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California Bridge to Reform:

The University of California, Davis Medical Center
Delivery System Reform Incentive Pool Proposal
for the California Section 1115(a) Medicaid Demonstration

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Overview

The University of California, Davis Medical Center (UCDMC) is the largest single hospital provider of care to the Medicaid and safety net population in the Sacramento region. We are the largest single provider of emergency care services in our region and the only level 1 trauma provider in our area (17% of our patients have a trauma/injury diagnosis). Our hospital and associated medical group are responsible for 33,000 acute hospitalizations per year, 56,500 ED visits annually, and nearly one million outpatient visits. One quarter of our clinical business is children, and UCDMC is a recognized National Association of Children's Hospitals and Related Institutions (NACRI) "Childrens' Hospital within a Hospital".

The scope of our outpatient clinics makes UCDMC one of the largest not-for-profit medical groups in the State of California. California Office of Statewide Planning and Development (OSHPD) hospital discharge data reveal the population we serve as 31% Medicaid; 27% Medicare; 10% County Indigent, other indigent, and other government payer; and 31% HMO/PPO (health maintenance organization/preferred provider organization). In 2009-10, UCDMC incurred $184 million in total costs for charity care and costs in excess of reimbursement for indigent patients under publicly sponsored programs. This increased from $169 million in total costs incurred in 2008-2009. This makes UCDMC one of the largest providers of charity and uncompensated care in the State of California.

No other single hospital in our region comes close to providing this large fractional contribution to the care of the combined Medicaid/Medicare/Indigent population.

We are an integrated health care delivery system developing a single electronic health record (EHR) for all portions of the provider network. Our commitment is to advance the care of the population we serve through innovations in care delivery, translating discoveries into new health care advances, and training the next generation of providers in a patient focused, highest quality, safe, and equitable health care environment.

Our focus the last decade has been to improve the patient's experience with our care as directly measured by patient satisfaction. Our driving safety agenda has been to improve the health of the population we serve by implementing evidence based practices and measure our performance in these areas to drive continuous process improvement. Our quality and safety dashboard is available to all UCDMC employees, staff, physicians, and trainees and is updated regularly on our intranet. It emphasizes and tracks our performance in key areas like: Core Measures; Surgical Care Improvement; Mortality (overall and product specific); Agency for Healthcare Research and Quality (AHRQ) patient safety indicators; readmission rates; sepsis mortality; hospital-acquired pressure ulcer prevalence; adult and pediatric central line-associated bloodstream infections; ventilator-associated pneumonias; catheter-associated urinary tract infections; falls; and serious adverse events with harm or death. Our dashboard also tracks and shares a wide range of patient experiences with care in our inpatient settings, outpatient settings, and emergency department. We have continuous process improvement activities tied to the performance in each of these key areas including implementation of best evidence based practice.

A major challenge continues to be reducing the cost of care for the population we serve and at the same time maintaining a fiscally responsible position. Our weekly operational dashboard tracks key statistics. Over the past decade we have involved our institution in major processes to reduce costs of care by improving throughput, re-engineering care delivery, reducing inappropriate utilization of drug, devices, and supplies, and implementing standardize practice by use of hundreds of standardize order sets within our EHR. We have very extensive experience in managing capitated populations and our hospital and medical group have managed between 75,000 and 100,000 capitated members every year over the past two decades through delegated financing models from HMOs for commercial, Medicare, and Medicaid populations. We have developed a geographically distributed network of 16 primary care sites, with regional specialty care with many of these sites, designed to manage both this population and our non-capitated populations. This experience will serve us well in transitioning each of our sites into primary care medical homes and creating an *Accountable Healthcare Organization* (ACO). We can integrate the care of the population we currently serve in a manner that only a minority of public hospitals can do within the United States. We are committed to equitable care delivery and have long been a leader in services directed at our racially, ethnically, and language diverse population through our

translation services and attention to the needs of this diverse population. Sacramento has been described as the most diverse city in California. We are currently involved in a system-wide major project to capture an expanded data set of demographics including self-identified ethic status, race, sexual orientation, language, and disabilities, in an attempt to both reduce disparities and improve population specific outcomes.

Despite these efforts we still have significant improvement needed in a number of specific areas.

Our EHR is now just beginning to actively involve our patients and their families directly. Approximately 30,000 of our primary care patients or their parents directly communicate to our ambulatory practices via our EHR. We have also begun implementing direct access to physicians outside of our own medical group into our EHR for the patients they refer to our specialists or hospital for care. We have also just started sharing information with other hospital providers in California via our EHR. We also provide episodic and ongoing specialty care for patients whose primary care location is outside of UCDMC, particularly adults and children who utilize Medicaid. Our ultimate plan is to allow appropriately controlled access into our UCDMC EHR for these community providers. Finally, a large number of patients without a primary care provider or with intermittent access to ambulatory physician services use our emergency department (ED) for episodic and expensive acute care. In order to address the management of this very difficult and poorly served population, many with chronic illness and mental health issues, we must expand our intensive case management directed at placing these individuals into outpatient situations where they do not need to use UCDMC emergency services when it can be avoided. This focus on alignment of care across the transitions will be key to improving the health for the individuals within this population.

We are currently initiating a major effort to capture populations within our system (we have over 2 million individuals in our EHR) and capture subpopulation specific information within a wide range of registries tethered to our EHR. All of our registry efforts to date have been standalone systems (Diabetic registry, trauma registry, burn registry, cancer registry, immunization registry, cardiac surgery registry, etc.) that may be linked to national or professional society benchmarking, but are not currently populated directly from our own EHR. Accomplishing this goal of building multiple tethered registries will allow us to manage populations instead of individual patients.

Our Chronic Disease Management (CDM) programs are modest but successful in those areas where resources have been available to develop. We have an active Diabetes CDM program and are initiating a new Congestive Heart Failure CDM program. As we build out our primary care medical homes within our practices we plan to simultaneously develop advanced capabilities in CDM. Expanded use of pharmacists in the Emergency Department, as active clinicians on our inpatient health care teams, and in the ambulatory setting, are important planned strategies to manage these populations. Improving our medication management strategy will require implementing the use of bar coding, black box warnings and expansion of the use of smart-pumps for drug infusions. These initiatives are vital to achieving our goals to manage the health of these populations for whom we are responsible and to further reduce readmissions in CHF, COPD, asthma, and other chronic diseases.

UCDMC has been a leader in the use of technologies to assess patients via Telemedicine. Our telemedicine network reaches up and down the State to provide special types of care for populations in rural or semi-rural communities where access is inconvenient or simply unavailable. Our goals are to expand the use of our EHR and technology in both the clinic and home setting to optimize ambulatory management preventing hospitalization and allowing patients to be treated in their own communities.

While we have been a leader in performance improvement for years, this year UCDMC under took the initial strategies to use Lean Six Sigma tools for process redesign to both improve patient outcomes and reduce the costs associated with this care. We are implementing Lean Six Sigma training across key portions of the organization and anticipate significant returns in efficiencies and cost reduction.

Executive Summary

In this *Delivery System Reform Incentive Pool* (DSRIP) proposal for the California Section 1115(a) Medicaid Demonstration, we identify ten interventions that require special attention to planning and implementation in their infrastructure development, innovation and redesign, population focused improvement, and urgently implemented evidenced based change. All work together to identify patients who need special attention to their care and will serve to improve their access through the system, improve their understanding of their diseases, participate in their own chronic care needs and improve their satisfaction with the care they receive. Some of these interventions will save peoples' lives but more importantly they will add to the framework of teaching all members of the health care team how to work together in focusing improvements in the educational environment of an academic medical center.

Project 1 (Category 1) – Implement and Utilize Disease Management Registry Functionality:

Evidence has demonstrated for a number of chronic disease states that following best practice management, assuring appropriate and timely patient access to care, providing and assuring delivery of patient and family education, increasing patient self-management of their own conditions, assisting patients in home management strategies (using coaches, telephone, and technology), and in identifying the obstructions to following best patient care standards, can potentially lead to improved patient satisfaction and improved patient clinical outcomes. Specifically use of high cost locations of care (avoidable readmissions and avoidable ED visits) can be reduced by these strategies for some subsets within these populations. UCDMC and its associated practices have some experience in implementation of these CDM strategies, but lack of focused resources and infrastructure have prevented wide adoption across many of our populations. During this project's time we will build infrastructure to expand our CDM capabilities within our primary care populations for whom we are responsible. We will also advance the innovation and design our chronic disease management programs to improve measurable patient outcomes including reduction of readmission for certain chronic medical conditions.

Project 2 (Category 1) – Collection of Accurate Race, Ethnicity and Language (REAL) Data to Reduce Disparities:

Sacramento is one of the most diverse cities in California. UCDMC knows that planning for the management and providing appropriate care to this population requires a much greater strategy to address disparities in care. UCDMC is launching a major project to collect accurate race, ethnicity, and language data (REAL) in our population. This information will then be used to identify areas where there are disparities in that care and design approaches to managing those disparities. Over the five years of this project we will develop a plan to stratify patient outcome and quality measures by the REAL demographic information and implement that plan. This will markedly improve our ability to address the issues of frequent readmission, differences in screening rates, differences in quality indicators for chronic diseases, and in designing culturally appropriate tools for our primary care medical homes.

Project 3 (Category 2) – Implement/Expand Care Transitions Programs:

Medicaid and safety net patients have avoidable emergency department (ED) visits and hospitalization for exacerbations of chronic conditions. These costly episodes of care might be avoided if appropriate management of the acute exacerbation of the chronic condition had been coordinated with access to appropriate and evidence based outpatient management. At UCDMC, primary and specialty providers do not always have the support to manage these conditions. This is also commonly the case for these patients when seen at non-UCDMC providers who often refer their patients directly to the ED for management. Additionally, a subset of these patients simply cannot find access to post ED or post discharge care due to limited ability to pay for care. These patients are frequently readmitted after a hospitalization. UCDMC has implemented intensive case management in a subset of these patients to identify appropriate treatment plans, discharge care, and chronic disease management, but current resources do not permit intensive case management for but a small fraction of this population. As a result of this project we will build infrastructure and redesign our processes to result in increased capacity and capability for intensive case management of this population. This will result in our population focused goals of improving patient satisfaction, increased referral to primary care and primary care medical home services, increase assess to chronic disease management, and the outcome of reduction of readmissions.

Project 4 (Category 2) – Conduct Medication Management:

Patients' medication use for the management of their chronic conditions and acute exacerbations of these same conditions are often inadequately managed. This leads to unnecessary utilization of healthcare resources, particularly avoidable ED visits and hospitalization/readmissions. The lack of standardized and optimal pharmaceutical management integrated into the overall treatment plan also leads to compromised short term and long term outcomes, lower patient satisfaction with their experience, and excess costs. This is a significant issue for UCDMC, where a subset of recurrent high utilizers of patient care returns because of lack of understanding of the use of their medications. By building infrastructure and through innovation and redesign of current processes during the five years of this project, we will expand the use our pharmacists in various case setting to accomplish key population focused goals including reducing medications errors, improving medication reconciliation, improving patient satisfaction with care processes, and reduction of readmissions. Problems with medication management involving errors in administration of drugs are an issue for UCDMC. We will initiate bar coding, black box warning detection and use of smart pumps to improve medications safety.

Project 5 (Category 2) – Expand Medical Homes:

All patients are not receiving the right care in the right place at the right time, reflecting poorly coordinated care and insufficient Primary Care Medical Home infrastructure. Professional practices are either unable or not organized to transform into primary care medical homes and lack the infrastructure and support for chronic illness care. Practices have not been trained in the tools to sustain or spread innovations in primary care chronic disease management. Access to care is not convenient or patient centered, often resulting in uncoordinated care. These patients commonly use the ED when it might be avoided and end up with readmission for their chronic illness. During this project we will build infrastructure to expand our primary care medical home capability and perform extensive innovation and redesign to achieve the outcome of primary care medical home certification. This five year project will increase capacity to manage chronic diseases, increase screening for potentially treatable and preventable conditions, and contribute to reduction in avoidable ED care and avoidable readmissions.

Project 6 (Category 2) – Apply Process Improvement Methodology to Improve Quality/Efficiency:

UCDMC has been a leader in using metric driven performance improvement in numerous projects over the last three decades. However there has not been a standardized training and implementation of methodology for use across our various departments and units. UCDMC realizes sizable gains may be achieved in both effectiveness and efficiency through development and use of *Lean Six Sigma* (LSS) across the organization. As a result, this intervention we build the infrastructure needed in order to train and support multiple individuals (both in management and front line) over the next five years. Furthermore, these tools will be used as the methods for process improvement through innovation and project redesign for the wide range of initiatives within this intervention.

Project 7 (Category 4) – Improve Severe Sepsis Detection and Management:

Sepsis in a leading cause of death at UCDMC; sepsis mortality is 25% and severe sepsis mortality is 40%. Patients will benefit from early recognition and implementation of best evidence based management (the *Sepsis Resuscitation Bundle*). It is essential to improve our performance in the management of this UCDMC subpopulation to reduce resource utilization, reduce length of stay, and improve mortality in this population. During this intervention, UCDMC will implement EHR tools (infrastructure) and will roll out a hospital wide initiative for early diagnosis and management of sepsis and reduce our severe sepsis and sepsis death rates.

Project 8 (Category 4) – Central Line-Associated Bloodstream Infection (CLABSI) Prevention:

CLABSI is a serious issue within UCDMC. While we have undertaken a multiple year project coordinated with the four other University of California academic medical centers to reduce the incidence of this complication, we have yet to universally implement the best practices through all portions of UCDMC. Our focus to date has been within our intensive care units (ICU) and we need to transition best practices to all our units. Meeting best national performance in this metric will reduce ICU stay, reduce LOS, reduce avoidable resource utilization, and improve mortality in this population. During the five years of this intervention UCDMC will reduce its CLABSI rate.

Project 9 (Category 4) – Surgical Site Infection (SSI) Prevention:

UCDMC is the major level one trauma program and emergency services delivery institution in Sacramento. We also have very significant referral and elective orthopedic surgical programs in hip and knee replacement and revision; large abdominal surgical programs, esophageal, colon, and Bariatric surgical programs; significant referral cardiac and vascular surgical programs; major cancer surgical programs; and major neurosurgical and spine surgical programs. While our medical staff and hospital have used significant resources in addressing surgical associated complications and particularly in addressing surgical site infections, we have not yet reached appropriate

performance in each of the Surgical Complications Core Process measures. During the five years of this project we will be expanding our infrastructure to deal with expanded surgical surveillance and associated process improvement participating with the CDC National Health and Safety Network (NHSN). We will expand our surveillance and reporting and reduce our surgical site infections (SSI).

Project 10 (Category 4) – Hospital-acquired Pressure Ulcer (HAPU) Prevention:

As the major emergency provider and referral hospital in Sacramento region we receive a very large number of very seriously ill patients. Many patients with severe traumatic injuries including major neurosurgical injury, and major cardiopulmonary and respiratory failure, add to the management challenges of following best practices to prevent pressure ulcers. Despite very significant initiatives in screening for risk of developing hospital acquired pressure ulcers (HAPU), and in implementation of best practices to prevent development and progression of HAPU, UCDMC has not yet achieved superior performance in this area. Over the five years of this project we will expand our capability and compliance with best practices from the evidenced based recommendations from the National Pressure Ulcer Advisory Panel. We will reduce our HAPU rate at UCDMC over the five year intervention.

UC Davis Medical Center Projects

***Category 1 Projects (C1)*:**

1. Implement and Utilize Disease Management Registry Functionality
2. Collection of Race, Ethnicity and Language (REAL) Data to Reduce Disparities

***Category 2 Projects (C2)*:**

3. Implement/Expand Care Transitions Programs
4. Conduct Medication Management
5. Expand Medical Homes
6. Apply Process Improvement Methodology to Improve Quality/Efficiency

***Category 3 Domains Addressed by UCDMC Projects (C3)*:**

11. Patient/Provider Experience
12. Care Coordination
13. Preventive Health
14. At-risk Populations

***Category 4 Projects (C4)*:**

7. Improve Severe Sepsis Detection and Management
8. Central Line-Associated Bloodstream Infection (CLABSI) Prevention
9. Surgical Site Infection (SSI) Prevention
10. Hospital-acquired Pressure Ulcer (HAPU) Prevention

Project 1 (Category 1): Implement and Utilize Disease Management Registry Functionality

Goal:

UC Davis Medical Center is only able to care for a very small percentage (<2%) of chronic disease management primary care patients assigned to medical homes. Primary care capacity, resources, infrastructure, and technology are severely limited. Our goal is to be able to better treat the volume of patients who need chronic disease management in the primary care setting, with expansion of chronic disease management programs and limited wait times. In order to provide more preventive, primary, and chronic care in the primary care setting, it is critical to expand chronic disease management programs. This includes increased efficiencies to maximize the capacity the UCDMC Primary Care Network (PCN) already has, as well as increasing capacity so that we can treat more patients and to provide the infrastructure and support needed to accomplish chronic illness care in the primary care practice setting. In order to do this, we propose to:

- Expand Chronic Disease Management Programs in the Ambulatory setting;
- Design care coordination strategies that are designed to optimize care across a continuum; and
- Incorporate decision-support for chronic disease management into team-based practice.

Expected Result:

New chronic disease management patients identified and offered Chronic Disease Management programs with their primary care team as a result of expanding Chronic Disease Management Programs throughout the primary care network and hospital-based clinics.

Relation to Category 3 Population-Focused Improvement:

Expanded chronic disease management programs also feeds into the expansion of medical homes and more organized care delivery, better prevention and management of chronic conditions, integrated physical-behavioral health care, and better utilization of health care resources. With expanded chronic disease management programs, more patients can have access to care management program staff and educational programs for prevention and self-management support, which increases opportunities to prevent disease and treat it early, and patients upon discharge can be scheduled for follow-up appointments and care at a primary care clinic, thereby reducing the risk and consequences of worsening health conditions.

Project 1 (C1) – Implement and Utilize Disease Management Registry Functionality					
Year 1 (DY-6)	**Year 2** (DY-7)	**Year 3** (DY-8)	**Year 4** (DY-9)	**Year 5** (DY-10)	**Related Projects**
Milestone 1.1: Develop a plan to expand current Chronic Disease Management Programs in Primary Care, as measured by (1) identification of current patient volume, (2) assessment of new patients with chronic illness diagnoses, (3) development of plan to expand program services, sites and offerings, and (4) a plan to expand current programs and integrate into all UCD primary care clinics. **Metric 1.1:** Documentation of completion of all four items, including program expansion timeframes and integration strategy. **Milestone 1.2:** Patient experience metric question to be designed using the Professional Resource Consultants, Inc. (PRC) tool. **Metric 1.2:** PRC survey design completed. **Milestone 1.3:** Paper-based companion survey to be modified for on-site clinic use and comparison. **Metric 1.3:** Paper-based survey modification completed.	**Milestone 1.4:** Implement a system to accommodate newly diagnosed chronic disease management patients within at least 1 primary care clinic. **Metric 1.4:** System implemented to accommodate patients completed. **Milestone 1.5:** Plan development of tethered registry to capture patient enrollment in Chronic Disease Management program. **Metric 1.5:** Plan of tethered registry completed. **Milestone 1.6:** Design Patient Experience Report with PRC and paper-based companion survey outcomes to be completed. **Metric 1.6:** Patient Experience Report developed using PRC in comparison with paper-based survey results.	**Milestone 1.7:** Expansion of chronic disease management program team to at least 2 additional primary care clinic sites, measured by achieving at least 10% of referred, identified patients enrolled in a program and targeting new patient population identified with chronic illness requiring intervention. **Metric 1.7:** Chronic Disease Management by-site scheduled patient report based on new patient enrollment. The rate will be reported and measured monthly by site. **Milestone 1.8:** Implement tethered registry for Chronic Disease Management / registry functionality. **Metric 1.8:** Tethered registry implemented. **Milestone 1.9:** Patient Experience metric with PRC and paper-based companion survey outcomes to be compared against team integration at sites. **Metric 1.9:** Focus groups conducted with patients at pilot sites in addition to surveys.	**Milestone 1.10:** Expansion of chronic disease management program / registry functionality team to at least 4 additional primary care clinic sites, measured by achieving at least 10% of referred, identified patients enrolled in a program and targeting new patient population identified with chronic illness requiring intervention. **Metric 1.10:** Chronic Disease Management by-site scheduled patient report based on new patient enrollment. The rate will be reported and measured monthly by site. **Milestone 1.11:** Patient Experience metric with PRC and paper-based companion survey outcomes to be compared against team integration at sites. **Metric 1.11:** Focus groups conducted with patients at pilot sites in addition to surveys.	**Milestone 1.12:** Expansion of chronic disease management program / registry functionality team to at least 6 additional primary care clinic sites, measured by achieving at least 10% of referred, identified patients enrolled in a program and targeting new patient population identified with chronic illness requiring intervention. **Metric 1.12:** Chronic Disease Management by-site scheduled patient report based on new patient enrollment. The rate will be reported and measured monthly by site. **Milestone 1.13:** Patient Experience metric with PRC and paper-based companion survey outcomes to be compared against team integration at sites. **Metric 1.13:** Focus groups conducted with patients at pilot sites in addition to surveys.	**Project 1 relates to:** C2 – UCDMC Project 5 C3 – Patient/Provider Experience C3 – Care Coordination (reducing readmissions, chronic care management) C3 – Preventive Health C3 – At-risk Populations

Project 2 (Category 1): Collection of Accurate Race, Ethnicity and Language (REAL) Data to Reduce Disparities

Goal

UC Davis Medical Center patients are diverse: 22% are Hispanic/Latino; 41% are White; 15.5% are Black; and 17.5% are Asian. While UCDMC may presume that health care disparities might exist, we are an enterprise that believes in using data to drive quality improvement. Therefore, we believe it is imperative to stratify quality data, such as clinical outcomes and interventions, by race, ethnicity and language ("*REAL data*") so that we know the specifics of where disparities exist. By having this knowledge, we will be able to target improvements in health care equity appropriately and effectively, and measure our progress along the way. Providing equitable care is critical to getting patients engaged in their care – every patient, regardless of who they are, deserves high quality health care. It is likely that race, ethnicity and language disparities exist both in accessing and receiving care; however, we have unreliable data by which to identify them. Therefore, it is our goal to develop the ability to: (1) collect patient demographic data in a way that can be compared to quality and health outcomes data; (2) stratify patient demographic data by outcomes to identify disparities; and (3) engage in quality improvement projects to reduce health care disparities that have been identified.

Expected Result:

Data be available to identify disparities for at least 90% of Ambulatory (outpatient) patients.

Relation to Category 3 Population-Focused Improvement:

Reducing disparities in health care will support improved care for a multitude of Categories 3 and Category 4 interventions through the provision of equitable health care.

Project 2 (C1) – Collection of *REAL* Data to Reduce Disparities					
Year 1 (DY-6)	**Year 2** (DY-7)	**Year 3** (DY-8)	**Year 4** (DY-9)	**Year 5** (DY-10)	**Related Projects**
Milestone 2.1: Develop an Ambulatory plan to assess collection of REAL data in order to identify potential health care disparities and develop strategies to facilitate equitable health care outcomes **Metric 2.1:** Documentation of data collection plan complete. **Milestone 2.2:** Report on preliminary REAL data collection. **Metric 2.2:** Report on preliminary REAL data collection completed.	**Milestone 2.3:** Develop a plan to stratify patient outcomes using REAL data and strategy to link to quality data. **Metric 2.3:** Strategic plan developed. **Milestone 2.4:** Patient Experience questionnaire to be designed and tested using a sample set of patients across demographics in all clinical areas where data is collected. **Metric 2.4:** Patient experience questionnaires designed and test implemented.	**Milestone 2.5:** At least 50% of unique patients have the designated REAL data fields recorded as structured data **Metric 2.5:** The percent of patients with Race, Ethnicity and Language (REAL) fields identified in the Electronic Health Record (EHR). Numerator: Number of unique patients with designated REAL data fields recorded. Denominator: Number of total unique patients. **Milestone 2.6:** Patient Experience questionnaire to be analyzed, patient outreach and focused group efforts to continue from EHR report for new patients to evaluate patient comprehension of use of data and experience in collection of data at clinical site. **Metric 2.6:** Patient experience questionnaires to continue to be evaluated and trended on monthly basis and training needs or interventions to be documented and identified.	**Milestone 2.7:** At least 70% of unique patients have the designated REAL data fields recorded as structured data **Metric 2.7:** The percent of patients with Race, Ethnicity and Language (REAL) fields identified in the Electronic Health Record (EHR). Numerator: Number of unique patients with designated REAL data fields recorded. Denominator: Number of total unique patients. **Milestone 2.8:** Patient Experience questionnaire to be analyzed, patient outreach and focused group efforts to continue from EHR report for new patients to evaluate patient comprehension of use of data and experience in collection of data at clinical site. **Metric 2.8:** Patient experience questionnaires to continue to be evaluated and trended on monthly basis and training needs or interventions to be documented and identified.	**Milestone 2.9:** At least 90% of unique patients have the designated REAL data fields recorded as structured data **Metric 2.9:** The percent of patients with Race, Ethnicity and Language (REAL) fields identified in the Electronic Health Record (EHR). Numerator: Number of unique patients with designated REAL data fields recorded. Denominator: Number of total unique patients. **Milestone 2.10:** Perform REAL data analysis and identify at least 2 specific health care disparities **Metric 2.10:** Report the results of the analysis and provide documentation of the work plan, including timelines, to address and reduce the disparities. **Milestone 2.11:** Patient Experience questionnaire to be analyzed, patient outreach and focused group efforts to continue from EHR report for new patients to evaluate patient comprehension of use of data and experience in collection of data at clinical site. **Metric 2.11:** Patient experience questionnaires to continue to be evaluated and trended on monthly basis and training needs or interventions to be documented and identified.	**Project 2 relates to:** C1 – UCDMC Project 1 C2 – UCDMC Project 3 C3 – Patient/Provider Experience C3 – Care Coordination (reducing readmissions, chronic care management) C3 – Patient Safety C3 – At-risk Populations C4 – Urgent Improvement in Quality & Safety

Project 3 (Category 2): Implement/Expand Care Transitions Programs

Goal:

Medicaid and safety net patients have avoidable emergency department (ED) visits and hospitalizations for exacerbations of chronic conditions. Medicaid and safety net patients may access care for management of acute exacerbations of chronic conditions that could have been prevented if they had coordinated access to appropriate outpatient chronic care. The cost of care for patients with chronic medical conditions is highest when provided episodically in the emergency setting or in the inpatient hospital setting. Patients who do not have established systems and pathways of access for management or worsening of their chronic disease symptoms turn to hospital emergency departments. Case management services in the emergency department must be timely to be effective in avoiding preventable inpatient admissions. A significant percentage of populations with these chronic conditions do not have a primary or specialty group of providers associated with an integrated health-care system (PCMH within an Accountable Healthcare Organization[ACO]). Primary or specialty providers who do not have the support to manage these conditions in the outpatient setting often utilize the most expensive resources by directing patients to this care. Providers preferentially make access in their practices for better paying patients (commercial payers) and often exclude or limit access for patients who pay poorly (or have no payer), especially those requiring frequent care intervention for chronic illnesses. Providers do not understand the appropriate role of clinical case management in improving patient outcomes and reducing health-care delivery costs.

To address this challenge, UCDMC will utilize high-intensity case management. Optimization of care coordination and delivery will improve access, reduce costs, improve linkage with primary care providers, reduce avoidable ED utilization and hospitalizations, improve access to chronic care optimum management, and improve education of providers and caregivers in effective care management.

What is an Intensive Case Management system? The UCDMC ED has already implemented multiple strategies to improve processes of care to result in improved outcomes for patients with chronic diseases. In October 2010 we opened a new, 68-bed ED with an expanded "up-front care" area to initiate patient management in an accelerated manner. We have increased both nursing and physician staffing and implanted overlapping physician shifts to improve patient throughput. We have implemented an electronic triage and track-board system in the ED, as well as an EHR. Currently, ED case management is focused upon discharge planning services requested for patients to avoid preventable admission to the inpatient setting. However, all patients in the ED should be screened to provide timely, effective case management services. We will place new clinical case managers into the ED to provide a wide range of interventions and discharge planning to an average of 43 additional patients per week based upon current work capabilities. While we track patients' discharge needs in our case management data base, it is not integrated with our fully functioning EHR. There is no way to identify the entire chronic disease population who are recurrent users of our ED so that we can intercede before admission. Once a patient is hospitalized, we have specific case managers who provide a limited number of services and discharge planning, but still suffer from lack of infrastructure (care management staff and an intensive case management system linked to EHR) to manage but a fraction of the population.

Expected Result:

Intensive Case Management efforts include:

- Creation of a mechanism to identify within the ED, and track within the inpatient and outpatient settings, patients with specific chronic diseases - patients who are or are likely to become recurring users of the system, be readmitted, and have poorer health outcomes. Creation of an "intensive care management" (ICM) registry; identification and enrollment of all chronic patients into the registry. Intensive case management includes enrolling each patient into the registry from time of sentinel ED visit; establishing goals of management involving clinical case managers, treating inpatient care team, and ICM medical director; determine which patients are appropriate for enrollment into a chronic disease management program; work with inpatient pharmacist assigned to ICM to assist with appropriate pharmaceutical management; provide appropriate education to optimize patient/family participation in strategies that will improve management to reduce ED utilization and reduce readmissions associated with these chronic conditions; insure appropriate completion of advanced directives; assure appropriate consultation with palliative care as appropriate.
- Increase staffing in the ED to provide ICM by screening all patient admissions and provide services to prevent hospitalization, whenever possible. Continuation of ICM for patients admitted and throughout hospitalization. Establishment of a chronic disease referral service, and identification of a PCMH whenever possible at

discharge, and when not available, identification of primary care follow-up within the community (Federally Qualified Health Centers, counties, or other community providers for post-discharge care). Patient referral to and enrollment into Chronic Disease Management programs whenever possible.

Relation to Category 3 Population-Focused Improvement:

Implementation of this plan is expected to reduce avoidable ED visits, reduce readmission for individuals who are frequent utilizers of ED care, improve identification of patients with high risk conditions for chronic disease management (Heart Failure, Asthma, CAD, COPD, Mental Health) and reduce readmissions specifically within that vulnerable population, and improve patient satisfaction.

Project 3 (C2) – Implement/Expand Care Transitions Programs					
Year 1 (DY-6)	**Year 2** (DY-7)	**Year 3** (DY-8)	**Year 4** (DY-9)	**Year 5** (DY-10)	**Related Projects**
Milestone 3.1: Expand current ICM within the ED **Metric 3.1a:** Identify and hire two additional Care Managers. (Infrastructure-process measure) **Metric 3.1b:** Increase case management patient interventions and total number of patients assessed.	**Milestone 3.2:** Expand ED case management to seven days per week (infrastructure-process measure) **Metric 3.2:** Coverage of case management staff to 4 full time FTE assigned to ED, at least 10 hours per day, and coverage weekends and holidays **Milestone 3.3:** Plan the construction of tethered registry to EHR to identify and managed high risk patients. (innovation and redesign-Process measure) **Metric 3.3:** Plan completed with IS and EHR	**Milestone 3.4:** Implement ICM registry (innovation and redesign) **Metric 3.4:** Use new registry for greater than 50% of all ED Case managed patients and for all patients admitted from ED into UCDMC	**Milestone 3.5:** Implement ICM registry (innovation and redesign) **Metric 3.5:** Use new registry for greater than 90% of all ED Case managed patients and for all patients admitted from ED into UCDMC		**Project 3 relates to:** C1 – UCDMC Project 1 C2 – UCDMC Project 5 C3 – Patient/Provider Experience C3 – Care Coordination (reducing readmissions) C3 – At-risk Populations

Project 4 (Category 2): Conduct Medication Management

Goal:

UCDMC has been working over the last four years to improve the safety and effectiveness of medication use for our patients. We have implemented an EHR that provides a unified medication list for each patient that can be viewed and updated by any provider caring for the patient. Upon admission to the system, the patient's medication list is updated as needed and this information is used to make future decisions about new, changed or discontinued medications. When patients are transferred, prior medications are reviewed and continued, modified or discontinued as needed. Upon discharge, the list is reviewed to ensure appropriateness of outpatient medications. Specialty-care providers review the medication list to ensure new or changed medications do not conflict with existing medications.

To ensure safe use of certain high-risk medications (also known as *Black Box Warning medications*), we have embedded alerts, warnings, questions and links within the EHR to ensure that prescribers order the medication according to the guidelines specified by the Food and Drug Administration (FDA). One example is fentanyl patches, which are applied to a patient's skin and used to treat chronic pain. Respiratory depression or even death can occur when applied at the wrong dose or to a patient who hasn't developed sufficient tolerance to narcotics. When ordered for an inpatient at UCDMC, the prescriber must answer mandatory questions in the EHR to confirm the patient meets the criteria for receiving the drug. Since implementing these safeguards, compliance with the criteria for use has reached 100%.

To avoid errors during the administration of medications, we have begun implementing bedside bar-code scanning. This ensures that the five "rights" (right medication, patient, dose, time and route) and involves having the nurse scan a barcode on the patient and the drug prior to administration. There is one critical care nursing unit using this process for all medication doses that are administered and house-wide implementation is being planned. Another strategy being employed to prevent administration errors is utilization of so-called "smart" infusion pumps to administer intravenous medications. These pumps have on-board software programs that help prevent errors that occur when the nurse or physician programs the wrong infusion rates into the pump. Depending on the drug being administered, limits are programmed into the software that will warn prior to (soft stop) or prevent (hard stop) infusion of the drug. Smart infusion pumps have been implemented for approximately 75% of the drugs administered via infusion pump and the remaining 25% will be implemented in the next 12 to 18 months.

In spite of these efforts, patients still fail to achieve the intended effects of their medications, resulting in avoidable harm from medication errors or preventable readmissions to the hospital or ED. Errors can occur during any step of the medication use process (prescribing, dispensing, administering or monitoring), but errors that lead to harm occur more commonly with high-risk medications (e.g. anticoagulants, opioids, chemotherapy) and during the prescribing and administration phases. Readmissions can occur most commonly with patients who have chronic diseases such as heart failure, COPD, pneumonia and AMI for which medications play a critical role in terms of disease treatment and symptom management. Readmission also can occur with patients who are discharged on high-risk medications such as warfarin and opioids. Some reasons for these medication-related problems include:

- Medication doses and regimens are not adequately adjusted prior to discharge due to lack of staff resources and pressure to discharge patients;
- Patients do not receive adequate education on how to take their medications and monitor effects due to lack of staff resources and time. Also, patients don't remember what they're told at discharge;
- In spite of the medication reconciliation process, patients are prescribed medications at discharge that duplicate or interact with other medications they are taking or that they are unable to obtain due to inadequate financial resources or problems with insurance coverage;
- Patients do not obtain or keep scheduled follow-up appointments intended to ensure patients are not experiencing problems with their medications;
- Alerts for *Black Box Warning medications* prescribed to outpatients have not been fully configured within the EHR, resulting in the potential for use outside the criteria specified by the FDA; and
- Programs to prevent medication administration errors, such as bedside barcode scanning and smart infusion pumps, have not been fully implemented.

To avoid medication errors and problems that occur with patient's medications during the transition from acute to ambulatory care, we propose to make investments in infrastructure to institute the following medication safety strategies:

- Optimize patient's medications prior to discharge – pharmacists are assigned to medical teams caring for these patients with the specific purpose of ensuring patients are stable on those medications they will be taking at home;
- Reconcile medications at the time of discharge – pharmacists and pharmacy technicians verify that orders for discharge medications are consistent with pre-hospitalization and in-hospital regimens and that no barriers exist that will prevent the patient from getting them filled;
- Provide after-discharge follow-up – a nurse is assigned to contact patients to verify that the medications were filled, to answer any questions and to ensure a follow-up appointment has been scheduled;
- Provide patient education – during the hospitalization, at the time of discharge and during follow-up, the pharmacist and nurse will provide education about medications;
- Configure alerts within the EHR to ensure outpatient prescriptions comply with criteria for use of Black Box Warning medications; and
- Fully implement bedside barcode scanning and smart infusion pumps.

Expected Result:

At least 75% of patients with targeted conditions (heart failure, COPD, pneumonia, AMI) or who are discharged on high-risk medications receive the medication management services that are listed above. Alerts are configured within the EHR for all prescriptions for *Black Box Warning medications*. Ninety-five percent of medications administered to hospitalized patients are barcode scanned prior to administration and 98% of intravenous infusions are administered with a smart pump.

Relation to Category 3 Population-Focused Improvement:

Improving the use of medications by patients who are discharged and at high risk for readmission has been demonstrated to reduce unnecessary medication-related readmissions. Reducing medication errors will improve patient safety and patient satisfaction.

Project 4 (C2) – Conduct Medication Management*					
Year 1 (DY-6)	**Year 2** (DY-7)	**Year 3** (DY-8)	**Year 4** (DY-9)	**Year 5** (DY-10)	**Related Projects**
Milestone 4.1: Implement pilot of bedside barcode scanning **Metric 4.1:** Bedside barcode scanning of medications occurs on one nursing unit **Milestone 4.2:** Initiate implementation of smart infusion pumps for remaining 25% of infusions (PCA, epidural and syringe pumps) **Metric 4.2:** Epidural pumps are implemented on one nursing unit	**Milestone 4.3:** Implement services to improve continuity of medication use (ie medication optimization, discharge medication reconciliation, after-discharge follow-up and education) for patients with heart failure or who are discharged on warfarin **Metric 4.3:** Pharmacist and nurse are hired and begin providing continuity of medication use services to at least one patient **Milestone 4.4:** Provide services to improve continuity of medication use to at least 50% of patients with heart failure or who are discharged on warfarin **Metric 4.4:** Numerator: patients who receive services. Denominator: total number of targeted patients who are discharged during time frame.	**Milestone 4.8:** Provide services to 75% of heart failure and warfarin patients **Metric 4.8:** Numerator: patients who receive services. Denominator: total number of targeted patients who are discharged during time frame. **Milestone 4.9:** Implement clinical pharmacist services for COPD, pneumonia and AMI patients **Metric 4.9:** Staff resources are identified and assigned to provide services **Milestone 4.10:** Bedside barcode scanning of medications is fully implemented **Metric 4.10:** 95% of all doses administered to hospitalized patients are scanned prior to administration.	**Milestone 4.11:** Provide clinical pharmacist services to 75% of heart failure and warfarin patients and 50% of COPD, pneumonia and AMI patients **Metric 4.11:** Numerator: patients who receive services. Denominator: total number of targeted patients who are discharged during time frame.	**Milestone 4.12:** Provide clinical pharmacist services to at least 75% of all targeted patients (heart failure, COPD, pneumonia, AMI, and warfarin) **Metric 4.12:** Numerator: patients who receive services. Denominator: total number of targeted patients who are discharged during time frame.	**Project 4 relates to:** C3 – Patient/Provider Experience C3 – Care Coordination (reducing readmissions) C3 – Patient Safety

**Intervention 4 – Improving Medication Safety Milestones and Metrics continued on next page.*

Project 4 (C2) – Conduct Medication Management (continued)					
Year 1 (DY-6)	**Year 2** (DY-7)	**Year 3** (DY-8)	**Year 4** (DY-9)	**Year 5** (DY-10)	**Related Projects**
	Milestone 4.5: Implement safeguards in EHR to ensure compliance with criteria for safe use of Black Box Warning medications **Metric 4.5:** Safeguards are in place for all outpatient prescriptions for Black Box Warning medications **Milestone 4.6:** Smart infusion pumps are implemented for remaining 25% of infusions (PCA, epidural and syringe pumps) **Metric 4.6:** 98% of all intravenous infusions are administered via smart pumps **Milestone 4.7:** Planning is completed for full implementation of bedside bar-code scanning **Metric 4.7:** Schedule is completed and resources are secured for full implementation				

Project 5 (Category 2): Expand Medical Homes

Goal:

A. As we seek to develop Medical Homes through NCQA PCMH recognition, we will have the opportunity to provide better care through improved prevention screenings and routine primary and chronic care. Only about 60% of our providers are organized as care teams, while the remaining is still functioning in a more traditional approach. Only 1 of our 6 primary care adult clinics is organized as a medical home. We want to make sure the medical home model is embedded within the care delivery model at UCDMC so that all patients can receive the right care in the right place at the right time. This is a strategic priority for UCDMC because by providing more patients with coordinated care services grounded in their primary care medical homes, patients can stay healthier, thereby reducing avoidable ED visits, admissions, and readmissions. Patients will receive this care in a proactive, planned manner so that they can receive evidence-based interventions. In 2007, UCDMC opened a new primary care clinic, which piloted many components of what we believe should be spread and sustained throughout our primary care clinics. This initiative included comprehensive clinic redesign through which we implemented:

- Medical home team-based care;
- Expanded staff roles;
- Performance outcomes measurement;
- Effective use of health information technology (IT);
- Coordination of care with support staff; and
- Health promotion and education.

For example, staff includes nutritionists, social workers, community health workers and therapists. Services include group visits, case management, telephone outreach and home-health care. Team communication methods are in-person, via conference calls and other methods, including email and written reports. UCDMC has piloted the medical home model, but needs to spread it throughout the hospital system. Right now, some primary care clinics are utilizing some components of these models, but not necessarily all. For example, while most clinics make some attempt to empanel patients, there is variation in the rigor of this process and inconsistency in commitment to scheduling patients with their designated care team.

B. UCDMC is able to track and monitor prevention and wellness programs with a targeted improvement metric for Influenza immunization rates for adult and pediatric primary care patients assigned to medical homes. Primary care capacity, resources, infrastructure, and technology are severely limited. Our goal is to be able to better treat the volume of patients who need preventive and wellness interventions, focused on Influenza Vaccinations for our adult and pediatric populations in the primary care setting, with expansion of Influenza and Immunization prevention programs through improved PCMH access, tracking and trending compliance rates, and through targeted community education. In order to provide more preventive, primary, and chronic care in the primary care setting, it is critical to expand prevention and wellness programs and Immunization rates. This includes increased efficiencies to maximize capacity the UCDMC Primary Care Network (PCN) already has, as well as, increasing capacity so that we can treat more patients and provide the infrastructure and support needed for providing timely immunizations in the primary care practice setting. In order to do this, we propose to:

- Expand Preventive Immunizations Programs in the Ambulatory setting;
- Design care coordination strategies that are designed to optimize care across a continuum; and
- Incorporate decision-support for Immunization prevention and wellness education into team based practice.

Expected Result:

A. At least 40% of eligible patients are assigned to primary care teams serving as their medical homes. Care teams actively manage their patient panel so that patients are reminded of services needed and receive coordinated care rooted in a primary care setting. Patients know the professionals on their care team and establish trusting, ongoing relationships to reinforce a continuity of care.

B. New primary care patients within the Ambulatory setting are identified and offered education on the importance of Influenza and vaccination programs when establishing with their primary care team. Improvements will be monitored and reported as a result of expanding Immunization Management and Education Programs throughout the primary care network and hospital-based clinics.

Relation to Category 3 Population-Focused Improvement:

A. By spreading the medical home model to all of our primary care clinics in order to be able to empanel tens of thousands of patients comprehensively and systemically, we can make a real difference in the experience, results and cost of health care.

B. Expanded prevention and wellness programs also feeds into the expansion of medical homes and more organized care delivery, better prevention and management of chronic conditions, integrated physical-behavioral health care, and better utilization of health care resources. With expanded prevention and wellness programs, specific to Immunizations, more patients can have access to care and educational programs for prevention and education support. This increases opportunities to prevent disease and treat it early, where patients upon discharge can also be scheduled for follow-up appointments and care at a primary care clinic, thereby reducing the risk and consequences of worsening health conditions.

Project 5 (C2) – Expand Medical Homes*					
Year 1 (DY-6)	**Year 2** (DY-7)	**Year 3** (DY-8)	**Year 4** (DY-9)	**Year 5** (DY-10)	**Related Projects**
Milestone 5.1: Develop a timeline and plan for submission of the application for Patient Centered Medical Home (PCMH) recognition for Family and Community Medicine clinic, UC Davis Medical Center, to be recognized by NCQA: Recognition will include system: (1) restructuring staff with innovative workforce models; (2) utilizing information services technology to develop PCMH report capabilities; and (3) development of process improvement teams to support implementation of transformative workflow models. **Metric 5.1:** Documentation of completion of all three items, including timeframes and submission of the proposed PCMH application timelines for submission. NCQA PCMH criteria will be used as the basis for metrics and evaluation status. **Milestone 5.2:** Application for at least one (1) primary care site will be submitted to NCQA. **Metric 5.2:** Submission and evaluation of application by NCQA for recognition.	**Milestone 5.4:** Develop a timeline and plan for submission of PCMH application for Primary Care Network sites. **Metric 5.4:** Timeline and plan for PCMH NCQA application submission completed. **Milestone 5.5:** Development of Patient Experience survey using PCMH criteria to be designed and tested. **Metric 5.5:** Patient Experience survey using PCMH criteria completed. **Milestone 5.6:** Design a seasonal Influenza notification system using the EHR MyChart™ functionality to send messages to all MyChart™ enrolled patients on the importance of Immunizations. **Metric 5.6:** MyChart™ Influenza notification plan implemented. **Milestone 5.7:** Design of MyChart™ Influenza notification report for provider/staff use. **Metric 5.7:** Design of MyChart™ Influenza notification completed.	**Milestone 5.8:** Development of a plan for remaining Primary Care Network site applications to be completed and submitted for NCQA PCMH status. **Metric 5.8:** Timeline met and application submitted. **Milestone 5.9:** Development of plan and timeline for Patient Experience survey to be implemented in remaining primary care network sites. **Metric 5.9:** PCMH Patient Experience survey tool implemented in remaining sites per timeline developed. **Milestone 5.10:** Development of a strategic plan for Ambulatory operations to integrate Influenza vaccination at all primary care network sites. **Metric 5.10:** Education plan implemented in primary are network sites and documented education provided for 40% of eligible patients.	**Milestone 5.11:** Development of a timeline and plan for hospital-based Primary Care clinics to be recognized as NCQA PCMH status. **Metric 5.11:** Completion of NCQA criteria for PCMH readiness and submission of application. **Milestone 5.12:** Development of PCMH Patient Experience Focus Groups to be designed to further test the patient experience through direct patient engagement. Develop plan to have focus group by site. **Metric 5.12:** Patient Experience Focus Groups implemented and tested. **Milestone 5.13:** Development of EHR report for Ambulatory primary care providers, by site and by provider on Influenza vaccination rates. **Metric 5.13:** Development of EHR report completed for Ambulatory primary care sites.	**Milestone 5.14:** At least 40% of eligible patients will be assigned to PCMH medical homes **Metric 5.14:** Medical Home Assignment Numerator: Number of eligible patients assigned to a primary care provider. Denominator: Number of eligible patients (patients seen at the same primary care clinic at least twice in last 12 months). **Milestone 5.15:** Report shared learning of the medical home model, and any findings related to impact on improved health, experience and cost. **Metric 5.15:** Report designed and analyzed. **Milestone 5.16:** Development of a plan for ongoing patient engagement through formation of Patient Experience Advisory Board initiated in relation to PCMH sites. **Metric 5.16:** Strategic plan for formation of ongoing Patient Experience Advisory Board completed.	**Project 5 relates to:** C1 – UCDMC Project 1 C1 – UCDMC Project 3 C3 – Patient/Provider Experience C3 – Care Coordination (reducing readmissions, chronic care management) C3 – Preventive Health C3 – At-risk Populations

**Intervention 4 – Expansion of Medical Homes Milestones and Metrics continued on next page.*

Project 5 (C2) – Expand Medical Homes (continued)					
Year 1 (DY-6)	**Year 2** (DY-7)	**Year 3** (DY-8)	**Year 4** (DY-9)	**Year 5** (DY-10)	**Related Projects**
Milestone 5.3: Develop a plan to identify new and existing Ambulatory patients requiring Influenza vaccination. **Metric 5.3:** Plan for identifying new and existing patients requirements Influenza vaccination completed.				**Milestone 5.17:** Development of EHR report for Ambulatory specialty care providers who provide Influenza vaccination, by site and by provider on Influenza vaccination rates. **Metric 5.17:** Development of EHR report completed for Ambulatory specialty care sites.	

Project 6 (Category 2): Apply Process Improvement Methodology to Improve Quality/Efficiency

Goal:

Increasing complexity in clinical care, education and research, in combination with financial realities, create obstacles for health care providers to deliver the highest quality and safest patient care. This can lead to the absence of enterprise-wide coordinated and standardized approaches to performance improvement, where the lack of standardized work processes and procedures create redundant and wasteful practices that are non-value-added. Therefore, systematic cultural changes are needed to shift focus of patient-care quality and safety initiatives from emphasis on error detection to mistake-proof zero-defect systems.

To address this challenge UCDMC will expand and enhance Lean Six Sigma philosophies and techniques, with the use of the electronic health record (EHR) throughout the medical center. Lean Six Sigma utilizes effective data analysis skills and tools driven by the *DMAIC* (Define-Measure-Analyze-Improve-Control) methodology with the goal of designing processes with very high reliability that seeks to improve quality, delivery and cost. *Lean* specifically focuses on identifying and eliminating waste (non-value added activity) while *Six Sigma* specifically focuses on defect prevention and reducing variation within processes. UCDMC utilizes Lean Six Sigma in order to improve quality within our *Healthcare Delivery Value System* to provide optimal value to our patients, staff and community. It is our ultimate goal to provide patient care that is safe (no harm), effective (prevent disease and complications and minimize suffering, disability, and death), efficient (the right care without unwanted delay), patient-centered (informed, involved, educated) and equitable (the right care for all).

Expected Result:

Lean Six Sigma philosophies and techniques with the utilization of the EHR will allow real-time performance information and patient error detection and prevention to improve safety, reduce mortality, and decrease costs. Expanded Lean Six Sigma tools and infrastructure will be created to support the design/re-design of key processes that will translate into quality improvements and cultural transformation throughout the medical center. This effort will specifically:

- Identify and eliminate waste within our *Healthcare Delivery Value System*, providing optimal safety and value for our patients, staff, and community with a commitment to scalability and transportability of developments.
- Install mistake-proofing systems to ensure zero-defects reliability for healthcare providers and patients without additional administrative costs;
- Shift culture from accepting errors and defects to trusting a perfect patient experience is possible;
- Maximize the use of tools, such as EHR and other technologies;
- Focus on reducing selected *Healthcare-Acquired Conditions* (HACs) such as:
  - Sepsis;
  - Central-line Associated Bloodstream Infections (CLABSI);
  - Hospital-acquired Pressure Ulcers (HAPU); and
  - Surgical Complications Core Processes (SCIP).

Relation to Category 3 Population-Focused Improvement:

Through (1) identifying and eliminating waste and (2) designing/re-designing key processes with very high reliability within our *Healthcare Delivery Value System*, the expansion of Lean Six Sigma philosophies and techniques will improve the safety, effectiveness, efficiency, patient and/or provider experience and equity of patient care. Thus, this intervention has the potential to impact all elements of the proposed Category 3: Population-Focused Improvements.

Project 6 (C2) – Apply Process Improvement Methodology to Improve Quality/Efficiency					
Year 1 (DY-6)	**Year 2** (DY-7)	**Year 3** (DY-8)	**Year 4** (DY-9)	**Year 5** (DY-10)	**Related Projects**
Milestone 6.1: Upon (1) development of a designated unit responsible for Lean Six Sigma implementation within UCDMC; and (2) obtain sponsorship from senior leadership; assess efficacy of processes in place and recommend process improvements to implement. **Metric 6.1a:** Documentation of the establishment of a Lean Six Sigma unit and mission/charge. **Metric 6.1a:** Documentation of identified areas of opportunities to improve on the redesign methodology, as documented by the assessment document. **Milestone 6.2:** LSS Just-in-Time (JIT) training to at least 2 multidisciplinary teams for specific projects. **Metric 6.2:** Documentation of the training that includes the number or relevant providers/staff trained and/or number of training s held and progress/result of the respective projects.	**Milestone 6.3:** Develop early-warning systems within the UCDMC EHR to act upon identified problems. **Metric 6.3:** Documentation of respective early-warning systems through dashboard reports. **Milestone 6.4:** LSS Just-in-Time (JIT) training to at least 2 multidisciplinary teams for specific projects. **Metric 6.4:** Documentation of the training that includes the number or relevant providers/staff trained and/or number of training s held and progress/result of the respective projects.	**Milestone 6.5:** Continue to use and further develop early-warning systems within the UCDMC EHR to act upon identified problems. **Metric 6.5:** Documentation of respective early-warning systems through dashboard reports. **Milestone 6.6:** UCDMC LSS Master Black Belts (advanced practitioners experience in all aspects of LSS) provide four LSS Green Belt courses (basic LSS training for core and support team members) per year to expand base of individuals trained in LSS. **Metric 6.6:** Documentation of courses. **Milestone 6.7:** LSS Just-in-Time (JIT) training to at least 2 multidisciplinary teams for specific projects. **Metric 6.7:** Documentation of the training that includes the number or relevant providers/staff trained and/or number of training s held and progress/result of the respective projects.	**Milestone 6.8:** Continue to use and further develop early-warning systems within the UCDMC EHR to act upon identified problems. **Metric 6.8:** Documentation of respective early-warning systems through dashboard reports. **Milestone 6.9:** UCDMC LSS Master Black Belts (advanced practitioners experience in all aspects of LSS) provide four LSS Green Belt courses (basic LSS training for core and support team members) per year to expand base of individuals trained in LSS. **Metric 6.9:** Documentation of courses. **Milestone 6.10:** LSS Just-in-Time (JIT) training to at least 2 multidisciplinary teams for specific projects. **Metric 6.10:** Documentation of the training that includes the number or relevant providers/staff trained and/or number of training s held and progress/result of the respective projects.	**Milestone 6.11:** Real-time alerts of patient errors and identified problems. **Metric 6.11:** Documentation of respective early-warning systems through dashboard reports. **Milestone 6.12:** UCDMC LSS Master Black Belts (advanced practitioners experience in all aspects of LSS) provide four LSS Green Belt courses (basic LSS training for core and support team members) per year to expand base of individuals trained in LSS. **Metric 6.12:** Documentation of courses. **Milestone 6.13:** LSS Just-in-Time (JIT) training to at least 2 multidisciplinary teams for specific projects. **Metric 6.13:** Documentation of the training that includes the number or relevant providers/staff trained and/or number of training s held and progress/result of the respective projects.	**Project 6 relates to:** C3 – Patient/Provider Experience C3 – Care Coordination C3 – Patient Safety C3 – Preventive Health C3 – At-risk Populations C4 – UCDMC Project 7 C4 – UCDMC Project 8 C4 – UCDMC Project 9 C4 – UCDMC Project 10

Project 7 (Category 4): Improve Severe Sepsis Detection and Management

Key Challenge: Reducing harm or death to patients seeking care due to sepsis.

Sepsis is associated with increased rates of morbidity and mortality and higher costs. Overall, sepsis is the 10th most common cause of death in the United States, making it one of the key drivers of inpatient mortality.[1] Sepsis is the leading cause of death in non-coronary ICUs[2] and the typical ICU patient with sepsis costs six-times more to care for than a patient without sepsis.[3] Severe sepsis accounts for an estimated 40% of all ICU expenditures with more than 750,000 cases of severe sepsis reported in the US annually; this represents an annual cost of $17 billion in the US alone.[4]

During and after receiving hospital services, challenges remain regarding the provision of safe, high-quality health care. Furthermore, it is critical to avoid causing harm or death to patients seeking care. The evidence shows sepsis does harm and can kill patients if not treated quickly. Additionally, sepsis increases ICU length of stay and associated costs. Approximately a quarter of patients with severe sepsis or septic shock die in public hospitals currently. In 2009, mortality rates for all sepsis at UCDMC was measured at 20%, severe sepsis 36% and septic shock 43% as reported by our billing and coding department.

Major Delivery System Solution: Reduce avoidable harm or deaths due to severe sepsis to patients receiving inpatient services.

In support of our commitment to continuous quality improvement and assuring that our patients receive the safest and highest quality health care possible, we propose to make improvements in the early identification and care provided our patients identified with sepsis. We propose to improve severe sepsis detection and management to reduce unnecessary death and harm attributable to sepsis. Our interventions and improvement processes are based on the Institute for Healthcare Improvement's (IHI) recommended *Surviving Sepsis Campaign: International guidelines for management of severe sepsis and septic shock: 2008*[5] to establish reliable detection and treatment for severe sepsis. This process will include leveraging our EHR to improve early recognition, care provider notification and implementation of early goal directed therapy including a sepsis resuscitation bundle.

The "*Sepsis Resuscitation Bundle"* to be developed and implemented at UCDMC for severe sepsis and septic shock patients will include:

- Serum lactate measured;
- Blood cultures obtained prior to antibiotic administration;
- Improve time to broad-spectrum antibiotics (within 3 hours for ED admissions and 1 hour for non-ED ICU admissions); and
- Delivery of an initial minimum of 20 ml/kg of crystalloid (or colloid equivalent).

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[1] Centers for Disease Control and Prevention [CDC]. (2006). *National Vital Statistics* (CDC Publication retrieved from http://www.cdc.gov/nchs/data/nvsr/nvsr58/nvsr58_14.pdf).

[2] Sands KE, et al. Epidemiology of sepsis syndrome in 8 academic medical centers. JAMA 1997; 278: 234-40.

[3] Silva E, et al. Economic and social burden of severe sepsis. Yearbook of Intensive Care and Emergency Medicine 2009; 3: 129-138.

[4] Angus DC, et al. Epidemiology of severe sepsis in the United States: analysis of incidence, outcome and associated costs of care. Crit Care Med 2001; 29:1303-10.

[5] Dellinger, RP, et al. Surviving Sepsis Campaign: International guidelines for management of severe sepsis and septic shock: 2008. Intensive Care Medicine, 34:1:17-60.

Project 7 (C4) – Improve Severe Sepsis Detection and Management				
Year 1 (DY-6)	**Year 2 (DY-7)**	**Year 3 (DY-8)**	**Year 4 (DY-9)**	**Year 5 (DY-10)**
1. Join UHC Sepsis Improvement Collaborative (SIC) and partner with the Betty and Gordon Moore Foundation to learn and share best practices related to improving severe sepsis and septic shock detection and management. 2. Convene multi-disciplinary group to develop goals and work plans for reducing sever sepsis and septic shock mortality at UCDMC. 3. Utilize Lean Six Sigma philosophies and methodology to optimize efficiencies in evaluating and implementing a Sepsis Improvement Project at UCDMC.	4. Develop and implement Best Practice Alerts within the UCDMC EHR for early Sepsis recognition (targeting all adult patients in our emergency department, acute care and critical care units) 5. Report at least 6 months of data collection on Sepsis Resuscitation Bundle to SNI for purposes of establishing the baseline and setting benchmarks. 6. Report the Sepsis Resuscitation Bundle results to the State.	7. Achieve X% compliance with Sepsis Resuscitation Bundle, where "X" will be determined in Year 2 based on baseline data. 8. Share data, promising practices, and findings with SNI to foster shared learning and benchmarking across the California public hospitals. 9. Report Sepsis Resuscitation Bundle and Sepsis Mortality results to the State.	10. Achieve X% compliance with Sepsis Resuscitation Bundle, where "X" will be determined in Year 2 based on baseline data. 11. Share data, promising practices, and findings with SNI to foster shared learning and benchmarking across the California public hospitals. 12. Report results to the State.	13. Achieve X% compliance with Sepsis Resuscitation Bundle, where "X" will be determined in Year 2 based on baseline data. 14. Share data, promising practices, and findings with SNI to foster shared learning and benchmarking across the California public hospitals. 15. Report results to the State.

Project 8 (Category 4): Central Line-Associated Bloodstream Infection (CLABSI) Prevention

Key Challenge: Reducing harm or death to patients seeking care due to CLABSI.

An estimated 79,500 CLABSI events occur each year in the US intensive care units and a mortality rate of up to 35% has been associated with CLABSI. In addition, the estimated direct cost of CLABSI in the United States is about $9 billion per year; the per-incident cost ranges from about $12,000 to $56,000[5]. Whereas the utilization of central line catheters is an integral part of the care for a certain population of ICU patients, it is critical that we provide safe, high quality care in the insertion and maintenance of such access.

Major Delivery System Solution: Reduce avoidable harm or deaths due to CLABSI to patients receiving inpatient services.

UC Davis Medical Center is aggressively pursuing the: (1) prevention of CLABSI through the proper management of the central line, utilizing techniques addressed in the CDC's Healthcare Infection Control Practices Advisory Committee (CDC/HIPAC) *Guidelines for the Prevention of Intravascular Catheter-Related Infections*[6]; (2) standard work development and team-based improvement capacity; and (3) establishment of real-time CLABSI event detection and reporting with the use of the electronic health record (EHR). These activities will lead to early detection of an infection and a decrease in the rates and device days, to target below NHSN means.

Targeted Improvements:

1. Compliance with Central Line Bundle:
    a. Numerator: Number of patients with central lines for whom all elements of the central line bundle are documented;
    b. Denominator: Total number of patients with central lines; and
    c. Data source: SNI/CAPH Membership Data
2. Central line-associated bloodstream infections (CLABSI):
    a. Follow NHSN guidelines for reporting CLABSI; and
    b. Data source: SNI/CAPH Membership Data.

[5] University HealthSystem Consortium. (2010). *UHC Imperatives for Quality: Hospital-Acquired Conditions, Catheter-Related Bloodstream Infection*.

[6] O'Grady NP, et al. Guidelines for the prevention of intravascular catheter-related infections. *MMWR* 2002;51(No. RR-10:1-26).

Project 8 (C4) – CLABSI Prevention				
Year 1 **(DY-6)**	**Year 2** **(DY-7)**	**Year 3** **(DY-8)**	**Year 4** **(DY-9)**	**Year 5** **(DY-10)**
1. Implement the Central Line Insertion Practices (CLIP), as evidenced by documentation tools within the EHR that facilitate compliance with CLIP and daily line necessity. This data will be used to establish baseline compliance.	2. Report at least 6 months of data collection on CLIP to SNI for purposes of establishing the baseline and setting benchmarks. 3. Report at least 6 months of data collection on CLABSI to SNI for purposes of establishing the baseline and setting benchmarks. 4. Report CLIP results to the State.	5. Achieve X% compliance with CLIP, where "X" will be determined in Year 2 based on baseline data. 6. Share data, promising practices, and findings with SNI to foster shared learning and benchmarking across the California public hospitals. 7. Report CLIP and CLABSI results to the State.	8. Achieve X% compliance with CLIP, where "X" will be determined in Year 2 based on baseline data. 9. Reduce Central Line Bloodstream Infections by X%, where "X" will be determined in Year 2 based on baseline data. 10. Share data, promising practices, and findings with SNI to foster shared learning and benchmarking across the California public hospitals. 11. Report CLIP and CLABSI results to the State.	12. Achieve X% compliance with CLIP, where "X" will be determined in Year 2 based on baseline data. 13. Reduce Central Line Bloodstream Infections by X%, where "X" will be determined in Year 2 based on baseline data. 14. Share data, promising practices, and findings with SNI to foster shared learning and benchmarking across the California public hospitals. 15. Report CLIP and CLABSI results to the State.

Project 9 (Category 4): Surgical Site Infection (SSI) Prevention

Key Challenge: Reducing harm or death to patients seeking care due to SSI.

Postoperative infection is a major cause of patient injury, mortality and health care cost[7]:

- An estimated 2.6 percent of nearly 30 million operations are complicated by surgical site infections (SSIs) each year.
- Infection rates, up to 11 percent, are reported for certain types of operations.
- Each infection is estimated to increase a hospital stay by an average of 7 days and add over $3,000 in charges (1992 data).
- Appropriate preoperative administration of antibiotics is effective in preventing infection.
- SSI increases length of stay in hospital by an average of 7.5 days
- $2,734 to $26,019 extra cost per SSI (1985, US dollars)
- $130 million to $845 million per year estimated national costs in the USA

Major Delivery System Solution: Reduce avoidable harm or deaths due to SSI to patients receiving inpatient services.

UCDMC proposes to minimize SSIs and improve the composite score for measures known to prevent surgical site complications. Experts estimate the total number of human cells is 10^{13} and the total number of colonizing microbes is 10^{14}.[8] Despite this 10-to-1 inequity, the balance of power is influenced by an intact human immune system and the integrity of the skin and mucous membranes. Operative procedures disrupt this balance, resulting in a risk of an SSI occurring. Specific measures will be implemented to reduce the risk for SSI and surgical complications.

The Centers for Medicare and Medicaid Services and the Centers for Disease Control and Prevention partnered to implement evidence-based practices known to prevent morbidity and mortality associated with SSIs. The evidence based measures are known as: The Surgical Care Improvement project (SCIP). The measures must be applied consistently to prevent post-operative SSIs. UCDMC also recognizes the importance of reducing surgical complications through implementing measures from the SCIP cardiac module (card 2) and the SCIP venous thromboembolism prevention module (SCIP VTE 1 and 2). These strategies have been underutilized at UCDMC. Our goal is to achieve and sustain a composite score of 95% or better with all SCIP measures.

Nationally, 2 to 5 % of patients undergoing a surgical procedure develop an SSI. Patients with SSIs require longer time in the hospital, more nursing care, more extensive wound care management, readmission to the hospital for further surgery and antibiotic management. SSIs can result in more than $50,000 in additional health care costs per patient.[9] The University of California Davis performed 11,122 surgeries in 2010. Surgical patients make up 33.18 percent of our total inpatient population. Surgical site infection surveillance is conducted using the surveillance definitions published by the National Health and Safety Network (NHSN), a division of the Centers for Disease Control and Prevention (CDC).

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[7] Institute for Healthcare Improvement [IHI]. (2010). Patient Safety, Surgical Site Infections: Case for Improvement (IHI publication retrieved from: http://www.ihi.org/ihi/Topics/PatientSafety/SurgicalSiteInfections/SurgicalSiteInfectionsCaseForImprovement).

[8] *Samuel Baron MD; Charles Patrick. Davis (1996). Bacteriology.University of Texas Medical Branch at Galveston. Chapter 6. Normal Flora.*

[9] *Stone PW, et al. Systematic review of economic analyses of health care associated infections. Am J Infec Control 2005.*

UCDMC initiated surgical site infection surveillance in 2010. We limited our initial SSI surveillance to specific high volume or high risk procedures. UCDMC provided surgical infection data to NHSN for the following Class 1 and Class 2 procedures:

Type of Surgery	Number of Infections Reported	2010 Standard Infection Ratio (SIR) Baseline
Gastric surgery	3	2.73
Cardiac surgery	1	*
Orthopedic surgery (hips)	2	*
Orthopedic surgery (knees)	2	*
Laminectomy	6	1.62
Hospital Total	14	2.10

**SIR is not yet established as too few procedures were performed*

The standard infection ratio is determined and published by NHSN. The desired SIR is ≤ 1.0. Our goal is to achieve a SIR of ≤ 1.0 over the next five years.

UCDMC will expand surgical infection surveillance to include more Class 1 and Class 2 procedures over the next five years.

Project 9 (C4) – SSI Prevention				
Year 1 **(DY-6)**	**Year 2** **(DY-7)**	**Year 3** **(DY-8)**	**Year 4** **(DY-9)**	**Year 5** **(DY-10)**
1. Validate TheraDoc software to streamline surgical site infection surveillance. 2. Establish an SSI baseline for reporting/measurement within UCDMC.	3. Install TheraDoc software and train staff to streamline surgical site infection surveillance. 4. Report at least 6 months of data collection on SSI to SNI for purposes of establishing the baseline and setting benchmarks. 5. Report results to the State.	6. Reduce the rate of surgical site infection for Class 1 and 2 wounds by X, where "X" will be determined in Year 2 based on baseline data. 7. Share data, promising practices, and findings with SNI to foster shared learning and benchmarking across the California public hospitals. 8. Report results to the State.	9. Reduce the rate of surgical site infection for Class 1 and 2 wounds by X%, where "X" will be determined in Year 2 based on baseline data. 10. Share data, promising practices, and findings with SNI to foster shared learning and benchmarking across the California public hospitals. 11. Report results to the State.	12. Reduce the rate of surgical site infection for Class 1 and 2 wounds by X%, where "X" will be determined in Year 2 based on baseline data. 13. Share data, promising practices, and findings with SNI to foster shared learning and benchmarking across the California public hospitals. 14. Report results to the State.

Project 10 (Category 4): Hospital-acquired Pressure Ulcer (HAPU) Prevention

Key Challenge: Reducing harm or death to patients seeking care due to HAPU.

The number of pressure ulcer diagnoses increased by about 80% between 1993 and 2006 and hospital-acquired pressure ulcers are associated with up to 60,000 deaths each year in the United States. A pressure ulcer diagnosis may extend the typical hospital stay from about 5 days to 13 or 14 days and increase average costs by $6,800 to $10,000, depending on the circumstances.[10]

Major Delivery System Solution: Reduce avoidable harm or deaths due to HAPU to patients receiving inpatient services.

UCDMC supports a collaborative multidisciplinary team approach to the prevention of pressure ulcers using evidence-based recommendations from the National Pressure Ulcer Advisory Panel (NPUAP). In order to carry-out and achieve this, UCDMC conducts accurate assessments to identify patients at risk for the development of a pressure ulcer through the use of a nurse lead Skin-Wound-Assessment-Treatment (SWAT) team. This team was developed to improve practice on this issue by implementing a system for assessing patients at risk for developing pressure ulcers and improve nursing documentation in the electronic health record (EHR).

The SWAT team at UCDMC utilizes the following methodology:

- On-line mandatory module to teach assessment and documentation;
- Hospital policy and EHR were changed to match assessments;
- Additional nurses were recruited to SWAT team from each inpatient unit; and
- On day of change, SWAT team assists in transition.

The initial results of the SWAT team at UCDMC have been successful. Before the use of the SWAT team, compliance with a single “Yes/No” risk assessment question was found to be 21%, however, after implementation of the SWAT team compliance with a Braden Scale assessment and associated S.K.I.N. bundle charting is at 98%.

[10] University HealthSystem Consortium. (2010). *UHC Imperatives for Quality: Hospital-Acquired Conditions, Pressure Ulcers*.

Project 10 (C4) – HAPU Prevention				
Year 1 (DY-6)	**Year 2 (DY-7)**	**Year 3 (DY-8)**	**Year 4 (DY-9)**	**Year 5 (DY-10)**
1. Implement EHR template for SWAT team for documentation of skin assessment. This allows data capture and tracking for inpatient units and guides process improvement. 2. Develop electronic dashboard to measure and report/share HAPU prevalence to inpatient units for awareness and education.	3. Share data, promising practices, and findings with SNI to foster shared learning and benchmarking across the California public hospitals. 4. Report hospital-acquired pressure ulcer prevalence results to the State.	5. Achieve hospital-acquired pressure ulcer prevalence of less than 2.0%. 6. Share data, promising practices, and findings with SNI to foster shared learning and benchmarking across the California public hospitals. 7. Report hospital-acquired pressure ulcer prevalence results to the State.	8. Achieve hospital-acquired pressure ulcer prevalence of less than 1.5%. 9. Share data, promising practices, and findings with SNI to foster shared learning and benchmarking across the California public hospitals. 10. Report hospital-acquired pressure ulcer prevalence results to the State.	11. Achieve hospital-acquired pressure ulcer prevalence of less than 1.1%. 12. Share data, promising practices, and findings with SNI to foster shared learning and benchmarking across the California public hospitals. 13. Report hospital-acquired pressure ulcer prevalence results to the State.

Appendix A: Category Allocation of Total Computable Payment Amounts

($ in millions)

	DY-6		DY-7		DY-8		DY-9		DY-10	
	$	%	$	%	$	%	$	%	$	%
Category 1 Projects (C1):										
1. Implement and Utilize Disease Management Registry Functionality	9,833,875	50.0%	7,972,500	50.0%	4,679,500	50.0%	3,741,750	50.0%	1,202,875	50.0%
2. Collection of Race, Ethnicity and Language (REAL) Data to Reduce Disparities	9,833,875	50.0%	7,972,500	50.0%	4,679,500	50.0%	3,741,750	50.0%	1,202,875	50.0%
C1 Total:	19,667,750	44.0%	15,945,000	27.6%	9,359,000	15.1%	7,483,500	10.8%	2,405,750	3.5%
Category 2 Projects (C2):										
3. Implement/Expand Care Transitions Programs	5,252,250	25.0%	5,048,750	25.0%	4,657,500	25.0%	2,587,500	25.0%	-	0.0%
4. Conduct Medication Management	5,252,250	25.0%	5,048,750	25.0%	4,657,500	25.0%	2,587,500	25.0%	2,300,000	33.3%
5. Expand Medical Homes	5,252,250	25.0%	5,048,750	25.0%	4,657,500	25.0%	2,587,500	25.0%	2,300,000	33.3%
6. Apply Process Improvement Methodology to Improve Quality/Efficiency	5,252,250	25.0%	5,048,750	25.0%	4,657,500	25.0%	2,587,500	25.0%	2,300,000	33.3%
C2 Total:	21,009,000	47.0%	20,195,000	35.0%	18,630,000	30.0%	10,350,000	15.0%	6,900,000	10.0%
Category 3 Domains (C3):										
Domain 1: Patient/Provider Experience	-	-	3,378,375	25.0%	4,504,500	25.0%	6,756,750	25.0%	7,882,875	25.0%
Domain 2: Care Coordination	-	-	3,378,375	25.0%	4,504,500	25.0%	6,756,750	25.0%	7,882,875	25.0%
Domain 4: Preventive Health	-	-	3,378,375	25.0%	4,504,500	25.0%	6,756,750	25.0%	7,882,875	25.0%
Domain 5: At-risk Populations	-	-	3,378,375	25.0%	4,504,500	25.0%	6,756,750	25.0%	7,882,875	25.0%
C3 Total:	-	0.0%	13,513,500	23.4%	18,018,000	29.0%	27,027,000	39.2%	31,531,500	45.7%
Category 4 Projects (C4):										
7. Improve Severe Sepsis Detection and Management	1,164,625	28.9%	2,329,250	28.9%	4,658,500	28.9%	6,987,750	28.9%	8,152,375	28.9%
8. Central Line-Associated Bloodstream Infection (CLABSI) Prevention	952,875	23.7%	1,905,750	23.7%	3,811,500	23.7%	5,717,250	23.7%	6,670,125	23.7%
9. Surgical Site Infection (SSI) Prevention	952,875	23.7%	1,905,750	23.7%	3,811,500	23.7%	5,717,250	23.7%	6,670,125	23.7%
10. Hospital-acquired Pressure Ulcer (HAPU) Prevention	952,875	23.7%	1,905,750	23.7%	3,811,500	23.7%	5,717,250	23.7%	6,670,125	23.7%
C4 Total:	4,023,250	9.0%	8,046,500	13.9%	16,093,000	25.9%	24,139,500	35.0%	28,162,750	40.8%
Total Computable Amount for All Categories	44,700,000	100%	57,700,000	100%	62,100,000	100%	69,000,000	100%	69,000,000	100%

Appendix B: Category 3 - Population-focused Improvement Reporting Measures

(Addendum to DSRIP Five-Year Plan Submitted February 18, 2011)

Narrative:

On February 18, 2011, the University of California, Davis Medical Center submitted a five-year "California Bridge to Reform" Delivery System Reform Incentive Pool (DSRIP) Proposal for the California Section 1115(a) Medicaid Demonstration. This proposal included ten projects to: (1) improve infrastructure development (Projects 1 and 2); (2) provide innovation and redesign of patient care processes (Projects 3-6); and (3) urgently improve four patient care systems implementing well established evidence of care to improve patient safety and patient quality outcomes (Projects 7-10).

With the submission of this *Appendix B* to our overall DSRIP proposal, we are adding four additional projects within the newly approved Category 3 that focuses upon population health measures. The overall goal within these four projects is to build the capacity to report upon our performance in these population health measures. These four additional projects will be implemented during the last four years (DY-7 through DY-10) of the DSRIP.

These projects will be implemented in each of our UCDMC primary care sites using our patient centered medical home definitions for the populations managed in these practices (listed below):

1. UCDMC Internal Medicine Clinics;
2. UCDMC Pediatric Clinics;
3. UCDMC Family and Community Based Clinics; and
4. UCDMC Primary Care Network Sites:
    a. Auburn Bell;
    b. Auburn Professional;
    c. Capital O Street;
    d. Carmichael;
    e. Davis;
    f. Elk Grove;
    g. Folsom;
    h. J Street;
    i. Natomas;
    j. Placer Center for Health;
    k. Rancho Cordova; and
    l. Roseville.

Project 11 (Category 3) – Patient / Provider Experience:

Key to the success of improving the health of a patient population is the patient's perceptions of the experience with that care. They must feel they have timely access to care, can communicate with their care giver, receive respectful treatment, evaluate their own received care as high quality, and finally feel they participate in medical decision making. UCDMC practices will evaluate each of these areas with standardized questions and utilize this data for process improvement.

Project 12 (Category 3) - Care Coordination:

Successful management of chronic illness requires appropriate systems and practices to sustain health and slow or prevent associated complications. UCDMC will measure for its patient centered medical home population the admission rate for diabetes patients due to complications or poor control. We will also measure admission rates for our populations with CHF and COPD. Establishing this data will allow measurement of success of existing coordination of care practices and design/implementation of new practices for disease management.

Project 13 (Category 3) - Preventive Health:

Accountability for a population's health and wellbeing require proactive system-based methods to promote, sustain, and measure outcomes associated with best practice based preventive health interventions. UCDMC will measure it performance over a range of preventive health tactics including mammography screening for breast cancer, immunization rates for appropriate populations, childhood screening for risk and development of obesity, and tobacco use screening and cessation strategies. Trending and tracking will allow changing in performance improvement strategy to increase preventive screening rates.

Project 14 (Category 3) - At Risk Populations:

It is clear that certain populations with chronic and progressive diseases suffer accelerated morbidity which is associated with increased health care utilization and cost, when evidence based best practice interventions are not utilized. UCDMC will track levels and control of low density lipoproteins in diabetes, levels and control of hemoglobin A1c in diabetes, admission and readmission rates in chronic congestive heart failure, control of blood pressure in patients with chronic hypertension, and use of controller meds in persistent childhood asthma. Because diabetes is so such an important chronic disease both in terms of morbidity and cost, UCDMC will track and report both the Minnesota Community Measure for optimal diabetes care composite and the National Committee for Quality Assurance diabetes care composite. Tracking and reporting of these measures will be used to focus performance improvement activities within all of our UCDMC ambulatory practices.

Project 11 (C3) – Patient / Provider Experience				
Year 1 (DY-6)	**Year 2 (DY-7)**	**Year 3 (DY-8)**	**Year 4 (DY-9)**	**Year 5 (DY-10)**
N/A	1. Undertake the necessary planning, redesign, translation, training and contract negotiations in order to implement CG-CAHPS in DY8.	2. Report results of CG CAHPS questions for "Getting Timely Appointments, Care, and Information" theme for at least data from the last two quarters of the demonstration year to the State. 3. Report results of CG CAHPS questions for "How Well Doctors Communicate With Patients" theme for at least data from the last two quarters of the demonstration year to the State. 4. Report results of CG CAHPS questions for "Helpful, Courteous, and Respectful Office Staff" theme for at least data from the last two quarters of the demonstration year to the State. 5. Report results of CG CAHPS questions for "Patients' Rating of the Doctor" theme for at least data from the last two quarters of the demonstration year to the State. 6. Report results of CG CAHPS questions for "Shared Decisionmaking" theme for at least data from the last two quarters of the demonstration year to the State.	7. Report results of CG CAHPS questions for "Getting Timely Appointments, Care, and Information" theme to the State. 8. Report results of CG CAHPS questions for "How Well Doctors Communicate With Patients" theme to the State. 9. Report results of CG CAHPS questions for "Helpful, Courteous, and Respectful Office Staff" theme to the State. 10. Report results of CG CAHPS questions for "Patients' Rating of the Doctor" theme to the State. 11. Report results of CG CAHPS questions for "Shared Decisionmaking" theme to the State.	12. Report results of CG CAHPS questions for "Getting Timely Appointments, Care, and Information" theme to the State. 13. Report results of CG CAHPS questions for "How Well Doctors Communicate With Patients" theme to the State. 14. Report results of CG CAHPS questions for "Helpful, Courteous, and Respectful Office Staff" theme to the State. 15. Report results of CG CAHPS questions for "Patients' Rating of the Doctor" theme to the State. 16. Report results of CG CAHPS questions for "Shared Decisionmaking" theme to the State.

Project 12 (C3) – Care Coordination				
Year 1 (DY-6)	**Year 2** (DY-7)	**Year 3** (DY-8)	**Year 4** (DY-9)	**Year 5** (DY-10)
N/A	1. Report results of the Diabetes, short-term complications measure to the State. 2. Report results of the Uncontrolled Diabetes measure to the State.	3. Report results of the Diabetes, short-term complications measure to the State. 4. Report results of the Uncontrolled Diabetes measure to the State. 5. Report results of the Congestive Heart Failure measure to the State. 6. Report results of the Chronic Obstructive Pulmonary Disease measure to the State.	7. Report results of the Diabetes, short-term complications measure to the State. 8. Report results of the Uncontrolled Diabetes measure to the State. 9. Report results of the Congestive Heart Failure measure to the State. 10. Report results of the Chronic Obstructive Pulmonary Disease measure to the State.	11. Report results of the Diabetes, short-term complications measure to the State. 12. Report results of the Uncontrolled Diabetes measure to the State. 13. Report results of the Congestive Heart Failure measure to the State. 14. Report results of the Chronic Obstructive Pulmonary Disease measure to the State.

Care Coordination Denominator:

The UC Davis Medical Center primary care clinics are listed on page 36.

Additionally, in order for there to be consistent reporting across DPH systems, the "past 12 months" for all care coordination measures will be defined as the prior demonstration year (July 1 – June 30 of the prior year).[i]

Project 13 (C3) – Preventive Health				
Year 1 (DY-6)	**Year 2** (DY-7)	**Year 3** (DY-8)	**Year 4** (DY-9)	**Year 5** (DY-10)
N/A	1. Report results of the Mammography Screening for Breast Cancer measure to the State. 2. Reports results of the Influenza Immunization measure to the State.	3. Report results of the Mammography Screening for Breast Cancer measure to the State. 4. Reports results of the Influenza Immunization measure to the State. 5. Report results of the Child Weight Screening measure to the State. 6. Report results of the Pediatrics Body Mass Index (BMI) measure to the State. 7. Report results of the Tobacco Cessation measure to the State.	8. Report results of the Mammography Screening for Breast Cancer measure to the State. 9. Reports results of the Influenza Immunization measure to the State. 10. Report results of the Child Weight Screening measure to the State. 11. Report results of the Pediatrics Body Mass Index (BMI) measure to the State. 12. Report results of the Tobacco Cessation measure to the State.	13. Report results of the Mammography Screening for Breast Cancer measure to the State. 14. Reports results of the Influenza Immunization measure to the State. 15. Report results of the Child Weight Screening measure to the State. 16. Report results of the Pediatrics Body Mass Index (BMI) measure to the State. 17. Report results of the Tobacco Cessation measure to the State.

Preventive Health Denominator:

The UC Davis Medical Center primary care clinics are listed on page 36.

Additionally, in order for there to be consistent reporting across DPH systems, the "past 12 months" for all preventive health measures will be defined as the prior demonstration year (July 1 – June 30 of the prior year). [i]

Project 14 (C3) – At-Risk Populations				
Year 1 (DY-6)	**Year 2 (DY-7)**	**Year 3 (DY-8)**	**Year 4 (DY-9)**	**Year 5 (DY-10)**
N/A	1. Report results of the Diabetes Mellitus: Low Density Lipoprotein (LDL-C) Control (<100 mg/dl) measure to the State. 2. Report results of the Diabetes Mellitus: Hemoglobin A1c Control (<9%) measure to the State	3. Report results of the Diabetes Mellitus: Low Density Lipoprotein (LDL-C) Control (<100 mg/dl) measure to the State. 4. Report results of the Diabetes Mellitus: Hemoglobin A1c Control (<9%) measure to the State. 5. Report results of the 30-Day Congestive Heart Failure Readmission Rate measure to the State. 6. Report results of the Hypertension (HTN): Blood Pressure Control (<140/90 mmHg) measure to the State. 7. Report results of the Pediatrics Asthma Care measure to the State. 8. Report results of the Optimal Diabetes Care Composite for at least data from the last two quarters of the demonstration year to the State. 9. Report results of the Diabetes Composite for at least data from the last two quarters of the demonstration year to the State.	10. Report results of the Diabetes Mellitus: Low Density Lipoprotein (LDL-C) Control (<100 mg/dl) measure to the State. 11. Report results of the Diabetes Mellitus: Hemoglobin A1c Control (<9%) measure to the State. 12. Report results of the 30-Day Congestive Heart Failure Readmission Rate measure to the State. 13. Report results of the Hypertension (HTN): Blood Pressure Control (<140/90 mmHg) measure to the State. 14. Report results of the Pediatrics Asthma Care measure to the State. 15. Report results of the Optimal Diabetes Care Composite to the State. 16. Report results of the Diabetes Composite to the State.	17. Report results of the Diabetes Mellitus: Low Density Lipoprotein (LDL-C) Control (<100 mg/dl) measure to the State. 18. Report results of the Diabetes Mellitus: Hemoglobin A1c Control (<9%) measure to the State. 19. Report results of the 30-Day Congestive Heart Failure Readmission Rate measure to the State. 20. Report results of the Hypertension (HTN): Blood Pressure Control (<140/90 mmHg) measure to the State. 21. Report results of the Pediatrics Asthma Care measure to the State. 22. Report results of the Optimal Diabetes Care Composite to the State. 23. Report results of the Diabetes Composite to the State.

At-Risk Populations Denominator:

The UC Davis Medical Center primary care clinics are listed on page 36.

Additionally, in order for there to be consistent reporting across DPH systems, the "past 12 months" for all at-risk populations measures will be defined as the prior demonstration year (July 1 – June 30 of the prior year).[i]

[i] "The past 12 months" is defined as the prior demonstration year (July 1 – June 30 of the prior year) because:

- This definition allows the DPH system's year-end DSRIP report to build on the 6-month DSRIP report by using the same population in the denominator, which is consistent with the program mechanics and therefore, with how the other categories are being reported.
- The visit/admission/discharge in which the numerator event occurred (e.g., LDL recorded, admission for diabetes complications) will have occurred after the 2 visits to primary care, which is consistent with the reason for defining the population as patients for whom the health system has had sufficient opportunity to provide good care and influence good health.