Interim Evaluation Report on California's Delivery System Reform Incentive Payments (DSRIP) Program

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UCLA CENTER FOR HEALTH POLICY RESEARCH

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Table of Contents

List of Exhibits

Interim Evaluation Report on California's Delivery System Reform Incentive Payments (DSRIP) Program

Executive Summary

The findings presented in this interim report are based on preliminary data from DSRIP program years DY 6 through DY 8 (November 2010 – June 2013).

Several sources were used in this interim evaluation:

- Proposed DSRIP plans, and semi-annual and annual reports provided by the DPHs to the California Department of Health Care Services
- Data from the Office of Statewide Health Planning and Development (OSHPD)
- An extensive questionnaire created by UCLA and completed by representatives of all participating DPHs
- DPHs comments on the overall impact of DSRIP and recommendations for the DSRIP program in the next §1115 Medicaid waiver gathered from structured key informant interviews for Categories 1-4

This report includes the overall impact of Categories 1-4 as well as separate findings from each of those Categories. Category 5 is reported separately due to significant differences in the nature of those projects.

Findings

Overview of DSRIP Categories 1-4

DPHs varied in characteristics and choice of Categories 1 and 2 projects, the challenges they faced in implementing their projects and the solutions they devised to address such challenges. Despite these differences, the great majority of the project milestones were achieved. Specifically:

- Participating DPHs include five University of California and 12 County-owned and operated systems and include six multihospital systems. DPHs varied in size from 76,000 to 4,128 discharges and from 1.2 million to 130,000 outpatient visits in 2010.
- Many DPHs selected specific and related projects in Categories 1 and 2, including expanding primary care capacity and implementing and utilizing disease management registries for their Category 1 infrastructure development, and expanding medical homes for their Category 2 innovation and redesign initiatives.
- Nearly 50% of the implemented projects were ongoing prior to DPHs participation in DSRIP, though most were not implemented extensively or system-wide.
- DPHs cited consistency with organizational goals, availability of project champions among existing staff, and synergy with existing projects as principal reasons for selecting DSRIP projects.
- DPHs achieved nearly all (99%) of their proposed milestones in DY 7-8, covered in this interim report. This success was achieved with high levels of planning, resource investments, and many DPHs reported high level of overall difficulty in implementing projects.
- DPHs perceived a high level of impact on improving quality of care and health outcomes, two of the three components of the Triple Aim. The third component, cost containment/efficiency, had a lower perceived impact in part because not enough time had elapsed to assess the full effect of implemented projects.
- Category 1 infrastructure development and Category 2 innovation and redesign were perceived as having the greatest impact on the Categories 3, 4, and 5.

DSRIP Category 1

DPHs implemented a range of infrastructure development projects as part of their DSRIP plans. DPHs were required to implement at least two Category 1 projects from the project menu. Additional detail in implementation of Category 1 projects include:

- DPHs selected a total of 57 Category 1 projects, 11 of the 17 DPHs selected more than two projects, with four projects being the most projects a hospital selected. The most frequently selected projects included expand primary care capacity, implement and utilize disease management registry functionality, increase training of primary care workforce, and expand specialty care capacity.
- More than 75% of projects were ongoing or had been planned prior to DSRIP, but mostly with limited scope.
- Most projects were selected because of their consistency with organizational goals and/or synergy with existing projects.
- Over 98% of the 399 total proposed milestones in DY 6 through 8 were achieved.
- DPHs invested high levels of planning and resources, in some cases undertaking considerable levels of reorganization of care processes and personnel.
- Most projects received "medium" to "high" overall difficulty ratings.
- DPHs incorporated 75% of the project results into quality improvement initiatives and reported data to medical directors and administrators for 84% of Category 1 projects.
- More than half (53%) of Category 1 projects adopted an existing evidence-based model with moderate revision, but nonetheless required high levels of planning and resources.
- Introducing telemedicine, enhancing coding and documentation for quality data, and implementing and utilizing disease management registries were considered the three most difficult projects to implement overall.
- Staffing difficulties and the lack of standardized definitions for care and tracking processes were major challenges. DPHs solved these challenges by hiring and training staff and obtaining provider buy-in among other efforts.
- The greatest perceived impact was on improving quality of care. The overall perceived impact on improving health outcomes and increasing cost containment and efficiency were somewhat lower.

DSRIP Category 2

DPHs implemented Category 2 projects designed to expand medical home and the chronic care models, improve continuity and integration of care, enhance patient experience and engagement, and promote cohesive system change. Specifically:

- A total of 66 projects were implemented across the 17 DPHs for Category 2. Fifteen DPHs implemented more than the required two projects, and the greatest number of implemented projects was six.
- Thirteen DPHs implemented or expanded their medical homes. Other frequently implemented projects included the Chronic Care Model, the redesign of the patient

experience and primary care, the integration of physical and behavioral health care and the use of palliative care programs.

- The majority of Category 2 projects were either ongoing or planned prior to DSRIP, but with limited scope.
- Most organizations selected Category 2 projects for three main reasons: consistency with organizational goals (92% selected projects for this reason), synergy with existing projects (82%) and the availability of champions (77%). Lack of funding and lack of HIT were the most commonly cited reasons for not planning Category 2 projects prior to DSRIP.
- All but five of the 376 milestones for Category 2 projects were achieved from DY 6 to DY 8.
- Forty-four percent of Category 2 projects were implemented through the adoption of an existing evidence-based model with moderate modification.
- Staff received training during implementation for 83% of Category 2 projects and prior to implementation for 73% of projects.
- Among the 14 project types within Category 2, the DPHs reported that the cost containment, medication management, and real time acquired infection system projects required the greatest amount of planning.
- Category 2 projects related to palliative care, process improvement, and cost containment were the most demanding in terms of stakeholder engagement. Most Category 2 projects were rated "high" or "very high" in terms of level of difficulty in overall implementation.
- DPHs perceived that the majority of Category 2 projects had a high or very high impact on quality of care and improvement of health outcomes.
- The most commonly stated challenges for Category 2 projects included difficulties in tracking data from multiple systems and lack of an automated system for data abstraction. Solutions included developing EMRs that interfaced with multiple systems and developing record-keeping protocols.

DSRIP Category 3

In Category 3, DPHs were required to track a variety of measures relating to patient experience, care coordination, preventive care, and at-risk populations. DPHs were required to track all measures for Category 3, but measures were not held to performance standards. Other details related to Category 3 measures include:

- All DPHs were tracking some measures prior to DSRIP; the most commonly tracked measure was the 30-day Chronic Heart Failure readmission rate and the diabetes Hemoglobin A1c control measure (10 DPHs). CG-CAHPS was least frequently tracked prior to DSRIP (2 DPHs).
- Lack of HIT and lack of staff were the most commonly cited reasons for not tracking Category 3 measures prior to DSRIP.

- DPHs achieved all 119 milestones in DY 7 and all 340 milestones in DY 8.
- DY 8 CG-CAHPS results indicated scores were highest for ability of the doctors to communicate with patients (81.6%) but lowest for getting timely appointments, care, and information (44.9%).
- A substantial increase in the average rates of mammography screening (from 53.8% to 64.7%) were observed from DY 7 to DY 8, but other measures did not change or changed by a small percentage overall. The individual DPH rates indicated large percentage increases and declines in some rates.
- DPHs reported using Category 3 measures in quality improvement initiatives 80% of the time as well as using them to provide feedback to medical directors and administrators 75% of the time and providers 70% of the time.
- All Category 3 measures required a high level of planning and resources, with the optimal diabetes care composite measure requiring the highest level of planning and resources and reported as being the most difficult to track overall.
- Preventive measures such as pediatric asthma care, tobacco cessation, pediatrics body mass index, child weight screening, and influenza immunization also proved to be difficult to collect, largely due to the level of manual abstraction required.
- The most frequently cited challenges to tracking Category 3 measures were data collection and data abstraction. The implementation of EMRs across DPHs eased these main data challenges.
- Most DPHs reported that Category 3 measures were not anticipated to have a high impact on cost containment but were expected to have an important effect on improving quality of care and patient health outcomes.

DSRIP Category 4

All DPHs were required to implement severe sepsis detection and management and central-line associated bloodstream infection (CLABSI) prevention as well as two out of five other inpatient care projects. The findings related to Category 4 projects include:

- The two most frequently selected additional projects were surgical site infection (SSI) prevention and hospital-acquired pressure ulcer (HAPU) prevention.
- Nearly all hospitals identified consistency with organizational goals and synergy with existing projects as reasons for selecting the two additional projects.
- Seven out of the 17 hospitals had no sepsis intervention prior to DSRIP. All of the participating DPHs had a CLABSI program underway prior to DSRIP.
- Lack of identification of the intervention as a problem and lack of HIT infrastructure were the most frequently cited reasons for not implementing various inpatient care projects prior to DSRIP.

- Overall, rates of adherence to the protocols for stroke management were high at baseline and increased to 96% or higher in DY 8. Venous thromboembolism prevention and treatment adherence rates ranged from about 47% to 90% at baseline for five protocols related to therapy and prophylaxis. Adherence rates changed to nearly 70% to nearly 90% for the same protocols in DY 8.
- DPHs adopted existing models, extensively modified 12% of the projects, and designed a new model for 10% of projects.
- For 69% of Category 4 projects, hospital staff received training prior to implementation and for 82% of projects the staff received training during implementation.
- The DPHs reported high levels of effort required to implement Category 4 projects despite substantial work prior to DSRIP on some projects. In general the level of effort required for implementation overall was high to very high.
- The level of resources required, challenges in obtaining stakeholder engagement and reorganization of care processes all required especially high levels of effort.
- Consistent documentation, lack of resources for data collection, and time-consuming manual data abstraction proved to be some of the greatest challenges in obtaining data for Category 4 projects.
- Daily audits, monthly meetings, integration of protocols into the EMR systems, and staff training and engagement were some of the solutions identified by DPHs as most helpful in obtaining data, achieving milestones and improving sustainability for Category 4 projects.
- Measures and project results were integrated into quality improvement efforts for all Category 4 projects and nearly all Category 4 projects used data to provide administrative leadership and medical directors with feedback on results and progress.
- DPHs perceived that Category 4 projects had the greatest impact on improving quality of care and health outcomes, followed by increasing cost containment and efficiency.
- Preliminary analyses of hospital discharge data prior to DSRIP implementation indicated that the rates of mortality due to severe sepsis, surgical site infections, and hospital-acquired pressure ulcers were higher in DPHs than matched hospitals. However, the reverse was true for hospital-related falls and venous thromboembolisms.

DSRIP Category 5

Category 5 interventions were designed to improve the delivery of services to people living with HIV/AIDS (PLWHA) and facilitate the transition from Ryan White to the Low Income Health Program (LIHP) care sites. DPHs in ten counties implemented Category 5 interventions. Category 5A focused on improvements in infrastructure and program design, while Category 5B concentrated on improvements in clinical and operational outcomes. DPHs were required to select three (of seven) Category 5A interventions. All DPHs were required to report data on six HIV Core Clinical Performance Measures. In addition, DPHs were required to select at least one metric from Groups 2, 3 and Medical Case Management. Category 5 analysis was conducted with available data from DPH proposals and reports. Findings for this Category include:

- Empanel patients into medical homes, disease management registry, developing retention programs, and ensuring access to Ryan White wraparound services were most commonly selected Category 5A projects (6 DPHs). The interventions were successfully launched across the ten sites.
- The most commonly selected Category 5B, group 2 and 3 measures were hepatitis C and syphilis screening (4 DPHs).
- DPHs that implemented medical homes also selected enhanced Ryan White wraparound services, and DPHs implementing disease management registries often also selected development of formal retention programs.
- DPHs reported selecting Category 5A projects that aligned with the Federal Implementation Plan of the National HIV/AIDS Strategy. Projects were also selected because they were complementary to DSRIP Category 1-4 projects.
- DPHs reported significant increases in four of the six required Group 1 outcomes. Across the sites, the percentage of patients with at least two medical visits a year increased from 77.5% in the baseline period to 80.9%.
- Greater exposure to medical evaluation and management created opportunities to increase 5B outcomes. The proportion of patients who were on HAART therapy increased from 88.5% to 92.8%. Regular viral load monitoring increased from 57.6% to 70.7%, but receipt of CD4 T-cell counts grew only slightly from 70% to 70.2%. Viral load suppression grew to 86.1% of patients on ART from a baseline level of 84.6%. Among patients with CD4 T-cell counts below 200 cell/mm^3, the proportion receiving PCP prophylaxis rose from 75.9% to 83.0%.
- DPHs reported that empanelment of patients into medical homes with HIV expertise, implementation of a disease management registry, and development of retention programs were the three interventions with the greatest impact on retention.
- All five of the Category 5B measures with available outcome data showed significant increases. DPHs reported that disease management registries, clinical decision support

tools and linking patients to medical homes enabled them to increase screening for the targeted conditions such as sexually transmitted disease, tuberculosis (TB), and mental health issues. In addition to reaching a greater share of PLWHA in their care with screening, DPHs reported large increases in the percentage of PLWHA who received vaccinations, increasing the vaccination rate for pneumonia from 47% to 82% of patients, for hepatitis B from 19% to 34% and for influenza from 49% to 82% of all HIV patients.

- DPHs reported success in improving patient retention and adherence to medication. The major contributors to positive outcomes were empanelling patients into medical homes with HIV expertise, implementing a disease management registry and developing specific retention programs.
- DPHs faced many challenges, including short timelines, the need for staff training, physician compliance, and timeliness of inputting patient information in the electronic medical record system. The most frequently reported challenge was removing patient barriers to retention in care. DPHs also had concerns about sustainability of 5A programs after DSRIP funding ended. Despite the challenges, the DPHs reported success in implementing the interventions and improving patient outcomes.

Overall Impact of DSRIP and DPH Recommendations

DPHs reported on the overall impact of Categories 1 to 4 on their organizations. The summary of this impact includes:

- DSRIP led to systematic and major change and was considered as an investment in the future of DPHs. The focus of DSRIP on population-based measures and outpatient care was particularly valuable.
- DSRIP significantly transformed the operations and information technology in DPHs.
- DSRIP provided the resources and financial incentives to effectively implement the selected projects and obtain buy-in from executives and staff.
- DSRIP led to new collaborations between DPHs and sharing of innovations.

DPHs were asked to provide their recommendations for renewal of DSRIP under the next Medicaid §1115 Waiver. These recommendations included:

- Align DSRIP projects with other initiatives and organizational goals.
- Consider projects that prepare DPHs for the future.
- Reduce the number of projects and narrow the focus of the program.
- Provide DPHs with clear metrics, instructions, and direction.

- Reevaluate the relevance of some measures to ensure consistency with current evidence.
- Allow for flexibility so that projects can be aligned with organization goals and characteristics. But increase standardization of some measures to reduce confusion and shifting goals.
- Improve measurement methods so that high performing DPHs are not penalized for small marginal improvements.
- Better measure time and effort required to complete projects.
- Provide CMS timely feedback and establish direct communication lines between CMS and DPHs.

Future Analysis in the Final DSRIP Evaluation Report

The findings presented in this report are preliminary and represent the early experiences of DPHs during DY 6 to DY 8 and include selected areas of the evaluation. The final evaluation report will include all areas of the evaluation and will include evaluation of data from DY 9 and DY 10, in-depth analysis of key informant interviews with DPHs, and further analysis of DPH and non-DPH external data.

Introduction

In November 2010, California received approval for its §1115 Medicaid "Bridge to Reform" waiver. In preparation for health care reform under the Patient Protection and Affordable Care Act (ACA) of 2010, the waiver allowed California the flexibility to modify its Medicaid programs to implement innovative delivery reforms. The waiver included four main components: the Low Income Health Program (LIHP), which expanded eligibility for Medicaid-like coverage to low-income individuals prior to health reform; a program that moved seniors and persons with disabilities to Medicaid managed care organizations; programs to develop organized systems of care within the California Children's Services program; and the Delivery System Reform Incentive Payments (DSRIP) program, which was aimed at improving care delivery and performance of designated public hospitals and academic hospital systems throughout California through the use of financial incentives[1].

One of the main goals of California's DSRIP program was to incentivize innovation and integrated care delivery redesign at hospital systems serving a disproportionate share of low-income patients, particularly in anticipation of the influx of newly insured patients as a result of the ACA. Additional goals included creating and sustaining medical homes to manage chronic diseases, delivering proactive primary care services, and reducing health disparities. California was the first in the nation to implement a DSRIP program, supporting transformative change through a performance-based structure. Since the implementation of California's waiver, six additional states have created DSRIP programs, including Kansas, Massachusetts, New Jersey, New York, New Mexico, and Texas[2].

Participating DPHs

Participating institutions include all 17 designated public hospitals (DPHs) in California. Six DPHs are multi-hospital systems leading to 21 total hospitals. The following DPHs are participating in DSRIP:

- Alameda Health System
- Arrowhead Regional Medical Center
- Contra Costa Health Services
- Kern Medical Center
- Los Angeles County Department of Health Services (includes Los Angeles County University of Southern California, Harbor/University of California Los Angeles Medical Center, Olive View/ University of California Medical Center, and Rancho Los Amigos National Rehabilitation Center)

- Natividad Medical Center
- Riverside County Regional Medical Center
- San Francisco General Hospital
- San Joaquin General Hospital
- San Mateo Medical Center
- Santa Clara Valley Medical Center
- University of California, Davis Medical Center
- University of California, Irvine Medical Center
- University of California, Los Angeles Hospitals (includes University of California Los Angeles Medical Center – Ronald Reagan, and University of California Los Angeles Medical Center – Santa Monica)
- University of California, San Diego Health Systems
- University of California, San Francisco Medical Center
- Ventura County Medical Center

DSRIP Program Design

The first year of DSRIP implementation is referred to as Demonstration Year (DY) 6. DSRIP will end on October 31, 2015 or at the end of DY 10. DPHs have the potential to receive up to $3.3 billion dollars in federal funds over the 5 years of the waiver. DPHs' DSRIP proposals focused on four categories of projects: develop infrastructure, implement innovation and redesign, track population-focused measures, and implement urgent improvements in care. Ten DPHs elected to participate in Category 5 projects, which focused on ensuring that persons diagnosed with HIV have access to high-quality care, integrated and coordinated care, in the outpatient setting. Category 5 projects were implemented for a total of 18 months, from the start of DY 8 in July 2012 through the first six months of DY 9 and ending in December 2013.

Each approved project in the §1115 Medicaid waiver included multiple potential process and improvement measures; DPHs were required to select at least one measure of each type. Within each measure, DPHs were required to select an evidence-based metric and provide rationale and/or evidence to support the metric.

In their proposals, DPHs were required to submit a "Milestone and Metrics Table" for each Category 1 and Category 2 project, in which each milestone was specified as the improvement target for that specific year. For example, a milestone could be "Achieve at least a 10% or lower patient no-show rate for primary care medical homes" where the metric is the no-show rate and the milestone is 10% or lower[3].

In their proposals, DPHs were also required to include a narrative that described the goals of the program, the challenges faced by the particular system and community, and the delivery reform aimed at addressing the stated challenges. The baseline for the projects was required to begin no earlier than July 2009. DPHs were also required to note how each project reinforced and supported efforts in other categories within the DSRIP plan. Below are the further descriptions of each DSRIP category.

Category 1: Infrastructure Development

Category 1 projects focused on infrastructure development. These activities resulted in investments in technology, tools, and human resources to strengthen the ability of DPHs to serve populations and improve services. DPHs were required to select at least two Category 1 projects but had complete flexibility in which projects they selected. DPHs were required to provide reasons for their selections based on the needs and circumstance of their population, the relative priority of the project for the organization, and baseline status. The full and abbreviated Category 1 project names used in the rest of this report are provided in Exhibit 1.

Exhibit 1: Category 1 Projects

Full Project Name	Abbreviated Name
1. Expand Primary Care Capacity	Primary Care Capacity
2. Increase Training of Primary Care Workforce	Workforce Training
3. Implement and Utilize Disease Management Registry Functionality	Disease Registry
4. Enhance Interpretation Services and Culturally Competent Care	Cultural Competency
5. Collect Accurate Race, Ethnicity, and Language (REAL) Data to Reduce Disparities	REAL Data
6. Enhance Urgent Medical Advice	Urgent Medical Advice
7. Introduce Telemedicine	Telemedicine
8. Enhance Coding and Documentation for Quality Data	Quality Data
9. Develop Risk Stratification Capabilities/Functionalities	Risk Stratification
10. Expand Capacity to Provide Specialty Care Access in the Primary Care Setting	Specialty Care in Primary Setting
11. Expand Specialty Care Capacity	Specialty Care Capacity
12. Enhance Performance Improvement and Reporting Capacity	Performance Improvement

Category 2: Innovation and Redesign

Projects in Category 2 were aimed at implementing innovative models and redesign of care. Selection of Category 2 project was similar to Category 1 explained above. Category 2 projects full name and the abbreviated name used in the rest of this report are provided in Exhibit 2.

Exhibit 2: Category 2 Projects

Full Project Name	Abbreviated Name
1. Expand Medical Homes	Medical Homes
2. Expand Chronic Care Management Models	Chronic Care Management
3. Redesign Primary Care	Primary Care Redesign
4. Redesign to Improve Patient Experience	Patient Experience
5. Redesign for Cost Containment	Cost Containment
6. Integrate Physical and Behavioral Health Care	Physical and Behavioral Health Care Integration
7. Increase Specialty Care Access/Redesign Referral Process	Specialty Care Access/Redesign Referral Process
8. Establish/Expand a Patient Care Navigation Program	Patient Care Navigation Program
9. Apply Process Improvement Methodology to Improve Quality/Efficiency	Process Improvement
10. Improve Patient Flow in the Emergency Department/Rapid Medical Evaluation	Flow in the ED/Rapid Medical Evaluation
11. Use Palliative Care Programs	Palliative Care
12. Conduct Medication Management	Medication Management
13. Implement/Expand Care Transitions Programs	Care Transitions
14. Implement Real-Time Hospital-Acquired Infections (HAIs) System	Real-Time Hospital-Acquired Infections (HAIs) System

Category 3: Population-Focused Improvement

Category 3 required tracking specific measures of care delivery for high burden conditions in DPH systems focusing on population health improvement. Each DPH was required to gather six measures in DY 7, and to report all 16 measures during DY 8-10. DPHs without robust electronic health record systems were allowed to use a sampling approach to generate a statistically significant random sample using the methodology outlined in the Waiver Special Terms and Conditions. Category 3 measures are listed in Exhibit 3.

Exhibit 3: Category 3 Measures

Patient or Care Giver Experience
1. CG-CAHPS
Care Coordination
2. Diabetes, short term complications
3. Uncontrolled diabetes
4. Congestive heart failure
5. Chronic obstructive pulmonary disease
Preventive Health
6. Mammography screening
7. Influenza immunization
8. Child weight screening
9. Pediatrics body mass index
10. Tobacco cessation
At-Risk Populations
11. Diabetes: LDL control (<100 mg/dl)
12. Diabetes: HgA1c control (<8%)
13. 30-day CHF readmission rate
14. Hypertension: blood pressure control (<140/90 mmHg)
15. Pediatrics asthma care
16. Optimal diabetes care composite

Category 4: Urgent Improvement in Care

Category 4 projects were designed to make urgent improvements in the inpatient quality and safety and included specific evidence-based projects.[3] Each DPH was required to implement at least four projects including two required projects on severe sepsis detection and management and central-Line associated bloodstream infection prevention. DPHs were also required to select a minimum of two additional interventions from the following projects: surgical site infection prevention, hospital-acquired pressure ulcer prevention, stroke management, venous thromboembolism prevention and treatment, and falls with injury prevention. Improvement targets for Category 4 projects were based on baseline data starting no earlier than July 2009 or data based on 6-12 months of the project in DY 7. The state was tasked with setting a high performance level and a minimum performance level for central line insertion practices (CLIP) adherence, stroke management, and venous thromboembolism prevention and treatment, which will be used as guidelines to set targets for DY 9-10. Category 4 projects are provided in Exhibit 4.

Exhibit 4: Category 4 Projects

1. Severe Sepsis detection and Management (Mandatory Project)
2. Central Line-Associated Bloodstream Infection (CLABSI) Prevention (Mandatory Project)
3. Surgical Site Infection (SSI) Prevention
4. Hospital-Acquired Pressure Ulcer Prevention
5. Stroke Management
6. Venous Thromboembolism (VTE) Prevention and Treatment
7. Falls with Injury Prevention

Category 5: HIV Transition Projects

Category 5 projects are aimed at strengthening the ability of DPHs to serve individuals diagnosed with HIV, and are focused on outpatient services. Category 5 proposals were required to demonstrate the infrastructure, programs and services that must be in place in order for HIV-positive individuals to receive high-quality, coordinated care. Category 5A focused on improvements in infrastructure and program design, while Category 5B concentrated on improvements in clinical and operational outcomes. DPHs were required to select three Category 5A interventions.

Category 5B projects were designed to focus on achieving discrete patient outcomes across several domains. All DPH systems were required to report data on six HIV Core Clinical Performance Measures for individuals enrolled in LIHP who access care through the DPH system and were also required to select and track four additional Performance Measures. For the additional measures, DPHs were required to select at least one measure from Groups 2, 3 and Medical Case Management. Hospital systems reported measures through the Health Resources and Services Administration HIV/AIDS Bureau (HRSA HAB). Upon collecting baseline data, DPHs were required to achieve performance improvement targets by the end of the Category 5 timeline in order to receive funding for each measure.

The following DPHs participated in Category 5 projects:

1. Alameda Health System
2. Contra Costa Regional Medical Center
3. Kern Medical Center
4. Los Angeles Department of Health Services
5. Riverside County Regional Medical Center
6. San Francisco General Hospital
7. San Mateo Medical Center
8. Santa Clara Valley Medical Center

9. University of California, San Diego Health Services
10. Ventura County Medical Center

Exhibit 5: Category 5A Projects

1. Empanel patients into medical homes with HIV expertise
2. Implement a Disease Management Registry module suitable for managing patients diagnosed with HIV
3. Build clinical decision support tools to allow for more effective management of patients diagnosed with HIV
4. Develop retention programs for patients diagnosed with HIV who inconsistently access care
5. Enhance data sharing between DPHs and County Departments of Public Health to allow for systematic monitoring of quality of care, disease progression, and patient and population level health outcomes
6. Launch electronic consultation system between HIV primary care medical homes and specialty care providers
7. Ensure access to Ryan White wraparound services for new LIHP enrollees

Exhibit 6: Category 5B Required Core Clinical Performance Measures

Required Measures	Optional Measures		
Group 1	**Group 2**	**Group 3**	**Medical Case Management**
1. CD4 T-Cell Count	1. Adherence Assessment and Counseling	1. Chlamydia Screening	1. Care Plan
2. HAART	2. Cervical Cancer Screening	2. Gonorrhea Screening	2. Medical Visits
3. Medical Visits	3. Hepatitis B Screening	3. Hepatitis/HIV Alcohol Counseling	
4. PCP Prophylaxis	4. Hepatitis B Vaccination	4. Influenza Vaccination	
5. Viral Load Monitoring	5. Hepatitis C Screening	5. MAC Prophylaxis	
6. Viral Load Suppression	6. HIV Risk Counseling	6. Mental Health Screening	
	7. Lipid Screening	7. Pneumococcal Vaccination	
	8. Oral Exam	8. Substance Abuse Screening	
	9. Syphilis Screening	9. Tobacco Cessation and Counseling	
	10. TB Screening	10. Toxoplasma Screening	

DPH Reporting

In order to receive funding under DSRIP, DPHs are required to submit reports to the State, which must include progress reports and the incentive amounts requested by each DPH. DPHs are required to submit two semi-annual reports and one year-end report per demonstration year. With the exception of DY 6, the first reporting period occurs from July 1 through December 31 of the demonstration year, with the report due March 31 and final incentive payments disbursed by April 30. The second reporting period occurs from January 1 through June 30 of the demonstration year, with the report due in September and the payment disbursed by October 31. DPHs must also submit an annual, year-end report by October 31. The year-end reports must include information from the two semi-annual reports, a year-end

narrative and descriptions of the DPHs' involvement in collaborations. Each report must include data that supports milestone achievement.

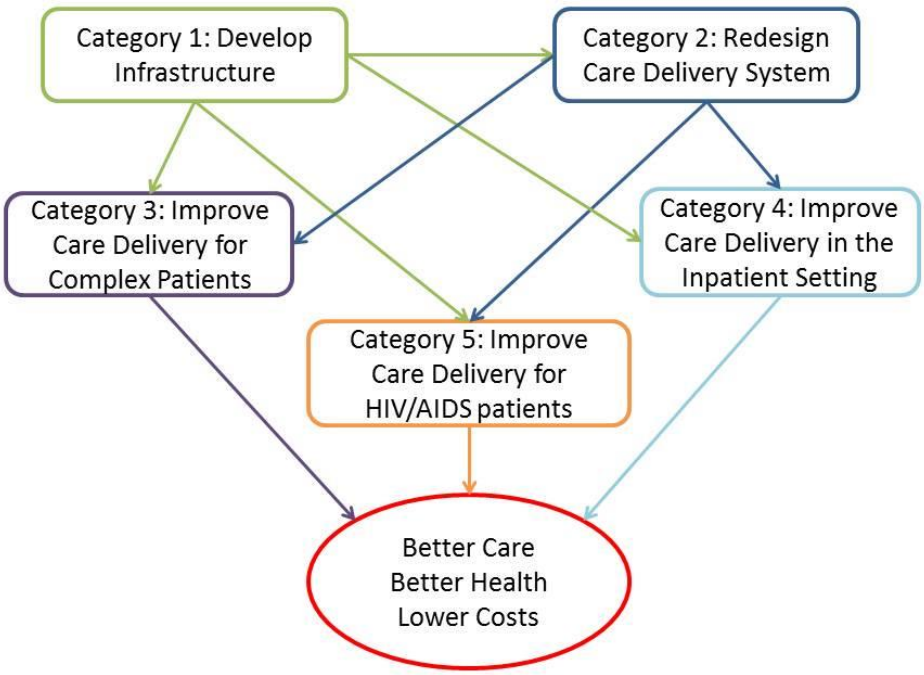
DPHs must report achievement on the designated milestones to receive funding. Each milestone is given an achievement value between 0 and 1. These achievement values are then summed to give a total achievement value for each "milestone bundle" for a particular length of time (full calculation available in *Attachment P* of the Waiver Special Terms and Conditions).

Achievement	Achievement Value
Full achievement	1
≥75%	0.75
74% to 50%	0.5
49% to 25%	0.25
≤24%	0

UCLA Evaluation

The University of California, Center for Health Policy Research (UCLA) was selected by the California Department and Health Care Services (DHCS) to evaluate the DSRIP program. The evaluation is designed to examine the progress of DPHs in implementing DSRIP projects, the process of implementation and challenges faced by DPHs, and whether DSRIP projects impacted the Triple Aim of improving quality of care and patient outcomes, and increased cost containment or efficiency. This interim evaluation report covers DY 6, DY 7 and DY 8. The final evaluation report to be completed in late 2015 will cover the available data for the entire program including DY 9 and 10. UCLA examines the implementation of each Category as well as impact of categories on each other as indicated in the conceptual framework in Exhibit 7.

Exhibit 7: Conceptual Framework for UCLA's Evaluation of the DSRIP Program



Research Questions

The following research questions are addressed to the degree possible and depending on availability of data in this interim period:

- What were the predominant types of infrastructure and system redesign projects selected by DPHs? Why were these projects chosen?
- Did infrastructure and system redesign projects improve the ability of DPHs to enhance care delivery in the inpatient setting and for complex populations? How were these improvements accomplished?
- Did any projects have a greater impact on improving health, care delivery, or efficiency than others?
- What were the major challenges experienced by DPHs in implementing Categories 1-5 projects? What was the impact of these challenges on program sustainability?
- What were the lessons learned and innovations by DPHs in implementation of projects in Categories 1-5? How were implementation challenges addressed?
- Above and beyond the DSRIP milestones and requirements, did the Category 5 projects lead to smoother transitions for patients transitioning into LIHP, and in what ways?

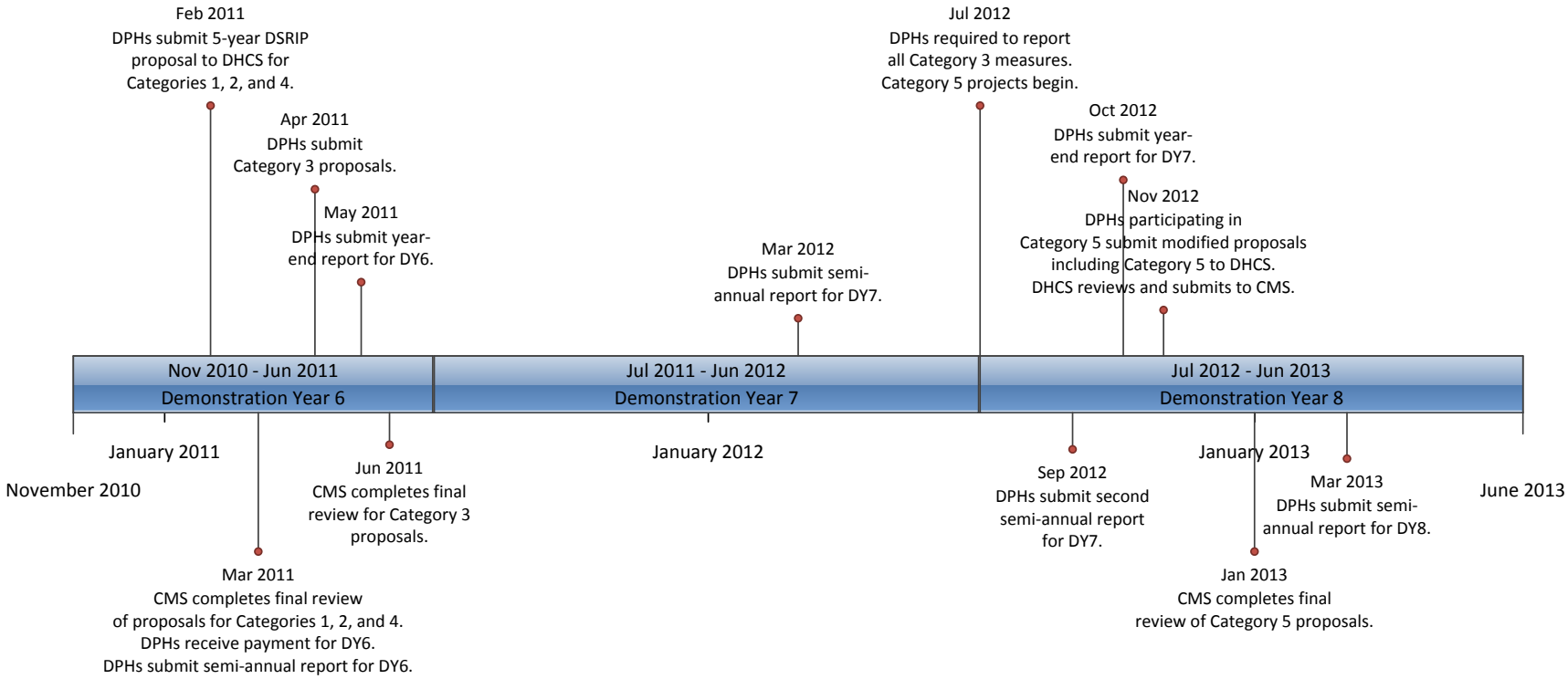
- Did the Category 5 projects lead to improved health outcomes for HIV-positive LIHP enrollees? What impact has the provision of preventive care and screening services had on health outcomes for HIV-positive LIHP enrollees?
- How has the implementation of Category 5A projects improved coordination of services for patients diagnosed with HIV? How has the implementation of Category 5A projects improved retention and compliance for patients diagnosed with HIV?
- What trends are reported across DPHs on the obstacles to meeting performance improvement targets?

Data Sources

UCLA used four data sources in this interim report:

- The DSRIP plans and annual DPH reports from DY 6 through DY 8. A timeline of plan and report submissions is presented in Exhibit 8.
- An extensive questionnaire completed by representatives of all participating DPHs. The questionnaire included open-ended and categorical closed-ended questions for a systematic set of responses from all respondents.
- Structured key informant interviews conducted with all DPHs. Interviews were used to gather additional data to answer the evaluation questions, particularly when DPH reports did not sufficiently illustrate lessons learned and barriers or challenges to implementation of the program overall or for specific projects. Key informant interviews were conducted by telephone with the individuals most knowledgeable about the specific areas of interest such as medical directors, administrators of the DSRIP projects and/or quality improvement initiatives, and clinicians. Limited data from these interviews were available and are used for this report.
- Data from the Office of Statewide Health Planning and Development (OSHPD) to describe the context in which DPHs deliver care in California and identify benchmarks for Category 4 DSRIP indicators and measures.

Exhibit 8: Timeline of DSRIP Plans and Reports Used in Interim Report



Overview of Categories 1-4

This chapter provides an overview of the implementation and impact of DSRIP Categories 1-4 overall. Category 5 is reported separately due to significant differences in the nature of those projects. However, the discussion of the impact of projects from one category to another includes the impact on Category 5 projects.

DPH Characteristics

The 17 DPHs participating in DSRIP include five University of California (UC) systems and 12 County-owned and operated systems (Exhibit 9). These DPHs vary widely in size, structure, and other characteristics. Six of the DPHs had multiple acute care hospitals within their systems, and all said that DSRIP projects were consistently implemented across their facilities. The Los Angeles County Department of Health Services (LACDHS) was the largest system, with three acute care hospitals, more than 76,000 discharges and 1.2 million outpatient visits. In terms of payer mix, the county-owned DPHs tended to have a larger percentage of discharges and outpatient visits covered by Medi-Cal and less coverage from third-party payers than DPHs in the UC system. The DPHs in the UC system had higher case mix averages than the non-UC hospitals, an indication of the higher level of care complexity provided by UC DPHs. Most of the participating systems also share some similarities. All DPHs have multiple primary care facilities participating in DSRIP. Sixteen of the DPHs (except for San Mateo Medical Center), are teaching hospitals and have residents on staff (data not shown).

Exhibit 9: Characteristics of Designated Public Hospitals Participating in DSRIP

Designated Public Hospital	Number of Hospitals*	Total Hospital Beds	FY 2010 Total Discharges	FY 2010 Outpatient Visits	Total Non-Pediatric General Acute Care Beds	Percentage of Discharges With Medi-Cal as Payer Source	Percentage of Discharges with Third-Party Payer Source	Percentage of Outpatient Visits With Medi-Cal as Payer Source	Percentage of Outpatient Visits with Third-Party Payer Source	Number of Primary Care Facilities Participating in DSRIP	Case Mix**
County-Owned DPHs											
Alameda County Medical Center	1	475	13,816	424,224	236	51	3	39	3	4	1.04
Arrowhead Regional Medical Center	1	456	24,325	384,516	260	48	5	44	6	4	1.04
Contra Costa Regional Medical Center	1	163	9,658	486,551	123	54	9	51	13	10	0.91
Kern Medical Center	1	222	11,878	147,603	173	61	11	55	8	4	0.95
Los Angeles County Department of Health Services	3	2,034	76,549	1,236,594	1,305	51	7	35	7	23	1.21
Natividad Medical Center	1	172	7,904	194,084	138	60	16	36	12	2	0.86
Riverside Medical Center	2	439	21,194	130,000	341	38	16	50	15	4	1.04
San Francisco General Hospital	1	509	15,625	614,152	395	52	16	39	14	10	1.18
San Joaquin General Hospital	1	196	8,601	220,458	181	63	8	50	9	3 to 6***	1.03
San Mateo Medical Center	1	509	4,128	303,953	93	39	13	36	8	9****	1.19
Santa Clara Valley Medical Center	1	574	23,433	823,341	484	55	10	54	12	7	1.11
Ventura County Medical Center	2	272	13,893	860,589	213	42	24	31	38	17	1.01
University of California DPHs											
University of California, Davis Medical Center	1	619	29,190	930,372	605	34	28	9	63	18	1.6
University of California, Irvine Medical Center	1	422	16,389	412,552	345	27	32	20	37	5	1.53
University of California, Los Angeles Hospitals	2	800	38,327	834,944	723	17	45	8	57	20	1.62
University of California, San Diego Health System	2	600	23,706	482,693	479	26	32	23	42	8	1.58
University of California, San Francisco Medical Center	2	580	29,244	953,070	635	23	43	13	48	5	1.85

Source: UCLA analysis of 2010 hospital financial and utilization data from the California Office of Statewide Health Planning and Development

*Does not include rehabilitation or psychiatric facilities.

**Case mix is a measure of the relative cost or resources needed to treat the mix of patients in each designated public hospital during the calendar year. Higher scores indicate greater level of complexity. Some of the factors that go into calculating case mix include: principal and secondary diagnoses, age, procedures performed, the presence of co-morbidities and/or complications, discharge status, and gender. A detailed explanation is available here: http://www.oshpd.ca.gov/HID/Products/PatDischargeData/CaseMixIndex/default.asp

***San Joaquin General Hospital reported most measures from three primary care clinics, but reported mammography screenings from six clinics.

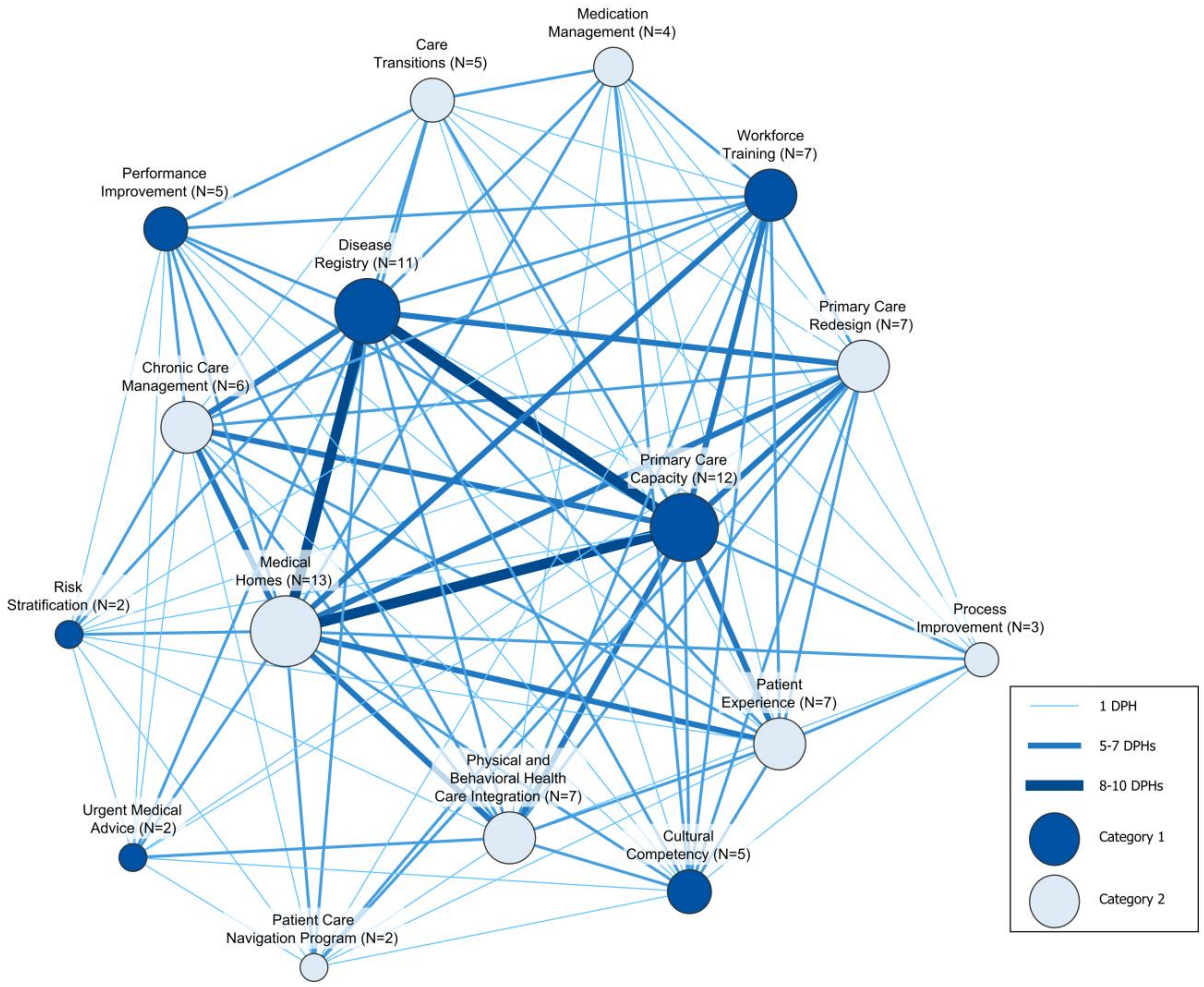
****San Mateo Medical Center had 10 clinics participating in DSRIP until 2013 when one clinic closed down. It now has nine clinics participating in DSRIP.

Project Selection

Participating DPHs had to track all Category 3 measures. Category 4 included two required projects and two optional projects. However, DPHs could choose from 12 projects in Category 1 and 14 projects in Category 2.

The following diagram highlights the projects that were most frequently and concurrently chosen by DPHs in Categories 1-2 (Exhibit 10). The dark circles represent Category 1 projects and the light circles represent Category 2 projects. The larger circles represent projects most frequently selected by DPHs (the number of DPHs that selected each project is denoted by N). For example, the Category 1 disease registry project was selected by 11 DPHs and is represented by a large dark circle but risk stratification was selected by 2 DPHs and is represented by a small dark circle. The lines between circles identify which projects were concurrently selected and the thickness of the line represents how many DPHs concurrently implemented the same project. For example, between 8 -10 DPHS selected both disease management and medical home projects, but disease registry and chronic care management projects were concurrently selected by 5-7 DPHs. The diagram indicates that the DPHs that selected implementing and utilizing disease management registries and expanding primary care capacity as Category 1 projects most frequently selected expanding medical home projects in Category 2. The second group of most frequently concurrent projects included workforce training from Category 1 with chronic disease management, physical and behavioral health integration, and improving patient experiences from Category 2. The pattern of selection among the remaining projects is less pronounced or clear.

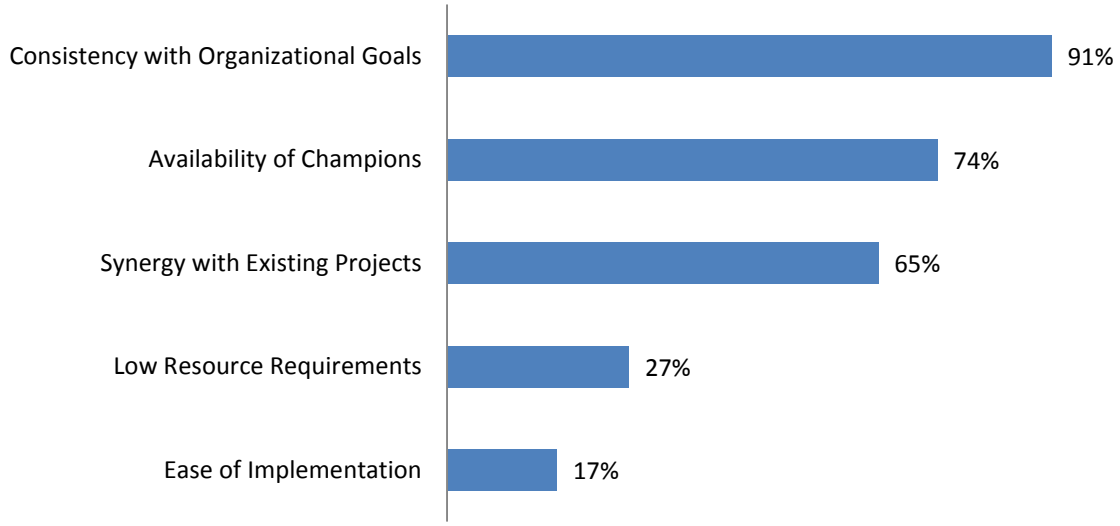
Exhibit 10: Selection Frequency of Concurrent Category 1-2 DSRIP Projects



Source: UCLA analysis of designated public hospital (DPH) reports.
Notes: The Ns represent the number of DPHs that implemented a specific project and larger circles correspond to more DPHs. The lines between circles represent projects that are concurrently selected by the same DPHs and thicker lines represent how many DPHs implemented the same projects concurrently.

DPHs reported the reasons for selecting the projects included in their DSRIP plans. The three most common reasons were consistency with organizational goals, availability of project champions among existing staff, and synergy with existing projects (Exhibit 11). DPHs least frequently reported ease of implementation as a reason for selecting projects.

Exhibit 11: Reasons for Selecting Categories 1, 2, 4 DSRIP Projects

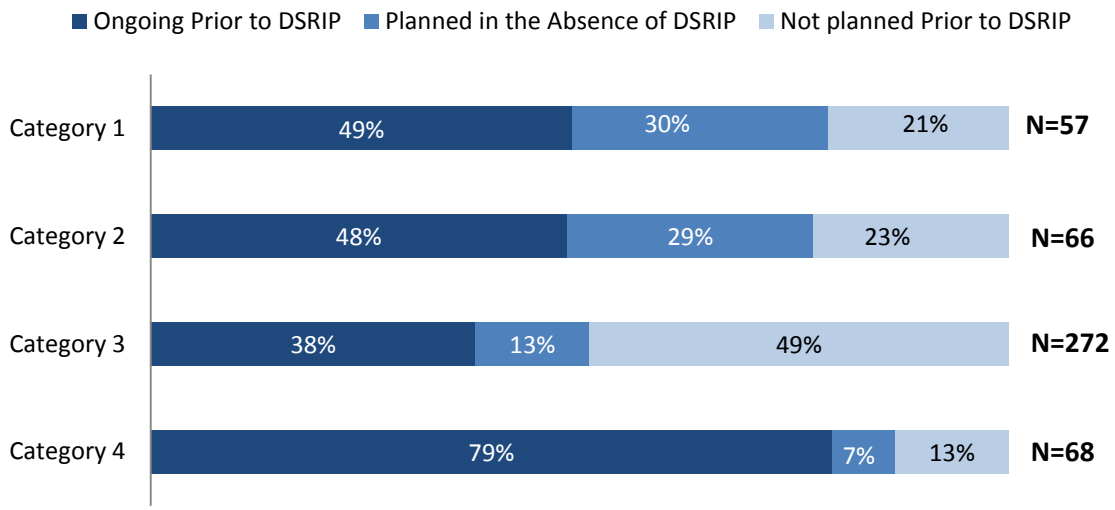


Source: UCLA survey of designated public hospitals (DPHs).
Notes: Analysis is based on a total of 157 projects selected by DPHs in Categories 1, 2, and 4. Category 3 was excluded because all projects were required. Total is greater than 100% because DPHs were allowed to select more than one reason per project.

Status of Category 1-4 Projects Prior to DSRIP

Many DPHs were implementing projects similar to those in DSRIP prior to their participation in the program (Exhibit 12). For example, of the 57 projects implemented in Category 1 during DSRIP, nearly half were ongoing prior to DSRIP. In most cases, participation in DSRIP substantially increased the scope of the existing work. Thirty percent of Category 1 projects were planned prior to DSRIP, but most were not attainable without DSRIP funding or had unidentified timelines. A large proportion (49%) of Category 3 measures were not planned prior to DSRIP.

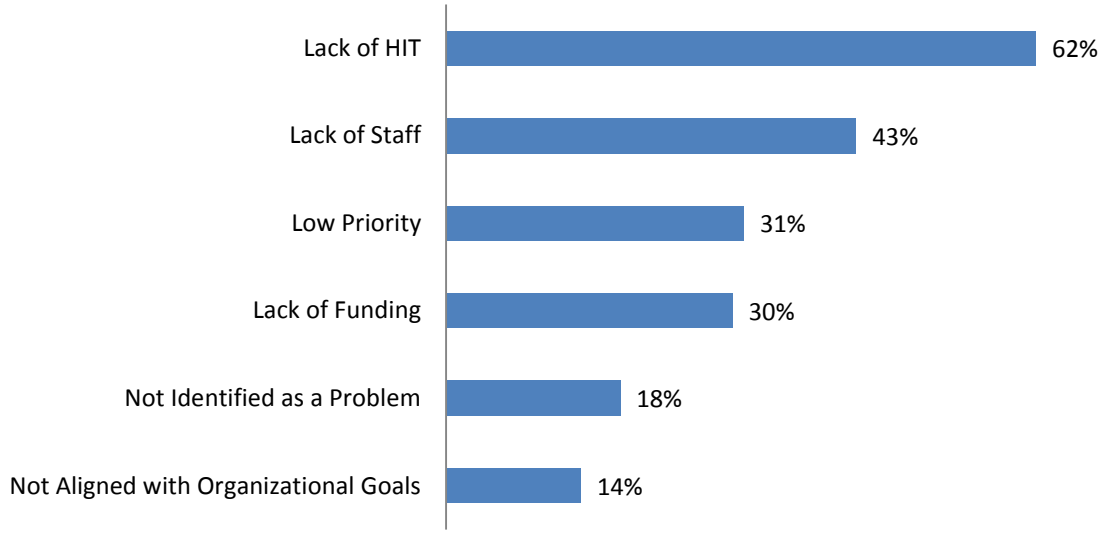
Exhibit 12: Status of Categories 1-4 Projects in DPHs Prior to DSRIP



Source: UCLA survey of designated public hospitals (DPHs).
Note: The Ns for each category represent the total number of projects implemented in the category across all DPHs.

DPHs also reported on the reasons for not implementing specific DSRIP projects prior to their participation in the program. Lack of health information technology (HIT) was the most commonly cited reason for not having planned DSRIP-related projects (Exhibit 13), in part because many of those projects were Category 3 projects that were heavily dependent on availability of such technology. The least frequently cited reasons for not selecting DSRIP projects prior to the program were not identifying the related project topics as a problem (18%) or lack of alignment with organizational goals (14%).

Exhibit 13: Reasons That Category 1-4 Projects Were Not Planned Prior to DSRIP



Source: UCLA survey of designated public hospitals (DPHs).
Notes: Analysis is based on the total number of projects selected that were not implemented or planned prior to DSRIP (n=169). Total is greater than 100% because DPHs were allowed to select more than one reason per project.

Participation in External Initiatives

DPHs were asked to report if they were participating in CMS-related quality initiatives or other state or federal initiatives in addition to DSRIP. Many of the initiatives reported were focused on inpatient care and patient safety and related most closely to Category 4 projects. Nearly half of DPHs surveyed noted they were participating in the CMS Hospital Engagement Network initiative, started in 2012 as part of the CMS Partnership for Patients campaign, aimed at improving the quality and safety of health care. These networks provide learning collaboratives and technical assistance to reduce hospital-acquired conditions and readmissions[4]. Almost all of the DPHs surveyed stated that they are currently participating in the Meaningful Use EHR Incentive Program, which provides financial incentives to hospitals and providers for the "meaningful use" of EHR technology[5, 6].

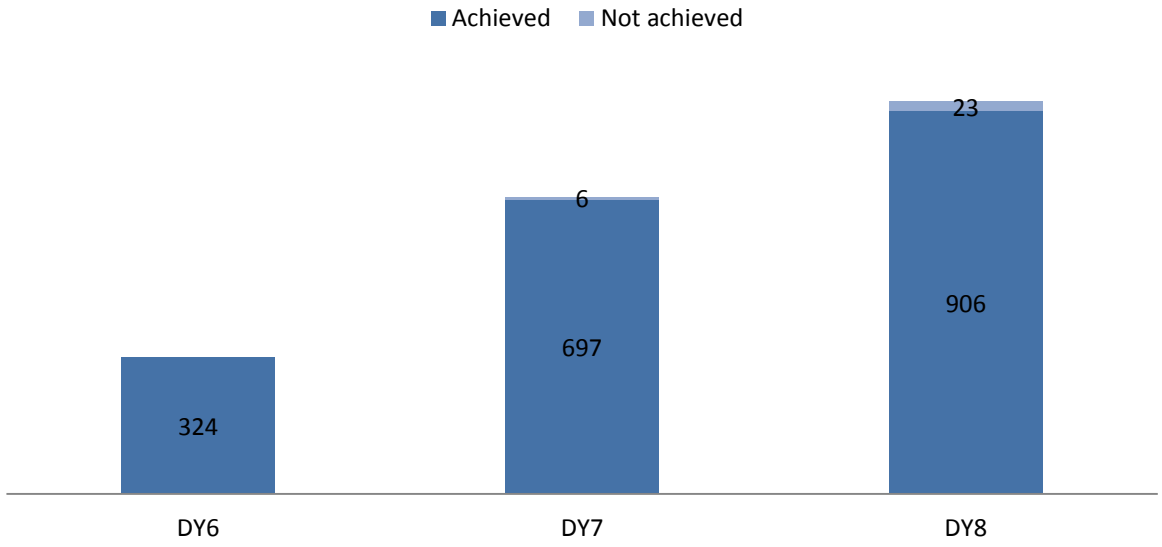
Approximately one-third of DPHs reported they had or are currently participating in the CMS Hospital Quality Initiative, a voluntary initiative where hospitals report several core quality process measures to CMS. Only a few hospitals noted they had received a CMS Health Care Innovation Award. These awards, which support innovative care models, supported projects such as a patient navigation center, a prenatal care project, and a community health worker partnership. A couple of hospitals surveyed noted participation in an Accountable Care

Organization (ACO) initiative. Other initiatives mentioned by DPHs in the surveys included the CAHP/SNI collaboratives for sepsis and central-line associated bloodstream infections.

Outcomes

DPHs achieved 1,927 of the 1,956 milestones they proposed in demonstration years 6 through 8, an achievement rate of 99% (Exhibit 14). The number of milestones nearly tripled from DY 6 to DY 8 and the number of milestones not achieved increased from 6 in DY 7 to 23 in DY 8. Part of the increase in the number of total milestones from DY 7 to DY 8 is due to the full implementation of Category 3 measurement activities in DY 8. These numbers differ from those reported in the Safety Net Institute's (SNI) previous DSRIP annual reports. The completion of an additional 25 milestones in DY 6 and 2 milestones in DY 7 are reported here. The differences are primarily due to the timing of when the SNI reports were released. DPHs have the ability to carry forward the available incentive funding associated with that milestone bundle until the end of the following Demonstration year.

Exhibit 14: Number of Milestones Achieved in Categories 1-4, by Demonstration Year



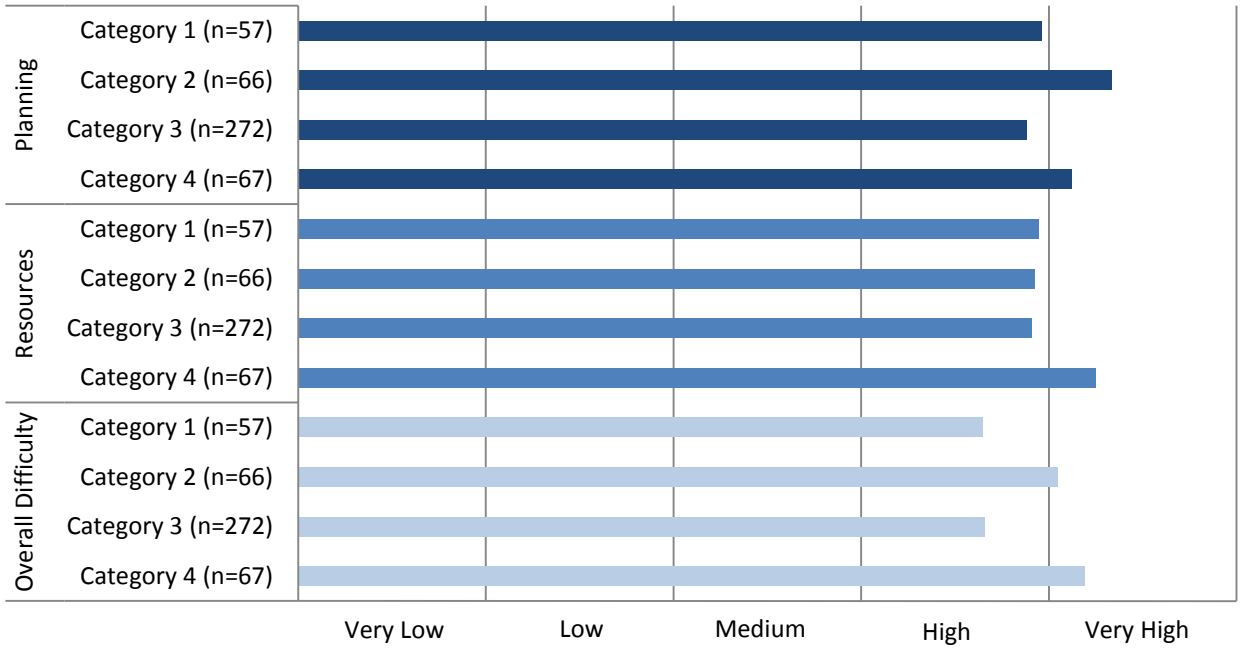
Source: UCLA analysis of designated public hospital annual reports submitted to the Department of Health Care Services.

Implementation

DPHs reported on the level of effort and difficulty of implementing Category 1-4 projects (Exhibit 15). DPHs reported that Category 2 required the highest level of planning followed by Category 4, on average. Category 4 required the highest level of resources and was reported as

the most difficult set of projects to implement. In contrast, Category 1 and 3 were considered the least difficult projects or measures.

Exhibit 15: Amount of Effort and Overall Level of Difficulty in Implementing Categories 1-4

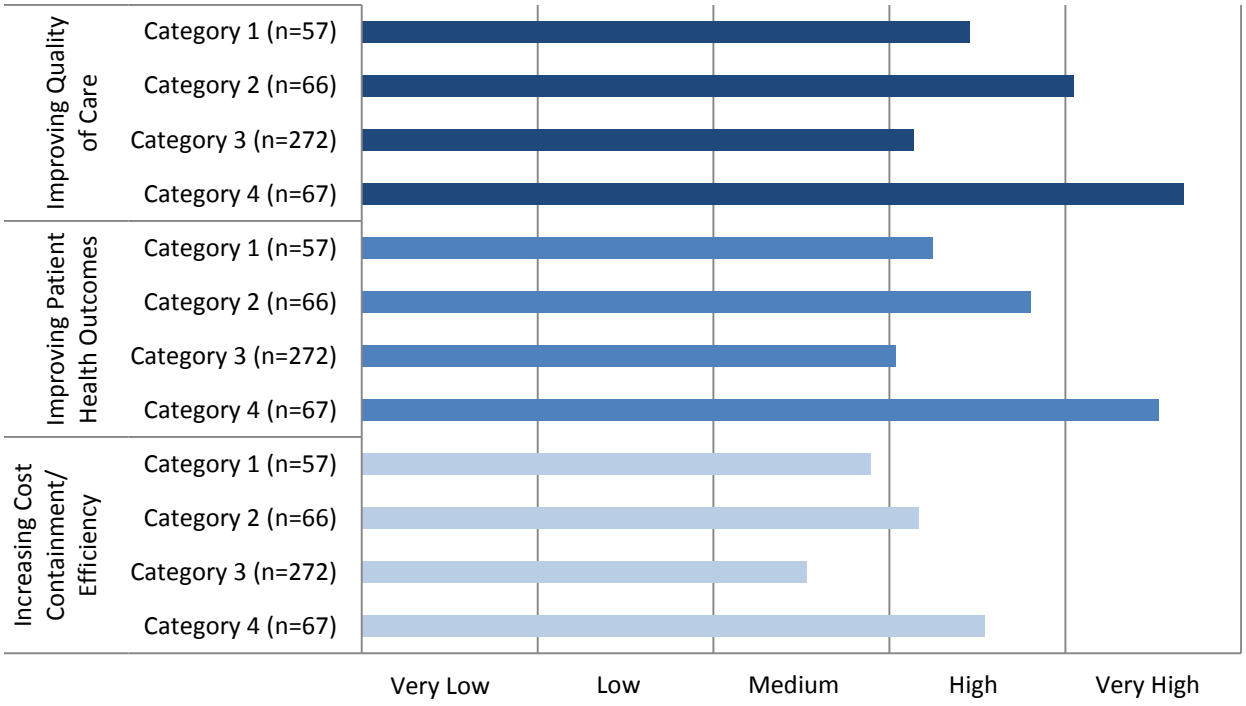


Source: UCLA survey of designated public hospitals (DPHs).
Note: The Ns for each category represent the total number of projects implemented in the category across all DPHs.

Perceived Impact on Triple Aim

DPHs were asked to report their perceptions of the impact of DSRIP projects on the Triple Aim of improving quality of care, patient health outcomes, and cost containment/efficiency. DPHs rated Category 4 projects as having the highest perceived impact on quality of care and Category 3 projects the lowest (Exhibit 16). The same pattern was observed for health outcomes and cost containment/efficiency.

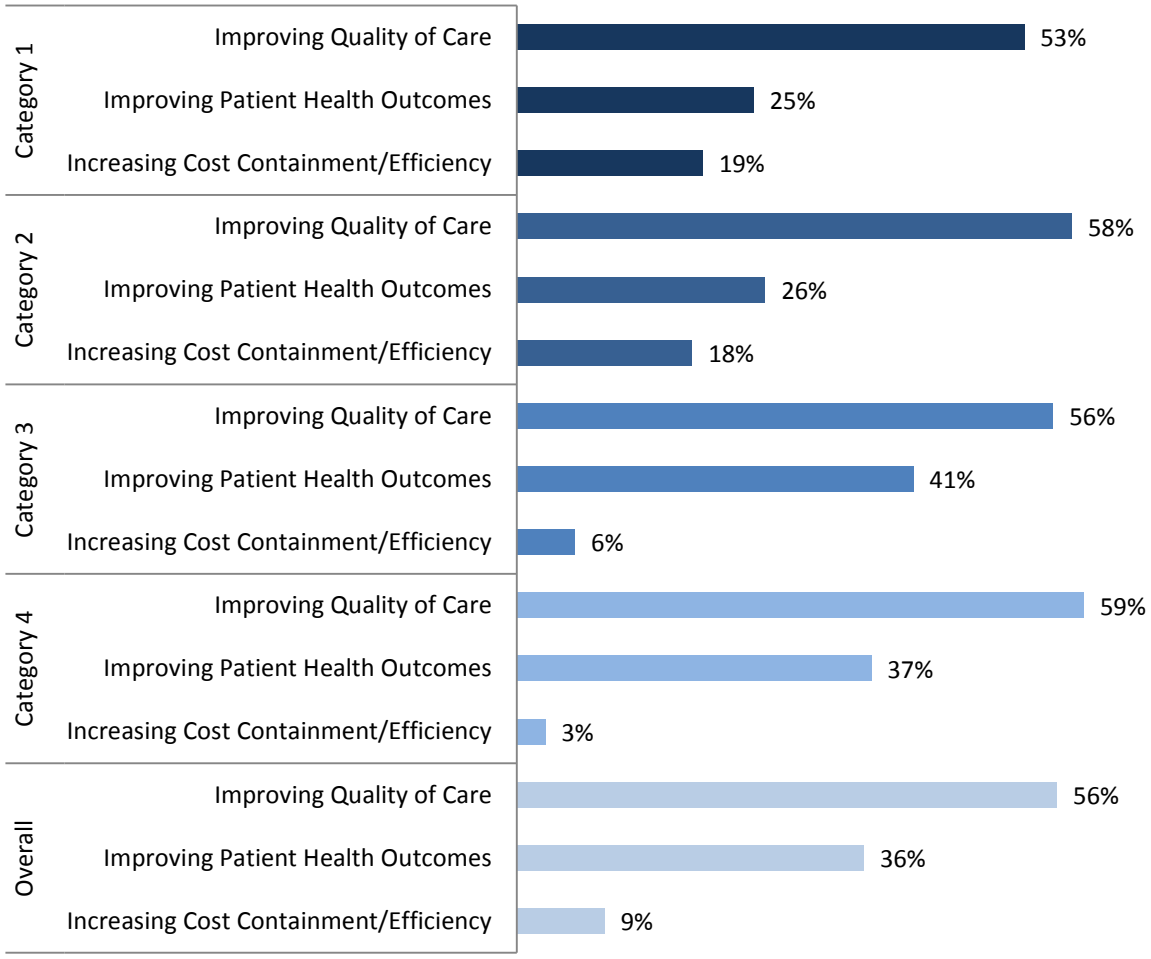
Exhibit 16: Perceived Impact of Categories 1-4 on Triple Aim of Quality of Care, Health Outcomes, and Increasing Cost Containment/Efficiency



Source: UCLA survey of designated public hospitals (DPHs).
Note: The total number of projects implemented in the category across all DPHs is provided in parentheses.

In addition, DPHs were also asked to rank each Category 1-4 projects in terms of impact on the Triple Aim. Overall, DPHs reported that 56% of DSRIP projects had the greatest impact on improving quality of care (Exhibit 17). Fewer (36%) of projects had the greatest impact on improving patient outcomes and only 9% of projects had the greatest impact on increasing cost containment/efficiency. The same analysis by category showed similar results with some variation. For example, 41% of Category 3 projects were perceived to have the greatest impact on improving patient outcomes and 6% were considered to have the greatest income on increasing cost containment/efficiency.

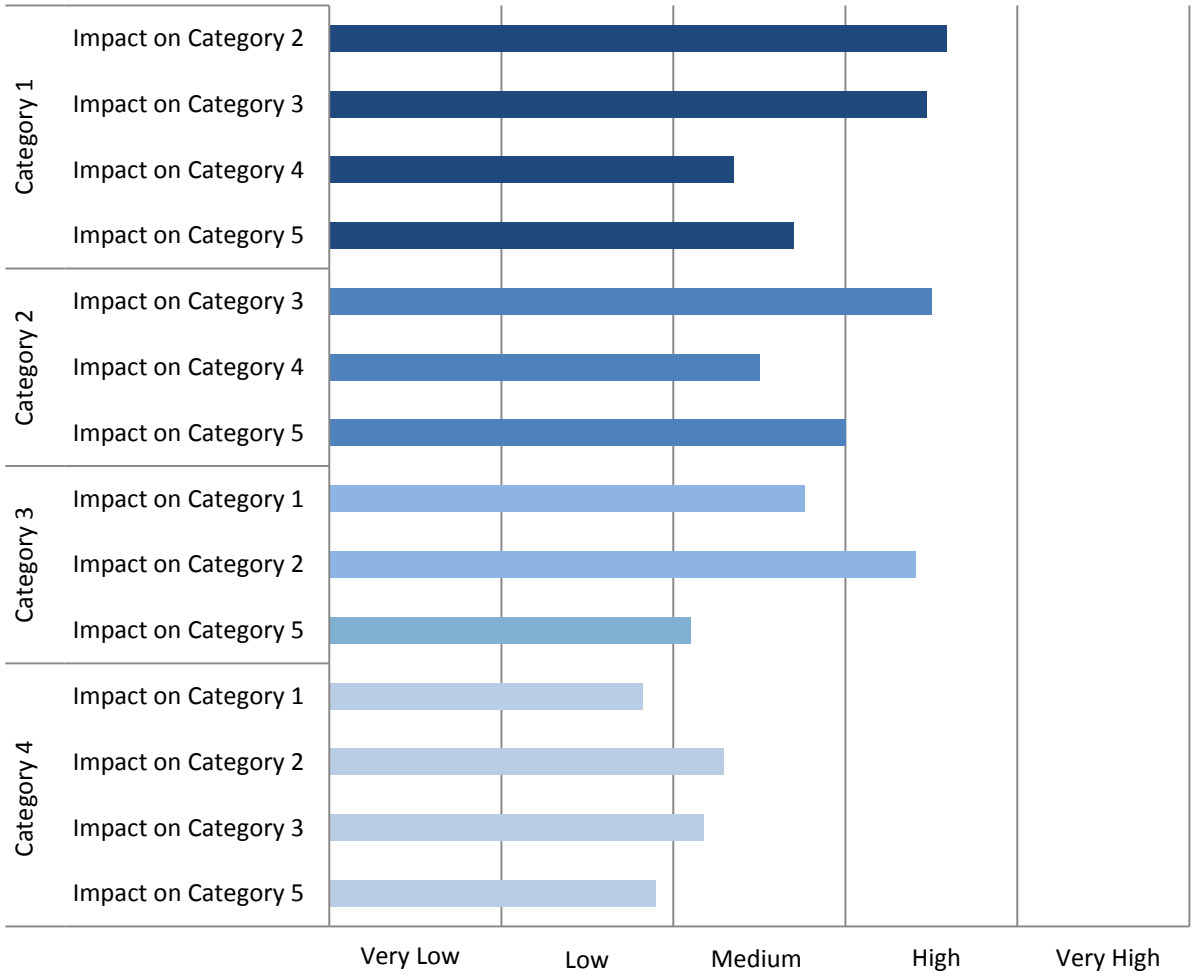
Exhibit 17: Percentage of Category 1-4 Projects Perceived to Have the Greatest Impact on Quality of Care, Health Outcomes, and Cost Containment/Efficiency



Source: UCLA survey of designated public hospitals (DPHs).
Notes: DPHs were asked to rank the relative impact of projects on the Triple Aim of quality of care, health outcomes, and cost containment/efficiency. The percentages in the chart show the proportion of projects for which each of the triple aims ranked as the highest-impact.

DPHs were asked whether implementation of projects in each category impacted projects in other categories. DPHs reported that Category 1 projects had a high impact on implementation of Category 2 and 3 projects and measures, but a medium impact on Category 4 and 5 projects (Exhibit 18). Category 2 projects also had a high impact on implementation of Category 3 projects but less of an impact on the other two categories. Category 3 measures had the most impact on the implementation of Category 2, but were not anticipated to impact Category 4 projects. Category 4 projects had medium or low impact on other categories.

Exhibit 18: Impact of Categories 1-4 on One Another and on Category 5



Source: UCLA survey of designated public hospitals (DPHs).
Note: Data for the impact of Category 2 on Category 1 and Category 3 on Category 4 was not available at the time of publication.

Summary

Seventeen DPHs of varied sizes and affiliations implemented a large number of projects through the DSRIP program from DY 6 through DY 8. Many DPHs opted to focus on specific and related projects in Categories 1 and 2, including expanding primary care capacity and implementing and utilizing disease management registries for their Category 1 infrastructure development, and expanding medical homes for their Category 2 innovation and redesign initiatives. Nearly half of the projects that DPHs implemented were ongoing prior to their participation in DSRIP, though most were not implemented extensively or system-wide. DPHs cited consistency with organizational goals, availability of project champions among existing staff, and synergy with

existing projects as principal reasons for selecting DSRIP projects, although DSRIP appeared to have rearranged priorities and focal areas in some cases.

DPHs achieved nearly all (99%) of their proposed milestones in the three years covered in this interim report. This success was achieved with high levels of planning, resource investment, and overall implementation difficulty. DPHs reported a high level of perceived impact on quality of care and health outcomes, two of the three components of the Triple Aim. The third component, cost containment/efficiency, rated lower in part because not enough time had elapsed to be able to see the full effect of program initiatives. DPHs reported synergies in implementation of DSRIP projects in different categories. Category 1 (infrastructure development) and Category 2 (innovation and redesign) were perceived as having the greatest impact on the other categories.

Category 1: Infrastructure Development

Category 1 projects are focused on infrastructure development. Project options for participating DPHs ranged from staff and physical space expansions to health information technology development to enhanced data collection strategies and new care delivery channels such as telemedicine and video interpretation services (Exhibit 1).

Project Selection

None of the projects in Category 1 were mandatory, but each DPH was required to implement at least two projects. Eleven of the 17 DPHs selected more than two Category 1 projects (Exhibit 19). The most frequently implemented projects were expansion of primary care capacity (12 DPHs), implementation and utilization of disease management registry functionality (11), increased training of primary care workforce (7), and expanded specialty care capacity (6).

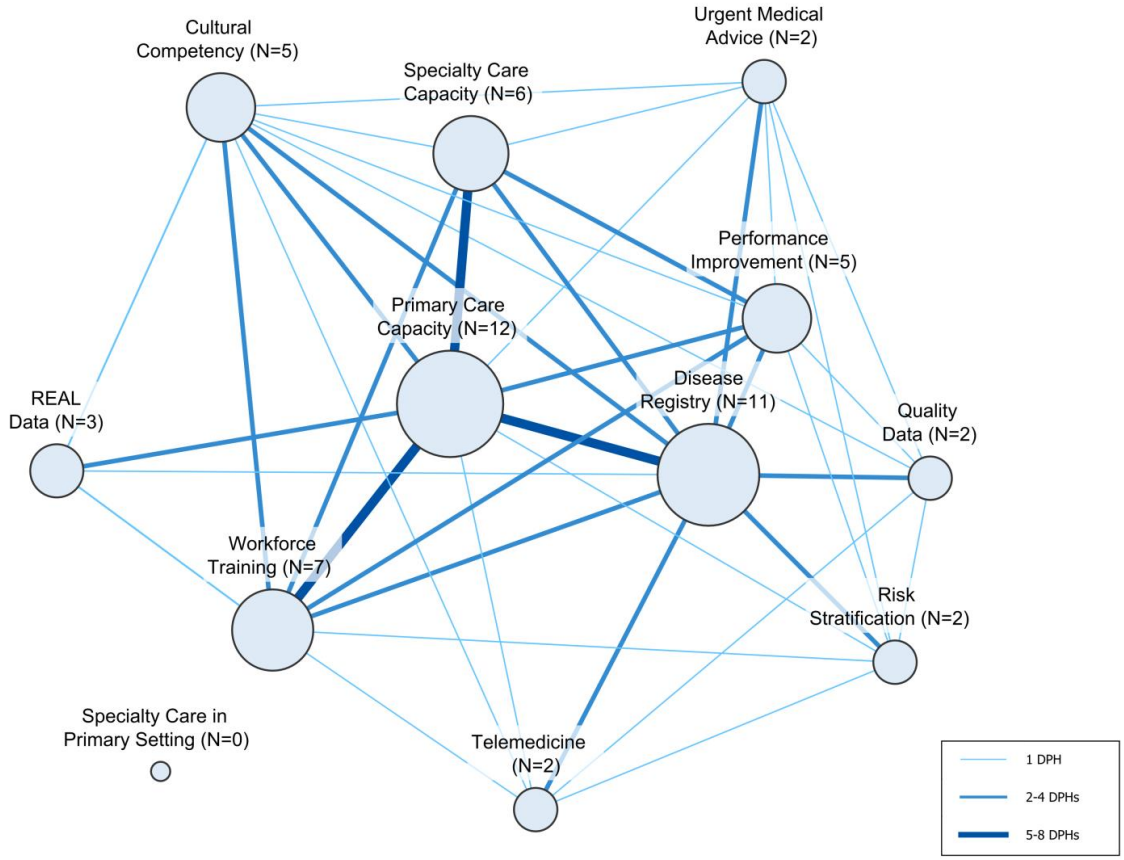
Exhibit 19: Projects Selected, by Designated Public Hospital, Category 1

Designated Public Hospital	Expand Primary Care Capacity	Increase Training of Primary Care Workforce	Enhance Interpretation Services and Culturally Competent Care	Implement and Utilize Disease Management Registry Functionality	Collect Accurate Race, Ethnicity, and Language (REAL) Data to Reduce Disparities	Enhance Urgent Medical Advice	Introduce Telemedicine	Enhance Coding and Documentation for Quality Data	Develop Risk Stratification Capabilities/Functionalities	Expand Capacity to Provide Specialty Care Access in the Primary Care Setting	Expand Specialty Care Capacity	Enhance Performance Improvement and Reporting Capacity	Total
Alameda Health System	✓			✓							✓	✓	4
Arrowhead Regional Medical Center	✓	✓		✓							✓		4
Contra Costa Health Services	✓	✓	✓		✓								4
Kern Medical Center	✓		✓	✓		✓					✓		5
Los Angeles County Department of Health Services				✓		✓		✓	✓			✓	5
Natividad Medical Center	✓		✓										2
Riverside County Regional Medical Center	✓	✓		✓							✓		4
San Francisco General Hospital	✓	✓									✓	✓	4
San Joaquin General Hospital	✓			✓									2
San Mateo Medical Center	✓				✓								2
Santa Clara Valley Medical Center	✓			✓									2
University of California, Davis Medical Center				✓	✓								2
University of California, Irvine Medical Center	✓	✓		✓			✓		✓				5
University of California, Los Angeles Hospitals		✓									✓		2
University of California, San Diego Health System			✓	✓			✓	✓					4
University of California, San Francisco Medical Center	✓			✓								✓	3
Ventura County Medical Center		✓	✓									✓	3
Total	**12**	**7**	**5**	**11**	**3**	**2**	**2**	**2**	**2**	**0**	**6**	**5**	**57**

Source: UCLA analysis of designated public hospital reports.

Exhibit 20 indicates how frequently Category 1 projects were selected and which projects were most frequently selected concurrently. For example, primary care capacity (selected by 12 DPHs) and disease registry (selected by 11 DPHs) were concurrently selected by 5-8 DPHs. Also, DPHs that selected primary care capacity also frequently (5-8 DPHs) selected projects to expand specialty care capacity and workforce training. The project to expand capacity to provide specialty care access in the primary care setting was not implemented by any of the DPHs.

Exhibit 20: Selection Frequency of Concurrent Category 1 DSRIP Projects

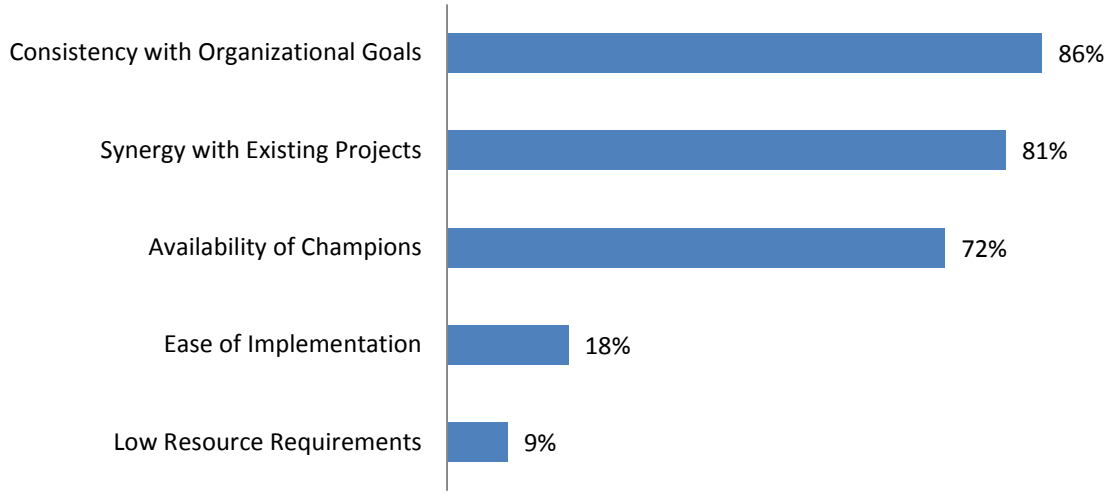


Source: UCLA analysis of designated public hospital (DPH) reports.
Note: The Ns represent the number of DPHs that implemented a specific project and larger circles correspond to more DPHs. The lines between circles represent projects that are concurrently selected by the same DPHs and thicker lines represent how many DPHs implemented the same projects concurrently.

DPHs reported the reasons for selecting Category 1 projects (Exhibit 21). Eighty-six percent of the selected projects were chosen because of their consistency with organizational goals, and 81% because of their synergy with existing projects. In contrast, ease of implementation and

low resource requirements were least frequently cited as reasons for selecting Category 1 projects.

Exhibit 21: Reasons for Selecting Category 1 Projects

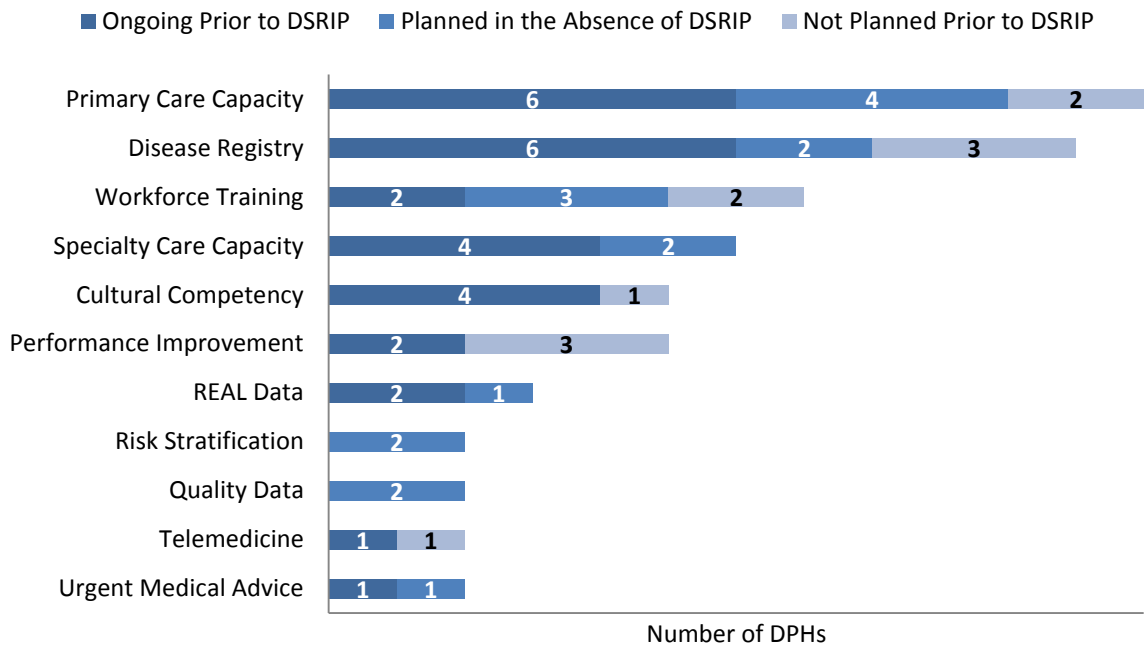


Source: UCLA survey of designated public hospitals (DPHs).
Notes: Analysis is based on the total number of Category 1 projects (n=57). Total is greater than 100% because DPHs were allowed to select more than one response option per project.

Status of Category 1 Projects Prior to DSRIP

DPHs were asked to report on whether the Category 1 projects they selected were ongoing prior to DSRIP or previously planned. At least half of the DPHs that implemented the four most frequently selected projects – primary care capacity, disease registry, workforce training, and specialty care capacity –had similar ongoing or planned projects prior to DSRIP (Exhibit 22). These ongoing projects were frequently limited in scope or lacked resources for implementation in the near future, and DSRIP funding provided the impetus for expanding these efforts.

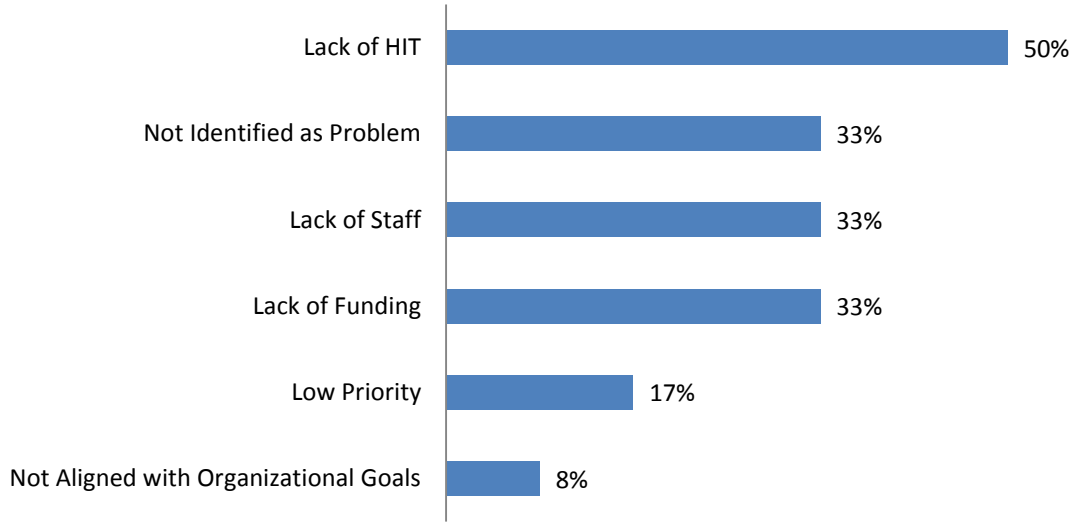
Exhibit 22: Status of Category 1 Projects in DPHs Prior to DSRIP



Source: UCLA survey of designated public hospitals (DPHs).
Note: The Specialty Care in Primary Setting project was not included because it was not implemented by any of the DPHs.

DPHs were also asked to report on the reasons for not previously planning or implementing the selected Category 1 projects. Half (50%) reported lack of HIT infrastructure as one reason (Exhibit 23). Other reasons included not having previously identified these as problem areas (33%), low priority (17%), or lack of alignment with organizational goals (8%).

Exhibit 23: Reasons That Category 1 Projects Were Not Planned Prior to DSRIP



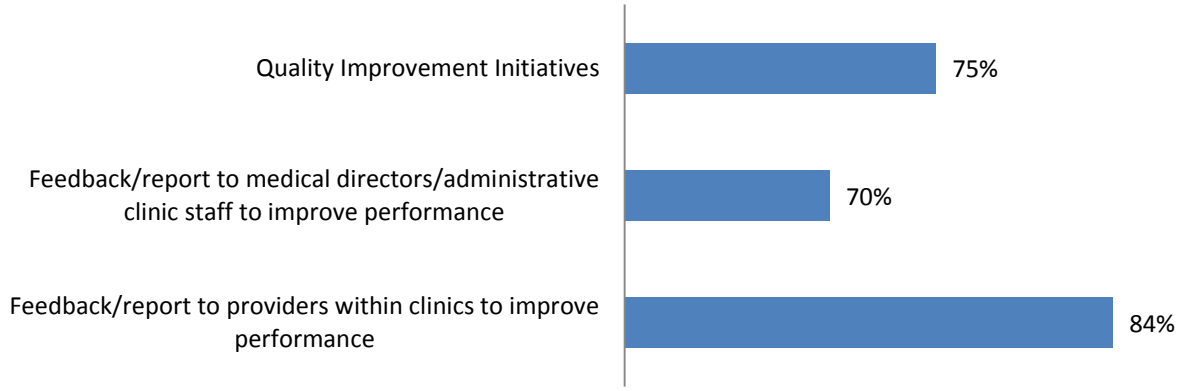
Source: UCLA survey of designated public hospitals (DPHs).
Notes: Analysis is based on the total number of projects selected that were not implemented or planned prior to DSRIP (n=12). Total is greater than 100% because DPHs were allowed to select more than one response option per project.

Outcomes

Category 1 project milestones increased from 104 in DY 6, to 153 in DY 7, and 142 in DY 8. DPHs achieved all milestones in DY 6 and nearly all in DY 7 and DY 8. Only 3 and 4 milestones were not achieved in DY 7 and DY 8, respectively.

DPHs reported on how they used the information from Category 1 projects. DPHs reported that they incorporated this information most frequently in quality improvement activities (75%) and in feedback to medical directors or administrators (84%; Exhibit 24). The results were less frequently incorporated in performance improvement feedback given directly to providers (70%).

Exhibit 24: The Proportion of Category 1 Projects that Used Project Measures for Quality Improvement Initiatives and Feedback

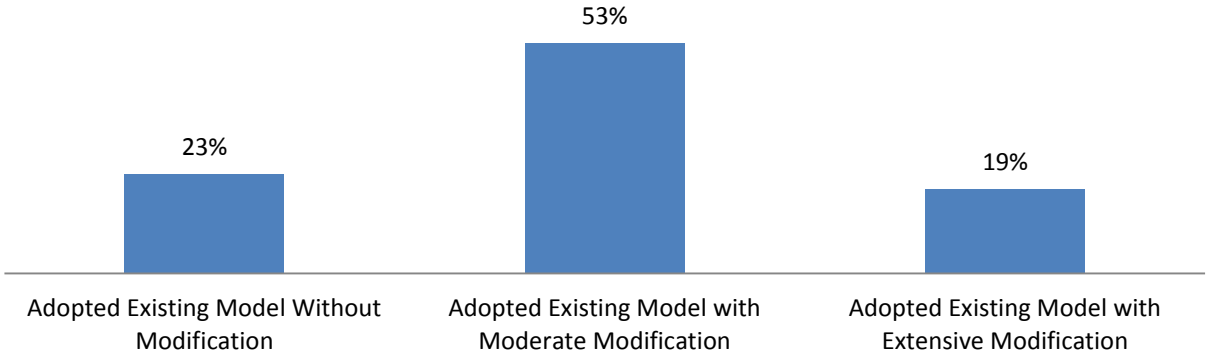


Source: UCLA survey of designated public hospitals (DPHs).
Notes: Analysis is based on the total number of Category 1 projects selected by DPHs (n=57). Total is greater than 100% because DPHs were allowed to select more than one response option per project.

Implementation

DPHs were asked to indicate the extent to which the selected Category 1 projects were based on existing evidence-based models. DPHs reported that they adopted existing models with moderate modification to fit the DPHs' needs for 53% of the projects in Category 1 (Exhibit 25). They also reported adopting models with extensive modification for another 19% of the projects.

Exhibit 25: The Proportion of Category 1 Projects That Used Evidence-Based Models, by Degree of Modification to the Model



Source: UCLA survey of designated public hospitals (DPHs).
Note: Analysis is based on the total number of Category 1 projects selected by DPHs (n=57). Total is greater than 100% because DPHs were allowed to select more than one response option per project. DPHs could implement more than one model to complete a project.

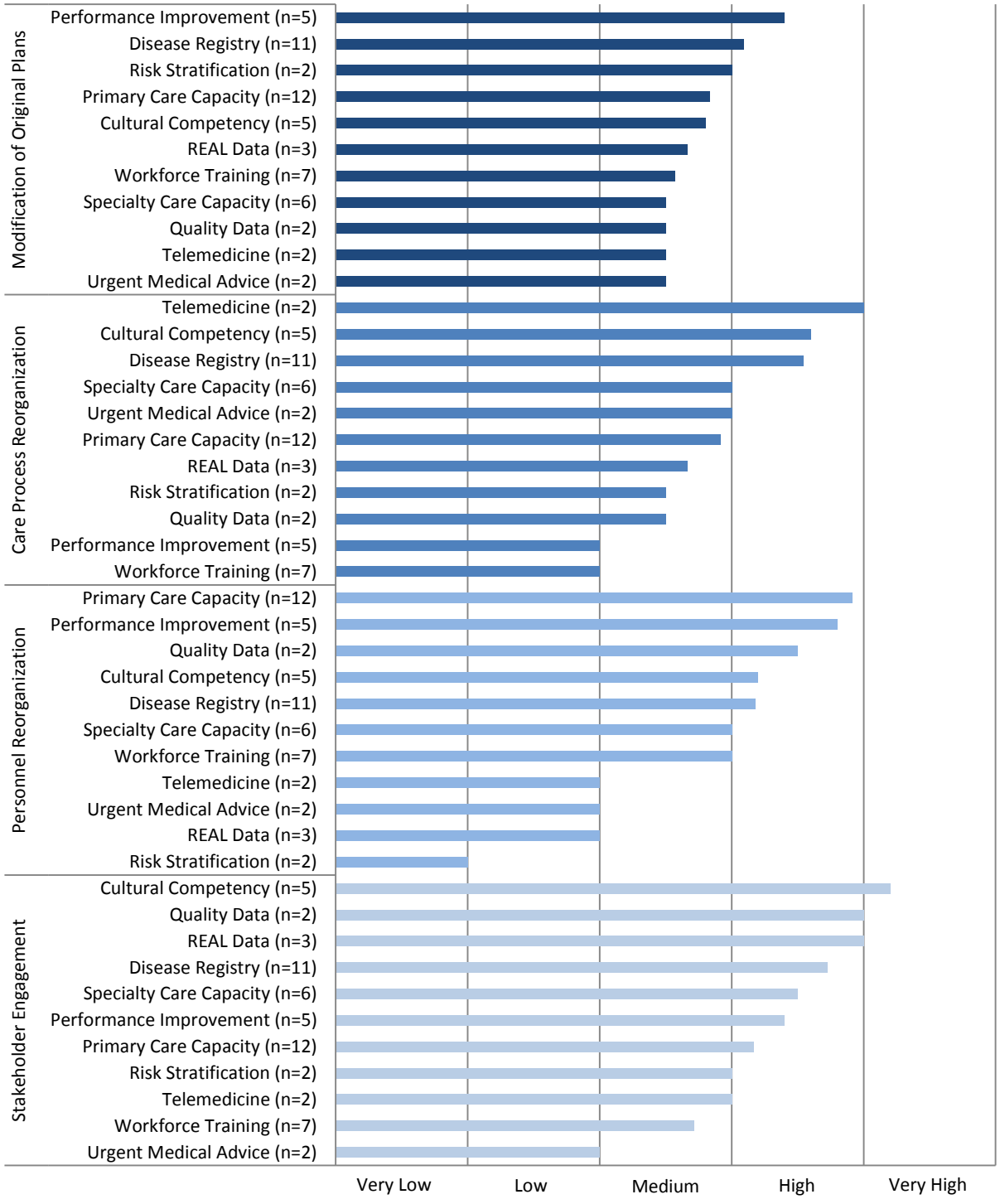
DPHs reported on the level of staff training to complete Category 1 projects. DPHs trained staff during implementation for 70% of Category 1 projects (Exhibit 26). Forty percent of Category 1 projects also required training of staff prior to implementation, and only 25% of projects did not involve any training or orientation.

Exhibit 26: Timing of Staff Training in Relation to DSRIP Implementation for Category 1 Projects

Source: UCLA survey of designated public hospitals (DPHs).
Note: Analysis is based on the total number of Category 1 projects selected by DPHs (n=57). Total is greater than 100% because DPHs were allowed to select more than one response option per project. DPHs could conduct multiple phases of staff training depending on the needs of the project.

DPHs reported on how much revision, redesign, or modification of original project plans was required to successfully implement Category 1 projects on a scale of one to five, indicating very low to very high level of revision (Exhibit 27). DPHs reported that the majority of selected Category 1 projects required a medium level of modification to the original plan. However, performance improvement and disease registry projects required high levels of modification. DPHs also reported on the level of reorganization of care processes and personnel. The reorganization of care processes was high for telemedicine, cultural competency, and disease registry projects. The reorganization of personnel was high for primary care capacity, performance improvement, and three other projects. DPHs also reported on the level of effort required to engage internal stakeholders, such as identifying program champions or obtaining buy-in from opinion leaders and staff required to implement Category 1 projects. The projects requiring the highest levels of effort were cultural competency, enhanced coding and documentation for quality data, collecting accurate REAL data to reduce disparities, as well as three other projects.

Exhibit 27: Level of Modification of Original Plans, Reorganization of Personnel and Care Processes, and Stakeholder Engagement for Category 1 Projects

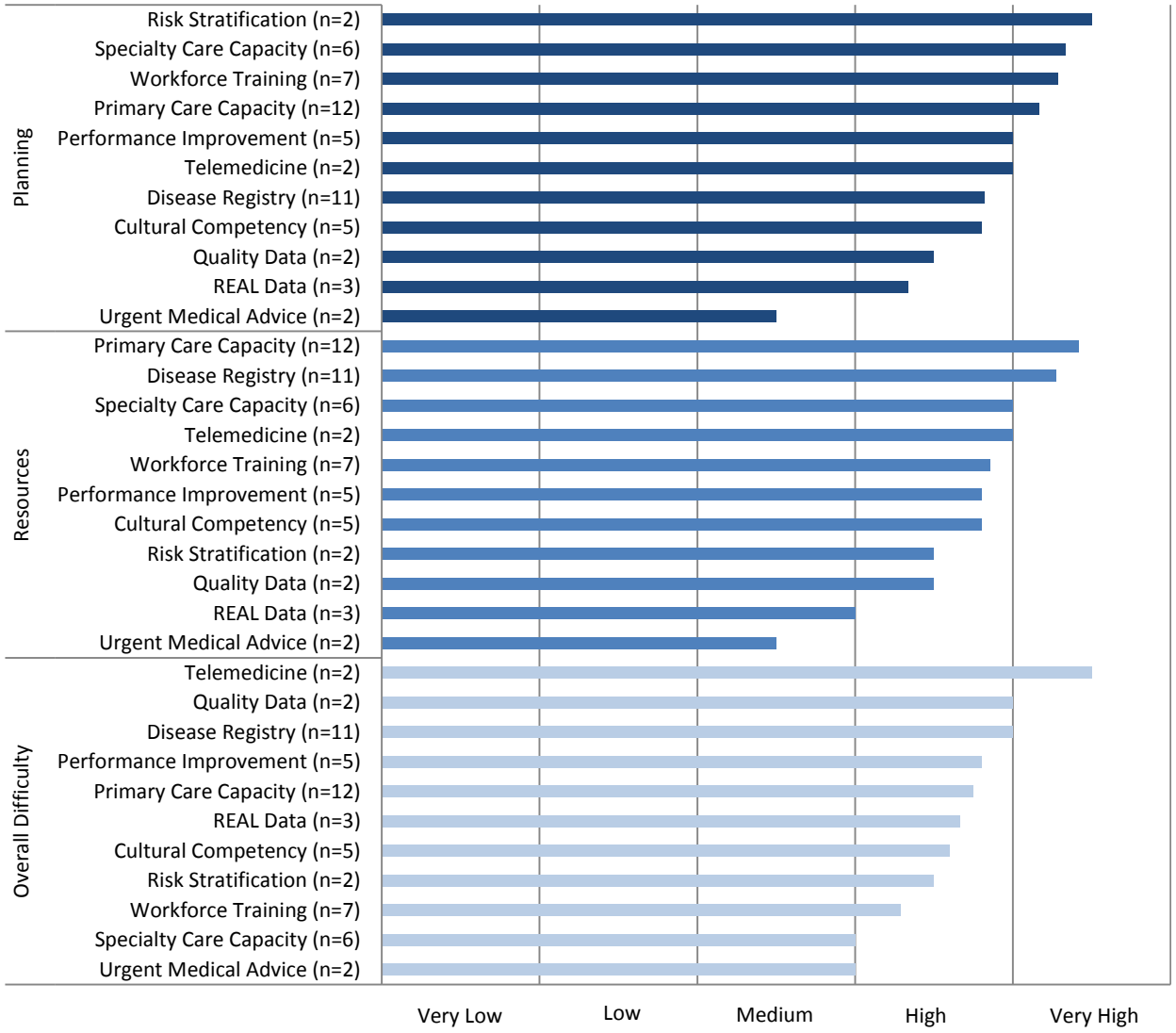


Source: UCLA survey of designated public hospitals (DPHs).

Notes: The Specialty Care in Primary Setting project was not included because it was not implemented by any of the DPHs. The Ns for each category represent the total number of projects implemented in the category across all DPHs.

DPHs reported that the level of planning, resources and overall difficulty for implementing Category 1 projects was either very high or high for the majority of the projects implemented (Exhibit 28). For example, the level of planning required to develop risk stratification capabilities/functionalities was reported by most DPHs to have required the highest level or planning. Furthermore, expanding primary care capacity was reported to require the highest amount of resources. Telemedicine was reported to be the most difficult project to implement overall.

Exhibit 28: Amount of Effort and Overall Level of Difficulty in Implementing Category 1 Projects



Source: UCLA survey of designated public hospitals (DPHs).

Notes: The Specialty Care in Primary Setting project was not included because it was not implemented by any of the DPHs. The Ns for each category represent the total number of projects implemented in the category across all DPHs.

Top Challenges and Solutions to Implementation

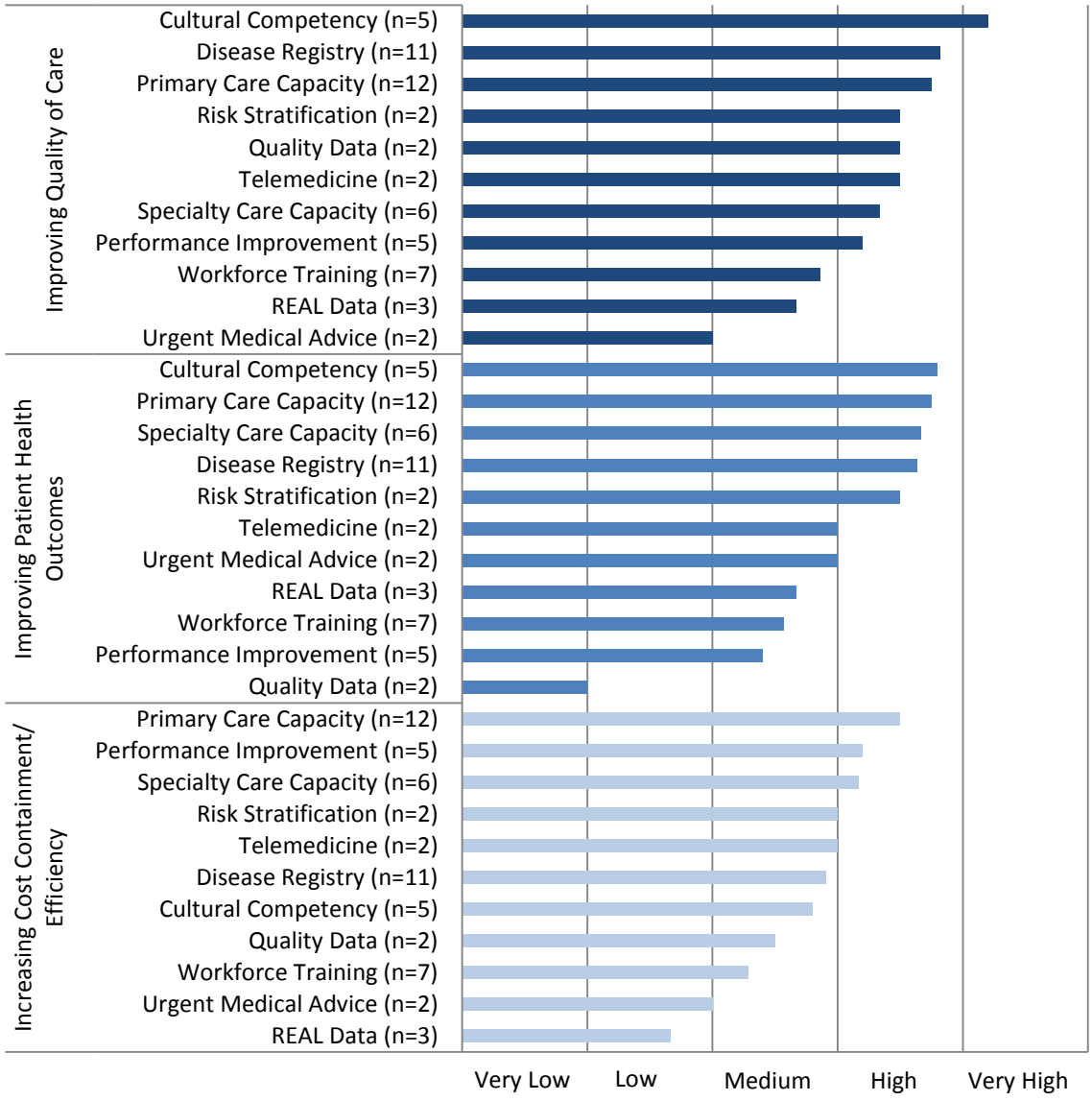
DPHs cited the top two challenges in implementing the selected Category 1 projects and reported the solutions used to address these challenges.

The most commonly reported challenges were related to staffing, including recruitment, retention, turnover, training, buy-in, and difficulty identifying the appropriate people for given tasks. In response, DPHs hired additional staff, improved benefits and contracts, identified project leaders and champions and empowered them to complete tasks, increased training, and reorganized existing staff. The second most commonly reported challenges were lack of standardized definitions for data collection and formalized, consistent care and tracking processes to ensure provider buy-in and compliance. In response, DPHs engaged stakeholders more directly by involving them in change processes, formed workgroups to establish standards and definitions, worked on obtaining provider buy-in through focusing on employee satisfaction and providing cues to action such as reminders about new technologies, and used existing data sources to monitor compliance.

Perceived Impact on Triple Aim

DPHs were asked to assess the potential impact of each Category 1 project on the triple aim of improving quality of care, improving patient health outcomes, and increasing cost containment/efficiency using a five point scale from very low to very high. The average rating for each measure for each aim is reported in Exhibit 29. Overall, cultural competency was reported to have the highest impact on quality of care, followed by other projects such as implementation of disease registry and expanded primary care. Cultural competency was also perceived to have a high impact on health outcomes. Expanding primary care capacity was anticipated to have the highest impact on cost containment/efficiency. DPHs acknowledged that the full impact of Category 1 projects would not be known until after DSRIP projects were completed and data were available.

Exhibit 29: Perceived Impact of Category 1 Projects on Triple Aim of Improving Quality, Patient Health Outcomes, and Increasing Cost Containment/Efficiency



Source: UCLA survey of designated public hospitals (DPHs).

Notes: The Specialty Care in Primary Setting project was not included because it was not implemented by any of the DPHs. The Ns for each category represent the total number of projects implemented in the category across all DPHs.

Future Analyses

Further analyses of the implementation of Category 1 projects from the DPH reports and UCLA surveys will be provided in the final report. The final report will include complete key informant

interview data to provide context and depth to implementation decisions of DPHs and challenges they faced. Data from DY 6 -DY 10 DPH reports will be analyzed to explore specific challenges or other implementation issues provided in those reports. The potential of DSRIP projects in achieving the Triple Aim will be assessed by examining the available literature on the anticipated outcomes of the DSRIP projects selected by DPHs. The funding levels of different projects and milestones across the DPHs will be provided.

Summary and Conclusions

DPHs implemented 57 Category 1 projects designed to develop infrastructure, promote innovation, and redesign and improve care delivery. The most frequently selected projects included expanding primary care capacity, implementing and utilizing disease management registry functionality, increasing training of primary care workforce, and expanding specialty care capacity. More than 75% of Category 1 projects were ongoing or had been planned prior to DSRIP. Program participation served to enhance and expand existing work in many cases, and most projects were selected because of their consistency with organizational goals and/or synergy with existing projects.

Over 98% of the 399 total proposed milestones in demonstration years 6 through 8 were achieved. DPHs incorporated 75% of the project results into quality improvement initiatives and reported data to medical directors and administrators for 84% of Category 1 projects.

To attain this level of success, DPHs undertook considerable levels of reorganization of care processes and personnel, and often required additional work to engage internal stakeholders. More than half (53%) of Category 1 projects required the adoption of an existing evidence-based model with moderate revision, but nonetheless required high levels of planning and resources. Introducing telemedicine, enhancing coding and documentation for quality data, and implementing and utilizing disease management registries were considered the three most difficult projects to implement overall.

The top challenges cited by DPHs in implementing Category 1 projects related to staffing problems and the lack of standardized definitions and care and tracking processes. DPHs solved these challenges by hiring and training staff and obtaining provider buy-in among other efforts.

DPHs considered many Category 1 projects to have had a high impact on improving quality of care, most prominently the projects to enhance interpretation services and culturally competent care, implement and utilize disease management registries, and expand primary care capacity. The overall perceived impact on improving health outcomes and increasing cost

containment and efficiency were somewhat lower. Results varied by project and DPHs acknowledged that it was too early to gauge long-term impacts.

Category 2: Innovation and Redesign

Projects in Category 2 aim at implementing innovative models of care by implementing and expanding medical homes and the Chronic Care Model, improving continuity and integration of care, enhancing patient experience and engagement, and promoting cohesive system change. The individual projects are highlighted in Exhibit 2.

Project Selection

DPHs were required to select at least any two Category 2 projects from 14 possible projects. Overall, a total of 66 projects were implemented across 17 DPHs (Exhibit 30). Fifteen DPHs implemented more than the required two projects, and the most number of implemented projects was six.

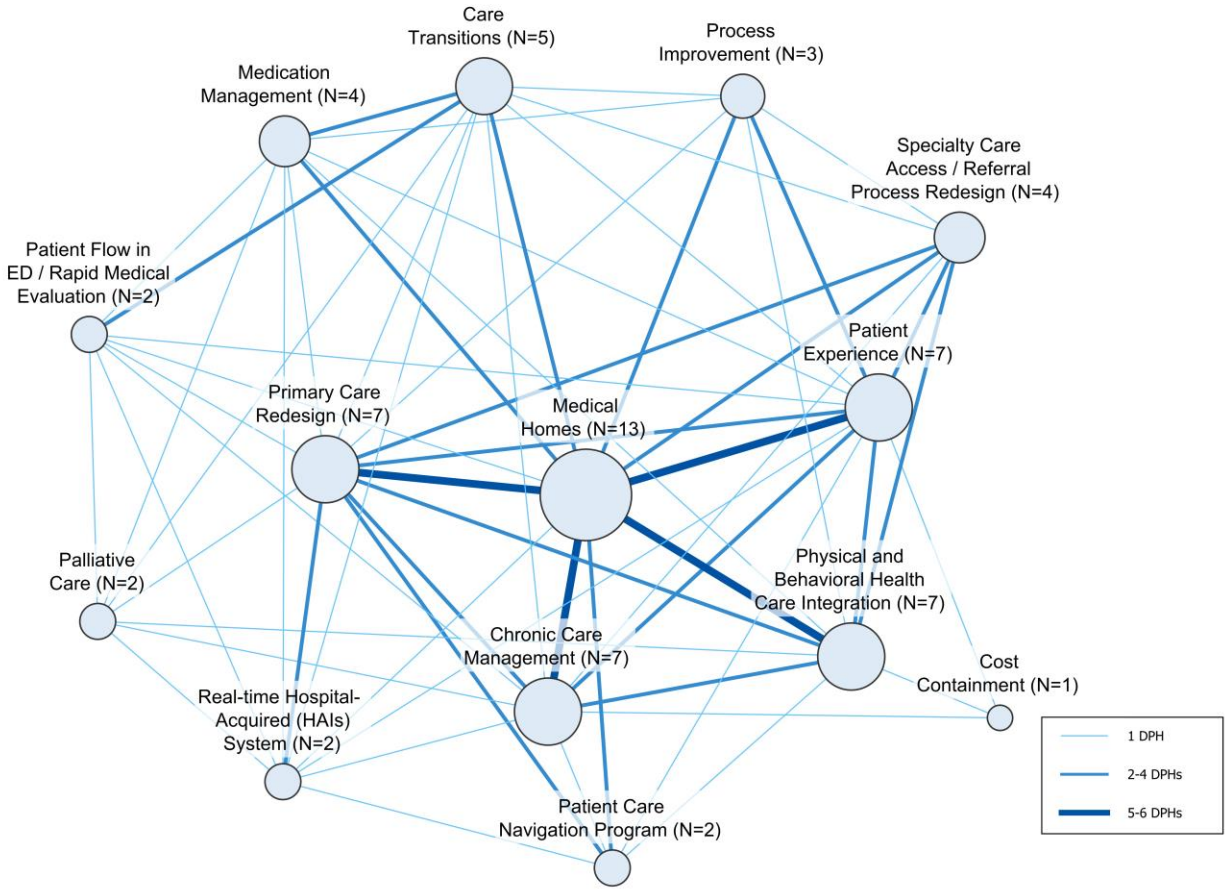
Exhibit 30: Projects Selected, by Designated Public Hospital, Category 2

Designated Public Hospital	Expand Medical Homes	Expand Chronic Care Management Models	Redesign Primary Care	Redesign to Improve Patient Experience	Redesign for Cost Containment	Integrate Physical and Behavioral Health Care	Increase Specialty Care Access/Redesign Referral Process	Establish/Expand a Patient Care Navigation Program	Apply Process Improvement Methodology to Improve Quality/Efficiency	Improve Patient Flow in the Emergency Department/Rapid Medical Evaluation	Use Palliative Care Programs	Enhance Performance Improvement and Reporting Capacity	Conduct Medication Management	Implement/Expand Care Transitions Programs	Implement Real-Time Hospital-Acquired Infections (HAIs) System	Total
Alameda Health System	✓	✓		✓						✓				✓		**5**
Arrowhead Regional Medical Center	✓	✓	✓													**3**
Contra Costa Health Services	✓			✓		✓						✓				**4**
Kern Medical Center	✓		✓			✓		✓								**4**
Los Angeles County Department of Health Services	✓	✓				✓										**3**
Natividad Medical Center				✓					✓							**2**
Riverside County Regional Medical Center	✓	✓	✓	✓			✓									**5**
San Francisco General Hospital	✓					✓	✓									**3**
San Joaquin General Hospital	✓		✓													**2**
San Mateo Medical Center	✓		✓	✓		✓	✓		✓							**6**
Santa Clara Valley Medical Center		✓		✓	✓	✓										**4**
University of California, Davis Medical	✓								✓			✓	✓			**4**
University of California, Irvine Medical	✓	✓	✓	✓				✓							✓	**6**
University of California, Los Angeles Hospitals	✓											✓	✓			**3**
University of California, San Diego Health System			✓							✓	✓	✓	✓	✓		**6**
University of California, San Francisco Medical Center	✓						✓						✓			**3**
Ventura County Medical Center		✓				✓					✓					**3**
Total	**13**	**7**	**7**	**7**	**1**	**7**	**4**	**2**	**3**	**2**	**2**	**4**	**5**	**2**		**66**

Source: UCLA analysis of designated public hospital reports.

Exhibit 31 identifies Category 2 projects that were most frequently selected by DPHs and those projects selected concurrently most frequently. Medical home projects were most commonly selected by 13 of the 17 DPHs. DPHs that selected medical home projects concurrently selected primary care redesign, chronic care management models, physical and behavioral health care integration, and patient experience projects.

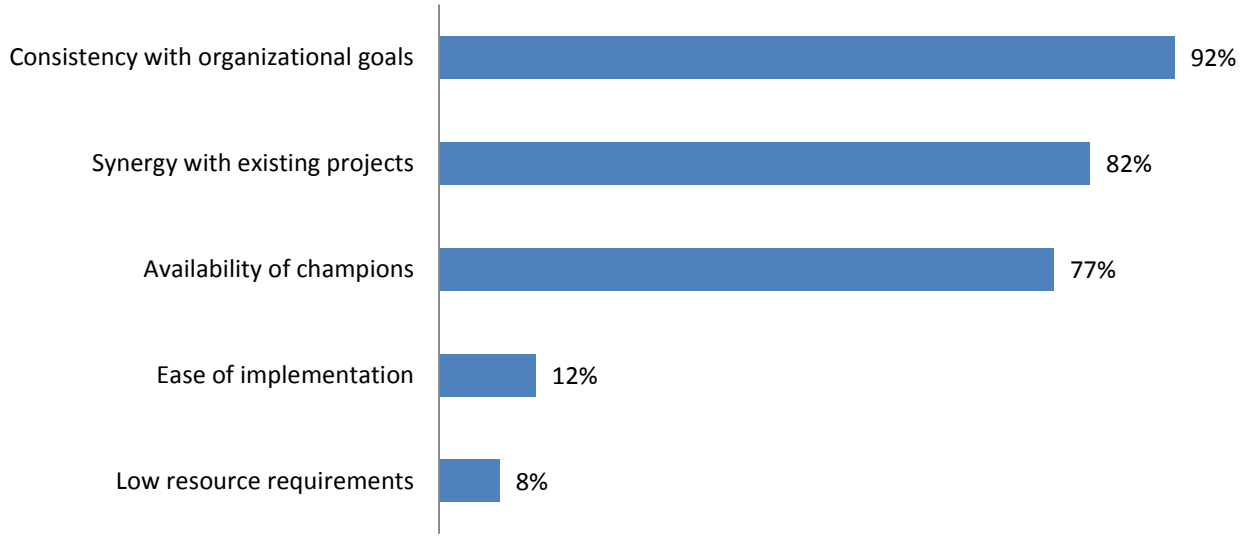
Exhibit 31: Selection Frequency of Concurrent Category 2 DSRIP Projects



Source: UCLA analysis of designated public hospital (DPH) reports.
Note: The Ns represent the number of DPHs that implemented a specific project and larger circles correspond to more DPHs. The lines between circles represent projects that are concurrently selected by the same DPHs and thicker lines represent how many DPHs implemented the same projects concurrently.

DPHs reported the top reasons for selecting Category 2 projects (Exhibit 32). Ninety-two percent of the selected projects were chosen because of their consistency with organizational goals, 82% because of their synergy with existing projects, and 77% were selected because of the availability of champions. Ease of implementation and low resource requirements were infrequently cited as reasons for selecting Category 2 projects.

Exhibit 32: Reasons for Selecting Category 2 Projects

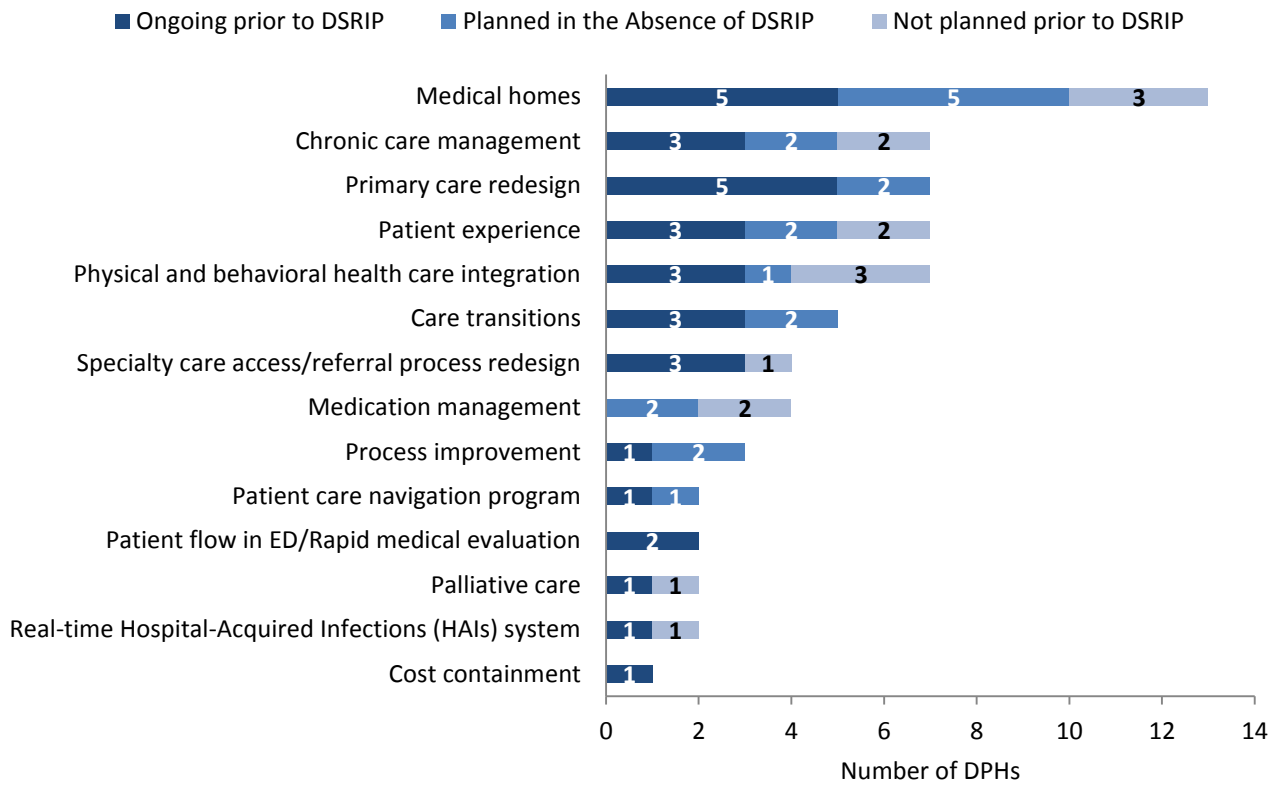


Source: UCLA survey of designated public hospitals (DPHs).
Notes: Analysis is based on the total number of Category 2 projects (n=66). Total is greater than 100% because DPHs were allowed to select more than one response option per project.

Status of Category 2 Projects Prior to DSRIP

DPHs reported on whether the Category 2 projects they selected were ongoing prior to DSRIP or previously planned (Exhibit 33). The majority of Category 2 projects in participating DPHs were either ongoing or planned prior to DSRIP. For instance, among the 13 DPHs implementing medical home projects, five had ongoing medical home projects and another five had planned such projects prior to DSRIP. However, most of these projects were either pilot programs and/or had not been implemented comprehensively or system-wide.

Exhibit 33: Status of Category 2 Projects Prior to DSRIP



Source: UCLA survey of designated public hospitals (DPHs).

DPHs reported the reasons that Category 2 projects had not been planned prior to DSRIP. For 53% of the projects, DPHs listed lack of funding as a reason, followed by lack of HIT (47%), and lack of staff (47%; Exhibit 34).

Exhibit 34: Reasons that Category 2 Projects Were Not Planned Prior to DSRIP

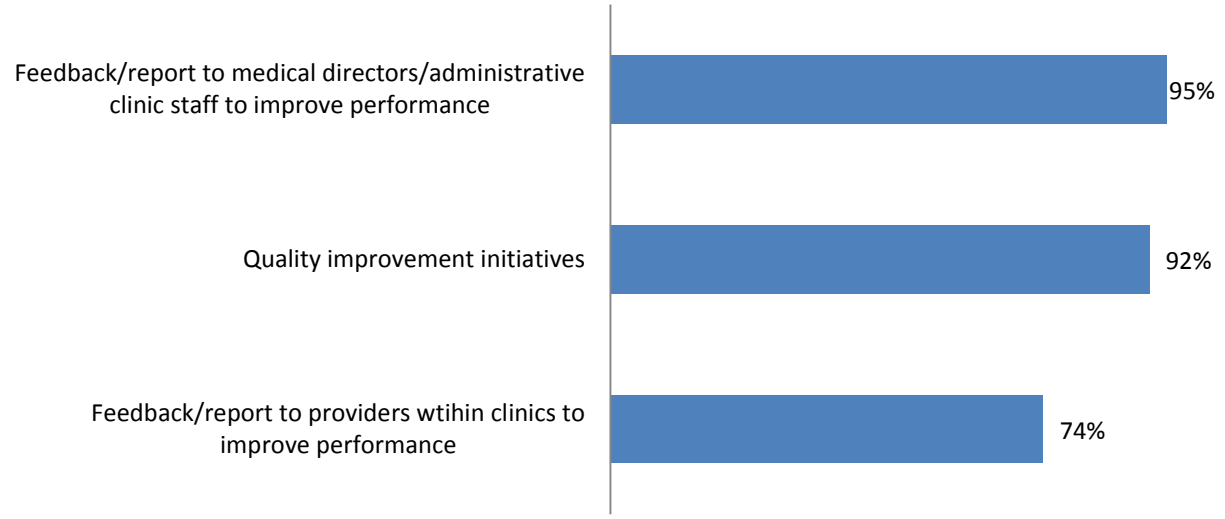
Source: UCLA survey of designated public hospitals (DPHs).
Notes: Analysis is based on the total number of projects selected that were not implemented or planned prior to DSRIP (n=15). Total is greater than 100% because DPHs were allowed to select more than one response option per project.

Outcomes

DPH annual reports indicated that almost all of the milestones for Category 2 projects planned by DPHs were achieved, including 93 milestones in DY 6, 147 in DY 7, and 136 in DY 8. Only three milestones in DY 7 and two in DY 8 were not fully achieved. DY 7 had the largest number of milestones (144 out of 147) planned and achieved for Category 2 projects.

DPHs were asked if they incorporated Category 2 project results or information into quality improvement activities or performance improvement (Exhibit 35). Based on DPHs' responses, 95% of all Category 2 projects used project measures to provide feedback and reports to medical directors and/or administrative and clinic staff to improve performance. Over ninety percent of the projects used project measures to provide information for quality improvement initiatives.

Exhibit 35: The Proportion of Category 2 Projects that Used Project Measures for Quality Improvement Initiatives and Feedback

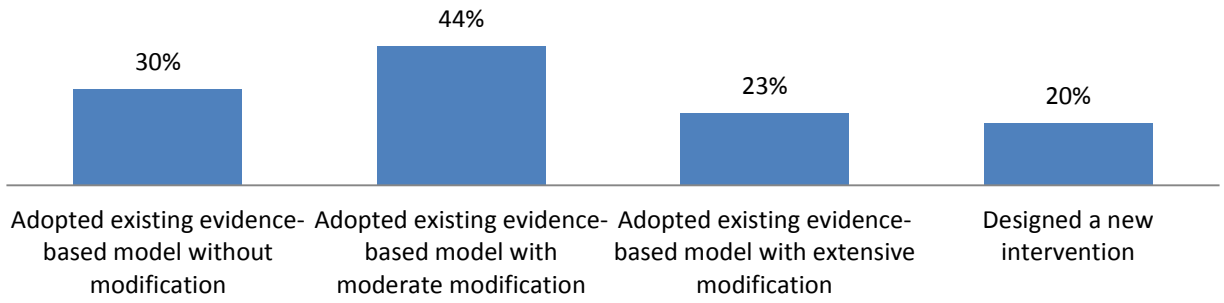


Source: UCLA survey of designated public hospitals (DPHs).
Notes: Analysis is based on the total number of Category 2 projects selected by DPHs (n=66). Total is greater than 100% because DPHs were allowed to select more than one response option per project.

Implementation

DPHs reported whether the Category 2 projects were based on evidence-based models and whether the DPHs modified these models. The majority of DPHs adjusted selected models to fit the individual needs of their organization. Over 40% of DPHs adopted an existing evidence-based model of care with moderate modification and more than 20% of DPHs adopted a model with extensive modifications (Exhibit 36). Another 20% of DPHs developed brand-new interventions for Category 2 projects.

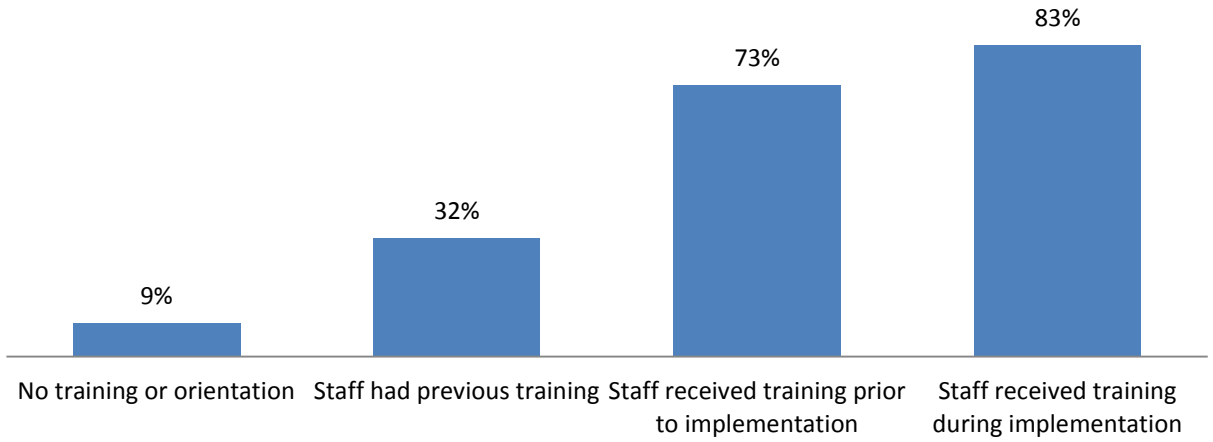
Exhibit 36: The Proportion of Category 2 Projects That Used Evidence-Based Models, by Degree of Modification to the Model



Source: UCLA survey of designated public hospitals (DPHs).
Notes: Analysis is based on the total number of Category 2 projects selected by DPHs (n=66). Total is greater than 100% because DPHs were allowed to select more than one response option per project. DPHs could implement more than one model to complete a project.

DPHs were also asked to assess the training initiatives related to quality and process improvements that were provided to staff prior to or during implementation of Category 2 projects (Exhibit 37). Examples of trainings given include Lean and Six Sigma. Training most frequently (83%) occurred during and prior (73%) to the implementation of DSRIP projects. Only 9% of the projects did not involve any staff training or orientation.

Exhibit 37: Timing of Staff Training in Relation to DSRIP Implementation for Category 2 Projects



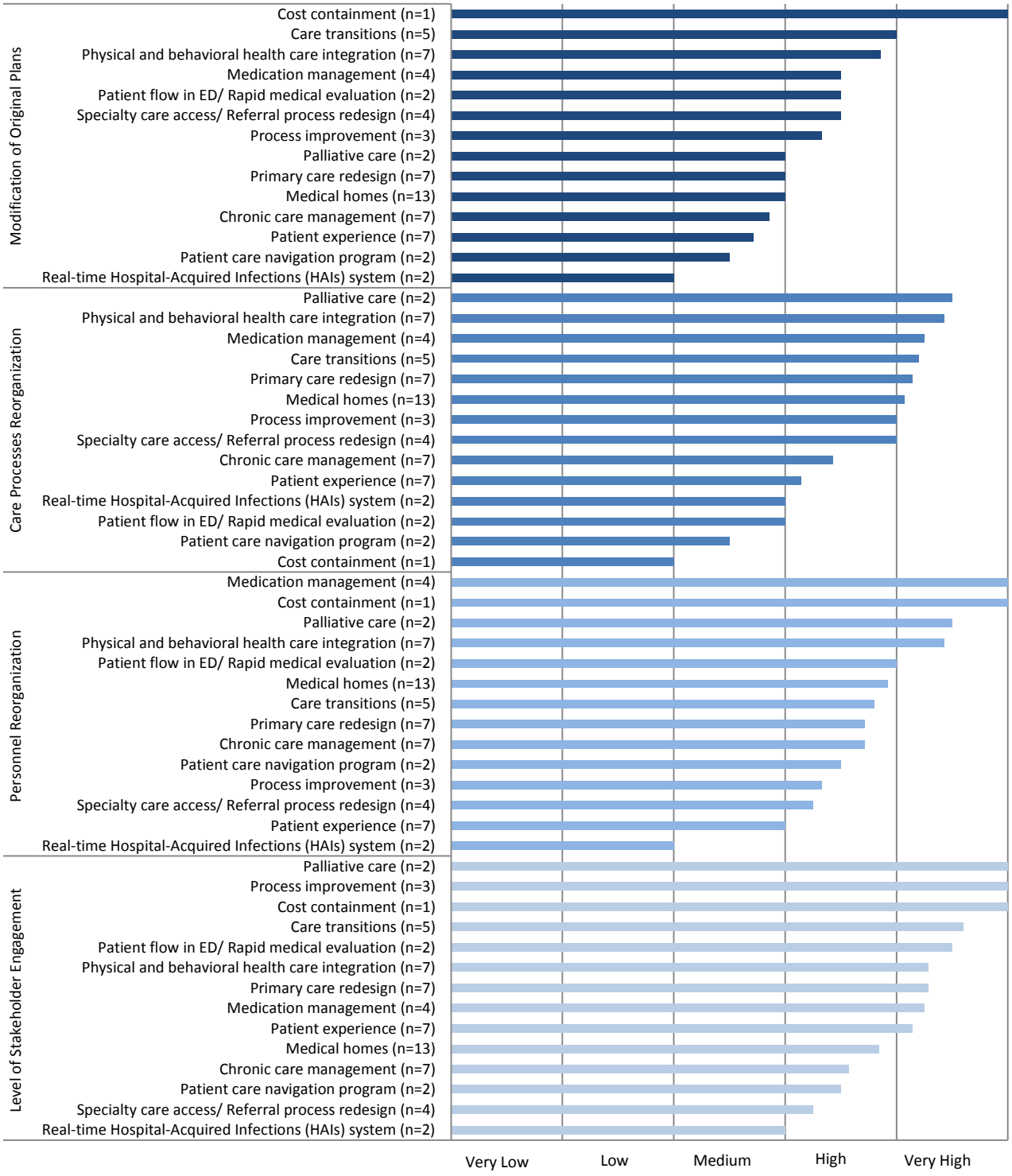
Source: UCLA survey of designated public hospitals (DPHs).
Notes: Analysis is based on the total number of Category 2 projects selected by DPHs (n=66). Total is greater than 100% because DPHs were allowed to select more than one response option per project. DPHs could conduct multiple phases of staff training depending on the needs of the project.

DPHs were asked how much revision, redesign, or modification of project plans from their original form was required to successfully implement Category 2 projects, using a scale from one to five, with five indicating a very high level of modification (Exhibit 38). One DPH participated in the cost containment project and gave a rating of "very high" for the amount of modification of the original plan required for this project. Also rated as having "high" demands related to plan modification were projects in the areas of: care transitions, physical and behavioral health care integration, medication management, patient flow in emergency department/rapid medical evaluation, specialty care access/referral process redesign, and process improvement.

When DPHs were asked to rate the level of reorganization of care processes required to implement Category 2 projects, they reported that the majority of projects required a "high" or "very high" level of care process reorganization. Projects focused on palliative care, physical and behavioral health care integration, medication management, care transition, primary care redesign, and medical homes required the highest level of care process reorganization. DPHs also rated the level of reorganization of personnel required to implement Category 2 projects. Projects requiring the highest level of personnel reorganization were medication management, cost containment, palliative care, and physical and behavioral health care integration.

DPHs rated the level of effort to engage internal stakeholders (e.g., identify and select a champion; obtain buy-in from opinion leaders, front-line staff, and others; collaborate on implementation) for the implementation of Category 2 project. They reported that projects related to palliative care, process improvement, and cost containment were the most demanding in terms of stakeholder engagement, and required a "very high" level of stakeholder engagement. Nevertheless, all the other projects except for the real-time hospital-acquired infections system project required high levels of effort to engage internal stakeholders.

Exhibit 38: Level of Modification of Original Plans, Reorganization of Personnel and Care Processes, and Stakeholder Engagement for Category 2 Projects



Source: UCLA survey of designated public hospitals (DPHs).

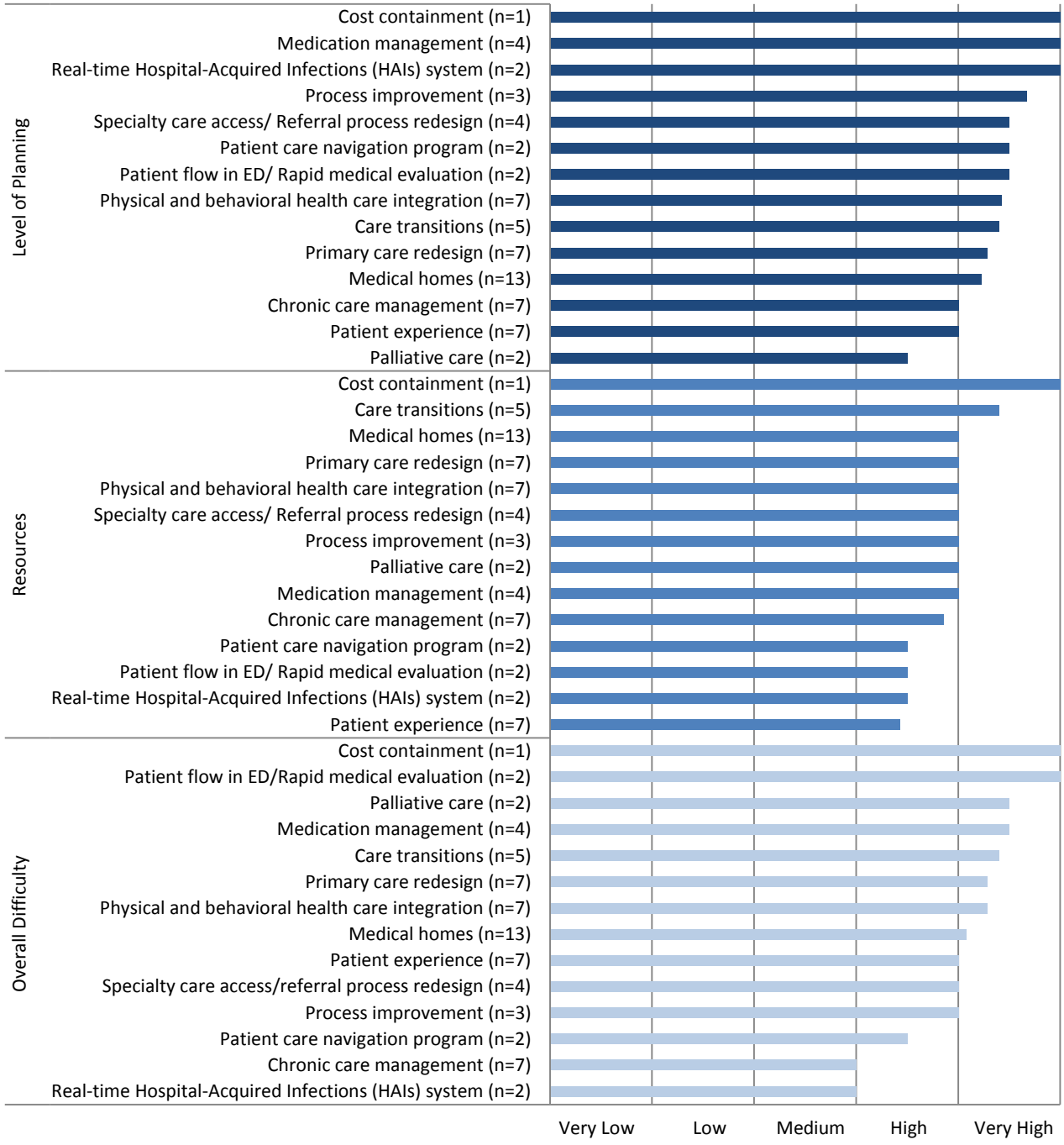
Notes: The Ns for each category represent the total number of projects implemented in the category across all DPHs.

DPHs were asked to rate the amount of planning required to implement Category 2 projects (Exhibit 39). Among the 14 project types within Category 2, the DPHs reported that the cost containment, medication management, and real-time hospital-acquired infections system projects required the greatest amount of planning (e.g., extensive and long-term formal planning). Notably, they rated all projects as having a "high" or "very high" level of planning requirement.

DPHs rated the amount of resources (e.g., personnel, cost, time, training) required to implement Category 2 projects. The DPHs that participated in cost containment and care transition projects reported that they required a "very high" level of resources to implement these projects. The other projects required at least a "high" level of resources.

Finally, we asked DPHs to rate each Category 2 project in terms of the overall level of difficulty in implementation. Among the 14 project types in Category 2, the cost containment and patient flow in the emergency department/rapid medical evaluation projects received the highest rankings for overall difficulty in implementation. However, these project types were implemented by only one or two DPHs, respectively. All the other projects except for the chronic care management and real-time hospital-acquired infections system projects were rated as having a "high" or "very high" level of difficulty in terms of overall implementation.

Exhibit 39: Amount of Effort and Overall Level of Difficulty in Implementing Category 2 Projects



Source: UCLA survey of designated public hospitals (DPHs).

Notes: The Ns for each category represent the total number of projects implemented in the category across all DPHs.

Top Challenges and Solutions to Implementation

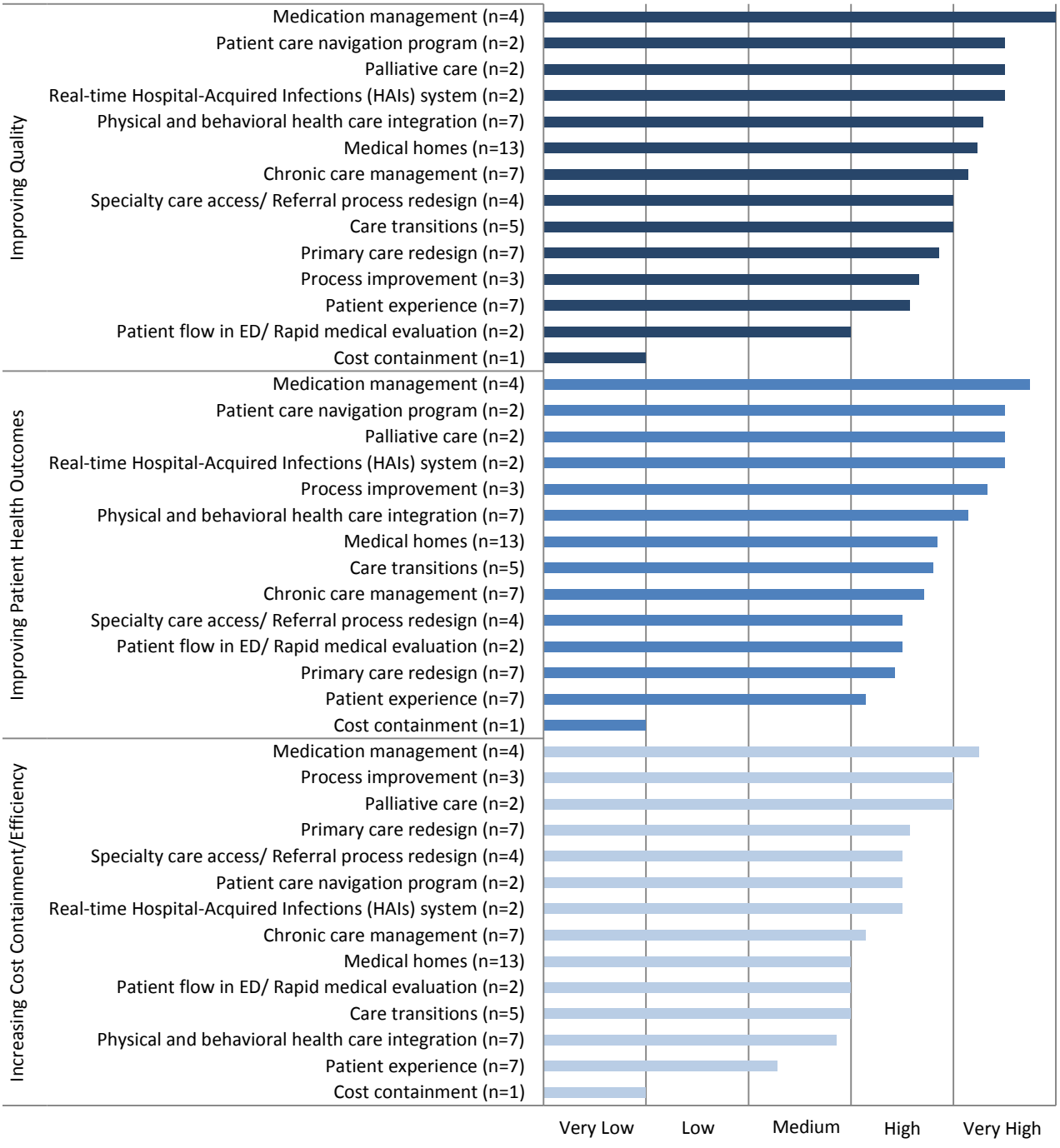
DPHs reported many challenges in obtaining data, achieving milestones and improving sustainability for Category 2 projects. Nevertheless, these challenges were resolved through a variety of creative solutions. For example, difficulties in tracking data from multiple systems, lack of an automated system for data abstraction, and a lack of timely/real-time data were resolved by developing EMRs that interfaced with multiple systems, training staff to document data consistently, developing record-keeping protocols and using real-time data tracking tools.

Challenges to achieving milestones and sustainability beyond DSRIP included the existence of competing priorities in primary care clinics; staffing difficulties, including recruitment, retention, training, and buy-in; and involving and engaging patients. The challenges were resolved by hiring more mid-level practitioners and other staff, utilizing LEAN projects to streamline processes, implementing staff engagement interventions, increasing staff training forming workgroups to establish standards and definitions, focusing on employee satisfaction and providing cues, and using existing data sources to monitor compliance.

Perceived Impact on Triple Aim

DPHs were asked to report their perceptions of the impact of Category 2 projects on improving quality of care and patient health outcomes, as well as increasing cost containment or efficiencies (Exhibit 40). The medication management projects were rated as having the highest impact across all three aims. Conversely, the cost containment project was rated as having the lowest impact on all Triple Aim, although only one DPH implemented this project and DY 8 and DY 9 milestones were not fully achieved. In general, DPHs reported that nearly all of the projects had a "high" or "very high" impact on quality of care and improving health outcomes.

Exhibit 40: Perceived Impact of Category 2 Projects on Triple Aim of Improving Quality, Patient Health Outcomes, and Increasing Cost containment/Efficiency



Source: UCLA survey of designated public hospitals (DPHs).
Notes: The Ns for each category represent the total number of projects implemented in the category across all DPHs.

Future Analyses

Further analyses of the implementation of Category 2 projects from the DPH reports and UCLA surveys will be provided in the final report. The final report will include complete key informant interview data to provide context and depth to implementation decisions of DPHs and challenges they faced. Data from DY 6 -DY 10 DPH reports will be analyzed to explore specific challenges or other implementation issues provided in those reports. The potential of DSRIP projects in achieving the Triple Aim will be assessed by examining the available literature on the anticipated outcomes of the DSRIP projects selected by DPHs. The funding levels of different projects and milestones across the DPHs will be provided.

Summary

DPHs implemented a range of innovation and redesign projects as part of their DSRIP programs. A total of 66 projects were implemented across the 17 DPHs for Category 2. Fifteen DPHs implemented more than the required two projects, and the greatest number of implemented projects was six. The most frequently selected projects included medical homes (13 DPHs), primary care redesign, chronic care management models, physical and behavioral health care integration, and patient experience improvement. Many Category 2 projects were either ongoing or planned prior to DSRIP. However, these previously existing projects were either not planned or implemented comprehensively prior to DSRIP. Most projects (92%) were selected because of their consistency with organizational goals, synergy with existing projects and availability of champions. Over 98% of the total proposed milestones from DY 7 (147) through DY 8 (136) were achieved.

DPHs prepared for sustaining Category 2 achievements by incorporating project results into quality improvement initiatives and reporting outcomes to medical providers and administrators. To attain high levels of success, DPHs dedicated high levels of planning and resources, in some cases undertaking considerable levels of reorganization of care processes and personnel. Most projects received "high" to "very high" overall difficulty ratings except for the chronic care management project and the implementation of real-time hospital-acquired infections systems project. The analysis indicates that DSRIP provided essential resources (e.g. funding, information systems, and needed staff) needed to launch and accelerate these projects. DPHs reported the widespread adoption or adaptation of existing, evidence-based models and 44% of DPHs modified these models moderately. Based on their responses, DPHs invested extensively in staff training for the implementation of Category 2 projects. Staff received training during implementation for 83% of Category 2 projects and prior to implementation for 73% of projects.

Almost all of the projects in Category 2 were perceived to have a high or very high impact on the improving quality of care and patient health outcomes. Most projects were reported to have a medium to high impact on increasing cost containment and efficiency. Most DPHs cautioned that it was too early to gauge long-term impacts in these three areas.

Top challenges cited by DPHs in implementing Category 2 projects were staffing difficulties and the lack of standardized definitions and data collection. Solutions included developing EMRs that interfaced with multiple systems and developing record-keeping protocols.

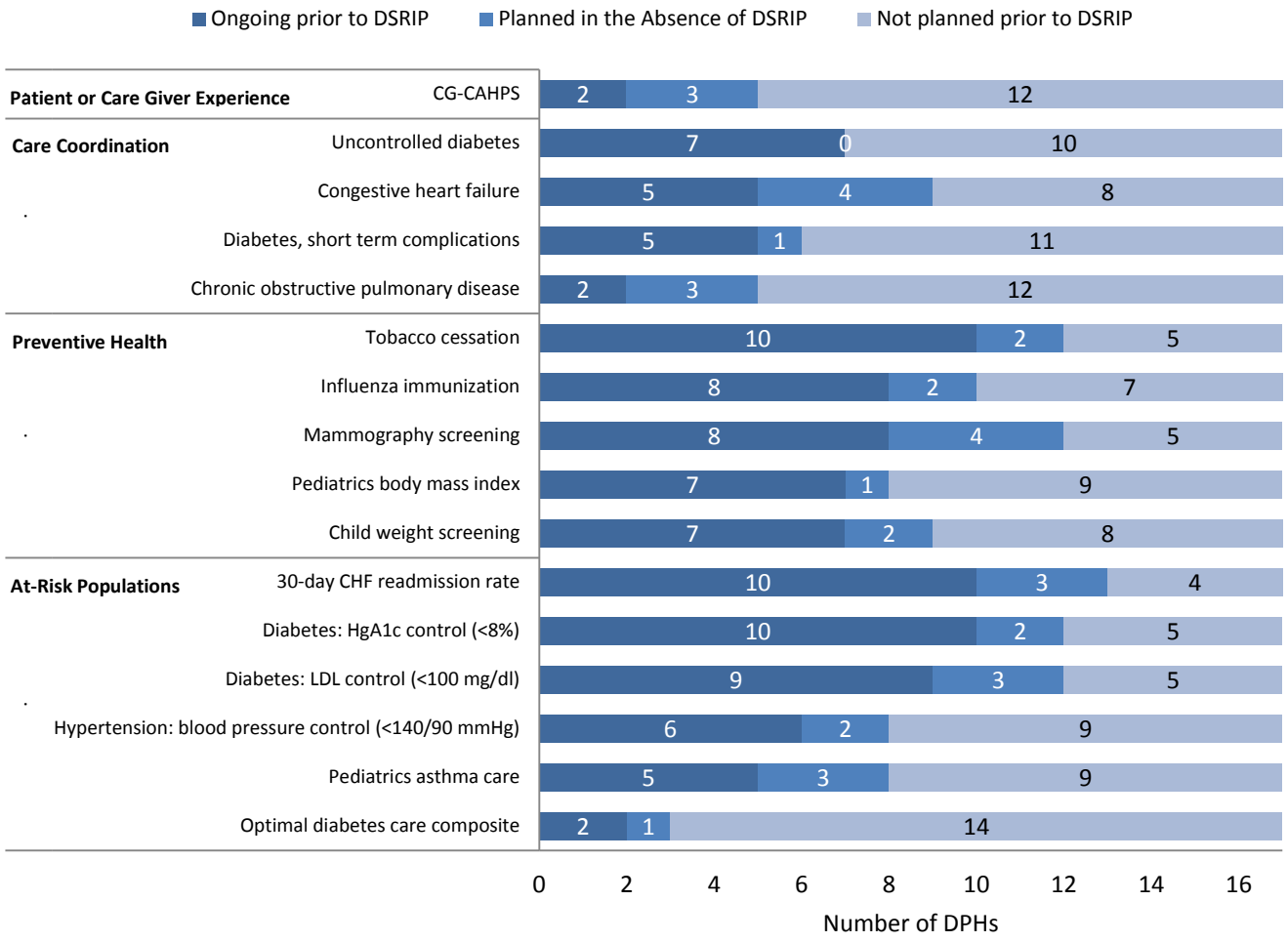
Category 3: Population-Focused Improvement

Category 3 measures are focused on tracking population-focused improvements in California DPHs. DPHs were required to track and report 16 measures in four different areas of patient care including patient or caregiver experience, care coordination, preventive health, and at-risk populations. Payment for this category was tied only to reporting these measures and DPHs were not held to specific performance standards.

Status of Category 3 Measures Prior to DSRIP

Exhibit 41 indicates the number of DPHs that were tracking Category 3 measures prior to DSRIP, had planned to do so but had not begun tracking these measures, or were not planning such activities. All DPHs had gathered some Category 3 measures prior to DSRIP. However, these measures were either not tracked system-wide or differed in some respect from what is tracked under DSRIP. Furthermore, if DPHs had plans to track a given measure, their timeline was frequently uncertain.

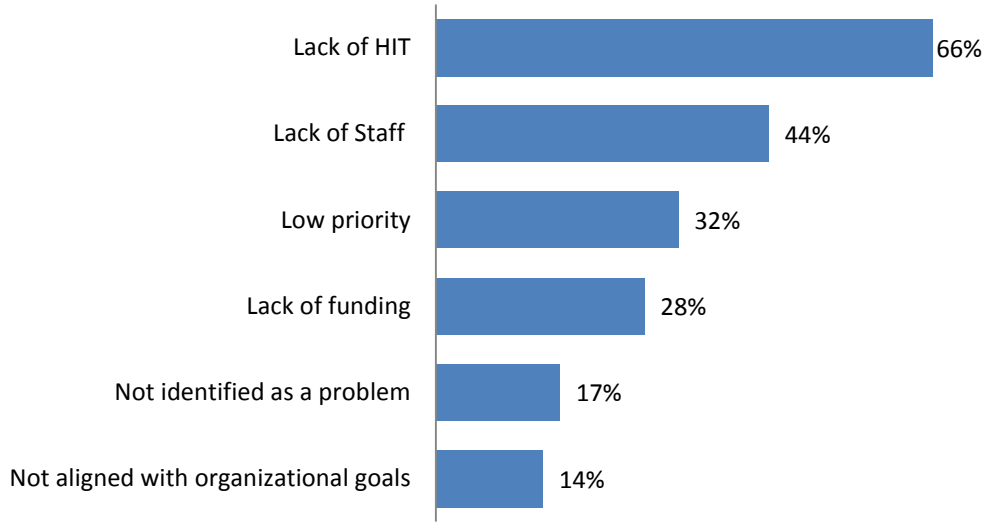
Exhibit 41: Status of Category 3 Measures in DPHs Prior to DSRIP



Source: UCLA survey of designated public hospitals (DPHs).

DPHs reported the reasons for not tracking Category 3 measures prior to DSRIP. The most frequently cited reasons (66%) were lack of sufficient HIT, followed by lack of staff (44%), and perceiving the measures as a low priority (32%; Exhibit 42).

Exhibit 42: Reasons Category 3 Measures Were Not Gathered Prior to DSRIP



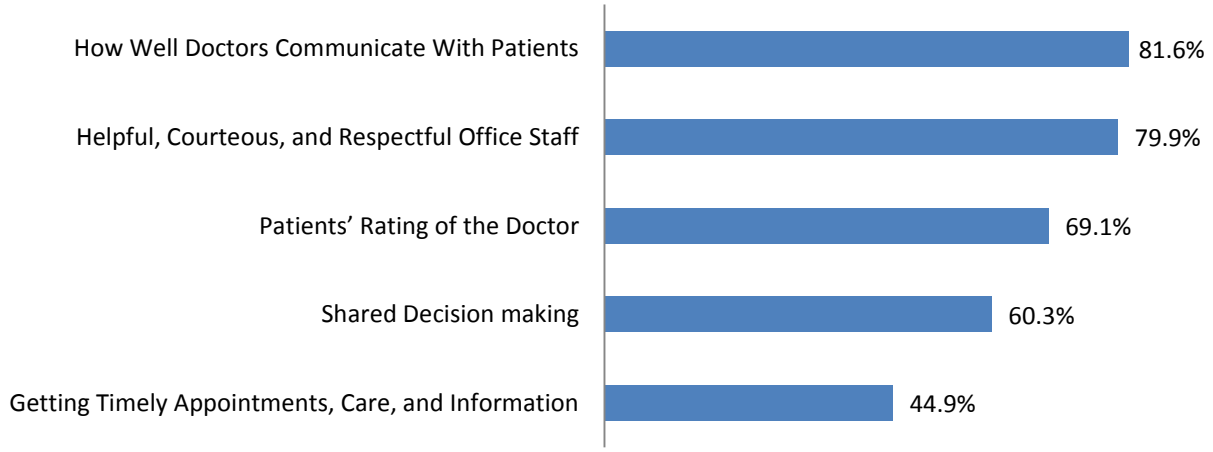
Source: UCLA survey of designated public hospitals (DPHs).
Notes: Analysis is based on the total number of measures that were not gathered prior to DSRIP (n=133). Total is greater than 100% because DPHs were allowed to select more than one response option per project.

Outcomes

DPHs had to achieve 119 milestones in DY 7 and 340 milestones in DY 8. DPHs reported that they achieved all these Category 3 milestones in their respective annual reports (data not shown).

DPHs began reporting the results of their CG-CAHPS surveys in their DY 8 reports. On average, patients receiving care in the outpatient setting scored the ability of their doctors to communicate with them (81.6%) and the helpfulness, courtesy, and respectfulness of office staff (79.9%) as highest. The lowest score was given to the ability to get timely appointments, care, and information (44.9%). Side-by-side comparisons of individual DPH rates are available in the SNI DY 8 report.

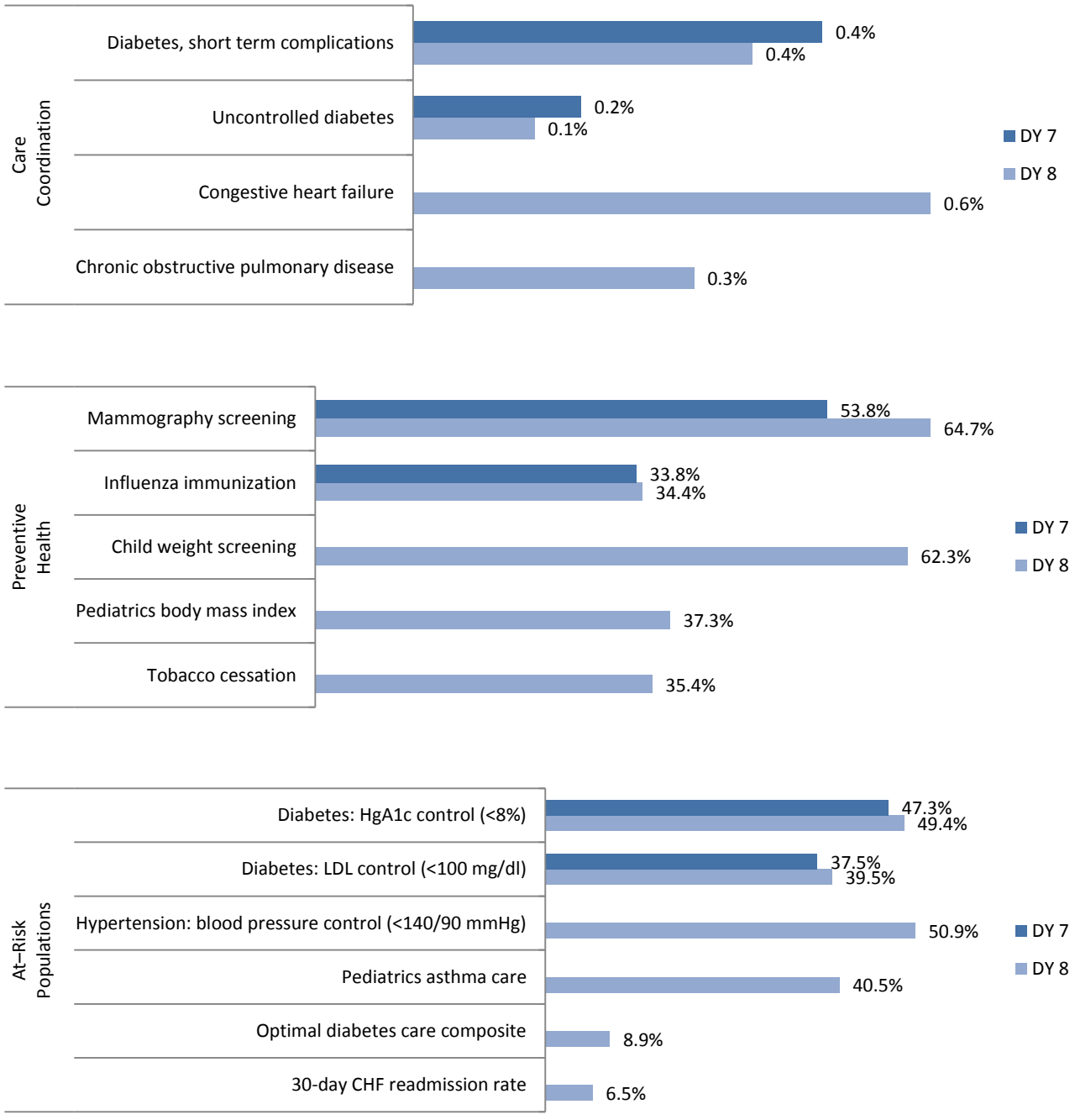
Exhibit 43: Category 3 Patient or Caregiver Experiences (CG-CAHPS) Survey Results, DY 8



Source: UCLA analysis of designated public hospital annual reports submitted to the Department of Health Care Services.

DPHs also reported data for the remaining Category 3 measures for DY 7 and DY 8 (Exhibit 53). Measure definitions are provided in Appendix 1 (Category 3). Of the six measures that were reported in both years, the average rates remained similar or indicated a small increase from DY 7 to DY 8 (Exhibit 44). The largest average rate increase was reported for mammography screening, increasing from 53.8% to 64.7%. An additional nine measures were reported in DY 8 for the first time. Of these, child weight screening (62.3%) was most frequently measured. However, the rates reported by individual DPHs varied widely. For example, the rate of mammography screening ranged from a 28% decline in one DPH to 95% increase in another DPH. Similarly, the rates of three measures -- influenza immunizations (a decline of 67% to an increase of 50%), diabetes LDL control (a decline of 45% to an increase of 417%), and diabetes HgA1c control (a decline of 47% to an increase of 269%) -- also ranged widely.

Exhibit 44: Trends in Selected Category 3 Measures, DY 7 and DY 8

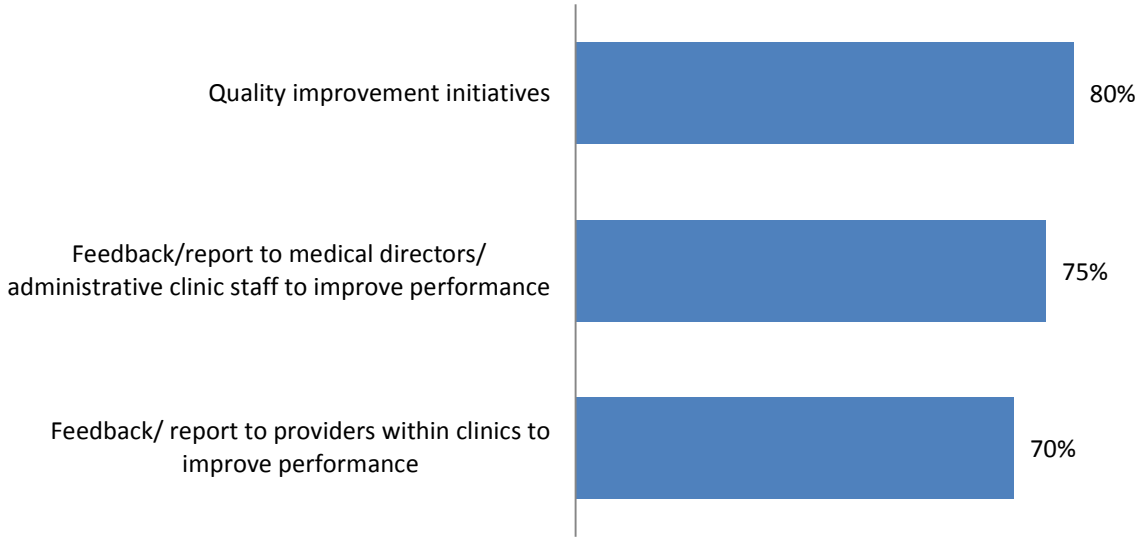


Source: UCLA analysis of designated public hospital annual reports submitted to the Department of Health Care Services.

Note: Six measures were reported in both DY 7 and DY 8 and an additional 9 were first reported in DY 8. Patient or caregiver experience (CG-CAHPS) data are reported in previous exhibit.

DPHs reported on whether and how they used Category 3 measures in various operations or activities. Category 3 measures were used most frequently in quality improvement initiatives (80%; Exhibit 45). These measures were also used to improve performance by sending feedback to medical directors or administrators (75%) as well as to clinicians providing direct care (70%).

Exhibit 45: The Proportion of Category 3 Project Measures Used for Quality Improvement Initiatives and Feedback

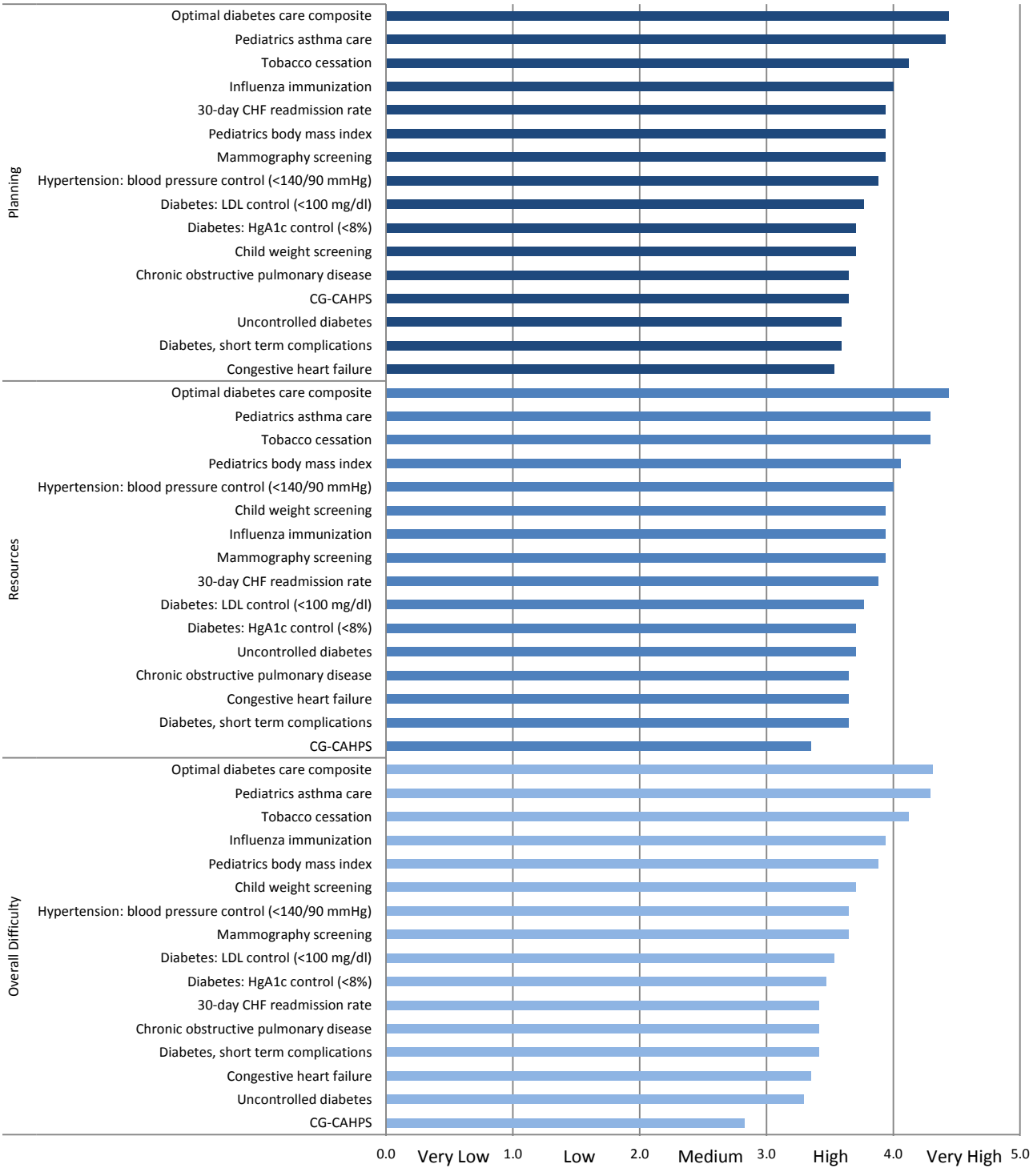


Source: UCLA survey of designated public hospitals (DPHs).
Note: Total is greater than 100% because DPHs were allowed to select more than one response option per project.

Implementation

DPHs reported on the level of effort and resources required to gather Category 3 measures using a five point scale from very low to very high. The average rating for each measure is reported in Exhibit 46. The data indicate that all measures required a high level of planning and resources. Three measures required very high levels of effort including the diabetes care composite, pediatric asthma care, and tobacco cessation. Similarly, tracking nearly all measures was reported to require a high or very high level of difficulty. Only tracking CG-CAHPS was reported to have a medium level of difficulty. DPHs reported using outside vendors to collect the CG-CAHPs measures, which required fewer personnel and resources on the part of the DPHs.

Exhibit 46: Amount of Effort and the Overall Level of Difficulty in Gathering Category 3 Measures



Source: UCLA survey of designated public hospitals (DPHs).

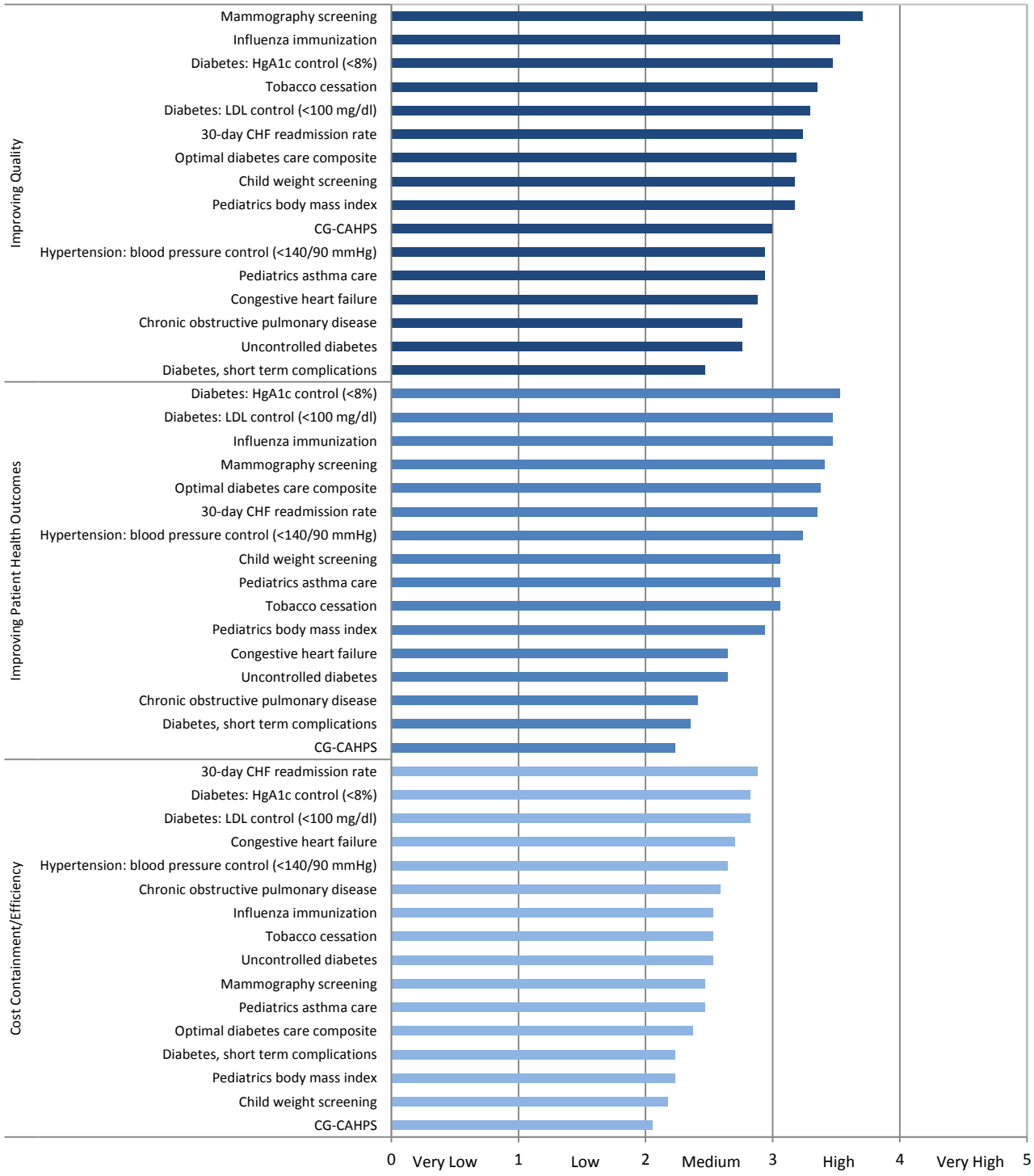
Top Challenges and Solutions to Implementation

DPHs reported the top two challenges in tracking each Category 3 measure. The most frequently cited challenges related to data collection and abstraction issues, which were generally resolved by implementing electronic medical records if they were not available before DSRIP or accelerating the process of implementation. The second most frequently cited challenge was inconsistency in data collection methods, which was resolved by additional staff training and by improving documentation. The third most frequently cited reason was lack of sufficient staff for manual chart abstraction and data reporting, particularly before full implementation of EMRs or when EMRs lacked specific data. These challenges were resolved by hiring and training additional staff to complete the required tasks.

Perceived Impact on Triple Aim

DPHs were asked to assess the potential impact of each Category 3 measure on the Triple Aim of improving quality, patient outcomes and cost containment/efficiency using a five point scale from very low to very high. The average rating for each measure for each aim is reported in Exhibit 47. Overall, several Category 3 measures were anticipated to have a high impact on improving quality of care and patient health outcomes. However, no measures were expected to have a high or very high impact on cost containment/efficiency. Furthermore, the perceived impact of measures varied by each aim. For example, most DPHs perceived that mammography screening would have the highest impact on improving quality but a slightly lower impact on patient outcomes and a medium impact on cost containment/efficiency.

Exhibit 47: Perceived Impact of Category 3 Measures on Triple Aim of Improving Quality, Patient Health Outcomes, and Increasing Cost containment/Efficiency



Source: UCLA survey of designated public hospitals (DPHs).

Future Analyses

Additional analyses of the trends in Category 3 measures in DY 9 and DY 10 will be provided in the final report. Furthermore, the trends in Category 3 measures reported by DPHs will be compared to publicly available data for other comparable California hospitals when available. The final report will also include complete key informant interview data to provide context and depth to implementation decisions of DPHs and challenges they faced. Data from DY 6 -DY 10 DPH reports will be analyzed to explore specific challenges or other implementation issues provided in those reports.

Summary

The findings indicate that CG-CAHPS data were infrequently (2 DPHs) tracked prior to DSRIP. Preventive health measures and at-risk population measures, however, were tracked by more than half of DPHs. Care coordination measures were tracked by fewer than half of DPHs. However, most of these measures were not tracked uniformly or at the same scope as under DSRIP. The most frequently cited reason for not tracking Category 3 measures was lack of HIT (66%).

DPHs reported achieving all of the milestones in DY 7 and DY 8, even though the milestones nearly doubled in this timeframe. The available results from CG-CAHPS indicated scores were highest for ability of the doctors to communicate with patients (81.6%) and lowest for getting timely appointments, care, and information (44.9%).

Of the remaining measures, a substantial increase in the average rates of mammography screening (from 53.8% to 64.7%) were observed from DY 7 to DY 8, but other measures did not change or changed by a small percentage overall. However, the individual DPH rates indicated large percentage increases and declines in some rates. DPHs reported using Category 3 measures in quality improvement initiatives 80% of the time as well as using them to provide feedback to medical directors and administrators 75% of the time and providers 70% of the time.

DPHs reported use of extensive resources and high level of difficulty for tracking most of the Category 3 measures. Top challenges in implementation included a lack of EMR systems, inconsistencies in data collection methods, and lack of clear instructions on gathering data. DPHs responded to these challenges by implementing EMRs, training staff, and improving documentation. Overall, several Category 3 measures were anticipated to have a high impact on improving quality of care and patient health outcomes. However, no measures were expected to have a high or very high impact on cost containment/efficiency. Most DPHs

perceived that mammography screening would have the highest impact on improving quality, diabetes control of HgA1c would have the highest impact on patient outcomes, and 30-day CHF readmission rates would have the highest impact on cost containment or efficiency.

Category 4: Urgent Improvement in Care

Category 4 projects were designed to make evidence-based urgent improvements in the inpatient care setting. Each DPH was required to implement at least four projects related to inpatient care for Category 4. DPHs were required to select two projects: severe sepsis detection and management and central-line associated bloodstream infection (CLABSI) prevention. DPHs were also required to select a minimum of two out of five other projects, including: surgical site infection (SSI) prevention, hospital-acquired pressure ulcer (HAPU) prevention, stroke management, venous thromboembolism (VTE) prevention and treatment, and falls with injury prevention. Improvement targets for Category 4 projects were based on baseline data starting no earlier than July 2009 or data based on 6-12 months of the project in DY 7. DHCS was tasked with setting a high performance level and a minimum performance level for central line insertion practices (CLIP) adherence, stroke management, and VTE, which are to be used as guidelines to set targets for DY 9-10.

Project Selection

Exhibit 48 presents the selection of projects by the DPHs. As required, all 17 DPHs are working on the sepsis and CLABSI projects. Twelve DPHs selected the SSI project, and 12 selected the HAPU project. Six DPH selected the VTE project. The stroke intervention and falls projects were the least frequently selected, with three DPHs selecting the stroke project and only one selecting the falls project.

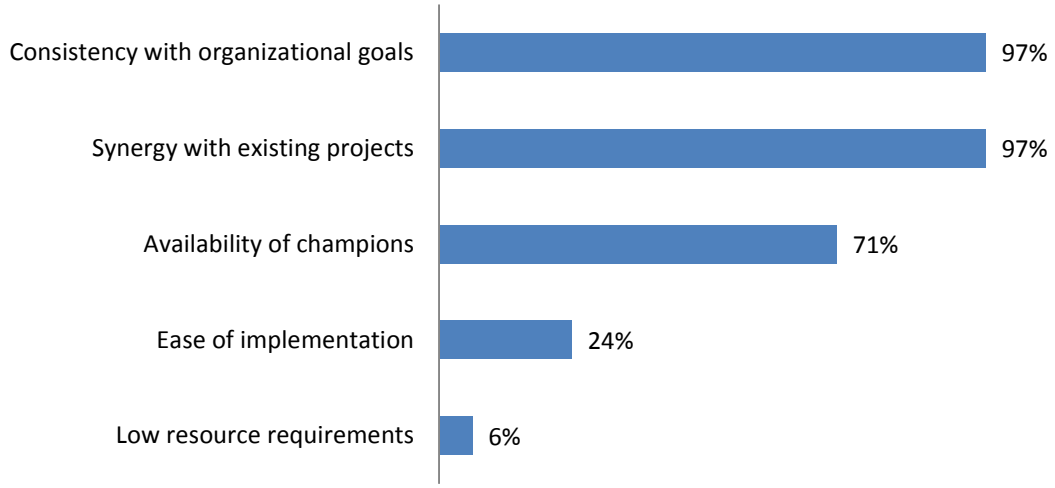
Exhibit 48: Projects Selected, by Designated Public Hospital, Category 4

	Severe Sepsis Detection and Management	Central Line-Associated Bloodstream Infection Prevention	Surgical Site Infection Prevention	Hospital-Acquired Pressure Ulcer Prevention	Stroke Management	Venous Thromboembolism Prevention and Treatment	Falls with Injury Prevention
Alameda Health System	✓	✓	✓	✓			
Arrowhead Regional Medical Center	✓	✓		✓	✓		
Contra Costa Health Services	✓	✓		✓		✓	
Kern Medical Center	✓	✓		✓		✓	
Los Angeles County Department of Health Services	✓	✓	✓			✓	
Natividad Medical Center	✓	✓		✓		✓	
Riverside County Regional Medical Center	✓	✓	✓		✓		
San Francisco General Hospital	✓	✓	✓			✓	
San Joaquin General Hospital	✓	✓	✓		✓		
San Mateo Medical Center	✓	✓	✓				✓
Santa Clara Valley Medical Center	✓	✓	✓	✓			
University of California, Davis Medical Center	✓	✓	✓	✓			
University of California, Irvine Medical Center	✓	✓		✓		✓	
University of California, Los Angeles Hospitals	✓	✓	✓	✓			
University of California, San Diego Health System	✓	✓	✓	✓			
University of California, San Francisco Medical Center	✓	✓	✓	✓			
Ventura County Medical Center	✓	✓	✓	✓			
Total	**17**	**17**	**12**	**12**	**3**	**6**	**1**

Source: UCLA analysis of designated public hospital reports.

For the projects selected, nearly all DPHs identified consistency with organizational goals and synergy with existing projects as reasons for choosing the project (Exhibit 49). Neither ease of implementation (24%), nor low resource requirements (6%), appeared to be key considerations in choosing projects.

Exhibit 49: Reasons for Selecting Optional Category 4 Projects

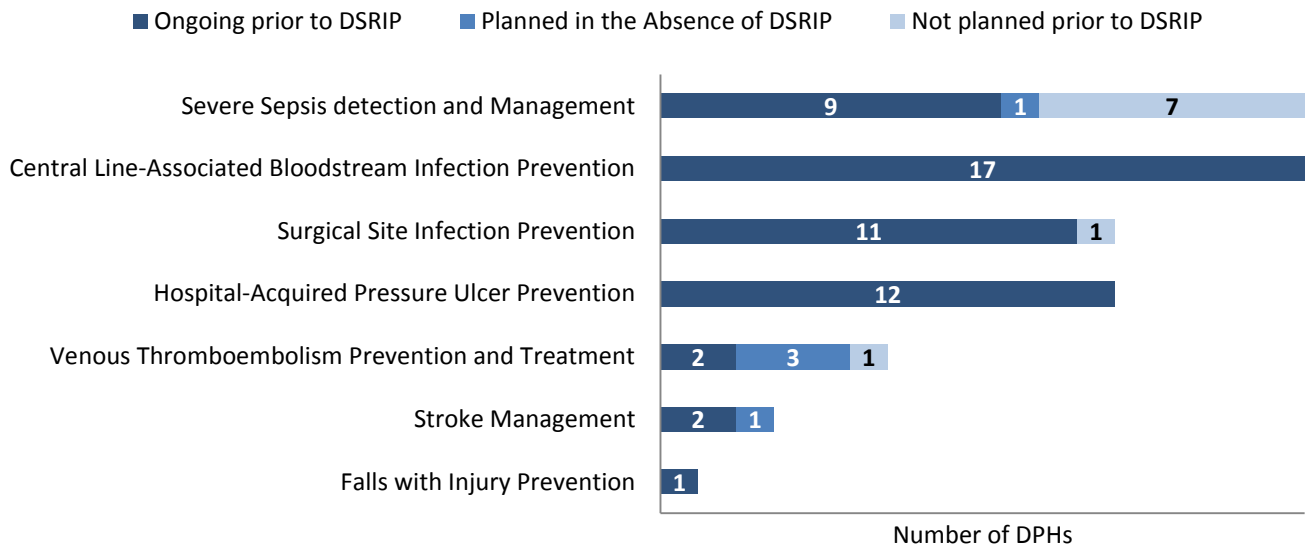


Source: UCLA survey of designated public hospitals (DPHs).
Notes: Analysis is based on the total number of Category 4 projects (n=68). Total is greater than 100% because DPHs were allowed to select more than one response option per project.

Status of Category 4 Projects Prior to DSRIP

For almost all of the projects, DPHs that selected the project were either working on or planning a project prior to DSRIP (Exhibit 50). The one notable exception to this pattern was the sepsis project, a mandatory project, where seven of the 17 DPHs indicated that no project had been implemented or planned prior to DSRIP. This is in sharp contrast to the other mandated project, CLABSI, in which all 17 DPHs indicted they had projects underway prior to DSRIP. For all the optional projects, DPHs indicated prior work was underway with two exceptions, with one DPH that chose SSI prevention and one that chose VTE indicating that no work had been planned prior to DSRIP.

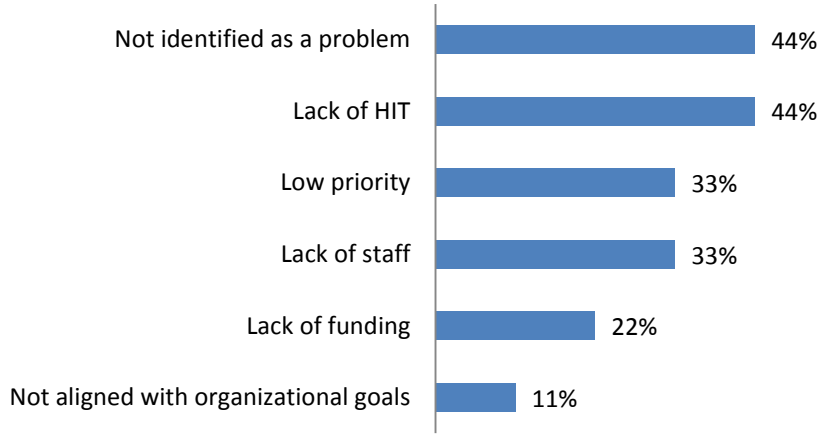
Exhibit 50: Status of Category 4 Projects in DPHs Prior to DSRIP



Source: UCLA survey of designated public hospitals (DPHs).

DPHs offered a wide range of reasons why projects had not been planned or underway prior to DSRIP (these responses are largely about the sepsis project) (Exhibit 51). Lack of identification of the project as a problem (44%) and lack of HIT infrastructure to identify or manage the project (44%) were the two reasons most frequently cited, with low priority relative to other areas, lack of staff and lack of funding also cited as reasons.

Exhibit 51: Reasons that Category 4 Projects Were Not Planned Prior to DSRIP



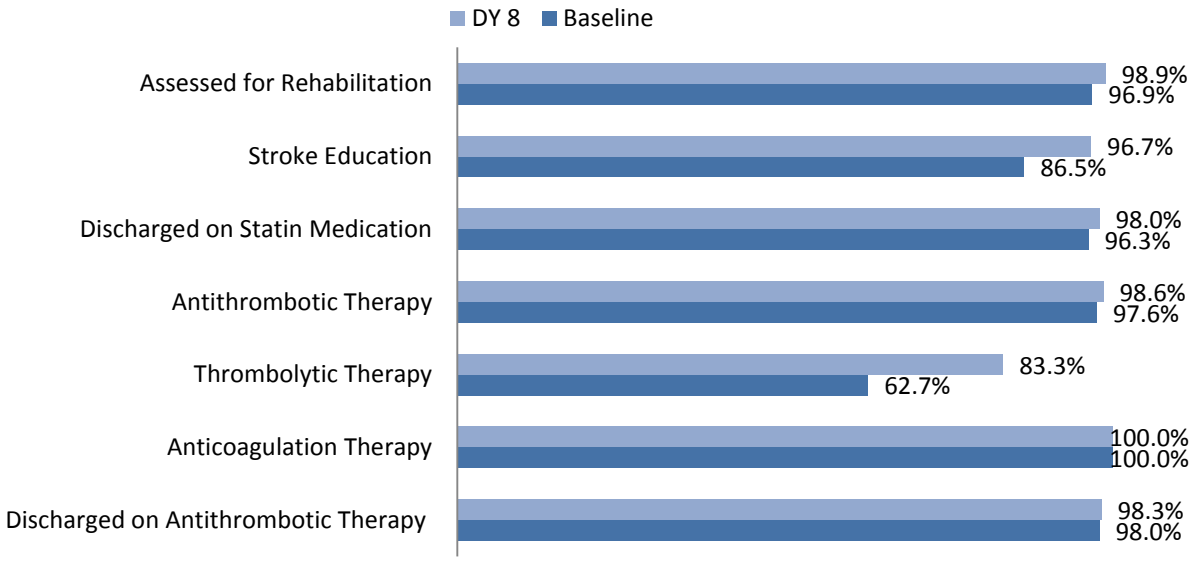
Source: UCLA survey of designated public hospitals (DPHs).
Notes: Analysis is based on the total number of projects selected that were not implemented or planned prior to DSRIP (n=9). Total is greater than 100% because DPHs were allowed to select more than one response option per project.

Outcomes

Each of the projects in Category 4 required implementing a bundle of improvements, and DPHs were required to report baseline adherence to the protocol and adherence in DY 8. Data were available for baseline and DY 8 for the components of the stroke bundle (Exhibit 52), VTE bundle (Exhibit 53), and CLABSI central line insertion bundle (Exhibit 54). Data were not available for the baseline sepsis bundle but DY 8 rates of adherence were available (Exhibit 54). Overall, rates of adherence were high at baseline and increased for all measures in DY 8 over baseline. Adherence rates for six of seven stroke measures, four of five VTE measures and the central line bundle were over 90% in DY 8. The three measures with the lowest baseline compliance (between 45% and 80%) increased by 10-20 percentage points, with the largest gain for the measure with lowest compliance (Venous Thromboembolism Warfarin Discharge Instructions). Process measures have shown consistent improvement across sites.

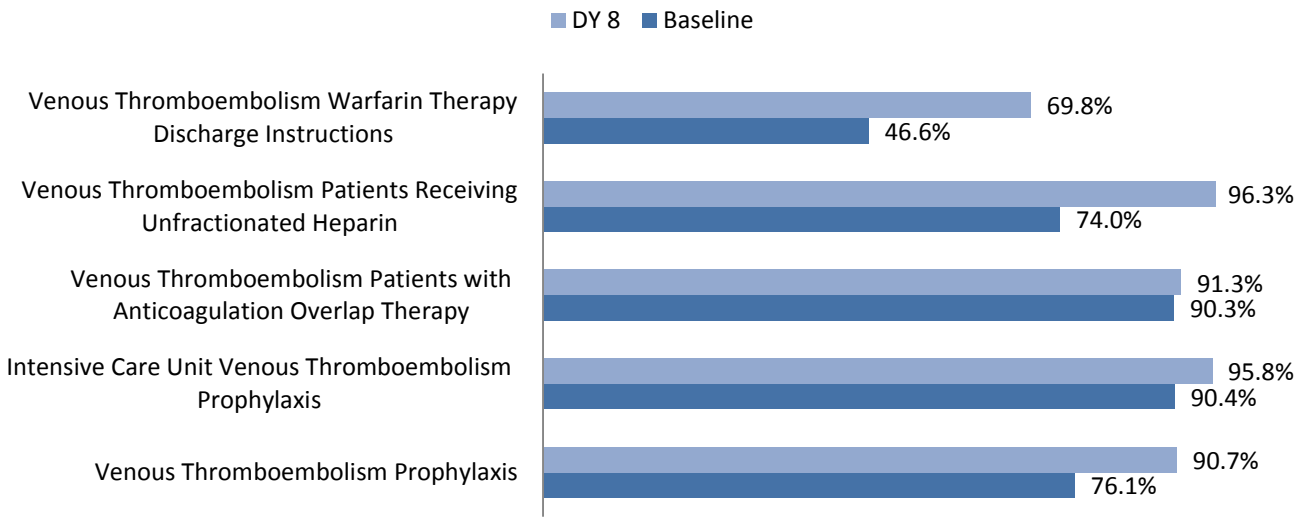
Rates reported by individual DPHs varied widely. VTE bundle rate changes between DY 7 and DY 8 ranged from a 24% decrease for one DPH to a 552% increase for another DPH, while overall average rate changes for each measure ranged between 1% and 50%. The CLABSI central line insertion bundle adherence rate between DY 7 and DY 8 ranged from a 2% decrease for one DPH to a 117% increase for another DPH, an overall average rate increase of 7% for all DPHs combined. Side-by-side comparisons of individual DPH rates are available in the SNI DY 8 report.

Exhibit 52: Stroke Management Adherence Rates Reported by DPHs, Baseline and DY 8



Source: UCLA analysis of designated public hospital annual reports submitted to the Department of Health Care Services.

Exhibit 53: Venous Thromboembolism Prevention and Treatment Adherence Rates Reported by DPHs, Baseline and DY 8



Source: UCLA analysis of designated public hospital annual reports submitted to the Department of Health Care Services.

Exhibit 54: Category 4 Process Measures Reported by DPHs, Baseline and DY 8

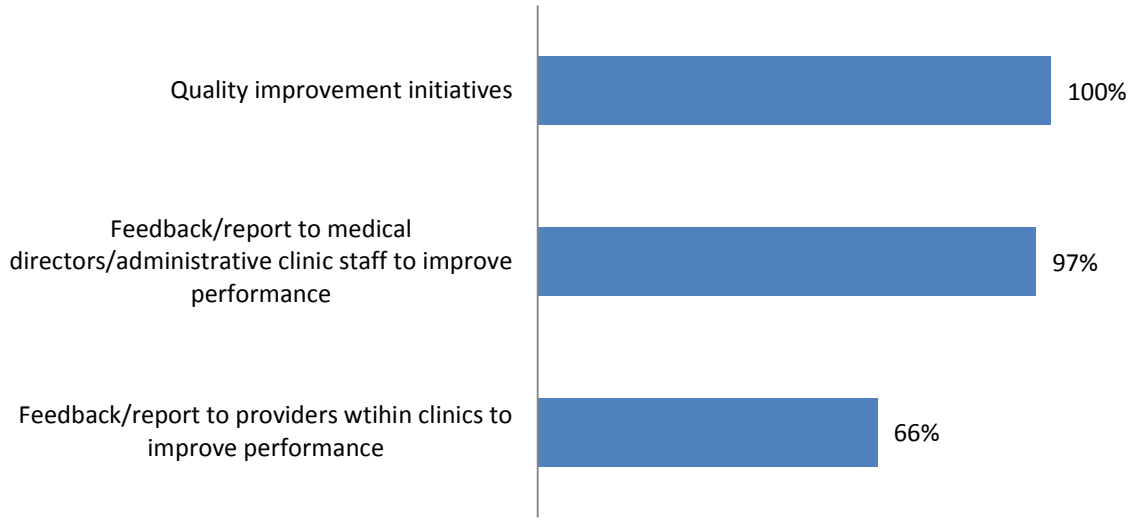
Measure	Baseline	DY 8
Sepsis Bundle – PHS Data Definition	NA	56.9%
Sepsis Bundle – ICD-9 Coded Data Definition (785.52 & 995.92)	NA	59.8%
Central Line Insertion Practices – Adherence Rate	89.3%	95.3%

Source: UCLA analysis of designated public hospital annual reports submitted to the Department of Health Care Services.

Note: Data not available for sepsis bundle measures in the baseline period.

DPHs reported on whether and how they incorporated Category 4 project results or project information into quality improvement initiatives, feedback or reports to medical directors or administrative leadership to improve performance, or feedback to providers within clinics to improve performance (Exhibit 55). All DPHs planned to incorporate project results into quality improvement. For 97% of the projects, DPHs planned on providing feedback to medical directors or administrative leadership. The largest area of variation was in the intention to provide direct feedback to providers within clinics, where DPHs indicated they would be doing this for two-thirds of the projects.

Exhibit 55: The Proportion of Category 4 Projects that Used Project Measures for Quality Improvement Initiatives and Feedback



Source: UCLA survey of designated public hospitals (DPHs).
Notes: Analysis is based on the total number of Category 4 projects selected by DPHs (n=68). Total is greater than 100% because DPHs were allowed to select more than one response option per project.

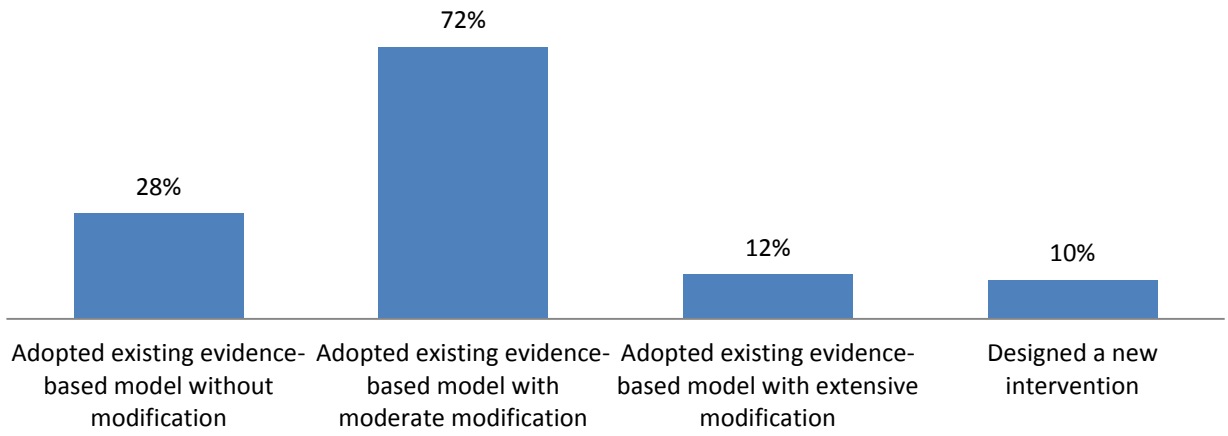
Implementation

The DPHs reported high levels of effort required to implement the Category 4 projects despite substantial work prior to DSRIP on the projects required or selected. For each project, DPHs reported the extent to which, in implementing the project, they adopted an existing model without modification, adopted an existing model with moderate modification, adopted an existing model with extensive modification, or designed a new project, and indicated the degree of staff training required for the project. They were also asked to rate the level of effort required for planning, personnel reorganization, care process reorganization, obtaining stakeholder engagement, and selecting and implementing measurement, and the overall level of difficulty in implementing the project using a five-point scale from "very low" to "very high." Additionally, DPHs reported the extent of revision, redesign, or modification of plans from their original form for successful implementation.

Exhibit 56 presents the responses to the question about evidence-based models and Exhibit 57 presents the responses about training. Overwhelmingly DPHs adopted an existing model for the project but found the models required at least moderate levels of modification. For 12% of the projects, modifications were described as extensive and in 10%, a new intervention was designed. Consistent with findings from the implementation research literature, simply

adopting an intervention without any adaption to local circumstances was not generally sufficient.

Exhibit 56: The Proportion of Category 4 Projects That Used Evidence-Based Models, by Degree of Modification to the Model



Source: UCLA survey of designated public hospitals (DPHs).

Notes: Analysis is based on the total number of Category 4 projects selected by DPHs (n=68). Total is greater than 100% because DPHs were allowed to select more than one response option per project. DPHs could implement more than one model to complete a project.

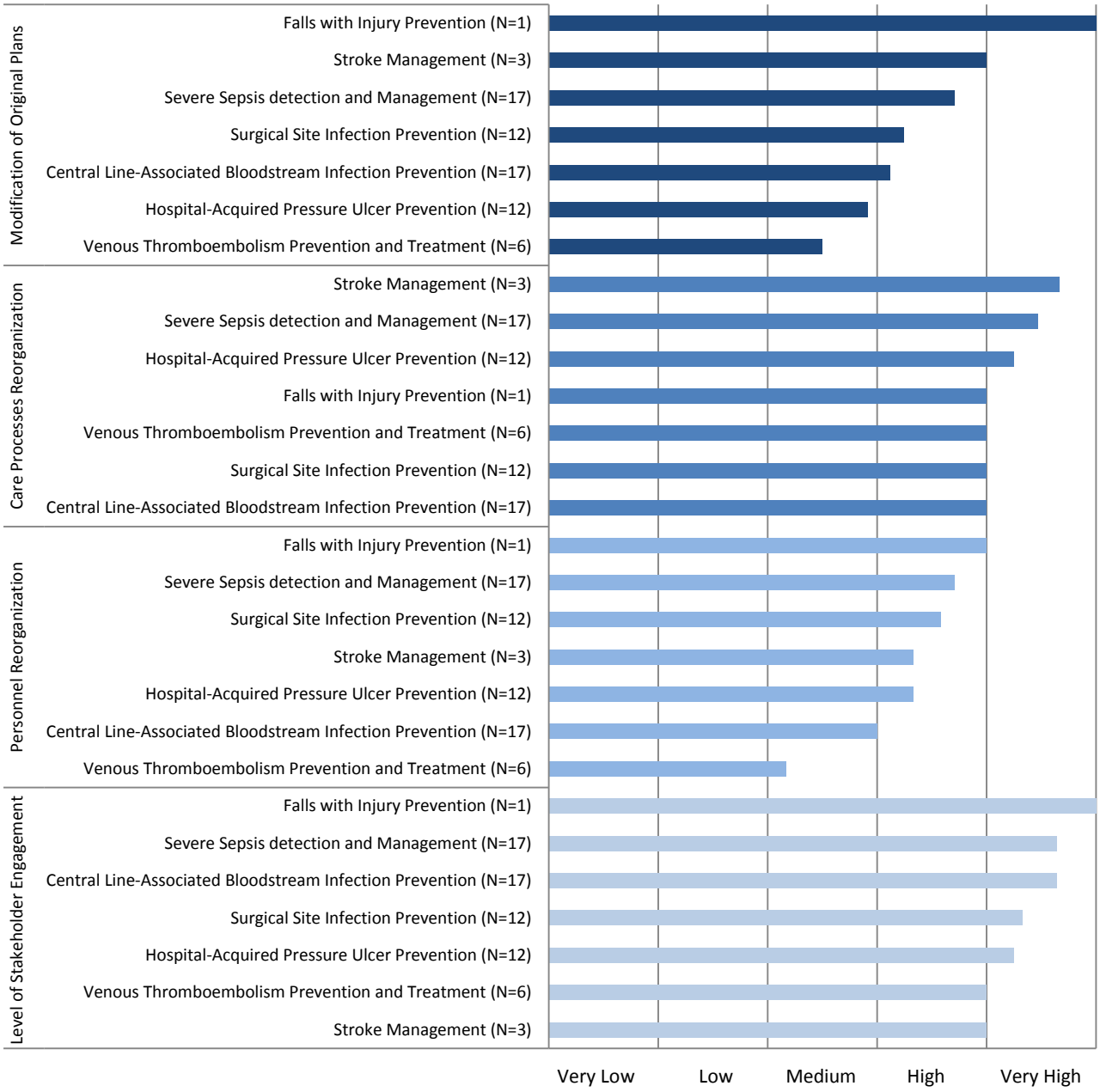
With respect to training (Exhibit 57), nearly 60% of DPHs reported staff had some previous training relevant to the project, but 69% reported intervention-related training prior to the intervention, and 82% reported training during the intervention.

Exhibit 57: Timing of Staff Training in Relation to DSRIP Implementation for Category 4 Projects

Source: UCLA survey of designated public hospitals (DPHs).
Notes: Analysis is based on the total number of Category 4 projects selected by DPHs (n=68). Total is greater than 100% because DPHs were allowed to select more than one response option per project. DPHs could conduct multiple phases of staff training depending on the needs of the project.

Challenges in obtaining stakeholder engagement and reorganization of care processes required especially high levels of effort or were most frequently characterized as very hard. The exceptions were the degree to which plans needed to be modified for the VTE and HAPU projects, where effort was characterized as moderate, and personnel reorganization for the VTE and CLABSI projects (Exhibit 58). In general the level of effort required for each component of the implementation and implementation overall was "high" to "very high" (Exhibit 59).

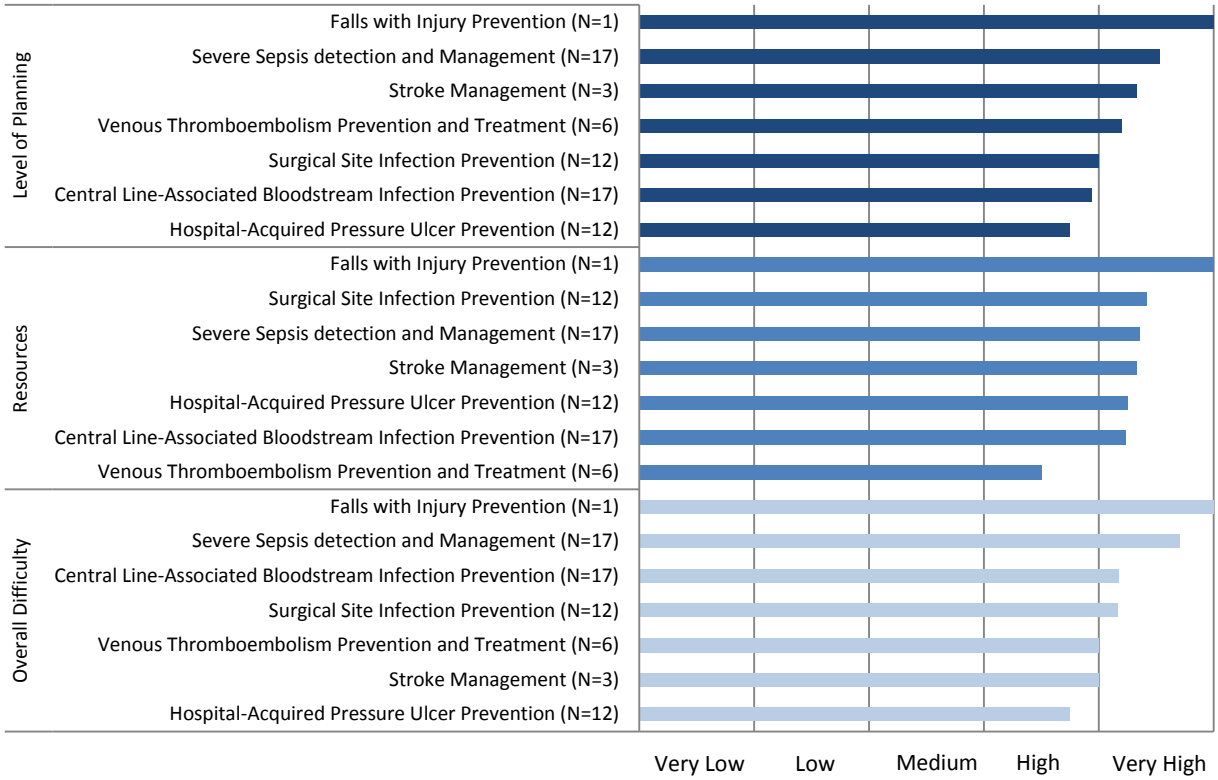
Exhibit 58: Level of Modification of Original Plans, Reorganization of Personnel and Care Processes, and Stakeholder Engagement for Category 4 Projects



Source: UCLA survey of designated public hospitals (DPHs).

Note: The Ns for each category represent the total number of projects implemented in the category across all DPHs.

Exhibit 59: Amount of Effort and Overall Level of Difficulty in Implementing Category 4 Projects



Source: UCLA survey of designated public hospitals (DPHs).
Note: The Ns for each category represent the total number of projects implemented in the category across all DPHs.

Top Challenges and Solutions to Implementation

DPHs reported top challenges and solutions to successful implementation of Category 4 projects. DPHs identified challenges in choice of measures, meeting the DSRIP milestones, obtaining data to implement the measurement strategy, and sustaining the projects. Challenges in choice of measures and in achieving the DSRIP milestones included low volume or incidence, engaging physicians and nursing staff and identifying specific procedures to target. DPHs resolved these challenges through hypervigilance to avoid missing cases, educating and training staff, and identifying high volume procedures.

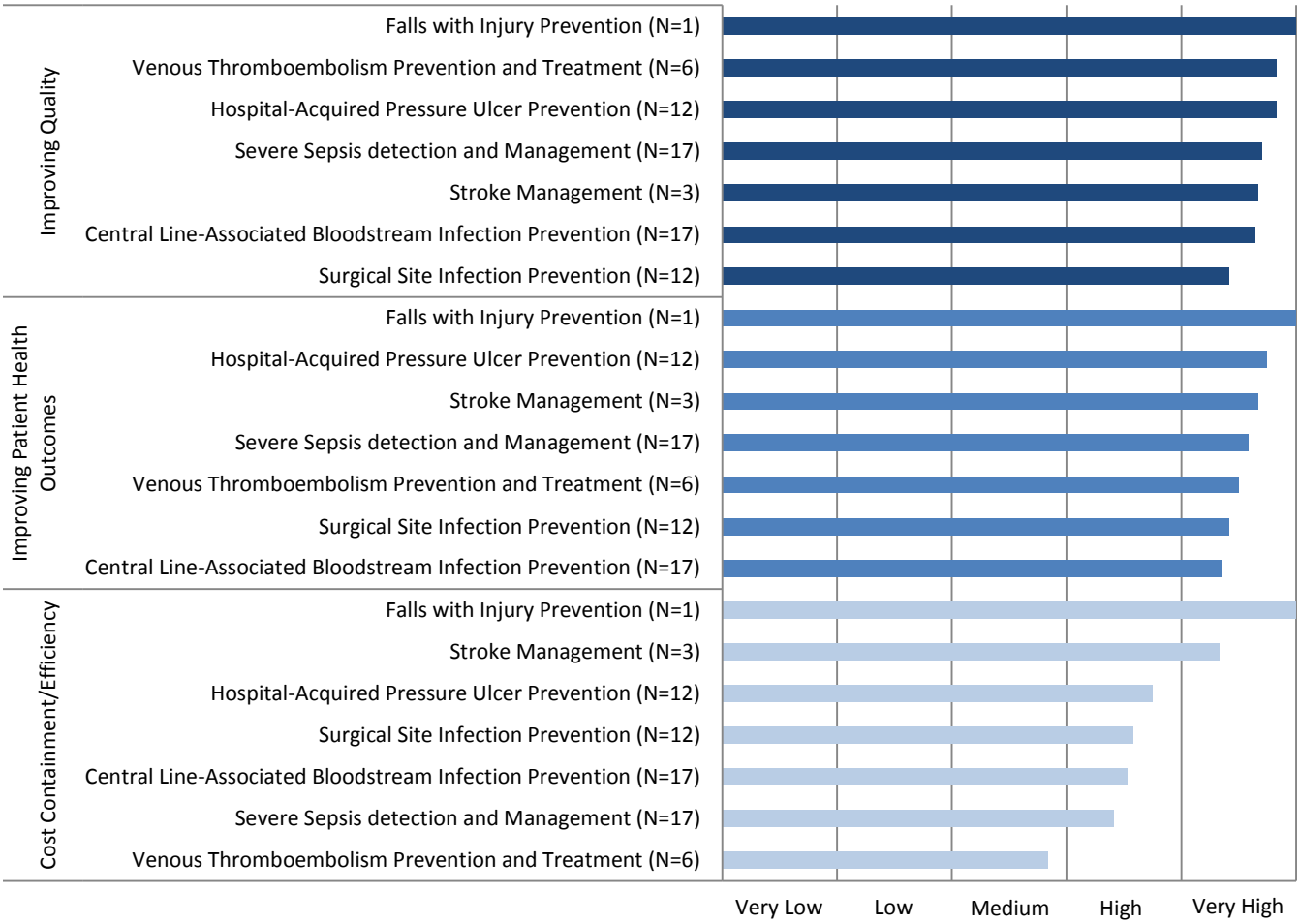
Challenges in obtaining data for the denominators and numerators and in sustaining the projects included a lack of consistent documentation, data criteria that was extremely complex (e.g. identifying when a patient screened positive for sepsis was identified as a major problem), lack of resources for data collection, changing data reporting requirements, high levels of resources and time required for manual data abstraction, and keeping all caregivers apprised of

performance. DPHs found a variety of ways to overcome these challenges, including identifying physician and nurse champions, conducting daily and monthly audits, training providers on ruling out diagnoses though training and monitoring, hiring additional staff, developing forms to capture data and using electronic data collection whenever possible, and sending feedback to staff on surveillance data.

Perceived Impact on Triple Aim

DPHs reported the perceived impact of Category 4 on the Triple Aim of improving quality of care, improving patient outcomes, and increasing cost containment and efficiency. Each response was assessed on a one to five scale from "very low" impact to "very high" impact. The average rating for each project is presented in Exhibit 60. Average ratings for all projects were very high for the impact on quality and patient outcomes. There was greater variation in the answers regarding impacts on cost containment and efficiency, with the impact of some projects such as falls and stroke projects assessed as very high, while VTE was assessed on average as having only a medium impact, and other projects assessed as high. For projects with many DPHs participating, a substantial number assessed the impact on costs and efficiency at the low or very low end of the scale. When asked about this in interviews, those DPHs indicated that they did not have the data to demonstrate cost impact or that it was too early to assess the impact on costs and efficiency.

Exhibit 60: Perceived Impact of Category 4 Projects on Triple Aim of Improving Quality, Patient Health Outcomes, and Increasing Cost containment/Efficiency

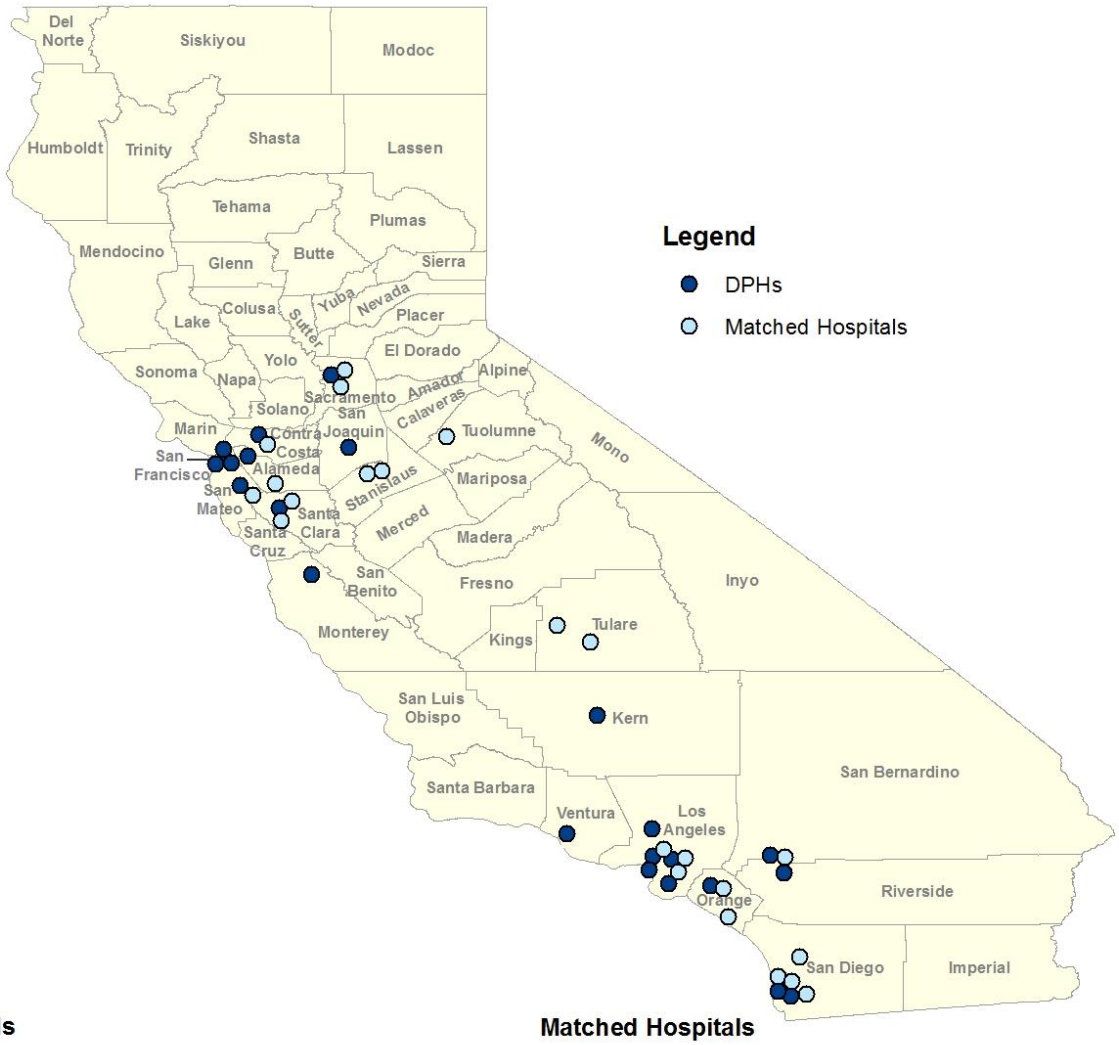


Source: UCLA survey of designated public hospitals (DPHs).
Note: The Ns for each category represent the total number of projects implemented in the category across all DPHs.

Pre-DSRIP Comparison of Category 4 Outcomes with Other California Hospitals

DPHs progress in improving inpatient care is compared with hospitals in California that are "matched" on a number of characteristics. In this interim report, UCLA used OSHPD data to construct trends in Category 4 outcomes for DPHs, matched hospitals, and the "other" remaining selected California hospitals. The data, sample selection, measure construction, risk adjustment, and statistical analysis methods are provided in Appendix 1 (Category 3). DPHs and matched hospitals are presented in Exhibit 61. In the findings presented below, DPHs are further divided into "DPH participating" and "DPH non-participating" depending on whether the DPH implemented an optional Category 4 project.

Exhibit 61: Map of DPHs and Matched Hospitals



DPHs

Alameda County Medical Center - Highland Campus
Arrowhead Regional Medical Center
Contra Costa Regional Medical Center
Kern Medical Center
LA County + USC Medical Center
LA County/Harbor-UCLA Medical Center
Los Angeles County Olive View-UCLA Medical Center
Natividad Medical Center
Riverside County Regional Medical Center
Ronald Reagan UCLA Medical Center
San Francisco General Hospital
San Joaquin General Hospital
San Mateo Medical Center
Santa Clara Valley Medical Center
Santa Monica - UCLA Medical Center And Orthopaedic Hospital
UCSD-La Jolla, John M And Sally B. Thornton Hospital
UCSF Medical Center
UCSF Medical Center At Mount Zion
University Of California Davis Medical Center
University Of California Irvine Medical Center
University Of California-San Diego Medical Center
Ventura County Medical Center

Matched Hospitals

Cedars Sinai Medical Center
Doctors Medical Center
El Camino Hospital Los Gatos
Grossmont Hospital
John Muir Medical Center-Walnut Creek Campus
Kaiser Foundation Hospital - Fremont
Kaiser Foundation Hospital - Sacramento/Roseville-Morse
Kaiser Foundation Hospital - South Sacramento
Loma Linda University Medical Center
Memorial Hospital Medical Center - Modesto
Mission Hospital Laguna Beach
Palomar Medical Center
Regional Medical Of San Jose
Scripps Green Hospital
Scripps Memorial Hospital - La Jolla
Sierra View District Hospital
Sonora Regional Medical Center - Greenley
St. Francis Medical Center
Stanford Hospital
Tulare Regional Medical Center
Western Medical Center - Santa Ana
White Memorial Medical Center

*Hospitals are listed in alphabetical order

The means and variance for each matching variable was examined for the matched sample and DSRIP hospitals included in the analysis (Exhibit 62) and judged to be comparable.

Exhibit 62: Averaged Scores of Matching Criteria

	DPHs	Matched	Other
Case Mix	1.31	1.28	1.30
	(0.28)	(0.33)	(0.45)
Ratio of Intensive Care Unit to General Acute Care beds	0.10	0.11	0.08
	(0.05)	(0.06)	(0.05)
Proportion Pediatric Beds	0.03	0.06	0.02
	(0.04)	(0.04)	(0.04)
Pediatric Beds	11.82	20.14	4.74
	(17.59)	(20.82)	(9.00)
Non-pediatric Beds	300.00	303.64	171.86
	(198.06)	(156.32)	(123.42)
Outpatient Volume to Inpatient Visits	15.03	29.01	14.26
	(13.71)	(17.00)	(25.93)

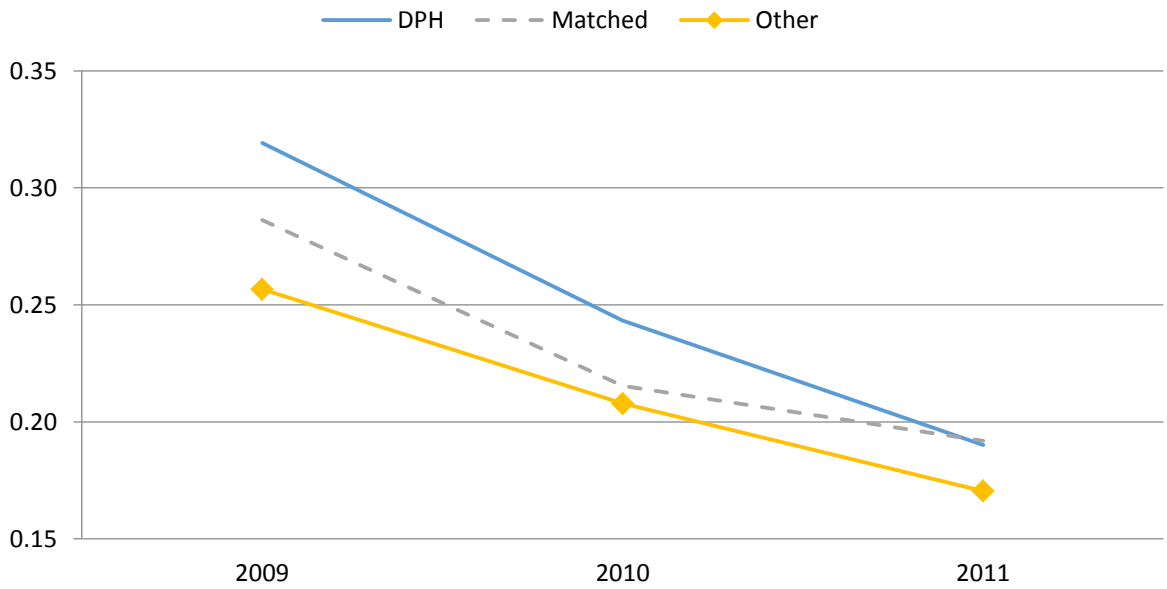
Source: UCLA analysis of Office of Statewide Health Planning and Development (OSHPD) Patient Discharge Data.
Note: Standard Deviations in Parentheses.

Pre-DSRIP Trends in Category 4 Project Outcomes

Exhibit 63 through Exhibit 70 include the preliminary trends for the Category 4 project outcomes prior to the implementation of DSRIP. In general, DPHs have different initial rates for each outcome in the baseline period. The preliminary trends for DPHs are higher than the matched or other hospitals for five of the eight measures, and lower than the matched controls or other controls for three measures. Five of the measures display a slight downward trend, with the trend for both DSRIP hospitals and controls sometimes parallel, sometimes converging and sometimes diverging. For three measures during the baseline period the patterns of change are different for the DSRIP participating and non-DSRIP control hospitals.

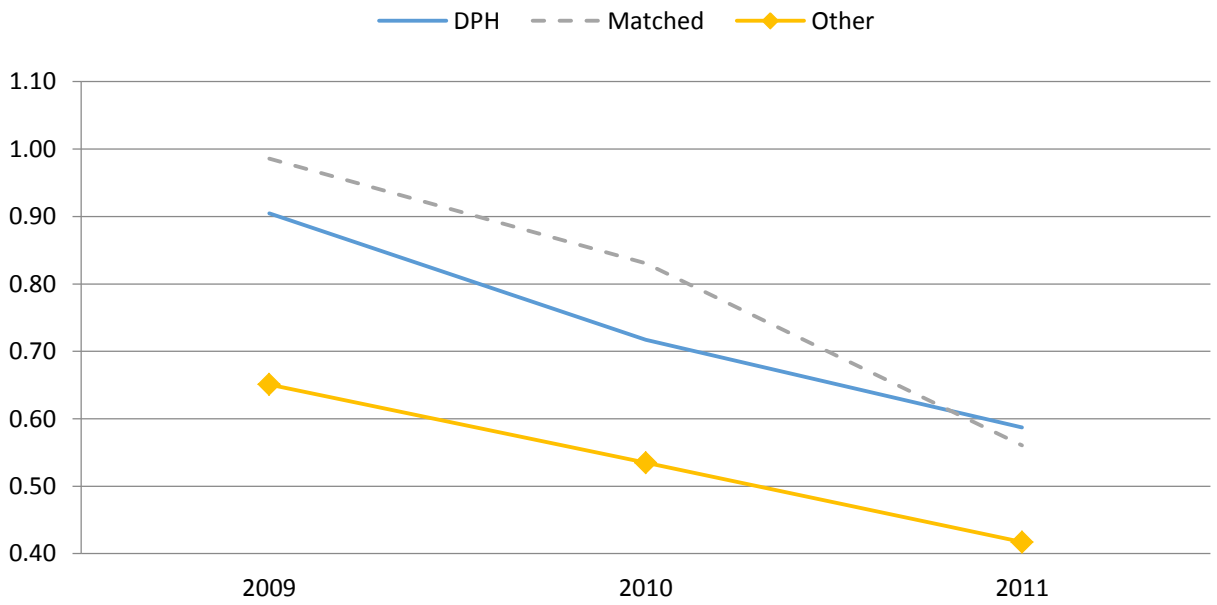
The preliminary analysis demonstrates the feasibility of conducting this analysis using OSHPD data and the value of including both the matched sample and other hospitals. Further analysis with post-project data and more effective risk adjustment will provide better insights into the relative performance of DPHs, matched, and other hospitals in improving care over pre- and post-demonstration years.

Exhibit 63: Proportion of Severe Sepsis Events Leading to Mortality by Calendar Year and Comparison Group



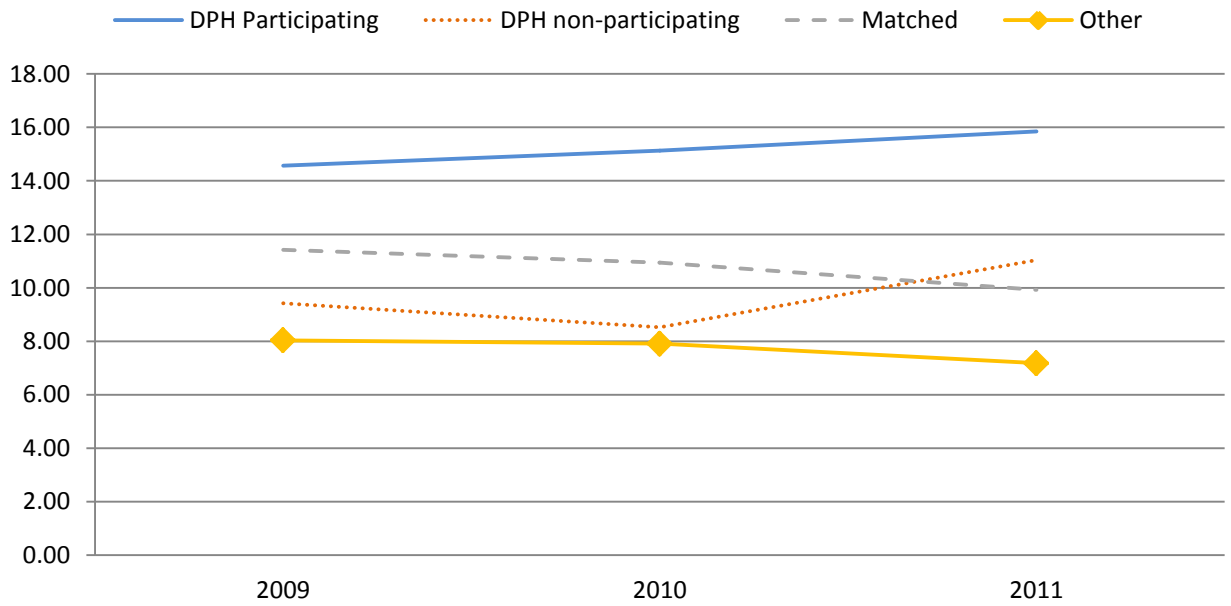
Source: UCLA analysis of Office of Statewide Health Planning and Development (OSHPD) Patient Discharge Data.

Exhibit 64: Bloodstream Infections per 1,000 Days on a Central Vein Catheter by Calendar Year and Comparison Group



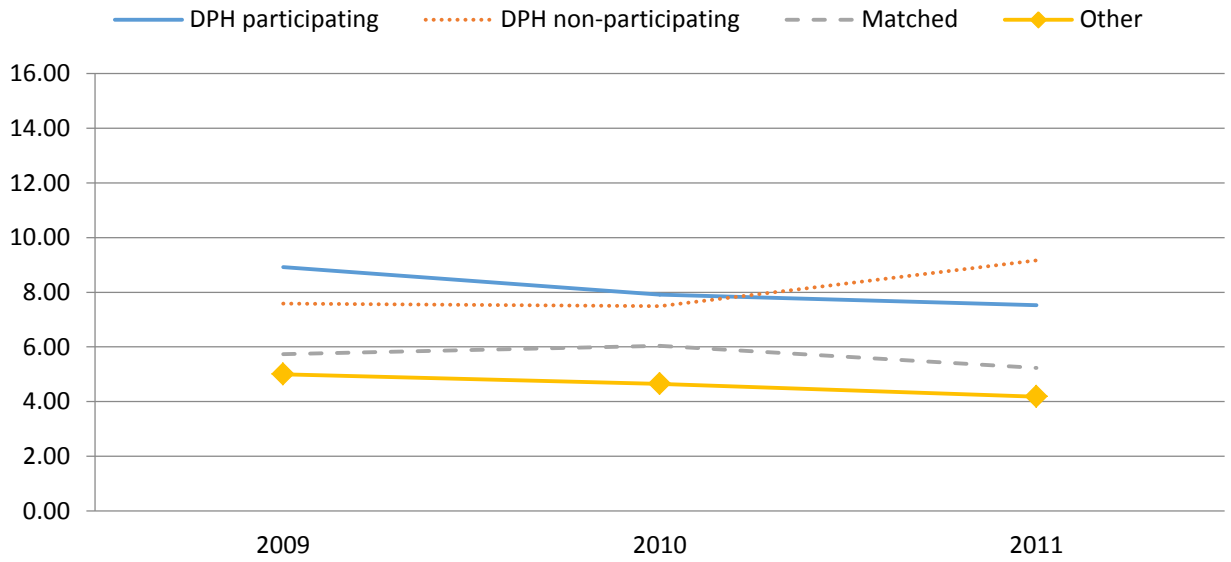
Source: UCLA analysis of Office of Statewide Health Planning and Development (OSHPD) Patient Discharge Data.

Exhibit 65: Surgical Site Infections per 1,000 Encounters with a 30-Day Monitoring Period by Calendar Year and Comparison Group



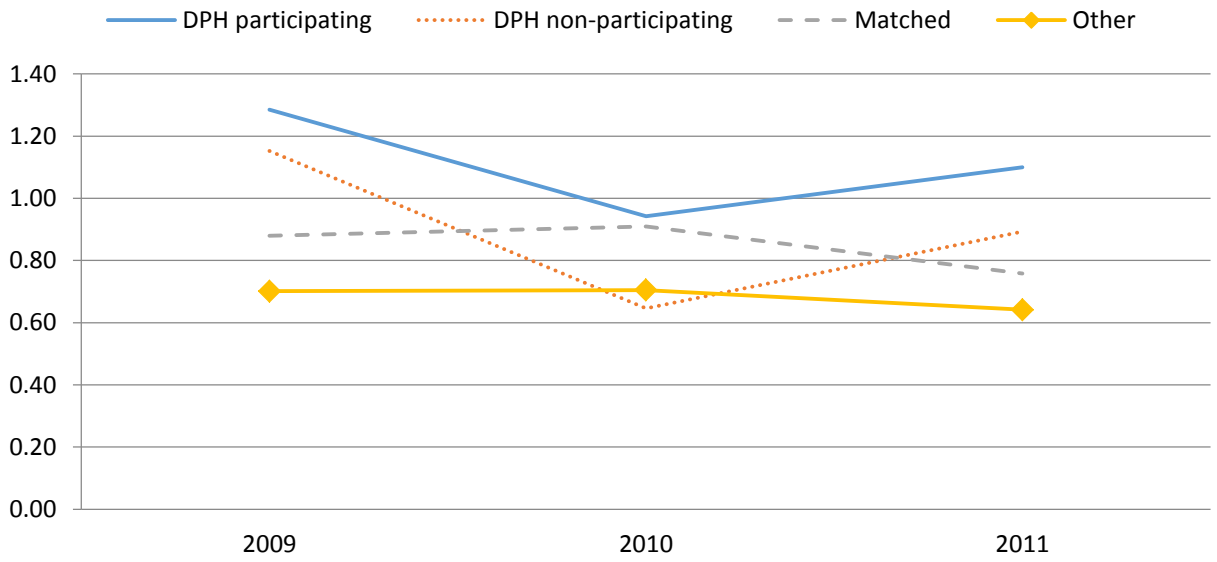
Source: UCLA analysis of Office of Statewide Health Planning and Development (OSHPD) Patient Discharge Data.
Note: DPH participating is based on the number of DPHs who selected surgical site infection prevention (n=12) and DPH non-participating is based on the remaining number of DPHs (n=5).

Exhibit 66: Surgical Site Infections per 1,000 Encounters with a 90-Day Monitoring Period by Calendar Year and Comparison Group



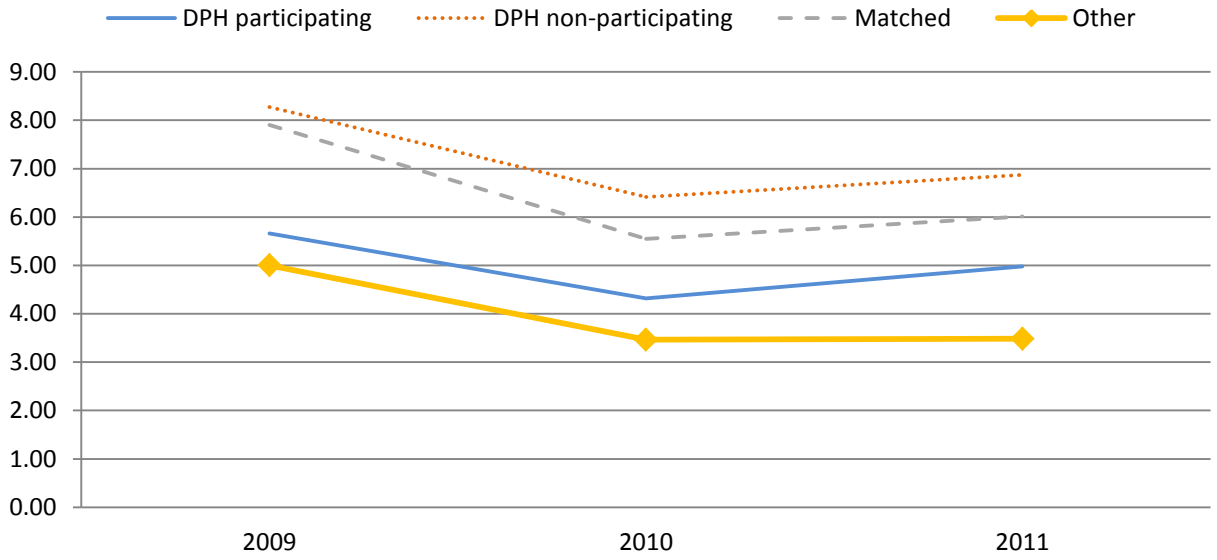
Source: UCLA analysis of Office of Statewide Health Planning and Development (OSHPD) Patient Discharge Data.
Note: DPH participating is based on the number of DPHs who selected surgical site infection prevention (n=12) and DPH non-participating is based on the remaining number of DPHs (n=5).

Exhibit 67: Hospital-Acquired Pressure Ulcer Infection Rates per 1,000 Encounters by Calendar Year and Comparison Group



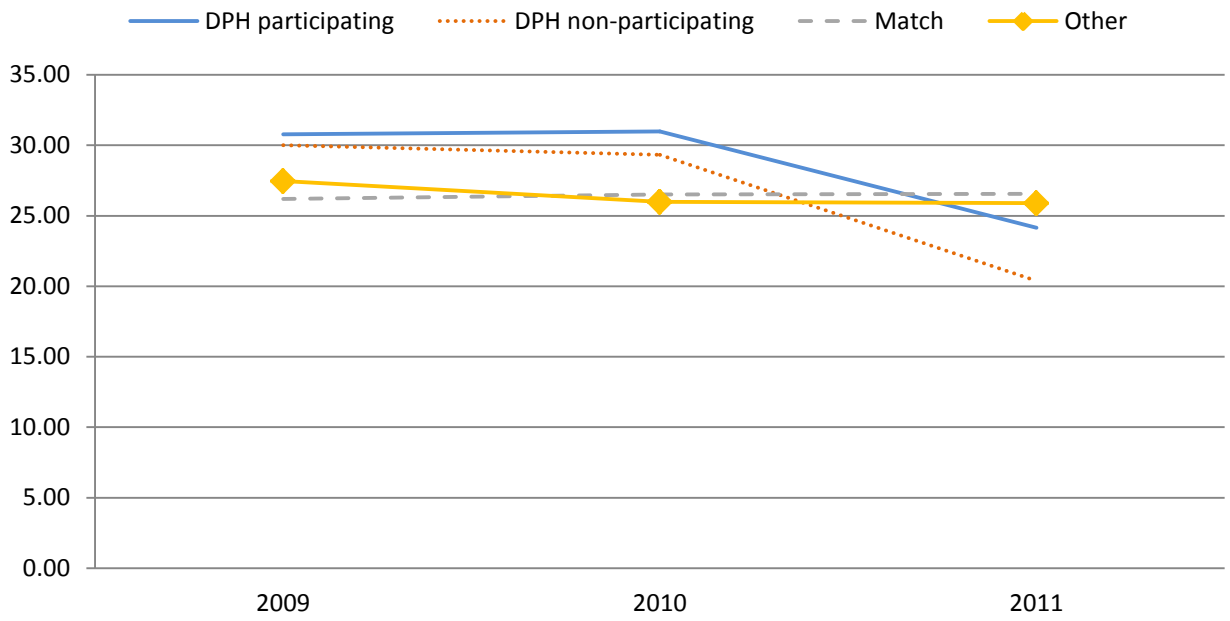
Source: UCLA analysis of Office of Statewide Health Planning and Development (OSHPD) Patient Discharge Data.
Note: DPH participating is based on the number of DPHs who selected hospital-acquired pressure ulcer prevention (n=12) and DPH non-participating is based on the remaining number of DPHs (n=5).

Exhibit 68: Venous Thromboembolisms per 1,000 Encounters by Calendar Year and Comparison Group



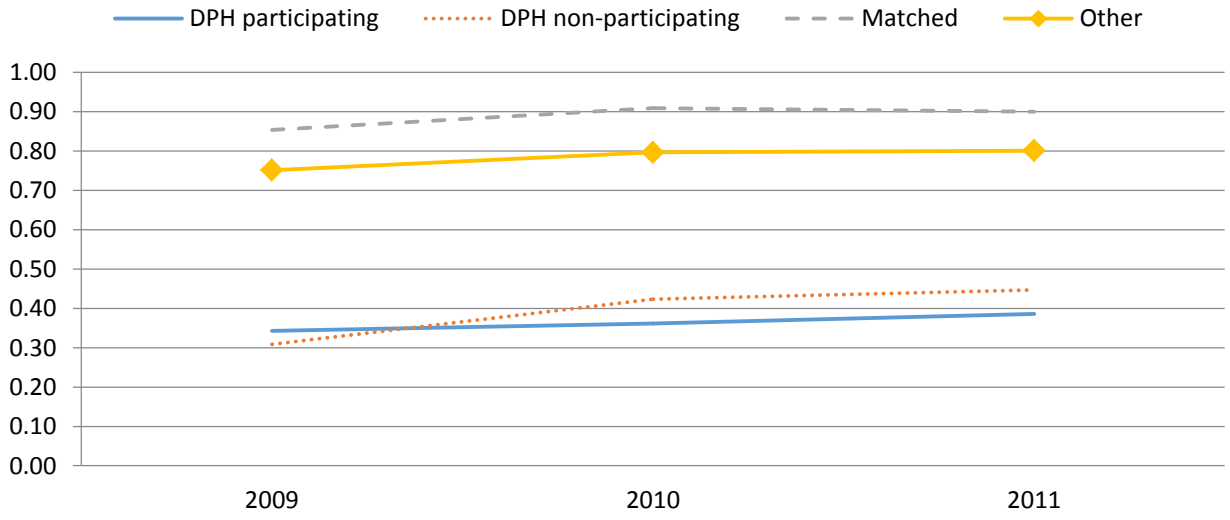
Source: UCLA analysis of Office of Statewide Health Planning and Development (OSHPD) Patient Discharge Data.
Note: DPH participating is based on the number of DPHs who selected venous thromboembolism prevention and treatment (n=6) and DPH non-participating is based on the remaining number of DPHs (n=11).

Exhibit 69: Stroke Mortality Rates by Calendar Year and Comparison Group



Source: UCLA analysis of Office of Statewide Health Planning and Development (OSHPD) Patient Discharge Data.
Note: DPH participating is based on the number of DPHs who selected stroke management (n=3) and DPH non-participating is based on the remaining number of DPHs (n=14).

Exhibit 70: Hospital-Related Falls per 1,000 Patient Days by Calendar Year and Comparison Group



Source: UCLA analysis of Office of Statewide Health Planning and Development Patient (OSHPD) Discharge Data.
Note: DPH participating is based on the number of DPHs who selected falls with injury prevention (n=1) and DPH non-participating is based on the remaining number of DPHs (n=16).

Future Analyses

Additional analyses of the Category 4 projects and measures in DY 9 and DY 10 will be provided in the final report. This includes further analyses of OSHPD data as indicated in above sections. A review of existing data on potential of Category 4 projects to increase cost containment/efficiencies will be included. The final report will include complete key informant interview data to provide context and depth to implementation decisions of DPHs and challenges they faced. Data from DY 6 -DY 10 DPH reports will be analyzed to explore specific challenges or other implementation issues provided in those reports.

Summary

DPHs were all asked to implement projects for sepsis and CLABSI and to undertake two other projects from a set of five. The most commonly selected were SSI (70%) and HAPU (70%). As with efforts reported in other categories, DPHs had begun or planned work in most of these project areas prior to DSRIP (a key exception being sepsis), and program participation served to enhance and expand existing work in many cases. All of the DPHs that selected HAPU and falls with injury prevention had ongoing projects and 92% of DPHs that selected SSI had an existing SSI project ongoing prior to DSRIP.

High in the factors considered in choosing projects were consistency with organizational goals (97%), synergy with existing projects (97%), and slightly less frequently presence of organizational champions (71%).

Overall, rates of adherence were high at baseline and increased for all measures in DY 8 over baseline. In DY 8 most of the measures had compliance rates over 90%, and the three measures with the lowest baseline compliance (between 45% and 80%) increased by 10-20 percentage points, with the largest gain for the measure with lowest compliance.

DPHs dedicated high levels of planning and resources, in some cases undertaking considerable levels of reorganization of care processes and personnel. Despite considerable efforts in these areas prior to DSRIP, all projects received "high" or "very high" overall difficulty ratings. Preliminary analysis of the interview data suggests that this was associated with the challenges of measurement and data abstraction for the measurement process, engaging staff and finding champions, and integrating the new processes into existing care systems. Almost all DPHs adopted existing models for Category 4 projects but over 70% projects required at least moderate levels of adaptation and it was necessary to design a new intervention model in 10% of projects.

From the DPHs' perspective, Category 4 projects realized their greatest impact on improving quality of care and health outcomes, compared with increasing cost containment and efficiency, although results varied by project and DPHs cautioned that it was too early to estimate long-term impacts. DPHs prepared for sustaining Category 4 achievements by incorporating project results into quality improvement initiatives and reporting outcomes to providers and administrators.

The success achieved did not come easily. DPHs cited many challenges in implementing Category 4 projects, most notably staffing difficulties and the lack of standardized definitions and tracking processes. The issues were similar to those identified in the other categories.

Data for analysis of outcomes is only available for the baseline period at this time. The preliminary analysis presented here and plans for its refinement for the final report indicate that post-project analysis of the experience of DPHs participating in DSRIP and control hospitals is feasible and likely to be productive.

Category 5: HIV Transition Projects

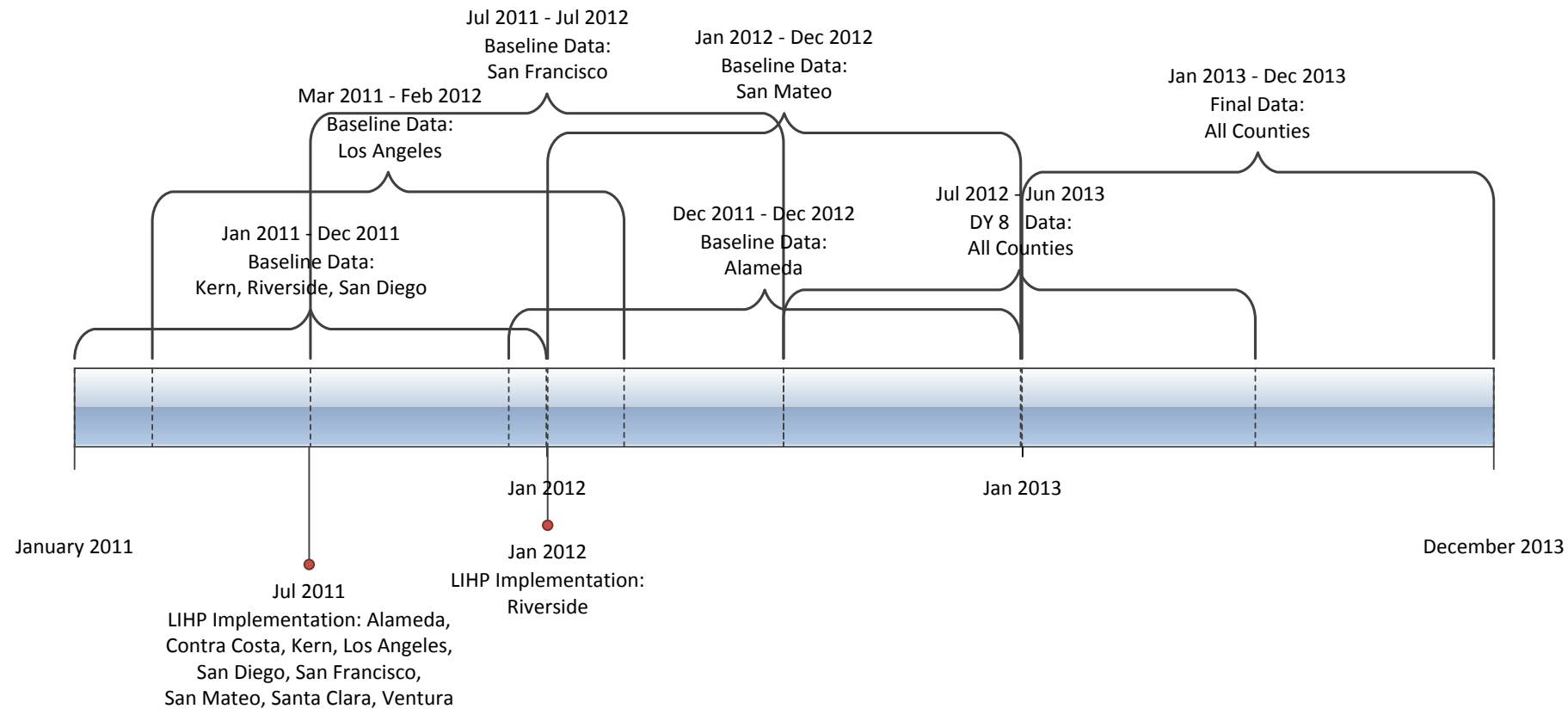
Category 5A projects were designed to improve the delivery of services to people living with HIV/AIDS (PLWHA) as they transitioned from Ryan White services to the Low Income Health Program (LIHP). Ryan White delivers HIV services within the context of a medical home and includes access to many supportive services (e.g. substance abuse treatment, mental health treatment, assistance with housing). As part of California's waiver, counties had the option of implementing LIHP as part of the early expansion of Medicaid. During the summer of 2011, the federal Health Resources and Services Administration (HRSA), provided guidance that Ryan White was the "payer of last resort" and that Ryan White cannot pay for services for persons diagnosed with HIV/AIDS who are eligible for and enrolled into LIHP. The local LIHPs screened Ryan White clients for eligibility and enrolled them into LIHP. These Ryan White clients could still access Ryan White wrap around services that were not available through LIHP. After receiving the Ryan White payer of last resort ruling, DHCS worked collaboratively with California Association of Public Hospitals (CAPH) and Department of Public Health, Office of AIDS to establish DSRIP Category 5.

The DSRIP program was designed to restore the continuity that may have been lost as PLWHA transitioned from Ryan White to LIHP-supported services. DPHs implementing DSRIP Category 5A projects were required to select three of seven approved projects designed to achieve the overall DSRIP goals of better care, better health, and lower cost. The presentation of Category 5 findings differs from Categories 1-4 due to fundamental differences between these categories and the subsequent evaluation design. Additional detail on methodology and references for Category 5 are available in Appendix 3 (Category 5).

Exhibit 71 shows when Category 5 projects were implemented and reported data. All ten sites reported data for the DY 8 period July 2012 to June 30, 2013 at the time of this interim report. However, the year covered for the baseline data varied.

The sources of information for Category 5A and 5B projects are from the DSRIP proposals, the two DY 8 semi-annual reports and the DY 8 annual report. UCLA also conducted literature reviews to document the expected impact of Category 5A interventions on Category 5B outcomes.

Exhibit 71: Category 5 Implementation Timeline



Source: UCLA analysis of designated public hospital reports.

Note: Exact dates for baseline measurements are unavailable for Contra Costa, Santa Clara, and Ventura.

Projects Implemented

The implemented Category 5 projects in the participating DPHs are displayed in Exhibit 72 and Exhibit 73. Of the Category 5A projects, four were most commonly selected by six hospitals: the empanelment of patients into an HIV-specific medical home, creation of disease management registries, development of a retention program, and the establishment of provisions for wraparound services for HIV patients transitioning from Ryan White to LIHP. In addition, DPHs had to choose four of the 22 Category 5B projects that targeted specific preventive care outcomes. The most commonly selected measures were hepatitis C and syphilis screening.

Exhibit 72: Projects Selected, by Designated Public Hospital, Category 5a

Designated Public Hospital	Empanel Patients into Medical Homes with HIV Expertise	Implement and Utilize Disease Management Registry Functionality	Build Clinical Decision Support Tools	Develop Retention Programs for Patients Diagnosed with HIV	Enhance Data Sharing between DPHs and County Departments of Public Health	Launch Electronic Consultation System between HIV Primary Care Providers and Specialty Care Providers	Ensure Access to Ryan White Wraparound Services for New LIHP Enrollees	Total
Alameda Health System	✓	✓		✓				3
Contra Costa Health Services			✓		✓		✓	3
Kern Medical Center		✓	✓	✓				3
Los Angeles County Department of Health Services	✓	✓				✓		3
Riverside County Regional Medical Center	✓	✓					✓	3
San Francisco General Hospital		✓		✓	✓		✓	4
San Mateo Medical Center	✓						✓	2
Santa Clara Valley Medical Center	✓			✓			✓	3
University of California, San Diego Health System	✓			✓			✓	3
Ventura County Medical Center		✓		✓	✓			3
Total	**6**	**6**	**2**	**6**	**3**	**1**	**6**	**30**

Source: UCLA analysis of designated public hospital reports.

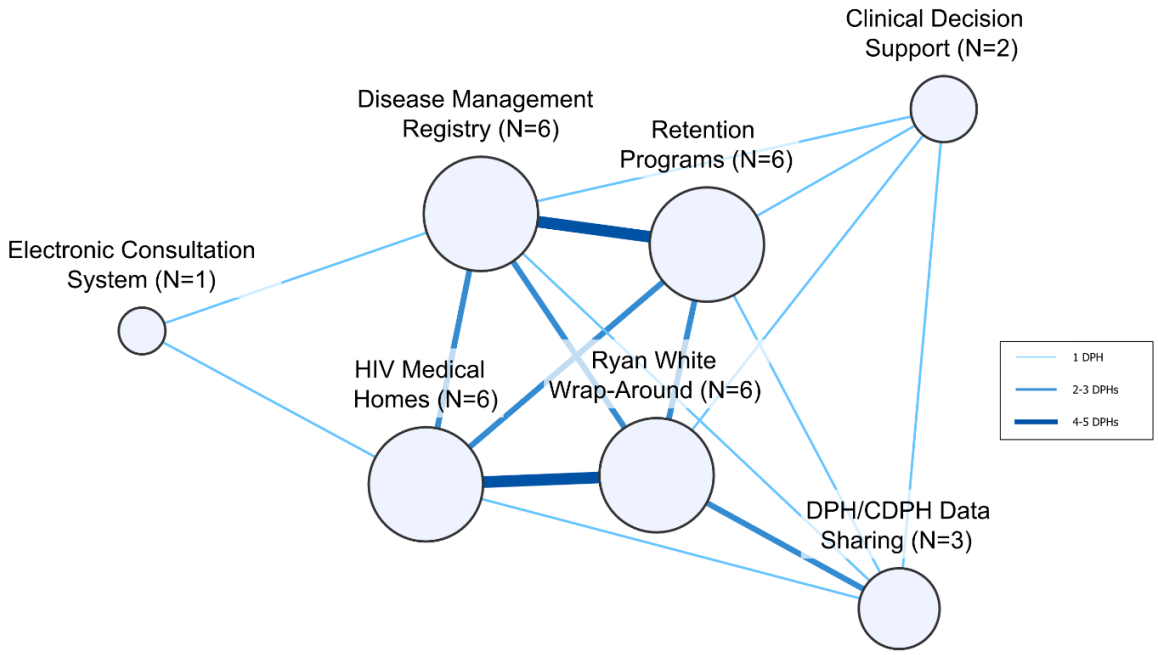
Exhibit 73: Projects Selected, by Designated Public Hospital, Category 5b

Designated Public Hospital	Group 2: Cervical Cancer Screening	Group 2: Hepatitis B Screening	Group 2: Hepatitis B Vaccination	Group 2: Hepatitis C Screening	Group 2: Syphilis Screening	Group 2: TB Screening	Group 3: Chlamydia Screening	Group 3: Gonorrhea Screening	Group 3: Influenza Vaccination	Group 3: Mental Health Screening	Group 3: Pneumococcal Vaccination	Group 3 Tobacco Counseling	Total
Alameda Health System	✓					✓			✓				3
Contra Costa Health Services			✓		✓						✓		3
Kern Medical Center				✓	✓					✓			3
Los Angeles County Department of Health Services		✓	✓									✓	3
Riverside County Regional Medical Center			✓	✓							✓		3
San Francisco General Hospital		✓		✓							✓		3
San Mateo Medical Center					✓		✓	✓					3
Santa Clara Valley Medical Center				✓			✓	✓					3
University of California, San Diego Health System						✓	✓	✓					3
Ventura County Medical Center	✓				✓				✓				3
Total	**2**	**2**	**3**	**4**	**4**	**2**	**3**	**3**	**2**	**1**	**3**	**1**	**30**

Source: UCLA analysis of designated public hospital reports.

Exhibit 74 shows which Category 5A projects were frequently selected and which projects were most frequently selected together. DPHs that implemented medical homes (six DPHs) also tended to select enhanced Ryan White wraparound services, while DPHs implementing disease management registries often also selected development of formal retention programs. Three DPHs that selected medical homes also selected disease management registry projects.

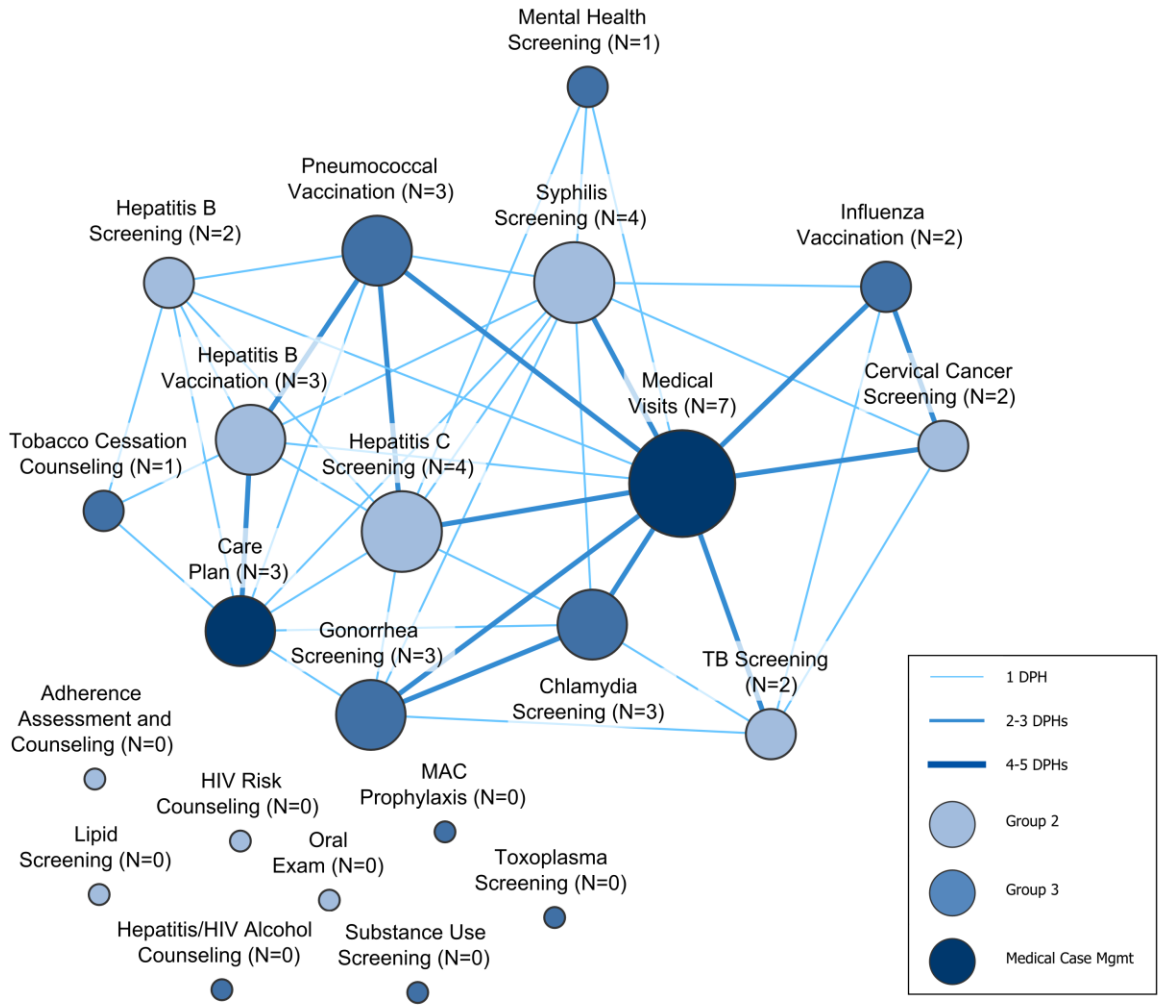
Exhibit 74: Relationship among 5A Projects



Source: UCLA analysis of designated public hospital reports.
Note: The Ns represent the number of DPHs that implemented a specific project and larger circles correspond to more DPHs. The lines between circles represent projects that are concurrently selected by the same DPHs and thicker lines represent how many DPHs implemented the same projects concurrently.

Exhibit 75 shows which Category 5B optional projects were frequently selected together. Seven DPHs selected medical case management of medical visits. These DPHs most frequently also selected screening of sexually transmitted infections (syphilis, hepatitis C, gonorrhea, and chlamydia) as well as pneumococcal vaccination. Several Category 5B projects were not selected by any DPHs.

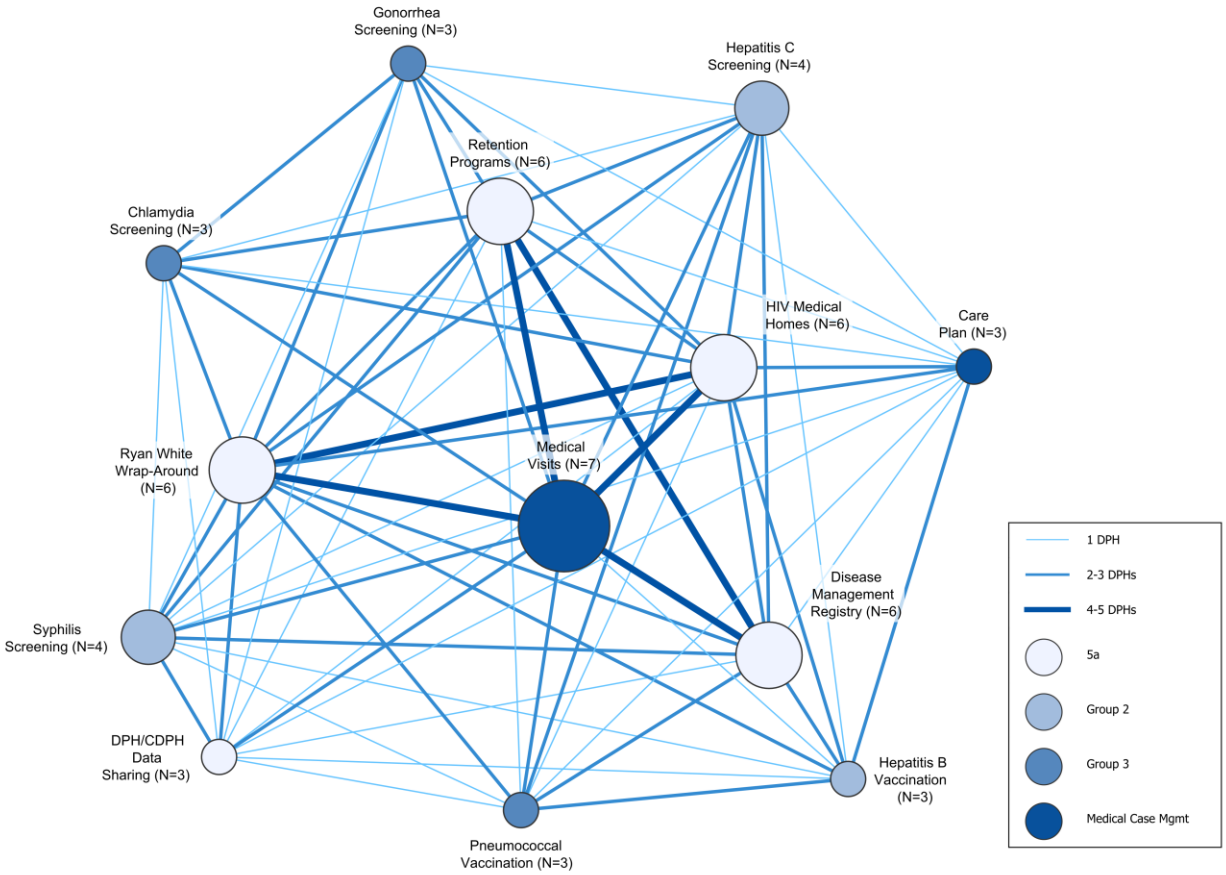
Exhibit 75: Relationship among Category 5B, Group 2 and 3 and Medical Case Management Optional Projects



Source: UCLA analysis of designated public hospital reports.
Note: The Ns represent the number of DPHs that implemented a specific project and larger circles correspond to more DPHs. The lines between circles represent projects that are concurrently selected by the same DPHs and thicker lines represent how many DPHs implemented the same projects concurrently.

Exhibit 76 highlights the projects that were most frequently chosen by DPHs in Categories 5A and optional 5B projects. DPHs that selected Category 5B medical case management of medical visits also selected the four most common Category 5A projects. Other patterns of selecting the remaining Category 5B Group 2 and 3 projects were not as clear.

Exhibit 76: Relationship among Selected Category 5A and 5B Optional Projects



Source: UCLA analysis of designated public hospital reports.
Note: The Ns represent the number of DPHs that implemented a specific project and larger circles correspond to more DPHs. The lines between circles represent projects that are concurrently selected by the same DPHs and thicker lines represent how many DPHs implemented the same projects concurrently.

Transition of PLWHA into LIHP

DSRIP Category 5 projects were designed to help create a smoother transition for patients transitioning from Ryan White programs into LIHP. To date, improvements in coordinated care, use of disease registries and electronic health records, and patient empanelment into HIV-specific medical homes have facilitated this transition for at-risk clients.

Rationale for Selecting Category 5 Projects

DPHs within a county operating a LIHP program were eligible to propose Category 5 HIV transition projects. During the planning process, several DPHs conducted an evaluation of patient barriers to care to determine gaps and challenges in delivering care and to inform their choice of projects. DPHs chose specific projects through a series of local stakeholder meetings

prior to the start of Category 5 to determine areas most in need of improvement. DPHs benefited from these meetings by sharing best practices, evaluating 5A project plans, participating in group training, and collaborating using educational resources. Some counties complemented stakeholder input with population surveys that assessed health care needs from a patient perspective on the choice of projects. Additionally, most DPHs selected 5A projects whose goals align with the Federal Implementation Plan of the National HIV/AIDS Strategy. Projects were also selected because they are complementary to DSRIP Category 1-4 projects, which are being implemented concurrently with Category 5.

Across DPHs participating in Category 5, projects were selected to serve important roles including: improving population health through preventative care and better use of resources, moving from a disease-focused to a patient-centered model to enhance patient experience, improving health outcomes through support services, providing more coordinated and pro-active care between clinical and public health sectors, and reducing the cost of care while strengthening infrastructure for improved quality of care and program sustainability.

DPH Implementation

To achieve the goal of supporting PLWHA in a medical home, one DPH hired a full-time pharmacist to educate patients and monitor medication adherence, while another trained all staff on the use of the AIDS Regional Information and Evaluation System (ARIES) database to ensure timely and accurate data entry. One DPH hired new staff to create a multidisciplinary care team to ensure patient retention and compliance.

Through the use of disease management registries, DPHs sought to streamline communication across providers by using EMR prompts to assure more thorough and comprehensive medical visits, create quality evaluation and improvement programs, and prevent duplication or omission of tests during medical visits.

The two DPHs that chose to implement clinical decision support tools report that they first found patients in need of retention in care services by identifying patients with outstanding labs, medications, visits, and immunizations. They then developed methods to help these patients attend medical visits and return appointments, implemented a new EMR to customize patient care and better manage the population, and identified clinical decision support tools to ensure easy transition to wraparound services.

Several DPHs that chose to develop formal patient retention services participated in shared learning to gain input from other programs and providers with expertise to develop best practices. As the transition to LIHP has created challenges for both patient and provider, another reported goal of the project was to hire retention specialists and redefine roles of

clinical staff to more effectively use the EMR system and deliver patient information to providers. A combination of more efficient use of electronic records and monitoring of patients by a retention specialist, led to increased retention in care.

The three DPHs that sought to enhance data sharing between DPHs and County Departments of Public Health reported plans to streamline data sharing through resolving chart inconsistencies across providers and linking DPH-specific EMRs to a shared system with data mapping. Data sharing with Departments of Public Health should alert DPHs to patients who have fallen behind in CD-4 and Viral Load Screening and will aid DPH retention efforts. With enhanced data sharing, DPHs expect to see a reduction in duplication and omission of important screenings, a more synchronized model of care and treatment, and an overall reduction in costs by removing barriers to coordination between DPHs and Departments of Public Health.

LADHS chose to expand its electronic consultation system between HIV primary care medical homes and specialty care providers to include three more specialties: gastroenterology, nephrology, and podiatry. LADHS plans to train providers to use an internal web-based platform to securely share health information and discuss patient care methods.

Easing the transition from Ryan White to LIHP services and ensuring access to Ryan White wraparound services post-transition were major goals of the DSRIP Category 5 programs. Several approaches were implemented across DPHs. The most common is the creation of a Memorandum of Understanding between primary providers and wraparound service providers to improve coordination and delivery of wraparound services. In order to link patients to wraparound services and retain them in care, DPHs plan to use EMRs to monitor service delivery and patient health outcomes. Those DPHs also implementing the empanelment or retention projects have assigned a staff member to monitor referrals and patient follow-through to ensure that there are no barriers in accessing wraparound services.

Patient Experiences during Transition

DPHs have reported increasing numbers of PLWHA who are accessing services through DSRIP sites. However, lacking DY 8 data on numbers of patients served at LADHS and SFGH, the two largest sites at baseline, and at ACMC and VCMC, it is not possible to quantify meaningfully the increase in numbers of patients served.

DSRIP Category 5 sites report that the improvements in 5B health outcomes demonstrate a smoother transition to LIHP, but more information is needed to measure the extent to which the transition process has improved. Upon receipt of questionnaires and completion of follow-up telephone interviews with DPHs, a comprehensive assessment of patient experience will be conducted. Transition of new patients into receiving care is discussed more fully below, where

numbers of visits and receipt of particular services are described. CG-CAHPS data are not available for this analysis. Thus, the final report will rely on DPH reports of patient satisfaction.

Outcomes of Care

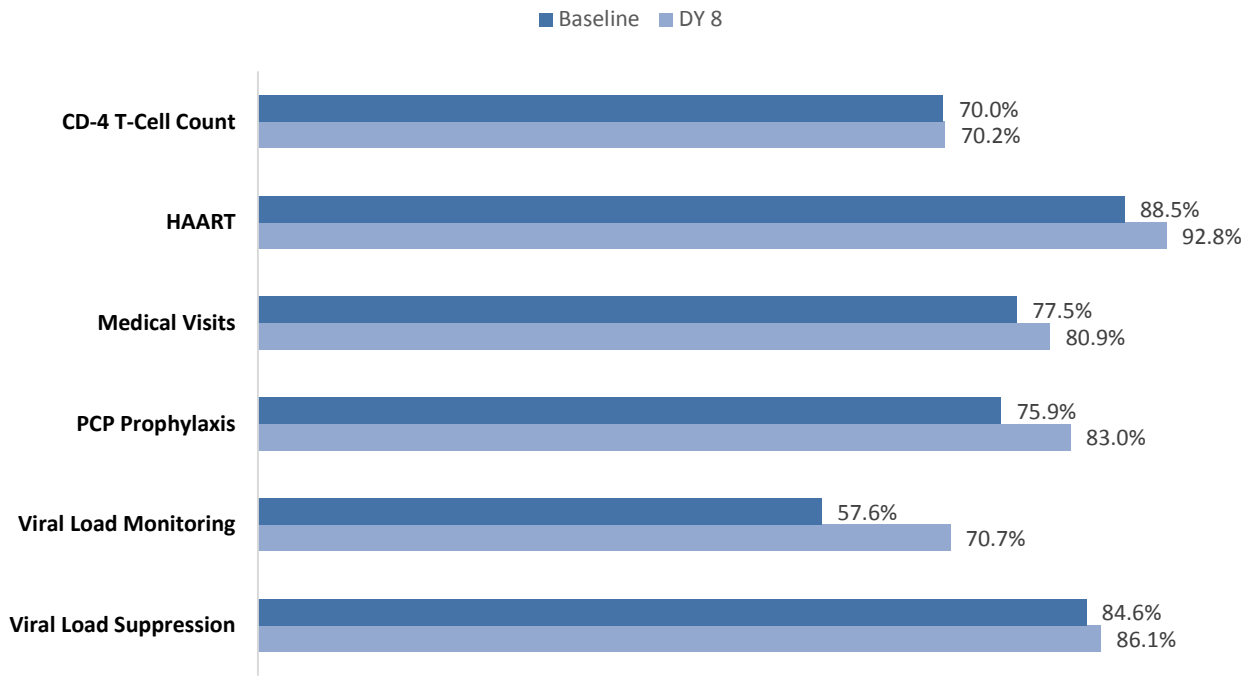
Trends in Category 5b Projects Group 1 Outcomes

This section summarizes trends in improvement in Category 5B, Group 1, outcomes between the baseline and DY 8 periods. All DPHs reported improvement in Category 5B Group 1 health outcome measures, with variation across DPHs.

Taken as a whole, the DPHs reported significant increases in four of the six required Group 1 outcomes, as shown in Exhibit 77. Across all the sites, the proportion of clients living with HIV/AIDS who had at least one medical visit in a year with a provider with prescribing privileges who received the recommended medical visits (two medical visits at least three months apart) increased from 77.5% in the baseline period to 80.9%. As shown in Exhibit 77, this increased contact with medical providers likely paved the way for improved process of care (e.g., viral load monitoring, expanded use of highly active antiretroviral therapy (HAART), and increased use of PCP prophylaxis). There were also important increases in measured health as viral load suppression grew to 86.1% of patients from a baseline value of 84.6%.

Examining outcomes for individual DPHs shows that compliance with HAART, medical visits, and PCP prophylaxis standards increased in all DPHs with the exception of one decrease for each measure (HAART in SMMC, medical visits in RCRMC, and PCP prophylaxis in UC-San Diego). CD-4 T-Cell count, viral load monitoring, and viral load suppression measures improved in half of the DPHs, but decreased in CCRMC, KMC, RCRMC, and VCMC. Two DPHs discussed reasons for a decline in outcome measures. One DPH cited the use of a disease management registry as the reason for lower measurements in DY 8. Having an updated registry changed the denominator of the patient population for that DPH, and the new measure demonstrates a percentage decrease in health outcomes but an actual increase in the number of patients receiving care. Another DPH cited the need for further analysis to determine the cause of decline in outcome measures, but believes the decline in various outcome measures is a temporary response to changes from the initial implementation of 5A projects.

Exhibit 77: 5B Group 1 Health Outcomes



Source: UCLA analysis of designated public hospital annual reports submitted to the Department of Health Care Services.
Note: Data is unavailable for LADHS and SFGH. Data from VCMC are available for CD-4 T-Cell Count, but unavailable for all other Group 1 health outcomes.

Anticipated Impact of Category 5A Projects on Category 5b Group 1 Outcomes

The anticipated impact of Category 5A projects on Category 5B outcomes in Group 1 are assessed from the existing literature on effective methods of improving outcomes among PLWHA. The results are presented separately for each Category 5A project.

Empanel patients in medical homes with HIV expertise. The Institute of Medicine report, *Crossing the Quality Chasm: a New Health System for the 21st Century[6]*, promoted the idea of developing medical homes for PLWHA in order to increase their engagement in care, and ultimately, to improve their health outcomes[7]. Saag[7] called the Ryan White program an "unintentional home builder" because early evidence documented that Ryan White-supported sites had more coordinated care than non-Ryan White sites.[8] Beane et al[9] describes the development, definition and implementation of medical homes within the Ryan White Program.

Since the publication of the IOM report in 2009, the published literature had continued to provide supporting evidence for a positive link between medical homes and improved health

outcomes for PLWHA. For example, Gallant et al[10] showed that rates of care and treatment adherence were best supported within a medical home framework. Hoang et al[11] showed that patients in Veterans Health Administration hospitals with integrated clinics were more likely to achieve viral suppression.

Most of the studies cited above focus on adults living with HIV/AIDS. Yehia et al[12], call particularly for future studies of children and adolescents living with HIV to determine whether providing treatment for these youth in a setting with greater conformity to the Patient-Centered Medical Home model improves clinical outcomes and yields cost savings.

Implement a disease management registry. Handford et al[13] authored a Cochrane Collaborative Review that evaluated the literature to that time and concluded that settings with case management had fewer deaths and had higher use of antiretroviral medications. Kushel et al[14] reported that case management promoted improved antiretroviral adherence and led to higher CD4+ cell counts among homeless and marginally housed PLWHA. More recently, Keller et al[15] showed that PLWHA in urban areas who attended clinics providing adherence counselling or case management were more likely to meet quality of care measures. Willis et al[16] found that patients in Washington, D.C. treated in facilities that provided medical case management programs were significantly more likely to be retained in care, but not more likely than PLWHA treated in other sites to be virally suppressed.

Build clinical decision support tools. Virga et al[17] found that a health information support system improved outcomes for PLWHA, in particular use of CD4 T cell counts and viral load suppression. Clinical support tools may be particularly valuable in preventing harmful combinations of antiretroviral drugs. In a study in the New York State AIDS Drug Assistance Program, ARV drug interaction safety alerts reduced by 77% the prescribing of non-recommended combinations of drugs among prescribers who had previously prescribed contraindicated combinations.[18] A randomized trial of a clinical decision-support system in an HIV practice led to improvements in CD4 T-cell counts as compared to a control group.[19] In a later study, Robbins[20] found that combining a clinical decision support system with community intervention reduced acute respiratory tract infections requiring treatment among a group of PLWHA in a rural setting and led to more appropriate prescribing.

Develop retention programs. Comparing six measures of retention in HIV care, Mugavero et al[21] found that in each case, greater retention in care was associated with improved viral load. Sporadic retention in HIV care was associated with a number of adverse outcomes, as compared to optimal retention. PLWHA with optimal retention after diagnosis experienced greater decreases in viral load and increases in CD4 T-cell counts than those with sporadic retention.[22] Mortality rates were also lower among PLWHA with optimal retention in care

than among persons with sporadic retention or loss to care.[22] Gardner et al[23] reported that providing patients with an opportunity to speak with an interventionist improved visit adherence, as compared with a standard of care group. Horstmann et al[24] summarize the evidence that shows that retention in care has positive effects on viral load, CD4 T-cell counts and other health outcomes.

Enhance data sharing between DPH and County Departments of Public Health. The Louisiana Public Health Information Exchange (LaPHIE) provides real-time alerts to providers about PLWHA who have not monitored their CD4 or HIV viral load (VL) in a year or more. Magnus et al[25] analyzed LaPHIE data and showed that the median time out of care was 19.4 months. Among those followed up for at least 6 months, 85% received at least one CD4 T-cell count and/or viral load test after being identified. After two years, both medical use and measures of health status improved[25].

Launch electronic consultation system. Horner et al[26] examined early findings of a system that sought to facilitate consultations between primary care and specialty care clinicians.

Self-Reported Impact of Category 5A Projects on Category 5B Group 1 Outcomes

DHPs participating in DSRIP Category 5 projects have reported a significant impact of 5A projects on 5B health outcome measures. Organizing the 5A projects into two groups facilitates the understanding of each project's effect on health outcome measures.

The first group of projects is designed to enhance interaction between patients and providers to link and retain patients in treatment and monitor their adherence. These projects include empaneling patients into medical homes, developing retention programs, and ensuring access to Ryan White wraparound services for new LIHP enrollees. DPHs report that the use of medical case managers within medical homes and clinical staff in charge of new retention programs have been able to effectively monitor patient follow-up for medical visits. As a result of an increase in medical visits, patients miss fewer appointments, complete required testing more often, and have improved access to wraparound services, all contributing to improvements in Group 1 health outcomes. This reported success is consistent with the literature review, which suggests that retention programs positively affect the number of medical visits when comparing patients enrolled in a retention program with those who are not enrolled in a retention program.

The second group of projects is designed to use data systems and clinical decision support tools to improve the comprehensiveness of services delivered in the medical visit and enhance communication and coordination across providers. These projects include the implementation of a disease management registry, enhancement of data sharing between DPHs and County

Departments of Public Health, building of clinical decision support tools, and launching electronic consultation systems between HIV primary care medical homes and specialty care providers.

One DPH trained staff on the efficient use of electronic medical records and the newly implemented DMR to improve panel management and sharing of patient data among providers. The project has been helpful in reducing duplication of testing at different sites. Two DPHs consider the use of a DMR as the most important tool for sustainability of improved health outcomes because they can monitor patient compliance and retention, and reach out to at-risk patients and those who have fallen out of care. Building clinical decision support tools and launching electronic consultation systems between HIV primary care medical homes and specialty care providers have helped reduce duplication of testing, and helped remind providers to schedule necessary yearly screenings for syphilis, chlamydia, gonorrhea, and tuberculosis (TB). Support tools have also been effective in helping providers and case managers refer patients to wraparound services, which have improved health outcomes.

Increases in preventative care and screening services have also been enhanced by Category 5A projects. The fact that more patients are being brought into and retained in care is key to improving health outcomes because it provides the opportunity for providers to initiate HAART therapy, provide routine CD-4 cell count and viral load monitoring, promote viral suppression and prescribe PCP prophylaxis for patients who require it. Across DPHs, many have chosen high improvement targets that exceed national HIV benchmarks. Improvements in outcome measures during DY 8 demonstrate DPH efforts to continue implementation of 5A projects to improve health outcomes.

Coordination of Care

Trends in Category 5B Groups 2 & 3

The DPHs reported that health outcome measures for Category 5B Group 2 have improved overall. Across the DSRIP program, all five of the measures for which there were available outcome data increased. Exhibit 78 shows that there were improvements in the proportion of women with a medical visit who received cervical cancer screening, from 42% to 70% in the two sites that targeted this outcome (ACMC and VCMC). The 70.4% rate matches the 70.8% mean reported in the National HIVQUAL data for cervical cancer screening. Screening rates for hepatitis C jumped from 36% to 66% and syphilis screening increased from an average of 63% of patients to 77% of patients. TB screening increased slightly from 89% of patients to 92% of patients. Hepatitis B screening was targeted only by LADHS and SFGH, sites for which there

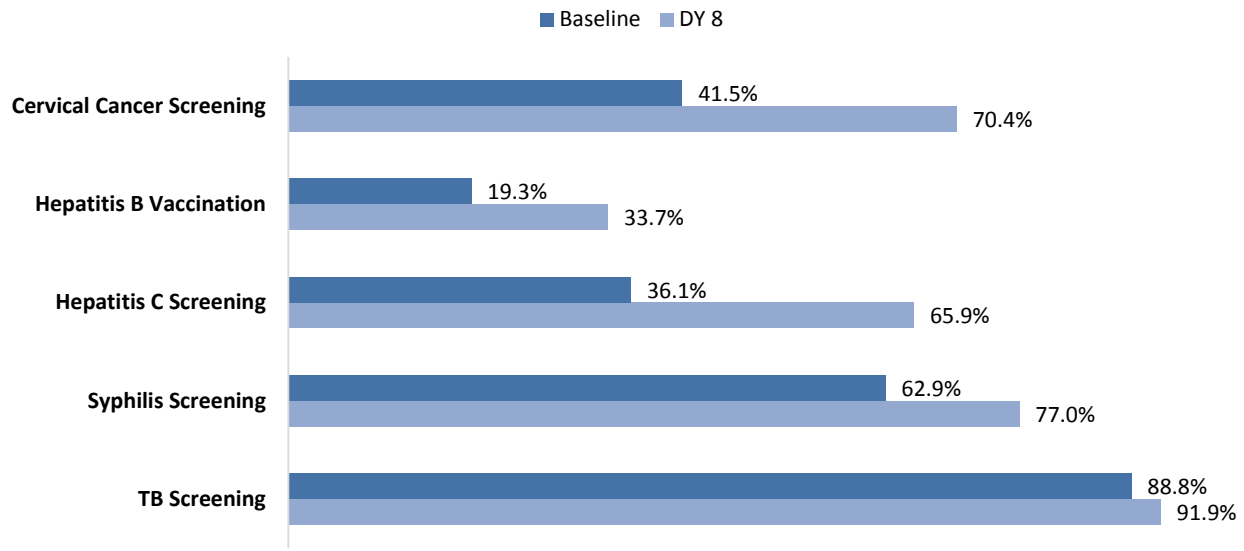
were not comparable baseline and 6 month report data. Although all five measures showed improvement, those sites that had low baseline levels showed the greatest improvement (e.g., KMC increased screening rates for syphilis from 30% of patients at baseline to of 49% of patients in DY 8), while DPHs with high initial screening rates tended to maintain their high levels.

All the Group 3 measures also showed substantial average improvements, as illustrated in Exhibit 79, suggesting better care coordination. In the three DPHs that targeted chlamydia and gonorrhea, screening rates rose from 58% to 73% of patients. KMC started with only 3% of patients screened for mental health problems, and increased that rate to 18%.

DPHs also improved vaccination rates, although there was variation across sites. CCRMC began with a high rate of vaccination for pneumonia, which was further improved, and RCRMC increased its vaccination rate from 29% of patients to 82% of patients, for an average increase in immunization rates from 47% to 82%. The proportion of patients who received a flu vaccine rose from 49% to 82% in ACMC, but fell marginally from 58% to 54% in VCMC. Overall, hepatitis B vaccination rose from 19% of patients to 34%.

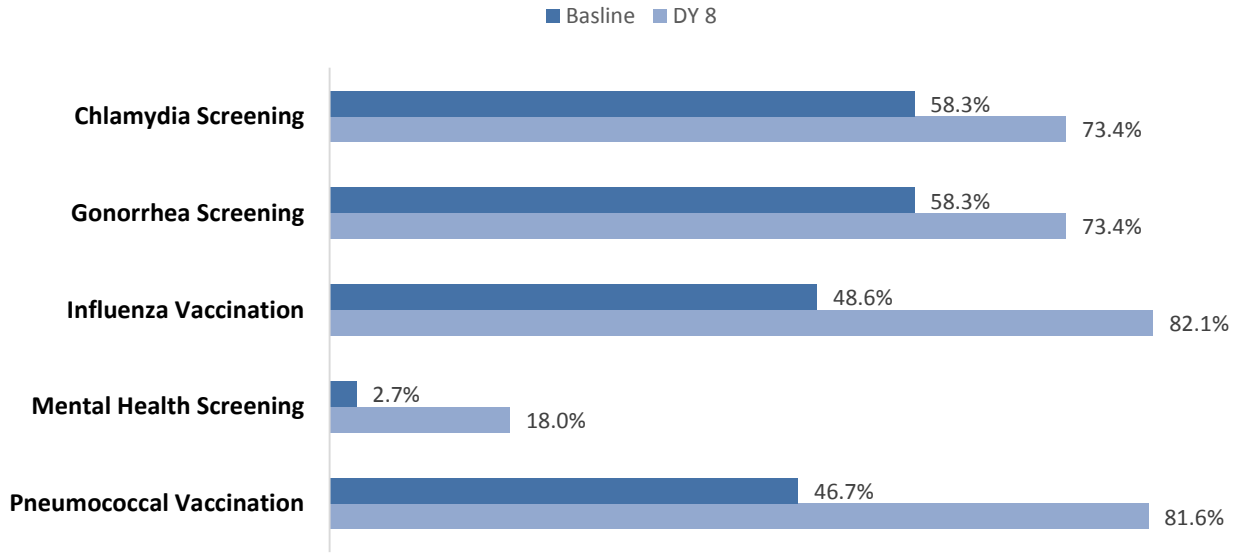
It is important to note that for many measures, only two to three DPHs have selected that measure, making it difficult to know whether improvement would occur across all DPHs for this measurement. Upon receipt of the DY 9 reports, a more comprehensive analysis of these health outcomes will be conducted.

Exhibit 78: 5B Group 2 Health Outcomes



Source: UCLA analysis of designated public hospital annual reports submitted to the Department of Health Care Services.
Note: Data are unavailable for LADHS, SFGH, and VCMC. Hepatitis B Screening has been omitted from this chart as only LADHS and SFGH selected this outcome, and data are unavailable.

Exhibit 79: 5B Group 3 Outcomes



Source: UCLA analysis of designated public hospital annual reports submitted to the Department of Health Care Services.
Note: Data are unavailable for LADHS, SFGH, and VCMC. LADHS is the only DPH that selected Tobacco Cessation Counseling, and as data were pulled from electronic records for baseline and a sample pool for DY 8 data, results cannot be reported at this time.

Anticipated Impact of Category 5A Projects on Category 5b Groups 2-3 Outcomes

The anticipated impact of Category 5A projects on Category 5B outcomes in Groups 2-3 are assessed from the existing literature on effective methods of improving outcomes among PLWHA. The results are presented separately for each of Category 5A project.

Empanel patients in medical homes with HIV expertise. Ryan White sites, which typically function as medical homes for PLWHA, provided better PCP prophylaxis and greater use of TB tests.[27] In a study that compared university clinics to county hospital clinics, Ramsey et al[28] found that the organization of the clinical services was more important than patient characteristics in predicting whether patients received primary care preventive services. Keller et[15] al showed that clinics that engaged in case management or were Ryan White Program funded, were more likely to provide a greater percentage of the elements in a summed quality of care measure that included retention in care, CD4 T-cell counts and viral load testing, screening of hepatitis and sexually transmitted infections, mental health and substance abuse screenings.

Implement a disease management registry. Parry et al[29] developed an electronic patient database that tracked patients across a metropolitan community of 150,000 inhabitants. Following the introduction of this registry, medication adherence rose from 82% to 100%, immunization rates rose from a mean of 72% to a mean of 87%, perinatal HIV transmission rates fell from 31% to 4% and emergency department use decreased. An algorithm that queried hospital databases nightly generated patient-specific electronic alerts about missed appointments and virologic failure and toxicity. Alerts were posted on the electronic medical records and providers' EMR home pages. The patients assigned to interactive alerts had improved CD4 T-cell counts and were more likely to have optimal follow-up medical appointments than a control group[19]. The two groups did not differ significantly in toxicity or confirmed virologic failure[19].

Build clinical decision support tools. Rudd et al[30], developed an integrating clinical decision support tool that increased both HIV and chlamydia screening. Nader et al[31] implemented a clinical decision support tool designed to elicit symptoms among PLWHA at the VA. There was a trend among the small number of patients receiving the decision support tool to report that their providers were very aware of their symptoms, but there was no significant difference in numbers of symptoms charted. In addition to improving CD4 T-cell counts and viral load suppression, Virga's[17] web-based health information support system increased syphilis screening from 66.5% of cases to 93.8% and also improved the prescription of PCP for patients with CD4 T-cell counts under 200.

Self-Reported Impact of Category 5A Projects on Category 5B Groups 2-3 Outcomes

Similar to the impact of 5A projects on 5B Group 1 measures, the DPH reports suggest that the two groupings of 5A projects have significantly impacted Group 2 and Group 3 health outcome measures. DPHs report that for Group 2 and 3 health outcomes, the combination of a disease management registry and retention programs have created significant improvements in health outcomes because medical home staff can efficiently and effectively track patients who have missed appointments or who have gone longer than a year without testing. Empanelment and data sharing have improved coordination of care between primary care providers, specialists, and wraparound services, leading to better access to and quality of care for clients.

Patient Retention and Compliance

Anticipated Impact of Category 5A Projects on Retention and Compliance

In a review of the literature on the HIV care cascade, Gardner et al[23] conclude that there is clear evidence that individuals incompletely engaged in care "account for the largest proportion of HIV-infected individuals with detectable viremia." Therefore, they conclude, it is important to improve engagement and retention in care. A number of recent studies have demonstrated the challenges in retaining patients in care over time. Rowan et al[32] examined retention in care using mandated laboratory reporting databases for CD4 lymphocyte counts and HIV-1 RNA levels for PLWHA seen at two large HIV care centers in the Denver metropolitan area from 2005 to 2009. By 18 months after HIV diagnosis, 84% of the cohort had linked to care, 73% were retained in care, 49% were prescribed antiretroviral therapy, and 36% were virally suppressed. By five years after HIV diagnosis, 55% of the cohort were retained in care, 37% were virally suppressed, 15% had moved out of state, and 3% were deceased. The sections below summarize the ability of a variety of interventions available in Category 5A to increase retention in care.

Empanel patients in medical homes with HIV expertise. Soto et al[33] review the literature and show a positive relationship between integrated HIV care and engagement and retention in care. Improved case management and a close relationship with a medical provider such as that provided in a medical home have been found to be key to engagement in HIV care in a variety of settings.[34-36] Waldorp-Valverde[37] found that PLWHA who had more positive relationships with their providers, such as those found in medical homes, were more likely to remain engaged in care.

Implement a disease management registry. A brief case management intervention increased the percentage of recently diagnosed HIV-infected persons who were linked to care within six months of initial diagnosis from 60% to 78%, compared to passive referral.[38] Willis et al[16] found that patients in Washington, D.C. treated in facilities that provided medical case

management programs were significantly more likely to be retained in care, but not more likely than PLWHA treated in other sites to be virally suppressed.

Build clinical decision support tools. Virga et al[17] found that a health information support system improved outcomes for PLWHA, in particular CD4 T cell counts and viral load suppression. Zuniga[39] has developed a guideline-consistent clinical management algorithm to promote entry into and retention in care.

Develop retention programs. Horstmann et al[24] review the literature on the effectiveness of patient navigators and case management in promoting retention of HIV-infected patients in care. In addition, they summarize the evidence that documents the positive effects on health outcomes of being retained in care.

Enhance data sharing between DPH and County Departments of Public Health. Increasingly, public health data systems that track CD4 and viral load laboratory tests are being used to examine visit frequency and retention in care as Torian et al[40] have done in New York City and Rowan[32] has done in Denver. Data shared by public health agencies and providers can also be used to reengage PLWHA who have fallen out of care. Herwehe et al[41] informed providers about their patients who have fallen out of care, based on lack of recent records in laboratory surveillance files. Seventy-six percent of the identified patients were aware of their HIV status, but had not had a medical visit for over 12 months (median = 20 months). Eighty-two percent of these patients did receive at least one CD4 count during the next 18 months, and 62% had at least one visit with an HIV specialist. The Louisiana Public Health Information Exchange (LaPHIE) provides real-time alerts to providers about PLWHA who have not monitored their CD4 or HIV viral load (VL) in a year or more. This program led to increased engagement, re-engagement and retention of out-of-care PLWHA who had been out of care for a median of 19.4 months. Of those followed up for at least 6 months, 85% received at least one CD4 and/or VL after being identified. After two years, both medical use and measures of health status improved.[25]

Self-Reported Trends in Impact of Category 5A Projects on Retention and Compliance

DPHs have reported the success of all 5A projects in improving patient retention and compliance. Based on qualitative data provided in DPH annual reports, the three projects that stand out as having the largest impact on patient retention and compliance include the empanelment of patients into medical homes with HIV expertise, implementation of a disease management registry, and development of retention programs. These projects were the most successful because DPHs have been able to improve compliance and retention by sending out appointment reminders to patients, reaching out to and linking lost-to-care and at-risk patients

into a medical home, following-up on appointments, issuing referrals for wraparound services, and creating a sense of community and trust between patient and provider.

Challenges and Lessons Learned

DHPs stressed the successful implementation of 5A projects in helping to reach performance improvement targets in their reports. However, DPHs encountered obstacles for both 5A projects and 5B measures that have made it difficult for them to achieve their targets. Challenges related to timing, staff training, physician compliance, retaining patients in care, and sustainability after DSRIP funding has ended were consistent across DPHS.

Category 5A Project Challenges

Empanel Patients into Medical Homes with HIV Expertise. Across the six DPHs who selected this program, challenges encountered in empanelling patients into medical homes include inconsistencies in continuity of care, establishing new staffing models and treatment protocols, and accurately and consistently utilizing new data systems. Two DPHs discussed difficulty in re-identifying and linking patients previously lost to care. Additionally, DPHs report difficulty in establishing strong relationships between patients and providers in a short time setting, and DPHs report the need for patient trust for retention and adherence. Consistent with challenges reported across 5A projects is the identification and facilitation of linkage to wraparound services for LIHP enrollees who have been newly empanelled in a medical home.

Implement a Disease Management Registry module suitable for managing patients diagnosed with HIV. The two main challenges reported across the six DPHs who implemented this project are the training of staff and timely updating of the disease management registry. Two DPHs did not previously use an HIV-specific disease management registry and have had to identify and launch a new system in addition to training staff for technical competency. One DPH reports difficulty in finding a panel manager to oversee use of the registry, and there have been reports of staff confusion over use of new electronic systems. Another DPH chose to merge existing data systems and encountered problems with chart inconsistencies and inaccurate reporting between systems. Fortunately, many of these challenges are specific to the initial implementation of the system, and DPHs are confident that technical difficulties will be resolved in DY 9.

Build clinical decision support tools to allow for more effective management of patients diagnosed with HIV. Two DPHs implemented this project and to date have reported relatively few challenges. CCRMC discussed the need to standardize appropriate "alerts" for long-term

success of the project as there has been some confusion over the newly implemented strategies. Overall, the main challenge of this project has been the cost of training staff on the new protocol, which CCRMC has met through the expansion of ancillary staff roles to assist primary care providers.

Develop Retention Programs for patients diagnosed with HIV who inconsistently access care. Based on qualitative data from DPH reports, the retention program has been the most successful in the overall improvement of care coordination, care quality, and health outcomes for the six DPHs who selected this project. The main challenge reported is the sustainability of the program after DSRIP funding has ended. From a clinical standpoint, providers encountered initial problems in locating patients who had fallen out of care and developing protocols for patient follow-up and appointment reminders. Again, as protocols have been established to identify and retain patients into care, DPHs are identifying structural methods to sustain this project beyond DSRIP. The majority of the remaining challenges stem from patient barriers to care and are discussed in the 5B challenges section.

Enhance Data Sharing between DPHs and County Departments of Public Health. DPHs that implemented enhanced data sharing encountered fewer challenges than some of the larger projects. VCMC discussed obstacles in accurately sharing data due to patients accessing care in unpredictable patterns and frequency. Inconsistency in medical visits has made it difficult for providers to coordinate care, and VCMC reports problems with duplication and omission of services due to inaccurate or lack of patient information.

Launch Electronic Consultation System between HIV Primary Care Medical Homes and Specialty Care Providers. LADHS is the only DPH that selected this project. Prior to DSRIP Category 5, LADHS had already implemented an electronic consultation system for selected specialists, and chose to expand the system to include a wider selection of specialists. LADHS serves a very large population and in expanding the electronic consultation system found a series of workflow issues. These include a lack of efficient and effective processes for triage and referral tracking, long wait times for specialty care, and failure to conduct appropriate testing prior to specialty visits. LADHS has reported a thorough evaluation of these workflow issues and plans to address all of them in DY 9.

Ensure access to Ryan White wraparound services for new LIHP enrollees. Six DPHs selected this project to minimize the disruption of moving patients from Ryan White to LIHP. The biggest challenge reported for this project is the coordination of care between primary care providers, specialists, and wraparound service providers. Most of the DPHs who selected this project also implemented projects related to data systems and information sharing across providers, and have encountered problems with accurately and efficiently utilizing patient data to link patients

to other services. Additionally, DPHs report challenges in monitoring patient compliance with treatment received from wraparound service providers, making it difficult for providers to coordinate care.

Category 5B Measurement Challenges

Regarding 5B health outcomes, DPHs have reported difficulty in measuring real improvements during DY 8. However, all DPHs implementing Category 5 projects hope to demonstrate significant improvement in all 5B measures by either meeting or exceeding the targets set for DY 9. The most frequently reported challenge for improving 5B health outcomes is the series of obstacles encountered in removing patient barriers to care. These include issues of transportation to medical visits, homelessness, psychological problems and social factors that prevent or deter patients from seeking care, co-infections, and patient adherence to treatment plans.

From the provider perspective, a commonly reported challenge is the inconsistency of patient information being updated in the EMR system. When providers do not update problem and medication lists, patients are at an increased risk of missing a follow-up appointment or failing to complete required screenings. Concurrent with this problem is the issue of manual data entry in many DMRs, which makes it difficult to access patient data in a timely manner. This challenge further complicates patient retention because it is difficult to monitor patients so that they can be reminded of upcoming appointments. Additionally, slow data entry complicates coordination of care between primary care providers and specialists.

A few DPHs reported challenges due to problems of capacity and funding. One DPH discussed problems with long wait times and inconvenient location of labs that discourage patient follow-through. Another DPH has encountered patient loads that exceed assignment caps during the LIHP enrollment period, and is attempting to find a solution to retain patients in care while mitigating provider overload. As with difficulties in consistently updating patient information in the EMR system, large counties require more staff and funding for uptake and maintenance of the entire HIV population. Moreover, in large counties, patients are sometimes diagnosed outside the primary care provider setting or receive screenings and vaccinations at locations whose EMR system is not linked to the DPH.

How Challenges Were Met

To date, DPHs have reported success in addressing the initial obstacles met in the implementation of 5A projects. Through a series of stakeholder meetings, DPH-specific needs assessments, and evaluation of problems in the patient population, DPHs identified areas for improvement. At the time of the October 2013 annual reports, DPHs reported success in achieving all project milestones. These milestones have included training current staff and

hiring additional staff to create multidisciplinary care teams for successful implementation of empanelment and retention programs, identifying and launching electronic data sharing methods, and consistently evaluating and improving 5A projects through shared learning. Upon receipt of DY 9 annual reports, DPH questionnaires and follow-up information from telephone interviews, a more complete analysis of DPH methods to overcome obstacles will be conducted.

Lessons Learned

During the planning and implementation of 5A projects, DPHs discussed many helpful lessons learned that will improve health care for PLWHA during and after DSRIP Category 5. Increased communication and coordination across providers is one of the most important factors in improving care. Many DPHs refer to the "silos" of care prior to implementation of Category 5 projects that created poor care coordination and data accuracy. When providers can quickly and accurately share patient information, DPHs report that both compliance and retention improve among the patient population. Six DPHs chose to implement the medical home empanelment and retention program projects, and all reported that the use of active follow-up, formal protocol-setting, and continuity through standardization of care has increased medical visits and improved overall patient health. One DPH implemented a project through which primary care providers ran a "learn and lead" program to educate clinical staff and demonstrate best practices for quality care. The use of oversight and accountability has also helped this DPH achieve success by creating a team-based staffing model.

Lessons learned in the improvement of 5B health outcomes relate to data sharing across providers and coordination of care. Accurate and updated patient information in the EMR and DMR helps DPHs track and reach clinical goals by improving provider communication and patient retention. Up-to-date data systems help clinicians follow-up with patients and increase the number of screenings and data monitoring activities necessary to provide consistent, high-quality care. For example, one DPH reports that through consistent, timely updates of ARIES, it has been able to identify patient viral loads earlier and track medication adherence to improve this health outcome. Shared learning through stakeholder meetings has also helped DPHs solve technical problems associated with DMRs, which has helped maintain successful use of data systems.

Future Analyses

The findings in this report were limited by unavailability of DY 9 reports and LIHP data. The final evaluation report will include analyses using these data sources. To the degree possible, the final report will also include:

- Analyses of Category 5B outcomes by the end of the implementation period to determine trends.
- Assessment of Category 5B health outcomes against DY 9 targets set by individual DPHs.
- Analyses of LIHP data to determine differences in Category 5B health outcomes between participating and non-participating DPHs as well as non-DSRIP hospitals.
- Analyses of survey and interview data to assess DPH evaluations of the impact of Category 5A interventions on 5B outcomes in terms of cost, quality of care, and patient health outcomes; DPH plans for continuing Category 5 projects; implementation challenges; and the patient experience in the transition from Ryan White to LIHP.

Summary

Category 5 interventions were designed to improve the delivery of services to PLWHA and facilitate the transition from Ryan White to LIHP. The analyses of available data in this interim report indicate that the DPHs were successful in implementing Category 5 projects.

Many of these interventions were intended to enhance interaction between patients and providers and to link and retain patients in treatment and monitor their adherence. DPHs reported selecting Category 5A projects that aligned with the Federal Implementation Plan of the National HIV/AIDS Strategy. Projects were also selected because they were complementary to DSRIP Category 1-4 projects. DPHs reported significant increases in four of the six required Category 5B Group 1 outcomes. In their semiannual reports, DPHs reported that empanelment of patients into medical homes with HIV expertise, implementation of a Disease Management Registry, and development of Retention Programs were the three interventions with the greatest impact on retention.

The DPHs also reported significant increases in preventive care. All five available Category 5B outcome measures showed significant increases. All the Group 3 measures also showed substantial average improvement.

DPHs faced many challenges, including short timelines, the need for staff training, physician compliance and timeliness of inputting patient information in the EMR system. The most frequently reported challenge was removing patient barriers to retention in care. DPHs also had concerns about sustainability of 5A programs after DSRIP funding has ended. Despite the challenges, the DPHs reported widespread success in implementing the interventions and improving patient outcomes.

Overall Impact of DSRIP and DPH Recommendations for Future

DSRIP Impact on DPHs

DPHs reported on the overall impact of DSRIP Categories 1 to 4 on their organizations during key informant interviews. Examples of this impact are summarized below.

Systematic and major change, investment in the future of DPHs

DPHs reported that DSRIP provided an opportunity to expand and accelerate existing projects, invest in additional projects, and innovate. DSRIP projects were used to initiate more deliberate and comprehensive changes in care delivery and culture, incorporate new methodologies such as LEAN, and focus on specific outcomes and benchmarks. DSRIP improved the focus of DPHs on population health, primary and patient-centered care, and integrated care delivery, which prepared DPHs to thrive in the post-reform era. DSRIP helped create common goals and performance across each organization. The specific and non-negotiable nature of DSRIP measures helped DPHs to stay on target and perform consistently with an impetus to complete projects despite difficulties. Many DSRIP projects were well integrated into the day-to-day activities of DPHs rather than being viewed as temporary projects that were imposed from above, helping to fundamentally transform care.

Transformation of operations and information technology

DSRIP data collection requirements were a major catalyst for implementation of electronic health records and improved data collection and reporting capabilities. DPHs reported creating new infrastructure such as EMRs, analytic teams, measurement strategies, and better management systems. DSRIP projects led to the breaking down of silos between different departments, improved collaboration, and a more multi-disciplinary approach to quality improvement. One DPH reported implementing a Category 4 DSRIP project in a population group not targeted by DSRIP, an indication that the program's influence exceeded its initial scope.

Resources and financial incentives

DPHs reported that the funding provided by DSRIP helped provide a sound business case for implementing the projects and changing care delivery. The newly available resources improved provider buy-in, aligned goals and increased focus on specific targets, filled gaps left by the loss

of other revenues that supported such activities, and allowed DPHs to negotiate with boards of directors for more resources.

Collaboration between DPHs and innovations

DSRIP provided the impetus for collaboration between DPHs, including the sharing of forms, methodology, and innovations. Some DPHs found the ability to sound off on ideas and share lessons learned in real time particularly useful.

Examples of innovations included creating a learning collaborative in the organization, having a single person in the organization who is accountable for the success of DSRIP overall, and using healthcare navigators to reduce the burden of activities on higher level staff.

DPH Recommendations for DSRIP II

DPHs were asked to provide their recommendations for renewal of DSRIP under the next Medicaid Section 1115 Waiver. These recommendations are summarized below.

Alignment with other initiatives and organizational goals

DPHs emphasized the importance of aligning DSRIP measures with other publicly reported goals or CMS initiatives such as meaningful use of EHRs. Also, projects should aim to build systems for delivery of high quality care. DPHs highlighted differences between organizational missions of county-based DPHs and academic DPHs and asked that goals align with the type of organization.

Preparing DPHs for the future

DPHs highlighted the potential of DSRIP to prepare DPHs for the challenges brought about by the ACA. One DPH suggested that there should be more focus on dealing with costs and questioned the assumption that models such as the patient-centered medical home would lead to cost control due to lack of sufficient evidence. Other DPHs proposed adopting risk-based arrangements and involving the payers in these arrangements, moving towards more ACO-type projects. DPHs also desired more innovative projects to promote telephone and electronic access.

Narrower focus and fewer projects

DPHs suggested a reduction in the number of different projects and milestones. The difficulties presented with many projects included identifying champions for so many overlapping projects, inability to focus on multiple projects simultaneously, lack of sustainability of plans and focus, and high demand for personnel and resources to implement projects and report results. Two

DPHs said Category 3 should have fewer measures and that they should be organized as strongly correlated plans linked to a greater goal.

Clear metrics with clear instructions and direction

DPHs commented on the difficulties posed by lack of clarity in the definition of measures as well as changes in measurement over time. DPHs suggested developing clear and detailed measures, including instructions on how measures should be calculated and reported. For example, concepts such as the patient-centered medical home should be more specifically described and measured. Consistency in reporting requirements across years is not currently possible and would be beneficial to allow for comparisons. DPHs also reported that frequent changes in definitions have a detrimental impact on the progress of the staff members who are focused on a given goal. They suggested that measurement remains consistent across DPHs allows for comparisons system-wide. It is important to decide on numerators and denominators at the beginning and agree on standards before projects start.

DPHs requested more time to provide input into the development and planning of the next DSRIP than was provided in the first round. They expressed a need for more support and explanation of milestones from DHCS, and better framework in preparation of the annual and semi-annual reports. DPHs also suggested fostering more information sharing through available webinars on measurement strategies and in-person meetings to build stronger connections among DPHs and move towards local collaboratives to promote community-centered care.

Reevaluate the relevance of measures

DPHs made additional comments on the selection of measures and methodology in DSRIP. These comments included reexamining the use of baseline milestones created in earlier years, which may be outdated and no longer relevant, and examining the science behind some projects to provide supporting evidence that a specific project will lead to desired outcomes.

Flexibility versus standardization

DPHs highlighted the importance of maintaining flexibility to insure that DSRIP projects and measures can be tailored to fit each DPH's organizational goals, strategic direction, culture, and regional context. Flexibility would allow DPHs to focus on areas that are the most important to their patients or focus on projects that can be achieved within their resource or other limitations.

At the same time, DPHs recommended more standardization, particularly in Categories 3 and 4, to have specific and consistent measurement protocols and procedures that would allow for comparisons across DPHs and improve the ability of DPHs to exchange ideas and lessons

learned to achieve the best possible outcomes. DPHs highlighted the importance of maintaining focus on the same measures in DSRIP regardless of changes in leadership at CMS.

Assessing performance level

DPHs commented on the difficulties of improving on milestones when organizations started DSRIP at a high performance level or significantly improved outcomes in the first year. DPHs suggested that the baseline performance improvement levels be considered in developing milestones and that there should be flexibility in selecting projects that accounts for significant room for growth.

Better measurement of time and effort required to complete projects

DPHs proposed better assessment of the level of effort required to complete DSRIP projects. DPHs reported that the level of effort required to complete DSRIP projects was high and was not fully captured in milestones and in current reports.

Timely feedback and direct communication lines

DPHs suggested improving the direct communication lines with CMS to make sure information does not get lost or interpreted differently than intended. DPHs also suggested more timely feedback and updates from CMS.

Appendix 1 (Category 3)

Measure Definitions

Metric	Definition
Patient/Care Giver (CG) Experience	Each CG CAHPS theme includes a standard set of questions. The following CG CAHPS' themes will be reported on: a. Getting Timely Appointments, Care, and Information b. How Well Doctors Communicate With Patients c. Helpful, Courteous, and Respectful Office Staff d. Patients' Rating of the Doctor e. Shared Decision making
Diabetes, short-term complications	**Numerator:** All inpatient discharges from the DPH system of patients age 18 – 75 years with ICD-9-CM principal diagnosis code for short-term complications (ketoacidosis, hyperosmolarity, coma) within the demonstration year reporting period who have visited the DPH system primary care clinic(s) two or more times in the past 12 months **Denominator:** Number of patients age 18 – 75 years with diabetes who have visited the DPH system primary care clinic(s) two or more times in the past 12 months
Uncontrolled Diabetes	**Numerator:** All inpatient discharges from the DPH system of patients age 18 – 75 years with ICD-9-CM 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 DPH system primary care clinic(s) two or more times in the past 12 months **Denominator:** Number of patients age 18 – 75 years with diabetes who have visited the DPH system primary care clinic(s) two or more times in the past 12 months
Congestive Heart Failure	**Numerator:** All inpatient discharges from the DPH system of patients age 18 years and older with ICD-9-CM principal diagnosis code for CHF within the demonstration year reporting period who have visited the DPH system primary care clinic(s) two or more times in the past 12 months **Denominator:** Number of patients age 18 years and older who have visited the DPH system primary care clinic(s) two or more times in the past

	12 months
Chronic Obstructive Pulmonary Disease	**Numerator:** All inpatient discharges from the DPH system of patients age 18 years and older with ICD-9-CM principal diagnosis code for COPD within the demonstration year reporting period who have visited the DPH system primary care clinic(s) two or more times in the past 12 months **Denominator:** Number of patients age 18 years and older who have visited the DPH system primary care clinic(s) two or more times in the past 12 months
Mammography Screening for Breast Cancer	**Numerator:** All female patients age 50 – 74 years who had a mammogram to screen for breast cancer within 24 months who have visited the DPH system primary care clinic(s) two or more times in the past 12 months **Denominator:** Number of female patients age 50 – 74 years who have visited the DPH system primary care clinic(s) two or more times in the past 12 months
Influenza Immunization	**Numerator:** All patients age 50 and older who received an influenza immunization during the flu season (September through February) who have visited the DPH system primary care clinic(s) two or more times in the past 12 months **Denominator:** Number of patients age 50 and older who have visited the DPH system primary care clinic(s) two or more times in the past 12 months
Child Weight Screening	**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 DPH system primary care clinic(s) within the current demonstration year.
Pediatrics Body Mass Index (BMI)	**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

	DPH system primary care clinic(s) two or more times in the current demonstration year with a BMI recorded.
Tobacco Cessation	**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 DPH system primary care clinic(s) two or more times in the past 12 months **Denominator:** Number of patients 18 years and older who screened positive for tobacco use who have visited the DPH system primary care clinic(s) two or more times in the past 12 months
Diabetes Mellitus: Low Density Lipoprotein (LDL-C) Control (<100 mg/dl)	**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 DPH system primary care clinic(s) two or more times in the past 12 months **Denominator:** Number of patients age 18 – 75 years with diabetes mellitus who have visited the DPH system primary care clinic(s) two or more times in the past 12 months
Diabetes Mellitus: Hemoglobin A1c Control (<8%)	**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 DPH system primary care clinic(s) two or more times in the past 12 months **Denominator:** Number of patients age 18 – 75 years with diabetes who have visited the DPH system primary care clinic(s) two or more times in the past 12 months
30-Day Congestive Heart Failure Readmission Rate	**Numerator:** All patients age 18 years and older who experience a readmission with a ICD-9-CM principal diagnosis for CHF or related conditions (within 30 days of discharge for an index l admission with ICD-9-CM principal diagnosis code for CHF) within the demonstration year reporting period who have visited the DPH system primary care clinic(s) two or more times in the past 12 months **Denominator:** Number of patients age 18 years and older with CHF who

	have visited the DPH system primary care clinic(s) two or more times in the past 12 months and had an admission
Hypertension (HTN): Blood Pressure Control (<140/90 mmHg)	**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 blood pressure monitoring) in control (less than 140/90 mmHg) within the demonstration year reporting period who have visited the DPH system primary care clinic(s) two or more times in the past 12 months **Denominator:** Number of patients age 18 – 75 years with a diagnosis of hypertension who have visited the DPH system primary care clinic(s) two or more times in the past 12 months
Pediatrics Asthma Care	**Numerator:** Number of patients age 5 – 18 with persistent asthma who were prescribed at least one controller medication for asthma therapy within the demonstration year reporting period who have visited the DPH system primary care clinic(s) two or more times in the past 12 months **Denominator:** Number of patients age 5 – 18 with persistent asthma who have visited the DPH system primary care clinic(s) two or more times in the past 12 months
Optimal Diabetes Care Composite (Minnesota Community Measurement as adopted by the National Quality Forum)	**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 DPH system primary care clinic(s) two or more times in the past 12 months **Denominator:** Number of patients ages 18 – 75 with a diagnosis of diabetes who have visited the DPH system primary care clinic(s) two or more times in the past 12 months

Appendix 2 (Category 4)

Selection of Comparison Hospitals

Data

OSHPD public use patient discharge data for 2009-2011 was used for this analysis. The data has a separate record for each discharge. Each discharge includes the hospital at which the patient was treated; basic demographic characteristics of the patient such as age, sex, or race/ethnicity; where the patient came from; primary and secondary diagnoses and whether each diagnosis was present upon admission; procedure codes and when each procedure was performed relative to admission; length of stay; and the severity of the case. The diagnosis and procedure codes are both based on ICD-9-CM codes. For the final report, we will expand this data set to include 2012 and 2013, the post-project period, and will use the non-public data that will allow implementation of more precise risk adjustment (discussed further below).

Sample

The analysis sample includes all short-term general hospitals that provided OSHPD discharge data. The sample is divided into three categories: DPHs further divided into hospitals participating (for those projects adopted by some hospitals) and not participating, a sample of 22 hospitals closely matched to the DSRIP hospitals on the basis of size, case mix, and other variables (matched), and the balance of short term general hospitals in the state (other hospitals).

Two DPH facilities and other hospitals were excluded from the analysis. Two DPH rehabilitation hospitals (Alameda – Fairmont and Los Amigos) were excluded. Ventura – Santa Paula was excluded because they indicated that they did not participate in Category 4. Children's hospitals were excluded, as were hospitals that closed or that had their license suspended were excluded at any point in the period under study.

Matching was done on the basis of trauma, emergency services, case mix, non-pediatric bed size, relative size of ICU units, and the outpatient volume relative to inpatient care in the following way. The EMSA trauma levels were grouped into I and II vs. III and IV although no DPHs fall into the latter category. "Comprehensive" and "basic" emergency department levels were combined.

The remaining pool of hospitals was compared to each DPH by exact matching on the following:

- License category (all DSRIP hospitals are general acute care)
- Principal service type (all DSRIP hospitals are general medical/surgical)
- EMSA trauma center designation (Level I/Level II vs. Level III/Level IV vs. None)
- Licensed emergency department level at the end of the year (Comprehensive/Basic vs. Standby/None)

The next step was to calculate Gower's distance between each DSRIP hospital and its pool of potential comparison hospitals based on:

- Case mix
- Ratio of ICU to General Acute Care beds
- Number of non-pediatric beds
- OP volume to inpatient visits (total outpatient visits is the sum of ER, clinical, and referred outpatient visits, not the OSHPD definition that includes home health visits)

In the case of UCSD – La Jolla and UCSF – Mt. Zion, several variables were missing and the distance was calculated based on available variables.

After defining the eligible pool of possible comparison hospitals for each DPH, the pool was sorted by the Gower's distance and took closest match (if one even existed) for each DPH, cycling through the DPHs in a random order. The selected comparison hospital was then removed from all of the pools so it could not be matched again to any other DPHs. Because the DPHs have most of the academic medical centers in the state, the group of matched hospitals was augmented with any non-DSRIP academic medical center not included in the initial matching process. The map of DPHs and matched hospitals is presented in Exhibit 61.

Category 4 Measures

Measure Construction

The measures being calculated by DPHs are constructed from medical record data that includes clinical information to define the measure or the sample and cannot for the most part be replicated from discharge data sets. UCLA conducted a literature search for measures similar to DSRIP and constructed new measures when others were not found. AHRQ patient safety indicator measure set (measures for: CLABSI, PSI 7; pressure ulcers, PSI 3; venous thromboembolism, PSI 12) was used when possible. Two different measures were constructed for Surgical Site Infections (SSI) and one measure was constructed for other conditions. Definitions for each measure are presented in Exhibit 80 .

Exhibit 80: List of Outcome Measures Constructed from OSHPD Data

1. Severe Sepsis Detection and Management
Denominator: All patients with a severe sepsis diagnosis defined by ICD-9 diagnosis codes: 995.92 or 785.52 that did not have that particular diagnosis upon admission. Any patients with a do not resuscitate status (DNR= "Y"), elect for palliative care within the first 24 hours of admission (ICD-9 diagnoses codes: V49.86, V66.7), or any patient who refuses care (ICD-9 diagnosis code: V62.6) are excluded.
Numerator: Any patient in the denominator that dies during their hospital stay.

2. Central Line-Associated Bloodstream Infection (CLABSI) Prevention: AHRQ PSI # 07.

3. Surgical Site Infection (SSI) Prevention: Two measures, one using a 30 day and one a 90 day surveillance period.
Denominator: The National Healthcare Safety Network (NHSN) surgical procedures list in *Surgical Site Infection (SSI) Event* (2014).
Numerator: Patients with postoperative infection (ICD-9 diagnosis code: 998.59) not present on admission.

4. Hospital-Acquired Pressure Ulcer (HAPU) Prevention: AHRQ PSI # 03.

5. Stroke Management
Denominator: Patients with acute stroke diagnosis (ICD-9 diagnosis codes: 430, 431, 432.0, 432.1, 432.9, 433.01, 433.11, 433.21, 433.31, 433.81, 433.91, 434.01, 434.11, 434.91, 436) not present on admission.
Numerator: Number of deaths, of patients with acute stroke diagnosis.

6. Venous Thromboembolism (VTE) Prevention and Treatment: AHRQ PSI # 12.

7. Falls with Injury Prevention
Denominator: The sum of days that all patients have stayed in a hospital based on the length of stay variable.
Numerator: All patients that have sustained an injury due to a fall during their stay at a hospital (ICD-9 codes: E88.00, E88.01, E88.09, E88.10, E88.11, E88.2, E88.31, E88.32, E88.39-E88.46, E88.49-E88.54, E88.59, E88.60, E88.80, E88.81, E88.88, E88.89, E91.6, E91.77, E91.78, E92.93).

The data available for analysis from the OSHPD are substantially more limited than that used by DPHs. The measures available do not capture the rate of compliance towards new or recommended hospital procedures for approaching the problem of preventable hospital-acquired infections and conditions. For instance, the Sepsis Resuscitation Bundle requires four policies to be administered: measurement of serum lactate, blood cultures obtained prior to antibiotic administration, improving time to broad-spectrum antibiotics to be within 3 hours for ED admissions and within 1 hour for non-Emergency Department ICU admissions, and if the patient has hypotension and/or the patient has a lactate reading of >4 mmo1/L (36mg/dl) then the patient is given 20 ml/kg of crystalloid (or equivalent) and is given vasopressors. This type of information and other process information is not available in OSHPD. Therefore, the analyses included here should allow for these caveats.

Risk adjustment

Because of the limitations of the public use data set, variables used in standard risk adjustment models such as gender and detailed age categories are not available. UCLA has requested confidential OSHPD data that will allow for a full risk adjustment model to be used for the AHRQ PSIs and the other measures.

Analysis Methods

The measures were compared by type of organization (DPH, matched, other hospitals) and by year. Regression models included a difference-in-difference or interrupted time series analysis, using logistic regression to regress the odds of an adverse event on DPH or matched hospitals, a year trend, and hospital status interacted with year. Further interaction for the post-project period and the individual level risk adjustment variables will be conducted in the final report.

Appendix 3 (Category 5)

Data

The DY 8 reports filed by the DSRIP sites detail each site's overall progress in implementing Category 5A interventions and also contain information on Category 5B outcomes for a 12 month period. Exhibit 1 provides a timeline showing the periods covered. However, the reports available for this interim evaluation did not contain data for the final six months of 2013. Thus, any conclusions about the effect of Category 5A interventions on Category 5B outcomes must be considered preliminary.

Two factors that affect the 5B health outcome measures should be noted. First, SFGH's measures cannot be compared with the other DPHs because only baseline data and an established target are available. VCMC is also lacking outcome data for the second semi-annual report. Examining overall effects required us to pool data over counties based on the numbers of patients treated in each period, and thus creates a weighted average effect. Although LADHS based baseline measures on the total population of patients with HIV served, they calculated outcome data only for a sample of patients. Thus, LADHS could not be included in the weighted averages.

All DPHs were required to report on the Group 1 outcomes targeted in Category 5B, but they were allowed to choose which Group 2 and Group 3 outcomes to target. The following optional health outcome measures were not selected by any DPHs: Adherence Assessment and Counseling, HIV Risk Counseling, Lipid Screening, Oral Exam (Group 2), Hepatitis HIV/Alcohol Counseling, MAC Prophylaxis, Substance Use Screening, Toxoplasma Screening (Group 3), and therefore could not be evaluated. Further, we could not evaluate health outcomes selected only by LADHS, SFGH, and VCMC because they did not supply outcome data in the 2nd semi-annual report.

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