seen in the behavioral health in primary care pilot clinic screened for depression or substance abuse
- Number of referrals from primary care providers to on-site mental health professionals
- Number of joint consultations between mental health and physical health providers
- Use of PHQ-9 or other depression screening tool with diabetics assigned to a medical home in co-location sites

Progress and Impact:

Building on work started in DY6 and DY 7, PHSs expanded their work to integrate physical and behavioral health services. In DY 8, PHSs continued their work to co-locate services, screen patients and improve referral processes.

Co-location of services
Co-locating physical and behavioral services allows for real-time consultation between mental health and physical health professionals, and it decreases the need for additional visits for patients with both physical and mental health needs. Four PHSs continued their work to co-locate their physical and behavioral health services, either by expanding services at existing clinics or, in the case of CCRMC, breaking ground on a new facility. CCRMC accomplished its goal to begin construction of a new, co-located primary care/mental health clinic. In DY 8, LADHS expanded its integration efforts, and mental health services are now co-located with primary care in a total of six sites (two were added in DY 8). SFGH implemented telepsychiatric consultations at one additional clinic, and VCMC co-located specialty mental health with a second primary clinic in DY 8. At VCMC, these services are designed to link outpatient primary care and specialty mental health patients to appropriate therapy, drug and alcohol treatment, and mental health treatment.

Several PHSs co-locating mental and behavioral health experienced similar challenges related to technology. At CCRMC, developing an integrated model has been challenging because mental health and primary care use different EHR systems, appointment scheduling systems, and categories of staff. CCRMC hopes to resolve these issues before the new clinic opens in late 2013. LADHS experienced challenges tracking joint consultations between primary care and behavioral health care teams because the consultations often occurred during patient visits or informally in the hallway.

Screening
Five PHSs piloted empirically validated tools to screen patients for behavioral health needs. Several systems used the Patient Health Questionnaire (PHQ-9) to screen patients for depression and a few sites used the General Anxiety Disorder Assessment (GAD-7) to screen for anxiety and substance abuse needs. SCVMC used the PHQ-9 depression screening tool in two clinics and focused on supporting the licensed clinical social worker (LCSW) staff make the transition from a specialty mental health practice to a patient centered medical home. SCVMC also implemented a new EHR, which complicated start-up of the medical home because staff cannot import historical PHQ-9 data into the EHR electronically. SCVMC anticipates a difficult and manually intensive data collection and input process for DY9 that will ease once the transition period is over by DY10.

By screening 18% of targeted patients, CCRMC exceeded its goal of 15% of pilot primary care patients for depression or substance abuse. Staff found the screening tools most useful in identifying patients with moderate behavioral health symptoms or moderate risk for substance abuse. Success of these tools relies heavily on staff members who feel comfortable asking patients about their behavioral health and substance abuse. In DY9,

CCRMC plans to expand use of these tools to include their new co-located primary care/mental health clinic.

LADHS and SMMC piloted screening programs focused on diabetic patents. Building on its registry capabilities, LADHS used the PHQ-9 depression screening tool to screen 33% of empaneled diabetics assigned to co-location sites. In DY 8, SMMC implemented a pilot program to screen diabetics by using the PHQ-9. In the pilot phase, two providers screened patients at the Innovative Care Clinic. Recognizing that patients who work full-time are often unable to return for follow up visits with the medical psychiatry service (MPS), SMMC has an MPS staff member posted at the Innovative Care Clinic or available on-call within 60 minutes. SMMC is also considering providing MPS services in the evening.

Referrals
Several PHSs focused on ensuring a smooth referral process. LADHS sought to enhance and track the referral and follow-up processes between the Department of Health Services (DHS) and the Department of Mental Health's (DMH). With 85% of referral appointments made within 30 days, LADHS exceeded its goal for 80% of initial behavioral health visits to occur within 30 business days. Currently, DHS and DMH use different electronic data platforms, so referrals take place via fax. DHS and DMH are working to transmit referrals electronically and they expect this to take place in DY9.

KMC established policies and procedures for more robust inpatient discharge coordination with outpatient medical home providers for patients with behavioral health needs. KMC established a stakeholder group that met weekly to develop streamlined behavioral health screening processes, and they established three new EHR referrals (substance abuse, behavioral health, and primary care appointments).

2.4 Redesign Primary Care

The purpose of this project is to increase efficiency and redesign clinic visits to be oriented around the patient in order to improve primary care access and the patient experience.

Seven public health care systems achieved 15 milestones associated with redesigning primary care delivery:

1. Arrowhead Regional Medical Center (ARMC)
2. Kern Medical Center (KMC)
3. Riverside County Regional Medical Center (RCRMC)
4. San Joaquin General Hospital (SJGH)
5. San Mateo Medical Center (SMMC)
6. University of California Irvine Healthcare (UCI)
7. University of California San Diego Health System (UCSD)

DY 8 Milestones Accomplished:

- ✓ Trained staff on methods for redesigning clinics to improve efficiency
- ✓ Reduced patient appointment no-show rates
- ✓ Reduced average visit cycle time for primary clinics
- ✓ Improved efficiency of medical home teams
- ✓ Implemented bundles and models of care for three chronic conditions: CHF, diabetes management, and falls prevention
- ✓ Developed protocols for screening alerts sent out to patients
- ✓ Improved the percentage of patients enrolled in the MyUCSDChart web-based portal

The metrics referenced in the DY 8 reports as potential indicators of improvement included:

- Percent of staff trained in clinic redesign models
- No-show rate over baseline
- Visit cycle time
- Number of patients seen per half clinic day
- Documentation of protocols
- Percent of primary care patients enrolled in MyUCSDChart, web-based portal

Progress and Impact:

Staff training

Three systems focused on training staff on methods for redesigning clinics to improve efficiency. Utilizing staff input and rapid testing methodologies, SJGH sought to find a workflow that maximized the use of staff and decreased the time patients stayed in the clinic. SJGH also redefined care teams in an effort to increase staff and patient satisfaction. The process resulted in hiring two positions: an additional office worker and a Clinic Services Coordinator who oversees clinic staffing and manages overall clinic activities.

In DY 8, RCRMC trained 88% of clinic staff in methods of improving clinic workflow and efficiency including the PDSA methodology and Lean Processes. Using these methods,

RCRMC was able to improve the productivity of family care clinic (FCC) teams by more than 5%, increasing the number of clinic patients seen per half day. Although initial PDSA projects were sometimes overly ambitious, RCRMC credits its successes improving efficiency to efforts led by clinic staff, rather than a top-down approach. To improve patient access, RCRMC adjusted its scheduling template to allow a greater percentage of "same day" and "same week" appointments, and they implemented a virtual telephone visit program. Another contribution to its success was RCRMC's ability to identify and address challenges including staff turnover and inconveniences related to EHR implementation.

Reducing no-show rates

Three systems set and accomplished milestones related to reducing no-show rates. ARMC sought to reduce patient appointment no-show rates to 25% or less. By pulling reports identifying patient no-show rates, placing reminder calls one to two days before appointments, mailing reminder letters one week prior to appointments, and making follow-up calls with patients who missed their appointments, ARMC was able to reduce the no-show rate to 24%. SMMC also sought to reduce its no-show rate. System-wide, SMMC's no-show rate is 11%, meeting their goal to achieve a no-show rate of 12% or lower. A few SMMC clinics struggled with high no-show rates because they continued to experience difficulty maintaining adequate points of contact with patients, and they experienced challenges with consistent staffing to make reminder calls.

Although they struggled with the process, SJGH successfully met its milestone to reduce no-show rates to 20% or less. SJGH clinic staff worked with informatics experts to analyze data about clinic appointment supply and demand. As a result, SJGH reduced the number of appointment types, developed processes to promote continuity of care, and shortened the scheduling window to two weeks to reduce the no-show rate. Patients' transportation barriers are often a reason for no-shows, and addressing this issue is challenging.

Reducing cycle times

Two systems set milestones related to reducing cycle times. ARMC sought to reduce the average cycle time for primary care clinics to 50 minutes or less. The average cycle time at three family health centers (FHCs) was 49 minutes, and ARMC attributes this success to training staff on redesign methods and reducing no-show rates.

Since KMC reduced its cycle time to 60 minutes or less in eight out of 12 months, KMC considers this milestone met. Despite its success, KMC has designated a task to continue working to improve and streamline its registration process. KMC experienced challenges with its automated system for capturing cycle times, and this often skewed results. To address these issues, KMC switched to a manual log in of cycle times in DY 7. After redefining some of the data criteria, KMC switched back to the automated system in March 2013.

Leveraging EHR systems

Although EHR implementation has presented a steep learning curve and new challenges for PHSs, some systems are learning how to leverage the data they make available. UCSD has leveraged its EHR to facilitate communication with patients. With the goal of increasing the

number of patients receiving appropriate and timely health maintenance and screening tests, UCSD developed protocols for screening alerts sent out to patients. In DY 8, UCSD sent 28,000 electronic test notifications for chlamydia and cervical cancer screening. Critical to the success of the alert system is patient enrollment in the web-based portal, MyUCSDChart. UCSD exceeded its goal to increase enrollment by 5% over baseline. In DY 7, UCSD established a baseline enrollment rate of 39%, and in DY 8, 58% of primary care patients activated enrollment in the portal. Expansion of the EHR to the operating room was delayed, and consequently UCSD was not able to implement colon cancer screening alerts as planned, and this is in the work plan for DY9.

2.5 Redesign to Improve Patient Experience

The purpose of this project is to improve how patients experience care and their satisfaction with the care provided. This project is related with 3.1 Patient/Caregiver Experience that measures patient experience.

Seven public health care systems completed 22 out of 23 potential milestones related to improving patient experience:

1. Alameda Health System (AHS)
2. Contra Costa Regional Medical Center (CCRMC)
3. Natividad Medical Center (NMC)
4. Riverside County Regional Medical Center (RCRMC)
5. Santa Clara Valley Medical Center (SCVMC)
6. San Mateo Medical Center (SMMC)
7. University of California Irvine Medical Center (UCI)

DY 8 Milestones Accomplished:

- ✓ Established baseline performance in the ED, one adult outpatient clinic and one pediatric clinic
- ✓ Established patient experience baseline performance in at least one adult outpatient clinic and one pediatric clinic
- ✓ Displayed quarterly patient experience data
- ✓ Conducted focus groups in one targeted clinical area to establish the baseline for patient experience
- ✓ Administered a survey of patient experience in the Family Care Clinic
- ✓ Developed and implemented a patient experience survey in ambulatory care settings
- ✓ Integrated patient experience criteria into employee performance measures
- ✓ Improved the overall quality of care Percent Excellence patient satisfaction score in at least one targeted clinical area
- ✓ Trained additional Family Care Clinic staff on patient experience program goals and objectives
- ✓ Implemented a patient/family experience strategic plan
- ✓ Evaluated strategies for organization-wide communication of patient experience data and efforts to improve the patient/family experience
- ✓ Assessed disparities in patient experience of primary care and chronic disease management

The metrics referenced in the DY 8 reports as potential indicators of improvement included:

- Number of nurses trained on the communication model and standards
- Patient experience performance measures
- Inclusion of specific patient experience objectives in employee job descriptions and work plans
- Percentage improvement over baseline of Percent Excellence score in patient satisfaction survey's overall quality of care question

- Number of staff trained to understand patient experience program goals and objectives
- Documentation of communication and staff education for a patient/family experience strategic plan
- Use of patient experience measures to identify disparities in primary care and chronic disease management

Progress and Impact:

Patients who are more satisfied with their experiences are more likely to follow their care plans and communicate openly with their medical providers. PHSs also recognize that transforming an organization requires engagement with staff in the process of improving the system of care. The milestones in this category complement efforts in Category 3.1 Patient/Care Giver Experience in which all sites reported results of the Clinician and Group: Consumer Assessment of Health Care Providers (CG CAHPS) survey of patient experience in ambulatory care.

Engaging patients
In DY 8, several systems focused their efforts on gathering information on patient experience and communicating results to staff and patients. PHSs used patient surveys and focus groups to gather data on patient satisfaction. Surveys focused on communication with staff in various functions including registration and front desk clinical staff, nursing staff and physicians; staff attentiveness to patient needs; patient involvement in the care planning process; and overall clinic experience.

In addition to the CG CAHPS surveys in ambulatory care, systems targeted the ED in their efforts to improve patient experience. Since 50% of hospital admissions arrive through the Emergency Department, NMC targeted the ED as the clinical area to improve patient experience and conducted 11 focus groups of patients, nursing staff, ancillary staff and physicians. In DY 8, CCRMC established baseline patient satisfaction data in the ED. Two weeks after discharge, CCRMC conducts a telephone survey focused on how patients experienced their visit to the ED.

In addition to focus groups and surveys, one site used technology to facilitate its efforts. To identify disparities in chronic disease management in primary care, UCI converted paper versions of patient satisfaction surveys to iPads, and volunteer coaches and undergraduate student volunteers collected patient surveys by using iPads. This saves significant administration time and the data is now available in real time.

Engaging staff
Engaging staff is critical to improving the patient experience, and several other categories detail efforts to engage staff in improvement efforts. Milestones in this category focused mainly on training staff and keeping them informed about the patient experience.

RCRMC successfully trained an additional 46% of family care clinic staff on patient experience goals and objectives, and identified the challenge to ensure that new staff and rotating physician residents receive the same detailed training. Like other systems, RCRMC recognizes the importance of keeping staff informed and engaged in the process, so they provide at least one organization-wide display of performance and reinforce theme with CEO presentations and information dissemination through newsletters.

Under the guidance of a patient/family experience strategic plan, SCVMC formed subcommittees to customize initiatives and to gather/review patient experience data. Rollout of the strategic plan was slowed by staff departures. Despite these challenges, SCVMC deployed education to all new staff and implemented a staff recognition program related to patient experience. Because SCVMC identifies patient engagement and experience as critical ingredients to their success as a provider of choice, SCVMC accomplished its milestone of evaluating strategies for organization-wide communication. As an example of outcomes of this process, SCVMC formed the Patient Experience Committee with a charge to study the impact of implementing EHR on patient experience.

Communicating and displaying data

Recognizing that transparency is key to redesign, several sites established milestones related to publicly displaying and using data for patients and/or staff. At SMMC, patient experience survey data are posted on the staff bulletin board, reviewed in staff meetings, posted on the Nurse Manager's office door and distributed via monthly emails. NMC posted patient satisfaction survey results on bulletin boards and criteria for patient satisfaction were integrated into the "daily huddles" in all departments. NMC integrated patient experience criteria into employee performance measures.

2.6 Implement/Expand Care Transitions Programs

The purpose of this project is to better coordinate care from the hospital to the ambulatory care setting and to ensure patients' conditions are managed so that they stay healthy and reduce preventable readmissions.

Five public health care systems completed 11 milestones related to implementing/expanding care transitions programs:

1. Alameda Health System (AHS)
2. University of California Davis Medical Center (UCD)
3. University of California Los Angeles Medical Center (UCLA)
4. University of California San Diego Health System (UCSD)
5. University of California San Francisco Medical System (UCSF)

DY 8 Milestones Accomplished:

- ✓ Expanded post-discharge phone-based care management protocol to all med surgical units
- ✓ Developed standard care procedures for a percentage of heart failure patients
- ✓ Developed protocols for acute myocardial infarction
- ✓ Implemented standard care transition processes
- ✓ Improved discharge summary timeliness
- ✓ Increased percent of medical surgical inpatients discharged to home assigned to a medical home or primary care practitioner (PCP)

The metrics referenced in the DY 8 reports as potential indicators of improvement included:

- Contact logs and monthly call success reports
- Number of high risk patients with at least three contact attempts documented
- Use of registry to measure the number of ED case managed patients and number of patients admitted from ED into UCD Medical Center
- Number of patients receiving discharge intervention and post-hospitalization phone management
- Number of patients with discharge summaries completed within 48 hours
- Number of medical/surgical inpatients discharged to home with referral/assignment to a medical home or PCP

Progress and Impact:

Successful transitions to a home or external facility depend greatly on how well patients and their families understand discharge and medication instructions. Efforts to implement and expand care transitions programs are closely linked to other categories including Category 2.7 Medication Management.

Discharge

Several systems focused on implementing/expanding processes related to discharge. In DY 8, UCLA accomplished its goal to develop protocols to effectively communicate with

patients and families during discharge and post-discharge to improve adherence to discharge instructions. Although regulations require discharge summaries to be completed 14 days post discharge, UCSD recognized that this information is critical to the next provider of care, so they established a goal of completing 80% of discharge summaries within 48 hours. Success is attributed to a communication plan targeting PHS leadership as well as physician leaders who served as champions of this effort. UCSD also increased the percentage of medical/surgical inpatients discharged to home with a referral/assignment to a medical home or PCP.

Coaching
Recognizing that some patients need follow up coaching to ensure condition management, three systems implemented or expanded their coaching efforts. AHS successfully expanded its Patient Call Manager program to contact patients discharged from Highland Hospital within 24-72 hours. The program is intended to improve clinical outcomes and patients' perceptions of care, and to contribute to the reduction of preventable readmissions. For its Intensive Case Management Quality Initiative, UCD used the EHR system to flag and provide case management to patients who had been in the ED four or more times in the last three months. To address staff concerns that being flagged as an ICM patient would negatively affect care, the EHR alert is only visible by clinical case managers.

UCSD accomplished five milestones related to developing and implementing care transitions programs. After a planning process in DY 7, UCSD implemented Care Transitions Protocols on four pilot units in DY 8. The goal is to standardize processes on the four pilot units, so that they can be universalized across the hospital system. Hospital-based transition coaches worked with the nursing team to develop a three-part intervention to improve patient education and prepare patients and their families for the transition from hospital to home. The transition coaches implemented video-based patient education, created unit-specific resource lists for patient education, and developed a standard curriculum for teaching nurses. Staff identified medication management as the most significant barrier to a successful transition when, during follow-up calls, only 51% of patients listed their medications correctly, and many demonstrated lack of knowledge, lack of access and confusion over medication lists.

Community Partners
Relationships with community partners are a key element in successful care transitions programs. Two systems leveraged their care transitions programs and developed partnerships to secure federal funding for the Community Based Care Transitions Program targeting Medicare fee-for-service beneficiaries. UCSD established a collaborative partnership with San Diego County Aging and Independent Services (AIS), allowing pilot units to refer patients at high risk for readmission to AIS for a Care Transition Intervention (CTI) that includes enhanced patient follow up and a home visit. UCSD also accomplished its milestone to assess and establish linkages with community-based organizations to create a support network targeting high volume and high readmission patients.

In DY 8, UCSF maintained and built upon its relationships with skilled nursing facilities and local home care agencies to improve transitions to those facilities. In 2012, UCSF joined the

San Francisco Transitional Care Project, which is part of the federally funded Community-based Care Transitions Program, and as of June 2013, they have referred 88 patients to the transition program. The most significant barrier in this partnership has been developing a reliable system for referrals, and UCSF has been working to refine their referral and enrollment processes for that purpose.

2.7 Conduct Medication Management

The purpose of this project is to manage medications so that patients receive the right medications at the right time across the PHSs in order to reduce medication errors and adverse effects from medication use. This project is linked to efforts in Category 2.6 Implement/Expand Care Transitions Programs.

Four public health care systems completed seven milestones related to medication management in DY 8.

1. Contra Costa Regional Medical center (CCRMC)
2. University of California Davis Medical Center (UCD)
3. University of California Los Angeles Medical Center (UCLA)
4. University of California San Diego Health System (UCSD)

DY 8 Milestones Accomplished:

- ✓ Established a baseline for the number of patients enrolled/referred to the Medication Refill Clinic
- ✓ Implemented pharmacist and medication management services for a variety of patients (COPD, AMI, pneumonia, heart failure and warfarin patients)
- ✓ Implemented bedside barcode scanning of medications
- ✓ Rolled out a medication management program and point of care decision support tool

The metrics referenced in the DY 8 report as potential indicators of improvement included:

- Number of patients enrolled/referred to the Medication Refill Clinic
- Percentage of doses administered to patients that are scanned before administration
- Percentage of diabetic patients receiving pharmacist consultations
- Percentage of patients that consistently receive medication management

Progress and Impact:

Medication management ensures that patients receive the right medications while in the hospital and the right medication and education as they transition from acute care to home. Exceeding the goal of 488 patients, a total of 549 UCSD patients received medication management in the form of verbal education about discharge medications. In addition, pharmacists provided post-discharge follow up phone calls within 72 hours and/or face-to-face visits within seven days. This allows pharmacists to make medication reconciliation corrections that include: drug initiation/discontinuation, adjustment of ordered medication dose/frequency and removal of duplicate therapy.

CCRMC accomplished its milestone to establish a baseline for the number of patients enrolled in or referred to the Medication Refill Clinic. The purpose of this project is to increase patients' access to healthcare professionals managing patients' medications in an efficient manner. Since inception, a total of 28 patients have been referred to the

medication clinics at Pittsburg Health Center, Martinez Health Center, and West County Health Center.

UCD's program on medication management enhances its work on Category 2.6 Implement/Expand Care Transitions Programs. In DY 8, UCD started transition programs for acute myocardial infarction (AMI), pneumonia and chronic obstructive pulmonary disease (COPD) patients. Staff from the pharmacy department provided medication reconciliation, patient education and follow-up calls. There are currently five transition programs in place. Each pharmacy project had its own definitions and interventions, and each project required working with an EHR report writer to identify patients appropriate for the transition programs. Initial attempts to pull EHR data missed appropriate patients and captured patients with unrelated diagnoses, so the reports were re-engineered to be more accurate. While transition programs have increased in priority for the health care system, a significant challenge is that several programs are in place at once and may duplicate efforts.

In DY 8, UCD also fully implemented bedside barcode scanning of medications. The barcode medication administration project requires barcode scanning devices to assist in determining if the medication product, order, and patient are correct before administration occurs. With a scanning rate of 98%, UCD exceeded its goal for 95% of all doses administered to hospital patients to be scanned before administration. They credit the high implementation rate to nurse staffing support and classroom training.

2.8 Increase Specialty Care Access/Redesign Referral Process

The purpose of this project is to increase access to specialty care through increased efficiencies, increased capacity and investment in systems so that patients in need of specialty care can receive that care in a timely manner. This project is strongly related to 1.5 Expand Specialty Care Capacity.

Four public health care systems completed seven out of eight possible milestones related to increasing specialty care access and redesigning referral processes.

1. Riverside County Regional Medical Center (RCRMC)
2. San Francisco General Hospital (SFGH)
3. San Mateo Medical Center (SMMC)
4. University of California San Francisco Medical System (UCSF)

DY 8 Milestones Accomplished:

- ✓ Reviewed and responded to most eReferral consultation requests within 3 business days
- ✓ Increased the rate of appropriate and accepted referrals
- ✓ Fully implemented telemedicine projects
- ✓ Developed and implemented standardized referral evaluation and processing guidelines for additional specialty clinics
- ✓ Measured wait times for specialty care appointment in identified specialty clinics

The metrics references in the DY 8 reports as potential indicators of improvement included:

- Number of eReferral submissions reviewed and responded to within three business days
- Number of referrals to primary care specialists
- Number and location of telepsychiatry consults

Progress and Impact:

Electronic referrals

In transitioning from a paper-based referral system to an electronic system, most systems accomplished their milestones, but these accomplishments were not without challenges. RCRMC exceeded its goal to increase the rate of appropriate or accepted referrals by 20% over baseline. Prior to DY 8, RCRMC used a manual, paper-based referral system that resulted in referral requests getting lost, trouble with faxing information, and delayed approvals. In August 2013, RCRMC implemented an electronic, web-based referral management program. This milestone was originally scheduled for DY10 but the situation's urgency required expediting this project.

Overall, SFGH accomplished its goal for a specialist to review and respond to at least 70% of eReferral consultations within a minimum of three business days. Four clinics (cardiology, hematology, orthopedics and urology) had an average annual response rate below 70%. Three specialties experienced significant improvements after a retreat for specialists to discuss challenges and to share eReferral best practices, but hematology continued to experience challenges due to limited staffing.

SMMC originally sought to utilize electronic referrals to measure the wait time for specialty care and to evaluate 50% of patients within 30 days. Unfortunately, SMMC found that the majority of the eReferrals were created without sufficient data so it was impossible to determine the wait time between referral to appointment. SMMC updated the eCW referral system with drop boxes to make the system easier for staff to navigate. These changes along with educating staff (via email and one-on-one sessions) dramatically improved the quality of the data. All ED staff are trained and using the electronic referral system, but a barrier to achieving 100% participation is the fact that the electronic referral system goes offline for one hour every night. The eCW referral system was originally designed for clinic use and the downtime was scheduled during the time the clinic was closed. SMMC is working with the developer to resolve this barrier.

In DY 7, UCSF accomplished its goal to develop and implement standardized referral evaluation and processing guidelines for two additional specialty clinics, and they expanded this project to the hematology clinic in DY 8. Since hematology specialists field a substantial number of internal referrals from primary care providers, the standardized referrals are meant to increase the utility of the initial visit by informing the referring providers of key labs, imaging and information that should be completed by the first visit with the specialist. One challenge was that PCPs were not using the standardized referral templates, a challenge which was. UCSF also introduced a pilot program, Flex Consult, which allows a specialty provider screener to review all referrals for appropriateness and urgency.

In conjunction with its eReferral program, UCSF concurrently implemented eConsults to allow PCPs to obtain guidance from specialists via electronic consultation for appropriate cases, which could potentially improve timely access to care, reduce costs associated with specialty care and improve patient-centered care. However, a challenge of incentivizing the use of eConsults for both PCPs and specialists remains a challenge. eConsults typically involve more work for the PCP as they must order more tests to satisfy the eReferral template specifications. In addition, eConsults could potentially substitute for a new patient visit, reducing compensation for the specialists. Identifying these barriers and educating providers about the benefits seems to alleviate these challenges.

Collaboration

UCSF presented an abstract entitled, "Implementation of a Structured, Electronic Referral System to Support the Principles of the PCMH-Neighborhood" at the Society of General Internal Medicine's annual conference in Denver in April 2013, and the topic of standardized referral templates generated great interest and excitement. As a result they plan to copyright and share the templates with other nonprofit institutions. UCSF also

formed an e-consult/e-referral collaborative with San Francisco VA and SFGH to share best practices.

2.9 Apply Process Improvement Methodology to Improve Quality/Efficiency

The purpose of this project is to implement continuous performance improvement in order to improve efficiencies, quality, and experience; reduce inefficiencies; and eliminate waste and redundancies.

Three public health care systems achieved eight milestones in DY 8 associated with applying process improvement methodologies:

1. Natividad Medical Center (NMC)
2. San Mateo Medical Center (SMMC)
3. University of California Davis Medical Center (UCD)

DY 8 Milestones Accomplished:

- ✓ Implemented additional Lean performance improvement events
- ✓ Trained process improvement champions in Lean
- ✓ Convened training events conducted by process improvement trainers

The metrics referenced in the DY 8 reports as potential indicators of improvement included:

- Number of process improvement training events
- Number of process improvement advisors/champions

Progress and Impact:

Each of the three PHSs undertaking this projected continued to implement a different performance improvement approach to accelerate delivery system transformation. NMC has adopted the Model for Improvement as its primary improvement method, SMMC is embedding Lean, and UCD is utilizing Lean Six Sigma. Efforts in this category are closely associated with projects in Category 1.4 Enhance Performance Improvement and Reporting Capacity.

NMC adopted IHI's Model for Improvement as its framework for process improvement. Their performance improvement training includes four, two-hour courses, including some led by staff members who are designated process improvement trainers. In DY 8, eight teams used the Model for Improvement. With the goal of empowering every caregiver involved with a Medical/Surgical patient to know the names of the attending physician and resident responsible for the patient at all times, NMC implemented the Identification of the Caregiver project for each patient on Medical/Surgical 3. After developing a four-part solution and conducting multiple tests-of-change (PDSA cycles), by December 2013, NMC achieved a score of 88% for caregiver awareness and 89% for daily updating the patient census report. This contrasted with a baseline of 0%. In addition to the Model for Improvement, NMC is beginning to integrate Lean into their process improvement efforts. In DY 8, the Quality Director attended a Lean training at Virginia Mason Institute, and NMC

plans to train additional process improvement advisors and champions in Lean during DY9 and DY10.

SMMC uses the Lean approach as its framework for process improvement. By implementing a total of 31 events, SMMC far exceeded its goal of implementing at least six new Lean performance improvement events. In DY 8, SMMC exceeded its milestone goals and trained 48 staff (including ten medical providers) as process improvement champions. To ensure that Lean will be self-sustaining, SMMC used a "train the trainer" model. Given SMMC's ability to exceed its process improvement milestones, SMMC has identified higher Lean targets in DY9 and DY10.

UCD uses Lean Six Sigma as their framework for process improvement. In DY 8, UCD accomplished its milestone of providing four Lean Six Sigma courses, and they trained 48 faculty and staff in Lean Six Sigma. UCD also accomplished two milestones using the Lean Six Sigma approach in the ED. One project focused on establishing an automated process for identifying repetitive users and deploying intensive case management for high utilizers of the ED, and the other was an ED study of patient flow. Despite this progress, UCD experienced challenges in accessing EHR data in a timely manner, and issues related to the length of stay reach beyond the scope of the process improvement project.

Challenges and lessons learned

Recognizing that improvement is a process, not a project, health systems are continually re-tooling their efforts to best match the capacity and needs of their staff. Through its efforts to spread Lean methodology throughout the system, SMMC implements small tests of change to learn and adapt. SMMC has also found success by tapping into people's intrinsic motivations to make change in their immediate environment, become masterful at their craft, and participate in something that connects them to a greater purpose.

In 2010, UCD started training Lean Six Sigma greenbelts using the University of Michigan training, but since then, UCD has learned that the University of Michigan approach (relying heavily on statistics) is too rigorous for some students. UCD is developing an approach that requires less knowledge of math and statistics that blends hands-on work with guidance from the Performance Excellence Department.

2.10 Establish/Expand a Patient Care Navigation Program

The purpose of this project is to support patients who are especially in need of coordinated care to "navigate through the continuum of health care services so that patients can receive coordinated, timely services when needed with smooth transitions between health care settings."[20]

Two public health care systems completed five milestones related to establishing or expanding a patient care navigation program:

1. Kern Medical Center (KMC)
2. University of California Irvine Healthcare (UCI)

DY 8 Milestones Accomplished:

- ✓ Reduced ED visits and/or avoidable hospitalizations for patients enrolled in a navigation program
- ✓ Measured ED visits and/or avoidable hospitalizations for patients enrolled in the navigation program for high utilizers
- ✓ Increased Care Connect web-based services and emerging technologies to increase accessibility of program services to patients and their families
- ✓ Documented improvements in coordination and continuity of care following implementation of Care Navigator elements of Coached Care for Chronic Disease
- ✓ Provided navigation services to patients using the ED for episodic care

The metrics referenced in the DY 8 reports as potential indicators of improvement included:

- Number of patients without a primary care provider who received education about a primary care provider in the ED
- Number of patients without a primary care provider who are given a scheduled PCP appointment
- Annual report of patient preferences and patterns of utilization
- Creation of a smart phone app to expand patient portal web-based services
- Number of ED visits and avoidable inpatient admissions among care managed patients by 15% compared to utilization of services one year prior to enrollment

Progress and Impact:

Both UCI and KMC accomplished milestones related to reducing ED visits and/or avoidable hospitalizations by patients enrolled in navigation programs. Compared to six months before enrollment, UCI inpatient visits decreased 52% and ED visits decreased 60% for patients enrolled in the navigation program. KMC also exceeded its milestone to reduce ED visits and avoidable inpatient admissions among care managed patients by 15%.

[20] See http://www.dhcs.ca.gov/Documents/Attachment%20Q.pdf

Compared to one year prior to enrollment, ED visits decreased 61% and inpatient admission decreased 66% among care managed patients.

Patient communication and education
Patients are most at risk of experiencing difficulty navigating the health care system once they leave the ED, so KMC focused its efforts on ED patients. In DY 7, KMC developed the ED Navigator Program and hired the ED Care Coordinator to help ED patients, particularly those seen for non-urgent conditions, better navigate the health care system. In DY 8, KMC continued and strengthened these services. The ED Care Coordinator educates patients about the importance of primary care and coordinates with community clinics and county primary clinics to schedule appointments upon the patient's discharge from the ED.

In DY 8, UCI expanded and developed their patient portal web-based services, including the introduction of smart phone apps. This platform allows for secure communication between patients and providers, and it also allows patient access to information about recent visits and lab results. Originally funded by donation seed money, funding for the portal is now included in the general budget.

2.11 Improve Patient Flow in the Emergency Department/Rapid Medical Evaluation

The purpose of this project is to reduce wait times in the ED so that patients in need of care are triaged and receive care in a timely manner and that fewer patients leave the ED without being seen.

Two public health care systems completed one out of three potential milestones in DY 8 related to improving patient flow in the ED:

1. Alameda Health System (AHS)
2. University of California San Diego Health System (UCSD)

DY 8 Milestones Accomplished:

- ✓ Decreased the percent of patients who leave the ER without being seen by 10%

The metrics referenced in the DY 8 report as potential indicators of improvement included:

- Length of door-to-admission time
- Percentage of patients who left ED without being seen
- Average length of stay (LOS) for acuity 4 and 5 patients

Progress and Impact:

Patients tend to leave the ER without being seen primarily due to prolonged wait times to see a physician, but limited bed capacity restricts providers' ability to evaluate patients in a timely manner. UCSD successfully decreased the percent of patients who leave the Hillcrest ER without being seen. In 2012, Hillcrest ED capacity increased by approximately 50% with a capital investment in additional beds and provider work space, and the expansion was opened in phases to coordinate with scaled up staffing.

Challenges and lessons learned

Systems working to improve patient flow found that their efforts were challenged by greater systems issues. Despite connections to existing process improvement efforts (see Category 2.9 Apply Process Improvement Methodology to Improve Quality/Efficiency), success of patient flow in the ED requires changes at the system level. At UCSD, the baseline door to inpatient admission time was 8.4 hours, and the goal for DY 8 was a 10% reduction in door to admission time. The average length of stay (LOS) for DY 8 was 8.6 hours, a slight increase over baseline. UCSD sites the greatest challenge to achieving a reduction in LOS is the lack of available inpatient beds. To address this challenge, PHS leadership is engaged in reducing ED LOS, and UCSD also opened a seven-bed observation unit at the La Jolla facility in 2013.

AHS was not successful in lowering the length-of-stay for admitted patients. The LOS for admitted patients increased 14% to 16:07 hours. Although AHS added an intake nurse position, a quick-registration process, and a SWAP program to make more efficient and timely use of available ED beds, AHS did not succeed in lowering its LOS. This process is inherently more challenging than reducing LOS for low-acuity patients because it involves

patient flow through the whole system. Multiple bottlenecks and lack of coordination hinder ED flow. The implementation of a new EHR system and the departure of a key leader also affected success.

In DY 7, AHS also conducted a Lean Value Stream Mapping event and two Kaizen workshops to reduce LOS. The team developed standard work for discharge and registration processes and developed reliable communication methods, but progress in DY 8 has been uneven.

2.12 Use Palliative Care Programs

The purpose of this project is to promote the use of palliative care programs in order that patients with terminal illnesses receive dignified and culturally appropriate end-of-life care that prioritizes pain control, social and spiritual care, and patient/family preferences.

Two public health care systems completed three milestones toward using palliative care programs in DY 8:

1. University of California of San Diego Health System (UCSD)
2. Ventura County Medical Center (VCMC)

DY 8 Milestones Accomplished:

- ✓ Increased palliative care consults by 50% over baseline
- ✓ Among patients who died in the hospital, increased the proportion of those who received a palliative care consult by 5% over baseline
- ✓ Developed an outpatient palliative care consult service

The metrics referenced in the DY 8 reports as potential indicators of improvement included:

- Documentation of training programs for primary care and specialty physicians, as well as community providers
- Percent of total in-hospital deaths with a palliative care consult
- Total number of palliative care consults

Progress and Impact:

Over the past five years, through a collaboration between SNI and the California HealthCare Foundation, palliative care has been embraced by California public health care systems on an unprecedented scale. Although this collaborative effort is wrapping up in 2013, PHSs are well positioned to continue their palliative care work. Currently, 100% of public health care systems have functioning palliative care services, compared to 53% among other California hospitals.[21]

The two systems with milestones in this category are at opposite ends of the development spectrum. VCMC's program is early in its development, while UCSD has an established program. Building on its work from previous years, UCSD was able to increase its levels of service in DY 8. UCSD established a baseline in DY6, with the goal of increasing palliative care services by 50% over baseline in DY 8. In DY 8, they exceeded their goal by providing palliative care services to 973 patients (a 94% increase over baseline).

[21] California HealthCare Foundation. (2012) "When Compassion is the Cure: Progress and Promise in Hospital-Based Palliative Care." Accessed November 8, 2013 from http://www.chcf.org/publications/2012/02/compassion-cure-palliative-care

UCSD also increased the proportion of palliative care consults among patients who died in the hospital. UCSD attributes their milestone achievements to significant health system investment in their multidisciplinary palliative care team. The multidisciplinary team focuses on providing palliative care education to the clinical team and increasing utilization of established triggers that identify patients appropriate for a consultation. UCSD (along with four other UC medical centers) leveraged their existing funds and were recently awarded a grant from the UC Office of the President to support enhanced training for critical care nurses in the field of palliative care.

Challenges and lessons learned
Although VCMC achieved its outpatient palliative care service milestone, they also experienced significant challenges implementing services and educating providers. Established within the past two years, VCMC's palliative program is comparatively new in its development but they have seen over 700 patients in the first two years, severely stretching their palliative care resources. They anticipated seeing 250 patients per year.

In addition to stretching resources, the palliative care team has experienced significant turnover, and they have had difficulty recruiting additional certified palliative care providers. The turnover has challenged the development of the outpatient palliative care program, but educational programs for providers both within the VCMC system and outside of the system continue with positive attendance.

2.13 Implement Real Time Hospital-Acquired Infections (HAIs) System

The purpose of this project is to pilot a first-of-its kind technology that can identify and prompt interventions for HAIs.

Two public health care systems completed three milestones related to implementing a real-time HAI system:

1. University of California Irvine Healthcare (UCI)
2. University of California San Diego Health System (UCSD)

DY 8 Milestones Accomplished:

- ✓ Expanded a real-time intervention system to identify and track patients with organisms known to increase the risks of HAIs in the new EHR
- ✓ Developed semi-automated detection of CLABSI due to skin commensals by flagging charts with select CDC NHSN criteria
- ✓ Implemented daily chlorhexidine bathing of patients with central venous catheters (CVCs) as evidenced by presence of a standardized order set

The metrics referenced in the DY 8 report as potential indicators of improvement included:

- Evidence of effective process
- Number of patients with CVCs receiving chlorhexidine bathing

Progress and Impact:

At UCI, data about chlorhexidine bathing in two ICUs and two non-ICUs indicates a 66% compliance rate (goal was 65% compliance). UCI experienced challenges integrating this data element into its EHR system (e.g., staff entered information via free text rather than a drop box menu), so actual compliance is likely higher. These challenges are being addressed through on-going nursing staff education.

With EHR enhancement in place during DY 7, UCSD expanded the HAI system to ambulatory care and inpatient settings in DY 8. Real-time information on whether the patient is on transmission-based precautions (and for what reason) appears on the EHR banner. At the time of admission or an outpatient visit, the attending physician addresses the need for precautions before a room assignment can occur. The system allows clinical staff to alert Environmental Services of appropriate cleaning or facilities engineering needs. The EHR banner also includes an embedded link to web resources where education and infection control policies and procedures are available and updated regularly. Prior to this system, patients were not consistently flagged for precautions, creating a potential risk of exposure.

2.14 Redesign for Cost Containment

The purpose of this project is to develop the capacity to test methodologies for measuring cost containment that may be applied to other projects to measure the efficacy of these initiatives.

Santa Clara Valley Medical Center (SCVMC) was unable to complete one milestone in DY 8 pertaining to measuring cost containment.

Metrics:

- Calculate year over year costs for each improvement initiative including diabetes care

Progress and Impact:

To measure intervention impacts, SCVMC worked to develop baseline cost information during the second half of DY 7. Due to a late start, staffing issues, and challenges with EHR implementation, this milestone is 25% complete. Total completion is expected by June 30, 2014.

D. Category 3: Population-Focused Improvement

In DY8, PHSs reported on the entire set of 20 population-based metrics, including the patient/care giver experience domain, more than tripling the number of metrics from the previous year. In DY 7, PHSs reported on a subset of six measures -- two from care coordination, two from preventive health and two from at-risk population domains.[22] From DSRIP's conception, DY8 was projected to be a pivotal year – after two years of investing in the infrastructure and redesigning care, for the first time PHS could begin to demonstrate improvements in quality resulting from those investments.

Like any endeavor of this magnitude, initial successes often reveal unexpected challenges. The success in reporting Category 3 measures stems directly from the infrastructure and innovation put in place through Categories 1 and 2 projects. However, the reports have given PHSs another challenge – to validate the accuracy of their data and compare it to both previous years and other PHSs. In order to report comparable data, there are three main challenges to surmount:

1. The simultaneous and uneven implementation of electronic health records (EHRs) and the difficulty in using EHRs to report consistent, comparable population-based data
2. The amount and intensity of data expertise demanded – training current staff on population-based methods and hiring expertise to configure information technology to collect, aggregate, analyze, and report accurately
3. The modifications and clarifications in definitions of performance metrics, where clinical experts', specialty societies' and regulatory agencies' slightly varied recommendations can manifest in comparable results of a specific metric

In DY 8, PHSs made tremendous strides in collecting and reporting population-focused improvement metrics. However, comparable performance measurement year to year and across multiple PHSs relies the on the specificity of data definitions and accuracy of the data captured and reported by each PHS. The results in DY8 data reveal the ongoing need to improve the quality of data in order to improve the quality of care. Thus, what was expected to be the harvesting from the seeds sown in previous years turned out to reveal tender saplings just beginning to take root.

[22] Appendix C summarizes Category 3 measures.

3.1 Patient/Care Giver Experience

Patients' interactions with providers influence their health trajectories – whether or not they engage in their own care, take prescribed medications, practice preventive health, and return for repeat visits. Given the centrality of patients' experiences to their own health decisions and their cumulative impact on population health, assessing patient experience has become a central activity for performance improvement. The purpose of this project is to measure patient experience, focusing on the ambulatory care setting.

DY 8 marks the first year reporting patient/care giver experience data. Seventeen PHSs participating in this project completed 85 milestones.

DY 8 Milestones Accomplished:

DY 8 milestones are patient ratings on questions about:

- ✓ The timeliness of appointments, care, and information
- ✓ Communicating with doctors
- ✓ Interacting with office staff
- ✓ Rating their doctors
- ✓ Shared decision-making

The metrics referenced in the DY 8 reports as potential indicators of performance include:

The patient experience metric or "Top Box Score" reflects the percentage of responses that are the best possible answers. Four of the five patient experience metrics average responses from multiple questions to arrive at Top Box Scores. Patients' ratings of their doctors is the only metric based on a solitary question. Top Box Scores are aggregated from clinic scores to reflect a rating at the level of the health system.

Progress and Impact:

Prior to DY 7 SNI led a collaborative process to select a common version of the CG-CAHPS (Clinician and Group: Consumer Assessment of Health Care Providers) instrument to measure patient experience, and decide on the shared parameters for survey population, sample sizes and survey administration methods.[23] The instrument selected was the CG-CAHPS Visit Survey, which was further modified for this application in the safety net. The decision to use CG-CAHPS was made jointly by CMS/DHCS/SNI during the design of DSRIP, i.e., prior to DY 7. All 5 composites/milestones were decided upon at the same time during the DSRIP design. The survey population decided upon was adult primary care patients. The guidance allows for site discretion in selecting vendors to administer the instrument, sample size above a baseline of 300, and decisions on sampling levels.

The following chart displays the metrics provided by PHSs. High scores in each category are colored in green and low scores in red.

[23] Appendix E contains these guidelines.

Figure 1: Patient-Care Giver Experience Heat Map

	Timely Appointment	How Well Doc Communicates	Office Staff Helpful	Pt Rating of Dr	Shared Decisions	**Median**
CCRMC	97.9%	67.6%	64.0%	97.4%	98.3%	**97.4%**
UCSD	58.8%	92.4%	92.4%	83.6%	66.3%	**83.6%**
UCLA	60.7%	92.4%	89.7%	82.0%	64.5%	**82.0%**
UCI	45%	90%	87%	81%	57%	**81%**
UCSF	46.6%	87.7%	83.4%	75.4%	59.7%	**75.4%**
UCD	59%	87%	93%	73%	66%	**73%**
SCVMC	49%	82%	83%	72%	62%	**72%**
VCMC	37.1%	85.9%	79.7%	71.5%	58.5%	**71.5%**
SMMC	35.6%	83.2%	81.1%	68.9%	56.0%	**68.9%**
NMC	46.3%	82.6%	82.8%	64.7%	64.7%	**64.7%**
ARMC	31.8%	78.3%	72.5%	62.2%	54.4%	**62.2%**
SFGH	34%	81%	73%	60%	49%	**60%**
LADHS	33.5%	74.2%	69.9%	59.6%	49.5%	**59.6%**
SJGH	29.2%	74.6%	78.6%	58.0%	57.9%	**58.0%**
AHS	30.0%	78.4%	81.0%	57.9%	55.2%	**57.9%**
KMC	31.7%	71.3%	71.6%	56.0%	50.6%	**56.0%**
RCRMC	37.3%	67.6%	75.8%	51.9%	55.4%	**55.4%**
Median	**37.3%**	**82.0%**	**81.0%**	**68.9%**	**57.9%**	

Patient experience data

In DY 8 many sites have gone beyond the minimum requirement of reporting patient experience data to describe their emerging processes and structures to integrate these data into their performance improvement processes as well as concrete steps they are taking to improve scores.

In the sections below we start by describing information about sampling and comparative analyses that PHSs have reported. We then focus on emerging processes and structures to utilize the patient experience data. This is followed by summaries of improvement initiatives to influence the five patient experience measures.

Sampling

Within the umbrella requirement that all sites collect CG-CAPHS data, there are interesting variations among sites in the frequency and intensity of data collection and how the data are used. Sites vary in the level to which their analyses penetrate (system, clinic, practice, provider) and how frequently data are available. Some but not all PHSs have reported on the samples they use for patient experience data. Sampling information provided by sites includes:

RCRMC collects 100 surveys per quarter for an annual estimate of 400 completed patient experience surveys for three adult primary care clinics. Methodological issues they

surfaced include that it would be expensive to collect a sample size that is statistically significant, and due to their highly transient patient population they have a high occurrence of bad telephone numbers that creates a problem for follow-up surveys. An additional challenge they face is that their IT system cannot capture every provider's name or track the physician seen by each patient. The use of residents also complicates tracking at the provider level because patients may not see the same resident over time. Thus, they cannot yet provide provider-level information.

The SCVMC patient experience metrics are based on 157 interviews. In addition SCVMC conducts more than 17,500 interviews each year in order to obtain at least 50 surveys per provider.

SJGH's patient experience metrics are based on an aggregated score from the Primary Medicine Clinic, Family Medicine Clinic, and Internal Medicine Clinic, a total of 756 surveys. UCLA collected 399 surveys.

Sites that reported vendors for patient experience data include:
Press Ganey: ACS, CCRMC, SMMC, and UCSD
The Jackson Group: RCRMC
Quality Data Management: UCLA

Interpreting data through comparisons:
In order to prioritize where improvement activities will be concentrated, several DHPs, for example UCI and UCSF, report they use Agency for Healthcare Research and Quality – West (AHRQ - West) data for points of comparison. They have noted that some scores that may look relatively high as raw numbers do not land in a high percentile when tracked against the AHRQ – West data. Other sites that selected Press Ganey as a vendor report using comparisons from the Press Ganey database.

Structures and processes to use data to improve patient experience:
Sites are developing structures and processes to interpret patient experience data and employ it for performance improvement. Many sites have convened a central Patient Experience Committee with central oversight of the data with a variety of structures and processes used to fan the information out to clinics, practices and providers. The significant take-away is that sites are not only demonstrating the capacity to collect and report patient experience data, but many are already actively involved in using it to drive performance.

RCRMC, for example, has a Patient Experience Officer who presents their data to the Patient Experience Steering Committee and the Ambulatory Care Committee for discussion. The Ambulatory Care Committee in turn reports the survey data and recommendations for follow up action to the Medical Executive Committee. Survey results are also shared with the Riverside County HealthCare Quality Committee of the county's low-income health plan.

At SFGH the central Primary Care Quality Improvement Committee has oversight for using patient experience data, and they distribute it to clinic representatives. Patient experience

representatives to the Primary Care Quality Improvement Committee vary from clinic to clinic. They may be a principal clerk in one clinic, for example, and an operations manager in another.

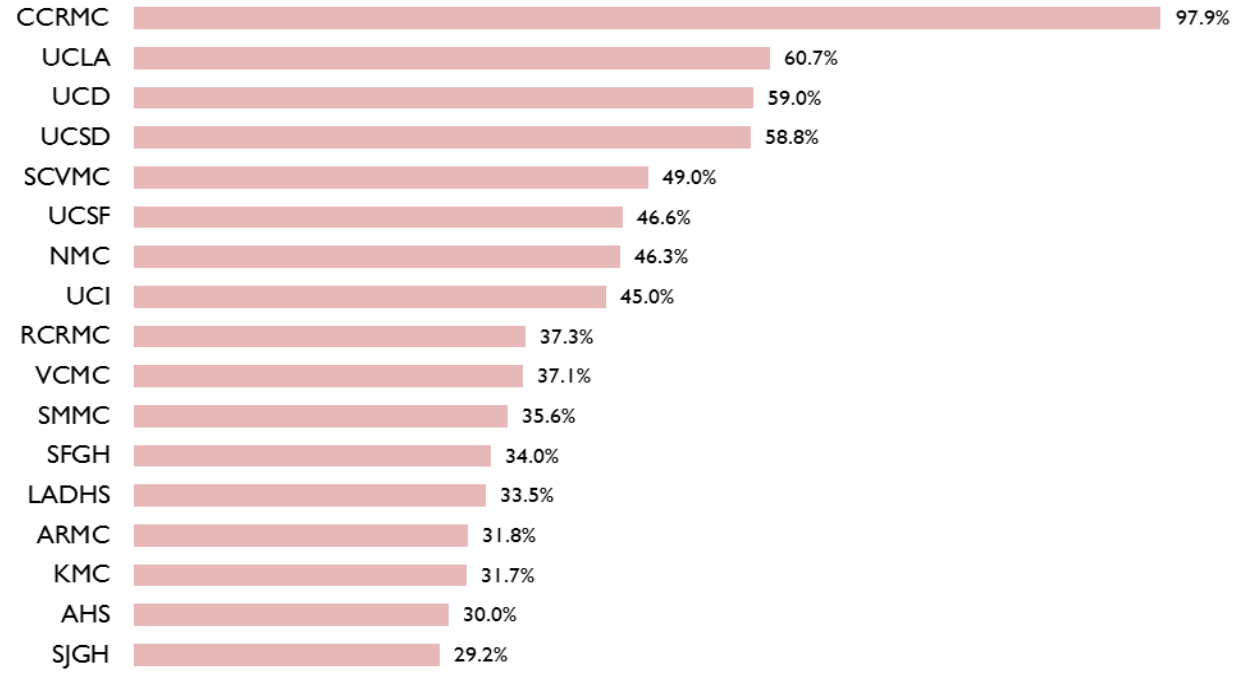
NMC trained physician leaders at the Natividad Medical Group and Laurel Family Medicine clinic on interpretation of CG-CAPHS results, and they are used slightly differently at the two clinics. The Laurel clinic incorporates patient experience data into a provider report card. At the Natividad Medical Group, the Medical Director shares reports with individual providers. The quarterly data related to office functions are reviewed at clinic staff meetings.

UCSD had been using a homegrown tool to assess patient experience and modified it to conform to CG-CAPHS. Their patient experience results are reported to the Patient Experience Steering Committee to identify opportunities and priorities for improvement and which should take priority. Clinic and provider level detail reports are distributed monthly. Results are also reported to the DSRIP Executive Committee as well as to the Quality Council.

UCLA survey results are available for the Faculty Practice Group to analyze and create reports for dissemination. UCLA does additional surveying at the individual, practice, and provider levels with quotas for each physician in order to collect statistically stable data over a 12-month period and to evaluate practice locations quarterly. Sampling at this frequency enables them to identify trends at the practice and provider levels.

Getting Timely Appointments, Care, and Information
The Top Box Score for this measure is a composite of five questions: always getting an appointment for care needed right away, always getting an appointment for a check-up or routine care as soon as it is needed, always getting answers to questions during office hours, always getting answers to questions after hours, and always being seen in within 15 minutes of appointment time.

Figure 2: Patient-Care Giver Experience – Getting Timely Appointments, Care, and Information Composite



There is significant cross-over between information sites have provided to describe activities they are undertaking to increase timely access to appointments, care and information in this section with responses to Section 1.2 Expanding Primary Care Capacity (11 sites reporting), Section 1.5 Expanding Specialty Care Capacity (6 sites reporting) and Section 1.7 Enhancing Urgent Medical Advice (one site reporting). Frequently mentioned improvement strategies include:

Increasing time and personnel
KMC reports that they have taken a variety of steps to improve their scores including increasing the number of hours clinic are open (by eight hours in DY 8 and an additional eight hours planned for DY9). They are also considering opening a clinic on Saturdays, and they have hired two additional primary care providers.

VCMC reports a dramatic rise in outpatient demand that has made it challenging to keep up with the need. To do so, they have added multiple clinic locations, expanded current space, increased the number of visits per half-day per provider, and extended hours to include evenings and weekends. They are also making efforts to recruit and retain physicians and mid-level providers.

Creating efficiencies
RCRMC believes that a more streamlined registration process initiated in the Family Care Clinic and transitioning clinic appointments from a paper-based scheduling system managed by individual clinics to a centralized computerized scheduling system will improve this score. These changes have already made it possible to make reminder calls to

reduce no-show rates and to maintain a list of patients waiting to receive an appointment so they can be contacted if there is a cancellation. These steps have already decreased the TNAA from 29 to 13 days. Centralized scheduling will be implemented in other primary care clinics early in DY9. RCRMC anticipates an impending conversion to the Soarian scheduling system that will interface with NextGen, the registration and financial system, will also add to their efficiency.

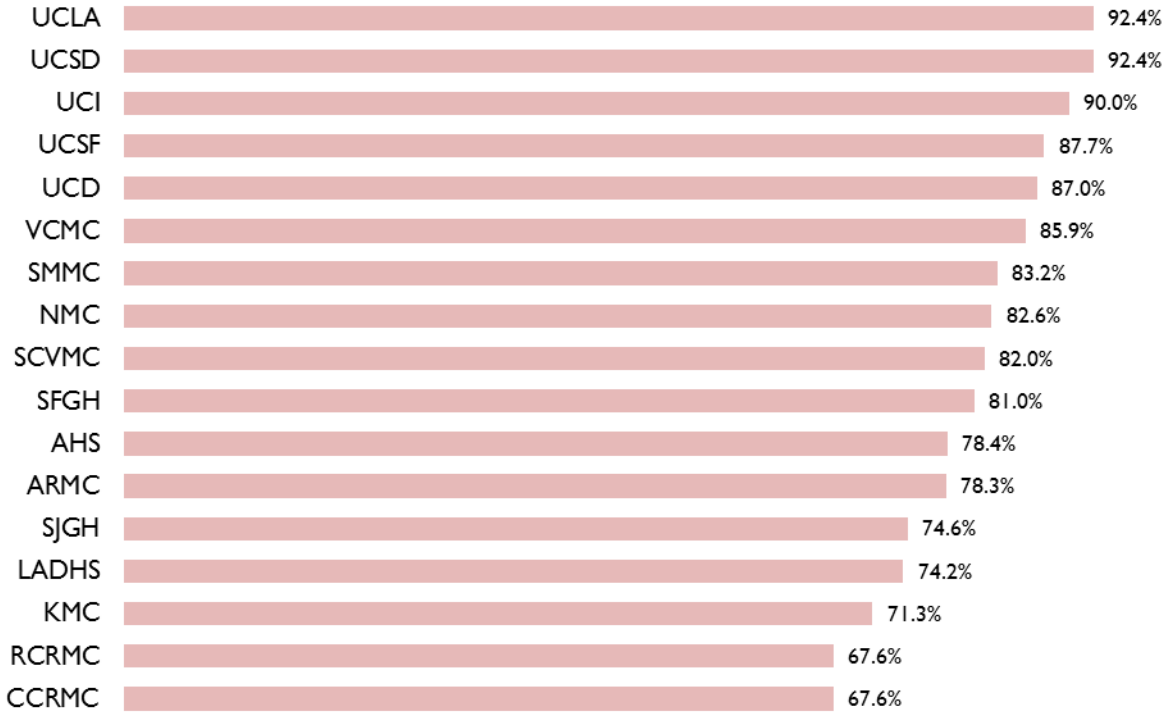
SFGH reports timely access to care is their most challenging area for patient experience improvement and thus the Primary Care Quality Improvement Committee selected it as their overall goal for 2013. They aim to improve this metric by seven percentage points and report that a number of organization-wide and clinic specific initiatives are underway to accomplish this. These include implementing a call center for scheduling and standardizing schedule templates. An electronic health record conversion scheduled for next year will temporarily work as a drag on these efficiency improvements underway.

Leveraging other improvements
LADHS anticipates that some of their improvements already underway will have an impact on this metric. These initiatives include full implementation of patient-centered medical homes (including appropriate staffing), a fully functional centralized call center, and a new phone system. Similarly, UCI reports that their low scores are likely due to implementation delays and they anticipate improvement in DY9 when such changes as open access scheduling, recruiting additional medical staff, and expanding clinic hours have been consolidated.

UCSF is not happy with their score on this measure that they report is in the tenth percentile nationally and 24th within California according to the Press Ganey client database. One intervention they highlight to improve this metric is continued enrollment of patients in their online communication portal, MyChart, that has been positively received by patients who can more easily request appointments and get answers to their questions through it.

How Well Doctors Communicate with Patients
This Top Box Score is a composite of six questions: the provider definitely explaining things in an easy-to-understand way, provider definitely listening carefully, provider definitely giving easy-to-understand information, provider definitely knowing important information from the patient's medical history, provider definitely showing respect and provider definitely spending enough time with the patient.

Figure 3: Patient-Care Giver Experience – How Well Doctors Communicate With Patients Composite



Some sites provided informative detail about their responses to ratings on this measure and steps they are undertaking to improve scores. Many of the strategies mentioned to address this metric are similar to and sometimes identical with those addressing the metrics for "Patients' Rating of Doctor," and "Shared Decision Making." Improvement strategies fall into the categories of providing direct feedback to providers, making the metrics visible to others, providing training both in skill-building and using specific tools and techniques such as Post Visit Summaries, targeting clinics and providers that are underperforming (when sites have the capacity to do these breakdowns), setting organizational priorities, and screening potential employees for their communication skills and commitment to underserved populations. A consistent theme through the patient experience scores is that sites anticipate patient experience scores will improve as they implement patient centered medical homes.

UCI and SFGH are relatively pleased with their overall performance on this measure; SFGH will explore one clinic whose results were not as high as others. SFGH conjectures that their resulting high scores reflect their practice of screening residents for their interest in patient-centeredness and working with underserved populations. In 2014 their primary care health centers will offer a provider-focused training related to improving patient communication through electronic health records. They point out that EHRs can be leveraged to improve provider-patient interactions by using their decision-making tools, interactive graphs, easy-to-access information and other prompts to increase a sense of partnership between patients and providers.

KMC continues to monitor provider communication and give physicians and residents feedback about ways to effectively communicate. Ventura, like SFGH, monitors their candidates for employment on interpersonal and communication styles.

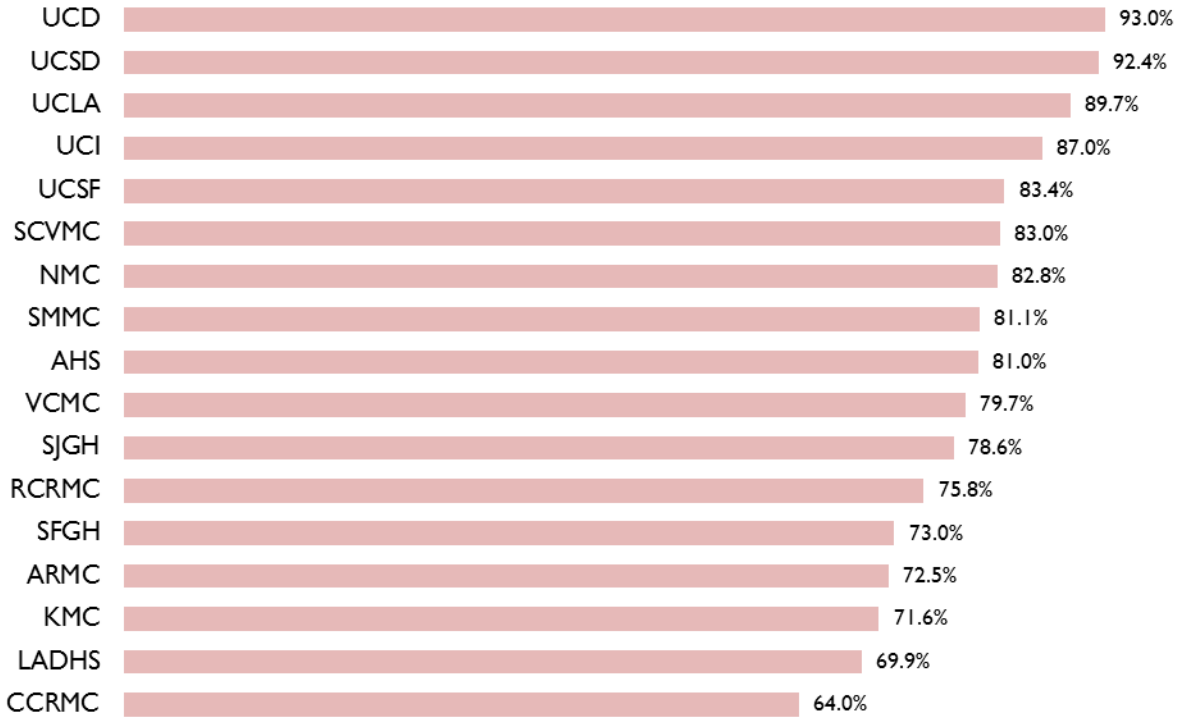
RCRMC reports that during DY9 and DY10 the Department of Family Medicine will implement an ongoing communication-training program for all clinicians within the department based on a Kaiser Permanente program that has been used for over 20 years, "The Four Habits" model.

SMMC has included providers in trainings and reminders about Service Commitments and has developed basic communication tools for them that focus on acknowledging patients, explaining the care that is being provided, and thanking patients. They are also starting to provide patients with summaries at the end of each visit to review medication lists and decisions made. The primary lesson in this area that they share has been that the support teams around providers also have an influence on patients' satisfaction with providers' communications.

UCSF reports their score places them in the 17th percentile nationally and 26th percentile in California. One step they are taking to improve this metric is to provide patients with an after-visit summary explaining pertinent details of the visit and next steps. Another is rollout of online AIDET training (a framework for patient-provider communications developed by Sharp HealthCare). Additional in-person coaching on communications is also available for staff and providers. UCSF has developed a "physician champion" team with representation from all specialty areas and primary care with the goal of collaborative improvement in physician communication organization-wide. The team developed a goal of achieving the 35th percentile in one year and the 60th percentile in two years.

Helpful, Courteous, and Respectful Office Staff
This Top Box Score is a composite of two questions: whether staff was definitely helpful and whether staff definitely treated the respondent with courtesy and respect.

Figure 4: Patient-Care Giver Experience – Helpful, Courteous, and Respectful Office Staff Composite



Some sites provided informative detail about their responses to ratings on this measure and steps they are undertaking to improve these scores.

AHS has undertaken several initiatives to influence this metric including delivering a Standards of Behavior training to clinical staff at four Wellness Centers focusing on such topics as attitude, communication, customer service, appearance, privacy, accountability, teamwork, quality, and safety and awareness. Another organizational focus has been an Employee Engagement Survey that recognizes the positive relationship between employee engagement and patient satisfaction. They will use this survey to target improvements in the coming year.

CCRMC's strategies for using this metric include making it publicly visible by creating an electronic dashboard on the intranet and publishing information in staff newsletters. They will also have their patient experience team provide expert consultation and direct support to local improvement teams and include patient and family advisors in this line of improvement work. They report that raising the awareness of patient experience data and its role in improvement work with frontline staff has been somewhat challenging.

Several sites use the same training programs for frontline staff as they do for providers. KMC, for example, is providing training in the Language of Caring that they learned from California Association of Public Hospitals and Health Systems/Safety Net Institute trainings

to all providers and office staff. This training aims to enhance the skills of providers and staff to communicate empathy and caring and has already resulted in score increases. VCMC similarly provides Language of Caring training that they believe will influence this and other patient experience metrics. SCVMC and SJGH also participate in SNI's Language of Caring program

SMMC provides frontline staff and providers with trainings on Service Commitments as well as a communication framework for interacting with patients that includes basic skills such as using names and smiling. Trainings are followed with surveys that assess their impact and results are discussed in staff meetings.

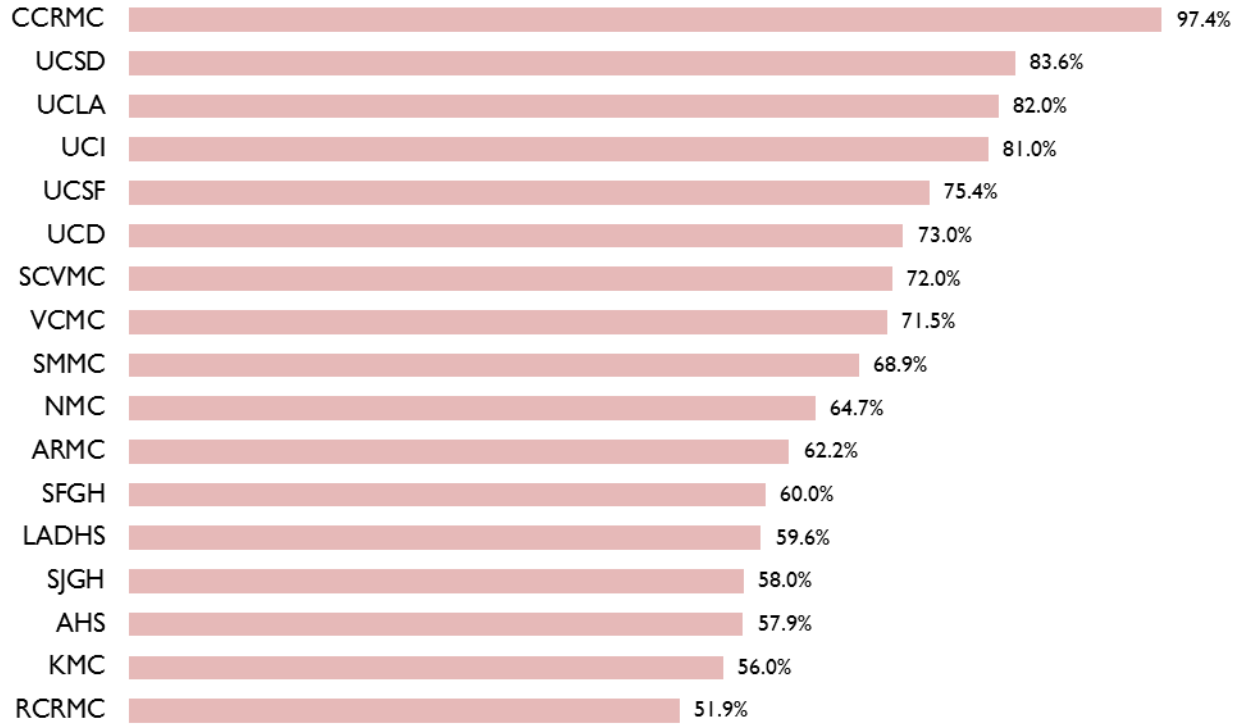
RCRMC describes several initiatives designed to transform its culture to a more patient-centered organization. These include training programs for front-line staff on patient communication, telephone etiquette, responsiveness, dress code and environmental cleanliness. The Patient Ambassador Program is a grassroots approach to reinforcing a patient-friendly culture within each department. The Patient Experience Office continues to regularly meet with clinic staff on patient experience topics to share results from the CG-CAHPS survey and to discuss strategies for improvement.

SFGH is using these metrics to focus especially on two clinics that did not score as well as the others. UCI is rolling their expectations for improvement in with the work they will be doing with staff to implement the medical homes in primary care.

UCSF states that their challenge is to go from being good to excellent. To improve patients' experiences with office staff, UCSF has developed an instructor-led customer care training in professionalism that is called Pride, standing for Professionalism, Respect, Integrity, Diversity, and Excellence. They also train staff in the AIDET framework used for providers.

Patients' Rating of the Doctor
This Top Box Score is composed of one question that asks patients to rate their physician on a scale of one through ten.

Figure 5: Patient-Care Giver Experience – Patients' Rating of the Doctor Composite



Many sites referred to information they provided for previous metrics, especially How Well Doctors Communicate with Patients as well as Shared Decision Making as a reference point for measures they are taking to improve this patient experience metric. Some sites provided additional detail.

AHS has retained the StuderGroup to provide coaching to improve patient experience measures. As part of this the Studer coach delivered a CG-CAHPS and Enhanced AIDET training specifically designed for providers. They are also learning principles of communication, health literacy and emotional intelligence with practical steps to improve their communication and involve patients more in their own care.

CCRMC is using some of the same techniques of publicly sharing information in newsletters and through internal dashboards that they are using for other patient experience metrics. They believe that after gathering more data and implementing improved After Visit Summaries and a patient portal they will see improvement. They also flag the need for patient experience data that is more detailed.

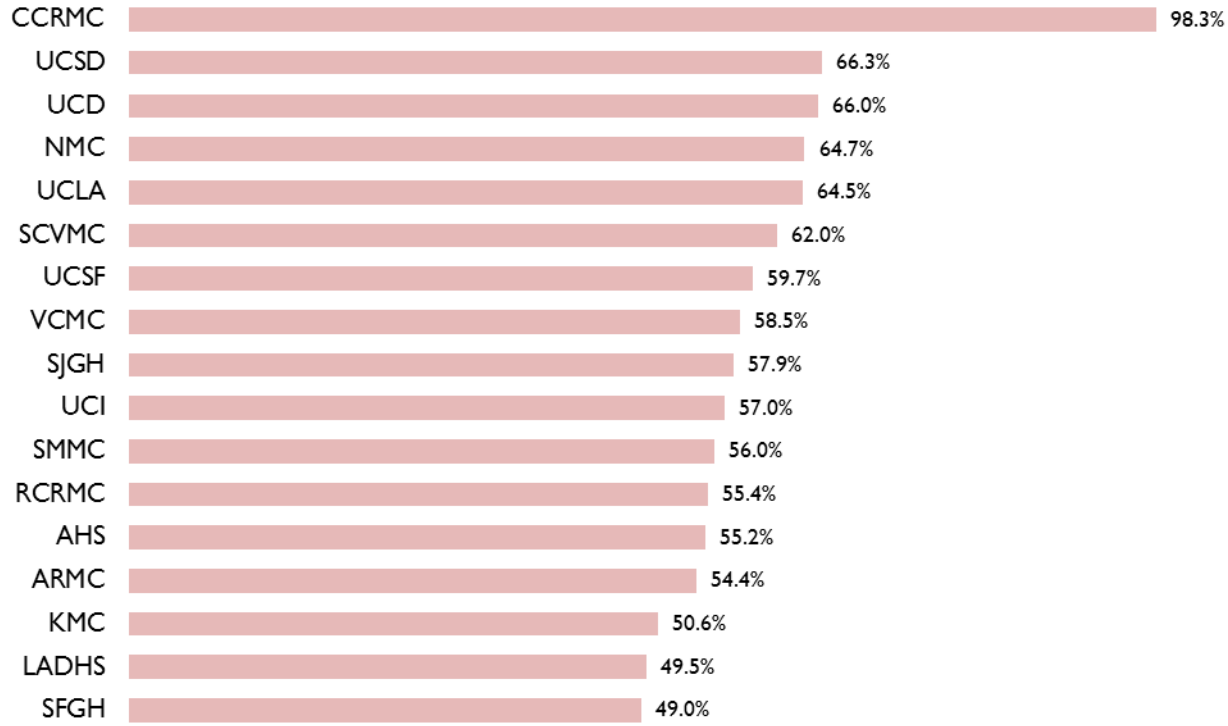
SMMC is using Lean methodologies (the Toyota Way) to create standard work focused on different aspects of the patient provider interface including how information from patients is gathered and used and the written and verbal explanations that are given to patients. Barriers to good communication that they have identified include lack of time for providers to do outreach to and communicate with patients. They are creating standard work for

making pre-visit calls that they anticipate may make the time patients spend with providers more meaningful.

VCMC reports that this metric was initially met with resistance. They have consequently taken time to pay attention to the details of the survey tool, focus on patient narrative remarks and other external feedback, and, with the help of these additional qualitative measures, find that acceptance and ownership of the scores is beginning to take place. Similar to other sites, they report using the strategies of screening providers at hiring, providing data to each doctor, making tools available to improve deficits and following up on specific complaints.

Shared Decision-making
This Top Box Score is a composite of three questions: whether the provider talks a lot about the reasons why the respondent might want to take medicine, about reasons why respondents might not want to take medicine and whether the provider asks the respondent what he or she thinks is best.

Figure 6: Patient-Care Giver Experience – Shared Decisionmaking Composite



Shared decision-making is a supplemental CG-CAHPS domain which was added to DSRIP. Several sites observed that there are no national comparisons available for it. In future years sites will be able to benchmark against their own achievements on this measure. Because this is a new metric, some indicated they would be able to provide more analysis

in future reports. Others added some informative detail about their responses to ratings on this measure and steps they are taking to improve their scores.

Many sites indicate that their strategy includes developing a sharper focus on provider-patient communications. SMMC and UCI are targeting patients with chronic illnesses for improvements on this measure.

KMC indicated that they are focused on improving two components of this measure, showing respect for what the patient says by listening carefully and explaining treatment plans in a way that patients will understand.

Other specific strategies include: SFGH's training in "Interviewing with Empathy" to help providers better understand the patient experience; coaching patients to create question lists before each visit and follow up with patients after the visit to discuss provider's answers or address questions that were not asked; focusing specifically on discussions around prescriptions; and goal setting.

3.2 Care Coordination

A goal for patients with chronic health problems is to avoid complications and deterioration of their health that might necessitate hospitalizations for their diseases. This is accomplished in part through care coordination, and hospitalizations for chronic diseases are therefore a proxy measure signaling lack of care coordination. PHSs started reporting hospitalization rates for patients with diabetes in DY 7 through a focus on hospitalizations for short-term complications for diabetes and for uncontrolled diabetes. DY 8 has added hospitalizations for congestive heart failure (CHF) and chronic obstructive pulmonary disease (COPD) to the two measures initiated in DY 7. Health system reports point to a strong crossover between this project on Care Coordination and 1.8 Enhance Coding and Documentation for Quality Data and 2.2 Expand Chronic Care Management Models. The purpose of this project is to understand PHS performance within specific areas of core coordination.

All public health care systems participated in this project during DY 8 to accomplish 68 milestones.

DY 8 Milestones Accomplished:

- ✓ Reported results of the diabetes, short term complications measure to the State
- ✓ Reported results of uncontrolled diabetes measure to the State
- ✓ Reported results of coronary heart failure (CHF) measure to the State
- ✓ Reported results of chronic obstructive pulmonary disease (COPD) to the State

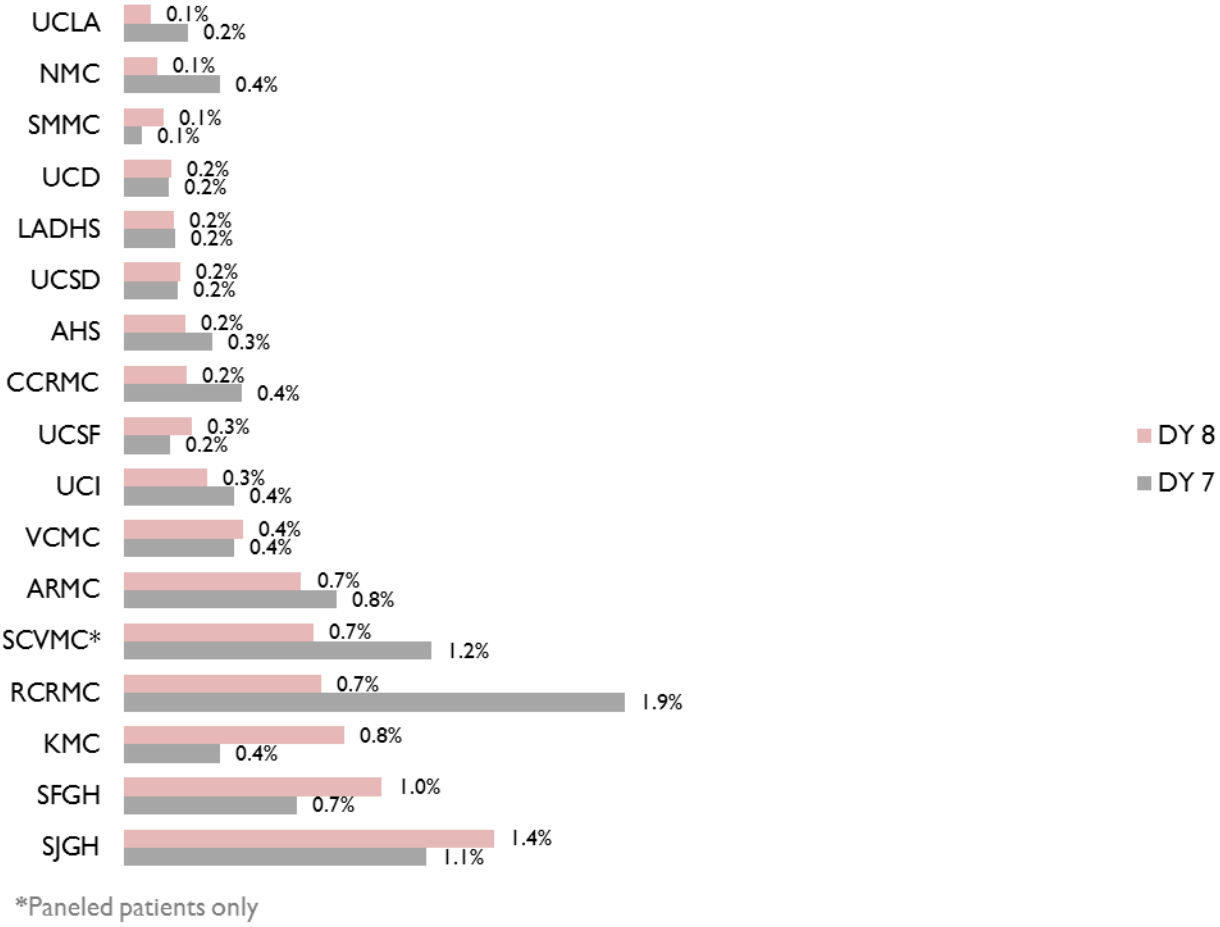
The metrics referenced in the DY 8 reports as potential indicators of success include:

- Percentage of patients 18-75 years with diabetes who have visited the PHS's primary care clinic two or more times in the prior demonstration year who have received an inpatient discharge with an ICD-9 principle diagnosis code for uncontrolled diabetes, without mention of a short-term or long-term complication within the current demonstration year
- Percentage of patients 18-75 years with diabetes who have visited the PHS's primary care clinic two or more times in the prior demonstration year who have received an inpatient discharge with an ICD-9 principle diagnosis code for short-term complications within the current demonstration year
- Percentage of patients 18-75 with ICD-9 principal diagnosis code for congestive heart failure (CHF) who visited the PHS of primary care clinics two or more times in the prior demonstration year who received an inpatient discharge with an with ICD-9 principal diagnosis code for Congestive Heart Failure (CHF).
- Percentage of patients 18-75 with ICD-9 principal diagnosis code for Chronic Obstructive Pulmonary Disease (COPD) who visited the PHS of primary care clinics two or more times in the prior demonstration year.

Progress and Impact:

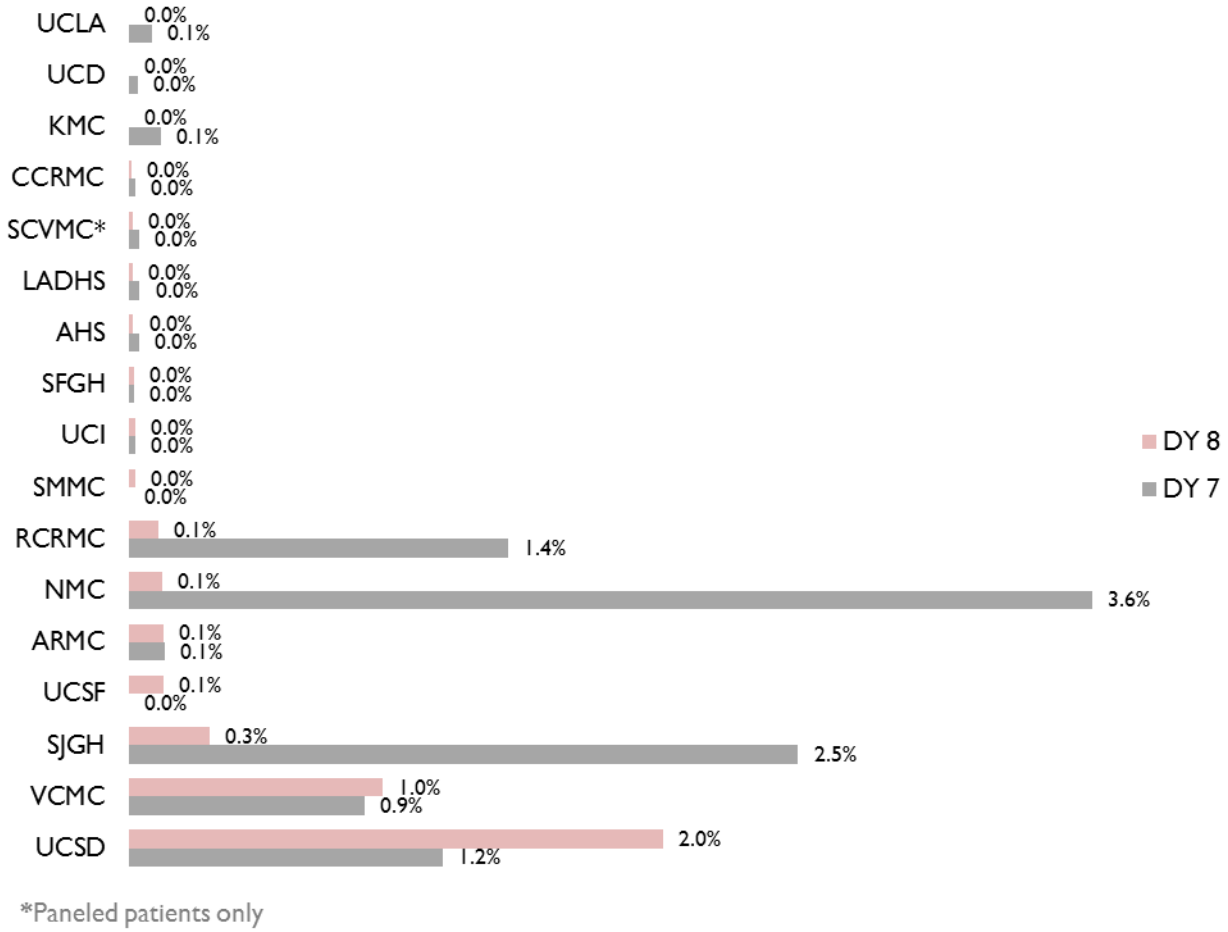
The rates of inpatient discharges for four care coordination measures are presented in in the following graphs. Following their presentation is discussion of the documentation and reporting issues related to these rates and improvement strategies for them.

Figure 7: Care Coordination – Diabetes, Short Term Complications



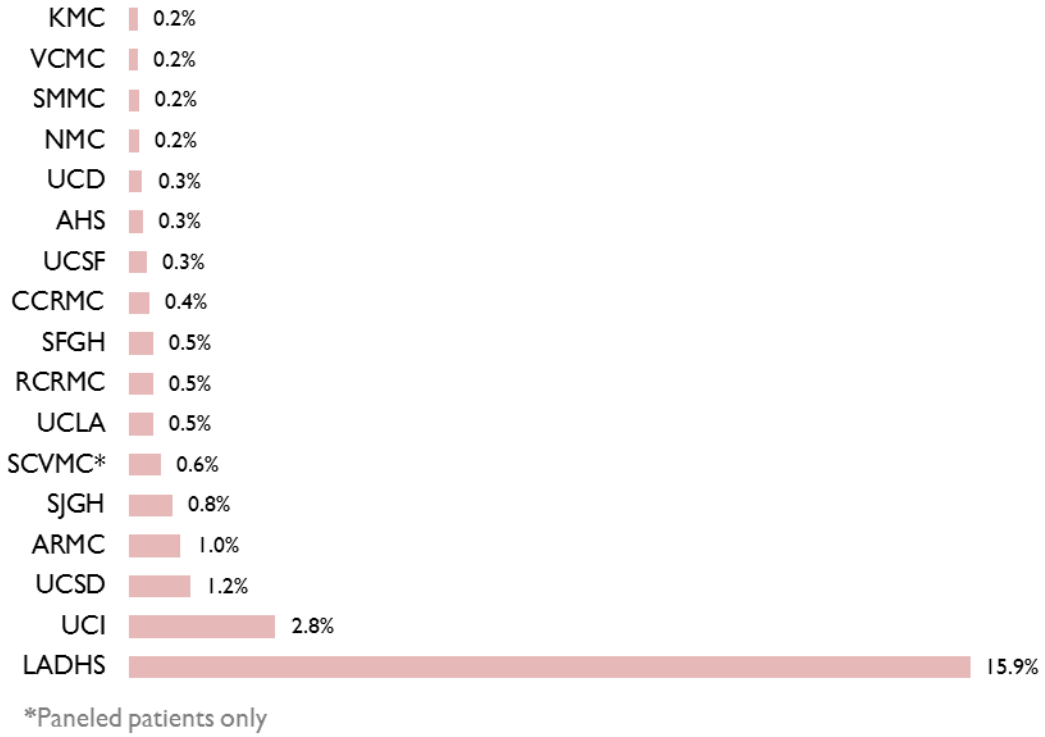
Eleven health systems reported hospitalization rates of less than half a percent for in DY 8. SJGH reported the highest at 1.4%. Overall, hospitalizations for short-term complications decreased by 2% between DY 7 and DY 8. Two health systems, SCVMC and RCRMC reported decreases of over 1%.

Figure 8: Care Coordination – Uncontrolled Diabetes



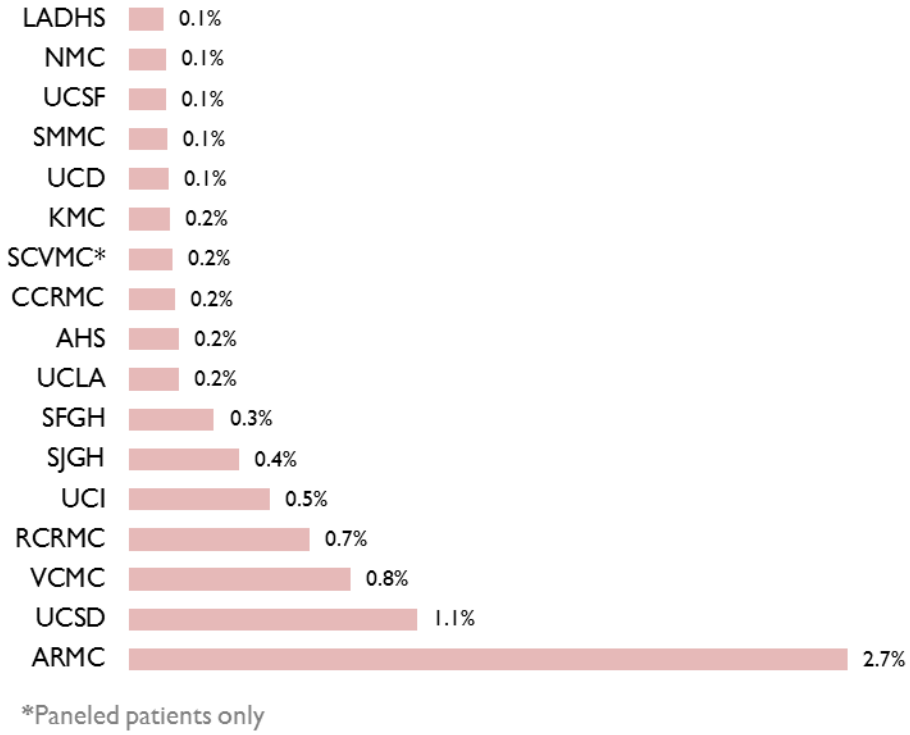
The rate of inpatient principal diagnosis code of uncontrolled diabetes ranged from 0% to 2%. Only one health system reported a rate greater than 1% and in comparison to FY7, there was an overall 6% decrease in rates. Three health systems reported decreases of over 1%: NMC at 3.5%, SJGH at 2.2%, and RCRMC at 1.3%.

Figure 9: Care Coordination – Congestive Heart Failure



Hospitalization rates for congestive heart failure ranged between .2% (KMC, VCMC, SMMC, and NMC) and LADHS at 15.9%. (LADHS did not provide narrative discussion about this rate.)

Figure 10: Care Coordination – Chronic Obstructive Pulmonary Disease



Only two PHSs reported rates of hospitalization for COPD higher than 1%. These are UCSD (1.1%) and ARMC (2.7%)

In the following section we first look at data and reporting capacity common to all Category 3.2 metrics. We then focus on improvement measures.

Data and Reporting Capacity
A common theme for care coordination is that registries now make it possible at many sites to coordinate care in ways that have already begun to influence rates, and this capability is anticipated to increase in coming years. At the same time, registries and other health information systems have not yet developed to the level that producing these metrics is easy, and a number of sites provide considerable detail about the complicated steps required to produce these numbers. Several (RCRMC, SCVMC, SFGH) report concerns about the accuracy of the metrics they have provided and that preparing them has created a new opportunity for performance improvement. Data challenges include:

Accurate, consistent clinical documentation is necessary to produce accurate reports and this is a challenge for many. SCVMC for example indicates that they may significantly underestimate the true admission rate for uncontrolled diabetes because ICD-9 codes 250.02 and 03 are not frequently used in their institutions. SFGH reports they have clinical documentation specialists educating and working with both clinical staff and medical records coders to achieve a higher level of accuracy in capturing the complexity of patients hospitalized at SFGH. As a result the accuracy rate for the uncontrolled diabetes ICD-9 code

has increased from 4% to 10%. UCI indicates a recent initiative to improve physician documentation.

Data interface between inpatient and outpatient records is necessary to compute care coordination metrics and some sites indicate they do not have this capacity. At least one site (SJGH) does a manual crosswalk between data from the two systems.

Variations in denominators influence ratios and several sites point to refinements in the way they compose denominators. SCVMC, for example, only includes paneled patients in the DSRIP denominator requirements with the intent of focusing reports on active patients for whom there is the most opportunity to influence care. SMMC does not include patients transferred to their hospitals from other institutional settings. Denominators also change with increasing registry capacity to identify patients. SJGH reports that since the last reporting period they have nearly doubled the number of patients identified in their clinics qualifying for the denominator of the short-term complications and uncontrolled diabetes measures due to the increased case finding enabled by the registry.

Variations in numerators also influence results. Variations in numerators can also result from coding errors and if patients seen in PHS outpatient clinics are hospitalized in other hospitals.

Complicated, cross-departmental processes for producing care coordination metrics create a reporting burden and, with every additional step, opportunities for error. KMC described their process of producing care coordination metrics, "KMC did multiple rounds of communication with the KMC Medical Executive Committee, Quality Council and Physician Board of Governors regarding DSRIP Category 3 measures being collected. Additionally, we worked closely with our IT staff and data analysis team to maximize the data being pulled from the various KMC systems. For the diabetes indicators we pull information from our outpatient practice management system as well as our hospital billing system. Then we created a detailed crosswalk and matching of data elements to store data in a separate table for maximum querying ability."

Comparing metrics is important for sites in order to know how well they are doing and where improvements should be prioritized. UCD reports that Category 3 metrics are similar but not identical to those required by HEDIS, Meaningful Use, Physician Quality Reporting and other quality organizations. They indicate that despite some highly related variables, Category 3 report processes have been useful in identifying opportunities for documentation standardization and improvement.

Improvement Activities

Although many sites were pleased with the low rates of hospitalization reported for 3.2 Care Coordination, several also described improvement activities underway to drive these numbers down. A strong common theme was that patient centered medical homes are already supporting improvement efforts for these chronic conditions for many health systems or are anticipated to have a major impact in the near future in others.

Because other DSRIP categories, especially 2.1 Expanding Medical Homes, 2.2 Expanding Chronic Care Management Models, and 1.11 Develop Risk Stratification Capabilities provide much more extensive information about improvement activities to manage chronic conditions, we lightly summarize steps health systems are taking across the four health conditions considered here. These include:

- Focusing on patients identified in the numerators of the 3.2 Care Coordination metrics and undertaking in-depth analyses of these patients hospitalized for their chronic conditions to identify how their care could have been better managed in outpatient settings.
- Continuing to refine registries to provide reports and alerts,
- Integrating point of care testing with clinic visits so high-risk patients do not have to schedule and make separate visits for routine tests,
- Focusing on the transition from inpatient to outpatient to assure appropriate information transmission and follow-up,
- Placing high risk patients in a case management program with frequent telephone contacts, pharmacy consultations, in-person meetings, and educational sessions,
- Providing a stronger focus on these patients when and if they become inpatient,
- Exploring a multi-disease model for patients with multiple health problems.

3.3 Preventive Health

Preventive health is critical for population health and the capacity of systems to improve health and prevent illness among the well and avoid complications among those already diagnosed with an illness. The purpose of this project is to understand PHS performance within specific areas of preventive health that include mammogram screenings for breast cancer, immunizations, body weight and BMI recording for pediatric patients, and tobacco use. This project is highly related to 2.1 Expanding Medical Homes and 1.8 Enhancing Coding and Documentation for Quality Data.

In DY 7 sites demonstrated the necessary capacity to report standard preventive health utilization information to the State for mammography screenings and influenza immunizations for a total of 34 completed milestones. In DY 8 public health care systems have continued to report on DY 7 measures and added an additional three preventive health measures that they report to the State for a total of 85 milestones completed. All 21 PHSs are required to participate in this project.

DY 8 Milestones Accomplished:

- ✓ Reported results of mammography screening for breast cancer to the State
- ✓ Reported results of the influenza immunization measure to the State
- ✓ Reported results of child weight screening to the State
- ✓ Reported results of pediatric body mass index (BMI to the State)
- ✓ Reported results of the tobacco cessation measure to the State.

The metrics referenced in the DY 8 reports as potential indicators of improvement include:

- Percentage of female patients age 50-74 who have visited the PHS's primary care clinic two or more times in the prior demonstration year who had a mammogram screening for breast cancer within 24 months
- Percentage of patients age 50 and older who have visited the PHS's primary care clinic two or more times in the prior demonstration year who received an influenza immunization during the flu season of the current demonstration year
- Percentage of patients 2-18 who have visited the PHS's primary care clinic two or more times in the prior demonstration year with a calculated Body Mass Index (BMI) in DY 8.
- Percentage of patients 2-18 who have visited the PHS's primary care clinic two or more times in the prior demonstration year with a calculated Body Mass Index (BMI) over the 85th percentile in DY 8.
- Percentage of patients 18 and over who have visited the PHS's primary care clinic two or more times in the prior demonstration year and screened positive for tobacco use who received or were referred to cessation counseling within the demonstration year reporting period.

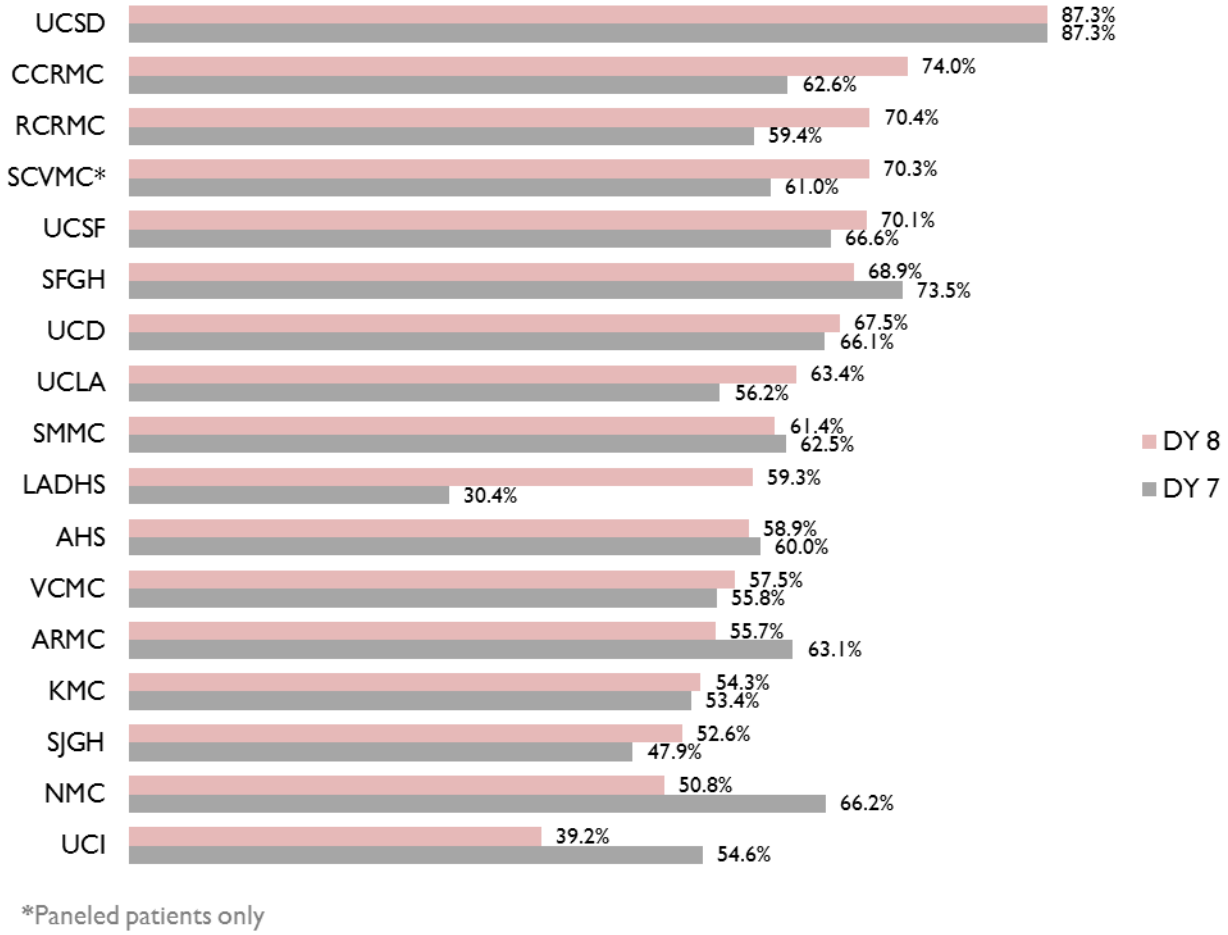
Progress and Impact:

DY 8 demonstrates PHSs' increasing capacity to provide preventive health data. More sites are able to access this information electronically, obviating the need for collating and reconciling multiple data sources by hand. Some sites that have not completed installation of their EHRs or registries still undertake a more complicated process of data extraction from multiple sources, reconciliation, and maintaining separate spreadsheets for preventive health reporting. Often this is done for a sample of patients with results extrapolated to the full population. Different sites mention that a byproduct of their developing reporting sophistication is that rates reported in DY 8 may differ from those reported earlier. Rate changes may also reflect improvement efforts.

A common observation made by PHSs is that compiling and reporting these measures has helped to identify significant areas for improvement in both documenting and providing preventive services. Another common observation is that multiple quality initiatives such as California Pay for Performance and Meaningful Use are interested in preventive health measures and that although the numerators are often slightly different, the combined attention on these measures creates momentum for change. Implementation of medical homes is a primary improvement strategy mentioned by many sites. A number of sites also mentioned that improvement efforts on preventive measures rely on collaboration with communities and community organizations to raise awareness about the importance of prevention.

Mammography Screening for Breast Cancer
The following figure describes the rates at which women 18 and over received mammography screening that ranged between 39% (UCI) and 87% (UCSD).

Figure 11: Preventive Health – Mammography Screening



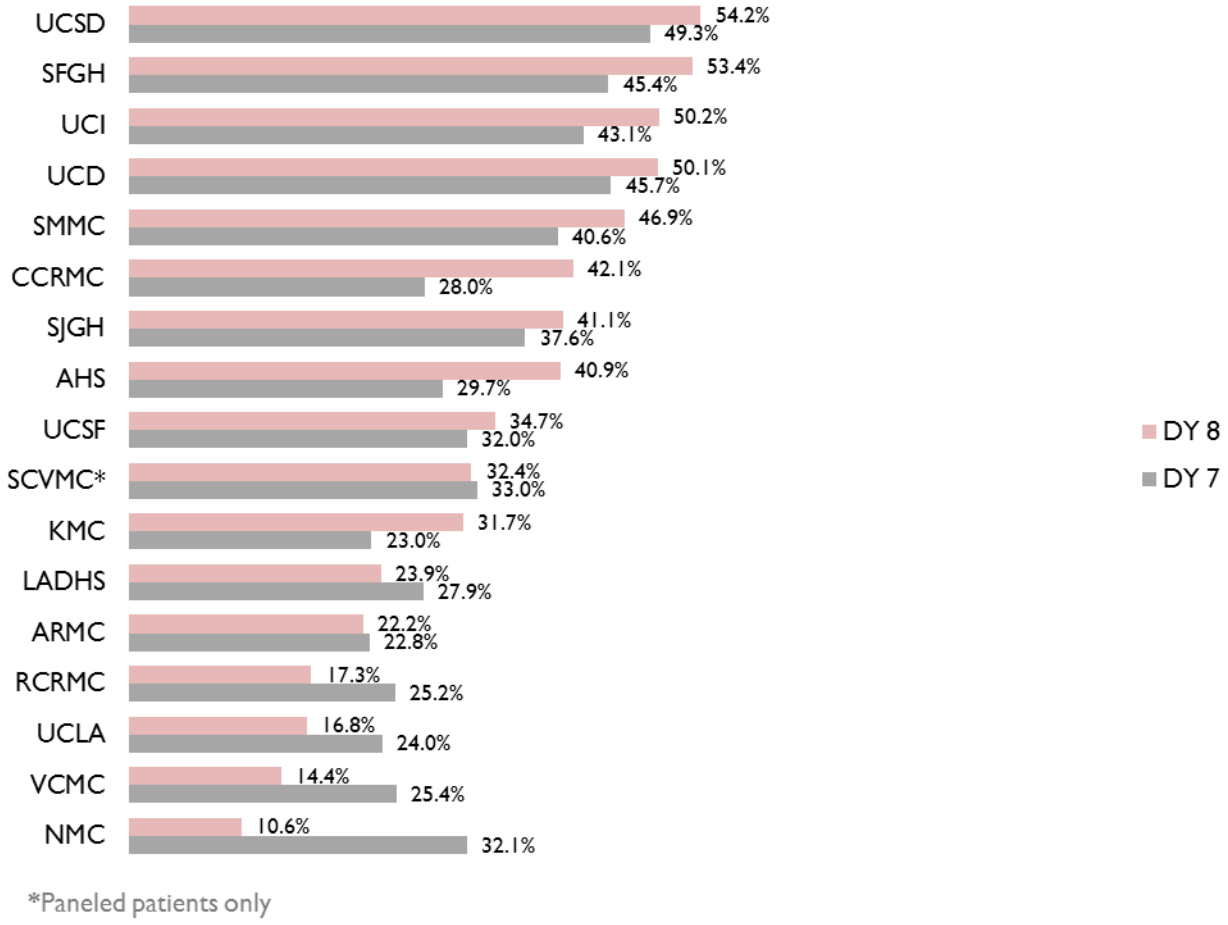
In comparison to DY 7, overall rates increased by 2.06%; ten sites increased their rates, six decreased, and one stayed the same. It is likely that some fluctuation in rates can be attributed to ongoing efforts to improve capacity to report accurately. UC Irvine, for example, had the steepest decline (-16%) and the lowest overall screening rate and reports that obtaining mammography data has continued to present a significant challenge to the UC Irvine Health Clinical Informatics Team due to varying workflows for data entry into multiple databases across the organization that include current and legacy information systems. UCSD, which had the highest screening rate, pulls records with a structured query language (SQL) from their EPIC database. They point out that they also report breast cancer screening for California Pay for Performance and Meaningful Use, and that the synergy among the various quality programs will help drive improvements on this measure.

Other sites describe exciting new capacities enabled by electronic health records and/or registries available to them with their new ability to track preventive health measures. Several PHSs have begun to set internal goals for improvement on these health measures, and others are using measures for more granular analyses of who within their patient populations are most at-risk for missing the benefits of preventive health screenings. SMMC reports, for example, that they are creating processes to look at mammography by

clinic and by provider, ethnicity, language, sex, coexisting conditions, pharmacy records, number of visits and other screening panels.

Influenza Immunization Screening
The following figure describes the rates at which individuals 18 and over received influenza immunizations.

Figure 12: Preventive Health – Influenza Immunization



Immunization rates ranged between 11% (NMC) and 54% (UCSD). Between DY 7 and DY 8 seven health systems improved their rates and seven decreased for a positive net change of 2.59%. Those that increased and decreased are primarily not the same that did so for the mammography screening measure, indicating that processes for influencing and reporting on these two measures are different.

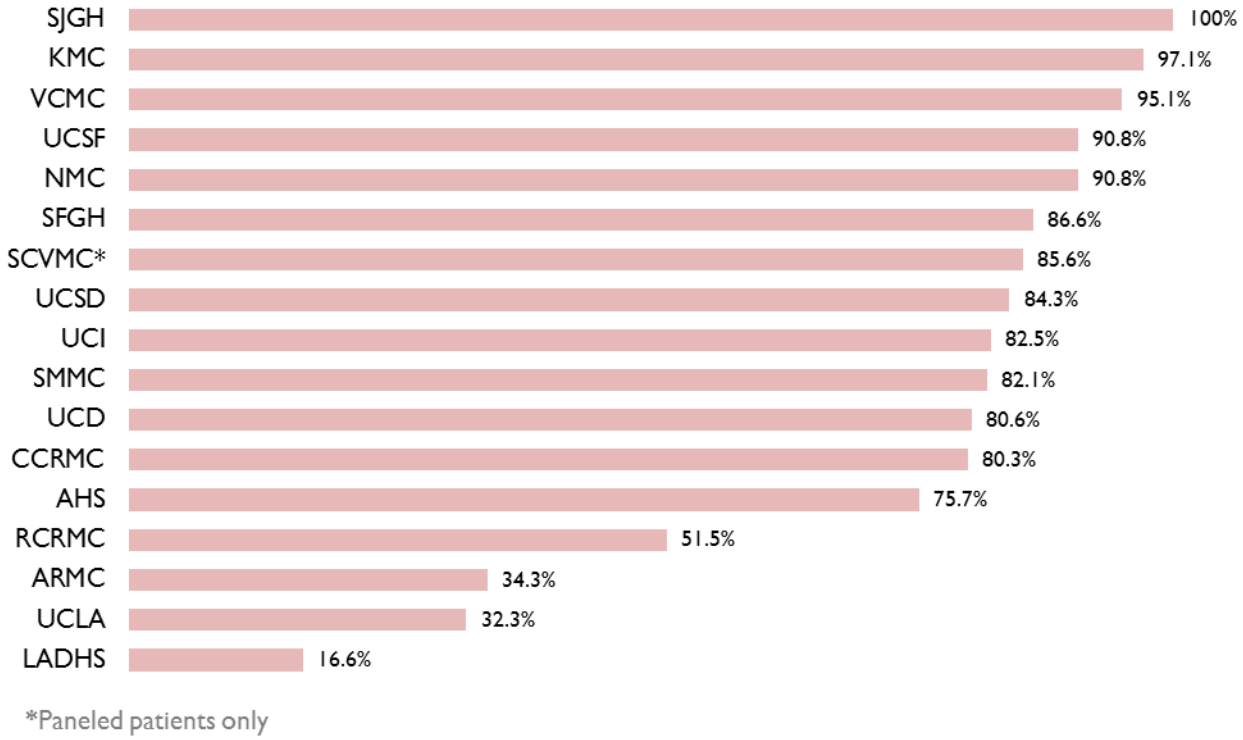
In addition to the challenge of assuring that immunization data from shots received through public health systems are entered into health records, many sites noted that as immunizations have become less expensive and more available in communities, they are also challenged to enter information about shots received through other sources.

RCRMC's report includes a pithy description that well illustrates the complexities of reporting and improving immunization rates as well as environmental factors that affect them: "Reasons for the lower numbers (their immunization rate dropped by 8% from DY 7 to DY 8) include that many more eligible patients were seen in the primary clinics this past year. DY 8 was considered a mild flu year. There was not a standardized clinic process to ensure all patients received needed shots. The current process is variable and highly provider-dependent. Improvements have been made in the data collection process."

Child Weight Screening

The following figure describes rates relevant to child weight. The first indicates the percentage of children who have visited the PHS's primary care clinic two or more times in the prior demonstration year with a calculated Body Mass Index (BMI) in DY 8. The second describes the percentage of the same sample whose BMI is over the 85th percentile.

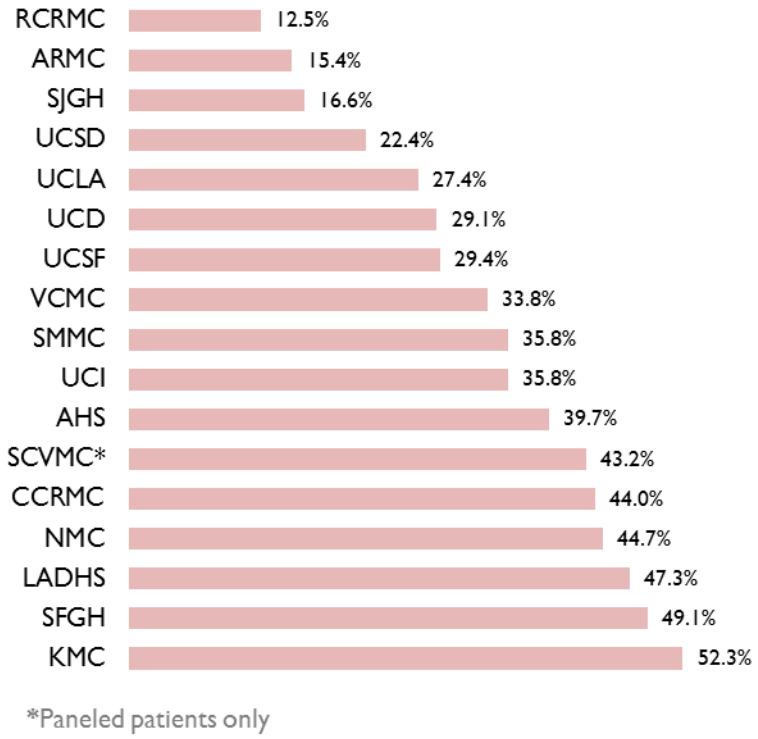
Figure 13: Preventive Health – Child Weight Screening



Rates of documented pediatric BMIs range from 17% (LADHS) to 100% (SJGH). LADHS indicates they recently programmed reminders to record weight on every visit into the i2i registry. To increase reporting, SJGH has put rates of obesity on clinic walls as part of their efforts to increase awareness. As an indication of health systems' rapidly increasing capacity to provide automated rates, SMMC report that after submission of their DSRIP mid-year report they identified five milestones including child weight screening and pediatric BMIs that need to be automated. They automated, went through the verifying process, and now can produce these data electronically.

The following chart describes the percentage of the same sample whose BMI is over the 85th percentile.

Figure 14: Preventive Health – Pediatric Body Mass Index (BMI)

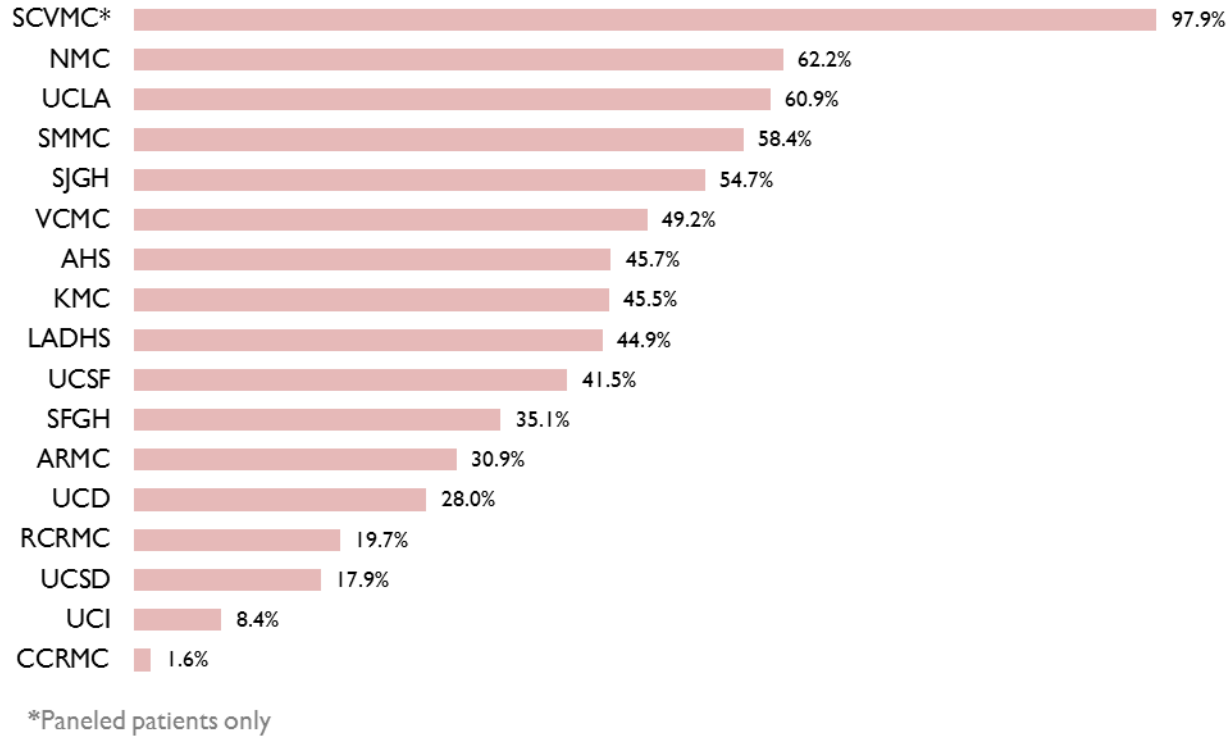


Sites varied in the percentage of BMIs greater than the 85th percentile for a low of 12% (RCRMC) to a high of 52% (KMC). Public health systems have identified a number of ways they are tackling child obesity reduction. These include identifying a physician champion to lead the health system's efforts on weight management for children, creating special programs for children with high BMIs, and participating in a countywide obesity reduction effort.

Tobacco Cessation

The following figure describes the percentage of patients who were screened positive for tobacco usage who were either received or were referred to cessation counseling.

Figure 15: Preventive Health – Tobacco Cessation



Sites rates of referral/counseling range from a high of 98% (SCVMC) to a low of 2% (CCRMC). Reflecting the first year reporting on this measure, many sites report steps they have initiated or intend to take to improve the accuracy of this measure. CCRMC for example reports that this measure became part of a data dashboard and smoking status was included as part of the intake standard work developed during a rapid improvement event. In their transition to a new EHR system, the reporting systems had to be upgraded from a legacy system that required significant work by interdisciplinary teams. Reporting on this measure will be addressed in the coming DSRIP year as part of the overall ambulatory care redesign project they are undertaking. UCI, with the second lowest reporting rate, reports workflow changes to include EHR documentation of tobacco use were implemented in November 2012 and will be completed mid 2014. They expect documentation rates to improve as additional clinics adopt the new workflow. Sites reporting on improvement efforts indicate they are increasing the visibility of treatment resources and conducting outreach to patients in need of cessation counseling.

3.4 At–Risk Populations

The purpose of this project is to understand PHS performance supporting specific at-risk populations. As a required project for all PHSs, 21 PHSs participated in this project during DY 8. In comparison to DY 7 when results for the first two measures (LDL-C and hemoglobin A1c control) listed below were reported for 34 total milestones, in DY 8 four additional milestones were added for a total of 102 DY 8 milestones completed during the DY 8 reporting period.

DY 8 Milestones Accomplished:

- ✓ Reported results of the Diabetes Mellitus: Low Density Lipoprotein (LDL-C) control measure to the State
- ✓ Reported results of the Diabetes Mellitus: Hemoglobin A1c Control measure to the State
- ✓ Reported results of 30-day congestive heart failure (CHF) readmission rate measure to the State
- ✓ Reported results of the hypertension: Blood Pressure Control (140/90 mmHG) measure to State
- ✓ Reported results of the pediatric asthma care measure to the State
- ✓ Reported results of the optimal diabetes care composite to the State

The metrics referenced in the DY 8 reports as potential indicators of improvement include:

- Percentage of patients age 18-75 years with diabetes who visited the primary care clinic two or more times in the prior demonstration year who had their most recent LDL-C level in control (<100mg/dl) during the current demonstration year
- Percentage of patients age 18-75 years with diabetes who visited the primary care clinic two or more times in the prior demonstration year who had their most recent HbA1c level in control (<8%) during the current demonstration year
- Percentage of patients age 18-75 years with coronary heart disease (CHF) who visited the primary care clinic two or more times in the prior demonstration year who had a hospital admission related to CHF.
- Percentage of patients age 18-75 years with a primary diagnosis of hypertension who visited the primary care clinic two or more times in the prior demonstration year who had their most recent blood pressure in control (less than 140/90) during the current demonstration year.
- Percentage of patients age 5-18 years with persistent asthma who visited the primary care clinic two or more times in the prior demonstration year who were prescribed at least one controller medications for asthma therapy during the current demonstration year.
- Percentage of patients age 18-75 years with diabetes who visited the primary care clinic two or more times in the prior demonstration year with a diagnosis of diabetes who meet all the numerator targets of the composite measure within the demonstration. Numerator targets include five criteria: HbA1c < 8%; LDL < 100

mg/dl; blood pressure < 140/90; tobacco non-use; and daily aspirin use for patients with cardiovascular disease unless contraindicated.

Progress and Impact:

The following reports on specific measures show sites' increasing capacity to measure and report on risk metrics.

Diabetes Milestones
PHSs reported on three measures related to diabetes control and care in DY 8. Two of these, low-density lipoprotein control (LDL-C) and hemoglobin A1c control, were also reported in DY 7. The third, optimal diabetes care composite metric, is new to DY 8.

Figure 16: At-Risk Populations – Diabetes Mellitus: Low Density Lipoprotein (LDL-C) Control (<100 mg/dl)

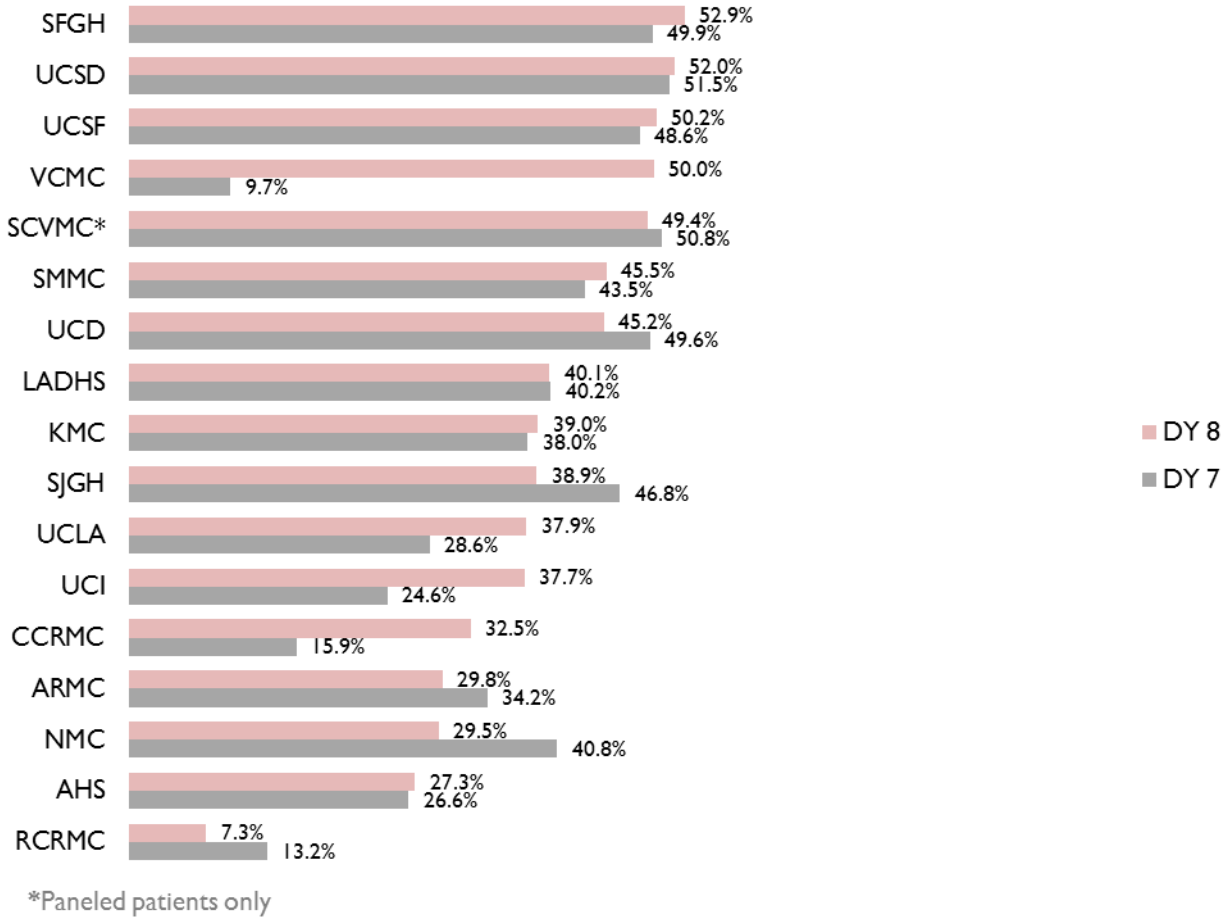


Figure 17: At-Risk Populations – Diabetes Mellitus: Hemoglobin A1c Control (<8%)

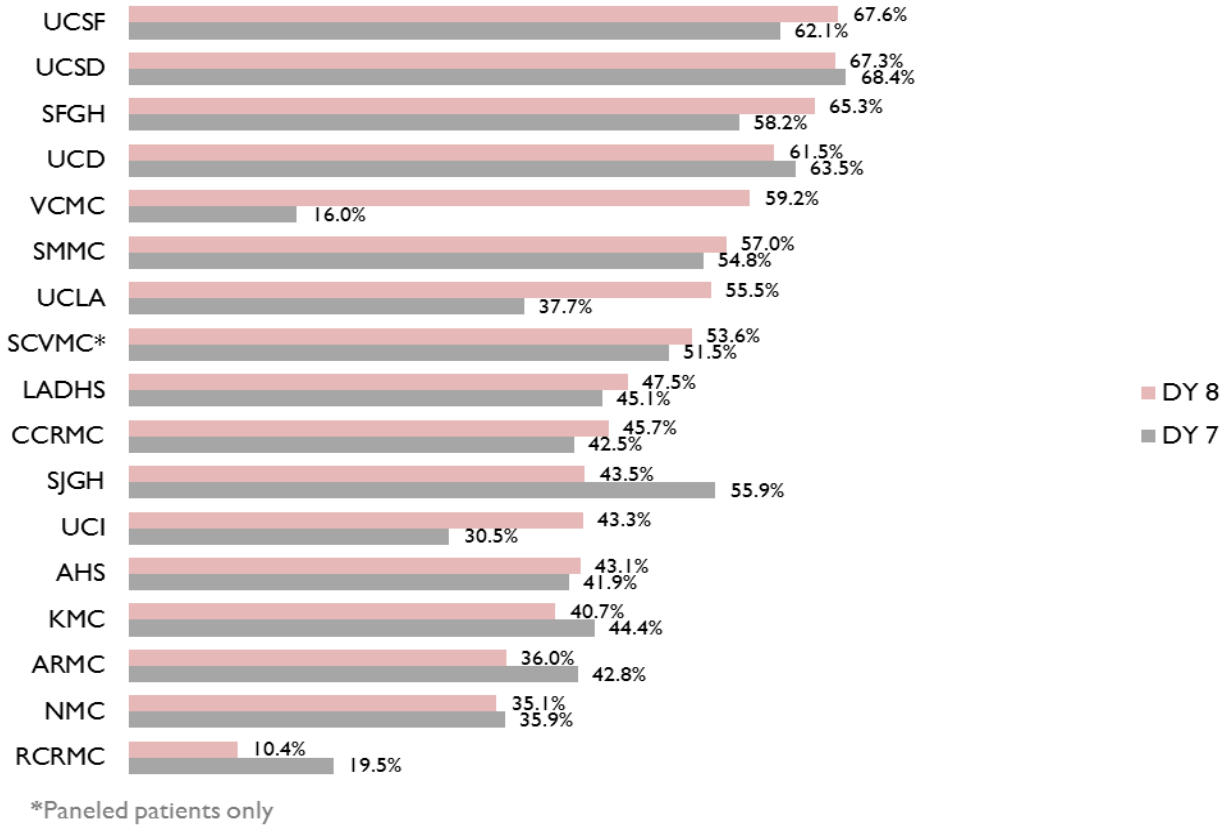
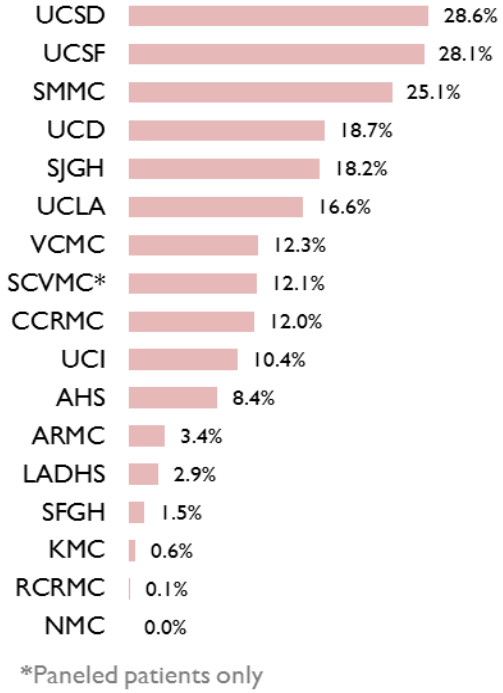


Figure 18: At-Risk Populations – Optimal Diabetes Care Composite



LDL-C scores ranged from a low of 7% in control reported by RCRMC to a cluster of health systems in the very high 40% to low 50% range including SCVMC, VCMC, UCSF, UCSD, and the top, SFGH. These scores were identical to those reported in DY 7 with one modest change, that the NMC percentage in control slipped one percentage point from 30% in DY 7 to 29% in DY 8.

A1C control scores (below) vary from a low of 10% (RCRMC) to a cluster of four hospitals reporting scores in the 60 percentages (UCD, SFGH, UCSD, UCSF). All health systems reported identical A1C scores in DY 7 and DY 8. Because hospitals that reported high or low percentages in LDL-C scores were likely to report similarly high or low scores in A1C control, these measures are discussed together.

Health systems scoring in the top ranges for these diabetes control measures report some satisfaction with the level of care they are already providing and indicate that they continue to address improvements through establishing priorities and initiatives. Sites report expectations that these numbers will improve as a result of synergies with other improvement initiatives and through increasingly sophisticated registry use.

RCRMC reports that their low scores on both control measures may be accounted for by the tremendous growth in the number of diabetic patients being seen in RCRMC's primary care clinics that grew from 1,954 patients in DY 7 to 4,549 in DY 8. Some of this growth can be attributed to the enrollment impact of Riverside County HealthCare (formerly known as the Low-Income Health Program). They explain that newly enrolled patients with uncontrolled cholesterol could be masking improvements achieved by other more established diabetic patients. RCRMC also explains that data are entered into the registry manually and until recently the emphasis has been on data entry rather than managing care through the available data. This is starting to change and RCRMC has undertaken a number of initiatives to increase diabetes control.

KMC also reports low scores on both measures and similarly describes a process by which LDL scores are entered into medical records manually if they are done as an outside lab. They are planning staff trainings on how to use the EHR tool that tracks LDL once it has been entered.

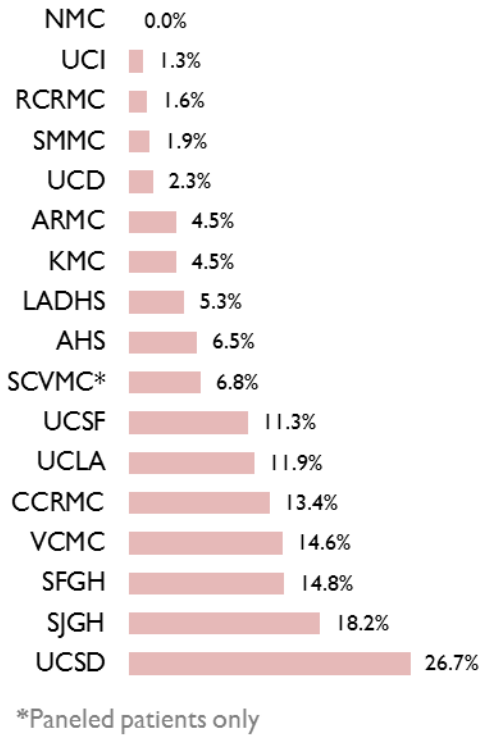
The diabetes composite score aggregates three indicators of diabetes control and two positive health behaviors into one score. Reported for the first time in DY 8, scores on this measure range between a low of 0% (NMC and RCRMC) and a high of 28.6% (UCSD).

Sites vary in their responses to this measure. Some sites are still grappling with its documentation. NMC for example reports that they created a paper diabetic flow sheet to capture critical data elements in the medical record for diabetic patients as an interim solution prior to starting to enter the data directly into Meditech in June 2013. KMC is adding a patient profile for all of the Optimal Diabetes Care Composite measures in database. LADHS has programmed clinical protocols and alerts into the i2i registry that they believe should result in significant improvements on this metric over the next months.

UCSF has targeted a 30% improvement for this composite score by the end of DY10 and VCMC is training nurse case managers to outreach to diabetic patients.

CHF Readmissions:
All 17 public health care systems reported on this measure with readmission rates for CHF ranging from a low of 0% (NMC) to a high of 27% (UCSD). At least one site (SJGH) reported that numbers for this metric were difficult to obtain because they require data from both inpatient and primary care sources and lack of an interface creates complexities.

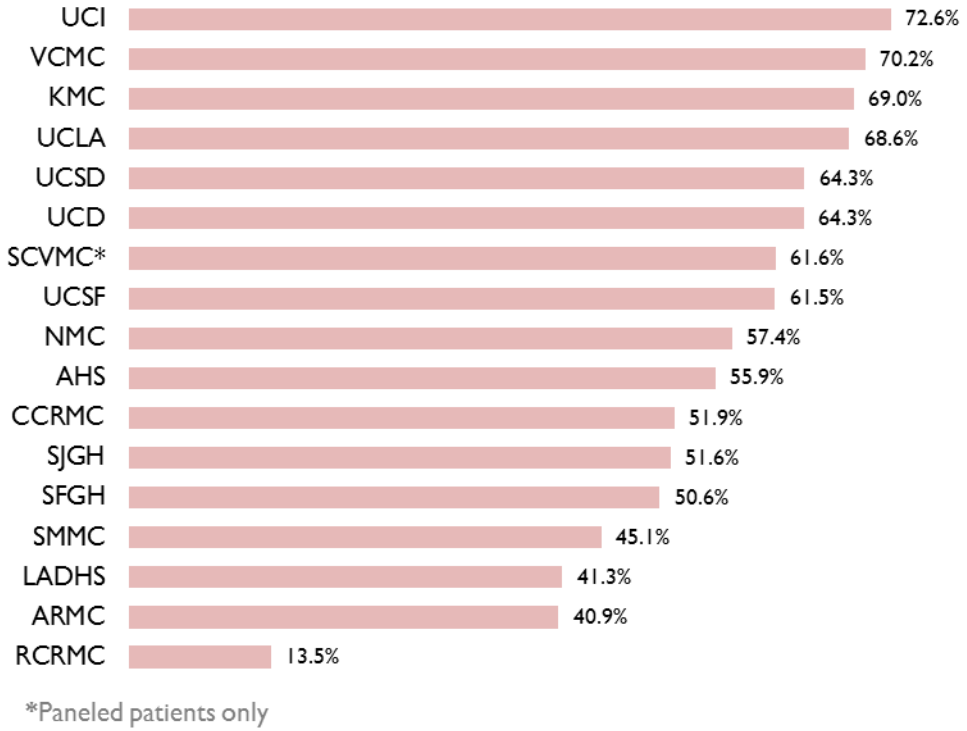
Figure 19: At-Risk Populations – 30-Day Congestive Heart Failure Readmission Rate



Sites surfaced a number of strategies for reducing inpatient readmissions. CCRMC, UCSD, and UCLA emphasize expanding and improving care transitions programs described in more depth in Category 2.6. SFGH highlights challenges they have identified in implementing successful care transitions programs that include identifying the right patients, risk stratifying patients, and creating a warm hand off to an outpatient provider. Lessons they have learned include that self-management among patients is very important, and low literacy and multilingual materials are key to being able to educate patients to mange their own health.

Hypertension

Figure 20: At-Risk Populations – Hypertension (HTN): Blood Pressure Control (<140/90 mmHg)

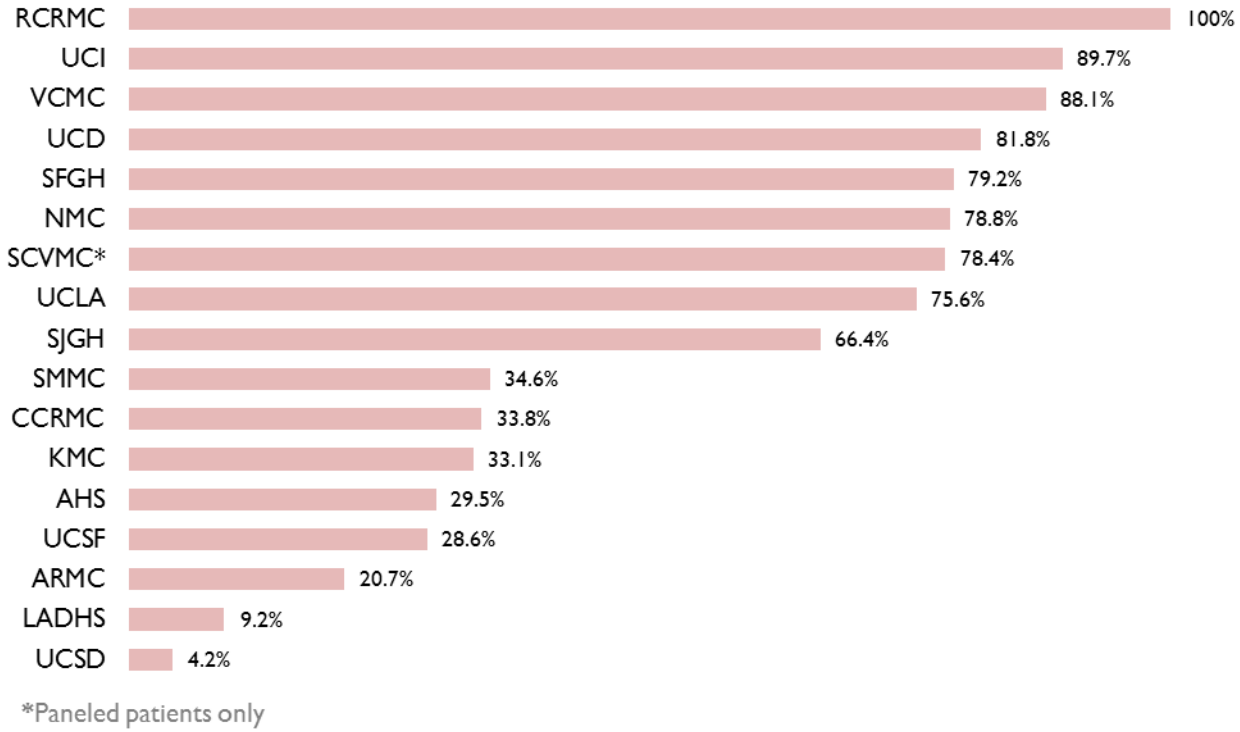


Rates of hypertension control range between 13% at RCRMC and 73% at UCI. Narrative reports about reporting on this measure reflect the continuum of capacity to track this information electronically. The high scorer, UCI, reports that they are able to share results on this measure at monthly primary care clinic meetings. AHS, UCLA, and LADHS indicate their capacities to report this information is in full development. AHS, for example, reports that there will be a clearer picture of the population's blood pressure health once all of the clinics are on EHR (some currently are not) and they are able to introduce panel management. UCLA reports they have been limited in their ability to analyze data related to hypertension because it involves a manual chart review, but look forward to implementing their electronic health record that will provide systematic data to enable them to develop initiatives and interventions specific to hypertension. RCRMC indicates they do not currently have a standardized approach to addressing and following up with patients with uncontrolled blood pressure in their primary care clinics, but have an identified an initiative for DY9 with nine different strategies. SFGH indicates that performance improvement metrics related to blood pressure control are an integral part of their primary care quality improvement program. For calendar year 2012 the established goal was to achieve electronic documentation of blood pressure for 90% of adult PC patients. This was achieved. Management of patients with hypertension is included in the panel management and disease registry activities at each PC clinic. VCMC indicates that their new

EHR system has made it easier to get educational materials to patients, and UCSF notes that their number is slightly better than the national benchmark of 62.4% (Hedis 2012).

Pediatric Asthma

Figure 21: At-Risk Populations – Pediatric Asthma Care



In this first year reporting rates of prescribing controller medications for pediatric asthma patients, many sites surface challenges reporting accurate metrics for this project. Several (e.g. AHS, RCRMC) point out that the ICD-9 code for asthma does not differentiate between intermittent and persistent asthma and thus AHS suggests their report may seriously underestimate the actual percentage of persistent asthmatics on a controller medication. LADHS also believes their reported figure is artificially low because existing DHS data do not capture prescriptions filled outside their system and many children use private sector pharmacies. Another measurement issue is that some pediatric patients requiring a controller substance are seen in specialty clinics such as a pulmonary clinic rather than in primary care clinics (RCRMC).

A number of sites report that DSRIP reporting on this measure has created the opportunity to improve their systems to build reporting capacity. UCSF reports, "We think this number is suggestive of the myriad ways that persistent asthma is documented in the medical record and not truly reflective of our pediatrics asthma care. With the inception of our EHR, we discovered that there is a wide variety of nomenclature that providers use to document childhood asthma. Therefore this data has given us the impetus to evaluate our process and implement standardized ways to identify pediatric patients with persistent asthma."

Several sites indicate that documentation improvements have already occurred. SFGH, for example, reports their rate increased to 79% from the mid-year report of 36.3%, partially due to a more accurate definition of the patients included in the denominator. SMMC indicates that this metric was one of their targets for improvement in order to do it electronically. They are able to do this now although not in time for the DY 8 report.

E. Category 4: Urgent Improvement in Care

In DY8, PHSs made considerable progress towards the three-part goal of Category 4--implementing interventions which are 1) impactful on the patient population, 2) evidence-based and 3) meaningful to the patient population. In DY7, PHSs more than doubled the number of milestones completed as compared to the previous year, sowing the seeds for improvements. In DY8, PHSs saw those seeds sprout – measurable improvements in specific metrics. However, like the work in Category 3, these sprouts need intense and constant attention as they take root amidst the entrenched, established means of delivering care. For example, data reporting varied depending on the intervention.

PHSs implemented evidence-based practices towards meeting the Category 4 goal, such as visible, accessible work orders and protocols. PHSs emphasized the importance of establishing clear staff responsibilities and accountability structures. Correspondingly, staff must be trained and retrained, and particularly providers must buy-in to the new protocols. No category activities demanded more collaboration between departments than those in Category 4.

Timely and accurate documentation is essential to successful interventions. Sepsis documentation provides an illustrative example of how PHSs addressed and met documentation challenges. From DSRIP's beginning, sepsis was acknowledged to be an arena for learning, testing and innovation. Not until mid-DY 8, in January 2013, did national consensus form around the National Quality Forum's standardized methodology for reporting sepsis bundle compliance. However, understanding the need for comparable data year to year and among PHSs, in April 2012, PHSs, along with DHCS and CMS, agreed on using two ICD-9 codes (severe sepsis and septic shock) as a standardized measure. Thus, DY 8 data is more comparable than DY 7. Yet, sepsis has more complexity than those codes, and the fact that PHSs are using various data definitions for reporting other components allows for the learning laboratory for performance measurement initially envisioned in the DSRIP program. Changes to Category 4 as a result of the Mid Point Assessment, will be implemented in DY 9 and will further improve comparability.

4.1 Severe Sepsis Detection and Management

CMS indicated its interest in using this Sepsis project as a learning laboratory. Therefore the emphasis of this intervention is focused on learning, testing and innovation. Insights from this project will inform ongoing public health care system efforts to reduce sepsis mortality and, hopefully, contribute to the national dialogue regarding sepsis harm reduction.

The purpose of this project is to improve compliance with elements from the sepsis resuscitation bundle and to report sepsis mortality. Sepsis is a time sensitive intervention, like heart attacks or stroke, and early detection and treatment are critical in achieving a positive outcome.

As a required project for all public health care systems, all PHSs participated in this project in DY 8 and together completed 65 out 66 possible milestones.

DY 8 Milestones Accomplished:

- ✓ Reported sepsis resuscitation bundle and sepsis mortality results to the State based on coded data definition
- ✓ Reported sepsis resuscitation bundle and sepsis mortality results to the State based on current PHS definition
- ✓ Shared data, promising practices, and findings with SNI to foster shared learning and benchmarking across the California PHSs
- ✓ Increased compliance with the sepsis resuscitation bundle 5% over baseline, based on current PHS definition

The metrics referenced in the DY 8 reports as potential indicators of improvement included:

- Implementation of the sepsis resuscitation bundle
- Number of sepsis mortalities
- Number of severe sepsis

Progress and Impact:

In DY 8 PHSs have continued a broad array of activities to improve sepsis control. These activities include: creating internal structures and systems to address sepsis; developing easily accessible, visible work orders, protocols, and tools for sepsis screening and interventions; educating and training staff; and reporting data. Many sites have developed their surveillance capacities to the point that they are able to use data to analyze where deploying resources can most strategically help them achieve their target milestones. These activities are described below.

Data Reporting

A number of sites pointed to the distinction between reporting sepsis results using either a two-code definition of sepsis or an internal definition and pointed out that mortality rates are lower and bundle compliance rates higher when using a two-code sepsis definition.

Several sites report that they will continue reporting on a dual track using both methods of rate computation.

Figure 1: Sepsis Bundle – DY 8 ICD-9 Coded Data Definition (785.52 & 995.92)

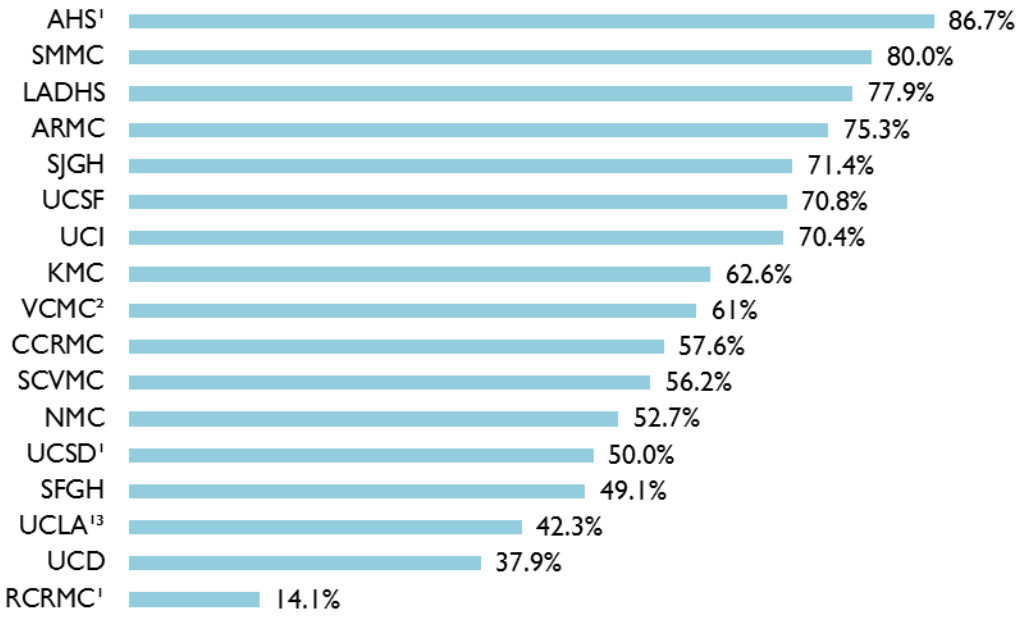


Figure 2: Sepsis Mortality –DY 8 ICD-9 Coded Data Definition (785.52 & 995.92)

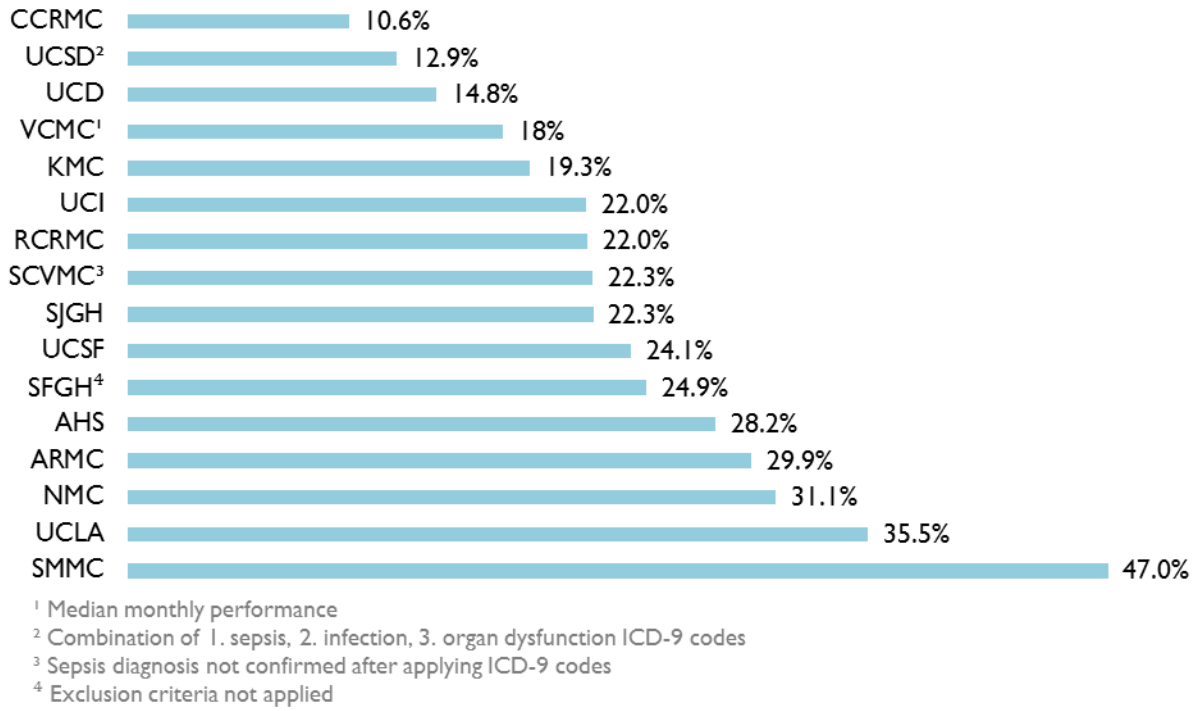
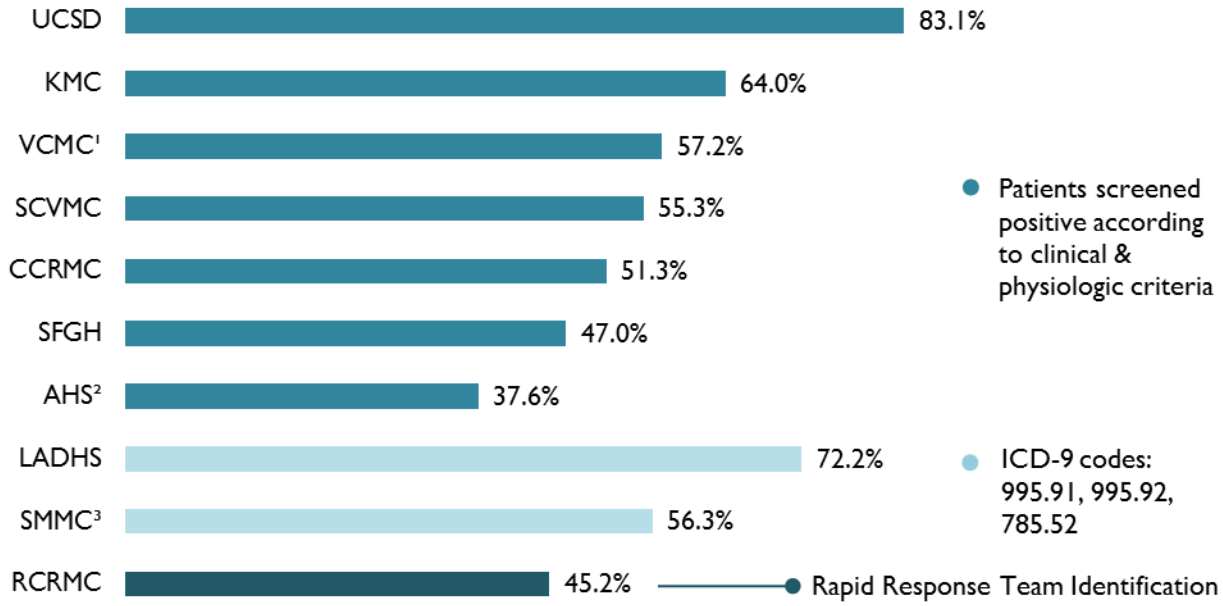
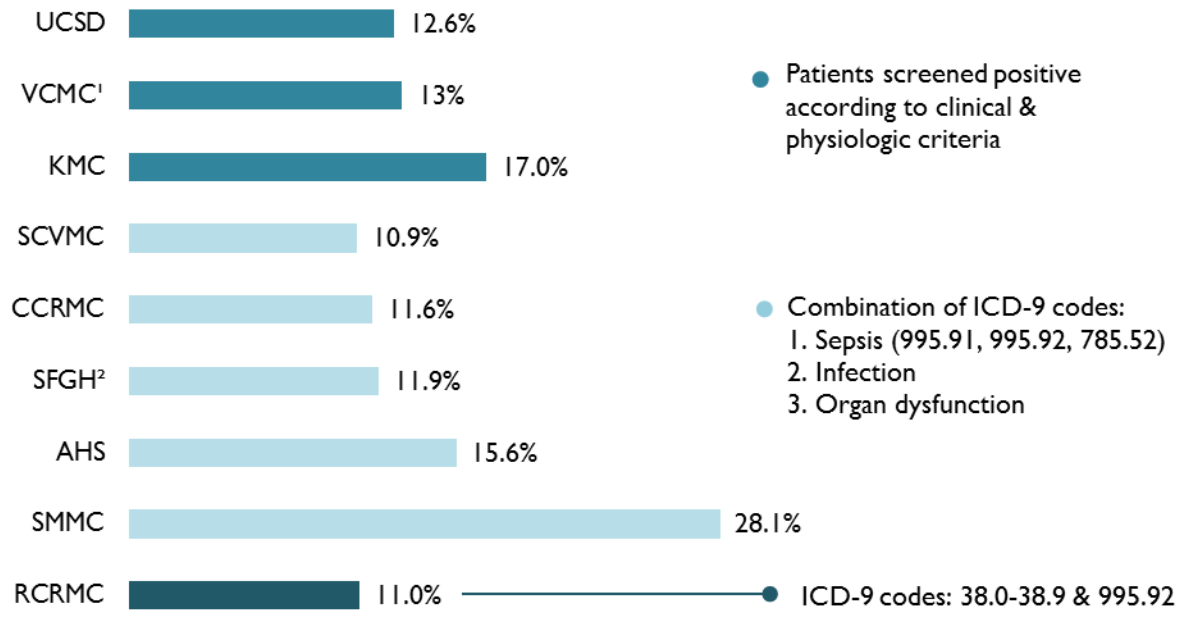


Figure 3: Sepsis Bundle – DY 8 PHS Data Definition



[1] Additional patients captured through ICD-9 reports
[2] Time to antibiotics ≤ 1 hr for all areas; vasopressors criteria not included
[3] Fluids criteria ≤ 1 hr

Figure 4: Sepsis Mortality – DY 8 PHS Data Definition



[1] Median monthly performance
[2] No exclusion criteria applied

Collaboration

A number of organizations in addition to the Safety Net Institute's (SNI's) sepsis collaborative provide opportunities for PHSs to address sepsis control. Sites have participated in the Surviving Sepsis Campaign listserv, the UCSF Center for the Health Professions' Integrated Nurse Leadership Program's (INLP) Reducing Sepsis Mortality Collaborative in Northern California, the Southern California Patient Safety Collaborative, and the Center for Medicare and Medicaid Services' (CMS)Partnership for Patients implemented through the American Hospital Association's Hospital Engagement Network (HEN).

Personnel and structures for sepsis management

Designating responsibility for sepsis prevention and intervention and creating accountability structures are key to sepsis control. Many PHSs have created cross-disciplinary harm reduction teams (HRTs) that report to upper management as a central feature in sepsis reduction activities. At CCRMC, for example, their HRT identified the problem that variations in coding and clinical documentation created inaccuracies reporting both sepsis bundle compliance and mortality rates. To address this, leadership convened interdisciplinary face-to-face meetings with coders, frontline staff, physicians, nurses, pharmacists, and infection prevention interventionists. They report that this interdisciplinary approach created a forum for teamwork that moved staff from an individual perspective to interdisciplinary thinking.

Identifying champions among staff leaders who become the face of sepsis management is another widespread approach for creating visibility and responsibility for sepsis control. CCRMC identifies sepsis champions in the emergency department, each inpatient unit, infection and control, nursing, and the pharmacy department. KMC found that a physician champion has been of great value in gaining acceptance for use of a sepsis screening tool that plays an important role in their approach to infection control.

Sites report that sepsis specialists who support frontline providers to improve prevention and work with staff when sepsis cases are suspected or identified provide essential support at critical moments. CCRMC made the decision to pair a patient's primary nurse with a designated sepsis nurse in the emergency department to initiate and deliver interventions in a timely manner. They report a significant improvement in bundle compliance since this practice was put into place. AHS points out that because their sepsis specialist nurses are part-time, it can be difficult to retain them.

Data-driven allocation of resources

In DY 8 sites have demonstrated the capacity to use data to pinpoint areas of noncompliance and to direct resources to the highest priority areas. In Alameda, for example, the emphasis in past years has been on sepsis reduction in the ICU and emergency departments. In this last year, a new nurse champion recognized that the most significant opportunity for improvement is now on acute care floors. Similarly LADHS' compliance data with individual bundle elements enables each facility to focus improvement efforts where they are most needed. Because 2012 data indicated that the emergency department had a higher compliance level than inpatient units, facilities began to focus on inpatient

strategies. By using Lean methodology, ARMC identified and addressed two issues affecting bundle compliance rates—labeling blood culture tubes and inconsistent use of the sepsis antibiotics form.

SMMC has found that improvements they have made since they began reporting sepsis data are attributable to early detection and treatment. As a result, ED and ICU patients are audited every two hours for signs of sepsis and although patients don't always appear as sick as they are, the lactic acid levels and signs of SIRS provide the objective data needed to make the judgment. If the patient is found to indeed meet the sepsis criteria, two nurses provide on-the-spot education to the assigned providers for that case. Similarly, UCSD reports that incorporating sepsis management in the work of the Rapid Response Teams suggests that aggressive fluid and antibiotic treatment is improving sepsis resuscitation survival.

At SFGH an improvement strategy is focusing on where there have been failures to follow bundled requirements. These so-called "out of focus indicators" (OFIs) are brought to emergency department review meetings for discussion and to formulate improvement strategies. Most OFIs had to do with the timely administration of antibiotics and, as a result, staff conducted PDSA cycles and improved timeliness by creating multiple lines for intravenous access and reversing the order of administering antibiotics and vancomycin.

Visible, accessible work orders, protocols, and tools

Improvement of sepsis care begins with an accurate screen and a number of sites report activities developing, implementing and continuing to improve screening tools. KMC, for example, has placed emphasis on implementing a screening tool with standardized labs completed every 12 hours by nursing staff to assist in early identification of severe sepsis. This is accompanied by a "sepsis clock," a visual reminder of bundle sequencing and timing for the rapid response team and bedside care providers when sepsis is diagnosed.

Some screening tools have been found to be too sensitive, which renders them ineffective. UCSF identifies a key lesson that they have learned has been the difficulty of identifying patients at risk for sepsis in the ICU. They find that usual sepsis screening criteria are not specific enough to detect severe sepsis/septic shock in ICU patients, resulting in a high rate of false positives. Similarly, the electronic surveillance system in the ED is also subject to oversensitivity with multiple alarms and alerts, few of which proved to be accurate.

Fundamental to improving bundle compliance and thereby reducing mortality is adherence to protocols, and these protocols need to be highly visible and easily accessible. KMC is experimenting with tools such as the "Surviving Sepsis Campaign" bundle cards that were given to all residents and nursing staff to wear on their identification badges. Other tools mentioned include posters, scorecards, rounding tools, information cards, pharmacist training manuals, pharmacist bundled checklists, and resident flashcards. Similarly, intervention tools need to be readily accessible. Some sites have developed the capacity to deliver point of care lactate testing and expedited means of gaining access to appropriate antibiotics.

SCVMC noticed that few physicians utilized the paper sepsis orders and the transition to electronic health records provided the opportunity to increase bundle compliance by implementing a newly designed sepsis order set embedded in the health records. UCD has created a "Stop Sepsis in 60" website that is continually updated with new project information, committee decisions, work tools, and research. The website has a sepsis registry that filters data by units and services and includes electronic tools for handoffs between shifts and among patient care areas.

Many sites are banking on electronic health records as the most effective method of assuring that work orders, protocols, and documentation are easily accessible and easy to activate. For the most part, sites know how they will develop this capacity, although full implementation has not yet occurred.

AHS, for example, is aiming to integrate its sepsis screening into their Soarian system. Several sites are on the brink of being able to use their EHRs for sepsis control. LADHS has been implementing "clinical decision support (CDS)" software that will provide a guide for sepsis screening and treatment for all LADHS sites. The process will start by monitoring vital signs that, if indicated, will display a warning asking the clinician if sepsis screening is indicated. If the answer is yes, a bright green precaution field appears. The full code is triggered by any change in systolic pressure, lactate, or other vital signs. Once the full code is activated, the rest of the bundle criteria are displayed in an automated table and each element is signed off and date stamped as it is clinically addressed. VCMC is also automating the screening process through their newly implemented EHR. This software will fire an alert to the bedside nurse and treating physician when severe sepsis criteria are met. A customized antibiotic advisor, built by their infectious disease team, will guide clinicians to choose appropriate broad-spectrum antibiotics

Education, Training, and Re-education

PHSs emphasize the importance of education and its complexity for sepsis since education efforts need to target everyone, from the housekeeping staff to surgeons and all in between. Education also needs to include new employees, continuing education on advances and innovations for staff that have already been trained, as well as reeducation when learning fades. RCRMC points out, as an example of this complexity, that coordination of staff education has involved the logistically challenging need to coordinate the schedules of hundreds of physicians, nurses, and other staff.

Educating residents has been a focus for many teaching PHSs with some important payoffs. As a result of a new quality improvement curriculum for internal medicine residents in Alameda, for example, a resident conducted a sepsis screening quality improvement project that identified a knowledge gap that has now become a priority for the harm reduction team to address. The data were also influential in helping to win support for adding a part-time sepsis specialist nurse.

A number of sites have implemented sepsis education for all new employees working with patients. At SFGH, for example, new employees must past a sepsis competency test.

Simulations have been an important and popular teaching mechanism for many sites including RCRMC and LADHS.

Provider buy-in
A number of PHSs point out that there has been staff resistance from moving away from the mentality of "the way we have always done it" among some physicians and nursing staff. RCRMC found that central line placement was an obstacle for bundle compliance because physicians were reluctant to place the central lines due to perceived risk of patient infection and time constraints. UCD reports that because clinical staff has been working on sepsis for the last five years, interest in this topic is waning. Similarly, SCVMC reports that there is physician "bundle fatigue" when it comes to the latest bundle requirements and medical staff sometimes question the research basis of the bundles. They point out that addressing those issues is a constant process and have found that physician champions for the sepsis program are immensely helpful.

SFGH has begun distributing performance reports to individual attending physicians in the ER this past year that include monthly and year-to-date overall bundle compliance and allows comparisons between the individual, the entire service, and other attendings. Early responses have been positive and the PHS hopes these reports will drive greater engagement at the attending level. UCD hopes to implement provider level feedback in DY9.

4.2 Central Line Associated Blood Stream Infection Prevention

The purpose of this project is to improve compliance with the central line insertion practice bundle and reduce the rate of central line blood stream infections in patients receiving care in public health care systems. The CDC estimates that 41,000 CLABSIs occurred among hospitalized patients in 2009, 18,000 of them in intensive care units (ICUs). CLABSIs are among the most serious hospital-acquired conditions (HACs), resulting in death for 12% to 25% of affected patients.

As a required project for all public health care systems, all PHSs participated in this project in DY 8 and they completed 58 out 59 possible milestones.

DY 8 Milestones Accomplished:

- ✓ Shared data, promising practices, and findings with SNI to foster shared learning and benchmarking across the California PHSs
- ✓ Reported central line insertion practices (CLIP) results to the State
- ✓ Maintained baseline with CLIP
- ✓ Reported CLABSI data individually for each of the following areas: acute care unit, intensive care units (ICU), and neonatal intensive care units (NICU) to the State

The metrics referenced in the DY 8 reports as potential indicators of improvement included:

- Compliance with CLIP
  - Numerator: Number of patients with central lines that occur in all ICUs including adult, pediatric and NICUs within the facility for whom all elements of the CLIP are documented
  - Denominator: Total number of patients with central lines that occur in all ICUs including adult, pediatric, NICUs within the facility
- CLABSI
  - Numerator: Laboratory-confirmed primary bloodstream infections that are not secondary to another infection and that occur in critical care units or inpatient ward patients in whom a central line was in place at the time of, or within 48 hours before, onset of infection
  - Denominator: Device days, i.e., number of critical care units or inpatient ward patients with one or more central lines or umbilical catheters enumerated daily and summed over the measurement interval

Progress and Impact:

In DY 8 PHSs have continued to create internal structures and systems to address central line associated bloodstream infection (CLABSI) prevention; create easily accessible, visible work orders, protocols, and tools for CLABSI screening and interventions; educate and train staff; and document and report data. Many sites have developed their surveillance capacities to the point that they are able to use data to analyze where deployment of their resources can be used for best effect. These efforts are described below.

Data Reporting

Figure 5: Central Line Insertion Practices – Adherence Rate

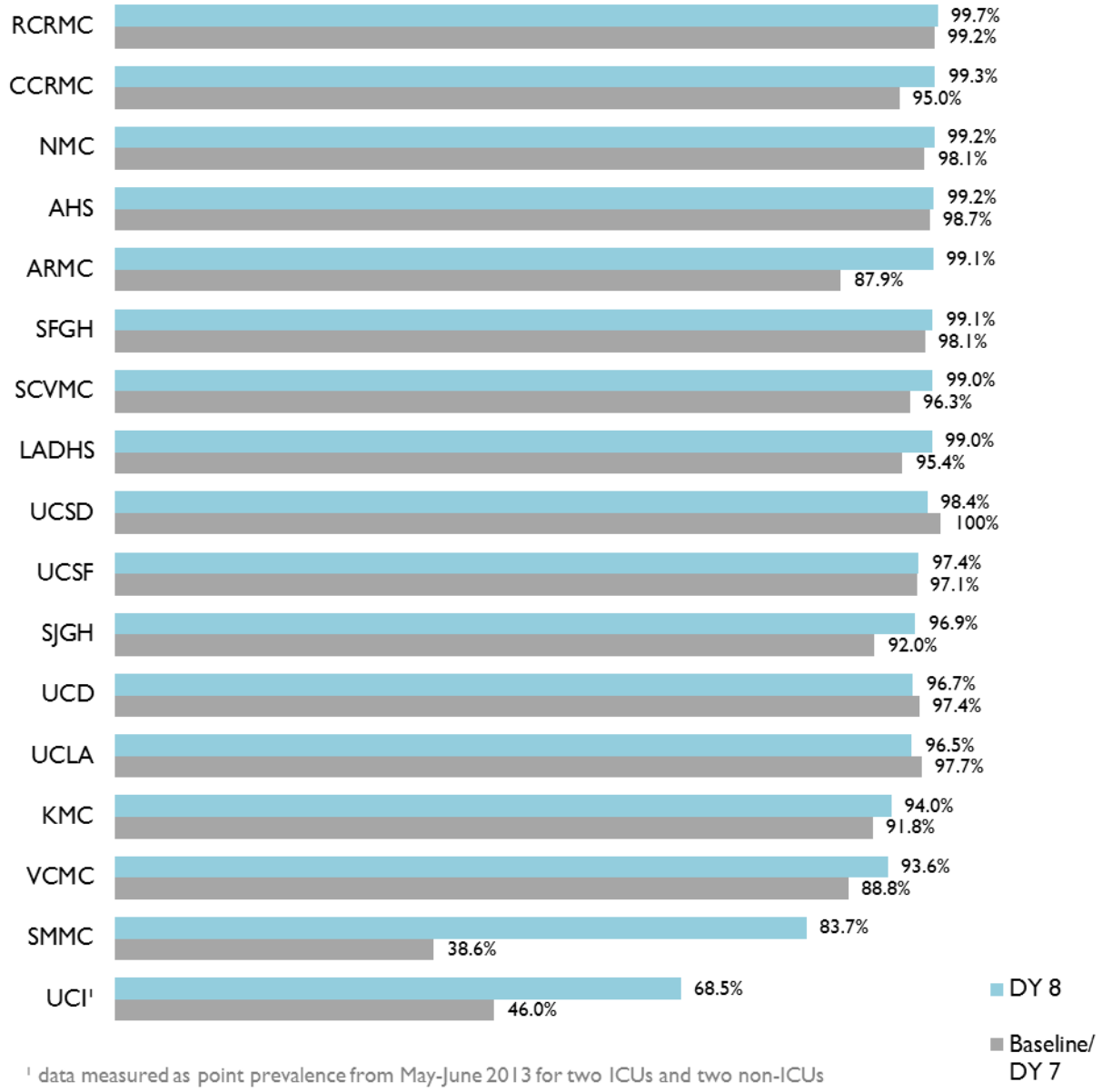


Figure 6: CLABSI – DY 8 Aggregate Rate per 1,000 Central Line Days

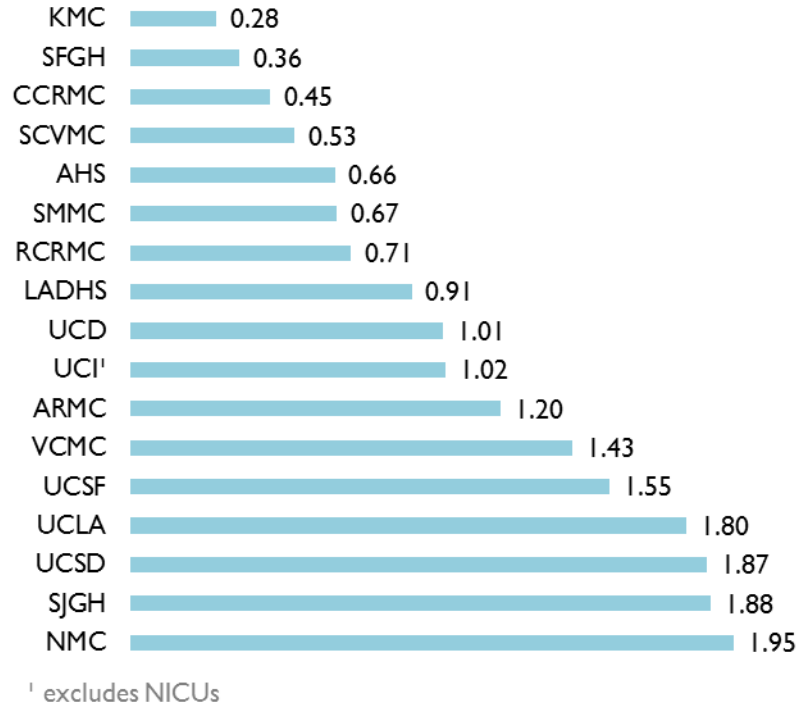


Figure 7: CLABSI – DY 8 Intensive Care Unit Rate per 1,000 Central Line Days

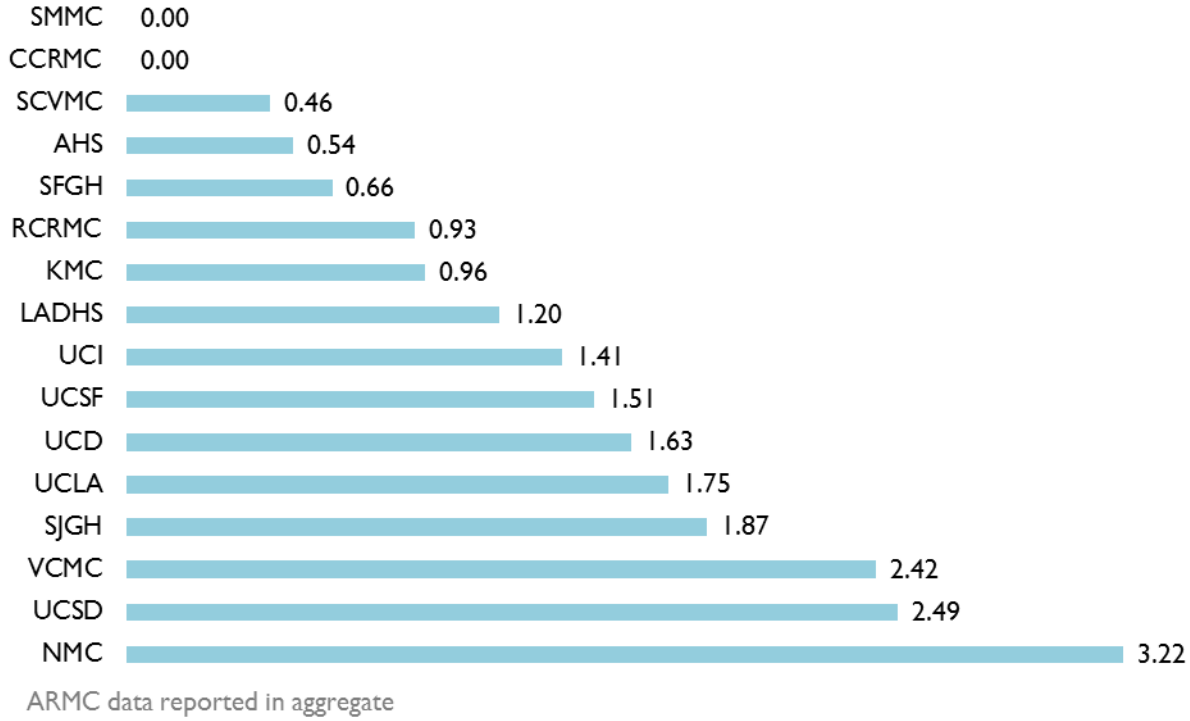


Figure 8: CLABSI – DY 8 Non-Intensive Care Unit Rate per 1,000 Central Line Days

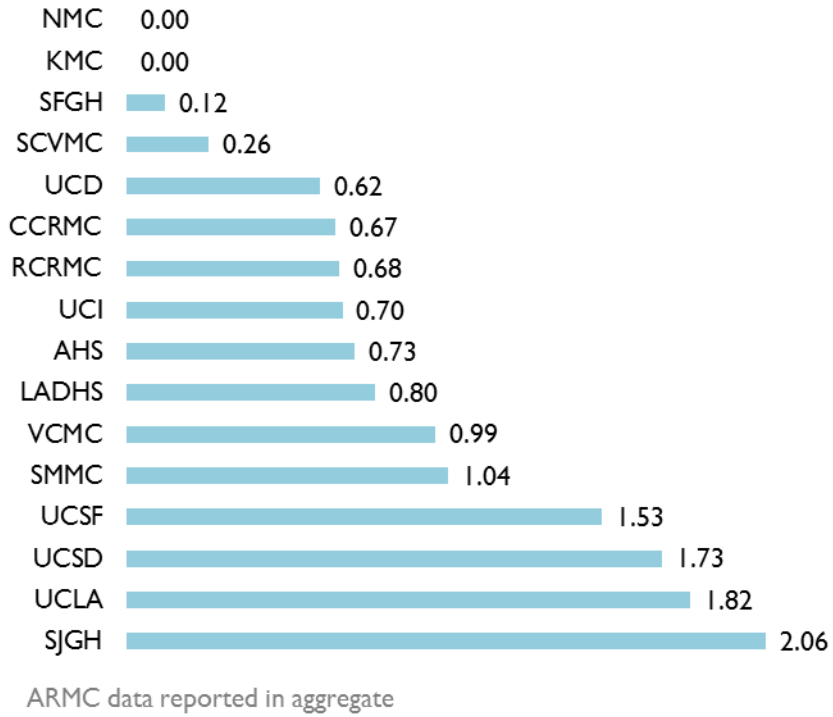
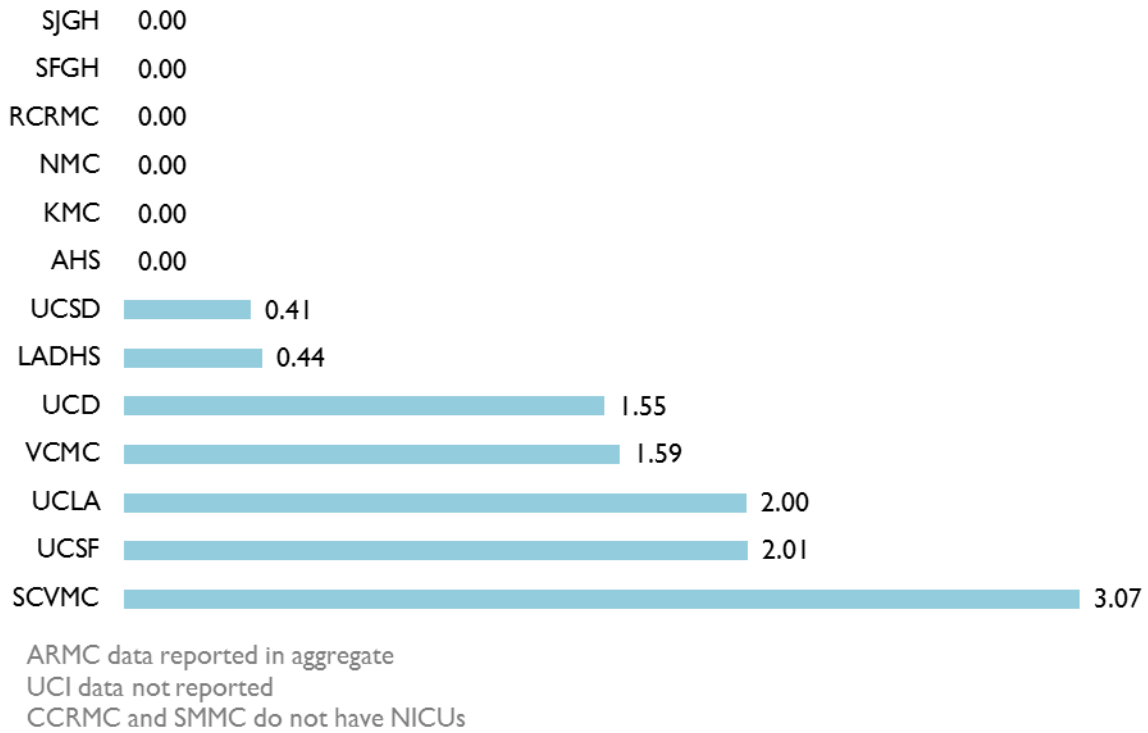


Figure 9: CLABSI – DY 8 Neonatal Intensive Care Unit Rate per 1,000 Central Line Days



Collaboration
A number of opportunities in addition to the Safety Net Institute's (SNI's) CLABSI collaborative provide opportunities for PHSs to address CLABSI control. UC affiliated sites have participated in a long-standing collaborative consisting of the epidemiology and infection departments of the five University of California medical centers convened by the Office of the President (UCOP). This collaborative has set and met goals for CLABSI reduction in each of the last three years. Sites utilize Centers for Disease Control (CDC) National Healthcare Safety Network (NHSN) definitions and methods for capturing data.

Personnel and structures for CLABSI management
Designating responsibility for CLABSI prevention and intervention and creating accountability structures are key to CLABSI control. Cross-disciplinary harm reduction teams (HRTs) reporting to upper management are a central feature in many PHSs. At UCLA the CLABSI task force includes over 60 practitioners from across the health system from multiple disciplines including nurse managers, direct care RNs, quality management, PICC service RNs, and an epidemiologist. AHS emphasizes that an important element that makes the harm reduction team successful is its responsibility to report to the larger organization.

Identifying champions among staff leaders who become the face of CLABSI management is another widespread approach for creating visibility and responsibility for CLABSI control. KMC reports that a physician champion has been very helpful for the sepsis initiative, but identifying a consistent physician champion for CLABSI has been a challenge for this improvement process.

Documentation
Low compliance rates can result from lack of adequate documentation as well as failure to comply with bundle requirements. SMMC, for example, reports that half of their bundle noncompliance incidents are a result of failure to document, rather than a failure in practice.

VCMC nurses had been challenged to complete CLIP forms in real time using the checklist at the bedside. They therefore focused improvement efforts on central line documentation by nurses in patients' electronic medical records, improving the rate of CLIP form completion, the rate of adherence to the central line insertion bundle, and adherence to the central line maintenance bundle. As a result of this focus and hiring a vascular access nurse who can constantly audit these functions, VCMC achieved 100% central line insertion adherence for the first time in August 2013.

A number of sites including UCSF report that their documentation accuracy has also been aided by the transition to electronic record keeping; hospital epidemiology and infection control receive a daily list of new central line insertions that is used to confirm that all CLIP note elements have been completed for each insertion. A number of sites including UCLA are still in the process of validating CLABSI surveillance requirements and outcome measures in their new electronic medical records, and some sites like UCSD report that even with a CLIP documentation tool in their electronic health record, consistent use of the standardized tool remains a challenge.

Visible, accessible work orders, protocols, and tools
Because of the complexity of CLABSI management and the need for constant vigilance, many site activities have involved developing work orders, protocols, and tools that are highly visible and easily accessible to frontline staff.

Several sites including SJGH have emphasized that readily accessible procedure carts and kits standardized for all areas of the PHS promote uniformity and compliance with protocols. RCRMC reports that creation of a specialized cart in 2010 that contains all the informational elements and inventory required to carry out a clean central line insertion has been a fundamental building block for bundle compliance, resulting in a dramatically reduced likelihood of central line contamination and infection. CCRMC packages contain practice and charting tips with their supplies, maximizing chances that they will be used correctly.

SFGH reports satisfaction with having achieved a 99% and above CLIP compliance rate. Although difficult to determine the precise reason for this, SFGH staff believes it has to do with maintaining high visibility and "public attention" for CLABSI and CLIP that has established CLIP as a standard.

SMMC reports that from DY 7 to DY 8 their CLIP compliance rate has risen from less than 40% to 83.7%, which they attribute largely to a CLIP compliance campaign. ARMC, among other sites, gives recognition to high-performing units as a means of reinforcing best practices. AHS is starting to post unit-level data reports on all hospital floors for CLABSI, central line dressing maintenance, and CLIP form compliance.

Education, Training, and Re-education
CLABSI education often occurs through ongoing hands–on work. At SMMC, daily audits for documentation of CLIP have provided education and real-time feedback for providers and nursing staff in the ICU. VCMC conducted a validation study that was a one-on-one interview with each nurse to learn their understanding of policies and procedures for central lines. Through this they learned that a standardized approach to managing central lines was indicated, and the results of the study became the basis for education throughout the health system.

Some sites have utilized external experts as consultants to help the system develop educational strategies. Upon reviewing the system wide practices at UCD, for example, consultants' recommendations have provided the basis for ongoing education. Several sites noted that best practices in infection control continue to evolve, and they devote substantial time to keeping up with the literature and revising policies and procedures to conform to the latest research.

Data-driven allocation of resources

There are many instances in which sites have been able to use data to identify and address weaknesses. When VCMC noticed that their CLABSI rate had not improved as much as expected despite adherence to the insertion and maintenance bundle, they purchased bio patches to drive their rates down further. SJGH has learned that their bundle compliance failures have been in emergency situations. SFGH noted that a deficiency area for completing CLIP forms is the emergency department because they have a separate electronic health record system. To remedy this, ED staff has been invited to participate in the CLIP Task Force to develop standardized forms.

Through the use of PDSA cycles, SCVMC decided to divide their data more prominently to show a difference between ED and inpatient compliance. This enabled them to draw attention to the fact that inpatient performance needed improvement and to develop a PHS wide policy to standardize practice for all SCVMC employees. They also report that as a result of an increased CLABSI rate in DY 8, they initiated investigations looking for patterns and root causes through their data.

Similarly, LADHS analyzed CLABSI data to learn that infections had moved out of high-risk areas and were occurring in non-ICU services. They consequently expanded the CLABSI curriculum requirement to these newly affected areas.

Provider buy-in
SFGH promotes physician buy-in through direct one-on-one feedback. A census list of all patients with central lines is printed out from the primary electronic health record system twice a week. If the CLIP form associated with each central line has not been logged, the nurse in charge goes back to the patients' procedure notes to identify the physician who failed to complete the form and follows up with the physician to determine why the form was not completed.

4.3 Surgical Site Infection Prevention

The purpose of this project is to reduce surgical site infections. Surgical site infections can be successfully prevented by implementing preventative peri-operative practices such as: optimizing use of antimicrobial prophylaxis, proper hair removal techniques, and control of serum glucose levels which are some of the elements of the surgical care improvement project (SCIP).

Twelve public health care systems accomplished 41 out of 42 possible milestones:

1. Alameda Health System (AHS)
2. Los Angeles Department of Healthcare Services (LADHS)
3. Riverside County Regional Medical Center (RCRMC)
4. Santa Clara Valley Medical Center (SCVMC)
5. San Francisco General Hospital (SFGH)
6. San Joaquin General Hospital (SJGH)
7. San Mateo Medical Center (SMMC)
8. University of California Davis Medical Center (UCD)
9. University of California Los Angeles Medical Center (UCLA)
10. University of California San Diego Health System (UCSD)
11. University of California San Francisco Medical System (UCSF)
12. Ventura County Medical Center (VCMC)

DY 8 Milestones Accomplished:

- ✓ Shared data, promising practices, and findings with SNI to foster shared learning and benchmarking across California PHSs
- ✓ Reduced the rate of surgical site infections for C-sections, hernias, and hip prostheses by 20% based on baseline data
- ✓ Reduced the overall rate of surgical site infection for total hip & knee arthroplasties, vaginal & abdominal hysterectomies, and C-sections to no more than 3%
- ✓ Reported the rate of surgical site infections for Class 1 and 2 wounds for 20 surgical procedures

The metrics referenced in the DY 8 reports as indicators of improvement included:

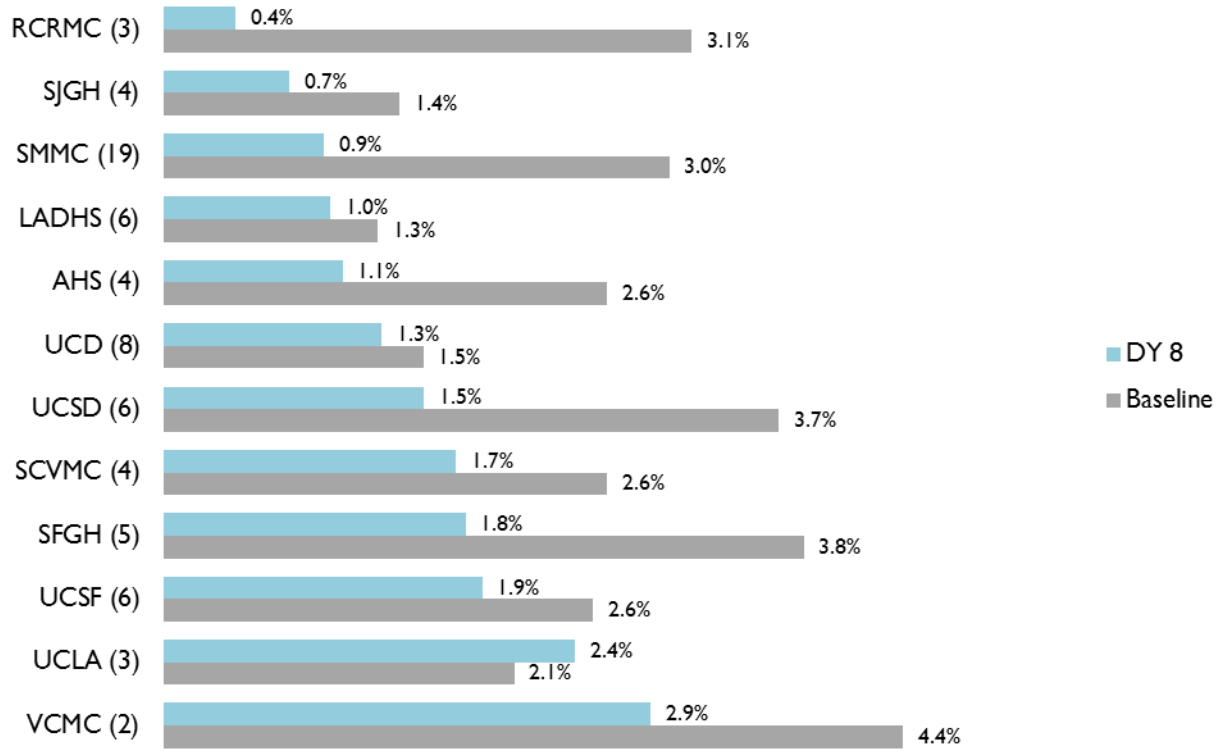
- Rate of surgical site infections for procedures including C-sections, hernias, hysterectomies, and hip prostheses

Progress and Impact:

In DY 8 public health care systems have continued to create internal structures and systems to address surgical site infection (SSI) prevention. These are described below.

Data Reporting

Figure 10: Surgical Site Infections – Aggregate Rate (Count of Procedures Tracked by PHS)[24]



Sites point out that for some milestones, because denominators are small, even a small change in the numerator or denominator can cause success rates to fluctuate greatly.

Collaboration

A number of opportunities in addition to Safety Net Institute's (SNI's) collaborative training are open to public health care systems. These include America's Essential Hospital's Hospital Engagement Network (HEN), which is part of the Center for Medicare and Medicaid Services' (CMSs') Partnership for Patients. Some health care systems such as LADHS had already been participating in Surgical Care Improvement Project (SCIP) measure reporting prior to DSRIP, which gave them a running start. Many PHSs include staff with membership in the Association for Professionals in Infection Control and Epidemiology that provides infection prevention with an important platform to maximize knowledge. Another national improvement initiative is the National Surgical Quality Improvement Project, for which some sites such as UCSD submit data. Others participate in University HealthSystem Consortium (UHC) or the Epi Collaborative of the University of California Office of the President (UCOP). There are additional regional collaboratives in

[24] Appendix G includes individual procedure-level data

which public health care systems participate. A SMMC general surgeon, for example, serves as champion for a Bay Area Consortium of seven PHSs that share data, promising practices, and findings for improvement including in surgical site infections.

Personnel and structures for management

Designating responsibility for prevention and intervention and creating accountability structures are key to surgical site infection (SSI) prevention control. Cross-disciplinary harm reduction teams (HRTs) reporting to upper management are a central feature in many PHSs. In AHS, a quality coordinator who will be replaced by an infection control practitioner in DY-9 coordinates SSI efforts. The quality coordinator has created buy-in and collaboration across units and with individual leaders.

Identifying champions among staff leaders who become the face of management is another widespread approach for creating visibility and responsibility for SSI prevention. At AHS, physician champions from infectious disease, surgery, and anesthesia have been very active in support of the SSRI HRT. UCD reports a lesson they have learned is that challenges can occur when champions and leaders retire or turn over; this occurred to them in the last half of DY 8 when the SSI champion retired and the lead nurse analyst changed positions.

Documentation

Low compliance rates can result from lack of adequate documentation as well as failure to comply with bundle requirements. Some sites such as AHS report that they will be changing goals and metrics. Others such as SJGH report that prior reports were not correct but that reporting methods have now been corrected. Reports emphasize that accurate documentation requires ongoing vigilance and monitoring.

A number of sites report that their accuracy has been aided or soon will be aided by the transition to electronic record keeping. SCVMC utilizes proprietary software, Crimson Continuum of Care, which allows electronic drill down of UHC data to the level of provider and individual patient. They anticipate that an interface with other data sources will enable them to better understand practice patterns and improve timeliness of provider feedback, which will contribute to further SSI reduction.

A review conducted by UCD noted that up to 50% of wounds were classified incorrectly at the time of initial surgery. To correct this, they created instructional materials that they put on education monitors near the operating room and in the break room and also provided in-service education and teaching posters. Educating staff and physicians about appropriate and accurate classification improved classification errors by 30%.

Visible, accessible work orders, protocols, and tools

Because of the complexity of surgical site infection (SSI) prevention management and the need for constant vigilance, many site activities have involved developing work orders, protocols, and tools that are highly visible and easily accessible to frontline staff.

SCVMC has created a two-page screening tool, developed with the IP department, which incorporates all HSHN-required information for reporting. These data sources include the daily census that is screened for indications of SSI, specialized software that provides

automated surveillance for early patterns or trends signaling a possible SSI, coding reports, daily rounds, and the Department of Surgery QI.

LADHS established a "learning board" for practitioners to track and communicate SCIP measures applicable for cardiac surgery, as well as a post surgical brochure for patients that includes pictures to help them identify when they may be experiencing SSI. A lesson shared by LADHS is that because each surgical clinic operates slightly differently, the SSI algorithm had to undergo small tests of change in each facility and in ambulatory care settings to create fine-tuned customizations.

Many sites list various specific measures they have taken to reduce SSIs. SMMC, for example, lists over a dozen such measures including decreasing operating room traffic, pre-op dental examinations, postponing surgery if there are concomitant infections, implementing new antisepsis training materials, and reducing post-op bleeding. UCD reports that providing supplemental oxygen in the postoperative period is an inexpensive measure with good results for reducing infections.

Education, Training, and Re-education
RCRMC reports that their ongoing campaign to educate and train all levels of staff, from physicians to housekeepers, has been so successful and driven such transformation in practices that they were recently awarded "The Challenge Award," from the California Association of Counties for cost savings achieved through SSI reduction. Despite their achievements, they identify the need for continual diligence in their education efforts and that the entrenched habits of operating physicians, nurses and hospital staff to enter and exit the surgery suite without necessity represents the most unyielding obstacle to maintaining and further reducing SSI rates.

At AHS, the SSI HRT created an SSI scorecard with goals and targets for both process and outcome measures as an education tool that is being shared daily with surgical residents, Quality Council and internally to the SSI HRT. A challenge developing the scorecard was to present data to tell the story in a way that the audience focuses on key information, without getting sidetracked to less important items. Preplanning concise presentations tailored to each audience became the strategy to avoid that problem. Several sites including the VCMC emphasize how labor-intensive the process of education to reduce SSIs is and that sustainability requires significant diligence and the realignment of resources

Data-driven allocation of resources
SSI reduction efforts demonstrated a number of data driven improvement efforts. At AHS, for example, a plan for improving antibiotic selection, timing and re-dosing as part of the overall SSI reduction initiative resulted from several steps. First came an analysis of current practices. A sample of 162 anesthesia records for general surgery, orthopedics, gynecology, urology and neurosurgery procedures were reviewed for the start of antibiotic, start time of surgery, antibiotic type, and antibiotic re-dosing. Starting antibiotics within one hour and antibiotic selection were found to be the areas with the greatest opportunities for improvement, thus attention was directed here. In assessing the many

measures that they submit, UCSD identified that there were improvement opportunities concentrated in the urology patient population.

In DY 8, UCSF has done a deep dive in the categories of abdominal surgeries and practices ranging from preoperative patient preparation to post discharge follow-up as well as instrument reprocessing and room cleaning. These aspects of patient care have now all been evaluated and new strategies have been implemented.

Provider buy-in
SCVMC enhances physician buy-in by providing feedback on each SCIP failure based on an analysis indicating whether it was an omission traceable to the physician directly, pharmacy, nursing, or anesthesia services. The purpose of providing this feedback is to reinforce the ultimate responsibility for the care delivered under the direction of the attending physician, while emphasizing that the capacity to deliver the best evidence-based care depends on teamwork.

SFGH similarly builds buy-in through direct feedback. They report that providing direct feedback to surgeons is challenging because use of a surgical residency program means that the actual operating surgeon may no longer be accessible when an SSI is detected. Information is accordingly shared as an overall SSI rate by service rather than by individual surgeon.

Lessons learned
AHS reports that they have learned that SSI reduction requires consistent, repeated messaging over time, keeping the end goals in sight, and developing consensus while maintaining timelines to get tasks completed.

RCRMC points out that human behaviors, such as unnecessary entrances and exits to the surgery suite, represent the most unyielding obstacles to reducing SSI rates. They point to a lesson they have learned, that in retrospect they would have involved their top medical leadership earlier in their SSI rate reduction campaign to emphasize top-down accountability.

SMMC points out that proper postoperative wound care after discharge is challenging, often due to cultural differences. They believe that standardized instructions in different languages may help reduce variability in post-op wound care at home.

4.4 Hospital Acquired Pressure Ulcer Prevention

The purpose of this project is to prevent hospital acquired pressure ulcers (HAPU) in patients receiving care in public health care systems. Pressure ulcers are among the most frequent hospital acquired conditions, but the harm they cause varies widely. Stage 1 pressure ulcers that are identified early, and responded to appropriately, result in very little cost or patient harm. Pressure ulcers that progress beyond Stage 1 are a much more serious problem, causing significant pain and compromising activities of daily living. Pressure ulcers in Stages III and IV put patients at significant risk for infection that can potentially result in death.

Twelve PHSs completed 44 out of 45 potential milestones related to preventing hospital acquired ulcers:

1. Alameda Health System (AHS)
2. Arrowhead Regional Medical Center (ARMC)
3. Contra Costa Regional Medical Center (CCRMC)
4. Kern Medical Center (KMC)
5. Natividad Medical Center (NMC)
6. Santa Clara Valley Medical Center (SCVMC)
7. University of California Davis Medical Center (UCD)
8. University of California Irvine Healthcare (UCI)
9. University of California Los Angeles Medical Center (UCLA)
10. University of California San Diego Health System (UCSD)
11. University of California San Francisco Medical System (UCSF)
12. Ventura County Medical Center (VCMC)

DY 8 Milestones Accomplished:

- ✓ Reported hospital acquired pressure ulcer prevalence results to the State
- ✓ Shared data, promising practices and findings with SNI to foster shared learning and benchmarking across the California PHSs
- ✓ Utilize Lean methodologies to assist in identifying any barriers related to compliance with IHI pressure ulcer bundle elements
- ✓ Continued DY 7 interventions to prevent hospital acquired ulcers

The metrics referenced in DY 8 reports as potential indicators of improvement included:

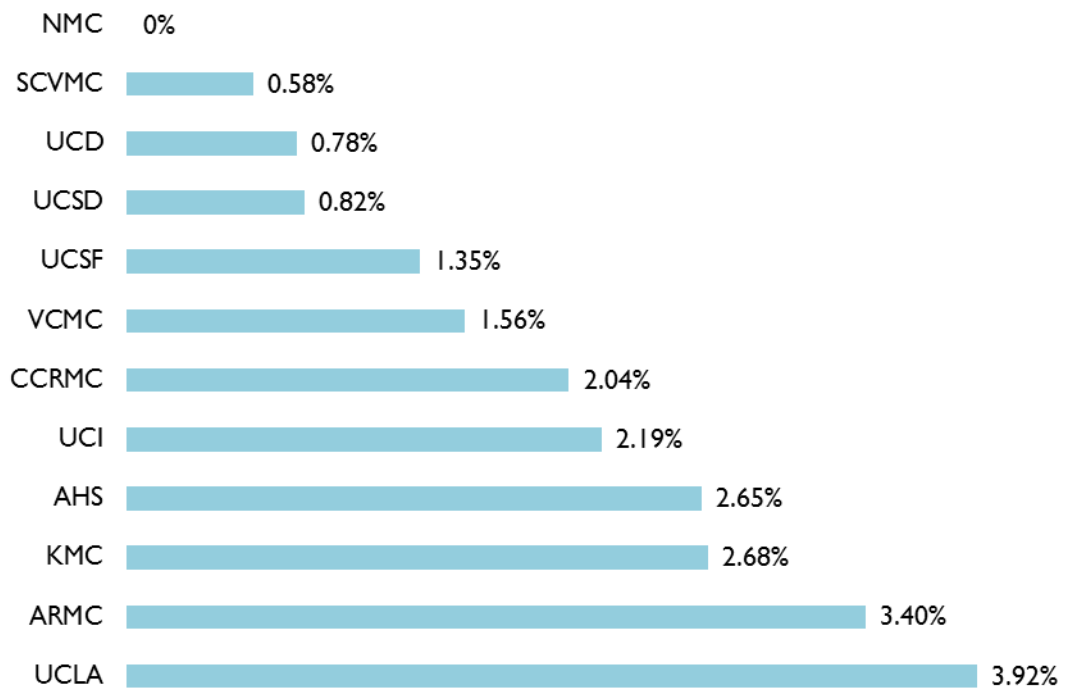
- Pressure ulcer prevalence
    - Numerator: Patients with Category II, III, IV or unstageable pressure ulcers and deep tissue injuries
    - Denominator: All patients 16 years or older assessed on the day of the study

Progress and Impact:

In DY 8 public health care systems have continued to create internal structures and systems to prevent hospital acquired pressure ulcers (HAPUs). These are described below.

Data Reporting
The data collection instrument used by sites is from the Collaborative Alliance For Nursing Outcomes (CALNOC).

Figure 11: Hospital-Acquired Pressure Ulcer – DY 8 Prevalence



Collaboration
PHSs have utilized a number of opportunities to reduce hospital acquired pressure ulcers. Through CMS's Partnership for Patients, many sites have joined America's Essential Hospitals' Safety Network and report data to them. At least two PHSs, ARMC and VCMC, have utilized tools, strategies, and technical assistance provided by Kaiser Permanente's "Partnership to Spread HAPU Prevention Project." Several northern California sites have participated in the Integrated Nurse Leadership Program (INLP)'s Hospital Acquired Pressure Ulcer Collaborative funded by the Gordon and Betty Moore Foundation. Nurses at PHSs participate in Wound Ostomy Care Nurses (WOCN).

Personnel and leadership structures for hospital acquired pressure ulcer (HAPU) management
Designating accountability and responsibility for HAPU management is key to successful control. In DY 8, AHS reorganized its hospital wide wound care team under the direction of the assistant director of nursing. This process included engaging stakeholders, assessing staff skills and knowledge, reviewing and revising policies and procedures, developing and implementing educational programs and accountability measures. AHS points out that a lesson learned through this process is that clearly defined roles and responsibilities are essential precursors to establishing accountability for wound prevention and care.

Identifying champions among staff leaders who become the face of HAPU management is another widespread approach for creating visibility and responsibility. An important ingredient of the AHS wound care reorganization was introducing "Wound Champions" who have had additional training in wound care and consult to nurses when they have patients with wounds. Some sites such as NMC have hired additional staff to boost available staff expertise in wound to pair with line staff for HAPU management.

Documentation
Documentation accuracy has been aided by the transition to electronic record keeping at some sites. The pressure ulcer prevention team at NMC, for example, determined that the nursing care plans were confusing and time-consuming, contributing to poor compliance. To address this, they worked closely with the information technology department to create more accessible, condensed HAPU information. To gain an overview of the current status of pressure ulcers, the team also made it possible to call up a pressure ulcer report rather than requiring staff to individually query patient records. AHS similarly identified that the existing data system was inadequate for tracking and communicating information about pressure ulcers and created a revised reporting form.

KMC has added clinical warnings to the coversheet under the "alert" tab in patients' electronic health records. These warnings alert staff that there is already or a risk of developing a pressure ulcer and remain in the patient's chart throughout their inpatient stay. To create even more visibility, pressure ulcer signs have also been placed at the head of patients' beds to signal the existence or risk of pressure ulcers. UCD requested a test practice alert in their electronic health records that creates a full stop for the question: "Does this patient have a pressure ulcer?" This change alone has increased their documented pressure ulcers present on admission from five a week to between 45 and 55 per week.

Several electronic systems are still in the process of being developed. AHS points to their new electronic health record system as holding promise for regular data collection and distribution, but point out that a significant amount of work needs to be accomplished before an electronic system is fully functional. SCVMC conducted three PDSA cycles in DY 8 to improve tracking tools. They are now in the process of incorporating these in electronic health records and validating data, which they anticipate will be completed in early DY-9. UCSF is similarly in the process of refining electronic information structures to capture and trend HAPU documentation, which they report has been an iterative and slow process.

Visible, accessible work orders, protocols, and tools
Because HAPU management requires constant vigilance, many sites have developed work orders, protocols, and tools that are highly visible and easily accessible to frontline staff. A feature of the AHS wound care program that increases its visibility, for example, is "Wound Wednesdays" when Wound Champions meet with nurse managers to review patients that have or are at risk of developing pressure ulcers.

ARMC recognized that an area of standard work that needed attention was the organization of wound carts, and as a result, they applied the Lean 5 S process to Sort, Straighten, Shine,

Standardize, and Sustain the wound carts. This has resulted in easily accessible and well ordered materials and instructions for wound care. Because there is a constant introduction of new tools and treatments for HAPU prevention and management, improvements at many PHSs have included purchasing different types of supplies and devices. UCD notes that even when new tools and equipment are purchased, they are not used if they are not readily accessible and hence HAPU education efforts also include staff in charge of stocking and deploying equipment.

Education, training, and re-education
PHSs have initiated a variety of education and training programs on HAPU management. ARMC, for example, conducted PHS wide education for all bedside nurses that was led by Wound Resource Nurses. They have also integrated a one-hour education program on pressure ulcers into all new resident education. CCRMC points out that listservs that go directly to unit staff are an important tool for continuing education.

To give visibility to HAPU control and educational opportunities that support it, SCVMC launched a reward program in DY 8 to recognize units' performance achieving rates of 0% hospital acquired pressure ulcers. They also highlight six areas of ongoing education that include: weekly rounds by the wound care nurse, a daylong nursing education program focused on pressure ulcers, biweekly multidisciplinary grand rounds in the rehabilitation department, ongoing education to clinical staff members by the wound specialist, and participation in ongoing webinars, conference calls, and a national advisory council on pressure ulcers by the wound specialist.

In a unique educational format, at UCSF's monthly pressure ulcer prevention committee meeting, several skin champions led the committee in a hands-on demonstration that used potatoes altered to appear as if they had different stages of pressure ulcers, and participants had to determine which products should be used to treat which types of pressure ulcers.

Data-driven allocation of resources
Several sites highlight ways in which they have used data to drive their interventions. UCD conducted a root cause analysis and found that 90% to 100% of all pressure ulcers occur in surgical patients. To target this problem, they are conducting a study on operating room surfaces through the use of a pressure-mapping device that will identify the best surfaces for pressure redistribution during prolonged surgeries and interventional radiology procedures. They have also collected pressure-mapping information on every bed, gurney, and table in the hospital.

UCSF reports that as their pressure ulcer rates have steadily improved, their strategies have become more finely tuned. For example, they are monitoring the effect of 400 new beds in acute care units and determining which linens work best on them to prevent pressure ulcers. They have also focused on medical device-related pressure ulcers, in particular, nasogastric tubes.

VCMC conducts daily audits to measure the number of times patients are turned. These are performed randomly, grouped by week, and presented quarterly. These audits allow for the timely exchange of information for staff awareness of successes, as well as opportunities for more focused education from the skin care team.

4.5 Venous Thromboembolism (VTE) Prevention and Treatment

The purpose of this project is to better prevent and treat venous thromboembolism (VTE) in patients. VTE is a common, preventable cause of health care associated morbidity and mortality. Approximately, 1.15% of hospitalized patients undergoing surgery experience a VTE. This amounts to over 100,000 cases per year annually in the United States.[25]

Six public health care systems completed 43 out of 48 possible milestones related to VTE prevention and treatment:

1. Contra Costa Regional Medical Center (CCRMC)
2. Kern Medical Center (KMC)
3. Los Angeles Department of Healthcare Services (LADHS)
4. Natividad Medical Center (NMC)
5. San Francisco General Hospital (SFGH)
6. University of California Irvine Healthcare (UCI)

DY 8 Milestones Accomplished:

- ✓ Shared data, promising practices, and findings with SNI to foster shared learning and benchmarking across the California PHSs
- ✓ Increased rate of patients who receive VTE prophylaxis or have documentation of why no VTE prophylaxis was given the day of or the day after the initial admission (or transfer) to the ICU or surgery end date for surgeries that start the day of or the day after ICU admission
- ✓ Increased rate of patients diagnosed with confirmed VTE who received an overlap of parenteral (intravenous [IV] or subcutaneous [subcu] anticoagulation and warfarin therapy
- ✓ Increased rate of patients diagnosed with confirmed VTE who received IV UHF therapy dosages and had their platelet counts monitored using defined parameters such as a nomogram or protocol
- ✓ Identified IT solutions to assist providers with protocol/order set use compliance
- ✓ Piloted protocols/order sets at 4 strategically identified locations
- ✓ Collected data on compliance with protocol/order set as evidenced by DHS performance measure committee minutes
- ✓ Reported 5 VTE process measures results to the state

The metrics referenced in the DY 8 reports as potential indicators of improvement included:

- VTE prophylaxis
- Intensive Care Unit VTE Prophylaxis

Progress and Impact:

In DY 8 public health care systems have continued to create internal structures and systems to address venous thromboembolism (VTE) prevention and treatment.

[25] See www.healthcare.gov/compare/partnership-for-patients/safety/vte.html

Data Reporting
Several PHSs mentioned that the rate of occurrence is so low for several VTE measures that one or two incidents can significantly affect success rates.

Figure 12: VTE - Venous Thromboembolism Prophylaxis (VTE-1)

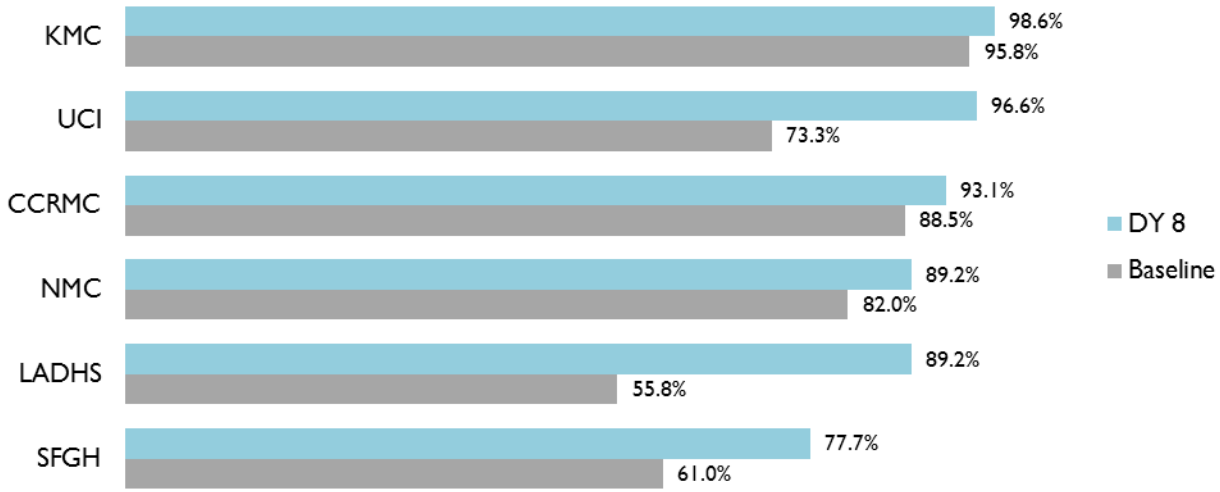


Figure 13: VTE - Intensive Care Unit Venous Thromboembolism Prophylaxis (VTE-2)

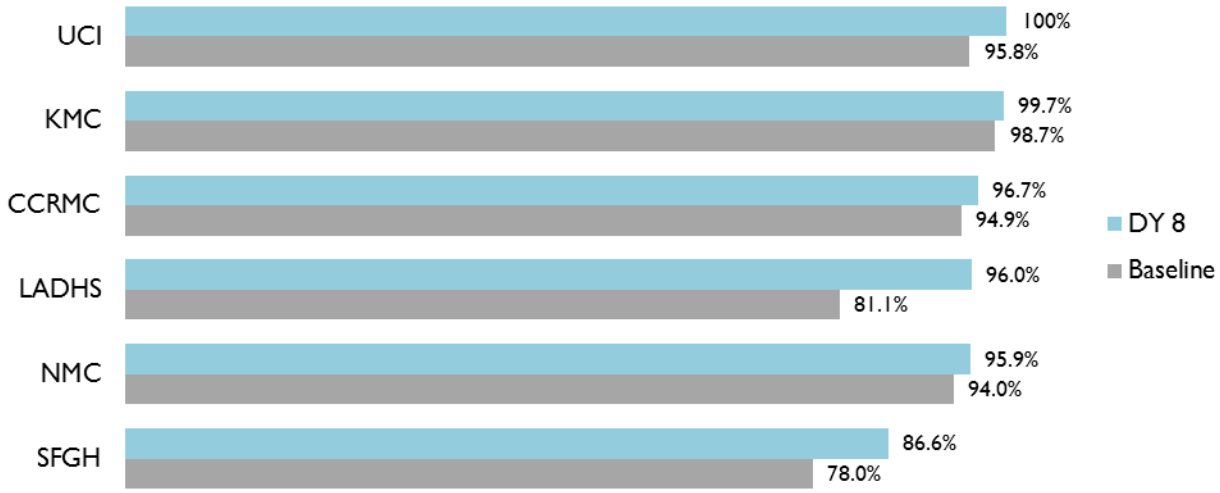


Figure 14: VTE - Venous Thromboembolism Patients with Anticoagulation Overlap Therapy (VTE-3)

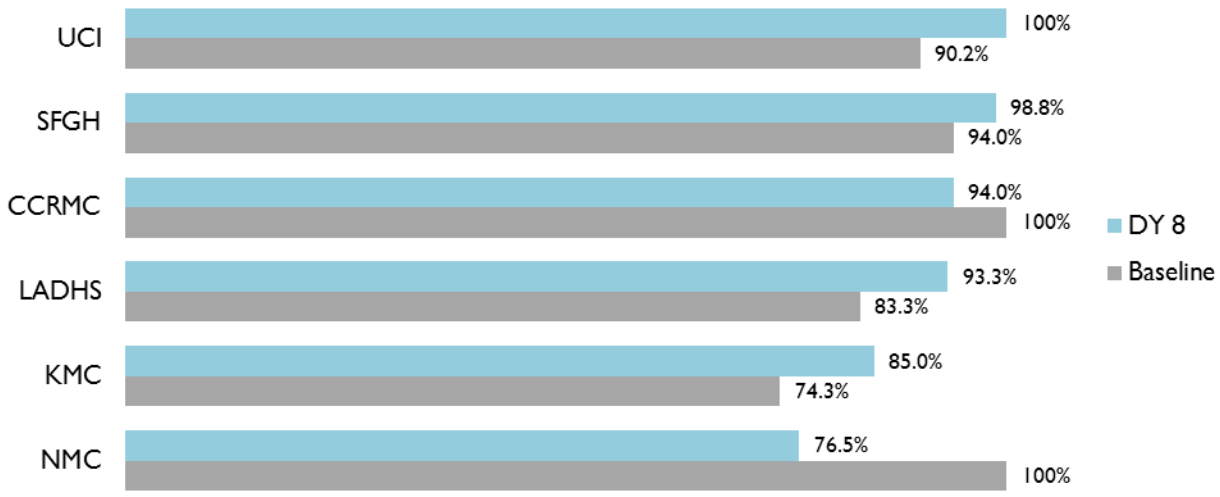


Figure 15: VTE - Venous Thromboembolism Patients Receiving Unfractionated Heparin with Dosages/Platelet Count Monitoring by Protocol or Nomogram (VTE-4)

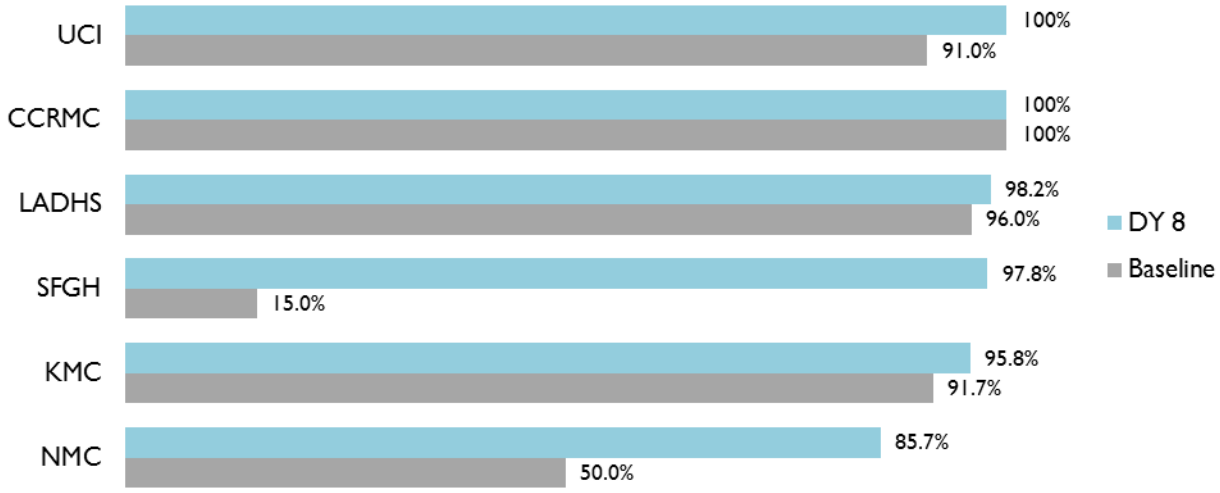
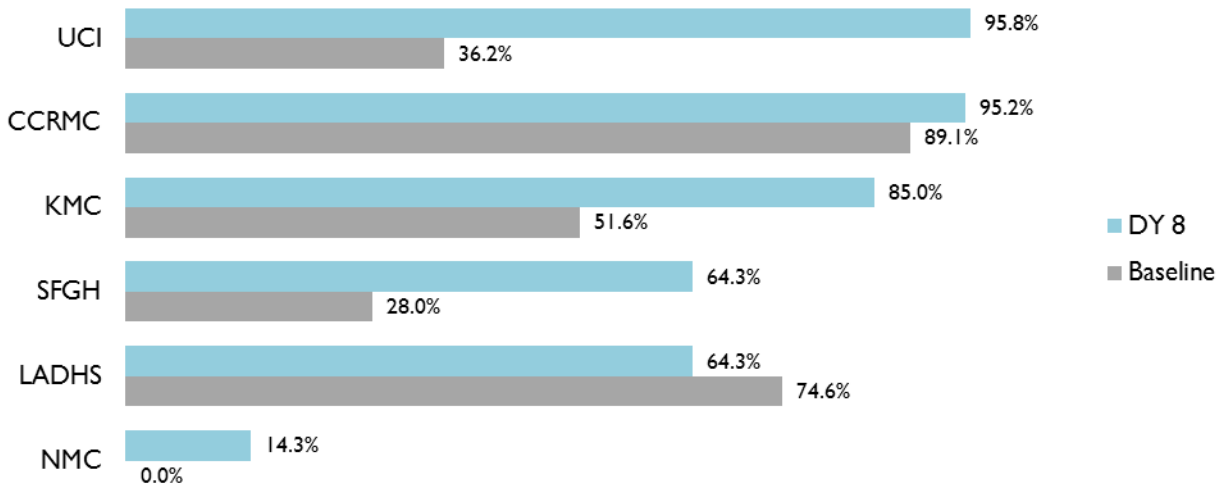


Figure 16: VTE - Venous Thromboembolism Warfarin Therapy Discharge Instructions (VTE-5)



Documentation
Accurate documentation is foundational to reporting and improving VTE process and outcome measures. CCRMC has undertaken a number of activities to improve their measurement sets and performance reports in order to provide better data, yet they still identify issues that they face. A problem for rapid improvement events of some VTE interventions, for example, is that core measure data do not become available until three to four months after incidents occur. An additional problem is that physicians can inadvertently omit discharge instructions from their reports, so this process will be reviewed and hopefully strengthened with IT support.

LADHS also believes that one of the strongest interventions for fostering compliance with VTE prevention and treatment guidelines will be through applications available in electronic health records. They have now contracted with an electronic health record vendor and expect to begin building such a system in 2014. They have already developed a VTE order set template for system adoption as their electronic health record development progresses.

Reporting reliable data to demonstrate achievement on all five VTE prophylaxis milestones has been a key challenge for SFGH. Through a continuing improvement process, they are now using their third data management system for these measures. The latest system, UHC, provides almost instantaneous feedback reports on outlier cases so that they can be quickly reviewed. The system is used in combination with the Meaningful Use certified system to electronically collect clinical data, which is then verified by reviewers and uploaded to the core measure database. Use of these two key data systems has aided reaching SFGH's goal of reliable and timely data abstraction with its ability to provide specific reports at the unit and service level for performance improvement purposes. An ongoing challenge is assuring

that staff has sufficient time to consistently and reliably complete VTE data abstraction given many competing demands and concurrent improvement initiatives.

Visible, accessible work orders, protocols, and tools
Because of the complexity of VTE management and the need for constant vigilance, many site activities have involved developing work orders, protocols, and tools that are highly visible and easily accessible by frontline staff. A particular challenge for several sites has been assuring the accuracy of information for VTE treatment upon both inpatient admission and discharge, taking into account that some preventive measures should not be administered if there are counter indications.

CCRMC amended their existing order sets to include counter indications if the plan is not to order VTE prophylaxis, a list of risk factors for VTE, and counter indications to prophylaxis to help guide physician decision-making. NMC also revised their forms including a new VTE risk assessment order form that is incorporated into every patient's admission orders, as well as a new discharge order form that will also capture acceptable exclusions for patients being discharged on anticoagulants. SFGH reports an ongoing challenge with developing a system that captures documentation of written discharge instructions being provided to patients going home on warfarin. A solution planned for the future is an electronic discharge pathway embedded in the electronic medical record.

An innovation made by KMC stems from the fact that because theirs is a level II trauma hospital, patients are admitted with various trauma wounds to the lower extremities and are therefore unable to receive VTE pharmacological prophylaxis. In order to provide VTE prevention to this population they implemented foot sleeves as sequential compression devices and added this procedure to the physician order set.

LADHS reports that to meet VTE milestones, they have conducted sweeping revisions to VTE protocols and orders. DY 7 baseline data on compliance with VTE indicators indicated that even in instances where protocols and order sets were in place, their use was limited. For example, protocols and order sets for compliance with VTE one were in place at all for facilities but overall compliance with VTE one requirements was only 51%. LADHS facilities have continued to update and revise their VTE protocols and order sets to clarify the material and increase compliance, efforts which are showing positive effects.

Education, Training, and Re-education
CCRMC added VTE education to the resident education curriculum. They have also learned that it is important to create a learning environment across teams and that use of improvement events allows time for this important teambuilding.

LADHS has utilized an external consultant, an Institute for Health Improvement trained facilitator, who provided a day of face-to-face team training exercises and followed each facility team over a six-month period through conference calls. She mentored LADHS team members using the rapid cycle PDSA method to lead teams through their identified improvement projects.

Data-driven allocation of resources

KMC noted that sequential compression stockings were not consistently applied for pre-op patients and that this reflected a gap in formal education for all nursing attendants. As a result, education was provided to all registered nurses, and dedicated machines were assigned to each pre-op room for same-day surgical patients that meet the criteria. They also report that they are conducting ongoing audits that have been extremely important for meeting and exceeding their target milestones. SFGH has also conducted PDSA cycles to assure that patients are appropriately provided sequential compression devices (SCD).

4.6 Stroke Management

The purpose of this project is to reliably implement the seven elements of the Stroke National Hospital Inpatient Quality Measures. Stroke is the fourth leading cause of death, a leading cause of disability, and is treatable.

Three public health care systems accomplished 25 out of 29 possible milestones related to stroke management.

1. Arrowhead Regional Medical Center (ARMC)
2. Riverside County Regional Medical Center (RCRMC)
3. San Joaquin General Hospital (SJGH)

DY 8 Milestones Accomplished:

- ✓ Attained and maintained the rate of patients with an ischemic stroke with atrial fibrillation/flutter discharged on anticoagulation therapy from baseline to target
- ✓ Increased the rate of patients with an ischemic stroke or hemorrhagic stroke who were assessed for rehabilitation services from baseline to target
- ✓ Maintained compliance rate on patients with ischemic stroke who receive antithrombotic therapy by the end of hospital day two based on baseline data
- ✓ Utilized Lean methodologies to assist in identifying any barriers related to compliance with IHI Stroke Management Bundles
- ✓ Reported the seven process measures and stroke mortality rate to the State
- ✓ Shared data, promising practices, and findings with SNI to foster shared learning and benchmarking across the California PHSs

The metrics referenced in the DY 8 reports as potential indicators of improvement include:

- Discharged on Antithrombotic Therapy
- Anticoagulation Therapy for Atrial Fibrillation/Flutter
- Thrombolytic Therapy
- Antithrombotic Therapy by End of Hospital Day 2
- Discharged on Statin Medication
- Stroke Education
- Assessed for Rehabilitation

Progress and Impact:

In DY 8 PHSs have continued to create internal structures and systems to address stroke prevention and management. Both ARMC and RCRMC placed emphasis for their interventions on primary, secondary, and tertiary preventive measures. These included:

Educating community residents and stroke patients about stroke symptoms and management. People who have had strokes are at high risk for experiencing repeat occurrences. To enhance secondary prevention and maximize self-care, both PHSs met milestones of providing patients or their caregivers with direct education or educational materials during their hospital stays addressing such topics as: personal risk factors for stroke, warning signs, activation of the emergency medical system, need for follow-up after

discharge, information about medications prescribed at discharge, and referrals for rehabilitation services. RCRMC extended their preventive education efforts to reach the community at large through multiple outreach events, educating them on warning signs of stroke and the availability of treatments.

Decreasing time from stroke onset to arrival at hospital and initiation of therapy. Stroke outcomes are highly influenced by the time frame within which treatment is initiated. Public health systems met milestones for increasing the percentages of patients who arrive at the hospital within two hours and for whom treatment is initiated within three hours of stroke onset. RCRMC identified securing the results of lab tests was a barrier to timely treatment. As a result, they have initiated a program for Emergency Medical Service personnel to draw blood samples in transit as suspected stroke patients are being transported to the hospital.

Assuring that stroke patients are discharged with appropriate medications and rehabilitation services. Public health systems emphasize medications provided to stroke patients on hospital discharge. These include prescription of anticoagulation therapy, statin medications, and antithrombotic therapy for patients meeting appropriate criteria.

Providing timely antithrombotic medications to inpatient stroke patients. PHSs met milestones of providing these secondary preventive medications within 48 hours of hospital admissions. ARMC used Lean methodologies to assist them identify and overcome barriers to compliance with the Institute For Healthcare Improvement's stroke management bundles. RCRMC's stroke program coordinator initiated the Inland Empire Stroke Coordinator Association that provided learning opportunities in that area to share information and learn best practices to identify ways to eliminate barriers to high-quality stroke management.

Figure 17: Stroke – Discharged on Antithrombotic Therapy (STK-2)

Figure 18: Stroke – Anticoagulation Therapy for Atrial Fibrillation/Flutter (STK-3)

Figure 19: Stroke – Thrombolytic Therapy (STK-4)

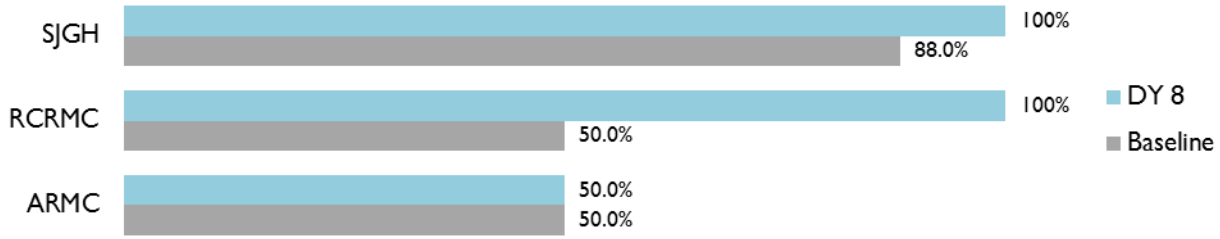


Figure 20: Stroke – Antithrombotic Therapy By End of Hospital Day 2 (STK-5)

Figure 21: Stroke – Discharged on Statin Medication (STK-6)

Figure 22: Stroke – Stroke Education (STK-8)

Figure 23: Stroke – Assessed for Rehabilitation (STK-10)

Figure 24: Stroke – DY 8 Mortality

4.7 Falls with Injury Prevention

The purpose of this project is to prevent serious falls with injuries and immobility. Falls are among the most frequently reported incidents. Unlike some other types of adverse events, many inpatient falls cause little, or no, harm, but the overall rate of falls means that they are a significant cause of hospital acquired injury.

One public health care system accomplished two milestones related to reducing falls with injury prevention.

1. San Mateo Medical Center (SMMC)

DY 8 Milestones Accomplished:

- ✓ Reported falls with injury to the State
- ✓ Shared data, promising practices and findings with SNI to foster shared learning and benchmarking across the California PHSs

The metrics referenced in the DY 8 reports as indicators of improvement included:

- Improvement in the prevalence of patient falls with injury will be measured by the number of falls with injury per 1000 patient days

Progress and Impact:

In DY 8 SMMC has continued to create internal structures and systems to prevent falls. Every unit at SMMC has a falls prevention committee, and the fall prevention committees for wards 2AB and the ICU have combined their efforts and renamed themselves the Stumble Stoppers. This is the team that leads prevention efforts for SMMC and is responsible for disseminating successful strategies to other units' fall prevention committees.

In this past year the Stumble Stoppers has initiated a campaign called, "Got a Minute" designed to increase awareness about falls, increase communication among staff about fall reduction strategies, and make reducing falls a personal commitment of every caregiving staff member.

This campaign requires each staff member to have a brief consultation with one of the Stumble Stoppers nurse leaders, who provides information about patients who have fallen and the circumstances of their falls. In this interaction, staff members are asked to indicate which interventions they most consistently use to prevent falls and which they will commit to working on. This results in a one-page summary that is signed and dated by the staff member as a commitment to change.

Figure 25: HAPU – Falls with Injury per 1,000 Patient Days

F. Category 5: HIV Transition Projects

For DY 8, PHSs reported on the first two six-month periods out of three total for *Category 5: HIV Transition Projects*.[26] This category, with its subcategories *Category 5a: Improvements in Infrastructure and Program Design* and *Category 5b: Improvements in Clinical and Operational Outcomes* was added for the HIV patient population, transferring components of the Ryan White program into the DSRIP program. The projects in Category 5a paralleled those in Categories 1 and 2, and Category 5b established metrics and collected baseline data for clinical and operational outcomes in the care of HIV patients.

[26] Appendix H contains the HIV Transition Project HRSA HAB performance measures.

5a.1 Empanel patients into medical homes with HIV expertise

The purpose of this project is to adequately prepare for the implementation of medical homes that are able to care for HIV patients. To accomplish this, systems need to determine an optimal staffing model to optimize access, retention and treatment to improve health outcomes and self-management.

Six public health care systems completed 25 milestones related to empanelling patients into medical homes with HIV expertise:

1. Alameda Health System (AHS)
2. Los Angeles Department of Health Services (LADHS)
3. Riverside County Regional Medical Center (RCRMC)
4. San Mateo Medical Center (SMMC)
5. Santa Clara Valley Medical Center (SCVMC)
6. University of California San Diego Health Services (UCSD)

DY 8 Milestones Accomplished:

- ✓ Assigned clients an HIV clinician according to written criteria and protocol
- ✓ Selected optimal staffing model and design for medical home patients diagnosed with HIV
- ✓ Defined roles and responsibilities of team members
- ✓ Increased the number of low-income health program (LIHP) enrollees with HIV who receive necessary immunizations
- ✓ Established the baseline number of patients empanelled in the medical home

The metrics referenced in the DY 8 reports as potential indicators of improvement included:

- Written set of criteria and protocol for assigning patients to an HIV clinician
- Written plan documenting review of best practices of staffing models
- The number of HIV patients empanelled in the medical home

Progress and Impact:

Patient centered medical homes are among the most promising approaches to delivering high quality, cost-effective primary care, particularly for those with chronic health conditions. Empanelment and panel size management happen when patients are assigned to a clinician and clinics actively manage panel size, balancing capacity with demand.[27] Empanelling patients in medical homes with HIV expertise is critical to the long-term health outcomes of patients with HIV. In DY 8, public health care systems developed staffing models and assigned HIV patients to medical homes.

A patient centered approach contributes to treatment adherence, a critical factor in improving the health outcomes of HIV patients. Public health care systems identified challenges including lack of transportation to travel to and from medical appointments and

[27] Willard, R and Bodenheimer, T. (2012). The Building Blocks of High Performing Primary Care: Lessons from the Field. Available from http://www.chcf.org/publications/2012/04/building-blocks-primary-care

the stigma of the HIV diagnosis as a few of the factors influencing treatment adherence. Public health care systems also report that a multidisciplinary approach that considers co-morbidities such as mental illness, illicit drug use, unstable housing, or homelessness is critical to care for HIV patients.

Staffing models

Public health care systems researched best practices and staffing configurations to develop optimal staffing models for their medical homes. To ensure that all patients with HIV have access to a medical home designed to meet the complex needs of people living with HIV, AHS developed a systematic assignment of patients to a regular HIV provider and care team. Before establishing this milestone, AHS had started assigning patients in the HIV clinic to care teams, but system problems resulted in inconsistent continuity of care. With no formal protocol in place, some complex and high-risk patients were assigned to physician assistants when they should have been assigned to physicians, and patients could be seen by an open provider, not their assigned provider. The new assignment criteria base patient assignment on patient complexity as well as clinicians' areas of expertise, language capabilities, and existing patient panels. One challenge is that the HIV program has been using ARIES (AIDS Regional Information and Evaluation System, an EHR system designed specifically for Ryan White-funded HIV programs) for many years, and the systems do not interface with the overall AHS EHR system. While AHS is in the process of installing an organization-wide EHR (which will take over the ARIES system), staff are currently working with two different information systems for population health management.

After evaluating different staffing models, RCRMC selected a multidisciplinary team including a pharmacist to assist in medication compliance for patients with advanced disease and co-morbidity as well as psychiatry services to address the co-morbidities that HIV patients face.

SCVMC also accomplished its milestones to develop an optimal staffing model and define roles and responsibilities of staff members. The Ira Green Partners in AIDS Care & Education (PACE) clinic established a multidisciplinary team model to provide primary care for people living with HIV. In 2012, all 1,300 eligible HIV patients were assigned to one of four HIV certified physicians.

Assigning patients to medical homes

LADHS and UCSD established algorithms to assign patients to medical homes. At LADHS, patients were assigned to medical homes based on diagnostic category, gender, age and ambulatory sensitive conditions. LADHS also assigned patients to medical homes where they were already receiving treatment to ensure consistency and coordination with previous treatment. LADHS partially based its staffing model on the number of patients needing medical care coordination (formulated based on current and projected patient census and acuity data) that integrates "medical and non-medical case management by coordinating behavioral interventions and support services with medical care."

UCSD also developed an algorithm to assign patients to medical homes. UCSD instituted an Inpatient Transitions of Care team to identify all of the HIV positive patients in the UCSD system, coordinate medication reconciliation, case management delivery, and assignment of medical home for new patients. UCSD established a baseline of 76% of patients currently empanelled in the medical home.

Challenges and lessons learned
RCRMC focused its efforts on increasing the number of HIV patients who receive necessary immunizations because vaccinations are critical to reducing co-infections such as pneumonia and Hepatitis B. Since bacterial pneumonia is one of the most common causes of HIV-associated morbidity and Hepatitis B is a leading cause of chronic liver disease, RCRMC focused its immunization program on ensuring that patients follow through with the full immunization series (including a 5-year booster for the pneumococcal vaccine and completion of three injections for Hepatitis B). Challenges occur when patients lack transportation and stable housing and/or they are struggling with mental health issues.

RCRMC notes that historically managing the care for patients with HIV/AIDS has been fragmented. Patients can receive care from RCRMC and community partners, and then fall through the cracks when communication between RCRMC and other health/social service providers fails.

5a.2 Implement a Disease Management Registry Suitable for Patients with HIV

The purpose of this project is to track clinical quality and health outcomes for patients with HIV who are empanelled in medical homes. Many disease management registries have optional HIV modules that allow HIV providers to effectively monitor and deliver key aspects of HIV care.

Seven public health care systems completed 25 milestones related to implementing a disease management registry suitable for patients with HIV:

1. Alameda Health System (AHS)
2. Contra Costa Regional Medical Center (CCRMC)
3. Kern Medical Center (KMC)
4. Los Angeles Department of Health Services (LADHS)
5. Riverside County Regional Medical Center (RCRMC)
6. San Francisco General Hospital (SFGH)
7. Ventura County Medical Center (VCMC)

DY 8 Milestones Accomplished:

- ✓ Documented evaluation of clinical performance measures and use of data for performance improvement activities
- ✓ Hired a panel management coordinator
- ✓ Identified and developed HIV disease management registry module
- ✓ Trained infectious disease clinic staff on new disease management registry module
- ✓ Developed a checklist to document staff competency on the use of the registry
- ✓ Created policies and procedures to ensure data integrity and monitoring

The metrics referenced in the DY 8 reports as potential indicators of improvement included:

- Training materials and training sign-in sheet
- Registry competency checklist form
- Description of progress on policies and procedures to identify patients for registry

Progress and Impact:

Data driven improvement is a key component of the patient centered medical home. In DY 8, public health care systems developed or refined their registries to include key aspects of care for HIV patients. Refining the functionality of the registries helps providers adhere to HIV clinical quality measures tracked in category 5B.

In DY 8, KMC developed an HIV disease management registry (DMR), trained staff on the new module, and piloted its use in the infectious disease specialty clinic. These customized patient profiles allow providers to monitor key aspects of care that are known to improve health outcomes among HIV-positive patients. KMC will also use the reporting capabilities of the disease registry to attempt to increase the number of patients attending their scheduled appointments and proactively schedule appointments for patients who have fallen out of regular care.

For its registry, RCRMC uses the AIDS Regional Information and Evaluation System (ARIES), a web-based system used by recipients of Ryan White funding to track services delivered to HIV patients. RCRMC trained five additional staff members to enter patient data into the registry on a timely basis. To ensure accurate and timely patient information, RCRMC also developed a checklist to document staff competency in the use of the ARIES registry. Unfortunately, ARIES is a manual registry system, and pulling reports requires a separate request from the system administrator. Another challenge is that RCRMC's HIV/STD medical home is currently using paper-based medical records, so data must be documented twice (in the medical record and the registry). Due to system limitations and lack of trained staff, it previously took about three months to update patient information in ARIES. By training additional staff, RCRMC hopes to reduce the data entry timeline to seven business days. The additional staff capacity has already made a significant difference. As of June 2013, 100% of LIHP enrollees assigned to the medical home have updated information in the ARIES system, and the registry helps providers develop a more complete picture of the HIV patient population and more quickly identify needs within it.

Both AHS and LADHS increased the functionality of the i2i Tracks registry program to better capture the needs of HIV patients. LADHS identified the specifications/fields needed to configure the i2i Tracks disease management registry for HIV patient care. To ensure that clinic staff are able to use the registry effectively, LADHS implemented a "train the trainer" model for staff at each clinic. Lead nurses from each of the nine HIV clinics attended the training, and in turn, these nurses will train other DMR users within each of the clinics.

Challenges and lessons learned

While AHS is using i2i Tracks as its primary panel management program, one challenge is that the HIV program already had a much more comprehensive registry to include HIV-specific measures such as immunizations, depression scores, viral load count and CD4 count. Also, panel management in the adult immunology clinic (AIC) differs from panel management in the adult medicine program. According to AHS, "The AIC uses a 'high touch' panel management model which has a lower patient to [panel management coordinator] PMC (and PMC to clinician) ratio and emphasizes health coaching and other clinical support, versus more database-oriented 'low touch' PMC working with a larger population."

5a.3 Build Clinical Decision Support Tools to Allow for More Effective Management of Patients Diagnosed with HIV

The purpose of this project is use clinical decision support tools to better manage HIV patient panels through the use of disease-specific queries that allow providers to identify patients in the medical home who are not meeting prioritized HIV care goals.

Two public health care systems completed six milestones related to building clinical decision support tools to allow for more effective management of patients diagnosed with HIV:

1. Contra Costa Regional Medical Center (CCRMC)
2. Kern Medical Center (KMC)

DY 8 Milestones Accomplished:

- ✓ Developed HIV clinical decision support tools
- ✓ Deployed information technology resources to develop clinical decision support tools
- ✓ Ensured that protocols are consistent with Department of Health and Human Services (DHHS) guidelines
- ✓ Ensured that protocols for co-morbidities are consistent with established guidelines

The metrics referenced in the DY 8 reports as potential indicators of improvement included:

- Evidence of best EHR alert practices
- Development of two clinical decision support tools that are consistent with DHHS guidelines
- Development of two clinical decision support tools that are consistent with protocols for co-morbidities

Progress and Impact:

Clinical decision support tools allow providers to better manage patient panels through the use of disease-specific rules and queries. These tools allow providers to identify patients in the medical home who are not meeting a set of HIV care goals consistent with national treatment guidelines and standards of care. The work in this category is closely linked to efforts in Category 5a.1 Empanel Patients into Medical Homes with HIV Expertise and 5a.2 Implement a Disease Management Registry Suitable for Patients with HIV.

To determine the best set of clinical decision support tools, KMC convened a multi-disciplinary workgroup. This process coincided with KMC's implementation of a new EHR system, and KMC was able to design a standard HIV EHR template to enhance reporting and documentation capabilities that not only include HIV health indicators but also health factors including mammography screenings, tobacco cessation referrals and flu vaccinations. The registry also includes a flag for HIV patients not currently prescribed for antiretroviral therapy, which consistently suppresses HIV viral load.

To address varying degrees of chart consistency between clinicians, CCRMC sought to develop best EHR alert practices and other clinical decision support tools to support improved outcomes, reduce duplication of efforts, and to free up clinician time to better focus on patient needs. These chart inconsistencies resulted from many factors including missed appointments, patient refusal of care, or patient inability to adhere to a treatment plan. To address these challenges, CCRMC modified the EHR patient "snapshot" to more clearly identify individual record highlights and strengthened the overall reporting functionality to allow for higher level (population based) reviews of health indicators.

5a.4 Develop Retention Programs for Patients Diagnosed with HIV Who Inconsistently Access Care

The purpose of this project is to ensure that patients diagnosed with HIV regularly access and engage with their medical homes in order to enjoy optimal health outcomes.

Six public health care systems completed 19 milestones related to developing retention programs for patients diagnosed with HIV:

1. Alameda Health System (AHS)
2. Kern Medical Center (KMS)
3. San Francisco General Hospital (SFGH)
4. Santa Clara Valley Medical Center (SCVMC)
5. University of California San Diego Health System (UCSD)
6. Ventura County Medical Center (VCMC)

DY 8 Milestones Accomplished:

- ✓ Defined criteria for enrolling patients in retention program
- ✓ Identified staffing models for implementation of retention program
- ✓ Presented shared learning about retention

The metrics referenced in the DY 8 reports as potential indicators of improvement included:

- Documentation describing the model, identifying roles and workflow processes
- Documentation of retention program implementation plans

Progress and Impact:

Since treatment adherence is critical to improving the health outcomes of HIV patients, public health care systems are taking measures to reduce missed appointments , avoidable ED visits and inpatient admissions. Since HIV patients can face multiple co-morbidities such as mental illness, substance abuse, or unstable housing/transportation, public health care systems identified multidisciplinary staffing models to combat these challenges. In DY 8, the PHSs researched and identified appropriate staffing models and enrollment criteria for these retention programs.

Staffing models and enrollment criteria

AHS modeled its retention program after its Care Transitions Program (see Category 2.6 Implement/Expand Care Transitions Programs). The goals of AHS's adult immunology clinic retention program are to support patients in maintaining treatment and to reduce avoidable emergency room visits and inpatient admissions. In DY 8, AHS identified enrollment criteria and staffing models for the retention program. AHS also highlighted the following patients as being especially at-risk of falling out of treatment and therefore qualifying for retention services: patients who have been recently diagnosed, patients who have multiple hospital admissions, or patients deemed to be at risk of falling out of care due to medical complications, behavioral health needs or other social barriers. For AHS's staffing model, an RN care coordinator is the primary facilitator, who works closely with

the panel management coordinator and clinic staff. A primary goal for the RN care coordinator is to build a relationship with the patient so that the patient recognizes the care coordinator as the "go to" person, rather than the ED.

After identifying staffing models and defining enrollment criteria, KMC launched its retention program in May 2013 and as of June 30, 2013, 23 patients were enrolled in the program. KMC's goal is to enroll at least 75 patients. The Kern County HIV/AIDS Service Delivery Plan identified a large gap in regular care being provided to Black/African American patients or those with an injection drug user risk factor, so KMC's retention program places a particular emphasis on these populations. KMC hopes that the program will reduce missed appointments and increase the number of patients with two or more visits during a measurement year.

SCVMC's retention program focuses on patients who miss appointments. When a patient misses an appointment with their provider, the physician reviews the chart, determines the urgency of the situation, and decides whether the patient needs assertive follow up. Retention program activities include reminder calls before appointments, follow up by staff immediately after a missed appointment, a home/community visit to assess barriers to getting to appointments, and referral to a psychiatric social worker to work through problems interfering with care.

VCMC identified consistent suppression of HIV viral burden by anti-retroviral therapy as the most important factor in ensuring return to normal health and decreasing the likelihood of further HIV transmission. The retention program outcome metrics identified by VCMC include full suppression of HIV documented at return visits over 12 months, location of missing clients, and referral to a medical home in another location.

5a.5 Enhance Data Sharing between PHSs and County Departments of Public Health

The purpose of this project is to improve health information exchange to allow for more systemic monitoring of quality of care; disease progression; and patient and population level health outcomes among HIV patients. Part of this project is to develop an electronic data interface between public health care systems and county departments of public health data systems to facilitate collection of standardized performance measures and health outcomes data across the population of HIV patients in each county.

Two public health care systems completed six milestones related to enhancing data sharing between PHSs and County Departments of Public Health:

1. San Mateo Medical Center (SMMC)
2. Ventura County Medical Center (VCMC)

DY 8 Milestones Accomplished:

- ✓ Identified and mapped data fields to be included in the data exchange
- ✓ Developed and implemented a data exchange

The metrics referenced in the DY 8 reports as potential indicators of improvement included:

- Description of data fields to be transferred from EHR to ARIES

Progress and Impact:

Both SMMC and VCMC worked to identify data fields to be included in the data exchange. VCMC experienced several challenges identifying data fields to be transferred from the EHR to ARIES. The web-based ARIES system used by recipients of Ryan White funding captures many measures, including the Core Clinical Performance Markers chosen for Category 5b. In order for the information services department (ISD) to transfer data from the EHR to ARIES, the ISD requires a high level of detail about each of the data fields. For example, to determine if a patient was prescribed highly active antiretroviral therapy (HAART), the ISD requires a list of specific HIV medications. Sorting through these details required more internal meetings than originally planned.

5a.6 Launch electronic consultation (eConsult) system between HIV primary care medical homes and specialty care providers

The purpose of this project is to facilitate secure web-based dialogue between referring HIV primary care providers and specialty care providers. By improving coordination and transforming relationships between primary care and specialty care providers, eConsults reduce unnecessary face-to-face specialty visits, improve the effectiveness of visits when they are necessary, enhance primary care provider satisfaction with patient care, and meet standards for timely access to specialty care. This work relates to Category 2.8 Increase Specialty Care Access/Redesign Referral Process.

One public health care system completed five milestones related to launching an electronic consultation system between HIV primary care medical homes and specialty care providers:

1. Los Angeles Department of Health Services (LADHS)

DY 8 Milestones Accomplished:

- ✓ Established primary care-specialty care workgroups to develop shared approaches to common medical conditions for patients with HIV
- ✓ Ensured that all nine primary care clinics serving patients with HIV are able to utilize eConsults
- ✓ Launched eConsults in at least one of the tree selected specialties

The metrics referenced in the DY 8 reports as potential indicators of improvement included:

- Documentation of workgroup participants and major subject areas discussed
- Documentation of the number and percentage of eConsults submitted, completed, and resulted in face-to-face visits with a specialist

Progress and Impact:

eConsult is a web-based system that allows LADHS and community partner providers to securely share health information and discuss care options for individual patients. The goals of eConsults are to enable dialogue, reduce avoidable specialists visits, reduce no-show rates, and optimize the quality of the first specialist visits by ensuring all of the necessary diagnostic testing is done ahead of time. By December 2012, LADHS expanded eConsults to all nine primary clinics that serve HIV patients. LADHS expanded eConsults to gastroenterology, podiatry and nephrology, adding to its existing specialties—cardiology, dermatology, ophthalmology and urology.

5a.7 Ensure Access to Ryan White Wraparound Services for New LIHP Enrollees

The purpose of this project is to ensure that HIV ancillary services will continue to be available to Ryan White eligible patients regardless of the payer of their medical care. Referrals for new low-income health program (LIHP) enrollees are coordinated through an initial eligibility screening process, and services are promoted through existing service sites, outreach programs, and electronic media to expand awareness of available programs.

Six public health care systems completed 16 milestones related to ensuring access to Ryan White wraparound services for new LIHP enrollees:

1. Contra Costa Regional Medical Center (CCRMC)
2. Riverside County Regional Medical Center (RCRMC)
3. San Francisco General Hospital (SFGH)
4. San Mateo Medical Center (SMMC)
5. Santa Clara Valley Medical Center (SCVMC)
6. University of California San Diego Health System (UCSD)

DY 8 Milestones Accomplished:

- ✓ Ensured access to Ryan White wraparound services
- ✓ Developed a draft outline of key provisions to be included in the Memorandum of Understanding (MOU) between the public health care system and the county department of public health
- ✓ Established a mechanism between LIHP enrollment workers and Ryan White medical case managers to ensure that transitioned HIV patients continue to be assessed for wraparound services
- ✓ Established the baseline number of wraparound services delivered to clinic patients

The metrics referenced in the DY 8 reports as potential indicators of improvement included:

- Evidence of a wraparound services project plan
- Draft document which outlines key MOU provisions
- The number of wraparound service encounters

Progress and Impact:

Patients diagnosed with HIV, who are also eligible for Ryan White-funded services, have been enrolled in coordinated systems of care since 1991.[28] Ryan White-funded services include coordinated outpatient care, access to pharmaceuticals, case management, dental treatment, substance abuse treatment or counseling, home health and mental health services.[29] With the implementation of the low-income health program (LIHP) in California, Ryan White-funded services are considered the "payer of last resort," and these

[28] Centers for Medicare and Medicaid Services. Available online at http://www.dhcs.ca.gov/provgovpart/Documents/HIV%20Protocol%20%20Approval%20Letter%20Nov%2019%202012.pdf

[29] Ibid.

programs cannot pay for LIHP-covered services for an HIV patient who is eligible and enrolled in the local LIHP.[30] This project ensures that HIV patients enrolled in the LIHP do not lose access to services (including those covered by Ryan White, but not LIHP). In DY 8, public health care systems worked to implement policies, memoranda of understanding (MOUs) and programming to ensure wraparound services for HIV patients.

Memoranda of Understanding
In DY 8, three PHSs accomplished milestones to draft MOUs between the PHSs and the county departments of public health. The executive leadership at RCRMC and the Riverside County Department of Public Health collaborated to draft key provisions in an MOU that defines the roles and responsibilities of each department in managing HIV patients. This MOU assures that patients diagnosed with HIV are able to transition from Ryan White to California's LIHP without loss of core medical care and other critical support services.

SFGH also developed an MOU between HIV Health Services and the LIHP sections of the San Francisco Department of Public Health. This MOU will ensure wraparound services to Ryan White clients transitioning their primary, pharmacy and mental health care to LIHP, but who are still eligible to receive other Ryan White services not covered by the LIHP.

UCSD established an MOU between San Diego County and the public health care system. With this MOU, UCSD will create new protocols, procedures and algorithms to enhance referrals for patients in need of wraparound services. Staff will track service delivery and have brief interventions with patients who decline referral. UCSD also established baseline number for wraparound services delivered to clinic patients.

Wraparound services
In addition to outlining the roles and responsibilities of PHSs and county departments of public health, public health care systems also implemented programming and processes to ensure wraparound services for HIV patients. SMMC established a process that ensures LIHP enrollment workers and Ryan White medical case managers continue to assess transitioned HIV patients for wraparound services. HIV patients at SMMC's Edison Clinic who have no payer source are screened for LIHP eligibility. The documentation of eligibility is entered into the ARIES system and the Edison Clinic medical case mangers assess the clients for any unmet needs.

SCVMC also implemented a procedure to ensure that HIV patients transitioned to LIHP are assessed for wraparound services. When patients enter care, the medical social worker explains the availability of Ryan White support services and eligibility criteria, and when necessary, the medical social worker refers patients to one of five local agencies funded for Ryan White support services. Transitioning patients from Ryan White services to LIHP is only done by benefit counselors, who explain that patients remain eligible for support services provided by other agencies. This process has been challenging because it requires manual chart review since SCVMC just started implementing a new EHR system in

[30] Ibid.

November 2013. SCVMC hopes that the EHR will aid their ability to track medical case management for HIV patients.

The CCRMC HIV/AIDS and STD program provides HIV medical case management and outreach services in the community and at the Positive Health clinics, which offer early intervention services from a multidisciplinary care team. The program remains the frontline for locating individuals without existing HIV/AIDS care, and services include partner notification, eligibility determination, individual clinical treatment planning, medication adherence support, and access to referrals.

5b Clinical and Operational Outcomes

Group 1: Required Core Clinical Performance measures

The purpose of this project is to report on HIV core clinical performance measures. This will assure public health care systems that they are making concrete gains in quality and operational effectiveness that will have lasting benefits for patients who choose to make public health care systems their permanent medical homes.

Ten public health care systems completed 172 out of 173 potential milestones related to reporting on core clinical performance measures:

1. Alameda Health System (AHS)
2. Contra Costa Regional Medical Center (CCRMC)
3. Kern Medical Center (KMC)
4. Los Angeles Department of Health Services (LADHS)
5. Riverside County Regional Medical Center (RCRMC)
6. San Francisco General Hospital (SFGH)
7. San Mateo Medical Center (SMMC)
8. Santa Clara Valley Medical Center (SCVMC)
9. University of California San Diego Health Services (UCSD)
10. Ventura County Medical Center (VCMC)

DY 8 Milestones accomplished:

Group 1: Required Core Clinical Performance measures[31]

- ✓ Measured and reported baseline performance data for percentage of clients with HIV infection who had two or more CD4 T-cell counts performed in the measurement year
- ✓ Measured and reported baseline performance data for percentage of clients with AIDS who are prescribed highly active antiretroviral therapy (HAART)
- ✓ Measured and reported baseline performance data for percentage of clients with HIV infection who had two or more medical visits in an HIV care setting in the measurement year
- ✓ Measured and reported baseline data for percentage of clients with HIV infection and a CD4 T-cell count below 200 cells/mm3 who were prescribed pneumocystis jiroveci pneumonia (PCP) prophylaxis in the measurement year
- ✓ Measured and reported baseline performance data for percentage of patients, regardless of age, with a diagnosis of HIV/AIDS with a viral load test performed at least every six months during the measurement year
- ✓ Measured and reported baseline performance data for percentage of patients, regardless of age, with a diagnosis of HIV/AIDS with viral load limits of quantification at last test during the measurement year

[31] US Department of Health and Human Services. "HIV/AIDS Bureau Performance Measures." Available from http://hab.hrsa.gov/deliverhivaidscare/coremeasures.pdf and http://hab.hrsa.gov/deliverhivaidscare/allagesmeasures.pdf and http://hab.hrsa.gov/deliverhivaidscare/adolescentadultmeasures.pdf

The metrics referenced in the DY 8 reports as potential indicators of improvement included:

Group 1: Required Core Clinical Performance measures[32]

- CD4 T-cell count
  - Numerator: Patients with at least two CD4 cell counts or percentages performed during the measurement year at least three months apart
  - Denominator: All patients aged six months and older with a diagnosis of HIV/AIDS, who had at least two medical visits during the measurement year, with at least 90 days between each
- HAART
  - Numerator: Number of patients from the denominator prescribed HIV antiretroviral therapy during the measurement year
  - Number of patients, regardless of age, with diagnosis of HIV with at least one medical visit in the measurement year
- Medical visits
  - Numerator: Number of patients in the denominator who had at least one medical visit in each six-month period of the 24-month measurement period with a minimum of 60 days between first medical visit in the prior six-month period and the and the last medical visit in the subsequent six-month period
  - Denominator: Number of patients, regardless of age, with a diagnosis of HIV with at least one medical visit in the first six months of the 24-month measurement period
- PCP prophylaxis
  - Numerator 1: Patients who were prescribed PCP prophylaxis within three months of CD4 count below 200 cells/mm
  - Numerator 2: Patients who were prescribed PCP prophylaxis within three months of CD4 count below 500 cells/mm or a CD4 percentage below 15%
  - Numerator 3: Patients who were prescribed PCP prophylaxis at the time of HIV diagnosis
  - Aggregate numerator: the sum of all three numerators
  - Denominator 1: All patients aged six years and older with a diagnosis of HIV/AIDS and a CD4 count below 200 cells/mm, who had at least two visits during the measurement year, with at least 90 days in between each visit
  - Denominator 2: All patients aged one through five years of age with a diagnosis of HIV/AIDS and a CD4 count below 15%, who had at least two visits during the measurement year, with at least 90 days in between each visit
  - Denominator 3: All patients aged six weeks through 12 months with a diagnosis of HIV, who had at least two visits during the measurement year, with at least 90 days in between each visit
  - Total denominator: The sum of the three denominators
- Viral load monitoring

[32] See http://hab.hrsa.gov/deliverhivaidscare/coremeasures.pdf, http://hab.hrsa.gov/deliverhivaidscare/allagesmeasures.pdf and http://hab.hrsa.gov/deliverhivaidscare/adolescentadultmeasures.pdf

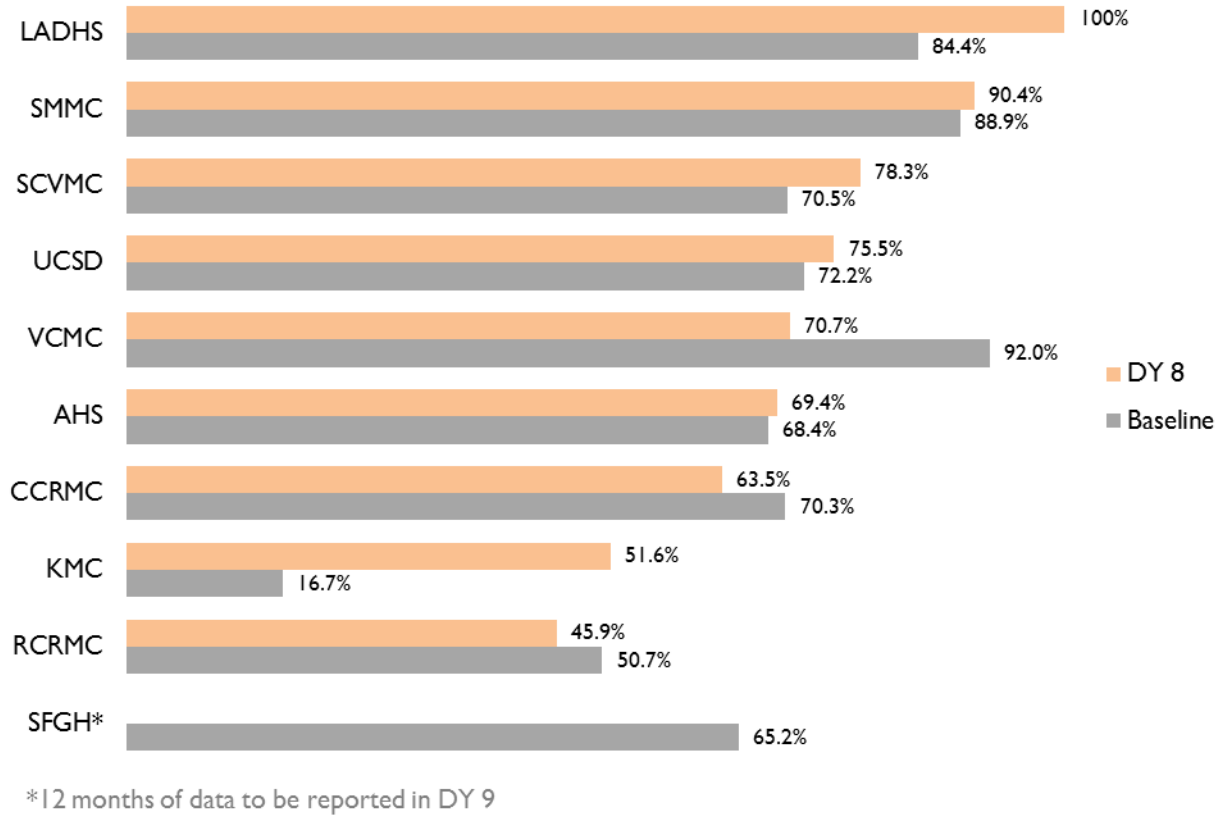
    - Numerator: Number of patients with a viral load test performed at least every six months
    - Denominator: Number of patients, regardless of age, with a diagnosis of HIV/AIDS who had at least two medical visits during the measurement year, with at least 60 days in between each visit
- Viral load suppression
    - Numerator: Number of patients in the denominator with a HIV viral load less than 200 copies/mL at last HIV viral load test during the measurement year
    - Denominator: Number of patients, regardless of age, with a diagnosis of HIV with at least one medical visit in the measurement year

Progress and Impact:

CD4 T-cell count
The CD4 T-cell count plays a vital role in determining the staging of HIV disease and indicating the need for treatment against opportunistic infections. In DY 8, public health care systems measured baseline performance data and developed CD4 T-cell count performance improvement targets. This measure included patients with at least two CD4 T-cell counts or percentages performed during the measurement year at least three months apart. Panel management and the disease management registry are important tools for managing CD4 T-cell counts. Public health care systems indicated several challenges in measuring CD4 T-cell counts. Factors including patients' socioeconomic status can make it difficult for provider teams to consistently engage patients in care and assure they will come for return visits or testing. Also, systems have experienced challenges merging paper patient files with clinic electronic records, and there is a need for training outpatient coders to correctly code HIV/AIDS data in the EHR.

In DY 8, nine public health care systems reported CD4 T-cell counts. The measure of patients with at least two CD4 T-cell counts during the last measurement year ranged from 45.9% at RCRMC to 100% at LADHS.

Figure 1: CD4 T-Cell Count



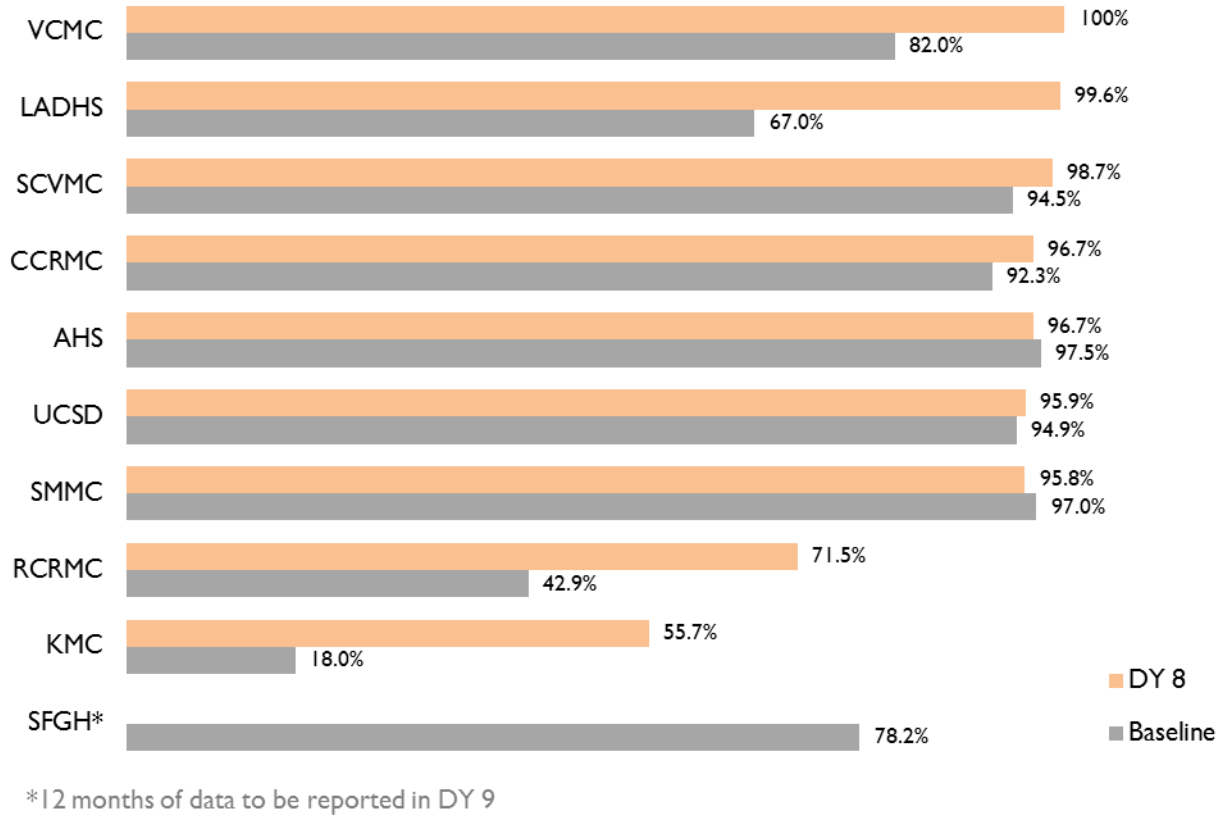
HAART

Highly active antiretroviral therapy (HAART) is the combination of three or more anti-HIV drugs, which result in rapid drops in the patient's viral load and reduce the rate of resistance to treatment. This measure includes patients' prescribed HAART for the measurement year. In DY 8, public health care systems measured baseline performance data and developed HAART performance improvement targets.

Public health care systems may be challenged to reach their established milestones for reasons including psychosocial factors impeding care, a patient's desire not to be placed on HAART, and noncompliance with care. SFGH experienced significant challenges with their EHR. Although HAART data exist in pharmacy databases and EHR clinical notes, SFGH does not have an efficient way to evaluate HAART uptake and maintenance for the entire HIV patient population.

In DY 8, nine public health care systems reported the percentage of patients prescribed HAART during the measurement year, ranging from 55.7% at KMC to 100% at VCMC.

Figure 2: HAART

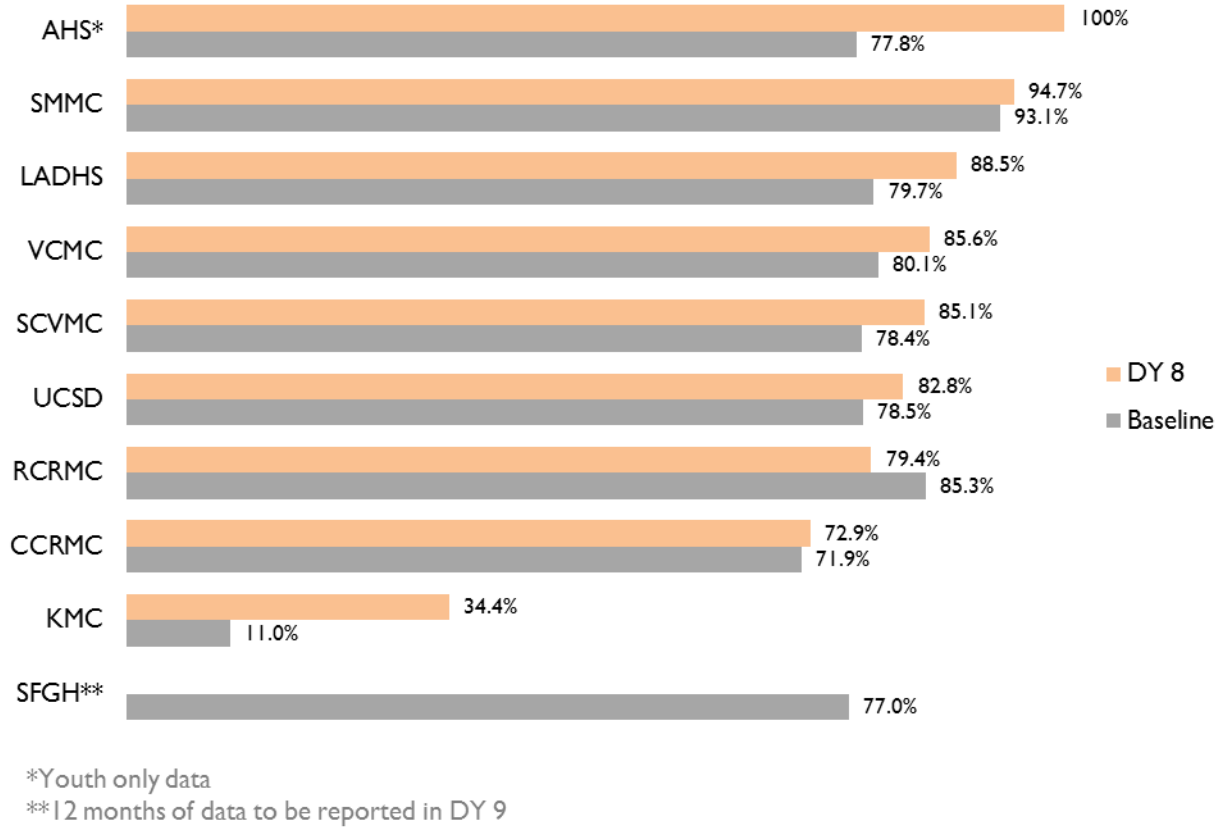


Medical Visits

This clinical measure includes patients diagnosed with HIV who had at least one medical visit in each six month period, with a minimum of 60 days between medical visits. Regular medical visits are important because patients who receive regular care from their medical home teams can improve their health outcomes resulting from consistent monitoring of their health conditions. The challenges in maintaining regular patient care are similar to those mentioned in Category 5a.1 Empanel Patients into Medical Homes with HIV Expertise and 5a.4 Develop Retention Programs for Patients Diagnosed with HIV Who Inconsistently Access Care. There are a limited number of providers with HIV expertise and patients can have trouble keeping appointments due to unreliable housing and transportation, substance abuse or mental illness. Efforts to reduce cycle times and no-shows can encourage patients to receive regular care.

In DY 8, nine PHSs reported the percentage of patients diagnosed with HIV who had at least one medical visit in each six month period (with a minimum of 60 days between visits), ranging from 34.4% at KMC to 100% at AHS (which only reported youth data).

Figure 3: Medical Visits

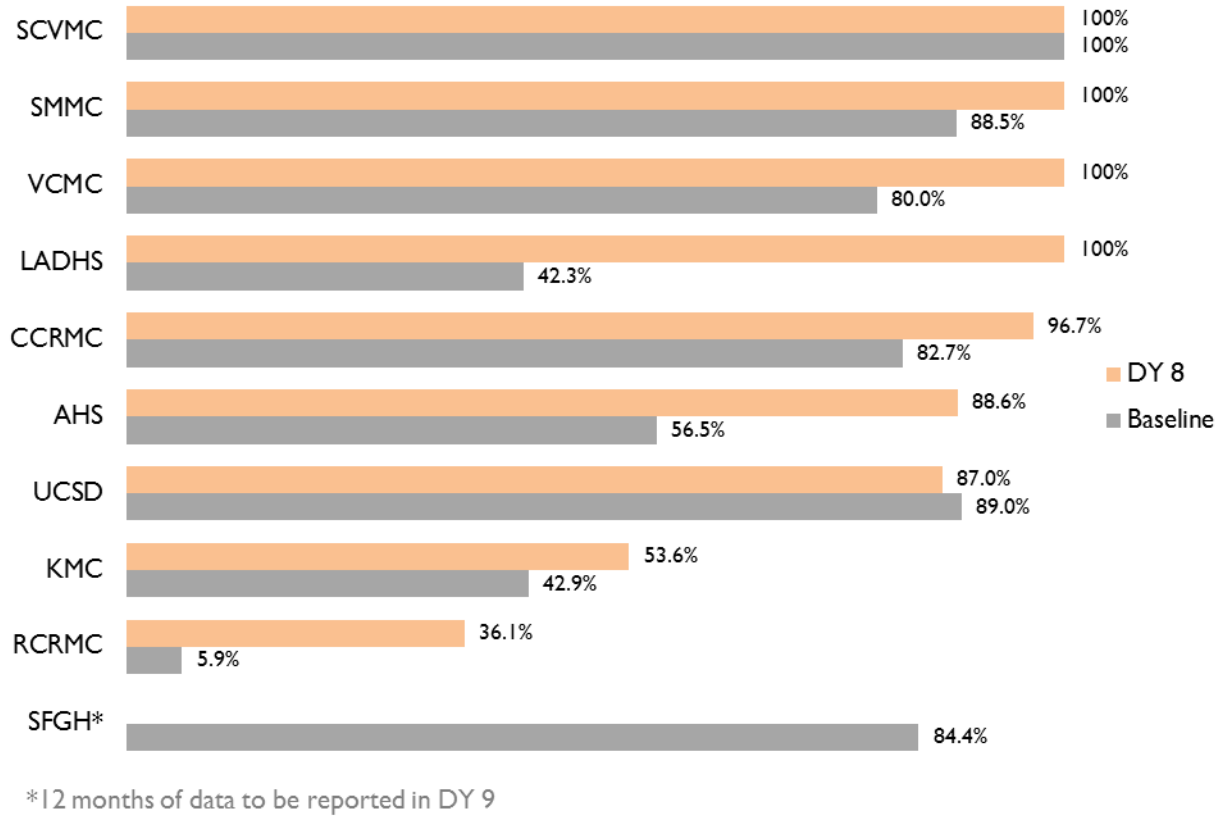


Pneumocystis Pneumonia (PCP) Prophylaxis
This indicator measures the percentage of HIV-infected clients with CD4 T-cell counts below 200 cells/mm who were prescribed PCP prophylaxis because patients with CD4 T-cell counts below 200 cells/mm are at greatest risk of developing PCP. Pneumocystis pneumonia is the most common opportunistic infection for people with HIV, and without treatment, over 85% of HIV patients will develop PCP.[33] Although it is a major cause of mortality among HIV patients, it is entirely preventable and treatable. Challenges experienced by public health care systems in prescribing PCP prophylaxis are similar to those mentioned above.

In DY 8, nine PHSs reported the percentage of HIV patients with CD4 T-cell counts below 200 cells/mm who were prescribed PCP prophylaxis, ranging from 36.1% at RCRMC to 100% at SCVMC.

[33] See Kern Medical Center DY 8 report

Figure 4: PCP Prophylaxis



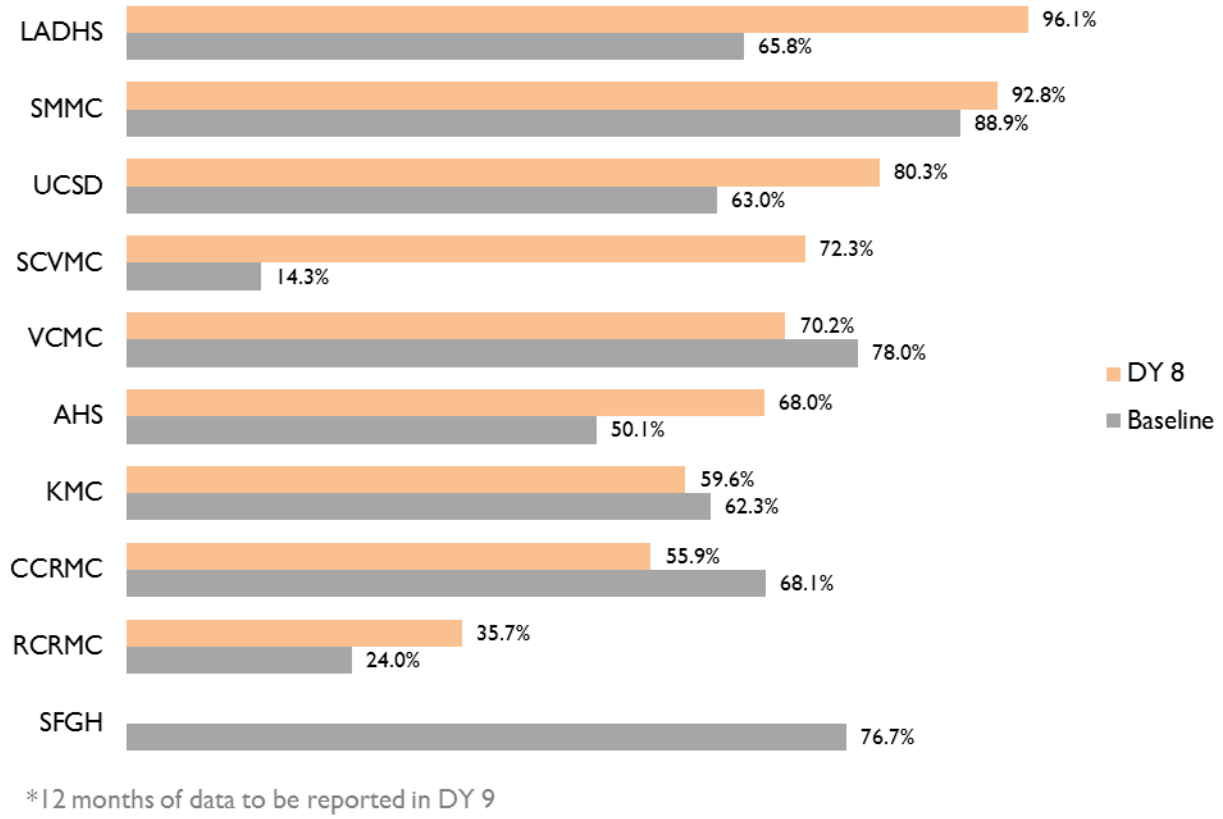
Viral Load Monitoring

This indicator measures the percentage of patients with a viral load test performed every six months. Plasma HIV RNA (viral load) should be monitored in all HIV patients at baseline and on a regular basis because viral load is the most important indicator or response to antiretroviral therapy (ART).[34] Public health care sites have indicated challenges with getting patients to return for medical visits and lab testing, but they hope that retention programs (see 5a.4) will encourage consistent care.

In DY 8, nine PHSs reported the percentage of patients with viral load tests performed every six months, ranging from 35.7% at RCRMC to 96.1% at LADHS.

[34] See Kern Medical Center DY 8 report

Figure 5: Viral Load Monitoring

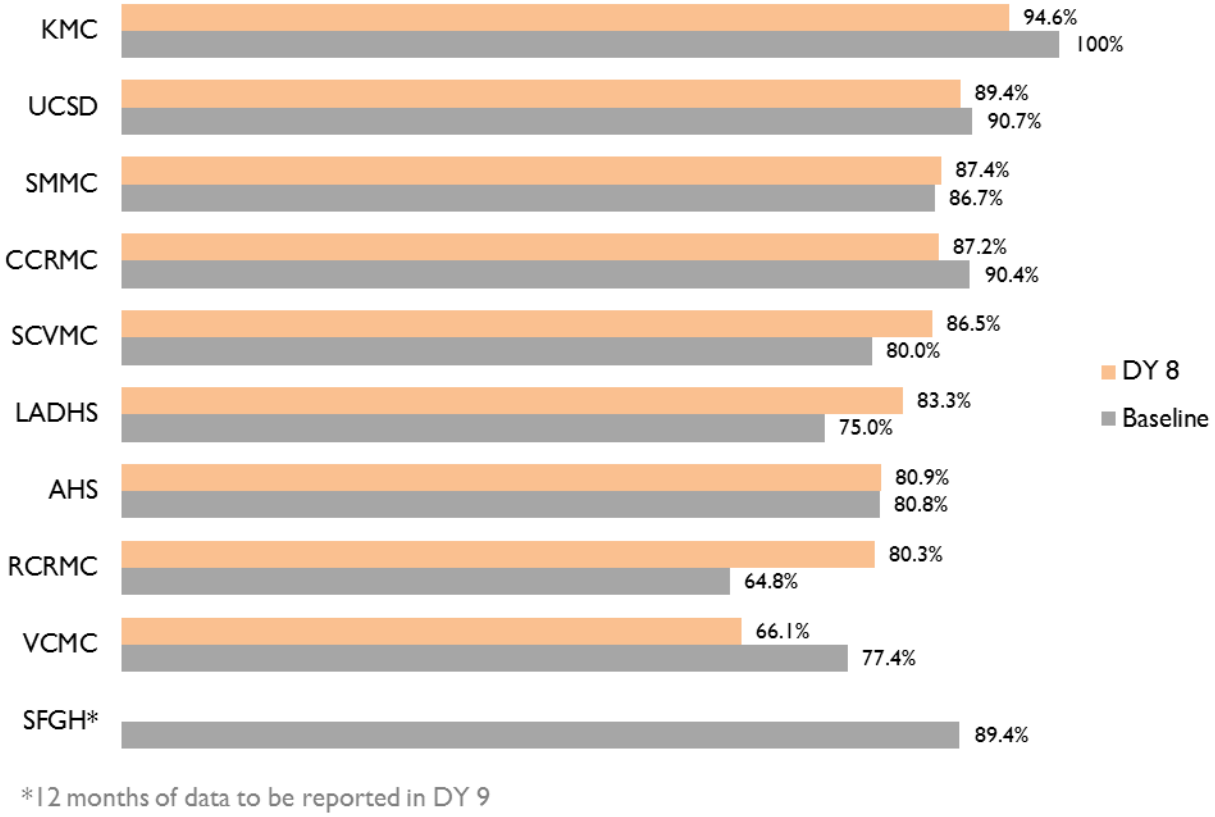


Viral Load Suppression

This indicator measures the percentage of patients with an HIV viral load less than 200 copies/mL at their last viral load test. To reduce HIV-associated morbidity and mortality, the most promising approach is to use antiretroviral therapy to inhibit HIV replication, as measured by plasma HIV RNA (viral load) less than 200 copies/mL. A key factor in monitoring and suppressing viral load is to use the disease management registry to identify patients not current prescribed antiretroviral therapy and to identify patients who are not compliant with care.

In DY 8, nine PHSs reported the percentage of patients with an HIV viral load less than 200 copies/mL during their last viral load test, ranging from 66.1% at VCMC to 94.6% at KMC.

Figure 6: Viral Load Suppression



Challenges and lessons learned

Public health care systems identified challenges including lack of transportation to travel to and from medical appointments; co-morbidities including mental illness, illicit drug use and unstable housing; and the stigma of the HIV diagnosis as factors influencing treatment adherence. These same challenges affect a patient's ability to return for testing and blood work.

5b Clinical and Operational Outcomes

Group 2, 3 and Medical Case Management: Additional Performance Measures
The purpose of this project is to report on HIV additional clinical performance measures. This will assure public health care systems that they are making concrete gains in quality and operational effectiveness that will have lasting benefits for patients who choose to make public health care systems their permanent medical home.

Ten public health care systems completed 114 out of 115 potential milestones related to reporting on core clinical performance measures:

1. Alameda Health System (AHS)
2. Contra Costa Regional Medical Center (CCRMC)
3. Kern Medical Center (KMC)
4. Los Angeles Department of Health Services (LADHS)
5. Riverside County Regional Medical Center (RCRMC)
6. San Francisco General Hospital (SFGH)
7. San Mateo Medical Center (SMMC)
8. Santa Clara Valley Medical Center (SCVMC)
9. University of California San Diego Health Services (UCSD)
10. Ventura County Medical Center (VCMC)

DY 8 Milestones accomplished:

- ✓ Measured and reported baseline performance data for percentage of women with HIV infection who had a Pap screening in the measurement year
- ✓ Developed a performance improvement target for Syphilis screening based on the six-months of baseline data
- ✓ Developed a performance improvement target for Chlamydia screening based on the six-months of baseline data
- ✓ Developed a performance improvement target for Gonorrhea screening based on six-months of baseline data
- ✓ Measured and reported baseline performance data for percentage of clients with HIV infection who received testing with results documented for latent tuberculosis infection since HIV diagnosis
- ✓ Developed a performance improvement target for influenza vaccination

The metrics referenced in the DY 8 reports as potential indicators of improvement included:

- Cervical cancer screening
    - Numerator: Number of female patients with a diagnosis of HIV who had Pap screen results documented in the measurement year
    - Denominator: Number of female patient with a diagnosis of HIV who:
        - were ≥ 18 years old in the measurement year or reported having a history of sexual activity, and
        - had a medical visit with a provider with prescribing privilege at least once in the measurement year
- Chlamydia screening

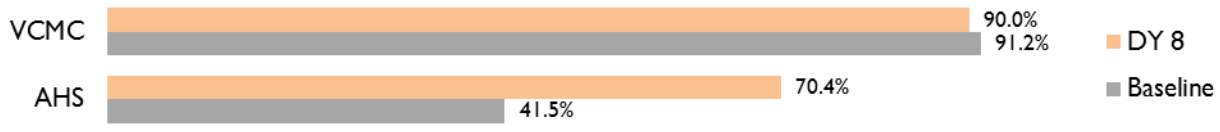
    - Numerator: Number of patients with a diagnosis of HIV who had a test for chlamydia
    - Denominator: Number of patients with a diagnosis of HIV who:
        - were either a) newly enrolled in care; b) sexually active; or c) had a sexually transmitted infection (STI) within the last 12 months
        - had a medical visit with a provider with prescribing privileges at least once in the measurement year
- Gonorrhea screening
    - Numerator: Number of patients with a diagnosis of HIV who had a test for gonorrhea
    - Denominator: Number of patients with a diagnosis of HIV who:
        - were either a) newly enrolled in care; b) sexually active; or c) had a STI within the last 12 months
        - had a medical visit with a provider with prescribing privileges at least once in the measurement year
- Hepatitis B screening
    - Numerator: Number of patients for whom Hepatitis B screening was performed at least once since the diagnosis of HIV or for whom there is a documented infection or immunity
    - Denominator: Number of patients, regardless of age, with a diagnosis of HIV and who had at least two medical visits during the measurement year, with at least 60 days in between each visit
- Hepatitis B vaccination
    - Numerator: Number of patients with a diagnosis of HIV with documentation of having ever completed the vaccination series for Hepatitis B
    - Denominator: Number of patients with a diagnosis of HIV who had a medical visit with a provider with prescribing privileges at least once in the measurement year
- Hepatitis C screening
    - Numerator: Number of patients with a diagnosis of HIV who have documented Hepatitis C status in chart
    - Denominator: Number of patients with a diagnosis of HIV who had a medical visit with a provider with prescribing privileges at least once in the measurement year
- Influenza immunization
    - Numerator: Patients who received an influenza immunization OR who reported a previous receipt of an influenza immunization during the current season
    - Denominator: All patients aged six months and older seen for a visit between October 1 and March 31
- Pneumococcal vaccination
    - Numerator: Number of patients with a diagnosis of HIV who ever received pneumococcal vaccine
    - Denominator: Number of patients with HIV who had
        - no documented evidence of vaccination; and

        - a medical visit with a provider with prescribing privileges at least once in the measurement year
- Mental health screening
    - Numerator: Patients screened for clinical depression on the date of the encounter using an age appropriate standardized tool AND if positive, a follow-up plan is documented on the date of the positive screen
    - Denominator: All patients aged 12 years and older before the beginning of the measurement period with at least one eligible encounter during the measurement period
- Syphilis screening
    - Numerator: Number of patients with a diagnosis of HIV who had a serologic test for syphilis performed at least once during the measurement year
    - Denominator: Number of patients with a diagnosis of HIV who:
        - were ≥ 18 years old in the measurement year or had a history of sexual activity < 18 years, and
        - had a medical visit with a provider with prescribing privileges at least once in the measurement year
- Tobacco cessation counseling
    - Numerator: Patients who were screened for tobacco use at least once within 24 months AND who received tobacco cessation counseling intervention if identified as a tobacco user
    - Denominator: All patients aged 18 years and older
- Tuberculosis screening
    - Numerator: Patients for whom there was documentation that a tuberculosis (TB) screening test was performed and results interpreted (for tuberculin skin tests) at least once since the diagnosis of HIV infection
    - Denominator: All patients aged three months and older with a diagnosis of HIV/AIDS, who had at least two visits during the measurement year, with at least 90 days in between each visit

Progress and Impact:

Cervical cancer screening
This indicator measures the percentage of female HIV patients who had a pap screening in the measurement year. At AHS, 70.4% of female HIV patients had a pap screening in DY 8, and 90% of female HIV patients at VCMC had this screening.

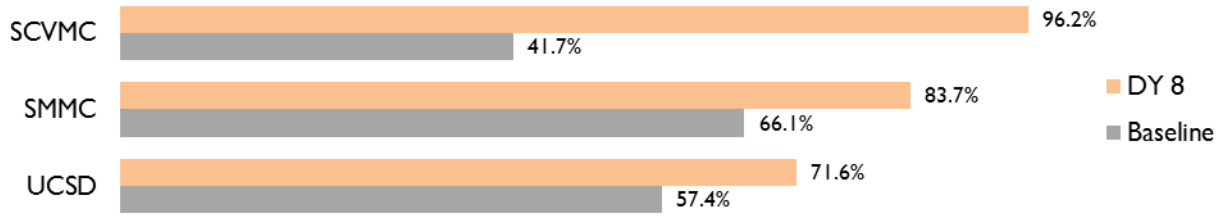
Figure 7: Cervical Cancer Screening



Chlamydia screening
This indicator measures the percentage of HIV patients at risk for sexually transmitted infections (STIs) who had a chlamydia test within the measurement year. The CDC recommends that HIV-infected patients be screened for STIs at least annually if the patient is sexually active or if earlier screening revealed STIs, and any indications of risky behavior should prompt a more thorough assessment of HIV transmission risks.[35]

In DY 8, three PHSs reported the percentage of HIV patients screened for chlamydia, ranging from 71.6% at UCSD to 96.2% at SCVMC.

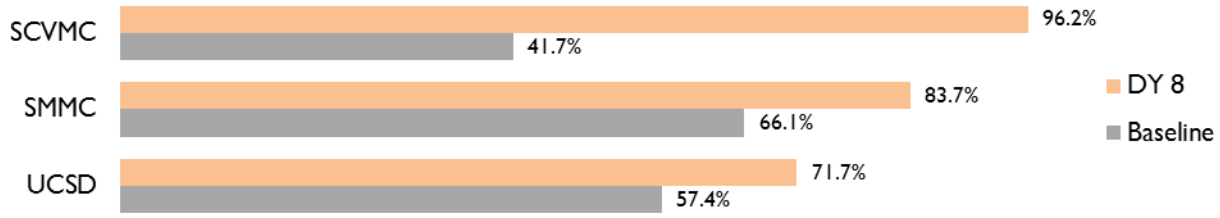
Figure 8: Chlamydia Screening



Gonorrhea screening
This indicator measures the percentage of HIV patients at risk for STIs who had a gonorrhea test within the measurement year. The CDC recommends that HIV-infected patients be screened for STIs at least annually if the patient is sexually active or if earlier screening revealed STIs, and any indications of risky behavior should prompt a more thorough assessment of HIV transmission risks.[36]

In DY 8, three PHSs reported the percentage of HIV patients screened for gonorrhea, ranging from 71.7% at UCSD to 96.2% at SCVMC.

Figure 9: Gonorrhea Screening

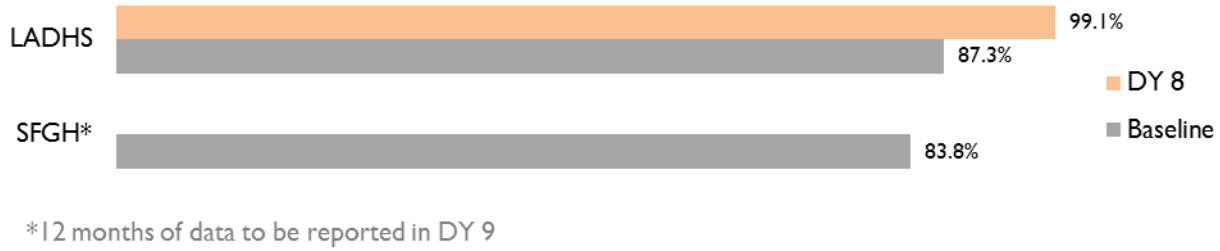


Hepatitis B screening
This indicator measures the percentage of HIV patients who were screened for Hepatitis B at least once since their HIV diagnosis (or who have documented infection or immunity). In

[35] See Kern Medical Center DY 8 report
[36] See Kern Medical Center DY 8 report

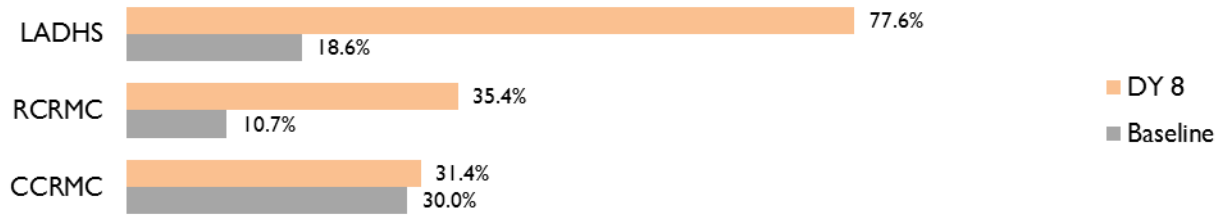
DY 8, 99.1% of HIV patients at LADHS reported the percentage of HIV patients screened for Hepatitis B.

Figure 10: Hepatitis B Screening



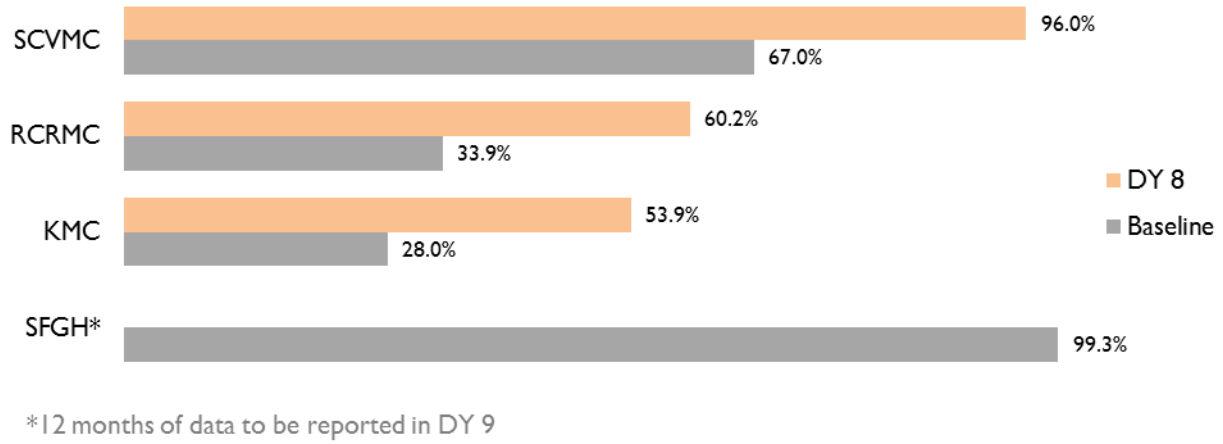
Hepatitis B vaccination
This indicator measures the percentage of HIV patients who have completed the vaccination series for Hepatitis B. In DY 8, three PHSs reported the percentage of HIV patients who completed the Hepatitis B vaccination series, ranging from 31.4% at CCRMC to 77.6% at LADHS.

Figure 11: Hepatitis B Vaccination



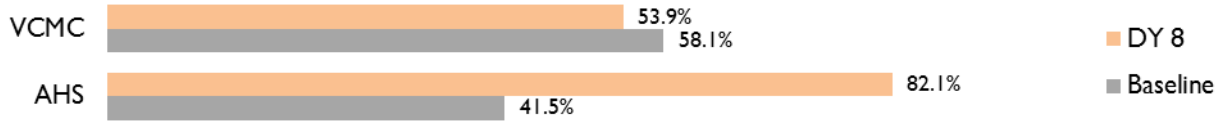
Hepatitis C screening
This indicator measures the number of HIV patients who had a Hepatitis C screening performed at least once since their HIV diagnosis. Screening is important because HIV/Hepatitis C co-infection may predispose HIV-infected patients to liver toxicity from antiretroviral therapy, and Hepatitis C treatment may exacerbate side effects from some antiretroviral therapy. In DY 8, three PHSs reported the percentage of HIV patients screened at least once for Hepatitis C since their HIV diagnosis, ranging from 53.9% at KMC to 96% at SCVMC.

Figure 12: Hepatitis C Screening



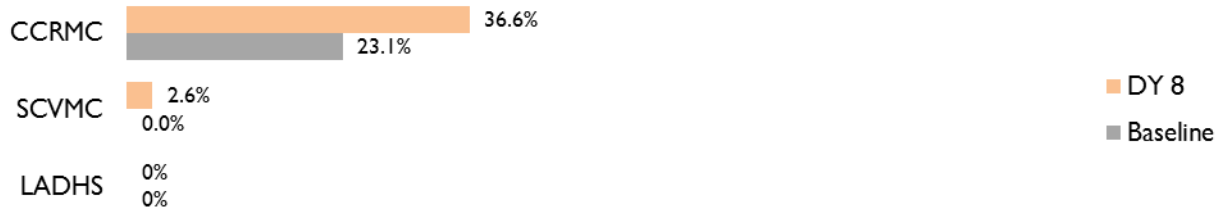
Influenza vaccination
This indicator measures the percentage of patients (seen for a visit between October 1 and March 31) who received an influenza immunization or who reported previous receipt of an influenza immunization. In DY 8, 53.9% of VCMC patients and 82.1% of AHS patients received an influenza immunization (or reported receipt of an influenza immunization).

Figure 13: Influenza Vaccination



Medical case management: care plan
Case management services, that link clients with health care, psychosocial and other services, are beneficial in dealing with the complex needs of patients with HIV. This measure indicates the percentage of HIV-infected medical case management clients who had a medical case management care plan developed and/or updated two or more times in the measurement year. In DY 8, 2.6% of SCVMC patients and 36.6% of CCRMC patients developed/updated care plans through case management.

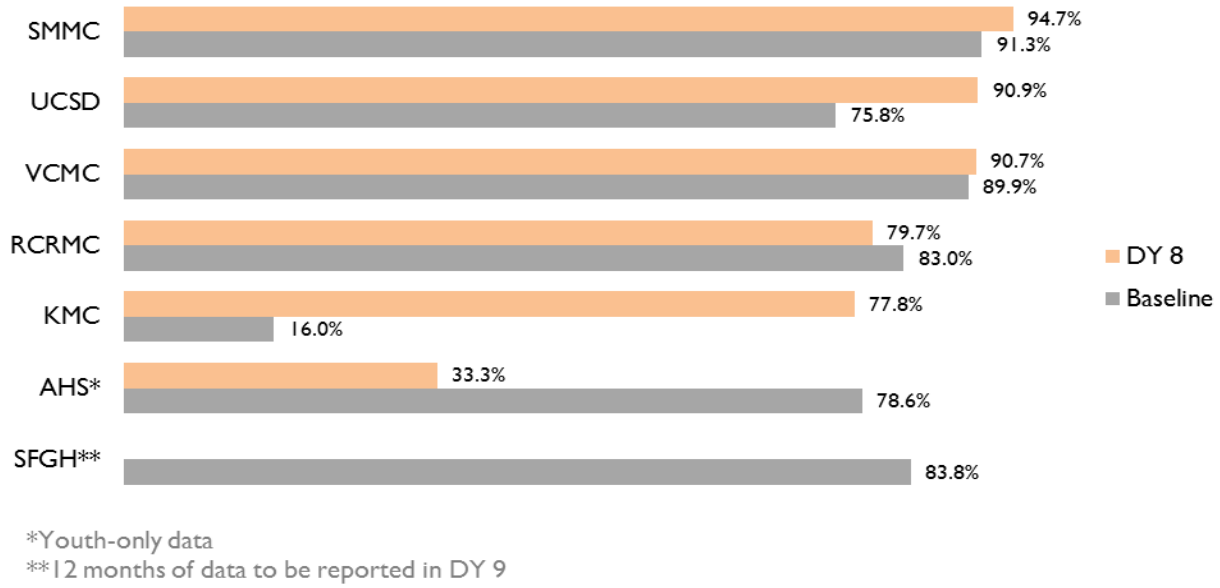
Figure 14: Medical Case Management: Care Plan



Medical case management: medical visits

Case management services, that link clients with health care, psychosocial and other services, are beneficial in dealing with the complex needs of patients with HIV. Clients enrolled in case management are 1.5 times more likely to follow drug regimens.[37] This measure indicates the percentage of HIV-infected medical case management clients who had two or more medical visits in an HIV care setting in the measurement year. In DY 8, six PHSs reported the percentage of case management clients who had two more medical visits in an HIV care setting, ranging from 33.3% at AHS (reporting only youth data) to 94.7% at SMMC.

Figure 15: Medical Case Management: Medical Visits



Mental health screening

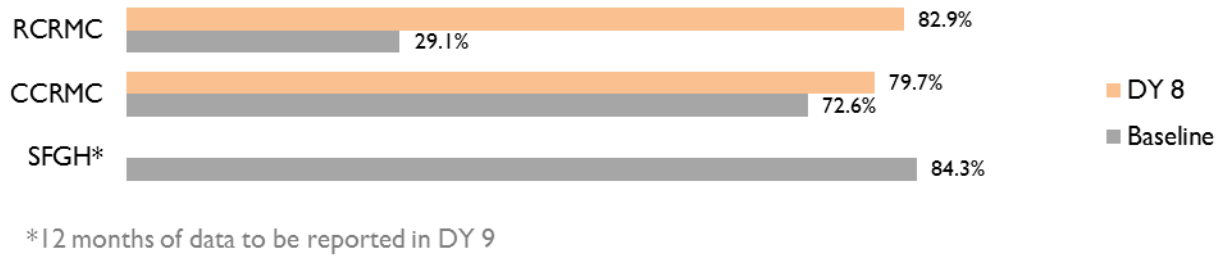
HIV patients deal with co-morbidities including mental illness and substance abuse, and addressing these co-morbidities is critical to care for HIV patients. This measure indicates the percentage of HIV patients who have had a mental health screening. In DY 8, 18.0% of HIV patients at KMC had a mental health screening.

Figure 16: Mental Health Screening

[37] See Kern Medical Center DY 8 report

Pneumococcal vaccination
Pneumococcal pneumonia and meningitis are leading causes of morbidity and mortality among HIV-infected patients.[38] This measure indicates the percentage of HIV patients who ever received a pneumococcal vaccine. In DY 8, 79% of CCRMC patients and 82.9% of RCRMC patients reported ever receiving a pneumococcal vaccine.

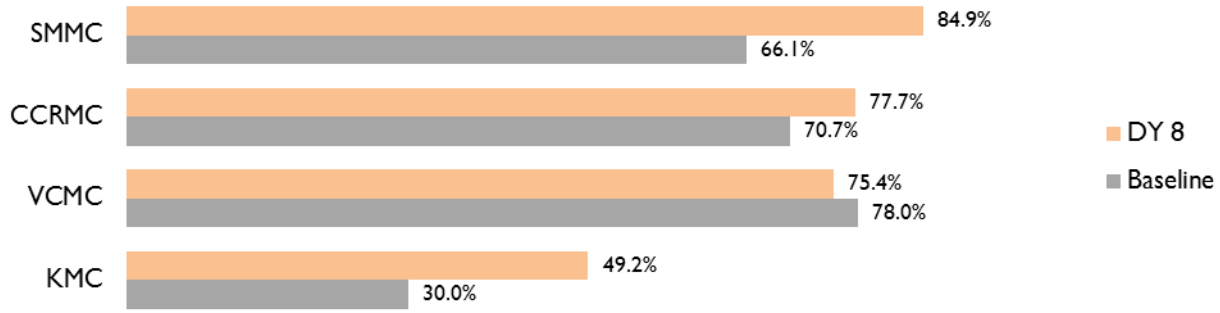
Figure 17: Pneumococcal Vaccination



Syphilis screening
This indicator measures the percentage of HIV patients at risk for STIs who had a syphilis test within the measurement year. The CDC recommends that HIV-infected patients be screened for STIs at least annually if the patient is sexually active or if earlier screening revealed STIs, and any indications of risky behavior should prompt a more thorough assessment of HIV transmission risks.[39]

In DY 8, four PHSs reporting the percentage of HIV patients who had a syphilis test, ranging from 49.2% at KMC to 84.9% at SMMC.

Figure 18: Syphilis Screening



TB screening
This indicator measures the percentage of HIV patients with a documented tuberculosis (TB) screening test performed and results interpreted at least once since HIV diagnosis. In

[38] Available online at http://hivinsite.ucsf.edu/InSite
[39] See Kern Medical Center DY 8 report

DY 8, 85.0% of AHS patients and 94% of UCSD patients had a documented TB screening test at least once since HIV diagnosis.

Figure 19: TB Screening

Tobacco cessation counseling
This indicator measures the percentage of HIV patients screened for tobacco use at least once within 24 months and who received cessation counseling intervention if identified as a tobacco user. In DY 8, 69.2% of LADHS patients were screened for tobacco use and received cessation counseling.

Figure 20: Tobacco Cessation Counseling

III. Shared Learning & Innovation Activities

In their individual reports for DY 8, California PHSs discuss their staffs' participation in a total of 136 distinct learning and innovative activities. Some of these focused on specific topics. Some involved collaboration among PHSs and some brought together departments and/or clinics within their own PHS. Some were activities with regional partners, some were statewide and some involved providers from around the country. All were opportunities to increase understanding of innovative, evidence-based best practices and to accelerate adoption in their own PHS. The following does not include all activities, rather a sampling of those that were specifically self-reported by individual PHSs.

Topics of Shared Learning Activities

- Primary care transformation: Alameda, UC Davis, UCSF, UC Irvine, San Francisco and Santa Clara
- Sepsis: Contra Costa, UCSF, San Mateo, UC Irvine, Riverside, San Francisco, UC San Diego, Arrowhead, UC Davis and UCLA
- Hospital Acquired Pressure Ulcers: Contra Costa, Arrowhead, Natividad, UC Davis, Santa Clara
- Surgical Site Infections: Santa Clara, San Mateo, UC Davis
- Nursing: Kern, Contra Costa, UC Diego, UC Davis, UCSF , Arrowhead, UCLA, San Mateo and Santa Clara
- HIV/AIDS: Alameda, Santa Clara, UC San Diego and Contra Costa

Safety Net Institute Learning Communities

- Lean Improvement Learning Community: Alameda, UC Davis and San Francisco
- Spreading Palliative Care: Alameda and Contra Costa
- CG-CAHPS: Kern, Los Angeles, Santa Clara
- Patient Experience Transformation Initiative: Kern, Santa Cara, San Mateo and Natividad
- CLABSI and Sepsis Collaborative: Kern, Riverside, UC Irvine, UCSF, Arrowhead, Santa Clara, San Mateo, UCLA, Contra Costa, Natividad, San Francisco, UC Davis and UC San Diego
- Medical Home Collaborative: ARMC

National Collaboratives, Conferences and Committees

PHSs actively participated in collaboratives, attended and presented at conferences, and sought out numerous learning opportunities to apply to their DSRIP projects

- Institute for Healthcare Improvement: Contra Costa, UC Davis, Santa Clara
- America's Essential Hospitals: Contra Costa, Alameda, San Mateo, San Francisco
- National Quality Forum: Natividad
- Patient and Family Centered Care: Contra Costa
- Healthcare Infection Control Practices Advisory Committee: UC Irvine
- Society for Healthcare Epidemiology of America; UC Irvine

- National Confernce on Quality Health Care for Culturally Diverse Populations: Contra Costa
- University Health Consortium: Los Angeles, UC San Diego, UC Davis and UCSF
- Lean Enterprise Institute: UC Davis
- American Society for Quality: UC Davis
- Press Ganey: San Mateo
- Western States Pharmacy Residency Conference: Alameda

California Statewide Collaboratives, Conferences and Committees

- California Healthcare Foundation Leadership Program: Alameda
- Gordon and Betty Moore Foundation Center for Quality System Improvement: Alameda and Contra Costa
- Center for Care Innovations: Alameda
- HealthCare Interpreter Network: Ventura, Natividad, UC San Diego and Contra Costa
- California Hospital Engagement Network: Kern, Alameda and San Mateo
- UC Health: UC Davis, UCSF, UC Irvine, UCLA and UC San Diego – The five UC medical centers worked together on numerous projects including care transitions, primary care, nursing, CLABSI and sepsis reduction

Regional Partnerships

PHSs worked with other health care providers and organizations to increase collaboration and communication across the spectrum of services in their communities.

- Natividad with the Monterey County Health Department on key health indicators
- Contra Costa with HIV Planning Council on best practices and patient communication
- UC Irvine with Orange County Partnership Regional Health Information Organization on health information exchange
- UC San Diego with Hospital Association of San Diego and Imperial Counties on readmissions data from skilled nursing facilities and patient education; with the San Diego Medical Society on eradication of resistant microbes; and with local stakeholders on HIV/AIDS trainings
- Arrowhead with Inland Counties Emergency Medical Association and the Inland Empire Stroke Coordinators Association on stroke prevention
- Riverside with the Inland Empire Stroke Coordinators Association on stroke prevention; with Hospital of South California and with the Inland Empire Chapter of the Association for Professionals in Infection Control on infection prevention
- UC Davis with community providers on surgical site infection reduction and wound care
- San Mateo with bay area consortium of hospitals on surgical site infection reduction

- UCSF with SF Department of Public Health and SF Veterans Administration on primary care practice and on transitions of care
- San Francisco with UCSF on data collection to determine start time for the sepsis bundle
- Kern with community health center and community college to create Kern County Physical and Behavioral Health Committee; with Kern County Aging and Adult Services Geriatric Task Force to smooth transition from levels of care with Kern County Public Health Department to promote active living and health eating and with Kern County Collaborative for Mental Health to improve access to mental health treatment
- Santa Clara with the Bary Area Regional Quality Improvement Initiative and with the Santa Clara County Round table to improve HIV prevention of and quality of care

Interdepartmental Collaborations
PHSs broke through silos in their systems, bringing together every type of staff to encourage communication and increase understanding of how every individual's and team's responsibilities fit into the whole system of care. Many report deliberate efforts to create oversight structures and communication pathways which engage providers and staff at all levels in DSRIP work.

- Contra Costa implemented the Improvement Institute, a weekly forum for improvement teams to meet
- Arrowhead created an multi-disciplinary task force with monthly meetings and data postings
- UC Davis provided trainings on using race and ethnicity data to build communication among staff and with patients, created intensive case management and brought Operating Room and Emergency Department staffs together to improve documentation
- Natividad provided internal training on Hospital-Acquired Pressure Ulcer Prevention (HAPU) during new nurse orientation and their annual skills day in the ICU and Med/Surg. Unit for over 175 staff members
- San Mateo created a fall prevention committee in every unit.
- San Francisco developed internal improvement program to decrease noise
- Kern shared learnings across departments on care coordination, care management, transitions in care and discharge planning for vulnerable populations to reduce hospital readmissions
- Santa Clara coordinated team based efforts to implement and utilize a disease management registry functionality, trained diabetes care managers and medical home teams on elements of chronic care model, conducted an intensive four-month clinical skills training in the evidence-based clinical intervention for primary care

and behavioral health and held bi-weekly multidisciplinary rounds where teams put in place best care practices for accelerated wound healing

- Ventura up-staffing the Performance Improvement department and partnered with key stakeholders in other departments, teaching the importance of the safety and quality measures

IV. Conclusion

DY 8 reports highlight the depth and breadth of change within 21 PHSs that is continuing to take root, flourish, and fundamentally change many structures and processes of providing care to patients in California public health care systems. From custodial staff to chiefs of medicine, from scheduling new patients to hospital discharge, from space to equipment, from the education of individual practitioners to entire PHS staffs, there is no aspect of patient care in PHSs left untouched.

Over and above the many significant changes on performance metrics visible in this report is the increasing capacity of PHSs to use skills and tools to monitor performance and make improvements when they are deemed necessary. Here we highlight some of those skills and tools that thematically link many of the many milestones described in the preceding pages.

Skills and Tools
Change methodologies: PHSs are taking great advantage of lessons learned in other systems by adapting change methodologies proven to achieve significant impact. Lean management, for example, is used extensively in multiple systems to diagnose and redress areas where waste and inefficiency stand in the way of desired outcomes. For some PHSs, Lean management is becoming the primary change methodology. In others, Lean is one among several approaches to change. Many sites also credit change approaches championed by the Institute for Health Improvement as those that they adapt to their sites, and Six-Sigma remains on some PHS radars. Common to most change methodologies are cycles of Plan – Do – Study – Act (PDSA), and many PHSs simply refer to conducting PDSAs on areas needing change related attention.

Data-driven monitoring and change: DY 8 stands out for the increased number of metrics and sophistication with which sites demonstrate the capacity to use data to monitor performance and drive change. This was true across all categories and many metrics. Two sites for example report that for the first time they have been able to use race, ethnicity, and language data to identify areas of health disparity that they are beginning to address. Collecting and monitoring data on patient scheduling has been critical to reducing wait times and, in some sites, maximizing appropriate usage of urgent care services. Some sites have started to provide direct feedback to providers concerning patient feedback as well as the degree to which they have appropriately followed protocols. Whether at a population level or direct feedback to individuals, the use of data to drive change has expanded exponentially.

Collaboration across PHSs: DY 8 reports contain an extraordinary number of references made by PHSs to the learning benefits they have reaped from collaborating both formally and informally with other PHSs. The types of collaboration run the gamut from sharing a particularly good training video created by one PHS to formal collaborations focused on driving particular metrics such as the long-standing collaborative consisting of the

epidemiology and infection departments of the five University of California medical centers convened by the UC Office of the President (UCOP).

Collaboration within PHSs: Achievement of many milestones relies upon cross-disciplinary, cross-functional collaborations within PHSs. Successful medical homes, for example, require strong collaboration and communication among a variety of providers with different functions. A primary strategy for achieving reductions in severe sepsis detection, CLABSIs, and surgical site infections has been creating cross-disciplinary teams in order that the many types of providers and professionals that provide patient care work together to implement appropriate care. Many collaborations involve bringing in hospital functions, such as pharmacy, that had not previously been considered part of front-line care.

Training: The training required to accomplish all of these milestones is extraordinarily ambitious. Some, like sepsis management, involve training across many employee categories with frequent reminders and reinforcements. Ironically, some of the changes such as prohibiting unnecessary entries and exits from the operating room, which seem easy, are reported to be the most difficult behaviors to change. For some changes, training has been implemented for every new PHS employee. For others, the training is more specialized and external consultants are hired, employees are sent to external trainings, or training capacity is built in-house. The process of hiring or training an internal expert who then becomes a resource for others is a process proving valuable for many types of change.

Information technology: There is not a single milestone for which sophisticated, integrated, flexible, easy-to-use software is not essential. Most but not all sites have installed Electronic Health Record systems and are demonstrating increasing sophistication using them to manage patient and population health. Having accomplished this, the next frontier for most sites is to integrate their EHRs with other functions such as practice management, laboratory, and pharmacy. As sites have begun to experience the tremendous benefits that come from electronic systems, their motivation to take the next steps is heightened, and yet it takes time. One can feel the impatience for accomplishing next steps in electronic health management in many reports.

Barriers

Despite all the above tools and skills DHSs are demonstrating, reports also highlight areas of drag and resistance, and it is worth noting these also. They include:

Buy-in and sustained attention: Accomplishing all of the milestones requires agreement from staff and attention over time to those steps necessary for achievement. Many of the DSRIP changes earn immediate buy-in because they result in better patient care, however even then reinforcement is important. Several sites report that they wish they had developed top-down accountability as a first step in implementing an innovation, especially when the change team was large and involved many disciplines. Others indicated that it is difficult to sustain attention to innovation over an extended period of time, and accountability is important for this as well. The most difficult areas to achieve buy-in occur when there are divergent points of view about what the best medical care is. These instances require significant time for research and discussion.

Data collection and usage issues: Despite many areas of progress that have been achieved, there are many instances in which sites recognize that their data are not yet fully reliable, cannot easily be retrieved, are not accessible on a timely basis, or are not embedded in a format that lends itself to easy utilization. Although it is motivating to sites to make the changes necessary for the data to be accurate and usable, it is frustrating for them in the short term.

Personnel limits: DSRIP has certainly enabled many sites to hire the new expertise that is required for system transformation. And yet, many reports contain instances of hitting limits. For example, one site hired a nurse with expertise in the sepsis management, and yet could only afford a part-time position and has found it difficult to keep the position filled. Some front office staff are hard-pressed to add new functions such as calling patients to remind them to come in for preventive tests to their already busy schedules. Some areas find it very difficult to attract and retain needed staff such as specialty providers. Although reports provide instances of creative solutions such as hiring from osteopathic training programs and retraining licensed professionals from other countries, not all demand can be filled.

Physical limits: DSRIP is also enabling DHSs to expand physical capacity. At the same time, however, many sites continue to work in physical facilities that are not ideally configured to achieve the efficiencies and quality upgrades that would most readily facilitate achieving DSRIP milestones.

Summary

Although it is important to recognize barriers to change, in aggregate DY8 reports provide a fascinating, in-depth, and detailed examination of PHSs' capacity to change, and to undertake many different types of change simultaneously. In comparison to the prior year, changes have deepened and broadened. We anticipate that by next year the process of consolidating multiple changes will be even more evident and deeply rooted.

Appendix A: California's 21 Public Health Care Systems

The following are California's 21 public health care systems:

1. Alameda County Medical Center
2. Arrowhead Regional Medical Center
3. Contra Costa Regional Medical Center
4. Harbor/University of California Los Angeles Medical Center*
5. Kern Medical Center
6. Los Angeles County + University of Southern California Medical Center*
7. Natividad Medical Center
8. Olive View/University of California Los Angeles Medical Center*
9. Rancho Los Amigos National Rehabilitation Center*
10. Riverside County Regional Medical Center
11. San Francisco General Hospital
12. San Joaquin General Hospital
13. San Mateo Medical Center
14. Santa Clara Valley Medical Center
15. University of California Davis Medical Center
16. University of California Irvine Healthcare
17. University of California Los Angeles Medical Center- Ronald Reagan**
18. University of California Los Angeles Medical Center- Santa Monica**
19. University of California San Diego Health System
20. University of California San Francisco Medical Center
21. Ventura County Medical Center

** Submitted one Los Angeles County Department of Health Services aggregate DSRIP plan.*
*** Submitted one University of California Los Angeles Medical Center aggregate DSRIP plan.*

Appendix B: DY 8 Milestones Completed by PHS

Milestones By Category/Project	AHS	ARMC	CCRMC	KMC	LADHS*	NMC	RCRMC	SCVMC	SFGH	SJGH	SMMC	UCD	UCI	UCLA**	UCSD	UCSF	VCMC	**Grand Total**
Category 1	10	12	8	13	9	5	8	9	12	4	3	5	16	4	11	6	7	**142**
Collect Accurate Race, Ethnicity, and Language (REAL) Data to Reduce Disparities			1								1	2						**4**
Develop Risk Stratification Capabilities/Functionalities					2								3					**5**
Enhance Coding and Documentation for Quality Data					1										2			**3**
Enhance Interpretation Services and Culturally Competent Care			2	4		2									3		3	**14**
Enhance Performance Improvement and Reporting Capacity	2				2				5							2	3	**14**
Enhance Urgent Medical Advice				3														**3**
Expand Primary Care Capacity	3	4	3	2			3	5	3	2	2		3			2		**32**
Expand Specialty Care Capacity	2	3		2			1		2					2				**12**
Implement and Utilize Disease Management Registry Functionality	3	4		2	4		2	4		2		3	4		3	2		**33**
Increase Training of Primary Care Workforce		1	2			3	2		2				5	2			1	**18**
Introduce Telemedicine													1		3			**4**
Category 2	5	12	7	8	10	9	10	10	10	3	10	10	16	9	13	10	4	**156**
Apply Process Improvement Methodology to Improve Quality/Efficiency						3					2	3						**8**
Conduct Medication Management			1									3		2	1			**7**
Establish Pediatric Medical Home														2				**2**
Establish/Expand a Patient Care Navigation Program				2									3					**5**
Expand Chronic Care Management Models	1	5			3		2	4					3				1	**19**
Expand Medical Homes	1	3	1	2	2		1		5	1	1	3	2	3		5		**30**
Implement Real-Time Hospital-Acquired Infections (HAIs) System													2		1			**3**
Implement/Expand Care Transitions Programs	1											1		2	5	2		**11**
Improve Patient Flow in the Emergency Department/Rapid Medical Evaluation	1														2			**3**
Increase Specialty Care Access/Redesign Referral Process							1		2		2					3		**8**
Integrate Physical and Behavioral Health Care			2	2	5			2	3		2						2	**18**
Redesign for Cost Containment								1										**1**
Redesign Primary Care		4		2			2			2	1		2		2			**15**
Redesign to Improve Patient Experience	1		3			6	4	3			2		4					**23**
Use Palliative Care Programs															2		1	**3**
Category 3	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	**340**
At-Risk Populations	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	**102**
Care Coordination	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	**68**
Patient/Care Giver Experience	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	**85**
Preventive Health	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	**85**

Milestones By Category/Project	AHS	ARMC	CCRMC	KMC	LADHS*	NMC	RCRMC	SCVMC	SFGH	SJGH	SMMC	UCD	UCI	UCLA**	UCSD	UCSF	VCMC	Grand Total
Category 4	14	21	18	20	27	17	21	25	15	18	12	12	19	13	14	13	12	**291**
Central Line Associated Blood Stream Infection Prevention	4	3	4	5	4	4	4	3	3	3	3	3	4	2	3	4	3	**59**
Falls with Injury Prevention											2							**2**
Hospital-Acquired Pressure Ulcer Prevention	3	4	3	3		3		11				3	3	3	3	3	3	**45**
Severe Sepsis Detection and Management	4	4	4	5	7	3	4	5	3	3	4	3	3	5	3	3	3	**66**
Stroke Management		10					10			9								**29**
Surgical Site Infection Prevention	3				4		3	6	3	3	3	3		3	5	3	3	**42**
Venous Thromboembolism (VTE) Prevention and Treatment			7	7	12	7			6				9					**48**
Category 5A - 1st Period	3		3	4	5		3	3	4		4				7		5	**41**
Build Clinical Decision Support Tools to Allow for More Effective Management of Patients Diagnosed with HIV			1	2														**3**
Develop Retention Programs for Patients with HIV Who Inconsistently Access Care	1			1				1	1						3		2	**9**
Empanel Patients into Medical Homes with HIV Expertise	1				2		1	1			1				2			**8**
Enhance Data Sharing Between PHSs and County Departments of Public Health											2						1	**3**
Ensure Access to Ryan White Wrap-Around Services for New LIHP Enrollees			1				1	1	1		1				2			**7**
Implement a Disease Management Registry Module Suitable for Managing Patients Diagnosed with HIV	1		1	1	1		1		2								2	**9**
Launch Electronic Consultation System Between HIV Primary Care Medical Homes and Specialty Care Providers					2													**2**
Category 5A - 2nd Period	8		3	6	8		7	4	3		4				12		3	**58**
Build Clinical Decision Support Tools to Allow for More Effective Management of Patients Diagnosed with HIV			1	2														**3**
Develop Retention Programs for Patients with HIV Who Inconsistently Access Care	2			2				1	1						3		1	**10**
Empanel Patients into Medical Homes with HIV Expertise	2				3		4	2			1				5			**17**
Enhance Data Sharing Between PHSs and County Departments of Public Health											2						1	**3**
Ensure Access to Ryan White Wrap-Around Services for New LIHP Enrollees			1				1	1	1		1				4			**9**
Implement a Disease Management Registry Module Suitable for Managing Patients Diagnosed with HIV	4		1	2	2		2		1								1	**13**
Launch Electronic Consultation System Between HIV Primary Care Medical Homes and Specialty Care Providers					3													**3**

Milestones By Category/Project	AHS	ARMC	CCRMC	KMC	LADHS*	NMC	RCRMC	SCVMC	SFGH	SJGH	SMMC	UCD	UCI	UCLA**	UCSD	UCSF	VCMC	Grand Total
Category 5B - 1st Period	10		10	20	20		10	10	10		10				18		20	**138**
CD4 T-Cell Count	1		1	2	2		1	1	1		1				2		2	**14**
Cervical Cancer Screening	1																2	**3**
Chlamydia Screening								1			1				2			**4**
Gonorrhea Screening								1			1				2			**4**
HAART	1		1	2	2		1	1	1		1				2		2	**14**
Hepatitis B Screening					2				1									**3**
Hepatitis B Vaccination			1		2		1											**4**
Hepatitis C Screening				2			1	1	1									**5**
Influenza Vaccination	1																2	**3**
Medical Case Management: Care Plan			1		2			1										**4**
Medical Case Management: Medical Visits	1			2			1		1		1				1		2	**9**
Medical Visits	1		1	2	2		1	1	1		1				1		2	**13**
Mental Health Screening				2														**2**
PCP Prophylaxis	1		1	2	2		1	1	1		1				2		2	**14**
Pneumococcal Vaccination			1				1		1									**3**
Syphilis Screening			1	2							1						2	**6**
TB Screening	1														2			**3**
Tobacco Cessation Counseling					2													**2**
Viral Load Monitoring	1		1	2	2		1	1	1		1				2		2	**14**
Viral Load Suppression	1		1	2	2		1	1	1		1				2		2	**14**
Category 5B - 2nd Period	20		20	10	10		10	20	10		20				20		10	**150**
CD4 T-Cell Count	2		2	1	1		1	2	1		2				2		1	**15**
Cervical Cancer Screening	2																1	**3**
Chlamydia Screening								2			2				2			**6**
Gonorrhea Screening								2			2				2			**6**
HAART	2		2	1	1		1	2	1		2				2		1	**15**
Hepatitis B Screening					1				1									**2**
Hepatitis B Vaccination			2		1		1											**4**
Hepatitis C Screening				1			1	2	1									**5**
Influenza Vaccination	2																1	**3**
Medical Case Management: Care Plan			2		1			2										**5**
Medical Case Management: Medical Visits	2			1			1		1		2				2		1	**10**
Medical Visits	2		2	1	1		1	2	1		2				2		1	**15**
Mental Health Screening				1														**1**
PCP Prophylaxis	2		2	1	1		1	2	1		2				2		1	**15**
Pneumococcal Vaccination			2				1		1									**4**
Syphilis Screening			2	1							2						1	**6**
TB Screening	2														2			**4**
Tobacco Cessation Counseling					1													**1**
Viral Load Monitoring	2		2	1	1		1	2	1		2				2		1	**15**
Viral Load Suppression	2		2	1	1		1	2	1		2				2		1	**15**
Total	**90**	**65**	**89**	**101**	**109**	**51**	**89**	**101**	**84**	**45**	**83**	**47**	**71**	**46**	**115**	**49**	**81**	**1316**

**Includes four PHSs: Harbor/University of California Los Angeles Medical Center, Los Angeles County + University of Southern California Medical Center, Olive View/University of California Los Angeles Medical Center and Rancho Los Amigos National Rehabilitation Center*

*** Includes two PHSs: University of California Los Angeles Medical Center- Ronald Reagan and University of California Los Angeles Medical Center- Santa Monica*

Appendix C: Summary of Category 3 Measures and the Years in Which Reported by All PHSs

Summary of Category 3 Measures	DY 7	DY 8	DY 9	DY 10
Patient/Care Giver Experience Domain				
CG CAHPS: 1. Getting Timely Appointments, Care, and Information 2. How Well Doctors Communicate With Patients 3. Helpful, Courteous, and Respectful Office Staff 4. Patients' Rating of the Doctor 5. Shared Decision making		√*	√	√
Care Coordination Domain				
6. Diabetes, short-term complications	√	√	√	√
7. Uncontrolled Diabetes	√	√	√	√
8. Congestive Heart Failure		√	√	√
9. Chronic Obstructive Pulmonary Disease		√	√	√
Preventive Health Domain				
10. Mammography Screening for Breast Cancer	√	√	√	√
11. Influenza Immunization	√	√	√	√
12. Child Weight Screening		√	√	√
13. Pediatrics Body Mass Index (BMI)		√	√	√
14. Tobacco Cessation		√	√	√
At-Risk Populations Domain				
15. Diabetes Mellitus: Low Density Lipoprotein (LDL-C) Control (<100 mg/dl)	√	√	√	√
16. Diabetes Mellitus: Hemoglobin A1c Control	√	√	√	√
17. 30-Day Congestive Heart Failure Readmission Rate		√	√	√
18. Hypertension (HTN): Blood Pressure Control (<140/90 mmHg)		√	√	√
19. Pediatrics Asthma Care		√	√	√
20. Optimal Diabetes Care Composite		√*	√	√

** Data from two quarters (rather than four) submitted*

Appendix D: Summary of EHR and Registry Implementation among CA Public Health Care Systems[40] [41]

Public Health Care System	Inpatient EHR	Ambulatory EHR	Registry
Alameda County Medical Center	Sorian	NextGen	i2i Tracks
Arrowhead Regional Medical Center	Meditech Client Server	Meditech Client Server	Homegrown registry
Contra Costa Regional Medical Center	Meditech Client Server	EPIC	EPIC Ambulatory EHR module
Kern Medical Center	MedSphere Open Vista	MedSphere Open Vista	i2i Tracks
Los Angeles Department of Health Services*	QuadraMed Affinity	QuadraMed Affinity	i2i Tracks
Natividad Medical Center	Meditech Client Server	Hybrid model – Paper record and Meditech Client Server	Homegrown registry
Riverside County Regional Medical Center	Sorian	NextGen	I2i
Santa Clara Valley Medical Center	EPIC	EPIC	Homegrown registry
San Francisco General Hospital	Invision	eClinical Works	i2i Tracks
San Joaquin General Hospital	NTT Data (formerly Keane) iMed EHR	Optio Quick Chart	i2i Tracks
San Mateo Medical Center	Sorian	eClinical Works	eClinical Works Ambulatory EHR module
University of California Davis Medical Center	EPIC	EPIC	Tethered MetaRegistry

[40] This data is current as of early 2013; some systems may have changed their EHR and/or registry since.

[41] Eleven PHSs participated in the CalHIPSO Regional Extension Center, earning EHR implementation Milestone 1 credits for attesting their intention to implement a certified EHR, Milestone 2 credits after "go live" implementation and Milestone 3 credits for meeting quality reporting requirements. As of 10/31/2013, Contra Costa, San Francisco and San Mateo had achieved Milestone 3 credits; Alameda, Arrowhead, Riverside and Santa Clara had achieved Milestone 2 credits; and Kern, Natividad, San Joaquin and Ventura had achieved Milestone 1 credits.

Public Health Care System	Inpatient EHR	Ambulatory EHR	Registry
University of California Irvine Health System	AllScripts Sunrise Acute Care	AllScripts Sunrise Ambulatory Care	Sequel server
University of California Los Angeles Medical Center**	EPIC	EPIC	Homegrown registry
University of California San Diego Health System	EPIC	EPIC	EPIC Ambulatory EHR module
University of California San Francisco Medical Center	EPIC	EPIC	EPIC Ambulatory EHR module
Ventura County Medical Center	Cerner	Cerner	Exploring options

NOTES:
**Includes four PHSs: Harbor/University of California Los Angeles Medical Center, Los Angeles County + University of Southern California Medical Center, Olive View/University of California Los Angeles Medical Center and Rancho Los Amigos National Rehabilitation Center*
*** Includes two PHSs: University of California Los Angeles Medical Center- Ronald Reagan and University of California Los Angeles Medical Center- Santa Monica*

Appendix E: CG-CAHPS Recommendations for a Standardized Measurement Strategy

Implementing CG-CAHPS in California Public Hospital Systems: Recommendations for a Standardized Measurement Strategy

FINAL DRAFT 8/4/2011

Acknowledgement:

This document was developed through a collaborative effort of numerous CAPH-member leaders and staff, experts from Shaller Consulting Group and RAND Corporation and staff from California Health Care Safety Net Institute (SNI). We are grateful for the generous support by the California HealthCare Foundation, which helped to make this work possible.

Background

California's new five-year Section 1115 Medicaid Waiver created the Delivery System Reform Incentive Program, a federal pay-for-performance quality improvement initiative that is the first of its kind in the nation in terms of its structure and scope. The Incentive Program offers an unprecedented opportunity for California's 21 public hospital systems to transform care delivery to be more integrated and organized, and improve patient health outcomes. One of the requirements of the Incentive Program is that all California public hospital systems must begin collecting and reporting data on the patient experience in ambulatory care.

Specifically, the Incentive Program requires that all California public hospital systems measure and report patients' perspectives on five aspects of care in the ambulatory clinic setting using specific survey questions developed by the federal government and widely tested in public and private sector health care organizations as part of the CAHPS Clinician & Group (CG-CAHPS) Surveys. The required survey domains are: 1) getting appointments, care and information when needed; 2) how well doctors communicate with patients; 3) helpful, courteous, and respectful office staff; 4) patients' global rating of the doctor; and 5) shared decision making. (See Appendix A for an overview of the Incentive Program reporting requirements.) Many of the important parameters of this data collection and reporting were deliberately left unspecified, in order to allow California public hospital systems the flexibility to determine the best way to implement CG-CAHPS, not only for reporting purposes but to maximize the value of the data collection for quality improvement.

Reaching consensus on key aspects of implementation will help to make sure that California public hospital systems are able to gather comparable data for Incentive Program reporting to the California Department of Health Care Services (DHCS). In addition, a coordinated approach will enable the hospitals to compare their data and work together through the California Healthcare Safety Net Institute (SNI) to improve performance.

To assist members in reaching consensus, the California Association of Public Hospitals and Health Systems (CAPH) and SNI as its quality improvement affiliate convened two member meetings, both of which were facilitated by national experts in CAHPS implementation. The first meeting involved a small group of health system representatives who began to explore the many issues that were not specified by the Centers for Medicare and Medicaid Services (CMS) and developed preliminary recommendations, which were discussed at a full membership meeting on June 21, 2011. After a rigorous dialogue on June 21, as well as subsequent follow-up on the outstanding items described below, the group was able to reach consensus in the areas necessary for effective CG-CAHPS implementation. The consensus recommendations and the rationale for each are summarized in this report.

Overview of Consensus Recommendations for CG-CAHPS Implementation

The following specifications represent the recommended methods of collecting CG-CAHPS throughout California public hospital systems. These recommendations preserve considerable flexibility for each public hospital, while promoting survey administration that will allow the data collected to result in reliable and comparable measures of the ambulatory patient experience. **It is important to note that the recommendations represent a minimum baseline of standardization** and do not prevent hospitals from conducting additional survey activities or going above and beyond the baseline (e.g. an organization may offer the CG-CAHPS survey in additional languages beyond English and Spanish).

Baseline Recommendations at a Glance	
Survey Vendor	Each hospital selects own vendor
Survey Type	Modified CG-CAHPS Visit Survey*
Survey Mode	Mail, telephone, or email invitation to online survey with mail ortelephone follow up
Survey Languages	English and Spanish
Source of Sample Frame	Hospital system/Clinic records
Population to be Surveyed	Adult patients of all payer types with at least one primary care clinic visit in the previous 12 months
Public Reporting Unit	Data will be reported to DHCS at the hospital system level, as opposed to the individual clinic or provider level
Sampling Unit	Organizations will have two sampling options: *Option 1)* hospital system-level only, or *Option 2)* sampling at the clinic level or individual provider level before rolling up to a representative system-level sample for reporting to DHCS. Organizations are encouraged to consider sampling at the clinic or provider level so they can engage in quality improvement and additional benchmarking activities. To facilitate sampling under Option 2, SNI has assembled a workgroup of member and national experts to develop guidelines for rolling up clinic and provider level data into measures that reflect the performance of the system as a whole. When finalized, these guidelines will be shared with all CAPH member systems interested in the sampling Option 2. Note that organizations sampling at the clinic or provider level may need to survey patients from all adult primary care clinics in the system, as well as to weight the data according to the clinic size, in order to achieve a representative sample for the whole system.
Sample Size	Sample size depends on the sampling unit selected. At a minimum, if sampling at the system level for reporting to the state and CMS, each hospital system must sample a sufficient number of patients to obtain at least 300 completed surveys per year that reflect system-level performance. Larger sample sizes (in

	total) will be necessary if organizations choose to sample at the clinic or provider level and SNI's sampling workgroup's guidelines will provide guidance to CAPH members in this area.
Timing	At a minimum, a system level 12-month sample will be drawn once per year in April and results reported to DHCS the following September. In order to accelerate payment, it is recommended that a system level 6-month sample be drawn twice per year in October and April and results reported to DHCS the following March and September. Hospitals have the option to sample and survey on a more frequent basis. Hospitals are encouraged to draw their first sample in October 2012 (reflecting dates of service April – September 2012) and submit their first report to DHCS in March 2013 to accelerate payment. The first mandatory report is due to DHCS in September 2013. **NOTE: These dates are being verified with DHCS and CMS and any changes will be promptly communicated to the CAPH members.**
Aggregation and Reporting	In addition to reporting to DHCS, organizations are encouraged to submit data to the CAHPS Database to facilitate benchmarking with members participating in the SNI CG-CAHPS implementation network as well as to obtain relevant national benchmarks. SNI will provide the connection with the CAPHS Database.

The CG-CAHPS Visit Survey has been modified to add the shared decision-making questions required by the Incentive Program

Rationale for Consensus Recommendations

The public hospital system representatives and CAHPS implementation experts that CAPH/SNI convened on June 21 spent several hours discussing implementation issues in extensive detail. The discussion was guided in part by results of a recent survey about the status of members' ambulatory patient experience data collection efforts, which highlighted the need to develop recommendations that not only would support those hospital systems already heavily involved in data collection and analysis, but also would provide a realistic and manageable process for those organizations new to this type of data collection. At the conclusion of the meeting, the participants had reached consensus on nearly all of the aspects of CG-CAHPS administration necessary to preserve flexibility while simultaneously creating enough standardization to generate reliable, comparable data for both public reporting and public hospitals' benchmarking and improvement activities. As described below, two key issues related to timing and sampling require further clarification and CAPH/SNI will be providing additional guidance to members in these areas.

SURVEY VENDOR: EACH HOSPITAL SELECTS THEIR OWN

The two primary strategies that can be used to implement CG-CAHPS are a leveraged approach and a centralized approach. The centralized approach involves organizations selecting a common vendor that administers the surveys for the entire consortium. The leveraged approach allows organizations to select their own vendors, who then follow certain common protocols. Since most California public

hospital systems already have a relationship with a vendor, and several different vendors are already being used, a leveraged approach which allows each hospital system to select its own vendor is recommended. For hospital systems that do not have a current vendor or those wishing to consider a different vendor, SNI is exploring the possibility of developing a Request for Proposals (RFP) for selecting a common vendor that may be able to provide services at reduced pricing through a group-purchasing arrangement.

SURVEY TYPE: VISIT VERSION

Although the Incentive Program specified that California public hospital systems must survey patients about certain topics, it did not specify which version of the CG-CAHPS survey was required. Unlike HCAHPS, for which there is only one approved survey, there are multiple versions of CG-CAHPS using different timeframes and response scales. The 12-month version of the survey asks patients about their experiences with a provider over the prior 12 months. The Visit version of the survey focuses on care during a particular visit, but also includes some questions referring to the prior 12 months where the research evidence suggests it is more appropriate to measure patient experience over time. Since many patients served in California's public hospital system clinics do not have long-term relationships with their providers, the Visit version of the survey is recommended with the addition of the shared decision making (SDM) questions as required by the Incentive Program. The SDM questions selected for the CAPH survey are the new questions that have been developed for the Patient Centered Medical Home CG-CAHPS survey, however, they will be replacing the "old" SDM questions (those currently listed on CAHPS website) for all CG-CAHPS uses. A copy of the recommended survey, which includes some language modifications developed by California safety net providers during a recent CG-CAHPS research project, is available in Appendix B. At a minimum, each system will customize the survey with the name of the clinic at which the patient was seen. Organizations have the option to further customize the survey with the name of the individual provider.

SURVEY MODE: MAIL, PHONE, OR EMAIL INVITATION TO ONLINE SURVEY WITH MAIL OR PHONE FOLLOW-UP

Based on input from members at the June 21 meeting, three data collection modes are recommended for CG-CAHPS implementation under the Incentive Program: mail, telephone, and email with mail or telephone follow-up. While mail and telephone are the most common modes currently used for CAHPS surveys and were uniformly embraced by participants in the June 21 meeting, several systems are also now exploring the use of email invitations to patients with email addresses as an additional mode that could considerably lower administration costs in the future. Using email was identified as an item requiring further follow-up. Although the group on June 21 expressed concern that email was not yet approved by CMS, it has subsequently been determined that the CAHPS Consortium (the group of experts engaged by the federal government to continue developing the CAHPS surveys) is currently developing guidance for email administration. It is recommended that organizations pursuing the email option closely follow the email data collection specifications, which are expected to be available on the CAHPS website (www.cahps.ahrq.gov) in September 2011. It is important to note that this mode is defined as the use of an email invitation that includes an embedded link to an online survey (the survey is not included in the body of the email or as an attachment). The CAHPS Consortium does not recommend an email-only protocol at this time, but rather an email protocol followed by a

complete mail or telephone protocol to assure contact with patients included in the sample frame that do not have email addresses.

There is unanimous agreement that in-office kiosk or handout approaches will not provide sufficiently reliable data for reporting under the Incentive Program. Recent survey mode research conducted with safety net ambulatory practices in California found that although the handout method is perceived by some organizations as easier and less expensive, in reality it is not. A report on the study, funded by the California HealthCare Foundation, will be available in late summer 2011.

SURVEY LANGUAGES: ENGLISH AND SPANISH

A wide variety of languages reflecting the diversity of the patient population are used in documents generated by California public hospital systems. Since English and Spanish are ubiquitous, it is recommended that all organizations offer CG-CAHPS in English and Spanish. This is a baseline recommendation and hospital systems may choose to also offer the survey in additional languages.

SOURCE OF SAMPLE FRAME: HOSPITAL SYSTEM/CLINIC RECORDS

In some communities, health plans are actively involved in reporting CG-CAHPS data and the plans provide the lists of patients to be sampled. Health plans are not involved in this initiative, so each public hospital system will be providing its own patient lists to survey vendors, based on hospital system/clinic records.

POPULATION TO BE SURVEYED: ADULT PRIMARY CARE PATIENTS

Under the Incentive Program, public hospital systems have the option to choose the population that will be surveyed. Some of the most important considerations include: type of patient (primary care or specialty care); age of patient (adults or children); and payer type. After discussing the different types of clinics that exist in public hospital systems, the group recommended that adult primary care patients of all payer types be surveyed, both because primary care is a service provided by nearly all public hospital systems and because a survey of adult primary care clinic patients provides a credible overview of the clinic experience for public reporting. Adult primary care also represents a relatively easy starting point for sampling, in order to gain experience that may eventually lead to a decision to expand collection and reporting to other patient populations of interest to public hospitals. The population to be surveyed would include OB/GYN patients if the OB/GYNs are providing primary care, but not if the OB/GYNs are providing only specialty care.
At the June 21st meeting, members requested guidance on what patients should be excluded from the population to be surveyed and agreed that it would be reasonable to adopt the current CMS HCAHPS exclusions. CMS currently excludes the following types of patients from HCAHPS surveys:

- "No-Publicity" patients – Patients who request that they not be contacted
- Court/Law enforcement patients (i.e., prisoners)
- Patients with a foreign home address
- Patients discharged to hospice care (Hospice-home or Hospice-medical facility)
- Patients who are excluded because of state regulations
- Patients discharged to nursing homes and skilled nursing facilities

More information about each of these exclusions can be found in the CMS HCAHPS Quality Assurance Guidelines v. 6.0 (p. 41-43) available at www.hcahpsonline.org/qaguidelines.aspx.

PUBLIC REPORTING UNIT: HOSPITAL SYSTEM LEVEL

The Incentive Program requires that public hospital systems report one score for each domain of care measured by the survey. Although some public hospital systems will want to survey a sufficient number of patients to be able to report the results internally for quality improvement at the clinic level or even at the provider level, since the Incentive Program reporting requires one overall number per domain, it is recommended that all organizations report results to DHCS at the hospital system level.

SAMPLING UNIT AND SAMPLE SIZE: PERIODIC OR CONTINUOUS SAMPLING WITH A MIN. OF 300 COMPLETED SURVEYS PER YEAR

Sampling unit refers to how organizations will draw their sample and the sample size refers to the number of patients surveyed. Since public reporting will be at the hospital system level, organizations may choose between two sampling options:

Sampling Option 1: This option enables organizations to sample the *minimum* number of patients needed to achieve a representative score across all adult primary care clinics within the system. With this sampling option, ***a minimum of 300 completed surveys per year is recommended for public reporting at the hospital system level.*** For organizations choosing to follow the recommendation of system-level sampling every six months, each sample will be designed to obtain 150 completed surveys. The actual number of surveys to be administered will vary based on the expected survey response rate. For example, to achieve 150 completed surveys with a 30% response rate, systems will need to sample 500 patients every six months. Systems may also consider monthly sampling instead of every 6 months, and collect the number of surveys needed each month to reach 300 completed surveys over the 12-month period. At the meeting on June 21, several members indicated they would start with sampling option 1 on a monthly basis and would like to move to option 2 quickly.

Sampling Option 2: Public hospital systems that want to be able to reliably report results for individual clinics or individual providers within a clinic will need to sample at these levels to ensure that enough patients are surveyed from each of the clinics and providers to generate reliable information for quality improvement purposes. ***SNI has assembled a workgroup of member and national experts to develop guidelines and sampling scenarios for incorporating clinic and provider level data into measures that reflect the performance of the system as a whole.*** When finalized, these guidelines will be shared via a webinar with all CAPH-member systems interested in the sampling Option 2. Note that organizations sampling at the clinic or provider level may need to survey patients from all adult primary care clinics in the system, as well as to weight the data according to the clinic size, in order to achieve a representative sample for the whole system.

AGGREGATION AND REPORTING: THE NATIONAL CAHPS DATABASE

A decentralized data collection strategy involving multiple vendors will require some independent vehicle that can aggregate data files and calculate case-mix adjusted scores across all systems and practice sites. (Case-mix adjustment is a process that is designed to ensure that variations in reported

scores reflect actual variations in performance, not variations that are based on differences in the type of patients seen by each organization. The standard variables used for adjustment with CAHPS ambulatory survey instruments are respondent age, education, and self-reported health status, which are obtained from the demographic questions included in the survey.) The national CAHPS Database has provided the data aggregation and analysis function in Minnesota and with other consortia, including the University HealthSystem Consortium (UHC). The CAHPS Database is a neutral, trusted entity with experience working with multiple vendors and producing comparative reports. An added advantage is the ability to provide national benchmarks to participating CAPH systems and to SNI that could be added to benchmarking reports. SNI can provide a link between CAPH-member systems and the CAHPS Database. Data reported to the CAHPS Database are not shared with anyone outside the reporting organization without an explicit prior authorization of the reporting organization. CAPH/SNI will work with the CAHPS Database to develop a benchmarking group of CAPH members and will provide members with guidance on how to submit data to the CAHPS Database.

TIMING: REPORT TO DCHS EVERY SIX MONTHS BEGINNING MARCH 2013

The Incentive Program requires public hospitals to report CG-CAHPS results annually by September 30. Public hospitals must submit their first report of CG-CAHPS data by September 30, 2013. The first report may be based on six months of data, but subsequent September reports must include a full year of data. Public hospital systems that would like to accelerate their payments have the option to begin reporting in March 2013 and to continue to make interim reports annually in March. It is recommended that organizations accelerate their payments by reporting CG-CAHPS data to DHCS every six months beginning March 2013, following the system level periodic sampling timeline outlined below. Organizations may choose to sample on a more frequent basis (e.g. monthly or quarterly) and to aggregate their data at the end of each reporting period. An example of a monthly continuous sampling timeline is included in the chart below.

Initial Implementation Schedule 2013

Activity	System Level Periodic Sampling	Monthly Continuous Sampling
Early Reporting Period (optional, but recommended to accelerate payment)		
Clinic Dates of Service	April 2012 – September 2012	April 2012-September 2012
Draw Sample	October 2012	Monthly May – October 2012
Field Survey	November – December 2012	Monthly May – November 2012
Aggregation/Analysis	January – February 2013	December 2012 – February 2013
Reporting to DHCS/SNI	March 2013	March 2013
First Mandatory Reporting Period		
Clinic Dates of Service	October 2012 – March 2013	October 2012 – March 2013
Draw Sample	April 2013	Monthly Nov. 2012 - April 2013
Field Survey	May - June 2013	Monthly Nov. 2012 – May 2013
Aggregation/Analysis	July – August 2013	June – July 2013
Reporting to DHCS/SNI	September 2013	September 2013

Beginning in 2014, public hospital systems are required to report a full twelve months of data to DCHS each September, reflecting the most recent four quarters of data available (April of the prior year through March of the reporting year). Public hospitals will continue to have the option of making an interim report of six months of data to DCHS in March, which will accelerate payments. The recommended reporting schedule for 2014 and future years is below. **NOTE: These dates are being verified with DHCS and CMS and any changes will be promptly communicated to the CAPH members.**

Reporting Schedule 2014 and 2015

Date of Report	Type of Report	Scope of Data	Clinic Dates of Service
3/31/2014	Optional Interim Report to Accelerate Payment	6 months (at least 150 completed surveys)	April 2013 – September 2013
9/30/2014	Mandatory Report	1 year (at least 300 completed surveys)	April 2013 – March 2014
3/31/2015	Optional Interim Report to Accelerate Payment	6 months (at least 150 completed surveys)	April 2014 – September 2014
9/30/2015	Mandatory Report	1 year (at least 300 completed surveys)	April 2014 – March 2015

Cost Estimates

The cost of survey administration varies by mode and vendor and even by clients using the same vendor. Based on the experience of public hospital systems using mail or telephone modes for administration, a price of $15 to $20 per completed survey is suggested for budgeting purposes.

Next Steps Toward Implementation

SNI, supported by the national CAHPS experts, will provide ongoing assistance to CAPH members as they work to implement CG-CAHPS following the recommendations specified in this document.

Appendix A

Patient Experience Requirements in the Delivery System Reform Incentive Program

Background

Public hospital systems are leading the way in linking health care financing with demonstrating delivery system reform and improved outcomes. California's new five-year Section 1115 Medicaid Waiver created the Delivery System Reform Incentive Program, a federal pay-for-performance quality improvement initiative..

Public hospital systems each received State/CMS approval of five-year Incentive Program plans:

- 217 milestones on average
- Between 12-19 large-scale, system-wide projects (of which patient experience is one)
- Spanning all four categories: infrastructure development, innovation and redesign, population-focused improvement, and urgent improvement in care

Included in these hundreds of ambitious milestones, all public hospitals are required to report on patient experience in the ambulatory care setting. The requirements and details agreed to between the State of California and CMS are below.

Waiver Special Terms and Conditions: Requirements for Patient Experience Reporting

All of the CG CAHPS' questions included for the themes listed below are required to be included in PHS system plans for DY (Demonstration Year) 8-10. For DY 8 only (Jul 2012 – Jun 2013), data from the last two quarters of the demonstration year shall suffice to meet the DY 8 reporting requirement to allow for PHS systems to put in place CG CAHPS and the related data and logistics. Full demonstration year data for DY 9 and 10 is required.

- Data Source: CG CAHPS[42]
- Each CG CAHPS theme includes a standard set of questions. The following CG CAHPS' themes will be reported on:
  1. Getting Appointments, Care, and Information When Needed
  2. How Well Doctors Communicate With Patients
  3. Helpful, Courteous, and Respectful Office Staff
  4. Patients' Global Rating of the Doctor
  5. Shared Decision-making
- The reporting of the measures must be limited to ambulatory care clinics only

[42] See: http://www.cahps.ahrq.gov/cahpskit/files/309-4_CG_Reporting_Measures_4pt.pdf

Data Collection & Reporting Timelines

Public hospital systems will report on achievement of milestones for the demonstration year designated by the public hospital's plan, twice a year to the State. The first 6-month report is interim, and the year-end report is final. For patient experience milestones, public hospitals may report on milestones at 6 months if they have data available and if they would like payment sooner; but they are only required to report fully at the end of the demonstration year (see table below).

Public hospital systems must use the standardized reporting form. For patient experience, that data is indicated in the table below. All data reported will be public information on the State's website. The underlining data and surveys will need to be kept by public hospitals in the event of a State audit. Additionally, it is possible that Waiver evaluators may request the full data to use for purposes of the evaluation, which will be public.

Approved Milestones	Data to be Reported in Standard Form	Data Collection Period	Reporting Deadlines
DY 7 Undertake the necessary planning, redesign, translation, training and contract negotiations in order to implement CG-CAHPS in DY8	"Yes" completion with description of activities completed	No CG-CAHPS Data Collected	• May report being fully or partially completed on 3/31/12 • Should report being fully completed on 9/30/12
DY 8 Report results of CG CAHPS questions for the five themes for at least data from two quarters of the demonstration year to the State	• Top-box score composite of all questions for themes 1-5 from all returned surveys (% of surveys in most positive response category for themes 1, 2, 3 & 5; and % of surveys in response categories 9-10 for theme 4)	Required for 10/1/12-3/31/13, but may collect data for 4/1/12-9/30/12 if would like payment sooner *	• May report being fully or partially completed on 3/31/13 • Should report being fully completed on 9/30/13
DY 9 Report results of CG CAHPS questions for the five themes to the State	• Top-box score composite of all questions for themes 1-5 from all returned surveys (% of surveys in most positive response category for themes 1, 2, 3 & 5; and % of surveys in response categories 9-10 for theme 4)	4/1/13-3/31/14 *	• May report being partially completed on 3/31/14 • Should report being fully completed on 9/30/14
DY 10 Report results of CG CAHPS questions for the five themes to the State	• Top-box score composite of all questions for themes 1-5 from all returned surveys (% of surveys in most positive response category for themes 1, 2, 3 & 5; and % of	4/1/14-3/31/15 *	• May report being partially completed on 3/31/15 • Should report

	surveys in response categories 9-10 for theme 4)		being fully completed on 9/30/15

* **NOTE: These dates are being verified with DHCS and CMS and any changes will be promptly communicated to the CAPH members.**

Recommended CG-CAHPS Survey

Your Experiences with Health Care

Your Privacy is Protected. All information that would let someone identify you or your family will be kept private. Your responses to this survey will be kept **confidential**.

Your Participation is Voluntary. You may choose to answer this survey or not. If you choose not to, this will not affect the health care you get.

What To Do When You're Done. Once you complete this survey, fold it half and place it in the postage-paid envelope that was provided, seal the envelope, and drop it in the nearest mailbox.

If you want to know more about this study, please contact [INSERT NAME] at [INSERT TOLL-FREE NUMBER].

Survey Instructions

Answer each question by marking the box to the left of your answer.

You are sometimes told to skip over some questions in this survey. When this happens you will see an arrow with a note that tells you what question to answer next, like this:

☒ Yes → **If Yes, go to #1 on page 1**
☐ No

Your Clinic

1. Our records show that you got care at the clinic named below.

Name of clinic label goes here

Is that right?

[1] ☐ Yes
[2] ☐ No → **If No, go to #35 on page 5**

2. The questions in this survey booklet will refer to the provider you saw on your most recent visit to this clinic as "this provider."

Is this the provider you usually see if you need a check-up, want advice about a health problem, or get sick or hurt?

[1] ☐ Yes
[2] ☐ No

3. How long have you been going to this provider?

[1] ☐ Less than 6 months
[2] ☐ At least 6 months but less than 1 year
[3] ☐ At least 1 year but less than 3 years
[4] ☐ At least 3 years but less than 5 years
[5] ☐ 5 years or more

Your Care in the Last 12 Months

Please answer only for **your own** health care. Do **not** include care you got when you stayed overnight in a hospital. Do **not** include the times you went for dental care visits.

4. In the last 12 months, how many times did you visit this provider to get care for yourself?

☐ None → **If None, go to #35 on page 5**
☐ 1 time
☐ 2
☐ 3
☐ 4
☐ 5 to 9
☐ 10 or more times

5. In the last 12 months, did you phone this provider's office to get an appointment for an illness, injury, or condition that **needed care right away**?

[1] ☐ Yes
[2] ☐ No → **If No, go to #7**

6. In the last 12 months, when you phoned this provider's office to get an appointment for **care you needed right away**, how often did you get an appointment as soon as you thought you needed?

[1] ☐ Never
[2] ☐ Sometimes
[3] ☐ Usually
[4] ☐ Always

7. In the last 12 months, did you make any appointments for a **check-up or routine care** with this provider?

[1] ☐ Yes
[2] ☐ No → **If No, go to #9**

8. In the last 12 months, when you made an appointment for a **check-up or routine care** with this provider, how often did you get an appointment as soon as you thought you needed?

[1] ☐ Never
[2] ☐ Sometimes
[3] ☐ Usually
[4] ☐ Always

9. In the last 12 months, did you phone this provider's office with a medical question during regular office hours?

[1] ☐ Yes
[2] ☐ No → **If No, go to #11**

10. In the last 12 months, when you phoned this provider's office during regular office hours, how often did you get an answer to your medical question that same day?

[1] ☐ Never
[2] ☐ Sometimes
[3] ☐ Usually
[4] ☐ Always

11. In the last 12 months, did you phone this provider's office with a medical question **after** regular office hours?

[1] ☐ Yes
[2] ☐ No → **If No, go to #13**

12. In the last 12 months, when you phoned this provider's office **after** regular office hours, how often did you get an answer to your medical question as soon as you needed?

[1] ☐ Never
[2] ☐ Sometimes
[3] ☐ Usually
[4] ☐ Always

13. Wait time includes time spent in the waiting room and exam room. In the last 12 months, how often did you see this provider **within 15 minutes** of your appointment time?

[1] ☐ Never
[2] ☐ Sometimes
[3] ☐ Usually
[4] ☐ Always

14. In the last 12 months, did you and this provider talk about starting or stopping a prescription medicine?

[1] ☐ Yes
[2] ☐ No → **If No, go to #18**

15. When you talked about starting or stopping a prescription medicine, how much did this provider talk about the reasons you might want to take a medicine?

[1] ☐ Not at all
[2] ☐ A little
[3] ☐ Some
[4] ☐ A lot

16. When you talked about starting or stopping a prescription medicine, how much did this provider talk about the reasons you might **not** want to take a medicine?

[1] ☐ Not at all
[2] ☐ A little
[3] ☐ Some
[4] ☐ A lot

17. When you talked about starting or stopping a prescription medicine, did this provider ask you what you thought was best for you?

[1] ☐ Yes
[2] ☐ No

Your Care During Your Most Recent Visit

These questions ask about your most recent visit with this provider. Please answer only for your own health care.

18. How long has it been since your most recent visit with this provider?

[1] ☐ Less than 1 month
[2] ☐ At least 1 month but less than 3 months
[3] ☐ At least 3 months but less than 6 months
[4] ☐ At least 6 months but less than 12 months
[5] ☐ 12 months or more

19. Wait time includes time spent in the waiting room and exam room. During your most recent visit, did you see this provider **within 15 minutes** of your appointment time?

[1] ☐ Yes
[2] ☐ No

20. During your most recent visit, did this provider order a blood test, x-ray, or other test for you?

[1] ☐ Yes
[2] ☐ No → **If No, go to #22**

21. Did someone from this provider's office follow up to give you those results?

[1] ☐ Yes
[2] ☐ No

22. During your most recent visit, did this provider explain things in a way that was easy to understand?

[1] ☐ Yes, definitely
[2] ☐ Yes, somewhat
[3] ☐ No

23. During your most recent visit, did this provider listen carefully to you?

[1] ☐ Yes, definitely
[2] ☐ Yes, somewhat
[3] ☐ No

24. During your most recent visit, did you talk with this provider about any health problems or concerns?

[1] ☐ Yes
[2] ☐ No → **If No, go to #26**

25. During your most recent visit, did this provider give you easy to understand instructions about taking care of these health problems or concerns?

[1] ☐ Yes, definitely
[2] ☐ Yes, somewhat
[3] ☐ No

26. During your most recent visit, did this provider seem to know the important information about your medical history?

[1] ☐ Yes, definitely
[2] ☐ Yes, somewhat
[3] ☐ No

27. During your most recent visit, did this provider show respect for what you had to say?

[1] ☐ Yes, definitely
[2] ☐ Yes, somewhat
[3] ☐ No

28. During your most recent visit, did this provider spend enough time with you?

[1] ☐ Yes, definitely
[2] ☐ Yes, somewhat
[3] ☐ No

29. Using any number from 0 to 10, where 0 is the worst provider possible and 10 is the best provider possible, what number would you use to rate this provider?

☐ 0 Worst provider possible
☐ 1
☐ 2
☐ 3
☐ 4
☐ 5
☐ 6
☐ 7
☐ 8
☐ 9
☐ 10 Best provider possible

30. Would you recommend this provider's office to your family and friends?

[1] ☐ Yes, definitely
[2] ☐ Yes, somewhat
[3] ☐ No

31. Please tell us how this provider's office could have improved the care you received during your visit.

*Please print:*_____

_____

_____

_____

Clerks and Receptionists

32. During your most recent visit, were clerks and receptionists at this provider's office as helpful as you thought they should be?

1 ☐ Yes, definitely
2 ☐ Yes, somewhat
3 ☐ No

33. During your most recent visit, did clerks and receptionists at this provider's office treat you with courtesy and respect?

1 ☐ Yes, definitely
2 ☐ Yes, somewhat
3 ☐ No

About You

34. In general, how would you rate your overall health?

1 ☐ Excellent
2 ☐ Very good
3 ☐ Good
4 ☐ Fair
5 ☐ Poor

35. A health provider is a doctor, nurse, or anyone else you would see for health care. In the past 12 months, have you seen a doctor or other health provider 3 or more times for the same condition or problem?

1 ☐ Yes
2 ☐ No → **If No, go to #37**

36. Is this a condition or problem that has lasted for at least 3 months? Do **not** include pregnancy or menopause.

1 ☐ Yes
2 ☐ No

37. Do you now need or take medicine prescribed by a doctor or other health provider? Do **not** include birth control.

1 ☐ Yes
2 ☐ No → **If No, go to #39**

38. Is this medicine to treat a condition that has lasted for at least 3 months? Do **not** include pregnancy or menopause.

1 ☐ Yes
2 ☐ No

39. What is your age?

1 ☐ 18 to 24
2 ☐ 25 to 34
3 ☐ 35 to 44
4 ☐ 45 to 54
5 ☐ 55 to 64
6 ☐ 65 to 74
7 ☐ 75 or older

40. Are you male or female?

1 ☐ Male
2 ☐ Female

41. What is the highest grade or level of school that you have completed?

- [1] ☐ 8th grade or less
- [2] ☐ Some high school, but did not graduate
- [3] ☐ High school graduate or GED
- [4] ☐ Some college or 2-year degree
- [5] ☐ 4-year college graduate
- [6] ☐ More than 4-year college degree

42. Are you of Hispanic or Latino origin or descent?

- [1] ☐ Yes, Hispanic or Latino
- [2] ☐ No, not Hispanic or Latino

43. What is your race? Please mark one or more.

- [1] ☐ White
- [2] ☐ Black or African-American
- [3] ☐ Asian
- [4] ☐ Native Hawaiian or Other Pacific Islander
- [5] ☐ American Indian or Alaska Native
- [6] ☐ Other

44. Did someone help you complete this survey?

- [1] ☐ Yes
- [2] ☐ No → **Thank you.**
  Please return the completed survey in the clinic drop box.

45. How did that person help you? Please mark one or more.

- [1] ☐ Read the questions to me
- [2] ☐ Wrote down the answers I gave
- [3] ☐ Answered the questions for me
- [4] ☐ Translated the questions into my language
- [5] ☐ Helped in some other way

*Please print:*_____

_____

_____

Appendix F: SNI's Technical Specifications, Data Collection Methods, Benchmarks, and Targets for Category 3 Measures

Delivery System Reform Incentive Program
SNI Recommendations Regarding
Category 3- Population-Focused Improvements
Updated September 16, 2013

Technical Specifications, Data Collection Methods, Benchmarks, and Targets

Purpose

The purpose of this document is to serve as a resource for standardizing the reporting of Category 3 population health measures. This document combines two prior technical specifications – one for measures beginning in DY 7 and one for measures beginning in DY 8 – into one document. This document should be used to supplement the Incentive Program Special Terms and Conditions for Category 3, which can be found on the DSRIP portal at: https://sites.google.com/site/dsrip2011/current-dsrip-documents.

*Note: Please disregard older versions of the technical specifications and use this version going forward.

Reporting of Category 3 Population Health Measures & Timeline

Designated public hospitals will be submitting two semi-annual reports and an annual report for each demonstration year (DY).

DY	Dates	Reports Due to State	Payment Occurring By
8	7/1/12 – 6/30/13	3/31/13 9/30/13 10/31/13	4/30/13 10/31/13
9	7/1/13 – 6/30/14	3/31/14 9/30/14 10/31/14	4/30/14 10/31/14
10	7/1/14 – 6/30/15	3/31/15 9/30/15 10/31/15	4/30/15 10/31/15

This semi-annual reporting structure is intended to allow for earlier cash flow if some milestones were completed within the first 6 months. While you are required to submit a mid-year report, you are not necessarily required to report data until the end of the DY. However, if you submit data on the Category 3 milestones for the first 6 months of the DY, you would get 50% of the incentive payment then because you would be fulfilling 50% of the milestone, and the Incentive Program permits partial payment for partial achievement of milestones. Regardless, at the end of the DY, you are still required to submit the full 12 months of data in the second semi-annual and annual reports (if you already received 50% of the payment, you would then receive the remaining 50% of the payment at the end of the DY). The required standardized reporting form and more detailed guidelines can be found on the DSRIP portal: https://sites.google.com/site/dsrip2011/reporting-of-milestones.

CARE COORDINATION DOMAIN

Potential Data Sources

- Inpatient discharge diagnoses
- Hospital computer system
- Medical records
- Claims
- Registry
- Ambulatory care EMR (if available)

Measurement: The data for measurement will be extracted from one of the following sources:

- Manually, using a sampling approach*
- A registry with a minimum of 325 patient records system-wide to align with the number of records needed for statistical sampling. All applicable patient records will be reported (not a sample)
- A data warehouse
- A practice management system
- An electronic medical record (EMR)

***Sampling Approach**

A sampling approach can be applied to generate a statistically significant random sample:

If the total number of charts for the patient population is:**	**Then sample this many charts:**
0 – 200	200 (or all charts if <200)
201 – 500	201
501 – 1,000	275
> 1,000	325

** Patient population here refers to the patient population being looked at for a particular measure (i.e. a diabetic population, not the entire ambulatory care population).

This methodology employs a standard calculation with 95% accuracy (the sample size groupings are generated based on a P value of approximately 0.05, per http://www.surveysystem.com/sscalc.htm).

CARE COORDINATION DOMAIN

#6 Diabetes, short term complications

Metric:

Numerator: All inpatient discharges from the PHS system of patients age 18-75 years* with ICD-9 principal diagnosis code for short-term complications (ketoacidosis, hyperosmolarity, coma) within the demonstration year reporting period who have visited the PHS system primary care clinic(s) two or more times in the prior demonstration year.

Denominator: Number of patients age 18-75 years* with diabetes who have visited the PHS system primary care clinic(s) two or more times in the prior demonstration year.

Derived from AHRQ Prevention Quality Indicators (PQI#1)
http://www.qualitymeasures.ahrq.gov/content.aspx?id=26559

***DOB Range for 18 – 75 years**
DY 8: 7/1/1937 – 6/30/1994
DY 9: 7/1/1938 – 6/30/1995
DY 10: 7/1/1939 – 6/30/1996

Table – 1 Diabetes Short-term Complications ICD-9 codes

Diabetes Short-term Complications ICD-9 codes	
Code	**Description**
25010	DM KETO T2, DM CONT
25011	DM KETO T1, DM CONT
25012	DM KETO T2, DM UNCONT
25013	DM KETO T1, DM UNCONT
25020	DM W/HYPROSM T1, DM CONT
25021	DM W/HYPROSM T1, DM CONT
25022	DM W/HYPROSM T2, DM UNCNT
25023	DM W/HYPROSM T1, DM UNCNT
25030	DM COMA NEC TYP II, DM CNT
25031	DM COMA NEC T1, DM CONT
25032	DM COMA NEC T2, DM UNCONT
25033	DM COMA NEC T1, DM UNCONT

Exclusions:

- Transfer from a hospital (different facility)
- Transfer from a Skilled Nursing Facility (SNF) or Intermediate Care Facility (ICF)
- Transfer from another health care facility
- MDC 14 (pregnancy, childbirth, puerperium)

CARE COORDINATION DOMAIN

#7 Uncontrolled Diabetes

Metric:

Numerator: All inpatient discharges from the PHS system of patients age 18-75 years* with ICD-9 principal diagnosis code for uncontrolled diabetes, without mention of a short-term or long-term complication, within the demonstration year reporting period who have visited the PHS system primary care clinic(s) two or more times in the prior demonstration year.

Denominator: Number of patients age 18-75 years* with diabetes who have visited the PHS system primary care clinic(s) two or more times in the prior demonstration year.

Derived from AHRQ Prevention Quality Indicators (PQI #14)
http://www.qualitymeasures.ahrq.gov/content.aspx?id=15425

***DOB Range for 18 – 75 years**
DY 8: 7/1/1937 – 6/30/1994
DY 9: 7/1/1938 – 6/30/1995
DY 10: 7/1/1939 – 6/30/1996

Table – 2 Uncontrolled Diabetes ICD-9 Codes

Uncontrolled Diabetes ICD-9 Codes	
Code	**Description**
25002	DM, T2, UNCONT
25003	DM, T1, UNCONT

Exclusions:

- Transfer from a hospital (different facility)
- Transfer from a Skilled Nursing Facility (SNF) or Intermediate Care Facility (ICF)
- Transfer from another health care facility
- MDC 14 (pregnancy, childbirth, puerperium)

CARE COORDINATION DOMAIN

#8 Congestive Heart Failure

Metric:

Numerator: All inpatient discharges from the PHS system of patients age 18 years and older* with ICD-9 principal diagnosis code for CHF within the demonstration year reporting period who have visited the PHS system primary care clinic(s) two or more times in the prior demonstration year.

Denominator: Number of patients age 18 years and older* who have visited the PHS system primary care clinic(s) two or more times in the prior demonstration year.

Derived from AHRQ Prevention Quality Indicator (PQI#8)
http://www.qualitymeasures.ahrq.gov/content.aspx?id=15419.

***DOB Range for 18 years and older**

DY 8: Patients born on or before 7/1/1994
DY 9: Patients born on or before 7/1/1995
DY 10: Patients born on or before 7/1/1996

Table – 3 Congestive Heart Failure ICD-9 Codes

Congestive Heart Failure ICD-9 Codes	
Code	**Description**
398.91	RHEUMATIC HEART FAILURE
428.0	CONGESTIVE HEART FAILURE
428.1	LEFT HEART FAILURE
428.20	SYSTOLIC HRT FAILURE NOS
428.21	AC SYSTOLIC HRT FAILURE
428.22	CHR SYSTOLIC HRT FAILURE
428.23	AC ON CHR SYST HRT FAILURE
428.30	DIASTOLIC HRT FAILURE NOS
428.31	AC DIASTOLIC HRT FAILURE
428.32	CHR DIASTOLIC HRT FAIL
428.33	AC ON CHR DIAST HRT FAIL
428.40	SYST/DIASTOL HRT FAIL
428.41	AC SYST/DIASTOL HRT FAIL
428.42	CHR SYST/DIASTL HRT FAIL
428.43	AC/CHR SYST/DIA HRT FAIL
428.9	HEART FAILURE NOS

Exclusions:

- Transfer from a hospital (different facility)
- Transfer from a Skilled Nursing Facility (SNF) or Intermediate Care Facility (ICF)
- Transfer from another health care facility
- MDC 14 (pregnancy, childbirth, puerperium)
- With a cardiac procedure code (see AHRQ Appendix B – Cardiac Procedure Codes on the DSRIP portal for complete list of cardiac procedure codes)

CARE COORDINATION DOMAIN

#9 Chronic Obstructive Pulmonary Disease

Note: The change in the denominator highlighted below is meant to align this measure more closely with the PQI measure that it is derived from. This measure is now consistent with the CHF measure within this domain.

Metric:

Numerator: All inpatient discharges from the PHS system of patients age 18 years and older* with ICD-9 principal diagnosis code for COPD within the demonstration year reporting period who have visited the PHS system primary care clinic(s) two or more times in the prior demonstration year.

Denominator: Number of patients age 18 years and older* ~~with COPD~~ who have visited the PHS system primary care clinic(s) two or more times in the prior demonstration year.

Derived from AHRQ Prevention Quality Indicators
http://www.qualitymeasures.ahrq.gov/content.aspx?id=26562&search=copd

***DOB Range for 18 years and older**

DY 8: Patients born on or before 7/1/1994
DY 9: Patients born on or before 7/1/1995
DY 10: Patients born on or before 7/1/1996

Table – 4 Chronic Obstructive Pulmonary Disease ICD-9 Codes

COPD ICD-9 Codes	
Code	**Description**
466.0	AC BRONCHITIS**
490	BRONCHITIS NOS**
491.0	SIMPLE CHR BRONCHITIS
491.1	MUCOPURUL CHR BRONCHITIS
491.20	OBS CHR BRNC W/O ACT EXA
491.21	OBS CHR BRNC W ACT EXA
491.8	CHRONIC BRONCHITIS NEC
491.9	CHRONIC BRONCHITIS NOS
492.0	EMPHYSEMATOUS BLEB
492.8	EMPHYSEMA NEC
494	BRONCHIECTASIS
494.0	BRONCHIECTASIS W/O AC EXAC
494.1	BRONCHIECTASIS W AC EXAC
496	CHR AIRWAY OBSTRUCT NEC

**Must be accompanied by a secondary diagnosis code of COPD.

Exclusions:

- Transfer from a hospital (different facility)
- Transfer from a Skilled Nursing Facility (SNF) or Intermediate Care Facility (ICF)
- Transfer from another health care facility
- MDC 14 (pregnancy, childbirth, and puerperium)

PREVENTIVE HEALTH DOMAIN

Potential Data Sources

- Registry
- Ambulatory care EMR
- Practice Management System
- Another data source as specified by the PHS system

Measurement: The data for measurement will be extracted from one of the following sources:

- Manually, using a sampling approach*
- A registry with a minimum of 325 patient records system-wide to align with the number of records needed for statistical sampling. All applicable patient records will be reported (not a sample)
- A data warehouse
- A practice management system
- An electronic medical record (EMR)

***Sampling Approach**

A sampling approach can be applied to generate a statistically significant random sample:

If the total number of charts for the patient population is:**	**Then sample this many charts:**
0 – 200	200 (or all charts if <200)
201 – 500	201
501 – 1,000	275
> 1,000	325

** Patient population here refers to the patient population being looked at for a particular measure (i.e. a diabetic population, not the entire ambulatory care population).

This methodology employs a standard calculation with 95% accuracy (the sample size groupings are generated based on a P value of approximately 0.05, per http://www.surveysystem.com/sscalc.htm).

PREVENTIVE HEALTH DOMAIN

#10 Mammography Screening for Breast Cancer

Metric:

Numerator: All female patients age 50-74 years* who had a mammogram to screen for breast cancer within 24 months who have visited the PHS system primary care clinic(s) two or more times in the prior demonstration year.

Denominator: Number of female patients age 50-74 years* who have visited the PHS system primary care clinic(s) two or more times in the prior demonstration year.

Cited by: National Quality Measures Clearinghouse
http://www.qualitymeasures.ahrq.gov/content.aspx?id=35216&search=mammography+screening+for+breast+cancer

Age range is per the U.S. Preventive Services Task Force:
http://www.uspreventiveservicestaskforce.org/uspstf/uspsbrca.htm

***DOB Range for 50 – 74 years**
DY 8: 7/1/1938 – 6/30/1961
DY 9: 7/1/1939 – 6/30/1962
DY 10: 7/1/1940 – 6/30/1963

Technical Specifications

DY	First semi-annual numerator	Second semi-annual numerator
8	The number of women age 50-74 who received a mammogram between July 1, 2011 – December 31, 2012	The number of women age 50-74 who received a mammogram between July 1, 2011 – June 30, 2013
9	The number of women age 50-74 who received a mammogram between July 1, 2012 – December 31, 2013	The number of women age 50-74 who received a mammogram between July 1, 2012 – June 30, 2014
10	The number of women age 50-74who received a mammogram between July 1, 2013 – December 31, 2014	The number of women age 50-74 who received a mammogram between July 1, 2013 – June 30, 2015

Exclusions

- History of bilateral mastectomy
- Terminal illness as indicated by documented diagnosis of cancer of the esophagus, liver, or pancreas
- Documented in the medical record to have a life expectancy of less than 6 months on the problem list
- History of gender alteration

Benchmarks
HEDIS 2010 average (age 40-69):
Commercial- HMO 70.8%, PPO 67%
Medicaid- 51.3%

HEDIS 2010 Medicaid HMO 90th Percentile (age 40 – 69): 62.9%

PREVENTIVE HEALTH DOMAIN

#11 Influenza Immunization

Metric:

Numerator: all patients age 50 and older* who received an influenza immunization during the flu season (September through February) of the current demonstration year who have visited the PHS system primary care clinic(s) two or more times in the prior demonstration year.

Denominator: number of patients age 50 and older* who have visited the PHS system primary care clinic(s) two or more times in the prior demonstration year.

Cited by: National Quality Measures Clearinghouse
http://www.qualitymeasures.ahrq.gov/content.aspx?id=34689&search=influenza+immunization

***DOB range for 50 years and older**
DY 8: Patients born on or before 7/1/1962
DY 9: Patients born on or before 7/1/1963
DY 10: Patients born on or before 7/1/1964

Additional Clarification:

Interim data submission (at 6 months) is not required, however if the PHS chooses to submit an interim report in order to receive half of the DY7 incentive payment, the data included will be only from September 1 – December 31 of the current demonstration year (mid-way through the flu season).

Benchmarks

HEDIS 2010 average: Commercial (age 50-64) HMO 52.5%, PPO 51.6%

Other targets

Bureau of Primary Health Care goal for chronic disease collaborative: > 90% (for diabetics)

PREVENTIVE HEALTH DOMAIN

#12 Child Weight Screening

Note: CHDP guidelines do not recommend yearly well-child physicals for all age groups. The changes highlighted below capture those patients who have come in for care during the reporting year.

Metric:

Numerator: All patients age 2-18 years* with a calculated BMI documented in the medical record within the demonstration year reporting period

Denominator: Number of patients age 2-18 years* who have visited the PHS system primary care clinic(s) within the current demonstration year.

Benchmarks

HEDIS 2010 average (documentation of BMI percentile)

Commercial- HMO 35.2%, PPO 10.9%

Medicaid- HMO 37.3%

HEDIS 2010 Medicaid HMO 90th percentile: 69.8%

PREVENTIVE HEALTH DOMAIN

#13 Pediatrics Body Mass Index (BMI)

Note: This is a technical change. The numerator of this measure should match the denominator of the Child Weight Screening measure that are above the 85th percentile. The denominator of this measure matches the numerator of the Child Weight Screening measure.

Metric:

Numerator: All patients age 2-18 years* with a BMI above the 85th percentile within the demonstration year reporting period

Denominator: Number of patients age 2-18 years* who have visited the PHS system primary care clinic(s) in the current demonstration year with a BMI recorded.

Please reference:
http://www.cdc.gov/healthyweight/assessing/bmi/childrens_bmi/about_childrens_bmi.html

***DOB Range for 2 – 18 years**
DY 8: 6/30/1995 – 7/1/2010
DY 9: 6/30/1996 – 7/1/2011
DY 10: 6/30/1997 – 7/1/2012

PREVENTIVE HEALTH DOMAIN

#14 Tobacco Cessation

Metric:

Numerator: Number of patients 18 years and older* who screened positive for tobacco use** and who received or were referred to cessation counseling within the demonstration year reporting period who have visited the PHS system primary care clinic(s) two or more times in the prior demonstration year.

Denominator: Number of patients 18 years and older* who screened positive for tobacco use** who have visited the PHS system primary care clinic(s) two or more times in the prior demonstration year.

Derived from: http://www.qualitymeasures.ahrq.gov/content.aspx?id=34693&search=smoking+cessation

***DOB Range for 18 years and older**

DY 8: Patients born on or before 7/1/1994
DY 9: Patients born on or before 7/1/1995
DY 10: Patients born on or before 7/1/1996
**During current/prior demonstration year(s)

Exclusions

- Patients who have reported successfully quitting in the last 12 months
- Has a life expectancy that doesn't lend itself to prevention screening
- Any of the following exclude the patient from screening for the prevention measure:
    - Documented diagnosis of cancer of esophagus, liver or pancreas
    - Documented in the medical record a life expectancy less than 6 months on the problem list

Benchmarks

HEDIS 2010 average (advising smokers and tobacco users to quit)
Commercial- HMO 76.7%, PPO 71.7%
Medicaid- HMO 73.6%

HEDIS 2010 Medicaid HMO 90th percentile: 80.8%

AT-RISK POPULATIONS DOMAIN

Potential Data Sources

- Registry
- Ambulatory care EMR
- Practice Management System
- Another data source as specified by the PHS system

Measurement: The data for measurement will be extracted from one of the following sources:

- Manually, using a sampling approach*
- A registry with a minimum of 325 patient records system-wide to align with the number of records needed for statistical sampling. All applicable patient records will be reported (not a sample)
- A data warehouse
- A practice management system
- An electronic medical record (EMR)

***Sampling Approach**

A sampling approach can be applied to generate a statistically significant random sample:

If the total number of charts for the patient population is:**	**Then sample this many charts:**
0 – 200	200 (or all charts if <200)
201 – 500	201
501 – 1,000	275
> 1,000	325

** Patient population here refers to the patient population being looked at for a particular measure (i.e. a diabetic population, not the entire ambulatory care population).

This methodology employs a standard calculation with 95% accuracy (the sample size groupings are generated based on a P value of approximately 0.05, per http://www.surveysystem.com/sscalc.htm).

AT-RISK POPULATIONS DOMAIN

#15 Diabetes Mellitus: Low Density Lipoprotein (LDL-C) Control (< 100 mg/dL)

Metric

Numerator: All patients age 18-75 years* with diabetes mellitus who had most recent LDL-C level in control (less than 100 mg/dl) within the demonstration year reporting period who have visited the PHS system primary care clinic(s) two or more times in the prior demonstration year.

Denominator: Number of patients age 18-75 years* with diabetes mellitus who have visited the PHS
system primary care clinic(s) two or more times in the prior demonstration year.

***DOB Range for 18 – 75 years**
DY 8: 7/1/1937 – 6/30/1994
DY 9: 7/1/1938 – 6/30/1995
DY 10: 7/1/1939 – 6/30/1996

Technical Specifications

Per NQF guidelines, identify the most recent LDL-C test during the measurement year.

The patient is should be included in the numerator if the most recent LDL-C level is < 100 mg/dL.

If the result for the most recent LDL-C test during the measurement year is ≥ 100 mg/dL or is missing, or if an
LDL-C test was not done during the measurement year, the patient is not numerator compliant.

Benchmarks:

HEDIS 2010 average
Commercial- HMO 47.7%, PPO 37.3%
Medicaid- HMO 34.6%

HEDIS 2010 Medicaid HMO 90th percentile: 45.9%

Other targets:

- Bureau of Primary Health Care goal for chronic disease collaborative: >70% LDL-C < 100 mg/dl

AT-RISK POPULATIONS DOMAIN

#16 Diabetes Mellitus: Hemoglobin A1c Control (< 8%)

Note: On 3/9/12, CMS approved changing this measure from A1c < 9% to A1c < 8%. PHSs reported on A1c < 9% for the DY 7 first semi-annual report in March, 2012, however, beginning with the DY 7 second-semi-annual report due 9/30/12, PHSs should report on A1c < 8% going forward.

Metric

Numerator: All patients age 18-75 years* with diabetes whose most recent hemoglobin A1c level is in control (< 8%) within the demonstration year reporting period who have visited the PHS primary care clinic(s) two or more times in the prior demonstration year.

Denominator: Number of patients age 18-75 years* with diabetes who have visited the PHS system primary care clinic(s) two or more times in the prior demonstration year.

***DOB Range for 18 – 75 years**
DY 8: 7/1/1937 – 6/30/1994
DY 9: 7/1/1938 – 6/30/1995
DY 10: 7/1/1939 – 6/30/1996

Technical Specifications

Identify the most recent HbA1c test during the measurement year.

The patient should be included in the numerator if the most recent HbA1c level is < 8.0%.

If the automated result for the most recent HbA1c test during the measurement year is ≥ 8.0% or is missing a result or if an HbA1c test was not done during the measurement year, the patient is not numerator compliant.

Benchmarks
HEDIS 2010 average
Commercial- HMO 62.3%, PPO 50.2%%
Medicaid- HMO 46.9%%

HEDIS 2010 Medicaid HMO 90th percentile: 59.1%

AT-RISK POPULATIONS DOMAIN

#17 30-Day Congestive Heart Failure Readmission Rate

Note: Without a data steward for this measure, the highlighted revisions are intended to provide additional clarity.

Metric:

Numerator: All patients age 18 years and older* who experience a readmission with an ICD-9-CM principal diagnosis for CHF or related conditions (within 30 days of discharge for an index admission with ICD-9 principal diagnosis code for CHF) within the demonstration year reporting period who have visited the PHS system primary care clinic(s) two or more times in the prior demonstration year.

Denominator: Number of patients age 18 years and older* with CHF who have visited the PHS system primary care clinic(s) two or more time in the prior demonstration year and had an admission**.

***DOB Range for 18 years and older**
DY 8: Patients born on or before 7/1/1994
DY 9: Patients born on or before 7/1/1995
DY 10: Patients born on or before 7/1/1996

**The patient's admission should be related to CHF.

Related Conditions: ICD-9 codes 402.01, 402.11, 402.91, 404.01, 404.03, 404.11, 404.13, 404.91, 404.93 and 428.xx

Exclusions:

- Numerator: Planned readmissions (example: chemotherapy schedule, radiation, rehab, planned surgery, renal dialysis, blood transfusions).
- Denominator: Labor and delivery, transfers to another acute care hospital, patients who die before discharge, patients who are discharged against medical advice (AMA)

AT-RISK POPULATIONS DOMAIN

#18 Hypertension (HTN): Blood Pressure control (<140/90 mmHg)

Metric:

Numerator: Number of patients age 18-75 years* with a diagnosis of hypertension with the most recent blood pressure level (in clinic or with ambulatory pressure monitoring) in control (less than 140/90 mmHg) within the demonstration year reporting period who have visited the PHS system primary care clinic(s) two or more times in the prior demonstration year.

Denominator: Number of patients age 18-75 years* with a diagnosis of hypertension who have visited the PHS system primary care clinic(s) two or more times in the prior demonstration year.

HTN ICD-9 Code: 401

***DOB Range for 18 – 75 years**
DY 8: 7/1/1937 – 6/30/1994
DY 9: 7/1/1938 – 6/30/1995
DY 10: 7/1/1939 – 6/30/1996

Benchmarks

HEDIS 2010 average (age 18-85)
Commercial- HMO 63.4%, PPO 56.7%
Medicaid- HMO 55.6%

HEDIS 2010 Medicaid HMO 90th percentile: 67.6%

AT-RISK POPULATIONS DOMAIN

#19 Pediatrics Asthma Care

Metric:

Numerator: Number of patients age 5-18* with **persistent**[43] asthma who were prescribed at least one controller medication (see Tables 3 and 4) for asthma therapy within the demonstration year reporting period who have visited the PHS system primary care clinic(s) two or more times in the prior demonstration year.

Denominator: Number of patients age 5-18* with **persistent**[1] asthma who have visited the PHS system primary care clinic(s) two or more times in the prior demonstration year.

Derived from: http://qualitymeasures.ahrq.gov/content.aspx?id=34652&search=asthma and http://www.nhlbi.nih.gov/guidelines/asthma/08_sec4_lt_0-11.pdf

***DOB Range for 5 – 18 years**
DY 8: 6/30/1995 – 7/1/2007
DY 9: 6/30/1996 – 7/1/2008
DY 10: 6/30/1997 – 7/1/2009

Exclusions:

- Allergic reaction to asthma medications
- Individuals with a diagnosis of asthma who are discovered, upon review, to have intermittent mild asthma, not persistent asthma.

CPT / ICD-9 (CPT-II codes):

- 493.x = Asthma
- 1038F = Persistent asthma (mild, moderate or severe)
- 4015F = Persistent asthma, appropriate pharmacologic treatment prescribed

[43] It is the clear intent that the population be limited to patients with *persistent* asthma and, specifically, that patients with mild intermittent asthma (CPT Code 1039F), for which no daily medication is needed, be excluded from the universe. But, while there are CPT Category II codes that differentiate between these conditions, there are no traditional ICD-9 codes which do so. Accordingly, a diagnosis of "asthma" (ICD-9 493.x) is permitted as an alternative criteria *or* as an initial screening methodology. If a PHS chooses to use an EHR for this task which is not configured to exclude intermittent asthma, they will have a lower score on this measure. (taken from the UDS 2011 manual)

Table – 5 Usual Dosages for Long-Term Control Medications in Children[44]

Usual Dosages for Long-Term Control Medications in Children				
Medication	**Dosage Form**	**0-4 years**	**5-11 years**	**Comments**
Combined Medication Fluticasaone/Salmeterol	DPI 100 mcg/50 mcg	Safety and efficacy not established in children <4	1 inhalation bid	• There have been no clinical trials in children < 4 years of age. • Most children <4 years of age cannot provide sufficient inspiratory flow for adequate lung delivery. • Do not blow into inhaler after dose is activated.
Budesonida/Formoterol	HFA MDI 80 mcg/4.5 mcg	Safety and efficacy not established	2 puffs bid	• There have been no clinical trials in children < 4 years of age. • Currently approved for use in youths ≥12. Dose for children 5-12 years of age based on clinical trials using DPI with slightly different delivery characteristics (Pohunek et al. 2006; Tal et al. 2002; Zimmerman et al. 2004).
Cromolyn/Nedocromil Cromolyn Nedocromil	MDI 0.8 mg/puff Nebulizer 20 mg/ampule MDI 1.75 mg/puff	Safety and efficacy not established 1 ampule qid Safety and efficacy not established <2 years Safety and efficacy not established <6 years	2 puffs qid 1 ampule qid 2 puffs qid	• 4-6 week trial may be needed to determine maximum benefit • Dose by MDI may be inadequate to affect hyperresponsiveness. • One dose before exercise of allergen exposure provides effective prophylaxis for 1-2 hours. Not as effective as inhaled beta2-agonists for EIB. • Once control is achieved, the frequency of dosing may be reduced.
Leukotriene Receptor Antagonists (LTRAs) Montelukast Zafirlukast	4 mg or 5 mg chewable tablet 4 mg granule packets 10 mg tablet	4 mg qhs (1-5 years of age) Safety and efficacy not established	5 mg qhs (6-14 years of age) 10 mg bid (7-11 years of age)	• Montelukast exhibits a flat dose-response curve. • No more efficacious then placebo in infants 6-24 months (van Adelsberg et al. 2005). • For zafirlukast, administration with meals decreases bioavailability; take at least 1 hour before or 2 hours after meals. • Monitor for sign and symptoms of hepatic dysfunction.
Methylxanthines Theophylline	Liquids, sustained-release tablets, and capsules	Starting dose 10 mg/kg/day; usual maximum: • <1 year of age: 0.2 (age in weeks) + 5 = mg/kg/day • ≥1 year of age: 16 mg/kg/day	Starting dose 10 mg/kg/day; usual maximum: 16 mg/kg/day	• Adjust dosage to achieve serum concentration of 5-15 mcg/mL at steady-state (at least 48 hours on same dosage). • Due to wide interpatient variability in theophylline metabolic clearance, routine serum theophylline level monitoring is essential. • See full reference for factors that can affect theophylline levels.
Key: DPI, dry powder inhaler; EIB, exercise-induced bronchospasm; HFA, hydrofluroalkane (inhaler propellant); MDI, metered dose inhaler				

[44] National Heart Blood and Lung Institute, see http://www.nhlbi.nih.gov/guidelines/asthma/08_sec4_lt_0-11.pdf for full resource

Table – 6 Estimated Comparative Daily Dosages for Inhaled Corticosteroids in Children[45]

Estimated Comparative Daily Dosages for Inhaled Costicosteroids in Children

Drug	Low Daily Dose		Medium Daily Dose		High Daily Dose	
	Child 0-4	Child 5-11	Child 0-4	Child 5-11	Child 0-4	Child 5-11
Beclomethasone HFA 40 or 80 mcg/puff	NA	80-160 mcg	NA	>160-320 mcg	NA	>320 mcg
Budesonide DPI 90, 180, or 200 mcg/inhalation	NA	180-400 mcg	NA	>400-800 mcg	NA	>800 mcg
Budesonide inhaled Inhalation suspension for nebulization (child dose)	0.25-0.5 mg	0.5 mg	>0.5-1.0 mg	1.0 mg	>1.0 mg	2.0 mg
Flunisolide 250 mcg/puff	NA	500-750 mcg	NA	1,000-1,250 mcg	NA	>1,250 mcg
Flunisolide HFA 80 mcg/puff	NA	160 mcg	NA	320 mcg	NA	≥640 mcg
Fluticasone HFA/MDI: 44, 110 or 220 mcg/puff	176 mcg	88-176 mcg	>176-352 mcg	>176-352 mcg	>352 mcg	>352 mcg
DPI: 50, 100 or 250 mcg/inhalation	NA	100-200 mcg	NA	>200-400 mcg	NA	>400 mcg
Mometasone DPI 200 mcg/inhalation	NA	NA	NA	NA	NA	NA
Triamcinolone acetonide 75 mcg/puff	NA	300-600 mcg	NA	>600-900 mcg	NA	>900 mcg

Key: HFA, hydrofluoroalkane; NA, no approved and no data available for this age group

Notes:

- The most important determinant of appropriate dosing is the clinician's judgment of the patient's response to therapy. The clinician must monitor the patient's response on several clinical parameters and adjust the dose accordingly. The stepwise approach to therapy emphasizes that once control of asthma is achieved, the dose of medication should be carefully titrated to the minimum dose required to maintain control, thus reducing the potential for adverse effect.
- Some doses may be outside package labeling, especially in the high-dose range. Budesonide nubulizer suspension is the only ICS with FDA approved labeling for children <4 years of age.
- Metered-dose inhaler (MDI) dosages are expressed as the actuator dose (the amount of the drug leaving the actuator and delivered to the patient), which is the labeling required in the United States. This is different from the dosage expressed as the valve dose (the amount of drug leaving the valve, not all of which is available to the patient), which is used in many European countries and in some scientific literature. Dry powder inhaler (DPI) doses are expressed as the amount of drug in the inhaler following activation.
- For children <4 years of age: The safety and efficacy of ICSs in children <1 year has not been established. Children < 4 years of age generally require delivery of ICS (budesonide and fluticasone HFA) through a face mask that should fit snugly over nose and mouth and avoid nebulizing in the eyes. Wash face after each treatment to prevent local corticosteroid side effects. For budesonide, the dose may be administered 1-3 times daily. Budesonide suspension is compatible with albuterol, ipratropium, and levalbuterol nebulizer solutions in the same nebulizer. Use only jet nebulizers, as ultrasonic nebulizers are ineffective for suspensions.
- For fluticasone HFA, the dose should be divided 2 times daily; the low dose for children < 4 years is higher than for children 5-11 years of age due to lower dose delivered with face mask and data on efficacy in young children.

Benchmarks

HEDIS 2010 (5-11 years of age)
Commercial- HMO 96.7%, PPO 97%%
Medicaid- HMO 91.8%
HEDIS 2010 Medicaid HMO 90th percentile: 96%

HEDIS 2010 (12-50 years of age)
Commercial- HMO 91.8%, PPO 91.8%
Medicaid- HMO 85.8%
HEDIS 2010 Medicaid HMO 90th percentile: 91.3%

[45] National Heart Blood and Lung Institute, see http://www.nhlbi.nih.gov/guidelines/asthma/08_sec4_lt_0-11.pdf for full resource

AT-RISK POPULATIONS DOMAIN

#20 Optimal Diabetes Care Composite (Minnesota Community Measurement as adopted by the National Quality Forum)

*For measures #20-21, in DY 8, PHS systems will report a minimum of two quarters of data (not a full year's worth of data) to provide more time to further develop their ability to do the reporting, develop the reporting processes, test the processes, and work out the reporting and data challenges that come with reporting a new measure.

Metric: The percentage of adult diabetes patients who have optimally managed modifiable risk factors with the intent of preventing or reducing future complications associated with poorly managed diabetes.

> **Numerator:** Number of patients ages 18-75** with a diagnosis of diabetes, who meet all the numerator targets of this composite measure within the demonstration year reporting period who have visited the PHS system primary care clinic(s) two or more times in the prior demonstration year.
>
> **Denominator:** Number of patients ages 18-75** with a diagnosis of diabetes who have visited the PHS system primary care clinic(s) two or more times in the prior demonstration year.

Derived from Minnesota Community Measurement as adopted by the National Quality Forum:
http://www.qualityforum.org/Publications/2011/07/National_Voluntary_Consensus_Standards_for_Patient_Outcomes_2009.aspx

Original Minnesota Community Measurement:
http://mncm.org/site/upload/files/Optimal_Diabetes_Care_2011_DDS_FINAL_12.2.2010.pdf

****DOB Range for 18 – 75 years**
DY 8: 7/1/1937 – 6/30/1994
DY 9: 7/1/1938 – 6/30/1995
DY 10: 7/1/1939 – 6/30/1996

Diabetes mellitus ICD-9 codes: 250 – 250.93

Exclusions:

- Patient was a permanent nursing home resident during the measurement period
- Patient was in a hospice at any time during the measurement period
- Patient died prior to the end of the measurement period
- Patient was pregnant during measurement period (Diabetes mellitus complication pregnancy, ICD-9 codes: 648.0 – 648.04)
- Documentation that diagnosis was coded in error

Component	Target	Notes
HbA1c	<8	• Patient should be counted in the numerator if an HbA1c test was done during the current demonstration year AND the most recent HbA1c value is less than 8. • If an HbA1c was never performed, the patient is not numerator compliant • Tests from an outside referring provider or outside specialist is acceptable (dated value in a note from a referring provider or specialist) if included in the primary care clinic's record.
LDL	<100	• Patient should be counted in the numerator if an LDL test was done during the current demonstration year AND the most recent LDL value is less than 100. • If an LDL was never performed, the patient is not numerator compliant • Tests from an outside referring provider or outside specialist is acceptable (dated value in a note from a referring provider or specialist) if included in the primary care clinic's record.
Blood Pressure	<140/90	• Patient should be counted in the numerator if the most recent BP in the current demonstration year has a systolic value of <140 and a diastolic value of <90 (both values must be less than). • For multiple BPs on the same date, you may use the lowest systolic value and the lowest diastolic value from any of the readings on that date. • BP from an outside referring provider or specialist is acceptable if they are documented in the primary clinic's record; you may use this reading only if it is more recent than the primary care clinic's reading. • Do not enter a BP that is associated with a surgical procedure, inpatient or ER visit, diagnostic testing or a diagnosis that is associated with acute pain. • Nurse-only BP checks in the clinic may be used. • Do not enter BP reported or taken by the patient.
Tobacco non-use		• Patient should be counted in the numerator if the patient is tobacco free AND status is documented and dated within the past 12 months. • If a patient's status is "never used" or "quit," it is counted positively in the optimal care score. • The expectation is that current tobacco users are asked about tobacco use and counseled at least annually. • If the patient was not asked or there is no associated date with the patient's tobacco status, the patient is not numerator compliant • Tobacco includes any amount of cigarettes, cigars, pipes, or "chew."
Daily aspirin use for patients with cardiovascular disease unless contraindicated	Patient with a diagnosis of Ischemic Vascular Disease (IVD) has documented daily	• The following information sources must be used to determine a diagnosis of IVD (do not limit search by using only one source): **Use All Sources:**

	ASA or anti-platelet use anytime during the measurement period, or valid contraindication date.	• Patient's problem list • Documentation in patient's record (progress notes, etc.), and • ICD-9 codes (EMR or practice management system): See table below for ICD-9 codes for Ischemic Vascular Disease* • Patient should be counted in the numerator if there is any documented date of ASA or an anti-platelet during the current demonstration year; the date does not need to be the most recent date in the current demonstration year • Patient should be counted in the numerator if there is dated documentation in the primary clinic's medical record from outside correspondence (note from a referring provider or specialist such as a consult, hospital records or emergency room visits) within the current demonstration year. • If there is no diagnosis of IVD, the patient automatically passes the aspirin component. • The following are accepted ASA or anti-platelet medications: o Aspirin (ASA) o Plavix (clopidogrel) o Ticlid (ticlopidine) o Pravigard (aspirin/pravastatin) o Aggrenox (aspiring/dipyridamole) o Low dose enteric-coated 81 mg ASA (Ecotrin or Bayer) • Do not count an ASA/narcotic combo medication that is used temporarily for pain. • The patient should be counted in the numerator if s/he has any valid contraindication. Accepted contraindications include: o Anticoagulant use, Lovenox (Enoxaparin) or Coumadin (Warfarin) o Any history of gastrointestinal (GI)* or intracranial bleed (ICB) o Allergy to ASA o *Gastroesophogeal reflux disease (GERD) is not automatically considered a contraindication by may be included if specifically documented as a contraindication by the physician. • The patient should be counted in the numerator if the following is specifically documented by the physician: o Use of non-steroidal anti-inflammatory agents o Documented risk for drug interaction o Uncontrolled hypertension defined as >180 systolic, > 110 diastolic o Other provided documented reason for not being on ASA therapy • If the ASA has been discontinued prior to a surgical procedure, do not count this as a contraindication;

		rather document this patient as taking ASA during the measurement period.

Table – 7 Ischemic Vascular Disease ICD-9 codes

*Ischemic Vascular Disease ICD-9 Codes	
Code	**Description**
410 - 410.92	ACUTE MYOCARDIAL INFARCTION (AMI)
411 - 411.89	POST MYOCARDIAL INFARCTION SYNDROME
412	OLD AMI
413 - 413.9	ANGINA PECTORIS
414.0 - 414.07	CORONARY ARTHROSCLEROSIS
414.2	CHRONIC TOTAL OCCLUSION OF CORONARY ARTERY
414.8	OTHER CHRONIC ISCHEMIC HEART DISEASE (IHD)
414.3	ATHEROSCLEROSIS DUE TO LIPID RICH PLAQUE
414.9	CHRONIC IHD
429.2	CARDIOVASCULAR (CV) DISEASE, UNSPECIFIED
433 - 433.91	OCCLUSION AND STENOSIS OF PRE-CEREBRAL ARTERIES
434 - 434.91	OCCLUSION OF CEREBRAL ARTERIES
440.1	ATHEROSCLEROSIS OF RENAL ARTERY
440.2 - 440.29	ATHEROSCLEROSIS OF NATIVE ARTERIES OF THE EXTREMITIES, UNSPECIFIED
440.4	CHRONIC TOTAL OCCLUSION OF ARTERY OF THE EXTREMITIES
444 - 444.9	ARTERIAL EMBOLISM AND THROMBOSIS
445 - 445.8	ATHEROEMBOLISM

Appendix G: Category 4 Surgical Site Infection Data by Procedure (Sorted by Total Count)

PHS	Measure	CSEC	COLO	HPRO	HER	KPRO	FUSN	SB	HYST	CHOL	LAM	CBGB/ CBGC	APPY	CARD	REC	NECK	PRST	VHYS	KTP	OVRY	XLAP	PACE	BILI	THOR	FX	GAST	SPLE	LTP	Grand Total
AHS	Infections		3	0		0			0																				3
	Proc Count		65	58		52			108																				283
	Rate		4.6%	0.0%		0.0%			0.0%																				1.06%
LADHS	Infections		6	1		1				2		2		0															12
	Proc Count		191	138		113				437		187		151															1217
	Rate		3.1%	0.7%		0.9%				0.5%		1.1%		0.0%															0.99%
RCRMC	Infections	2		0	3																								5
	Proc Count	699		83	387																								1169
	Rate	0.3%		0.0%	0.8%																								0.43%
SCVMC	Infections		5				2				0	0																	7
	Proc Count		113				133				67	91																	404
	Rate		4.4%				1.5%				0.0%	0.0%																	1.73%
SFGH	Infections	4		0		1			1									1											7
	Proc Count	183		64		56			60									28											391
	Rate	2.2%		0.0%		1.8%			1.7%									3.6%											1.79%
SJGH	Infections	0	3						1									0											4
	Proc Count	418	51						51									16											536
	Rate	0.0%	5.9%						2.0%									0.0%											0.75%
SMMC	Infections		1	0		1	0	1	0	0	0		1		0			0		0	0	0	0	0	0	1	0		5
	Proc Count		27	26		37	10	16	37	123	22		97		1			39		31	20	12	9	7	5	5	3		527
	Rate		3.7%	0.0%		2.7%	0.0%	6.3%	0.0%	0.0%	0.0%		1.0%		0.0%			0.0%		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	20.0%	0.0%		0.95%
UCD	Infections		5	6	4	3		3	4							1	1												27
	Proc Count		129	352	691	307		114	327							89	84												2093
	Rate		3.9%	1.7%	0.6%	1.0%		2.6%	1.2%							1.1%	1.2%												1.29%
UCLA	Infections		10				2	13																					25
	Proc Count		345				392	288																					1025
	Rate		2.9%				0.5%	4.5%																					2.44%
UCSD	Infections			4			11				3	2							1									1	22
	Proc Count			417			396				414	120							79									1	1427
	Rate			1.0%			2.8%				0.7%	1.7%							1.3%									100%	1.54%
UCSF	Infections	7	4			8		9					1		2														31
	Proc Count	491	255			368		295					130		102														1641
	Rate	1.4%	1.6%			1.2%		3.1%					0.8%		2.0%														1.89%
VCMC	Infections		5	0																									5
	Proc Count		108	65																									173
	Rate		4.6%	0.0%																									2.89%
Total	Infections	13	42	11	7	14	15	26	6	2	3	4	2	0	2	1	1	1	1	0	0	0	0	0	0	1	0	1	153
	Proc Count	1791	1284	1203	1078	933	931	713	583	560	503	398	227	151	103	89	84	83	79	31	20	12	9	7	5	5	3	1	10886
	Rate	0.7%	3.3%	0.9%	0.6%	1.5%	1.6%	3.6%	1.0%	0.4%	0.6%	1.0%	0.9%	0.0%	1.9%	1.1%	1.2%	1.2%	1.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	20.0%	0.0%	100%	1.41%

Appendix H: Category 5 HIV Transition Project/HRSA HAB Performance Measures

Group 1: Required Performance Measures:

- CD4 T-Cell Count
- HAART
- Medical Visits
- PCP Prophylaxis
- Viral Load Monitoring
- Viral Load Suppression

Additional Performance Measures – Four (4) additional metrics from Groups 2, 3, and Medical Case Management required, with at least one (1) metric from each group:

Group 2	Group 3	Medical Case Management
• Adherence Assessment and Counseling • Cervical Cancer Screening • Hepatitis B Screening • Hepatitis B Vaccination • Hepatitis C Screening • HIV Risk Counseling • Lipid Screening • Oral Exam • Syphilis Screening • TB Screening	• Chlamydia Screening • Gonorrhea Screening • Hepatitis/HIV Alcohol Counseling • Influenza Vaccination • MAC Prophylaxis • Mental Health Screening • Pneumococcal Vaccination • Substance Use Screening • Tobacco Cessation Counseling • Toxoplasma Screening	• Care Plan • Medical Visits

Group 1: Required Performance Measures:

- CD4 T-Cell Count (defined as of July 2008)
- HAART (defined as of July 2008)
- Medical Visits (defined as of July 2008)
- PCP Prophylaxis (defined as of July 2008)
- Viral Load Monitoring (defined as of November 2011)
- Viral Load Suppression (defined as of November 2011)

HAB HIV Core Clinical Performance Measures for Adult/Adolescent Clients: Group 1

U.S. Department of Health and Human Services HRSA Health Resources and Services Administration

Performance Measure: CD4 T-Cell Count	**OPR-Related Measure:** Yes www.hrsa.gov/performancereview/measures.htm
Percentage of clients with HIV infection who had 2 or more CD4 T-cell counts performed in the measurement year	
Numerator:	Number of HIV-infected clients who had 2 or more CD4 T-cell counts performed at least 3 months apart during the measurement year
Denominator:	Number of HIV-infected clients who had a medical visit with a provider with prescribing privileges[1], i.e. MD, PA, NP at least once in the measurement year
Patient Exclusions:	1. Patients newly enrolled in care during last six months of the year
Data Element:	1. Is the client HIV-infected? (Y/N) a. If yes, did the client have a CD4 count test conducted during the reporting period? (Y/N) a. If yes, list the quarters of these tests
Data Sources:	• Electronic Medical Record/Electronic Health Record • CAREWare, Lab Tracker, or other electronic data base • HIVQUAL reports on this measure for grantee under review • Medical record data abstraction by grantee of a sample of records
National Goals, Targets, or Benchmarks for Comparison	IHI Goal: 90%[2] National HIVQUAL Data: [3] *from HAB data base
Outcome Measures for Consideration	° Rate of opportunistic infections in the measurement year ° Rate of clients with progression to AIDS in the measurement year ° Mortality rates

Basis for Selection and Placement in Group 1:

The CD4 T-cell count plays a vital role in determining the staging of HIV disease and indicating the need for prophylaxis against opportunistic infections. It continues to be used in decisions regarding initiation or adjustment of antiretroviral treatment.

The most recent CD4 T-cell count is the strongest predictor of subsequent disease progression and survival, according to clinical trials and cohort studies data on patients receiving antiretroviral therapy.[4]

Measure reflects important aspects of care that significantly impacts survival and mortality. Data collection is currently feasible and measure has a strong evidence base supporting the use.

US Public Health Service Guidelines:

" In general, CD4 T-cell count should be determined every three to six months to (1) determine when to start antiretroviral in patients who do not meet the criteria for initiation; (2) assess immunologic response to

antiretroviral therapy; and (3) assess the need for initiating chemoprophylaxis for opportunistic infections."[3]

References/Notes:

Guidelines state that CD4 T-cell counts should be measured at least every 3-4 months depending on the stage of the disease. The timeframe of 6 months was determined by clinical expert consensus for the purpose of this measure, but can and should be measured at more frequent intervals if needed.

[1]A "provider with prescribing privileges" is a health care professional who is certified in their jurisdiction to prescribe ARV therapy.

[2]IHI Measure reads, "Percent of Patients/Clients with a CD4 Count Test in the Past 4 Months" (http://www.ihi.org/IHI/Topics/HIVAIDS/HIVDiseaseGeneral/Measures/Percentof+patientswithaCD4counttestinthepast4months.htm)

[3]National HIVQUAL data looks at the percent of clients who have a CD4 T-cell count done every four months, not every six months. (http://www.hivguidelines.org/admin/files/qoc/hivqual/proj%20info/HQNatlAggScrs3Yrs.pdf)

[4]Panel on Antiretroviral Guidelines for Adult and Adolescents. Guidelines for the use of antiretroviral agents in HIV-infected adults and adolescents. Department of Health and Human Services. December 1, 2007; 1-143. Available at http://aidsinfo.nih.gov/ContentFiles/AdultandAdolescentGL.pdf. Accessed December 12, 2007.

HAB HIV Core Clinical Performance Measures for Adult/Adolescent Clients: Group 1

U.S. Department of Health and Human Services HRSA Health Resources and Services Administration

Performance Measure: HAART	**OPR-Related Measure:** Yes www.hrsa.gov/performancereview/measures.htm
Percentage of clients with AIDS who are prescribed HAART	
Numerator:	Number of clients with AIDS who were prescribed a HAART regimen[1] within the measurement year
Denominator:	Number of clients who: • have a diagnosis of AIDS (history of a CD4 T-cell count below 200 cells/mm^3 or other AIDS-defining condition[2]), and • had at least one medical visit with a provider with prescribing privileges[3], i.e. MD, PA, NP in the measurement year.
Patient Exclusions:	1. Patients newly enrolled in care during last three months of the measurement year
Data Element:	1. Is the client diagnosed with CDC-defined AIDS? (Y/N) a. If yes, was the client prescribed HAART during the reporting period? (Y/N)
Data Sources:	• Ryan White Program Data Report, Section 2, Items 26 and 31 may provide data useful in establishing a baseline for this performance measure • Electronic Medical Record/Electronic Health Record • CAREWare, Lab Tracker, or other electronic data base. • HIVQUAL reports on this measure for grantee under review • Medical record data abstraction by grantee of a sample of records
National Goals, Targets, or Benchmarks for Comparison	IHI Goal: 90%[4] CDC and HIVRN data consistent that 80% of those in care "eligible for ARVs" on tx. This includes CD4<350 and not just AIDS.[5,6] National HIVQUAL Data:[7,8] *from HAB data base
Outcome Measures for Consideration:	° Rate of opportunistic infections in the measurement year ° Rate of HIV-related hospitalizations in the measurement year ° Mortality rates
Basis for Selection and Placement in Group 1:	
"Randomized clinical trials provide strong evidence of improved survival and reduced disease progression by treating symptomatic patients and patients with CD4 T-cells <200 cells/mm^3."[9] Measure reflects important aspect of care that significantly impacts survival, mortality and hinders transmission. Data collection is currently feasible and measure has a strong evidence base supporting the use.	

US Public Health Service Guidelines:

"Antiretroviral therapy is recommended for all patients with history of an AIDS-defining illness or severe symptoms of HIV infection regardless of CD4 T-cell count."[10]

References/Notes:

[1]Many authorities recommend two baseline CD4 T-cell measurements before decisions are made to initiate antiretroviral therapy because of wide variations in results. The test should be repeated yet a third time if discordant results are seen. The optimal time to initiate antiretroviral therapy among asymptomatic patients with CD4 T-cell counts >200 cells/mm^3 is unknown. This measure focuses strictly on the subset of patients for whom antiretroviral therapy is unequivocally recommended—those with a CD4 T-cell count below 200 cells/mm^3 or history of another AIDS-defining condition. Asymptomatic patients with CD4 T-cell counts of 201–350 cells/mm^3 should be offered treatment. For asymptomatic patients with CD4 T-cell of >350 cells/mm^3 and plasma HIV RNA >100,000 copies/ml most experienced clinicians defer therapy but some clinicians may consider initiating treatment. (See reference 8 below)

[2]AIDS Defining conditions are noted in CDC. 1993 Revised classification system for HIV infection and expanded surveillance case definition for AIDS among adolescents and adults. MMWR 1992;41(no. RR-17). (http://www.cdc.gov/mmwr/preview/mmwrhtml/00018871.htm)

[3]A "provider with prescribing privileges" is a health care professional who is certified in their jurisdiction to prescribe ARV therapy.

[4]IHI Measure reads, "Percent of Patients with Appropriate ARV Therapy Management" http://www.ihi.org/IHI/Topics/HIVAIDS/HIVDiseaseGeneral/Measures/PercentofPatientswithAppropriateARVTherapyManagement.htm)

[5] Gebo, JAIDS January 2005, vol. 38, pp. 96-103.

[6] Teshale Abstract #167, CROI 2005.

[7] The National HIVQUAL data may not be directly comparable due to varying exclusions. Indicator definitions can be accessed at http://www.hivguidelines.org/Content.aspx?PageID=53.

[8]http://www.hivguidelines.org/admin/files/qoc/hivqual/proj%20info/HQNatlAggScrs3Yrs.pdf

[9]"HAART, CD4<200" (http://www.hivguidelines.org/admin/files/qoc/hivqual/proj%20info/HQNatlAggScrs3Yrs.pdf)

[10]Panel on Antiretroviral Guidelines for Adult and Adolescents. Guidelines for the use of antiretroviral agents in HIV-infected adults and adolescents. Department of Health and Human Services. December 1, 2007; p. 9. Available at http://aidsinfo.nih.gov/ContentFiles/AdultandAdolescentGL.pdf. Accessed December 12, 2007.

HAB HIV Core Clinical Performance Measures for Adult/Adolescent Clients: Group 1

U.S. Department of Health and Human Services HRSA Health Resources and Services Administration

Performance Measure: Medical Visits	**OPR-Related Measure:** Yes www.hrsa.gov/performancereview/measures.htm
Percentage of clients with HIV infection who had two or more medical visits in an HIV care setting in the measurement year	
Numerator:	Number of HIV-infected clients who had a medical visit with a provider with prescribing privileges[1], i.e. MD, PA, NP, in an HIV care setting[2] two or more times at least 3 months apart during the measurement year
Denominator:	Number of HIV-infected clients who had a medical visit with a provider with prescribing privileges at least once in the measurement year
Patient Exclusions:	1. Patients newly enrolled in care during last six months of the year
Data Element:	1. Is the client HIV-infected? (Y/N) a. Did the client have at least 2 medical visits in an HIV care setting during the reporting period? (Y/N) i. If yes, list the quarters of these visits
Data Sources:	• Ryan White Program Data Report, Section 5, Items 42 and 43 may provide data useful in establishing a baseline for this performance measure • Electronic Medical Record/Electronic Health Record • CAREWare, Lab Tracker, or other electronic data base • HIVQUAL reports on this measure for grantee under review • Medical record data abstraction by grantee of a sample of records
National Goals, Targets, or Benchmarks for Comparison	None available at this time.
Outcome Measures for Consideration	° Rate of HIV-related hospitalizations in the measurement year ° Rate of HIV-related emergency room visits in the measurement year ° Rate of opportunistic infections in the measurement year ° Mortality rates
Basis for Selection and Placement in Group 1:	
Clinicians should schedule routine monitoring visits at least every 4 months for all HIV-infected patients who are clinically stable.[3,4] Greater experience among primary care physicians in the care of persons with AIDS improves survival.[5] Measure reflects important aspects of care that significantly impacts mortality. Data collection is currently feasible and measure has a strong evidence base supporting the use.	
US Public Health Service Guidelines:	
In general, patients with early-stage disease are seen at 3-month intervals to undergo routine medical evaluation and monitoring of CD4 T-cell count, viral load and CBC. During the initial evaluation more frequent visits are common because there is so much information to transmit. Visits should also be more frequent when therapy is introduced and when the CD4 T-cell count is <200 cells/mm^3 because complications	

are more likely.[6]

Multiple studies have demonstrated that better outcomes are achieved in patients cared for by a clinician with expertise. This has been shown in terms of mortality, rate of hospitalizations, compliance with guidelines, cost of care, and adherence to medications. The definition of expertise in these studies has varied, but most rely on the number of patients actively managed. Based on this observation, the Panel recommends HIV primary care by a clinician with at least 20 HIV-infected patients and preferably at least 50 HIV-infected patients. Many authoritative groups have combined the recommendation based on active patients, along with fulfilling ongoing CME requirements on HIV-related topics. [7]

References/Notes:

Guidelines state that routine monitoring of HIV-infected patients should occur at least every 3-4 months depending on the stage of the disease. [7] The timeframe of 6 months was determined by clinical expert consensus for the purpose of this measure, but CD4 T-cell counts can and should be measured at more frequent intervals if needed.

[1]A "provider with prescribing privileges" is a health care professional who is certified in their jurisdiction to prescribe ARV therapy.

[2]An HIV care setting is one which received Ryan White HIV/AIDS Treatment Modernization Act of 2006 funding to provide HIV care and has a quality management program in place to monitor the quality of care addressing gaps in quality of HIV care.

[3]New York State Department of Health. Primary care approach to the HIV-infected patient. New York: New York State Department of Health; 2004. p. 8. http://www.hivguideliens.org/Content.aspx?pageID=257[Accessed November 27, 2007].

[4]AETC National Resource Center. Clinical Manual for Management of the HIV-Infected Adult http://www.aidsetc.org/pdf/AETC-CM_071007.pdf [Accessed November 27, 2007].

[5]Kitahata MM, Van Rompaey SE, Dillingham PW, Koepsell TD, Deyo RA, Dodge W, Wagner EH. Primary care delivery is associated with greater physician experience and improved survival among persons with AIDS. J Gen Intern Med. 2003 Feb;18(2):157-8.

[6]Bartlett JG, Cheever LW, Johnson MP, Paauw DS [eds]. A Guide to Primary Care of People with HIV/AIDS. Rockville(MD): US Department of Health and Human Services, Health Resources and Services Administration, HIV/AIDS Bureau; 2004, p. 167. http://hab.hrsa.gov/tools/primarycareguide/. [Accessed November 27, 2007].

[7]Panel on Antiretroviral Guidelines for Adult and Adolescents. Guidelines for the use of antiretroviral agents in HIV-infected adults and adolescents. Department of Health and Human Services. December 1, 2007; 1-143. Available at http://aidsinfo.nih.gov/ContentFiles/AdultandAdolescentGL.pdf. Accessed December 12, 2007.

HAB HIV Core Clinical Performance Measures for Adult/Adolescent Clients: Group 1

U.S. Department of Health and Human Services HRSA Health Resources and Services Administration

<table>
<tr><td colspan="2">Performance Measure: PCP Prophylaxis</td><td>OPR-Related Measure: Yes
www.hrsa.gov/performancereview/measures.htm</td></tr>
<tr><td colspan="3">Percentage of clients with HIV infection and a CD4 T-cell count below 200 cells/mm^3 who were prescribed PCP prophylaxis</td></tr>
<tr><td>Numerator:</td><td colspan="2">Number of HIV-infected clients with CD4 T-cell counts below 200 cells/mm^3 who were prescribed PCP prophylaxis</td></tr>
<tr><td>Denominator:</td><td colspan="2">Number of HIV-infected clients who:
• had a medical visit with a provider with prescribing privileges[1], i.e. MD, PA, NP at least once in the measurement year, and
• had a CD4 T-cell count below 200 cells/mm^3</td></tr>
<tr><td>Patient Exclusions:</td><td colspan="2">1. Patients with CD4 T-cell counts below 200 cells/mm^3 repeated within 3 months rose above 200 cells/mm^3
2. Patients newly enrolled in care during last three months of the measurement year</td></tr>
<tr><td>Data Element:</td><td colspan="2">1. Is the client HIV-infected? (Y/N)
a. If yes, was the CD4 T-cell count <200 cells/mm^3? (Y/N)
i. If yes, was PCP prophylaxis prescribed? (Y/N)
1. If no, was the CD4 count repeated within 3 months? (Y/N)
a. If yes, did it remain below 200 cells/mm^3? (Y/N)
i. If yes, was PCP prophylaxis prescribed? (Y/N)</td></tr>
<tr><td>Data Sources:</td><td colspan="2">• Electronic Medical Record/Electronic Health Record
• CAREWare, Lab Tracker, or other electronic data base
• HIVQUAL reports on this measure for grantee under review
• Medical record data abstraction by grantee of a sample of records</td></tr>
<tr><td>National Goals, Targets, or Benchmarks for Comparison:</td><td colspan="2">IHI Goal: 95%[2]
National HIVQUAL Data[3]:
<table>
<tr><td></td><td>2003</td><td>2004</td><td>2005</td><td>2006</td></tr>
<tr><td>Top 10%</td><td>100%</td><td>100%</td><td>100%</td><td>100%</td></tr>
<tr><td>Top 25%</td><td>100%</td><td>100%</td><td>100%</td><td>100%</td></tr>
<tr><td>Median*</td><td>93.3%</td><td>90.9%</td><td>92.3%</td><td>94.4%</td></tr>
</table>
*from HAB data base</td></tr>
<tr><td>Outcome Measures for Consideration:</td><td colspan="2">° Rate of PCP in the measurement year
° Mortality rates
° Cost savings</td></tr>
<tr><td colspan="3">Basis for Selection and Placement in Group 1:</td></tr>
<tr><td colspan="3">Pneumocystis pneumonia (PCP) is the most common opportunistic infection in people with HIV. Without treatment, over 85% of people with HIV would eventually develop PCP. It is a major cause of mortality among persons with HIV infection, yet is almost entirely preventable and treatable. Pneumocystis almost always affects the lungs, causing a form of pneumonia. People with CD4 T-cell counts under 200 cells/mm^3</td></tr>
</table>

are at greatest risk of developing PCP. The drugs now used to prevent and treat PCP include TMP/SMX, dapsone, pentamidine, and atovaquone.[4]

Before the widespread use of primary PCP prophylaxis and effective ART, PCP occurred in 70%--80% of patients with AIDS. The course of treated PCP was associated with a mortality rate of between 20% and 40% in persons with profound immunosuppression. Approximately 90% of cases occurred among patients with CD4 T-cell counts <200 cells/mm^3. [5]

Measure reflects important aspect of care that significantly impacts survival and mortality. Data collection is currently feasible and measure has a strong evidence base supporting the use.

US Public Health Service Guidelines:

HIV-infected adults and adolescents, including pregnant women and those on HAART, should receive chemoprophylaxis against PCP if they have a CD4 T-cell count <200 cells/mm^3.[6]

References/Notes:

[1]A "provider with prescribing privileges" is a health care professional who is certified in their jurisdiction to prescribe ARV therapy.

[2] IHI Measure reads, "Percent of Patients with a CD4 Cell Count Below 200 cells/mm^3 Receiving Pneumocystis Carinii Pneumonia (PCP) Prophylaxis"

[3](http://www.hivguidelines.org/admin/files/qoc/hivqual/proj%20info/HQNatlAggScrs3Yrs.pdf)

[4] http://www.aidsinfonet.org/factsheet_detail.php?fsnumber=515

[5] Centers for Disease Control and Prevention. Treating opportunistic infections among HIV-infected adults and adolescents: recommendations from CDC, the National Institutes of Health, and the HIV Medicine Association/Infectious Diseases Society of America. MMWR 2004;53(No. RR-15) (http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5315a1.htm)

[6] Centers for Disease Control and Prevention. Guidelines for Preventing Opportunistic Infections Among HIV-Infected Persons — 2002 Recommendations of the U.S. Public Health Service and the Infectious Diseases Society of America. MMWR 2002;51 (No. RR-8) (http://www.cdc.gov/mmwr/PDF/rr/rr5108.pdf or http://aidsinfo.nih.gov/ContentFiles/OIpreventionGL.pdf)

U.S. Department of Health and Human Services HRSA Health Resources and Services Administration

HAB HIV Core Clinical Performance Measures
Viral load monitoring and viral load suppression
November 2011

<table>
<tr><td colspan="2">Performance Measure: Viral Load Monitoring</td></tr>
<tr><td colspan="2">Percentage of patients, regardless of age, with a diagnosis of HIV/AIDS with a viral load test performed at least every six months during the measurement year</td></tr>
<tr><td>Numerator:</td><td>Number of patients with a viral load test performed at least every 6 months</td></tr>
<tr><td>Denominator:</td><td>Number of patients, regardless of age, with a diagnosis of HIV/AIDS who had at least two medical visits during the measurement year, with at least 60 days in between each visit</td></tr>
<tr><td>Patient Exclusions:</td><td>Patients newly enrolled in care during last 6 months of the measurement year</td></tr>
<tr><td>Data Element:</td><td>1. Does the patient, regardless of age, have a diagnosis of HIV/AIDS? (Y/N)
a. If yes, did the patient have at least two medical visits during the measurement year, with at least 60 days in between each visit? (Y/N)
i. If yes, list the dates the viral load tests were performed.
1. Were viral load tests performed at least every six months during the measurement year? (Y/N)</td></tr>
<tr><td>Data Sources:</td><td>• Ryan White Program Services Report (RSR) questions 47 (date of first outpatient/ambulatory care visit); 48 (outpatient/ambulatory care visits dates); and 50 (viral load counts)
• Electronic Medical Record/Electronic Health Record
• CAREWare, Lab Tracker, or other electronic data base
• HIVQUAL reports on this measure for grantee under review
• Medical record data abstraction by grantee of a sample of records</td></tr>
<tr><td>National Goals, Targets, or Benchmarks for Comparison:</td><td>National HIVQUAL Data: [1]
<table>
<tr><th></th><th>2003</th><th>2004</th><th>2005</th><th>2006</th><th>2007</th><th>2009</th></tr>
<tr><td>Top 10%</td><td>100%</td><td>100%</td><td>100%</td><td>100%</td><td>98.9%</td><td>100%</td></tr>
<tr><td>Top 25%</td><td>97.1%</td><td>97.0%</td><td>95.7%</td><td>95.7%</td><td>95.5%</td><td>94.2%</td></tr>
<tr><td>Median*</td><td>89.7%</td><td>90.9%</td><td>89.6%</td><td>91.6%</td><td>90.3%</td><td>89.4%</td></tr>
</table>
*from HAB data base</td></tr>
<tr><td colspan="2">Basis for Selection and Placement in Group 1:</td></tr>
<tr><td colspan="2">Viral load testing serves as a surrogate marker for response to antiretroviral therapy and can be useful in predicting clinical progression.

Measure reflects important aspects of care that significantly impacts survival and mortality. Data collection is currently feasible and measure has a strong evidence base supporting the use.</td></tr>
<tr><td colspan="2">US Department of Health and Human Services Guidelines:</td></tr>
<tr><td colspan="2">Antiretroviral therapy (ART) should be initiated in all patients with a history of an AIDS-defining illness or with a CD4 count <500 cells/mm^3. The primary goal of ART is to reduce HIV-associated morbidity and mortality. This is best accomplished by using antiretroviral therapy to maximally inhibit HIV replication, as measured by consistent plasma HIV RNA (viral load) values below the level of detection using commercially available assays. [2]</td></tr>
</table>

Plasma HIV RNA (viral load) should be measured in all patients at baseline and on a regular basis thereafter, especially in patients who are on treatment, because viral load is the most important indicator of response to antiretroviral therapy (ART)…Thus, viral load testing serves as a surrogate marker for treatment response and can be useful in predicting clinical progression.[2]
References/Notes:
[1]HIVQUAL-US Indicator: Percent of patients who received a viral load test during each six-month semester http://hivqualus.org/index.cfm/22/9842 and https://www.ehivqual.org/ [2]Panel on Antiretroviral Guidelines for Adults and Adolescents. Guidelines for the use of antiretroviral agents in HIV-1-infected adults and adolescents. Department of Health and Human Services. January 10, 2011; pp. 9, 27-28. http://www.aidsinfo.nih.gov/ContentFiles/AdultandAdolescentGL.pdf
Corresponding National Quality Forum (NQF) Endorsed Measure:
None

Performance Measure: Viral Load Suppression	
Percentage of patients, regardless of age, with a diagnosis of HIV/AIDS with viral load below limits of quantification[1] at last test during the measurement year	
Numerator:	Number of patients with viral load below limits of quantification[1] at last test during the measurement year
Denominator:	Number of patients, regardless of age, with a diagnosis of HIV/AIDS who: • had at least two medical visits during the measurement year with at least 60 days in between each visit; and • were prescribed antiretroviral therapy for at least 6 months; and • had a viral load test during the measurement year
Patient Exclusions:	None
Data Element:	1. Does the patient, regardless of age, have a diagnosis of HIV/AIDS? (Y/N) a. If yes, did the patient have at least two medical visits during the measurement year with at least 60 days in between each medical visit? (Y/N) i. If yes, was the patient prescribed antiretroviral therapy for at least 6 months? (Y/N) 1. If yes, was a viral load test drawn? (Y/N) a. If yes, did the patient have viral load below limits of quantification[1] on the last test? (Y/N) i. If yes, list date.
Data Sources:	• Ryan White Program Services Report (RSR) questions 47 (date of first outpatient/ambulatory care visit); 48 (outpatient/ambulatory care visits dates); 50 (viral load counts); and 52 (ART prescription) • Electronic Medical Record/Electronic Health Record • CAREWare, Lab Tracker, or other electronic data base • Medical record data abstraction by grantee of a sample of records
National Goals, Targets, or Benchmarks for Comparison:	**National HIVQUAL Data:** [2] *from HAB data base Kaiser Permanente:[3] 88.8% Veterans Administration[4]: 73% HIV Research Network (HIVRN)[5]: 70%
Basis for Selection and Placement in Group 1:	
The primary goal of antiretroviral therapy (ART) is to reduce HIV-associated morbidity and mortality. This is best accomplished by using antiretroviral therapy to maximally inhibit HIV replication, as measured by consistent plasma HIV RNA (viral load) values below the level of detection using commercially available assays. [6] Measure reflects important aspect of care that significantly impacts survival, mortality and hinders transmission. Data collection is currently feasible and measure has a strong evidence base supporting the use.	

US Public Health Service Guidelines:

ART should be initiated in all patients with a history of an AIDS-defining illness or with a CD4 count <500 cells/mm^3. The primary goal of ART is to reduce HIV-associated morbidity and mortality. This is best accomplished by using antiretroviral therapy to maximally inhibit HIV replication, as measured by consistent plasma HIV RNA (viral load) values below the level of detection using commercially available assays. [6]

Plasma HIV RNA (viral load) should be measured in all patients at baseline and on a regular basis thereafter, especially in patients who are on treatment, because viral load is the most important indicator of response to antiretroviral therapy (ART)…Thus, viral load testing serves as a surrogate marker for treatment response and can be useful in predicting clinical progression.[6]

Optimal viral suppression is generally defined as a viral load persistently below the level of detection (<20–75 copies/mL, depending on the assay used). In addition, low-level positive viral load results (typically <200 copies/mL) appear to be more common with some viral load assays than others, and there is no definitive evidence that patients with viral loads quantified as <200 copies/mL using these assays are at increased risk for virologic failure. For the purposes of clinical trials the AIDS Clinical Trials Group (ACTG) currently defines virologic failure as a confirmed viral load >200 copies/mL, which eliminates most cases of apparent viremia caused by blips or assay variability.[6]

References/Notes:

[1]"Below limits of quantification" is defined as < 200 copies/mL. The Department of Health and Human (DHHS) guidelines and the AIDS Clinical Trials Group define virologic failure as a confirmed viral load >200 copies/mL. http://www.aidsinfo.nih.gov/ContentFiles/AdultandAdolescentGL.pdf

[2] HIVQUAL-US Indicator: Percent of patients on ART whose last viral load was ≤400 copies/mL who had at least 2 viral loads completed http://hivqualus.org/index.cfm/22/9842 and https://www.ehivqual.org/

[3]Horberg, M. et al HIV quality performance measures in a large integrated healthcare system *AIDS Patient Care and STDs*. January 2011, 25(1): 21-28.

[4]Backus, L., et al National Quality Forum performance measures for HIV/AIDS Care The Department of Veterans Affairs' Experience. *Arch Intern Med*; 2010; 170(14): 1239-1246.

[5]HIV Research Network (HIVRN) data includes patients on at least 1 ART drug in CY2009 whose viral load was undetectable. Available at: https://cds.johnshopkins.edu/hivrn/index.cfm?do=sens.content&page=data_reports.html

[6]Panel on Antiretroviral Guidelines for Adults and Adolescents. Guidelines for the use of antiretroviral agents in HIV-1-infected adults and adolescents. Department of Health and Human Services. January 10, 2011; pp. 9, 27-28. http://www.aidsinfo.nih.gov/ContentFiles/AdultandAdolescentGL.pdf

Corresponding National Quality Forum (NQF) Endorsed Measure:

NQF #: 0407
Title: HIV RNA control after six months of potent antiretroviral therapy
Description: Percentage of patients with viral load below limits of quantification OR patients with viral load not below limits of quantification who have a documented plan of care
Status: Endorsed (Original Endorsement Date: July 31, 2008)
Available at: http://www.qualityforum.org/Measures_List.aspx

Accessibility

If you need an alternative means of access to any information above please contact us at comments@hrsa.gov. Let us know the nature of your accessibility problem and the Web address of the requested information.

Additional Performance Measures

Four (4) additional metrics from Groups 2, 3, and Medical Case Management Group required, with at least one (1) metric from each group:

Group 2

Defined as of August 2008 unless otherwise noted

- Adherence Assessment and Counseling
- Cervical Cancer Screening
- Hepatitis B Screening (defined as of November 2011)
- Hepatitis B Vaccination
- Hepatitis C Screening
- HIV Risk Counseling
- Lipid Screening
- Oral Exam
- Syphilis Screening
- TB Screening

U.S. Department of Health and Human Services
HRSA
Health Resources and Services Administration

HAB HIV Core Clinical Performance Measures for Adult/Adolescent Clients: Group 2

<table>
<tr><td colspan="2">Performance Measure: Adherence Assessment & Counseling</td><td>OPR-Related Measure: Yes
www.hrsa.gov/performancereview/measures.htm</td></tr>
<tr><td colspan="3">Percentage of clients with HIV infection on ARVs who were assessed and counseled[1,2] for adherence two or more times in the measurement year</td></tr>
<tr><td>Numerator:</td><td colspan="2">Number of HIV-infected clients, as part of their primary care, who were assessed and counseled for adherence two or more times at least three months apart</td></tr>
<tr><td>Denominator:</td><td colspan="2">Number of HIV-infected clients on ARV therapy who had a medical visit with a provider with prescribing privileges[3] at least once in the measurement year</td></tr>
<tr><td>Patient Exclusions:</td><td colspan="2">1. Patients newly enrolled in care during last six months of the year
2. Patients who initiated ARV therapy during last six months of the year</td></tr>
<tr><td>Data Element:</td><td colspan="2">1. Is the client HIV-infected? (Y/N)
a. If yes, was the client on ARVs?(Y/N)
i. If the client was on ARVs, did he/she receive adherence counseling during the measurement year? (Y/N).
1. If yes, list the quarters of these visits.</td></tr>
<tr><td>Data Sources:</td><td colspan="2">• Electronic Medical Record/Electronic Health Record
• CAREWare, Lab Tracker, or other electronic data base
• HIVQUAL reports on this measure for grantee under review
• Medical record data abstraction by grantee of a sample of records</td></tr>
<tr><td>National Goals, Targets, or Benchmarks for Comparison:</td><td colspan="2">IHI Goal: 90%[4]
National HIVQUAL Performance Data:[5]
<table>
<tr><td></td><td>2003</td><td>2004</td><td>2005</td><td>2006</td></tr>
<tr><td>Top 10%</td><td>95.8%</td><td>92.0%</td><td>97.5%</td><td>98.4%</td></tr>
<tr><td>Top 25%</td><td>82.7%</td><td>79.2%</td><td>88.3%</td><td>91.6%</td></tr>
<tr><td>Mean*</td><td>57.5%</td><td>39.7%</td><td>46.8%</td><td>55.7%</td></tr>
</table>
*from HAB data base</td></tr>
<tr><td>Outcome Measures for Consideration:</td><td colspan="2">o Percent of undetectable viral loads among patients on ARV in the measurement year
o Percent of patients with ARV-resistance developed during therapy in the measurement year
o Mortality rates
o Incidence of HIV-related hospitalizations in the clinic population
o Incidence of clients with progression to AIDS in the clinic population</td></tr>
<tr><td colspan="3">Basis for Selection and Placement in Group 2:</td></tr>
<tr><td colspan="3">“Adherence is a key determinant in the degree and duration of virologic suppression. Among studies reporting on the association between suboptimal adherence and virologic failure, nonadherence among patients on HAART was the strongest predictor for failure to achieve viral suppression below the level of detection. HIV viral suppression, reduced rates of resistance, and improved survival have been correlated with high rates of adherence to antiretroviral therapy.</td></tr>
</table>

Prior to writing the first prescriptions, clinicians need to assess the patient's readiness to take medication. Patients need to understand that the first regimen is the best chance for long-term success. Resources need to be identified to assist in success. Interventions can also assist with identifying adherence education needs and strategies for each patient."[6]

Measure reflects important aspect of care that impacts HIV-related morbidity and focuses on treatment decisions that affect a sizable population. Although discussions of the importance of adherence to ARVs is important to begin prior to initiation of treatment, there is no standard of care for discussions to occur every 6 months for patients who may be years away from ARV treatment.

US Public Health Guidelines:

"...adherence counseling and assessment should be done at each clinical encounter"[7] (10/10/06)

References/Notes:

[1]Assessment of adherence includes: 1) patient reports of adherence by: a) quantifiable scales, e.g. missed 3 out of 10 doses; b) qualitative scale, e.g. Likert scale; or 2) quantification such as pharmacy dispensing records, pill counts or direct observation therapy.
[2]Adherence counseling can be provided by any member of the multidisciplinary primary care team.
[3]A "provider with prescribing privileges" is a health care professional who is certified in their jurisdiction to prescribe ARV therapy.
[4]IHI Measure reads, "Percent of Patients/Clients Assessed for Adherence to Antiretroviral (ARV) Therapy in the Past 4 Months"
(http://www.ihi.org/IHI/Topics/HIVAIDS/HIVDiseaseGeneral/Measures/PercentofPatientsClientsAssessedforAdherencetoAntiretroviralARVTherapyinthePast4Months.htm)
[5](http://www.hivguidelines.org/admin/files/qoc/hivqual/proj%20info/HQNatlAggScrs3Yrs.pdf)
[6]Guidelines for the Use of Antiretroviral Agents in HIV-1-Infected Adults and Adolescents [April 7, 2005] (http://aidsinfo.nih.gov/ContentFiles/AdultandAdolescentGL04072005001.pdf)
[7]Ibid

<table>
<tr><td colspan="2">Performance Measure: Cervical Cancer Screening</td><td>OPR-Related Measure: Yes
www.hrsa.gov/performancereview/measures.htm</td></tr>
<tr><td colspan="3">Percentage of women with HIV infection who have a Pap screening in the measurement year</td></tr>
<tr><td>Numerator:</td><td colspan="2">Number of HIV-infected female clients who had Pap screen results documented in the measurement year</td></tr>
<tr><td>Denominator:</td><td colspan="2">Number of HIV-infected female clients who:
• were ≥18 years old[1] in the measurement year or reported having a history of sexual activity , and
• had a medical visit with a provider with prescribing privileges[2] at least once in the measurement year</td></tr>
<tr><td>Patient Exclusions:</td><td colspan="2">1. Patients who were < 18 years old and denied history of sexual activity
2. Patients who have had a hysterectomy for non-dysplasia/non-malignant indications</td></tr>
<tr><td>Data Element:</td><td colspan="2">1. Is the client HIV-infected? (Y/N)
a. If yes, is the client female? (Y/N)
i. If yes, is she ≥ 18 years or reports having a history of sexual activity? (Y/N)
1. If yes, was the pap screening completed during the measurement year?</td></tr>
<tr><td>Data Sources:</td><td colspan="2">• Ryan White Program Data Report, Section 5, Items 42 and 52 may provide data useful in establishing a baseline for this performance measure
• Electronic Medical Record/Electronic Health Record
• CAREWare, Lab Tracker, or other electronic data base
• HIVQUAL reports on this measure for grantee under review
• Medical record data abstraction by grantee of a sample of records</td></tr>
<tr><td>National Goals, Targets, or Benchmarks for Comparison</td><td colspan="2">IHI Goal: 90%[3]
National HIVQUAL Data: [4]
<table>
<tr><td></td><td>2003</td><td>2004</td><td>2005</td><td>2006</td></tr>
<tr><td>Top 10%</td><td>100%</td><td>100%</td><td>100%</td><td>100%</td></tr>
<tr><td>Top 25%</td><td>84.3%</td><td>86.7%</td><td>87.0%</td><td>89.2%</td></tr>
<tr><td>Mean*</td><td>70.5%</td><td>67.7%</td><td>71.8%</td><td>70.8%</td></tr>
</table>
*from HAB data base</td></tr>
<tr><td>Outcome Measures for Consideration</td><td colspan="2">° Incidence of cervical cancer in the female HIV-infected clinic population</td></tr>
<tr><td colspan="3">Basis for Selection and Placement in Group 2:</td></tr>
<tr><td colspan="3">Human Papillomavirus (HPV) is a common infection in the general population. Current evidence suggests that over 50% of sexually active adults have been infected with one or more HPV types. According to population-based prospective studies, HPV precedes the development of cervical cancer.[5]</td></tr>
</table>

Cervical cancer may be the most common AIDS-related malignancy in women. Although not a common diagnosis in women in the general population, according to New York City AIDS Surveillance data from 1990 to 1995, the observed cervical cancer cases in HIV-positive women were two to three times higher than the expected number of cases.[6,7] Findings such as these resulted in the inclusion of cervical cancer in the Centers for Disease Control and Prevention (CDC) expanded definition of AIDS.[8]

When compared with HIV-negative women, HIV-positive women with invasive cervical cancer present at more advanced stages and with cancer metastasizing to unusual locations. HIV- positive women have poorer responses to standard therapy and have higher recurrences and death rates, as well as shorter intervals to recurrence or death.[9,10]

The CDC currently recommends that HIV-positive women have a complete gynecologic evaluation, including a Pap smear, as part of their initial HIV evaluations, or upon entry to prenatal care, and another Pap smear six months later. If both smears are negative, annual screening is recommended thereafter in asymptomatic women. The CDC further recommends more frequent screenings (every six months) for women with symptomatic HIV infection, prior abnormal Pap smears, or signs of HPV infection. [11,12]

Cervical cancer can often be prevented or detected in its earliest stages through effective screening with a Pap smear and avoidance of known risk factors. This accentuates the importance of routine gynecological care, which includes Pap smears for HIV-infected women.[13]

Measure reflects important aspect of care that impacts HIV-related morbidity and focuses on treatment decisions that affect a sizable population. Measure has a strong evidence base supporting the use.

US Public Health Guidelines:

"In accordance with the recommendation of the Agency for Health Care Policy and Research, the Pap smear should be obtained twice during the first year after diagnosis of HIV infection and, if the results are normal, annually thereafter"[14] (6/14/02).

References/Notes:

[1]Onset of sexual activity is not reliably reported or recorded. The age bracket of 18 years is selected for performance measurement purposes only and should not be interpreted as a recommendation about the age at which screening should begin to occur.
[2]A "provider with prescribing privileges" is a health care professional who is certified in their jurisdiction to prescribe ARV therapy.
[3]IHI Measure reads, "Percent of Female Patients/Clients with an Annual Papanicolaou (Pap) Test" (http://www.ihi.org/IHI/Topics/HIVAIDS/HIVDiseaseGeneral/Measures/PercentofPatientswithPAPSmearinLastSixMonths.htm)
[4]National HIVQUAL data looks at the percent of clients who have an annual pelvic exam. (http://www.hivguidelines.org/admin/files/qoc/hivqual/proj%20info/HQNatlAggScrs3Yrs.pdf) (http://www.hivguidelines.org/admin/files/qoc/hivqual/proj%20info/HQNatlAggScrs3Yrs.pdf)
[5]Davis, AT. Cervical dysplasia in women infected with the human immunodeficiency virus (HIV): A correlation with HIV viral load and CD4 count. Gynecologic Oncology. 2001; 80(3):350–354.
[6]Approximately 16,000 new cases of cervical cancer are diagnosed each year, and about 4,800 women die from this disease annually. Clinical Guide to Clinical Preventive Services: Report of the U.S. Preventive Services Task Force. Chapter 9.
[7]Chiasson, MA. Declining AIDS mortality in New York City. New York City Department of Health. Bull

NY Acad. Med. 1997; 74:151–152.
[8]Centers for Disease Control and Prevention (CDC). 1993. Revised classification system for HIV infection and expanded surveillance case definition for AIDS among adolescents and adults. MMWR. 1992; 41(RR-17). (http://www.cdc.gov/mmwr/preview/mmwrhtml/00018871.htm)
[9] Ibid.
[10]U.S. Department of Health and Human Services. Anderson, JA, editor. Guide to the Clinical Care of Women with HIV; 2005.
[11]http://www.niaid.nih.gov/factsheets/womenhiv.htm
[12]The interval for each patient should be recommended by the physician based on risk factors, i.e., early onset of sexual history, a history of multiple sex partners, low socioeconomic status, and, for women infected with HIV, more frequent screening, according to the established guidelines.
[13]Kjaer, S. Type specific persistence of high risk human papillomavirus (HPV) as indicator of high grade cervical squamous intraepithelial lesions in young women: population based prospective follow-up study, Brit Med J. 2002; 325: 572–578.
[14]Centers for Disease Control and Prevention. Guidelines for Preventing Opportunistic Infections Among HIV-Infected Persons — 2002 Recommendations of the U.S. Public Health Service and the Infectious Diseases Society of America. MMWR 2002;51(No. RR-8) (http://www.cdc.gov/mmwr/PDF/rr/rr5108.pdf or http://aidsinfo.nih.gov/ContentFiles/OIpreventionGL.pdf)

U.S. Department of Health and Human Services HRSA Health Resources and Services Administration

HAB HIV Core Clinical Performance Measures
Hepatitis B Screening
November 2011

Performance Measure: Hepatitis B Screening	
Percentage of patients, regardless of age, for whom Hepatitis B screening[1] was performed at least once since the diagnosis of HIV/AIDS or for whom there is documented infection[2] or immunity[3]	
Numerator:	Number of patients for whom Hepatitis B screening was performed at least once since the diagnosis of HIV/AIDS or for whom there is documented infection[2] or immunity[3]
Denominator:	Number of patients, regardless of age, with a diagnosis of HIV/AIDS and who had at least two medical visits during the measurement year, with at least 60 days in between each visit
Patient Exclusions:	None
Data Elements:	1. Does the patient, regardless of age, have a diagnosis of HIV/AIDS? (Y/N) a. If yes, did the patient have at least two medical visits during the measurement year, with at least 60 days in between each visit? (Y/N) i. If yes, is there evidence of documented Hepatitis B infection[2] or immunity[3] in the patient medical record? (Y/N) 1. If no, was Hepatitis B screening performed at least once since diagnosis of HIV infection? (Y/N) a. If yes, list date.
Data Sources:	• Ryan White Program Services Report (RSR) question 56 (Hep B screening) • Electronic Medical Record/Electronic Health Record • CAREWare, Lab Tracker, or other electronic data base • Medical record data abstraction by grantee of a sample of records • Billing records
National Goals, Targets, or Benchmarks for Comparison:	Veterans Administration: 97%[4]
Basis for Selection and Placement in Group 2:	
Hepatitis B virus (HBV) is the leading cause of chronic liver disease worldwide. In countries with low prevalence of endemic chronic HBV infection, HBV is transmitted primarily through sexual contact and injection drug use. Although risk factors are similar, HBV is transmitted more efficiently than HIV.[5] HIV infection is association with more rapid progression of viral hepatitis-related liver disease, including end stage liver disease and cirrhosis. Antiretroviral (ARV) drugs active against both HIV and HBV may prevent the development of significant liver disease by directly suppressing HBV replication. Data suggest earlier treatment of HIV infection in persons coinfected with HBV may reduce the risk of liver disease progression.[6] The measure is placed in Group 2 because of the emphasis on Hepatitis screening as outlined in the National Viral Hepatitis Strategy.[7]	
US Department of Health and Human Services Guidelines:	

"HIV-infected persons should be tested for HBV infection. Initial testing...should be performed because these will identify the majority of patients with chronic hepatitis B [who should be further assessed for HBV treatment and antiretroviral therapy] or who need vaccination to prevent infection."[5]

Baseline evaluation for each HIV-infected patient entering into care should include serology for hepatitis B virus. If HBsAg is positive at baseline or prior to initiation of ART, TDF+ (FTC or $_3$TC) should be used as part of ARV regimen to treat both HBV and HIV infections. If HBsAg and HBsAb are negative at baseline, hepatitis B vaccine series should be administered.[6]

"The majority of HIV-infected patients with isolated anti-HBc are not immune to HBV infection and should be vaccinated with a complete primary series of hepatitis B vaccine. Certain specialists would test for HBV DNA to rule out occult chronic HBV infection before administering a complete primary series of hepatitis B vaccine."[5]

References/Notes:

[1]Screening can be completed in two ways: 1) Test for Hepatitis B surface antibody (anti-HBs) and if negative, proceed to Hepatitis B surface antigen (HBsAg) and Hepatitis B core antibody total (anti-HBc); or 2) complete all three tests as once.
[2]Documented infection includes any patient with active or chronic Hepatitis B infection (see chart below)
[3]Documented immunity includes patients immune to Hepatitis B due to natural infection or Hepatitis B vaccination (see chart below).

Interpretation of the Hepatitis B Panel

Source: Centers for Disease Control and Prevention. Hepatitis B Information for Health Professionals. http://www.cdc.gov/hepatitis/HBV/HBVfaq.htm. Accessed on November 30, 2011.

Tests	Results	Interpretation
HBsAg anti-HBc anti-HBs	negative negative negative	Susceptible
HBsAg anti-HBc anti-HBs	negative positive positive	Immune due to natural infection
HBsAg anti-HBc anti-HBs	negative negative positive	Immune due to Hepatitis B vaccination
HBsAg anti-HBc IgM anti-HBc anti-HBs	positive positive positive negative	Acutely infected
HBsAg anti-HBc IgM anti-HBc anti-HBs	positive positive negative negative	Chronically infected
HBsAg anti-HBc anti-HBs	negative positive negative	Interpretation unclear; four possibilities: 1. Resolved infection (most common) 2. False-positive anti-HBc, thus susceptible 3. "Low level" chronic infection 4. Resolving acute infection

[4]Backus et al., National Quality Forum performance measures for HIV/AIDS care: The Department of Veterans Affairs' Experience. *Arch Intern Med.* 2010;170(14):1239-1246.
[5]Centers for Disease Control and Prevention. *Guidelines for Prevention and Treatment of Opportunistic Infections in HIV-Infected Adults and Adolescents. MMWR 2009;58 (no. RR-4): 1-207.* http://aidsinfo.nih.gov/contentfiles/Adult_OI_041009.pdf
[6] Panel on Antiretroviral Guidelines for Adult and Adolescents. Guidelines for the Use of Antiretroviral Agents in HIV-1-Infected Adults and Adolescents. Department of Health and Human Services. January 10, 2011; 1-166. http://aidsinfo.nih.gov/ContentFiles/AdultandAdolescentGL.pdf
[7]US Department of Health & Human Services. *Combatting the Silent Epidemic of Viral Hepatitis. Action Plan for the Prevention, Care & Treatment of Viral Hepatitis: 1-84.* http://www.hhs.gov/ash/initiatives/hepatitis

Corresponding National Quality Forum (NQF) Endorsed Measure:

NQF #: 0411
Title: Hepatitis B Screening
Description: Percentage of patients for whom Hepatitis B screening was performed at least once since the diagnosis of HIV infection or for whom there is documented immunity
Status: Endorsed (Original Endorsement Date: July 31, 2008)
Available at: http://www.qualityforum.org/Measures_List.aspx

Accessibility

If you need an alternative means of access to any information above please contact us at comments@hrsa.gov. Let us know the nature of your accessibility problem and the Web address of the requested information.

Performance Measure: Hepatitis B Vaccination	**OPR-Related Measure:** Yes www.hrsa.gov/performancereview/measures.htm
Percentage of clients with HIV infection who completed the vaccination series for Hepatitis B	
Numerator:	Number of HIV-infected clients with documentation of having ever completed the vaccination series for Hepatitis B[1,2]
Denominator:	Number of HIV-infected clients who had a medical visit with a provider with prescribing privileges[3] at least once in the measurement year
Patient Exclusions:	1. Patients newly enrolled in care during the measurement year 2. Patients with evidence of current HBV infection (Hep B Surface Antigen, Hep B e Antigen, Hep B e Antibody or Hep B DNA) 3. Patients with evidence of past HBV infection with immunity (Hep B Surface Antibody without evidence of vaccination)
Data Element:	1. Is the client HIV-infected? (Y/N) a. If yes, does the client have documentation of Hepatitis B immunity or is HBV-infected? (Y/N) i. If no, is there documentation that the client has completed the vaccine series for Hepatitis B?(Y/N)
Data Sources:	• Electronic Medical Record/Electronic Health Record • CAREWare, Lab Tracker, or other electronic data base • Medical record data abstraction by grantee of a sample of records
National Goals, Targets, or Benchmarks for Comparison:	Published data from the HIV Outpatient Study (HOPS) reports 17% of patients with HIV infection who were eligible for vaccination received at least 3 doses of vaccine.[4] "Hepatitis B vaccination coverage among adults at high risk…[was] 45% in 2004."[5]
Outcome Measures for Consideration:	o Incidence of Hepatitis B infection in the clinic population

Basis for Selection and Placement in Group 2:

Hepatitis B virus (HBV) is the leading cause of chronic liver disease worldwide. In developed countries, HBV is transmitted primarily through sexual contact and injection-drug use. Even though risk factors are similar, HBV is transmitted more efficiently than HIV-1. Although up to 90% of HIV-1–infected persons have at least one serum marker of previous exposure to HBV, only approximately 10% have chronic hepatitis B, as evidenced by the detection of hepatitis B surface antigen (HBsAg) in the serum persisting for a minimum of 6 months.[6]

HIV-1 infection is associated with an increased risk for the development of chronic hepatitis B after HBV exposure. Limited data indicate that co-infected patients with chronic hepatitis B infection have higher HBV DNA levels and are more likely to have detectable hepatitis B e antigen (HBeAg), accelerated loss of

protective hepatitis B surface antibody (anti-HBs), and an increased risk for liver-related mortality and morbidity.[7,8]

There is a protective antibody response in approximately 30%-55% of healthy adults aged ≤40 years after the first dose of vaccine. After age 40, the proportion of persons with a protective antibody response after a 3-dose vaccination regimen declines. In addition to age, other host factors (e.g., smoking, obesity, genetic factors, and immune suppression) contribute to decreased vaccine response. Response to hepatitis B vaccination also is reduced in other immunocompromised persons (e.g., HIV-infected persons, hematopoietic stem-cell transplant recipients, and patients undergoing chemotherapy).

Measure reflects important aspect of care that impacts HIV-related morbidity and focuses on treatment decisions that affect a sizable population. Measure has a strong evidence base supporting the use.

US Public Health Guidelines:

"Several liver-associated complications that are ascribed to flares in HBV activity or toxicity of antiretroviral agents can affect the treatment of HIV in patients with HBV coinfection. Therefore, providers should know the HBV status of all patients with HIV. For patients who are HBV negative, prophylaxis is recommended. This consists [of] 3 doses of vaccine for "all susceptible patients (i.e., antihepatitis B core antigen-negative)."[9] (6/14/02)

References/Notes:

[1]Patients in the middle of the vaccination series on 12/31/x would not be captured in the numerator in year x. They would, if the series was completed on schedule, be captured in year x+1.

[2]Centers for Disease Control and Prevention. Treating opportunistic infections among HIV-infected adults and adolescents: Recommendations from CDC, the National Institutes of Health, and the HIV Medicine Association/Infectious Diseases Society of America. MMWR 2004; 53(No. RR-15). (http://aidsinfo.nih.gov/ContentFiles/TreatmentofOI_AA.pdf).

[3]A "provider with prescribing privileges" is a health care professional who is certified in their jurisdiction to prescribe ARV therapy.

[4]Tedaldi EM, Baker RK, Moorman AC, Wood KC, Fuhrer J, McCabe RE, Holmberg SD; HIV Outpatient Study (HOPS) Investigators. Hepatitis A and B vaccination practices for ambulatory patients infected with HIV. Clinical Infectious Diseases. 2004 May 15;38(10):1478-84. (http://www.journals.uchicago.edu/CID/journal/issues/v38n10/32448/32448.web.pdf)

[5]Centers for Disease Control and Prevention. Hepatitis B Vaccination Coverage Among Adults —United States, 2004. MMWR 2006;55:509-11 (http://www.cdc.gov/mmwr/PDF/wk/mm5518.pdf)

[6]Centers for Disease Control and Prevention. Treating opportunistic infections among HIV-infected adults and adolescents: recommendations from CDC, the National Institutes of Health, and the HIV Medicine Association/Infectious Diseases Society of America. MMWR 2004; 53(No. RR-15). (http://aidsinfo.nih.gov/ContentFiles/TreatmentofOI_AA.pdf)

[7] Panel on Antiretroviral Guidelines for Adult and Adolescents. Guidelines for the use of antiretroviral agents in HIV-1-Infected Adults and Adolescents. Department of Health and Human Services. January 29, 2008. Available at http://aidsinfo.nih.gov/ContentFiles/AdultandAdolescentGL.pdf) Accessed April 2, 2008.

[8]Centers for Disease Control and Prevention. Guidelines for Preventing Opportunistic Infections Among HIV-Infected Persons — 2002 Recommendations of the U.S. Public Health Service and the Infectious Diseases Society of America. MMWR 2002;51(No. RR-8) (http://www.cdc.gov/mmwr/PDF/rr/rr5108.pdf or http://aidsinfo.nih.gov/ContentFiles/OIpreventionGL.pdf)

[9]Centers for Disease Control and Prevention. Treating opportunistic infections among HIV-infected adults and adolescents: recommendations from CDC, the National Institutes of Health, and the HIV Medicine Association/Infectious Diseases Society of America. MMWR 2004;53(No. RR-15).

U.S. Department of Health and Human Services
HRSA
Health Resources and Services Administration

<table>
<tr><td colspan="2">Performance Measure: Hepatitis C Screening</td><td>OPR-Related Measure: Yes
www.hrsa.gov/performancereview/measures.htm</td></tr>
<tr><td colspan="3">Percentage of clients for whom Hepatitis C (HCV) screening was performed at least once since the diagnosis of HIV infection</td></tr>
<tr><td>Numerator:</td><td colspan="2">Number of HIV-infected clients who have documented HCV status in chart[1]</td></tr>
<tr><td>Denominator:</td><td colspan="2">Number of HIV-infected clients who had a medical visit with a provider with prescribing privileges[2] at least once in the measurement year</td></tr>
<tr><td>Patient Exclusions:</td><td colspan="2">None</td></tr>
<tr><td>Data Element:</td><td colspan="2">1. Is the client HIV-infected? (Y/N)
a. If yes, is there documentation of the client's Hepatitis C status in the medical record? (Y/N)</td></tr>
<tr><td>Data Sources:</td><td colspan="2">• Ryan White Program Data Report, Section 5, Items 42 and 48 may provide data useful in establishing a baseline for this performance measure
• Electronic Medical Record/Electronic Health Record
• CAREWare, Lab Tracker, or other electronic data base
• HIVQUAL reports on this measure for grantee under review
• Medical record data abstraction by grantee of a sample of records</td></tr>
<tr><td>National Goals, Targets, or Benchmarks for Comparison</td><td colspan="2">IHI Goal: 95%[3]
National HIVQUAL Performance Data[4]:
<table>
<tr><td></td><td>2003</td><td>2004</td><td>2005</td><td>2006</td></tr>
<tr><td>Top 10%</td><td>100%</td><td>100%</td><td>100%</td><td>100%</td></tr>
<tr><td>Top 25%</td><td>99.4%</td><td>100%</td><td>100%</td><td>100%</td></tr>
<tr><td>Mean*</td><td>86.2%</td><td>88.8%</td><td>90.5%</td><td>90.9%</td></tr>
</table>
*from HAB data base</td></tr>
<tr><td>Outcome Measures for Consideration:</td><td colspan="2">o Hepatitis C- related mortality rates in the clinic population</td></tr>
<tr><td colspan="3">Basis for Selection and Placement in Group 2:</td></tr>
<tr><td colspan="3">Chronic hepatitis C infection is common in persons with HIV infection, and although it is a source of substantial morbidity and mortality, it may be amenable to treatment. HIV/ hepatitis C co-infection may predispose HIV-infected patients to liver toxicity from HAART[5] and HCV treatment may exacerbate the side effects of some ARV medications.[6]

Measure reflects important aspect of care that impacts HIV-related morbidity and focuses on treatment decisions that affect a sizable population. Measure has a strong evidence base supporting the use.</td></tr>
<tr><td colspan="3">US Public Health Guidelines:</td></tr>
</table>

"All HIV-infected patients should be screened for HCV infection"[7] (6/14/02)
References/Notes:
[1]Unless there is concern about ongoing exposure (e.g., via active injection drug use), annual re-screening is not generally recommended. [2]A "provider with prescribing privileges" is a health care professional who is certified in their jurisdiction to prescribe ARV therapy. [3]IHI Measure reads, "Percent of Patients/Clients with Known Hepatitis C Status" (http://www.ihi.org/IHI/Topics/HIVAIDS/HIVDiseaseGeneral/Measures/PercentofPatientsClientswithKnownHepatitisCStatus.htm) [4](http://www.hivguidelines.org/admin/files/qoc/hivqual/proj%20info/HQNatlAggScrs3Yrs.pdf) [5]AIDS Institute, New York State Department of Health. Criteria for the Medical Care of Adults with HIV Infection, Hepatitis C Virus Updated September 2004 *[Text taken from the NYSDOH AI publication - "Criteria for the Medical Care of Adults with HIV Infection"]* (http://www.hivguidelines.org/public_html/hep-c/hepc.pdf) [6]Guidelines for the Use of Antiretroviral Agents in HIV-1-Infected Adults and Adolescents (http://aidsinfo.nih.gov/ContentFiles/AdultandAdolescentGL.pdf) [7]Centers for Disease Control and Prevention. Guidelines for Preventing Opportunistic Infections Among HIV-Infected Persons — 2002 Recommendations of the U.S. Public Health Service and the Infectious Diseases Society of America. MMWR 2002;51(No. RR-8) (http://www.cdc.gov/mmwr/PDF/rr/rr5108.pdf or http://aidsinfo.nih.gov/ContentFiles/OIpreventionGL.pdf)

Performance Measure: HIV Risk Counseling	**OPR-Related Measure:** Yes www.hrsa.gov/performancereview/measures.htm
Percentage of clients with HIV infection who received HIV risk counseling[1] within the measurement year	
Numerator:	Number of HIV-infected clients, as part of their primary care, who received HIV risk counseling
Denominator:	Number of HIV-infected clients who had a medical visit with a provider with prescribing privileges[2] at least once in the measurement year
Patient Exclusions:	None
Data Element:	1. Is the client HIV-infected? (Y/N) a. If yes, did the client receive HIV risk counseling at least once during the measurement year with appropriate feedback to the provider?(Y/N)
Data Sources:	• Electronic Medical Record/Electronic Health Record • CAREWare, Lab Tracker, or other electronic data base • Medical record data abstraction by grantee of a sample of records
National Goals, Targets, or Benchmarks for Comparison:	None available at this time
Outcome Measures for Consideration:	o Incidence of new HIV infection o Incidence of STD cases in clinic population o Rates of substance abuse counseling and referrals

Basis for Selection and Placement in Group 2:

Reducing transmission of human immunodeficiency virus (HIV) in the United States requires new strategies, including emphasis on prevention of transmission by HIV-infected persons. Through ongoing attention to prevention, risky sexual and needle sharing behaviors among persons with HIV infection can be reduced and transmission of HIV infection prevented. Medical care providers can substantially affect HIV transmission by screening their HIV-infected patients for risk behaviors; communicating prevention messages; discussing sexual and drug-use behavior; positively reinforcing changes to safer behavior; referring patients for services such as substance abuse treatment; facilitating partner notification, counseling, and testing; and identifying and treating other sexually transmitted diseases.[3]

Measure reflects important aspect of care that impacts HIV-related morbidity and focuses on treatment decisions that affect a sizable population. Measure has a strong evidence base supporting the use.

US Public Health Guidelines:

"HIV-infected patients should be screened for behaviors associated with HIV transmission by using a straightforward, nonjudgmental approach. This should be done at the initial visit and subsequent routine visits or periodically, as the clinician feels necessary, but at a minimum of yearly. Any indication of risky behavior should prompt a more thorough assessment of HIV transmission risks." [4] (7/18/03)
References/Notes:
[1]HIV risk counseling includes assessment of risk, counseling and as necessary, referrals. Counseling occurs in the context of comprehensive medical care and can be provided by any member of the multidisciplinary primary care team. [2]A "provider with prescribing privileges" is a health care professional who is certified in their jurisdiction to prescribe ARV therapy. [3]Centers for Disease Control and Prevention. Incorporating HIV prevention into the medical care of persons living with HIV: recommendations of CDC, the Health Resources and Services Administration, the National Institutes of Health, and the HIV Medicine Association of the Infectious Diseases Society of America. MMWR 2003;52 (No. RR-12) (http://www.cdc.gov/mmwr/PDF/rr/rr5212.pdf or http://aidsinfo.nih.gov/ContentFiles/HIVPreventionInMedCare_TB.pdf) [4]Ibid

<table>
<tr><td colspan="2">Performance Measure: Lipid Screening</td><td>OPR-Related Measure: No</td></tr>
<tr><td colspan="3">Percentage of clients with HIV infection on HAART who had a fasting lipid panel[1] during the measurement year</td></tr>
<tr><td>Numerator:</td><td colspan="2">Number of HIV-infected clients who:
• were prescribed HAART, and
• had a fasting lipid panel in the measurement year</td></tr>
<tr><td>Denominator:</td><td colspan="2">Number of HIV-infected clients who are on HAART and who had a medical visit with a provider with prescribing privileges[2] at least once in the measurement year</td></tr>
<tr><td>Patient Exclusions:</td><td colspan="2">None</td></tr>
<tr><td>Data Element:</td><td colspan="2">1. Is the client HIV-infected? (Y/N)
a. If yes, was the client on HAART?(Y/N)
i. If the client was on HAART, did he/she have a fasting lipid panel during the measurement year? (Y/N)</td></tr>
<tr><td>Data Sources:</td><td colspan="2">• Electronic Medical Record/Electronic Health Record
• CAREWare, Lab Tracker, or other electronic data base
• HIVQUAL reports on this measure for grantee under review
• Medical record data abstraction by grantee of a sample of records</td></tr>
<tr><td>National Goals, Targets, or Benchmarks for Comparison:</td><td colspan="2">National HIVQUAL Data:[3]
<table>
<tr><td></td><td>2003</td><td>2004</td><td>2005</td><td>2006</td></tr>
<tr><td>Top 10%</td><td>100%</td><td>100%</td><td>100%</td><td>100%</td></tr>
<tr><td>Top 25%</td><td>100%</td><td>100%</td><td>97.9%</td><td>100%</td></tr>
<tr><td>Mean*</td><td>80.7%</td><td>79.1%</td><td>80.2%</td><td>84.7%</td></tr>
</table>
*From HAB database</td></tr>
<tr><td>Outcome Measures for Consideration:</td><td colspan="2">o Incidence of cardiovascular events in clinic population
o Incidence of metabolic syndrome in the clinic population</td></tr>
<tr><td colspan="3">Basis for Selection and Placement in Group 2:</td></tr>
<tr><td colspan="3">Changes in body shape, fat distribution & metabolism occur with frequency among HIV-infected patients, particularly those prescribed HAART. Metabolic changes that have been observed include hypertriglyceridemia, low high-density-lipoprotein (HDL) cholesterol and changes in LDL cholesterol.

Although rates of prevalence vary, studies have found the rate of prevalence for metabolic syndrome to be almost 25% in a population of patients taking HAART[4], where metabolic syndrome is defined as the presence of at least 3 of the following: hypertriglyceridemia, low high-density lipoprotein cholesterol, hypertension, abdominal obesity or high serum glucose.[5]

All patients should receive a lipid profile at least once a year in order to monitor general health. For patients on HAART, lipid level monitoring is important to detect side effects and to identify patients who may require</td></tr>
</table>

treatment.

Measure reflects important aspect of care that impacts HIV-related morbidity and focuses on treatment decisions that affect a sizable population. Measure has a strong evidence base supporting the use.

US Public Health Guidelines:

As part of pretreatment evaluation: "The following laboratory tests should be performed for each new patient during initial patient visits:…and serum lipids if considered at risk for cardiovascular disease and for baseline evaluation prior to initiation of combination antiretroviral therapy (AIII)…"[6]

References/Notes:

[1]A fasting lipid panel consists of fasting cholesterol, HDL, calculated LDL and triglycerides.

[2]A "provider with prescribing privileges" is a health care professional who is certified in their jurisdiction to prescribe ARV therapy.

[3](http://www.hivguidelines.org/admin/files/qoc/hivqual/proj%20info/HQNatlAggScrs3Yrs.pdf) The HIVQUAL indicator includes all patients on ARV therapy.

[4] Jacobson DL, Tang AM, Spiegalman D. Incidence of Metabolic Syndrome in a Cohort of HIV-Infected Adults and Prevalence Relative to the US Population (National Health and Nutrition Examination Survey).. J Acquir Immune Defic Syndr. 2006 Sep 14

[5] Jacobson DL, Tang AM, Spiegalman D. Incidence of Metabolic Syndrome in a Cohort of HIV-Infected Adults and Prevalence Relative to the US Population (National Health and Nutrition Examination Survey).. J Acquir Immune Defic Syndr. 2006 Sep 14

[6] Panel on Antiretroviral Guidelines for Adult and Adolescents. Guidelines for the use of antiretroviral agents in HIV-1-Infected Adults and Adolescents. Department of Health and Human Services. January 29, 2008, p. 3, 82. Available at http://aidsinfo.nih.gov/ContentFiles/AdultandAdolescentGL.pdf) Accessed April 2, 2008.

<table>
<tr><td colspan="2">Performance Measure: Oral Exam</td><td>OPR-Related Measure: Yes
www.hrsa.gov/performancereview/measures.htm</td></tr>
<tr><td colspan="3">Percent of clients with HIV infection who received an oral exam by a dentist at least once during the measurement year</td></tr>
<tr><td>Numerator:</td><td colspan="2">Number of clients who had an oral exam by a dentist during the measurement year, based on patient self report or other documentation</td></tr>
<tr><td>Denominator:</td><td colspan="2">Number of clients with HIV infection who had a medical visit with a provider with prescribing privileges[1] at least once in the measurement year</td></tr>
<tr><td>Patient Exclusions:</td><td colspan="2">None</td></tr>
<tr><td>Data Element:</td><td colspan="2">1. Is the client HIV-infected? (Y/N)
a. If yes, did the client receive an oral exam by a dentist during the measurement year?(Y/N)</td></tr>
<tr><td>Data Sources:</td><td colspan="2">• Ryan White Program Data Report, Section 3, Item 33c may provide data useful in establishing a baseline for this performance measure[2]
• Electronic Medical Record/Electronic Health Record
• CAREWare, Lab Tracker or other electronic data base
• HIVQUAL reports on this measure for grantee under review
• Medical record data abstraction by grantee of a sample of records</td></tr>
<tr><td>National Goals, Targets, or Benchmarks for Comparison</td><td colspan="2">IHI Goal: 75%[3]
National HIVQUAL Data:[4]
<table>
<tr><td></td><td>2003</td><td>2004</td><td>2005</td><td>2006</td></tr>
<tr><td>Top 10%</td><td>66.7%</td><td>78.5%</td><td>66.7%</td><td>77.4%</td></tr>
<tr><td>Top 25%</td><td>46.7%</td><td>62.2%</td><td>53.6%</td><td>56.4%</td></tr>
<tr><td>Mean*</td><td>34.6%</td><td>39.7%</td><td>37.3%</td><td>39.4%</td></tr>
</table>
*from HAB data base</td></tr>
<tr><td>Outcome Measures for Consideration:</td><td colspan="2">Rates of dental disease and oral pathology.</td></tr>
<tr><td colspan="3">Basis for Selection and Placement in Group 2:</td></tr>
<tr><td colspan="3">Oral health care is an important component of the management of patients with HIV infection. A poorly functioning dentition can adversely affect the quality of life, complicate the management of medical conditions, and create or exacerbate nutritional and psychosocial problems.[5] When the oral cavity is compromised by the presence of pain or discomfort, maintaining adherence to complicated antiretroviral therapy regimens becomes more difficult.[6]

There is limited evidence on the risks of oral procedures among persons with HIV/AIDS. Evidence for the utility of selected oral lesions as markers for seroconversion is limited to a single study of a single oral condition—candidiasis.[7] In the later stages of HIV disease, greater numbers of oral lesions and aggressive</td></tr>
</table>

periodontal breakdown are more likely; therefore, oral health care visits should be scheduled more frequently.[8]

Measure reflects important aspect of care that impacts HIV-related morbidity and focuses on treatment decisions that affect a sizable population. Completing an oral health exam at least every 12 months is not specified in the PHS guidelines but is accepted as good practice.

US Public Health Guidelines:

Primary health care providers should make an initial dental referral for every HIV/AIDS patient under their care. Oral health care providers should examine all patients on a semiannual basis for dental prophylaxis and other appropriate preventive care. As HIV-related medications may affect dental treatment and cause adverse effects, the patient's oral health care provider should review all medications being used by the patient and should understand the potential for these medications to affect oral health care.[9]

References/Notes:

[1]A "provider with prescribing privileges" is a health care professional who is certified in their jurisdiction to prescribe ARV therapy.
[2]RDR does not provide number of dental exams, preventive, curative treatments and/or surgeries. It only provides information on the number of clients and number of visits in the "Oral health care" service category.
[3]IHI Measure reads, "Percent of Patients Receiving an Annual Dental Exam" (http://www.ihi.org/IHI/Topics/HIVAIDS/HIVDiseaseGeneral/Measures/PercentofPatientsReceivinganAnnualDentalExam.htm)
[4]http://www.hivguidelines.org/admin/files/qoc/hivqual/proj%20info/HQNatlAggScrs3Yrs.pdf
[5]US DHHS Oral Health in America: A Report of the Surgeon General http://www2.nidcr.nih.gov/sgr/sgrohweb/welcome.htm
[6]http://www.hivguidelines.org/public_html/center/clinical-guidelines/oral_care_guidelines/oral_health_book/oral_health_supp_pages/oral_health_chap1.htm#references
[7]http://www.ahrq.gov/clinic/epcsums/denthivsum.htm
[8]http://www.hivguidelines.org/public_html/center/clinical-guidelines/adult_hiv_guidelines/supplemental_pages/oral_health_adults/pdf/adults_oral_health.pdf
[9]New York State Dept of Health AIDS Institute *Oral Health Care for People With HIV Infection* http://www.hivguidelines.org/Content.aspx?pageID=263

<table>
<tr><td colspan="2">Performance Measure: Syphilis Screening</td><td>OPR-Related Measure: Yes
www.hrsa.gov/performancereview/measures.htm</td></tr>
<tr><td colspan="3">Percentage of adult clients with HIV infection who had a test for syphilis performed within the measurement year</td></tr>
<tr><td>Numerator:</td><td colspan="2">Number of HIV-infected clients who had a serologic test for syphilis performed at least once during the measurement year</td></tr>
<tr><td>Denominator:</td><td colspan="2">Number of HIV-infected clients who:
• were ≥18 years old in the measurement year[1] or had a history of sexual activity < 18 years, and
• had a medical visit with a provider with prescribing privileges[2] at least once in the measurement year</td></tr>
<tr><td>Patient Exclusions:</td><td colspan="2">1. Patients who were < 18 years old and denied a history of sexual activity</td></tr>
<tr><td>Data Element:</td><td colspan="2">1. Is the client HIV-infected? (Y/N)
a. If yes, is the client ≥ 18 years or reports having a history of sexual activity? (Y/N)
1. If yes, was the client screened for syphilis during the measurement year?</td></tr>
<tr><td>Data Sources:</td><td colspan="2">• Ryan White Program Data Report , Section 5, Items 42 and 48 may provide data useful in establishing a baseline for this performance measure
• Electronic Medical Record/Electronic Health Record
• CAREWare, Lab Tracker, or other electronic data base
• HIVQUAL reports on this measure for grantee under review
• Medical record data abstraction by grantee of a sample of records</td></tr>
<tr><td>National Goals, Targets, or Benchmarks for Comparison</td><td colspan="2">IHI Goal: 90%[3]
National HIVQUAL Data:[4]
<table>
<tr><td></td><td>2003</td><td>2004</td><td>2005</td><td>2006</td></tr>
<tr><td>Top 10%</td><td>99.0%</td><td>100%</td><td>100%</td><td>100%</td></tr>
<tr><td>Top 25%</td><td>90.4%</td><td>92.2%</td><td>95.7%</td><td>95.6%</td></tr>
<tr><td>Mean*</td><td>73.7%</td><td>78.5%</td><td>82.1%</td><td>80.0%</td></tr>
</table>
*from HAB data base</td></tr>
<tr><td>Outcome Measures for Consideration</td><td colspan="2">o Incidence of neurosyphilis in the clinic population</td></tr>
<tr><td colspan="3">Basis for Selection and Placement in Group 2:</td></tr>
<tr><td colspan="3">HIV-1 infection appears to alter the diagnosis, natural history, management, and outcome of T. pallidum infection.

Measure reflects important aspect of care that impacts HIV-related morbidity and focuses on treatment decisions that affect a sizable population. Measure has a strong evidence base supporting the use.</td></tr>
</table>

US Public Health Guidelines:
"HIV-infected patients should be screened for behaviors associated with HIV transmission by using a straightforward, nonjudgmental approach. This should be done at the initial visit and subsequent routine visits or periodically, as the clinician feels necessary, but at a minimum of yearly. Any indication of risky behavior should prompt a more thorough assessment of HIV transmission risks. Screening for STDs should be repeated periodically (i.e., at least annually) if the patient is sexually active or if earlier screening revealed STDs. Screening should be done more frequently (e.g., at 3–6-month intervals) for asymptomatic persons at higher risk.[5] (7/18/03)
References/Notes:
[1] Onset of sexual activity is not reliably reported or recorded. The lower age bracket of 18 years is selected for performance measurement purposes only and should not be interpreted as a recommendation about the age at which screening should begin to occur. [2]A "provider with prescribing privileges" is a health care professional who is certified in their jurisdiction to prescribe ARV therapy. [3]IHI Measure reads, "Percent of Patients with Annual Syphilis Screen" (http://www.ihi.org/IHI/Topics/HIVAIDS/HIVDiseaseGeneral/Measures/PercentofPatientswithAnnualSyphilisScreen.htm) [4](http://www.hivguidelines.org/public_html/center/quality-of-care/hivqual-project/hivqual-workshop/03-04-natl-score-top10-25.pdf) [5]Centers for Disease Control and Prevention. Incorporating HIV prevention into the medical care of persons living with HIV: recommendations of CDC, the Health Resources and Services Administration, the National Institutes of Health, and the HIV Medicine Association of the Infectious Diseases Society of America. MMWR 2003;52 (No. RR-12) (http://aidsinfo.nih.gov/ContentFiles/HIVPreventionInMedCare_TB.pdf or http://aidsinfo.nih.gov/ContentFiles/HIVPreventionInMedCare_TB.pdf)

<table>
<tr><td colspan="2">Performance Measure: TB Screening</td><td>OPR-Related Measure: No</td></tr>
<tr><td colspan="3">Percentage of clients with HIV infection who received testing with results documented for latent tuberculosis infection (LTBI) since HIV diagnosis</td></tr>
<tr><td>Numerator:</td><td colspan="2">Number of clients who received documented testing for LTBI with any approved test (tuberculin skin test [TST] or interferon gamma release assay [IGRA]) since HIV diagnosis</td></tr>
<tr><td>Denominator:</td><td colspan="2">Number of HIV-infected clients who:
▪ do not have a history of previous documented culture-positive TB disease or previous documented positive TST or IGRA[1]; and
▪ had a medical visit with a provider with prescribing privileges[2] at least once in the measurement year.</td></tr>
<tr><td>Patient Exclusions</td><td colspan="2">None</td></tr>
<tr><td>Data Element:</td><td colspan="2">1. Is the client HIV-infected? (Y/N)
a. If yes, has the client ever had previous documented culture-positive TB disease or previous documented positive TST or IGRA? (Y/N)
i. If no, has the client ever been tested for LTBI with a TST or IGRA since his/her HIV diagnosis? (Y/N)
1. If yes, are the results documented? (Y/N)</td></tr>
<tr><td>Data Sources:</td><td colspan="2">• Ryan White Program Data Report, Section 5, Item 47 may provide data useful in establishing a baseline for this performance measure
• Electronic Medical Record/Electronic Health Record
• CAREWare, Lab Tracker or other electronic data base
• HIVQUAL reports on this measure for grantee under review
• Medical record data abstraction by grantee of a sample of records.</td></tr>
<tr><td>National Goals, Targets, or Benchmarks for Comparison</td><td colspan="2">National HIVQUAL Data:[3]
<table>
<tr><td></td><td>2003</td><td>2004</td><td>2005</td><td>2006</td></tr>
<tr><td>Top 10%</td><td>88.9%</td><td>91.7%</td><td>88.8%</td><td>92.2%</td></tr>
<tr><td>Top 25%</td><td>77.4%</td><td>73.5%</td><td>74.8%</td><td>78.2%</td></tr>
<tr><td>Mean*</td><td>58.8%</td><td>56.0%</td><td>57.1%</td><td>56.2%</td></tr>
</table>
*from HAB data base</td></tr>
<tr><td>Outcome Measures for Consideration</td><td colspan="2">° Incidence of TB disease in the clinic population</td></tr>
<tr><td colspan="3">Basis for Selection and Placement in Group 2:</td></tr>
<tr><td colspan="3">HIV is the most important known risk factor for progression to TB disease from latent TB infection (LTBI) after exposure to infectious TB patients. There is a 2% to 8% TB risk per year within 5 years after LTBI for HIV-infected adults[4,5] versus an 8% TB risk over 60 years for adults with LTBI but not HIV[6]. The TB risk for HIV-infected persons remains higher than for HIV-uninfected persons, even for HIV-infected persons who are taking antiretroviral medications.[7,8] TB disease is an AIDS-defining opportunistic condition that can be deadly. McCombs found a 3 times adjusted odds of being diagnosed with TB at death and a 5 times adjusted</td></tr>
</table>

odds of dying during TB treatment for HIV-infected TB patients compared with other patients from 1993 through 2001.[9] Immunologic and virologic evidence now indicates that the host immune response to *M. tuberculosis* enhances HIV replication and might accelerate the natural progression of HIV infection.[10]

Providers should screen all HIV infected patients for TB and LTBI as soon as possible after HIV diagnosis. TB and LTBI testing should be conducted among HIV-infected persons regardless of duration of infection since they are at increased risk for progressing to TB disease. Thus, an HIV-infected person having a prior positive TST for which he/she did not complete treatment is still eligible for treatment. However, early identification and treatment of TB disease improves outcomes and reduces the risk of transmission. TB should be suspected in any patient who has had a persistent cough for more than 2 to 3 weeks, especially if the patient has at least one additional symptom, including fever, night sweats (sufficient to require changing of bed clothes or sheets), weight loss, or hemoptysis (coughing up blood). Identification of LTBI and completion of LTBI treatment reduces the risk of development of TB disease by 70 to 90 percent.[11] Measure reflects important aspect of care that impacts HIV-related morbidity and mortality and focuses on treatment decisions that affect a sizable population. Measure has a strong evidence base supporting the use.

US Public Health Guidelines:

Guidelines for TB services for HIV-infected persons, such as those jointly published by the Public Health Service and the Infectious Diseases Society of America[12] or by the Centers for Disease Control and Prevention (CDC)[13] call for:

- provision of a TST when HIV infection is first recognized,
- annual or periodic TSTs for HIV-infected persons who are initially TST-negative and belong to groups at substantial risk for TB exposure or if they experience immune reconstitution,
- chest radiographs and clinical evaluations to rule out active TB among those who are TST positive (reactions ≥ 5 mm) or who have symptoms (regardless of TST result), and
- LTBI treatment (once active TB has been excluded) for those having a positive TST or for those who are recent contacts of persons with infectious active TB[14].

References/Notes:

[1]Previous documented culture-positive TB disease or previous documented positive TST or IGRA occurred prior to HIV diagnosis.
[2]A "provider with prescribing privileges" is a health care professional who is certified in their jurisdiction to prescribe ARV therapy.
[3]"PPD screening" (http://www.hivguidelines.org/admin/files/qoc/hivqual/proj%20info/HQNatlAggScrs3Yrs.pdf
[4]Markowitz N, Hansen NI, Hopewell PC, et al. Incidence of tuberculosis in the United States among HIV-infected persons. Annals of Internal Medicine. 1997;126:123-32.
[5]Selwyn PA, Hartel D, Lewis VA, et al. A prospective study of the risk of tuberculosis among intravenous drug users with human immunodeficiency virus infection. New England Journal of Medicine. 1989;320:545-50.
[6]Aronson NE, Santosham M, Comstock GW, et al. Long-term efficacy of BCG vaccine in American Indians and Alaska Natives: A 60-year follow-up study. Journal of the American Medical Association. 2004;291(17):2086-91.
[7]The Antiretroviral therapy cohort collaboration. Incidence of tuberculosis among HIV-infected patients receiving highly active antiretroviral therapy in Europe and North America. Clinical Infectious Diseases. 2005;41:1772-1782.

[8]Jones JL, Hanson DL, Dworkin MS, DeCock KM, and the Adult/Adolescent Spectrum of HIV Disease Group. HIV-associated tuberculosis in the era of highly active antiretroviral therapy. International Journal of TB and Lung Disease. 2000;4(11):1026-1031.
[9]McCombs SB. Tuberculosis mortality in the United States, 1993-2001. Oral presentation at CDC. Atlanta. December 2003.
[10] Centers for Disease Control and Prevention. Prevention and treatment of tuberculosis among patients infected with human immunodeficiency virus: Principles of therapy and revised recommendations. MMWR Recomm Rep 1998 Oct 30;47(RR-20):1-58.
[11]American Thoracic Society/Centers for Diseases Control and Prevention/Infectious Diseases Society of America. Treatment of tuberculosis. Am J Respir Crit Care Med 2003;167:603-662
[12] Centers for Disease Control and Prevention. Guidelines for Preventing Opportunistic Infections Among HIV-Infected Persons — 2002 Recommendations of the U.S. Public Health Service and the Infectious Diseases Society of America. MMWR 2002;51 (No. RR-8) (http://www.cdc.gov/mmwr/PDF/rr/rr5108.pdf or http://aidsinfo.nih.gov/ContentFiles/OIpreventionGL.pdf)
[13] Centers for Disease Control and Prevention. Prevention and treatment of tuberculosis among patients infected with human immunodeficiency virus: Principles of therapy and revised recommendations. MMWR Recomm Rep 1998 Oct 30;47(RR-20):1-58.
[14]Guidelines for the Investigation of Contacts of Persons with Infectious Tuberculosis Recommendations from the National Tuberculosis Controllers Association and CDC. MMWR December 16, 2005 / Vol. 54 / No. RR-15

Group 3

Defined as of April 2009

- Chlamydia Screening
- Gonorrhea Screening
- Hepatitis/HIV Alcohol Counseling
- Influenza Vaccination
- MAC Prophylaxis
- Mental Health Screening
- Pneumococcal Vaccination
- Substance Use Screening
- Tobacco Cessation Counseling
- Toxoplasma Screening

Performance Measure: Chlamydia Screening	**OPR-Related Measure:** No
Percentage of clients[1] with HIV infection at risk for sexually transmitted infections (STI) who had a test for chlamydia within the measurement year	
Numerator:	Number of HIV-infected clients who had a test for chlamydia
Denominator:	Number of HIV-infected clients who: • were either: a) newly enrolled in care; b) sexually active; or c) had a STI within the last 12 months, and • had a medical visit with a provider with prescribing privileges[2] at least once in the measurement year
Patient Exclusions:	1. Patients who were < 18 years old[3] and denied a history of sexual activity
Data Elements:	1. Is the client HIV-infected? (Y/N) a. If yes, is the client new to care, sexually active or had a STI within the last 12 months? (Y/N) i. If yes, was the client tested for chlamydia during the measurement year? (Y/N)
Data Sources:	• Electronic Medical Record/Electronic Health Record • CAREWare, Lab Tracker or other electronic data base • Medical record data abstraction by grantee of a sample of records • Billing records
National Goals, Targets, or Benchmarks for Comparison:	None available at this time
Outcome Measures for Consideration:	• Incidence of STIs in the clinic population • Incidence of pelvic inflammatory disease in the clinic population

Basis for Selection and Placement in Group 3:

Early detection and treatment of STIs may reduce the risk for STI and HIV transmission. Providers should screen for STIs to treat infections and decrease HIV transmission to sexual partners. Many STIs increase the number of HIV-infected white blood cells in the genital area and increase the risk of transmitting HIV infection.[4] STIs can also enhance the risk of transmitting HIV by increasing the viral burden in genital secretions.[5,6]

STIs in seronegative partners increase the risk for acquiring HIV because they increase the volume of white blood cells, including those that are targeted by HIV, in the genital region, and may cause ulcerative lesions, increasing the likelihood of infection.[7] Susceptibility to transmission may therefore be enhanced.

Chlamydia infection in women may often be asymptomatic but like other STIs can also increase the risk for

HIV transmission and enhance transmission susceptibility. Providers should test women for cervical chlamydial infection at least annually to treat infections and to decrease the risk of chlamydia and HIV transmission.

Identification and treatment of STIs can reduce the potential for spread of these infections among high-risk groups (i.e., sex or drug-using networks). [8]

The measure was placed in Group 3 because it focuses on similar aspects of care (STI marker) previously captured in measures included in Groups 1 & 2. There are currently no guidelines that delineate routine annual testing for chlamydia.

US Public Health Guidelines:

"During the first visit, consider testing all patients for urogenital chlamydial infection. For subsequent routine visits, repeat tests periodically (i.e. at least annually) for all patients who are sexually active. More frequent periodic screening (e.g. at 3-month to 6-month intervals) may be indicated for asymptomatic persons at higher risk. Presence of any of the following factors may support more frequent than annual periodic screening: 1) multiple or anonymous sex partners; 2) past history of any STD; 3) identification of other behaviors associated with transmission of HIV and other STDs; 4) sex or needle-sharing partner(s) with any of the above-mentioned risks; 5) developmental changes in life that may lead to behavioral change with increased risky behaviors; or 6) high prevalence of STDs in the area or in the patient population." [9]

References/Notes:

[1] "Clients" includes all clients aged 13 years and older.
[2]A "provider with prescribing privileges" is a health care professional who is certified in their jurisdiction to prescribe medications.
[3]Onset of sexual activity is not reliably reported or recorded. The lower age bracket of 18 years is selected for performance measurement purposes only and should not be interpreted as a recommendation about the age at which screening should begin to occur.
[4]Cohen MS. Sexually transmitted diseases enhance HIV transmission: no longer a hypothesis. Lancet 1998;351(suppl 3):5-7.
[5] Buchacz K, Patel P, Taylor M, et al. Syphilis increases HIV viral load and decreases CD4 cell counts in HIV-infected patients with new syphilis infections. *AIDS.* 2004 Oct 21;18(15):2075-9.
[6]CDC. Recommendations and Reports: "Incorporating HIV Prevention into the Medical Care of Persons Living with HIV". July 18, 2003/52(RR12);1-24.
[7] DT Fleming and JN Wasserheit, From epidemiological synergy to public health policy and practice: the contribution of other sexually transmitted diseases to sexual transmission of HIV infection, *Sex Transm Infect* 75 (1999), pp. 3–17.
[8]CDC. Recommendations and Reports: "Incorporating HIV Prevention into the Medical Care of Persons Living with HIV". July 18, 2003/52(RR12);1-24.
[9]Ibid.

Performance Measure: Gonorrhea Screening	**OPR-Related Measure:** No
Percentage of clients[1] with HIV infection at risk for sexually transmitted infections (STIs) who had a test for gonorrhea within the measurement year	
Numerator:	Number of HIV-infected clients who had a test for gonorrhea
Denominator:	Number of HIV-infected clients who: • were either: a) newly enrolled in care; b) sexually active; or c) had a STI within the last 12 months; and • had a medical visit with a provider with prescribing privileges[2] at least once in the measurement year
Patient Exclusions:	1. Patients who were ≤ 18 years old[3] and denied a history of sexual activity
Data Elements:	1. Is the client HIV-infected? (Y/N) a. If yes, is the client new to care, sexually active or had a STI within the last 12 months? (Y/N) i. If yes, was the client tested for gonorrhea during the measurement year? (Y/N)
Data Sources:	• Electronic Medical Record/Electronic Health Record • CAREWare, Lab Tracker or other electronic data base • Medical record data abstraction by grantee of a sample of records • Billing records
National Goals, Targets, or Benchmarks for Comparison:	None available at this time
Outcome Measures for Consideration:	• Incidence of STIs in the clinic population

Basis for Selection and Placement in Group 3:

Early detection and treatment of STIs may reduce the risk for STD and HIV transmission. Providers should screen for STIs to treat infections and decrease HIV transmission to sexual partners. Many STIs increase the number of HIV-infected white blood cells in the genital area and increase the risk of transmitting HIV infection.[4] STIs can also enhance the risk of transmitting HIV by increasing the viral burden in genital secretions.[5]

STIs in seronegative partners increase the risk for acquiring HIV because they increase the volume of white blood cells, including those that are targeted by HIV, in the genital region, and may cause ulcerative lesions, increasing the likelihood of infection.[6] Susceptibility to transmission may therefore be enhanced.

Identification and treatment of STIs can reduce the potential for spread of these infections among high-risk groups (i.e., sex or drug-using networks).[7]

The measure was placed in Group 3 because it focuses on similar aspects of care (STI marker) previously captured in measures included in Groups 1 & 2. There are currently no guidelines that delineate routine annual testing for gonorrhea.

US Public Health Guidelines:

"During the first visit, consider testing all patients for urogenital gonorrhea. For subsequent routine visits, repeated tests periodically (i.e. at least annually) for all patients who are sexually active. More frequent periodic screening (e.g. at 3-month to 6-month intervals) may be indicated for asymptomatic persons at higher risk. Presence of any of the following factors may support more frequent than annual periodic screening: 1) multiple or anonymous sex partners; 2) past history of any STD; 3) identification of other behaviors associated with transmission of HIV and other STDs; 4) sex or needle-sharing partner(s) with any of the above-mentioned risks; 5) developmental changes in life that may lead to behavioral change with increased risky behaviors; or 6) high prevalence of STDs in the area or in the patient population."[8]

References/Notes:

[1] "Clients" includes all clients aged 13 years or older.
[2] A "provider with prescribing privileges" is a health care professional who is certified in their jurisdiction to prescribe medications.
[3] Onset of sexual activity is not reliably reported or recorded. The lower age bracket of 18 years is selected for performance measurement purposes only and should not be interpreted as a recommendation about the age at which screening should begin to occur.
[4] Cohen MS. Sexually transmitted diseases enhance HIV transmission: no longer a hypothesis. Lancet 1998;351(suppl 3):5-7.
[5] Buchacz K, Patel P, Taylor M, et al. Syphilis increases HIV viral load and decreases CD4 cell counts in HIV-infected patients with new syphilis infections. *AIDS.* 2004 Oct 21;18(15):2075-9.
[6] DT Fleming and JN Wasserheit, From epidemiological synergy to public health policy and practice: the contribution of other sexually transmitted diseases to sexual transmission of HIV infection, *Sex Transm Infect* 75 (1999), pp. 3–17.
[7] CDC. Recommendations and Reports: "Incorporating HIV Prevention into the Medical Care of Persons Living with HIV". July 18, 2003/52(RR12);1-24.
[8] Ibid

Performance Measure: Hepatitis/HIV Alcohol Counseling	**OPR-Related Measure:** No
Percentage of clients[1] with HIV and Hepatitis B (HBV) or Hepatitis C (HCV) infection who received alcohol counseling[2] within the measurement year	
Numerator:	Number of HIV-infected clients who received alcohol counseling
Denominator:	Number of HIV-infected clients who: • were co-infected with HBV[3] or HCV; and • had a medical visit with a provider with prescribing privileges[4] at least once in the measurement period
Patient Exclusions:	None
Data Elements:	1. Is the client HIV-infected? (Y/N) a. If yes, is the client HBV or HCV-positive? (Y/N) i. If yes, did the client receive alcohol counseling during the measurement year? (Y/N)
Data Sources:	• Electronic Medical Record/Electronic Health Record • CAREWare, Lab Tracker, or other electronic data base • Medical record data abstraction by grantee of a sample of records • Billing records
National Goals, Targets, or Benchmarks for Comparison	None available at this time.
Outcome Measures for Consideration:	• Hepatitis-related mortality rates in the clinic population

Basis for Selection and Placement in Group 3:

Discussion of substance use allows the clinician to either provide counseling or make referrals to substance and alcohol treatment centers. A study of HIV positive veterans showed that hazardous drinking and alcohol diagnoses were associated with HIV disease progression and/or hepatic co-morbidity and anemia. It also concluded that alcohol problems are often missed by providers thus increasing the need for routine screening.[5]

Long-term studies of patients with chronic HCV infection show that between 2%-20% develop cirrhosis in 20 years. This rate of progression increases with older age, alcoholism and HIV infection.[6]

The measure is placed in Group 3 because the definition of "counseling" varies considerably across grantees.

The variation in definition impacts the feasibility of data collection.
US Public Health Guidelines:
"All patients with HIV/HCV infection should be advised to avoid or limit alcohol consumption…"[7]
References/Notes:
[1] "Clients" refers to all clients aged 13 years and older. [2] For the purposes of this measure, alcohol counseling refers to counseling provided by the primary care team that emphasizes the need to avoid or limit alcohol intake due to the impact on the liver. [3] Markers of Hepatitis B infection include Hep B Surface Antigen, Hep B e Antigen, Hep B e Antibody or Hep B DNA. [4] A "provider with prescribing privileges" is a health care professional who is certified in their jurisdiction to prescribe medications. [5] Joseph Conigliaro, Adam J. Gordon, Kathleen A. McGinnis, Linda Rabeneck, and Amy C.; How Harmful Is Hazardous Alcohol Use and Abuse in HIV Infection: Do Health Care Providers Know Who Is at Risk?; Journal of Acquired Immune Deficiency Syndromes 33:521–525. [6] Centers for Disease Control and Prevention. Guidelines for Prevention and Treatment of Opportunistic Infections in HIV-Infected Adults and Adolescents. June 18, 2008; 1-134. (http://aidsinfo.nih.gov/contentfiles/Adult_OI.pdf)

Performance Measure: Influenza Vaccination	**OPR-Related Measure:** No
Percentage of clients[1] with HIV infection who have received influenza vaccination within the measurement period[2]	
Numerator:	Number of HIV-infected clients who received influenza vaccination within this time frame
Denominator:	Number of HIV-infected clients who had a medical visit with a provider with prescribing privileges[3] at least once in the measurement period
Patient Exclusions:	1. Patients allergic to vaccine components
Data Elements:	1. Is the client HIV-infected? (Y/N) a. If yes, is there documentation[4] in the health record that the client received influenza vaccine in the past 12 months? (Y/N)
Data Sources:	• Electronic Medical Record/Electronic Health Record • CAREWare, Lab Tracker, or other electronic data base • Medical record data abstraction by grantee of a sample of records • Billing records
National Goals, Targets, or Benchmarks for Comparison:	None available at this time
Outcome Measures for Consideration:	• Mortality rates of bacterial pneumonia in the clinic population

Basis for Selection and Placement in Group 3:

Influenza viruses cause disease among all age groups. While rates of infection are highest among children, rates of serious illness and death are highest among persons aged $\geq$ 65 years, children less than 2 years and persons of any age who have medical conditions that place them at increased risk for complications of influenza, including HIV.[5]

Influenza vaccination is the most effective method for preventing influenza and its severe complications. Vaccination has been demonstrated to produce substantial antibody titers against influenza among vaccinated HIV-infected persons who have minimal AIDS-related symptoms and high CD4+ T-lymphocyte cell counts.[6]

The measure is placed in Group 3 because it overlaps and focuses on similar aspects of care (vaccination) that were previously captured in measures included in Group 2. In addition, the data collection process is more

complex because of the timing of the vaccination.

US Public Health Guidelines:

"Annual vaccination against influenza is recommended for….adults and children who have immunosuppression (including immunosuppression caused by medications or by human immunodeficiency virus)."[7]

References/Notes:

[1] "Clients" includes all clients aged 13 years and older.
[2] Due to the unique nature of this measure, the measurement period runs from April 1-March 31.
[3] A "provider with prescribing privileges" is a health care professional who is certified in their jurisdiction to prescribe medications.
[4] Evidence of vaccination could include personal, school, physician, or immunization records or registries.
[5] Centers for Disease Control and Prevention. Prevention and Control of Influenza: Recommendations from the Advisory committee on Immunization Practices (ACIP). MMWR 2007; 56(RR#6)[1-60]. Available at: http://www.cdc.gov/mmwr/PDF/rr/rr5606.pdf.
[6] Ibid.
[7] Ibid.

<table>
<tr><td colspan="2">Performance Measure: MAC Prophylaxis</td><td>OPR-Related Measure: No</td></tr>
<tr><td colspan="3">Percentage of clients[1] with HIV infection with CD4 count < 50 cells/mm^3 who were prescribed Mycobacterium avium Complex (MAC) prophylaxis[2] within the measurement year</td></tr>
<tr><td>Numerator:</td><td colspan="2">Number of HIV-infected clients with CD4 count < 50 cells/mm^3 who were prescribed MAC prophylaxis</td></tr>
<tr><td>Denominator:</td><td colspan="2">Number of HIV-infected clients who had a:
• CD4 count < 50 cells/mm^3 ; and
• medical visit with a provider with prescribing privileges[3] at least once in the measurement year</td></tr>
<tr><td>Patient Exclusions:</td><td colspan="2">1. Patients who have disseminated MAC</td></tr>
<tr><td>Data Elements:</td><td colspan="2">1. Is the client HIV-infected? (Y/N)
a. If yes, was the CD4 count < 50 cells/mm^3? (Y/N)
i. If yes, was MAC prophylaxis subsequently prescribed?</td></tr>
<tr><td>Data Sources:</td><td colspan="2">• Electronic Medical Record/Electronic Health Record
• CAREWare, Lab Tracker or other electronic data base
• HIVQUAL reports on this measure for grantee under review
• Medical record data abstraction by grantee of a sample of records
• Billing records</td></tr>
<tr><td>National Goals, Targets, or Benchmarks for Comparison:</td><td colspan="2">National HIVQUAL Data:[4]
<table>
<tr><td></td><td>2003</td><td>2004</td><td>2005</td><td>2006</td><td>2007</td></tr>
<tr><td>Top 10%</td><td>100%</td><td>100%</td><td>100%</td><td>100%</td><td>100%</td></tr>
<tr><td>Top 25%</td><td>100%</td><td>100%</td><td>100%</td><td>100%</td><td>100%</td></tr>
<tr><td>Mean*</td><td>86.5%</td><td>84.7%</td><td>85.7%</td><td>83.1%</td><td>84.6%</td></tr>
</table>
*from HAB data base</td></tr>
<tr><td>Outcome Measures for Consideration:</td><td colspan="2">• Incidence of MAC disease in the clinic population
• MAC-related mortality rates in the population assessed</td></tr>
<tr><td colspan="3">Basis for Selection and Placement in Group 3:</td></tr>
<tr><td colspan="3">MAC disease is an opportunistic infection that can cause severe illness in people with advanced AIDS but rarely affects others. The risk of disseminated MAC (DMAC) is directly related to the severity of immunosuppression. DMAC typically occurs in persons with CD4 counts < 50 cells/mm^3 and its frequency increases as the CD4 count declines. In the absence of antibiotic prophylaxis, DMAC occurs in up to 40% of AIDS patients with CD4 counts of < 50 cells/mm.[5]

The measure was placed in Group 3 because it focuses on similar aspects of care (prophylaxis) previously</td></tr>
</table>

captured in measures included in Groups 1 & 2.

US Public Health Guidelines:

"Adults and adolescents who have HIV infection should receive chemoprophylaxis against disseminated MAC disease if they have CD4 count < 50 cells/mm.[3"6]

References/Notes:

[1] "Clients" includes all clients aged 13 years and older.
[2]Current regimens for preventing MAC can be found at: Centers for Disease Control and Prevention. Guidelines for Prevention and Treatment of Opportunistic Infections in HIV-Infected Adults and Adolescents. June 18, 2008; 1-134. (http://aidsinfo.nih.gov/contentfiles/Adult_OI.pdf)
[3]A "provider with prescribing privileges" is a health care professional who is certified in their jurisdiction to prescribe medications.
[4] MAC Prophylaxis (http://www.hivguidelines.org/admin/files/qoc/hivqual/proj%20info/HQNatlAggScrs3Yrs.pdf)
[5] National AIDS Education & Training Centers (2006). Clinical Manual for Management of the HIV-Infected Adult.
[6]Centers for Disease Control and Prevention. Guidelines for Prevention and Treatment of Opportunistic Infections in HIV-Infected Adults and Adolescents. June 18, 2008; 1-134. (http://aidsinfo.nih.gov/contentfiles/Adult_OI.pdf)

<table>
<tr><td colspan="2">Performance Measure: Mental Health Screening</td><td>OPR-Related Measure: Yes
www.hrsa.gov/performancereview/measures.htm</td></tr>
<tr><td colspan="3">Percentage of new clients[1] with HIV infection who have had a mental health screening</td></tr>
<tr><td>Numerator:</td><td colspan="2">Number of HIV-infected clients who received a mental health screening</td></tr>
<tr><td>Denominator:</td><td colspan="2">Number of HIV-infected clients who:
• were new during the measurement year, and
• had a medical visit with a provider with prescribing privileges[2] at least once in the measurement year</td></tr>
<tr><td>Patient Exclusions:</td><td colspan="2">None</td></tr>
<tr><td>Data Elements:</td><td colspan="2">1. Is the client HIV-infected? (Y/N)
a. If yes, was the client new to the program during the measurement year? (Y/N)
i. If yes, did the client receive mental health screening during the measurement year? (Y/N)</td></tr>
<tr><td>Data Sources:</td><td colspan="2">• Electronic Medical Record/Electronic Health Record
• CAREWare, Lab Tracker, or other electronic data base
• HIVQUAL reports on this measure for grantee under review
• Medical record data abstraction by grantee of a sample of records
• Billing records</td></tr>
<tr><td>National Goals, Targets, or Benchmarks for Comparison</td><td colspan="2">National HIVQUAL Data:[3]
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<tr><td></td><td>2003</td><td>2004</td><td>2005</td><td>2006</td><td>2007</td></tr>
<tr><td>Top 10%</td><td>100%</td><td>100%</td><td>80.6%</td><td>86.7%</td><td>100%</td></tr>
<tr><td>Top 25%</td><td>93.0%</td><td>89.5%</td><td>35.1%</td><td>52.4%</td><td>84.0%</td></tr>
<tr><td>Mean*</td><td>68.2%</td><td>58.5%</td><td>21.9%</td><td>28.1%</td><td>42.0%</td></tr>
</table>
*from HAB data base</td></tr>
<tr><td>Outcome Measures for Consideration:</td><td colspan="2">• Rate of mental health referrals
• Mental health-related hospitalizations
• Rate of suicide in the clinic population
• Rate of mental health disorders being treated in the clinic population</td></tr>
<tr><td colspan="3">Basis for Selection and Placement in Group 3:</td></tr>
<tr><td colspan="3">Patients living with HIV infection must often cope with multiple social, psychiatric, and medical issues. The ability to cope with these issues can dramatically impact management of the disease. The initial evaluation should include an assessment of substance abuse, economic factors, social</td></tr>
</table>

support, mental illness and co-morbidities. [4]

The measure was placed in Group 3 because feasibility of data collection can vary considerably across grantees.

US Public Health Guidelines:

"Patients living with HIV infection must often cope with multiple social, psychiatric, and medical issues. Thus, the (initial) evaluation should also include assessment of substance abuse, economic factors, social support, mental illness, co-morbidities, and other factors that are known to impair the ability to adhere to treatment and to alter outcomes. Once evaluated, these factors should be managed accordingly."[5]

References/Notes:

[1] "Clients" includes all clients aged 13 years and older.
[2]A "provider with prescribing privileges" is a health care professional who is certified in their jurisdiction to prescribe medications.
[3] The components of the mental health indicator were broken down and implemented for the 2005-2007 data. The Mental Health/Substance Use Subcommittee of the National HIVQUAL Clinical Advisory Committee include the following components for an annual Mental Health Screening for people with HIV: Cognitive function assessment, including mental status; Depression screening; Anxiety screening; Sleeping habits assessment; Appetite assessment; Domestic violence screening; Post Traumatic Stress Disorder screening; Psychiatric history (optional); Psychosocial assessment (optional).
(http://www.hivguidelines.org/admin/files/qoc/hivqual/proj%20info/HQNatlAggScrs3Yrs.pdf
[4]Panel on Antiretroviral Guidelines for Adult and Adolescents. Guidelines for the Use of Antiretroviral Agents in HIV-1-Infected Adults and Adolescents. Department of Health and Human Services. January 29, 2008; 1-128.
(http://aidsinfo.nih.gov/ContentFiles/AdultandAdolescentGL.pdf)
[5]Ibid

<table>
<tr><td colspan="2">Performance Measure: Pneumococcal Vaccination</td><td>OPR-Related Measure: No</td></tr>
<tr><td colspan="3">Percentage of clients[1] with HIV infection who ever received pneumococcal vaccine</td></tr>
<tr><td>Numerator:</td><td colspan="2">Number of HIV-infected clients who ever received pneumococcal vaccine</td></tr>
<tr><td>Denominator:</td><td colspan="2">Number of HIV-infected clients who had a medical visit with a provider with prescribing privileges[2] at least once in the measurement year</td></tr>
<tr><td>Patient Exclusions:</td><td colspan="2">1. Patients with CD4 counts < 200 cells/mm^3 within the measurement year</td></tr>
<tr><td>Data Elements:</td><td colspan="2">1. Is the client HIV-infected? (Y/N)
a. If yes, is there documentation[3] in the health record that the client ever received the pneumococcal vaccine? (Y/N)</td></tr>
<tr><td>Data Sources:</td><td colspan="2">• Electronic Medical Record/Electronic Health Record
• CAREWare, Lab Tracker, or other electronic data base
• HIVQUAL reports on this measure for grantee under review
• Medical record data abstraction by grantee of a sample of records
• Billing records</td></tr>
<tr><td>National Goals, Targets, or Benchmarks for Comparison</td><td colspan="2">National HIVQUAL Data:[4]
<table>
<tr><td></td><td>2003</td><td>2004</td><td>2005</td><td>2006</td><td>2007</td></tr>
<tr><td>Top 10%</td><td>100%</td><td>95.8%</td><td>97.5%</td><td>100%</td><td>100%</td></tr>
<tr><td>Top 25%</td><td>92.6%</td><td>90.8%</td><td>93.0%</td><td>93.8%</td><td>95.1%</td></tr>
<tr><td>Mean*</td><td>79.9%</td><td>73.0%</td><td>77.1%</td><td>79.8%</td><td>80.9%</td></tr>
</table>
*from HAB database</td></tr>
<tr><td>Outcome Measures for Consideration:</td><td colspan="2">• Incidence of pneumococcal infection in the clinic population</td></tr>
<tr><td colspan="3">Basis for Selection and Placement in Group 3:</td></tr>
<tr><td colspan="3">Bacterial pneumonia is a common cause of HIV-associated morbidity and appears with greater incidence in HIV-infected persons than in the non-infected population. Several risk factors are associated with an increased risk of bacterial pneumonia including CD4 count, injection drug use and smoking.[5]

The measure was placed in Group 3 because it overlaps and focuses on similar aspects of care (vaccination) that were previously captured in measures included in Group 2.</td></tr>
<tr><td colspan="3">US Public Health Guidelines:</td></tr>
</table>

"HIV-infected adults and adolescents who have a CD4+ count of ≥ 200 cells/*u*L should be administered a single dose of 23-valent polysaccharide pneumococcal vaccine (PPV) unless they have received this vaccine during the previous five years (AII)". Revaccination can be considered for patients who were initially immunized when their CD4 T lymphocyte counts were < 200 cells/*u*L in response to HAART (CIII).[6]
References/Notes:
[1] "Clients" includes all clients aged 13 years and older. [2]A "provider with prescribing privileges" is a health care professional who is certified in their jurisdiction to prescribe medications. [3] Evidence of vaccination could include physician or immunization records or registries. [4]Pneumococcal vaccine http://www.hivguidelines.org/admin/files/qoc/hivqual/proj%20info/HQNatlAggScrs3Yrs.pdf) [5]Centers for Disease Control and Prevention. Guidelines for Prevention and Treatment of Opportunistic Infections in HIV-Infected Adults and Adolescents. June 18, 2008; 1-134. (http://aidsinfo.nih.gov/contentfiles/Adult_OI.pdf) [6] Ibid

<table>
<tr><td colspan="2">Performance Measure: Substance Use Screening</td><td>OPR-Related Measure: Yes
www.hrsa.gov/performancereview/measures.htm</td></tr>
<tr><td colspan="3">Percentage of new clients[1] with HIV infection who have been screened[2] for substance use (alcohol & drugs) in the measurement year</td></tr>
<tr><td>Numerator:</td><td colspan="2">Number of new HIV-infected clients who were screened for substance use within the measurement year</td></tr>
<tr><td>Denominator:</td><td colspan="2">Number of HIV-infected clients who:
• were new during the measurement year, and
• had a medical visit with a medical provider with prescribing privileges[3] at least once in the measurement year</td></tr>
<tr><td>Patient Exclusions:</td><td colspan="2">None</td></tr>
<tr><td>Data Elements:</td><td colspan="2">1. Is the client HIV-infected? (Y/N)
a. If yes, was the client new to the program during the reporting period? (Y/N)
i. If yes, was the client screened for substance use during the measurement year? (Y/N)</td></tr>
<tr><td>Data Sources:</td><td colspan="2">• Electronic Medical Record/Electronic Health Record
• CAREWare, Lab Tracker, or other electronic data base
• HIVQUAL reports on this measure for grantee under review
• Medical record data abstraction by grantee of a sample of records
• Billing records</td></tr>
<tr><td>National Goals, Targets, or Benchmarks for Comparison</td><td colspan="2">IHI Goal: 90%[4]
National HIVQUAL Performance Data:[5]

*from HAB data base
<table><tr><td></td><td>2003</td><td>2004</td><td>2005</td><td>2006</td><td>2007</td></tr><tr><td>Top 10%</td><td>100%</td><td>100%</td><td>100%</td><td>100%</td><td>100%</td></tr><tr><td>Top 25%</td><td>92.3%</td><td>100%</td><td>100%</td><td>100%</td><td>100%</td></tr><tr><td>Mean*</td><td>75.4%</td><td>76.5%</td><td>78.9%</td><td>81.4%</td><td>80.6%</td></tr></table></td></tr>
<tr><td>Outcome Measures for Consideration:</td><td colspan="2">• Substance use-related mortality rates
• Rate of substance use-related hospitalizations
• Rate of substance use referrals</td></tr>
<tr><td colspan="3">Basis for Selection and Placement in Group 3:</td></tr>
<tr><td colspan="3">Patients living with HIV infection must often cope with multiple social, psychiatric, and medical issues.</td></tr>
</table>

The measure was placed in Group 3 because the feasibility of data collection can vary considerably across grantees.
US Public Health Guidelines:
"Patients living with HIV infection must often cope with multiple social, psychiatric, and medical issues. Thus, the (initial) evaluation should also include assessment of substance abuse, economic factors, social support, mental illness, co-morbidities, and other factors that are known to impair the ability to adhere to treatment and to alter outcomes. Once evaluated, these factors should be managed accordingly."[6]
References/Notes:
[1] "Clients" includes all clients aged 13 years and older. [2] The purpose of screening is to identify past or current substance use that negatively impacts linkage to care and health care in general. A substance use screen includes documentation of past and current substance use and treatment in the HIV primary care record. Screening can be provided by any member of the multidisciplinary primary care team. [3]A "provider with prescribing privileges" is a health care professional who is certified in their jurisdiction to prescribe medications. [4] IHI Measure reads, "Percent of Patients/Clients Assessed for Substance Use and/or Tobacco Use in the Past 12 Months" (http://www.ihi.org/IHI/Topics/HIVAIDS/HIVDiseaseGeneral/Measures/PercentofPatientsClientsAssessedforSubstanceUseandorTobaccoUseinthePast12Months.htm) [5]Substance Use Screening (http://www.hivguidelines.org/admin/files/qoc/hivqual/proj%20info/HQNatlAggScrs3Yrs.pdf) [6]Guidelines for the Use of Antiretroviral Agents in HIV-1-Infected Adults and Adolescents (p. 13) (http://aidsinfo.nih.gov/ContentFiles/AdultandAdolescentGL.pdf)

<table>
<tr><td colspan="2">Performance Measure: Tobacco Cessation Counseling</td><td>OPR-Related Measure: No</td></tr>
<tr><td colspan="3">Percentage of clients[1] with HIV infection who received tobacco cessation counseling within the measurement year</td></tr>
<tr><td>Numerator:</td><td colspan="2">Number of HIV-infected clients who received tobacco cessation counseling</td></tr>
<tr><td>Denominator:</td><td colspan="2">Number of HIV-infected clients who:
• used tobacco products within the measurement year; and
• had a medical visit with a provider with prescribing privileges[2] at least once in the measurement year</td></tr>
<tr><td>Patient Exclusions:</td><td colspan="2">1. Patients who deny tobacco use throughout the measurement year</td></tr>
<tr><td>Data Elements:</td><td colspan="2">1. Is the client HIV-infected? (Y/N)
a. If yes, did the client use tobacco during the reporting period? (Y/N)
i. If yes, did the client receive tobacco cessation counseling during the measurement year? (Y/N)</td></tr>
<tr><td>Data Sources:</td><td colspan="2">• Electronic Medical Record/Electronic Health Record
• CAREWare, Lab Tracker, or other electronic data base
• HIVQUAL reports on this measure for grantee under review
• Medical record data abstraction by grantee of a sample of records
• Billing records</td></tr>
<tr><td>National Goals, Targets, or Benchmarks for Comparison</td><td colspan="2">National HIVQUAL Data:[3]
<table>
<tr><td></td><td>2003</td><td>2004</td><td>2005</td><td>2006</td><td>2007</td></tr>
<tr><td>Top 10%</td><td>100%</td><td>100%</td><td>100%</td><td>100%</td><td>100%</td></tr>
<tr><td>Top 25%</td><td>93.3%</td><td>97.8%</td><td>98.4%</td><td>100%</td><td>100%</td></tr>
<tr><td>Mean*</td><td>69.3%</td><td>75.0%</td><td>76.8%</td><td>81.8%</td><td>83.8%</td></tr>
</table>
* HAB database</td></tr>
<tr><td>Outcome Measures for Consideration:</td><td colspan="2">• Rate of head & neck and lung cancer
• Rate of tobacco use in the clinic population</td></tr>
<tr><td colspan="3">Basis for Selection and Placement in Group 3:</td></tr>
<tr><td colspan="3">A recent study has shown that lung cancer rates are 2.7 times greater for people living with HIV.[4] As tobacco use among HIV-infected patients poses significant health risks, tobacco-dependent patients should be provided assistance to enroll in smoking cessation programs. Various studies have shown that brief interventions by the clinician to encourage tobacco cessation and offer substitution programs can decrease smoking rates[5] and tobacco use.[6] Cessation reduces the risk of incidence or the progression of tobacco-related diseases and increases life expectancy.[7,8,9] HIV care providers should provide cessation assistance in the form of counseling, pharmacotherapy or referral to cessation programs.</td></tr>
</table>

The measure was placed in Group 3 because the feasibility of data collection can vary considerably across grantees.

US Public Health Guidelines:

"The U.S. Preventive Services Task Force strongly recommends that clinicians screen all adults for tobacco use and provide tobacco cessation interventions for those who use tobacco products."[10]

References/Notes:

[1] "Clients" includes all clients aged 13 years and older.
[2] A "provider with prescribing privileges" is a health care professional who is certified in their jurisdiction to prescribe medications.
[3]Tobacco Use (http://www.hivguidelines.org/admin/files/qoc/hivqual/proj%20info/HQNatlAggScrs3Yrs.pdf)
[4]Philips, Abs 8, CROI, Boston, 2008.
[5] Page AR, Walters DJ, Schlegel RP, Best JA. Smoking cessation in family practice: The effects of advice and nicotine chewing gum prescription. Addict Behav 1986;11(4):443-6.
[6] Demers RY, Neale AV, Adams R, Trembath C, Herman SC. The impact of physicians' brief smoking cessation counseling: A MIRNET study. J Fam Pract 1990;31(6):625-9.
[7] Rigotti NA. Treatment of tobacco use and dependence. N Engl J Med 2002;346:506-512.
[8] Lancaster T, Stead L, Silagy C, Sowden A. Effectiveness of interventions to help people stop smoking: findings from the Cochrane Library. BMJ 2000;321:355-8.
[9] Methods, Successes, and Failures of Smoking Cessation Programs E B Fisher Jr,, E Lichtenstein, D Haire-Joshu, G D Morgan, H R Rehberg Annual Review of Medicine, February 1993, Vol. 44, Pages 481-513.
[10] Agency for Healthcare Research and Quality. The Guide to Clinical Preventive Services: Recommendations of the U.S. Preventive Services Task Force, June 2006, p. 120.

Performance Measure: Toxoplasma Screening	**OPR-Related Measure:** No
Percentage of clients[1] with HIV infection for whom Toxoplasma screening[2] was performed at least once since the diagnosis of HIV infection[3]	
Numerator:	Number of HIV-infected clients who have documented Toxoplasma status in health record
Denominator:	Number of HIV-infected clients who had a medical visit with a provider with prescribing privileges[4] at least once in the measurement year
Patient Exclusions:	1. Patients with known toxoplasmic disease, e.g. *Toxoplasma gondii* encephalitis
Data Elements:	1. Is the client HIV-infected? (Y/N) a. If yes, is there documentation of the client's Toxoplasma status in the health record? (Y/N)
Data Sources:	• Electronic Medical Record/Electronic Health Record • CAREWare, Lab Tracker or other electronic data base • Medical record data abstraction by grantee of a sample of records • Billing records
National Goals, Targets, or Benchmarks for Comparison:	None available at this time
Outcomes Measures for Consideration:	• Toxoplasmosis-related mortality rates in the clinic population • Incidence of Toxoplasmosis in the clinic population

Basis for Selection and Placement in Group 3:

Toxoplasmic disease appears to occur almost exclusively because of reactivation of latent tissue cysts. Clinical disease is rare among patients with CD4 counts >200 cells/*u*L. The greatest risk is among patients with a CD4 cell count < 50/*u*L. HIV-infected patients with *Toxoplasma gondii* encephalitis (TE) are almost uniformly seropositive for anti-toxoplasma IgG antibodies.[5]

The measure is placed in Group 3 because it overlaps and focuses on similar aspects of care (prophylaxis) previously captured in measures included in Group 1. Certain geographic regions have lower rates of toxoplasmic disease.

US Public Health Guidelines:

"HIV-infected persons should be tested for immunoglobulin G (IgG) antibody to Toxoplasma soon after the diagnosis of HIV infection to deter latent infection with *T. gondii* (strength of recommendation: BIII)."[6]

"*Toxoplasma*-seronegative persons who are not taking a PCP prophylactic regimen known to be active

against TE should be retested for IgG antibody to *Toxoplasma* when their CD4+ counts decline to <100/*u*L to determine whether they have seroconverted and are therefore at risk for TE (strength of recommendation: CIII)."[7]

References/Notes:

[1] "Clients" refers to all clients aged 13 years and older.
[2]Toxoplasma screening refers to testing for the presence of anti-toxoplasma immunoglobulin G (IgG) antibodies to detect latent infection with *Toxoplasma gondii*.
[3]Unless there is concern about ongoing exposure, annual re-screening is not generally recommended.
[4]A "provider with prescribing privileges" is a health care professional who is certified in their jurisdiction to prescribe medications.
[5]Centers for Disease Control and Prevention. Guidelines for Prevention and Treatment of Opportunistic Infections in HIV-Infected Adults and Adolescents. June 18, 2008; 1-134. (http://aidsinfo.nih.gov/contentfiles/Adult_OI.pdf)
[6]Ibid
[7]Ibid

Medical Case Management Group

Defined as of November 2009

- Care Plan
- Medical Visits

Performance Measure: Medical Case Management: Care Plan

Percentage of HIV-infected medical case management clients[1] who had a medical case management care plan developed and/or updated two or more times in the measurement year.

Numerator:	Number of HIV-infected medical case management clients who had a medical case management care plan developed and/or updated two or more times which are at least three months apart in the measurement year.
Denominator:	Number of HIV-infected medical case management clients who had at least one medical case management encounter in the measurement year.
Patient Exclusions:	1. Medical case management clients who initiated medical case management services in the last six months of the measurement year. 2. Medical case management clients who were discharged from medical case management services prior to six months of service in the measurement year.
Data Element:	1. Is the client HIV-infected? (Y/N) a. If yes, did the client have a medical case management encounter in the measurement year? (Y/N) i. If yes, is there a case management plan developed and/or updated two or more times at least three months apart during the measurement year? (Y/N) 1. If yes, list the dates of these care plans and/or care plan updates.
Data Sources:	Data reports required by HRSA/HAB, such as the Ryan White Data Report (RDR) and Ryan White HIV/AIDS Program Services Report (RSR), may provide useful data regarding the number of clients identified as receiving medical case management. Electronic databases, such as CAREWare, Provide, ARIES, Lab Tracker, Electronic Medical Record/Electronic Health Record. Case management record[2] chart abstraction by grantee of a sample of records.
National Goals, Targets, or Benchmarks for Comparison:	None available at this time.
Outcome Measures for Consideration:	Percent of patients who are retained in medical care in the measurement year. Percent of patients on antiretroviral therapy for whom it is indicated in the measurement year. Percent of patients who are adherent to their treatment regimen in the measurement year.

Basis for Selection:

The Ryan White HIV/AIDS Treatment and Modernization Act of 2006 (P.L. 109-415) indicates that medical case management is a core medical service. Additionally, medical case management services increase access to and retention in medical care.

Definition: "Medical Case management services (including treatment adherence) are a range of client-centered services that link clients with health care, psychosocial, and other services. The coordination and follow-up of medical

Performance Measure: Medical Case Management: Care Plan

treatments is a component of medical case management. These services ensure timely and coordinated access to medically appropriate levels of health and support services and continuity of care, through ongoing assessment of the client's and other key family members' needs and personal support systems. Medical case management includes the provision of treatment adherence counseling to ensure readiness for, and adherence to, complex HIV/AIDS treatments. Key activities include (1) initial assessment of service needs; (2) development of a comprehensive, individualized service plan; (3) coordination of services required to implement the plan; (4) client monitoring to assess the efficacy of the plan; and (5) periodic re-evaluation and adaptation of the plan as necessary over the life of the client. It includes client-specific advocacy and/or review of utilization of services."[3]

Case Management is beneficial in dealing with complex needs of people living with HIV/AIDS:

Reduce cost of care by decreasing hospitalization[4]

Clients enrolled in case management are 1.5 times more likely to follow drug regimens[5]

Improve chances of newly diagnosed HIV-infected persons entering care.[5]

US Public Health Service Guidelines:

None

References/Notes:

[1] "Clients" includes all medical case management clients regardless of age.

[2] The client's medical record may be used if case management documentation is located in the client's medical record.

[3] "Ryan White HIV/AIDS Program Services Report Instruction Manual, Version 1.3, page 6.

[4] Cruise, P.L. & Liou, K.T. (1993). AIDS Case management: a study of an innovative health service

[5] Gardner, L.I. Metsch, L.R., Anderson-Mahoney, P., Loughlin, A.M. Et al. Efficacy of a brief case management intervention to link recently diagnosed HIV-infected persons to care. AIDS 2005 Mar 4; 19(4): 423-31.

HAB HIV Performance Measures:
Medical Case Management

Performance Measure: Medical Case Management: Medical Visits

Percentage of HIV-infected medical case management clients[1] who had two or more medical visits in an HIV care setting in the measurement year.

Numerator:	Number of HIV-infected medical case management clients who had a medical visit with a provider with prescribing privileges[2] two or more times at least three months apart in the measurement year that is documented in the medical case management record[3].
Denominator:	Number of HIV-infected medical case management clients who had at least one medical case management encounter in the measurement year.
Patient Exclusions:	1. Medical case management clients who initiated medical case management services in the last six months of the measurement year. 2. Medical case management clients who were discharged from medical case management services prior to six months of service in the measurement year.
Data Element:	1. Is the client HIV-infected? (Y/N) a. If yes, did the client have a medical case management encounter in the measurement year? (Y/N) i. If yes, did the medical case manager document in the medical case management record[3] that the client had two or more medical visits at least three months apart in an HIV care setting in the measurement year? (Y/N) 1. If yes, list the dates of these medical visits.
Data Sources:	Data reports required by HRSA/HAB, such as the Ryan White Data Report (RDR) and Ryan White HIV/AIDS Program Services Report (RSR), may provide useful data regarding the number of clients identified as receiving medical case management. Electronic databases, such as CAREWare, Provide, ARIES, Lab Tracker, Electronic Medical Record/Electronic Health Record Medical case management record[3] chart abstraction by grantee of a sample of records.
National Goals, Targets, or Benchmarks for Comparison	None available at this time.
Outcome Measures for Consideration	Percent of patients who are retained in medical care in the measurement year. Percent of patients on antiretroviral therapy for whom it is indicated in the measurement year. Percent of patients who are adherent to their treatment regimen in the measurement year.

Basis for Selection:

The Ryan White HIV/AIDS Treatment and Modernization Act of 2006 (P.L. 109-415) indicates that medical case management is a core service. Additionally, medical case management services increase access to and retention in medical care.

Definition: "Medical Case management services (including treatment adherence) are a range of client-

Performance Measure: Medical Case Management: Medical Visits

centered services that link clients with health care, psychosocial, and other services. The coordination and follow-up of medical treatments is a component of medical case management. These services ensure timely and coordinated access to medically appropriate levels of health and support services and continuity of care, through ongoing assessment of the client's and other key family members' needs and personal support systems. Medical case management includes the provision of treatment adherence counseling to ensure readiness for, and adherence to, complex HIV/AIDS treatments. Key activities include (1) initial assessment of service needs; (2) development of a comprehensive, individualized service plan; (3) coordination of services required to implement the plan; (4) client monitoring to assess the efficacy of the plan; and (5) periodic re-evaluation and adaptation of the plan as necessary over the life of the client. It includes client- specific advocacy and/or review of utilization of services." [4]

Case Management is beneficial in dealing with complex needs of people living

with HIV/AIDS: Reduce cost of care by decreasing hospitalization[5]

Clients enrolled in case management are 1.5 times more likely to follow drug regimens[6]

Improve chances of newly diagnosed HIV-infected persons entering care.[6]

US Public Health Service Guidelines:

None

References/Notes:

[1] "Clients" includes all medical case management clients regardless of age.

[2] A "provider with prescribing privileges" is a health care professional who is certified in their jurisdiction to prescribe ARV therapy.

[3] The client's medical record may be used if case management documentation is located in the client's medical record.

[4] "Ryan White HIV/AIDS Program Services Report Instruction Manual, Version 1.3, page 6.

[5] Cruise, P.L. & Liou, K.T. (1993). AIDS Case management: a study of an innovative health service program in Palm Beach County, Florida. Journal of Health & Human Resources Administration, 16, 96-110.

[6] Gardner, L.I. Metsch, L.R., Anderson-Mahoney, P., Loughlin, A.M. Et al. Efficacy of a brief case management intervention to link recently diagnosed HIV-infected persons to care. AIDS 2005 Mar 4; 19(4): 423-31.