



June | 12

Recommendations to Reduce Potentially Avoidable Complications (PACs) Among CalPERS Members

About Community Campaigns for Quality Care

Community Campaigns for Quality Care is a nonprofit 501c3 organization assisting public agencies, labor-management purchasers, unions, and communities to lower the cost of their health care by improving its quality (<http://communitycampaigns.org>). We help purchasers: a) identify Potentially Avoidable Complications and other patterns of high health care utilization that may reflect quality failures; b) use data as the basis for partnerships with their providers and beneficiaries; and c) convene and brief other health care purchasers, payers, providers and beneficiaries who share a common goal of health care services that are safe, medically appropriate, patient-centered, and affordable to all regardless of race, socioeconomic status, gender or geography.

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Executive Summary

As in other populations studied, Potentially Avoidable Complications (PACs) are common and costly among CalPERS' PPO members, accounting for 21 percent of overall cost of care for 21 episode types. UCSF's data analysis showed that CalPERS spent \$96 million out of \$448 million on Potentially Avoidable Complications among self-insured PPO members. PACs are especially expensive among members with chronic conditions, accounting for 27 percent of total care costs. If PAC rates for the 21 episodes had been at US minimum observed levels, CalPERS would have spent nearly \$30 million less over 2008 and 2009.

The UCSF data analysis offers an important glimpse, but only a glimpse, into the large sums of money that CalPERS and its members spend annually as a result of provider and health system failures to consistently deliver safe, evidence-based, coordinated, and patient-centered care. PACs are not limited to CalPERS' PPO plans or to the 21 episode types included in the analysis. If PACs are 21 percent of total medical plan expenditures, then CalPERS will spend close to \$1.5 billion on PACs this year alone. A modestly effective program to reduce PAC costs by five, ten, and fifteen percent, respectively, in 2013, 2014, and 2015 could generate up to \$500 million in savings, with improved member health.

Transparency is essential for health system performance accountability and improvement, yet, in our fragmented health market, no single entity has the claims volume necessary to develop a complete view of patient experience and cost of care in ways that can reliably inform group purchasing and are clinically actionable by providers, medical groups, facilities, and Accountable Care Organizations (ACOs). Unable to assess value, price-focused negotiations prevail. Such negotiations neglect key elements that drive health costs and premium growth to a large degree: quality, appropriateness, outcomes, and efficiency.

An information platform is needed so that contracted plans and providers can compete on value. Value-based competition means improving population health, reducing illness burden, and lowering overall costs. Without information on the outcomes and cost of care, we are left with vague or unsupported assertions that utilization is up, and prices are up, and so premiums must rise again at double-digit rates.

Meaningful information in and of itself is a key driver of change and is essential to measuring it. With this in mind, we urge CalPERS to:

1. *Require contracted health plans to report Episode of Care (EOC) information, including severity-adjusted expected, PAC, and total episode costs, for both the CalPERS and health plan book of business populations, using a standardized method and format. EOC analysis should be based on a transparent methodology and differentiate severity-adjusted expected services from PACs.*

Rationale: EOC analysis creates shared understanding of current value and identifies needed improvements in quality, coordination, and safety. The National Quality Forum says EOC measurement is necessary for determining if the health care system is achieving its intended purpose and CMS is contracting for an EOC system that will differentiate evidence-based services and PACs.

2. *Require contracted plans to develop severity-adjusted patient budget targets for chronic episode types for CalPERS' members, based on widely accepted clinical guidelines and using a standard methodology.*

Rationale: Budgets would establish high, clear, and specific performance goals for CalPERS' use in performance monitoring and would enable implementation of aligned incentives, either in the form of shared savings or bundled payments.

3. *Require contracted plans to report Ambulatory Care Sensitive Admissions (ACSA) and other high health care utilization associated with the underuse, overuse and misuse of health care services, using a standardized methodology and format.*

Rationale: Underuse contributes to PACs. Overuse and misuse of health care services are PACs. We know from analysis of hospital claims that elective surgery rates vary widely in California. Unusually high utilization should be reviewed to ensure appropriateness and patient-centered care.

4. *Require contracted plans to submit detailed proposals, with metrics and accountability, for reducing PACs, lowering higher than average expected episode costs, ensuring appropriate and patient-centered care, and improving plan-physician group collaboration for the purpose of collecting and reporting pharmacy and wellness data and transferring disease management to physician groups with strong demonstrated disease management capacity. Based on EOC, utilization, and any other health data that CalPERS requires, plans should outline priorities, goals and methods for reducing avoidable utilization of health care services among CalPERS' members that undermines their health, exposes them to unnecessary risks, and inflates cost of care.*

Rationale: Health plans should be held to high, clear and specific standards for increasing value and accelerating delivery system and payment reforms that are widely accepted as essential for improved quality and cost performance.

5. *Launch a structured program of purchaser outreach, beginning with public agencies, to achieve these three key goals:*

- a. *Adoption of a coordinated procurement strategy, based on #1-4 above.*

Rationale: A unified public purchaser position is needed to accelerate development of clinically actionable information on provider and health system performance. California public purchaser market share in California counties is substantial, ranging from a low of 15 percent in San Mateo (without Medi-Cal) to 61 percent in Fresno (with Medi-Cal).

- b. *Public agency-led development of a claims database for quality research and evaluation purposes that are defined by public, not private, interests. Public purchasers' contracted plans would be required to contribute their entire book of business claims, with invitations to large self-insured purchasers to add their data. Aggregated claims would be patient and plan de-identified and used to develop clinically actionable outcome and cost data at the county level and by physician, medical group, facility, and Accountable Care Organization (ACO).*

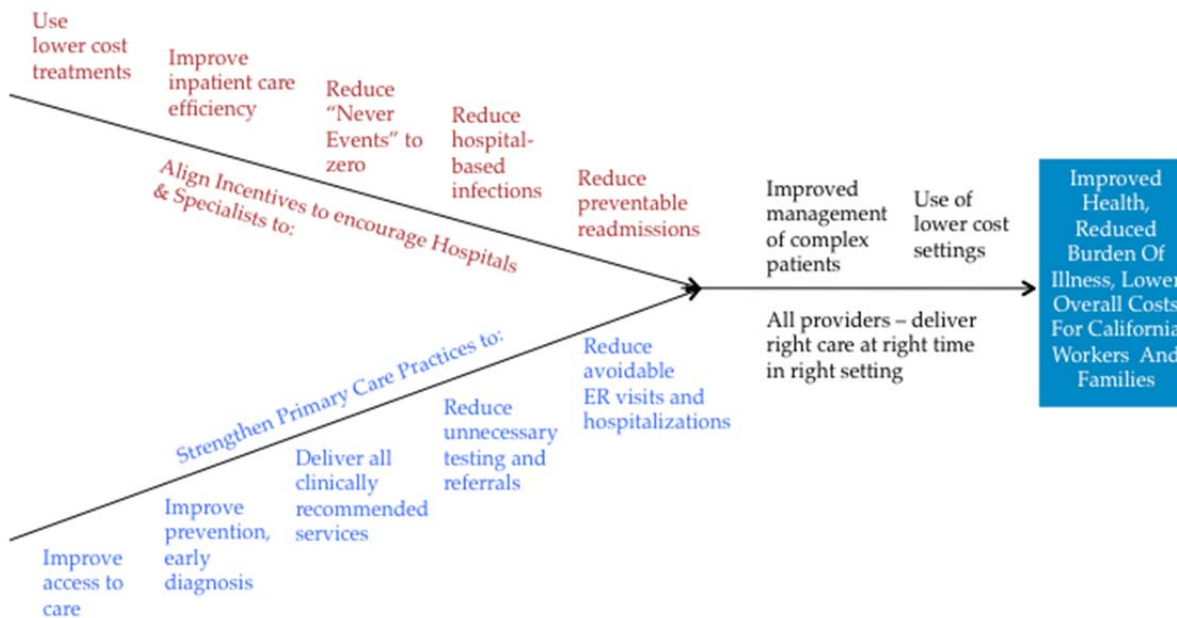
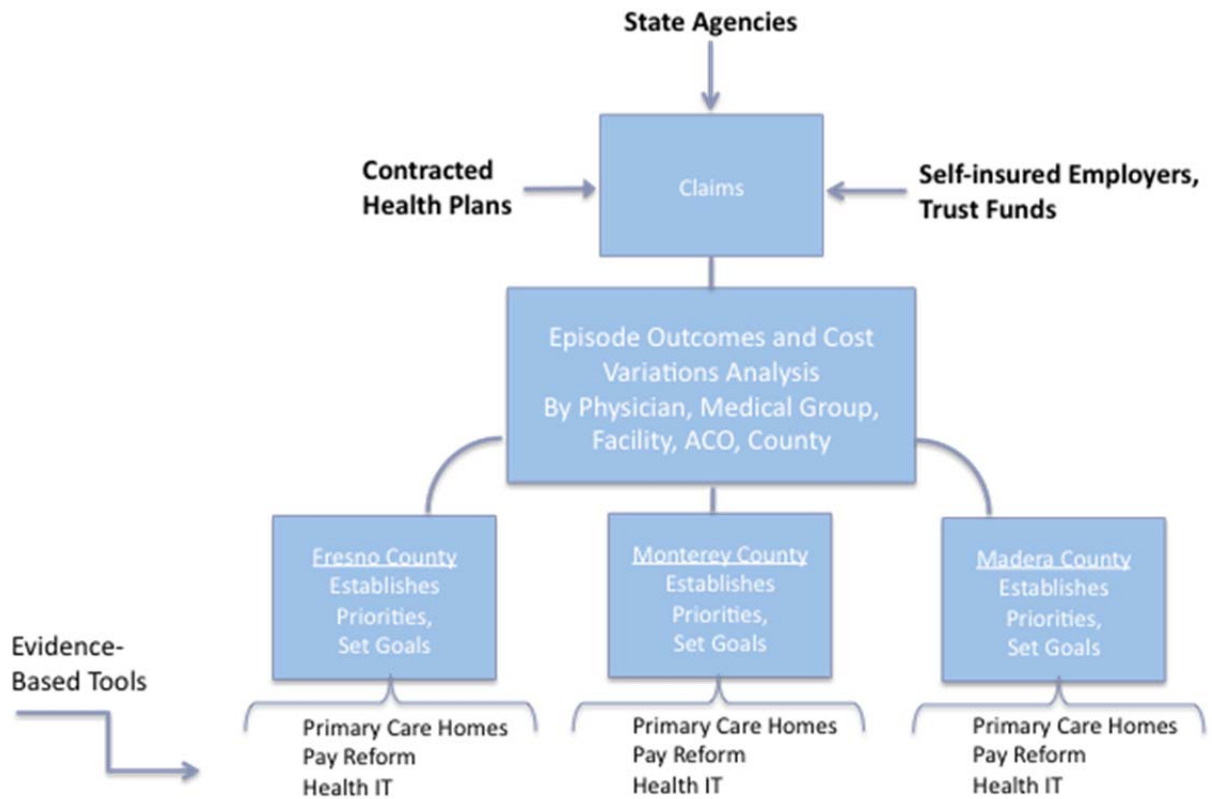
Rationale: Data dispersal in our fragmented health care delivery and purchasing system prevents development of information that CalPERS and its stakeholders need to assess, improve and compete on value. Providers and plans must have access to EOC and other information to support their missions, but should not control or dictate the research and quality assessment purposes to which aggregated claims are put. Data will be shared among participating purchaser, provider and health plan stakeholders, but not publicly reported.

- c. *Regional, multi-payer PAC reduction initiatives using shared data, patient-centered medical homes, and standardized payment methods.*

Rationale: Multi-payer participation in regional initiatives has accelerated the pace of change, leading to reductions in PACs and lowering of health care costs. In the context of purchaser fragmentation, multi-payer participation is recognized as essential for improving the basic incentive structure under which providers deliver patient services. While regional initiatives are varied and reflect local priorities and circumstances, common elements in successful programs include: shared data, multi-party collaboration, greater emphasis on prevention and primary care, and multi-payer adoption of payment methods (not rates) that encourage providers to deliver the right care at the right time to all patients.

Our recommendations align with the key strategies and aims presented by the Health Benefits Purchasing Review Project at the CalPERS January 2012 off-site meeting and are informed by the literature on effective strategies to increase value by preventing PACs, improving health, and using resources more efficiently. They also reflect the input of key stakeholders who advised us to focus recommendations on procurement, avoid being overly prescriptive by focusing on goals (e.g. elimination of PACs), without specifying the methods used to attain them, and to promote standardized approaches to performance measurement and reporting.

The following presents a visual illustration of data aggregation, episode of care and variations analysis, and regional multi-payer initiatives to increase value through evidence-based interventions like patient-centered primary care homes, aligned incentives, and shared data.



Above graph adapted from Center for Health Care Quality and Payment Reform, *How to Create Accountable Care Organizations*, September 7, 2009.

Introduction

Unless health cost trends are stabilized, California state and local governments, agencies, school and special districts face destructive options, such as reducing health benefits or increasing beneficiary contributions. A powerful way for purchasers to reduce costs without eroding benefits or access to care is to identify and reduce unsafe and ineffective services.

Here are the facts:

- California premiums increased 153.5 percent between 2002 and 2011, compared to a 29.3 percent general inflation rate.¹ Looking ahead, the cost of family health insurance is predicted to surpass median family income by 2033.² Ultimately, these costs are paid for by the wages and taxes on the wages of workers who are falling financially farther and farther behind.
- Soaring premiums ride to a large degree on avoidable medical costs incurred by the delivery of unsafe and ineffective services, which the Institute of Medicine calls “waste” and says accounts for 40 percent of US health care spending.³ Waste results in unnecessary injury and death and “detracts from the health, functioning, dignity, comfort, satisfaction, and resources of Americans.”⁴
- Potentially Avoidable Complications (PACs) are a major source of waste. PACs include errors, avoidable ER visits, and hospitalizations of poorly managed chronically ill patients, as well as infections acquired during care, post-discharge readmissions, and other avoidable problems. Patients also receive treatments with no important health benefit (overuse) or they might have declined if fully informed of all treatment options (misuse). Overuse and misuse are PACs, as well, when the “c” in PACs is understood equally to mean complications, care, or costs.
- Elective procedure rates in California varied wildly with geography between 2005 and 2009, signaling potential problems in appropriateness and patient-centered care. Clearlake residents, for example, had elective angioplasty at 15 times the rate of Sonoma residents. At St. Helena Hospital, where most Clearlake residents had the procedure, the median charge for one type of inpatient angioplasty was \$71,166.⁵ Medically unwarranted variations have quality and cost implications.⁶
- For over 20 years, the Dartmouth Atlas Project has documented that utilization and cost variations have more to do with the supply of health care resources than with differences in either population health or prices. In short, more hospital beds, more admissions; more specialists, more procedures; and more CT scanners, more scans, especially with a payment system assuring that “capacity remains fully deployed.”⁷

Health care experts agree that cost stabilization will require fundamental changes in how health care is paid for and delivered.⁸ Areas of agreement include strengthening primary care, removing financial incentives that encourage overuse and underuse, implementing patient-centered models of care delivery that support and enable patients to manage their conditions and make informed medical decisions, and develop and share “person-centered” health data providing actionable information to all stakeholders.

California has long been an incubator for delivery system improvement, yet weaknesses persist. Fee for service payment continues to support overuse of lucrative services while capitation encourages under-

¹ Individual and family premiums were higher in California than in the US. California Health Care Foundation and the National Opinion Research Center, University of Chicago, *California Employer Health Benefits Survey*, December 2011, available at: <http://chcf.org>.

² Richard Young and Jennifer DeVoe, “Who Will Have Health Insurance in the Future? An Updated Projection,” *American Family Medicine*, March/April 2012, Volume 1, No 2: 156-162.

³ Institute of Medicine, *Building a Better Delivery System: A New Engineering/Health Care Partnership*, Washington, D.C.: National Academies Press, 2005.

⁴ Committee on the Quality of Health Care in America, *Crossing the Quality Chasm: A New Health System for the Twenty-First Century*, Institute of Medicine (National Academy Press, Washington, DC), 2001.

⁵ Emily Bazar, “High Rates of Heart Procedures in Clearlake,” *San Francisco Chronicle*, Sunday, September 4, 2011.

⁶ See <http://chcf.org/variations> for more information elective procedure rate variation in California.

⁷ See Dartmouth Atlas, <http://www.dartmouthatlas.org/keyissues/issue.aspx?con=2937>.

⁸ The Commonwealth Fund Commission on a High Performance Health System, *The Path to a High Performance US Health System: A 2020 Vision and the Policies to Pave the Way*, February 2009, The Commonwealth Fund, available at: www.commonwealthfund.org.

service. Personal health status, access to primary care, and use of specialty care and hospitals vary widely throughout the state, often between neighborhoods right next door to each other.

Change may be on the way, enabled by the State's immediate moves to implement provisions of the Affordable Care Act while Accountable Care Organizations (ACOs) are developing with the kind of speed and intensity that was once afforded only tract housing projects. Patient-Centered Medical Homes (PCMHs) are also under development in a growing number of communities, large and small.

Whether delivery systems are re-organized to emphasize prevention and care coordination and whether these improvements not only reduce PACs but also stabilize employee benefit costs will largely depend on how aggressively public purchasers insist on reporting of meaningful information and implementation of strong pay-for-value approaches that align payment with good quality and cost outcomes for a majority of providers' patient populations.

Why public purchasers? Because, collectively, they buy more health care than any segment of the health market, have the great potential for reaching the critical mass needed to accelerate health market change, and are carrying out public mandates to provide care and protect those in need.

Project and Report Overview

In 2011, the CalPERS Board approved a project undertaken by the University of California, San Francisco (UCSF) and Community Campaigns for Quality Care (CCQC) to identify and recommend strategies to reduce PACs among members enrolled in CalPERS' self-insured PPO plans.

Under the direction of Dr. R. Adams Dudley, UCSF processed CalPERS' self-funded PPO claims using Episode of Care software developed by the non-profit Health Care Incentives Improvement Institute (HCI3). UCSF's analytic team focused on PAC frequency and costs among CalPERS' Preferred Provider Organization (PPO) members under age 65, finding that PACs are common and contribute significantly to the total cost of care for 21 episode types. UCSF's final technical report was submitted in March 2012.

Community Campaigns for Quality Care briefed CalPERS' stakeholders about the project, invited their input on PAC reduction, conducted a literature review on solutions, and formulated recommendations. In this final report, we summarize findings from the UCSF final technical report and recommend five steps that CalPERS can take to reduce PACs and other avoidable medical costs. Appendix A contains additional information on HCI3 analytics, including examples of reporting not included in the UCSF analysis. Appendix B describes successful regional initiatives to reduce PACs through incentives and delivery system reform. Appendix C provides further details about HCI3's approach to performance incentives. Appendix D lists CalPERS stakeholders who were briefed or interviewed for the project.

Not all stakeholders offered input, but several themes emerged among those who did. These included suggestions to: a) focus recommendations on HMO and PPO procurement; b) specify desired performance goals without being overly prescriptive about the methods used to obtain them; and c) promote standardized approaches to performance measurement and reporting. General agreement existed that purchasers and consumers need more information about the outcomes and cost of medical care, and most were interested in learning more about risk-adjusted Episode of Care analysis that differentiates evidence-based services and PACs.

PAC Findings In Brief

The UCSF final technical report shows that PACs are common and contribute substantially to costs for the 21 chronic, acute medical, and procedural episodes.

For example, among CalPERS 330,000 self-insured PPO members:

- PACs are 21 percent of total cost of care for 21 episode types, including the seven chronic conditions, three acute events, and 11 inpatient and outpatient procedures listed at right.
- PACs are especially expensive among patients with chronic conditions, accounting for 27 percent of total cost of care.
- Diabetes, coronary artery disease, gastroesophageal reflux disease, and COPD provide the greatest opportunity for savings through PAC reduction.
- Among non-chronic episode types, PAC costs were highest for colonoscopy (9%), pneumonia (40%), angioplasty (15%), gallbladder surgery (15%), and heart bypass (22%).
- The predominant reasons for PAC expenditures varied greatly. For example, 30 percent of the PACs among members who had heart attacks were for patient safety issues while almost 80 percent of the PACs among patients with heart disease were related to co-morbidities.

PAC Rate Analysis for 21 Episodes

Chronic conditions: Asthma, Diabetes, Coronary Artery Disease, Congestive Heart Failure, Chronic Obstructive Pulmonary Disease, Hypertension, Gastro-esophageal Reflux Disease

Acute medical events: Heart Attack, Stroke, and Pneumonia

Inpatient procedures: Bariatric Surgery, Heart Bypass Surgery, Colon Resection, Hip Replacement, and Knee Replacement

Outpatient procedures: Angioplasty, Gall Bladder Surgery, Colonoscopy, Knee Arthroscopy, Hysterectomy, and Pregnancy and Delivery

Findings are based on an analysis of CalPERS' PPO claims for 2008 and 2009. As Table 1 shows, the volume of data processed represented 90,571 "unique patient episodes" for a total PPO medical plan expenditure of \$447,730,736. The PAC portion of this expenditure (costs above "typical") was \$95.73 million. CalPERS' expenses in 2008 and 2009 for 100 percent of PPO claims totaled \$2.5 billion.

It is important to note that many "trigger" claims signaling the start of unique patient episodes were excluded from the analysis for one of several reasons: the episodes were "outliers" (over \$1 million); were "incomplete" (had missing/invalid service dates); or were "cancelled" because the member developed a related but more severe episode (e.g. COPD "cancels" asthma).

The 90,571 episodes analyzed by UCSF thus represent only a subset of patient episodes.⁹ Estimates of CalPERS' total PPO episode and PAC costs could be developed based on the number of CalPERS trigger claims, with adjustments made for episode expenditures falling outside the study period.

⁹ For example, CalPERS' claims for unique patient episodes that began before but extended into the 2008-2009 period, or that began in 2009 but extended into 2010, would not be "complete" and were therefore excluded for analysis purposes.

Table 1: CalPERS PPO PAC Overview (64 years old or younger) for the Two-Year Period 2008-2009

Percent of Costs Attributable to PACs among 21 Episode Types	21%
Percent of Costs Attributable to PACs among Chronic Diseases	27%
Percent of Costs Attributable to PACs among Acute Inpatient Medical Episodes	25%
Percent of Costs Attributable to PACs among Inpatient Procedures	11%
Percent of Costs Attributable to PACs among Outpatient Procedures	11%
Total # of Unique Episodes Analyzed	90,571*
Total Expenditure on 21 Episode Types	\$447,730,736*
Total Expenditure on 21 Episode Types as % of Total CalPERS Expenses (age<65)	18%
Total PAC Expenditure (above “typical”) on 21 Episodes	\$95,733,010*
Conservative Savings Estimate for 21 Episodes (if CalPERS PAC %s were US minimum PAC %s)	\$29,453,856*
Total CalPERS Expenses for 100% of claims (age 64 years old or younger)	\$2,549,905,051*

*All figures assume a two-year period.

Table 2 on the following page reports CalPERS’ total episode and PAC dollars for each of the 21 episode types (including patient financial responsibility) and compares CalPERS’ PAC rates to US average and minimum observed rates, based on HCI3’s national reference database of 4.7 million commercially insured lives age 64 or younger.

PAC reduction and savings opportunity vary by episode. Chronic episodes are most expensive across all components: PAC costs, “typical” costs, and episode costs. Typical costs are “expected” costs, based on patient characteristics (e.g., age, gender, illness severity) and evidence-based medicine.

The single highest PAC cost was for diabetes, at \$19,400,000 (27% of total costs). Next highest PAC costs were coronary artery disease (CAD) at \$12,600,000 (22%), gastroesophageal reflux disease (GERD), at \$12,300,000 (23%), and then chronic obstructive pulmonary disease (COPD) at \$10,200,000 (44%). When CalPERS’ PPO data is compared to US averages, pneumonia (PNE), stroke (STR), coronary artery bypass graft (CABG) surgery, and heart disease (CAD) have substantially higher PAC rates.

Included in the conclusion of UCSF’s report but not shown in Table 2 is the following information:

- Episodes with high PAC to typical cost ratios include diabetes, CAD, GERD, congestive heart failure (CHF), COPD, and asthma.
- Biggest opportunities for savings are reducing chronic PACs related to hospitalizations and lowering severity-adjusted typical costs for chronic episodes, which are substantially higher than the US average.

Table 2: Overview of CalPERS PAC Rates for Two-Year Period, 2008-2009

Episode of Care	# of Unique Episodes	Total Relevant Episode Dollars (PAC & Typical)*	Total PAC Dollars*	CalPERS PAC Costs as % of Total	US Average PAC Costs as % of Total	US Min Observed PAC Costs as % of Total
All CHRONIC MEDICAL	66,711	\$277,588,709	\$ 74,681,501	26.9%		
Congestive Heart Failure	925	\$12,545,494	\$7,147,807	57%	56%	40%
Chronic Obstructive Pulmonary Disease	5,099	\$23,239,537	\$10,176,319	44%	45%	26%
Diabetes Mellitus	12,487	\$72,844,130	\$19,403,347	27%	29%	21%
Asthma	9,105	\$25,670,380	\$7,643,234	30%	29%	22%
Hypertension	15,715	\$31,344,759	\$5,447,756	17%	17%	14%
Coronary Artery Disease	12,393	\$57,959,449	\$12,607,417	22%	14%	9%
GERD (reflux disease)	10,987	\$53,984,960	\$12,255,621	23%	24%	17%
ACUTE MEDICAL	672	\$19,708,593	\$4,877,895	24.8%		
AMI (heart attack)	231	\$8,718,038	\$1,426,169	16%	19%	10%
Stroke	198	\$5,016,658	\$1,079,032	22%	19%	7%
Pneumonia	243	\$5,973,897	\$2,372,694	40%	30%	13%
INPATIENT PROCEDURES	1,114	\$39,867,978	\$4,237,962	10.6%		
Hip Replacement	218	\$7,505,942	\$254,202	3%	8%	5%
Knee Replacement	357	\$13,251,539	\$415,755	3%	9%	4%
Coronary Artery Bypass Graft (CABG) Surgery	93	\$9,110,529	\$2,007,143	22%	19%	11%
Colon Resection	73	\$3,399,577	\$1,013,720	30%	38%	31%
Bariatric	373	\$6,600,391	\$547,142	8%	17%	5%
OUTPATIENT PROCEDURES	22,074	\$110,565,456	\$11,935,652	10.8%		
Colonoscopy	18,054	\$45,878,269	\$4,047,348	9%	13%	8%
Gall bladder	701	\$13,482,723	\$2,081,167	15%	19%	11%
Hysterectomy	483	\$7,233,333	\$529,043	7%	14%	8%
Knee Arthroscopy	1,315	\$12,703,584	\$1,119,243	9%	11%	5%
Angioplasty (PCI)	322	\$14,568,204	\$2,161,486	15%	25%	16%
Pregnancy & Delivery	1,199	\$16,699,343	\$1,997,365	12%	26%	15%
Totals	90,571	\$447,730,736	\$95,733,010	21.4%		

*All figures assume a two-year claims period, including look back and look forward periods.

What Additional Information Is Available to CalPERS From PAC Analysis?

UCSF's final technical report did not include most of the PAC and Episode of Care (EOC) information that HCI3 data analytics makes available. Given our recommendation that CalPERS require Episode of Care reporting by contracted health plans, it is important for CalPERS to understand the reporting capabilities of EOC analysis. These include descriptions of PACs, comparison of average severity-adjusted typical costs, and the relationship between patient risk factor counts and PAC frequency and costs.

This information is especially useful when presented at medical group, facility, and ACO levels, as well as by county or region. To be meaningful, provider level EOC reporting requires analysis of at least 20 episodes per provider. The greater the number of episodes analyzed, per provider, the easier it is to discern recurring problems that need attention. For this reason, data aggregation across contracted health plans offers the best opportunity to assess and improve performance.

See Appendix A for data and reporting examples drawn from the HCI3 national reference database of 4.7 million commercially insured lives 64 years or younger.

- **Descriptions of the most frequent and costly PACs by episode type.** Examples include uncontrolled bleeding during surgeries, hospital-acquired infections, adverse drug events and inpatient falls.
- **Classification of PACs by "type,"** showing at what level improvements are needed: provider clinical performance (Type 1); coordination of services (Type 2); and safety systems/protocols within institutions (Type 3).
- **PACs by setting.** How many PAC hospitalizations occurred among chronically ill members? How many PAC readmissions occurred among members with heart attacks? At what cost?
- **Comparison of average "typical" costs by episode.** High average typical costs may indicate unnecessary or duplicated services. In addition to PACs, higher than average typical costs can also be targeted for cost reduction. Average typical costs reflect patient severity.
- **Patient severity comparisons.** Are CalPERS' PPO members more or less severely ill than HMO members? Patient-severity indices enable fair comparison of EOC and PAC costs across plans and providers.
- **The relationship between member risk factor counts, PAC occurrences, and PAC costs.** What percentage of members with high risk factor counts will experience at least one PAC? This enables identification of good candidates for disease management/wellness programs.

The analytics created by HCI3 are designed to:

1. **Provide actionable information** so providers, health systems, plans, and purchasers know the frequency and cost of PACs among *their* patients/beneficiaries as a guidepost for improvement.
2. **Create strong incentives** by building severity-adjusted patient budgets that:
 - a) include resources for improved population management, such as patient registries or nurse care managers; and
 - b) a performance bonus ranging from 10 to 30 percent of case rates for providers that avoid PACs.
3. **Increase transparency** by reporting outcomes and costs (not just clinical processes or standard utilization metrics like hospitalizations per 1000 in the population).

Policy and Program Recommendations

Meaningful information provided to all stakeholders is widely accepted as essential for health system accountability and improvement.¹⁰ Our recommendations thus focus on development of shared – *not publicly reported* – Episode of Care information and population-based analysis of health care utilization, including Ambulatory Care Sensitive Admissions (ACSAs) and medically unexplained variations in rates of elective procedures, office visits, and diagnostic testing. The National Quality Forum (NQF) has recognized the importance of both types of analysis, stating in 2009 that: “An episode of care perspective is *required* to determine if the delivery system is achieving its intended purpose,” namely to “...improve health, reduce illness burden, and maximize the value of individual and societal resources allocated to healthcare.” NQF also noted that EOC analysis “*must* be balanced by population-based per capita resource use measures” in order to improve appropriateness and patient-centered care.¹¹ Here’s why.

Episode of Care (EOC) measurement has several major advantages over clinical process measures. First, it reveals a patient’s complete interaction with the health care system over a defined time period. Especially in fragmented delivery systems, measurement approaches should foster comprehensive knowledge of, and accountability for, patient experience, rather than focusing exclusively on specific processes at specific time points. EOC achieves this standard. Second, by documenting outcomes and costs *together*, EOC enables comparative assessment of value. Finally, by quantifying PAC dollars, EOC performance measurement enables implementation of shared savings or bundled payments that can reward providers for safe, effective (e.g., evidence-based) and efficient practice.

Variations analysis is an essential complement because, while EOC reveals outcomes and costs *within* episodes, it does not address whether episodes are medically appropriate or reflect patients’ treatment choices. Since it is well established that utilization varies widely and that variations have more to do with differences in local capacity and quality of care than with medical science, population health, or patient preferences, it is especially important to identify and examine utilization patterns that are substantially higher than adjusted state averages.¹² When PACs are equally understood to mean *Complications*, or *Care*, or *Costs*, identification of high, possibly aberrant, utilization is an important PAC reduction and quality assurance strategy. No matter how flawlessly performed, procedural episodes should be regarded as PACs *in their entirety* if patients would not have chosen them if fully informed.

The UCSF analysis revealed that 21 percent, or \$96 million, of the \$448 million that CalPERS’ PPO plans spent on the 21 episode types was for PACs. The analysis offers an important glimpse, but only a glimpse, of the vast sums of money that CalPERS spends as a result of health system failures to deliver safe, effective, coordinated, and patient-centered care. PACs are neither limited to the 21 episode types included in the UCSF analysis nor to its self-insured PPO plans. Assuming that PACs are 21 percent of total medical spend, even a modestly effective PAC prevention program reducing PAC costs by five, ten, and 15 percent, respectively, in 2013, 2014, and 2015 could generate up to \$500 million in savings, with improved member health. With this in mind, we recommend that CalPERS take these steps:

1. ***Require contracted plans to report to CalPERS and to their contracted providers Episode of Care (EOC) information including severity-adjusted expected, PAC and total episode costs, using a standardized method and format.***

EOC reports should be based on a fully transparent methodology so that all stakeholders can examine and develop confidence in the analysis. EOC information should be provided for the CalPERS population and for contracted plans’ entire book of business claims and should differentiate severity-adjusted expected

¹⁰ See L.L. Leape, Transparency and Public Reporting Are Essential for a Safe Health Care System, The Commonwealth Fund, March 2010; The Robert Wood Johnson Foundation, Does publicly reporting performance help improve health care quality? Issue Brief, July 2011; Judith H. Hibbard, Jean Stockard and Martin Tusler, “Does Publicizing Hospital Performance Stimulate Quality Improvement Efforts?” *Health Affairs*, Mar/April 2003, Volume 22, No 2: 84-94.

¹¹ Italics were added in the above quote for emphasis. See National Quality Forum, Patient-Focused Episode of Care – Measurement Framework: Evaluating Efficiency Across Patient-Focused Episodes of Care, 2009, available at www.qualityforum.org/Projects/Episodes_of_Care_Framework.aspx.

¹² See The Dartmouth Atlas Project (www.dartmouthatlas.org) for more on medically unwarranted utilization and cost variations in the Medicare population and on supply-sensitive and preference-sensitive care.

episode costs, based on clinical guidelines, from PACs. When case volume permits, EOC information should be reported at medical group, facility, ACO (or other integrated care system) levels, as well as by an agreed upon geography, such as county, or health service area.

Rationale:

- Episode of Care reporting creates meaningful transparency and would strengthen CalPERS position in rate negotiations by enabling it to “peer under the capitation hood” to see the frequency and cost of PAC events that contribute to premium growth. A standardized EOC methodology and reporting format would enable fair comparison across contracted health plans, providers, ACOs, and other integrated care systems.
- Experts recognize that a public domain EOC performance measurement system is essential for advancing effective and efficient clinical practices and rewarding high-value care, especially in fee-for-service delivery systems.¹³ Providers need to know the episode outcomes and costs for *their* patients in order to increase value and to compete on the basis of it. Currently, providers lack this information due to fragmented data systems, fragmented service delivery, and fragmented purchasing.
- CMS has recently announced its decision to contract with HCI3 and Brandeis University to develop a public domain EOC system covering 80 percent of US medical spending. Improvements have also been made to the analytics, allowing for analysis of concurrent episodes in patients. The new system is intended to avoid the flaws that CMS found in current episode groupers when it tested them for use in evaluating and rewarding Medicare providers.¹⁴
- Unless contracted plans report entire book of business EOC information, neither CalPERS nor network providers will know: a) what is possible to achieve for patients; b) which providers are delivering high-value care; and c) improvement opportunities (e.g., recurring problems/care defect patterns).

2. *Require contracted plans to develop severity-adjusted patient budget targets for chronic episode types for CalPERS members, using a standard methodology.*

New technologies enable severity-adjusted budget targets (aka patient budgets) to be individually established for each patient for any of the 21 episode types. These budgets would represent “ideal” provider and health system performance, meaning delivery of all clinically recommended services, per widely accepted clinical practice guidelines, no utilization of unnecessary services, and zero PACs.

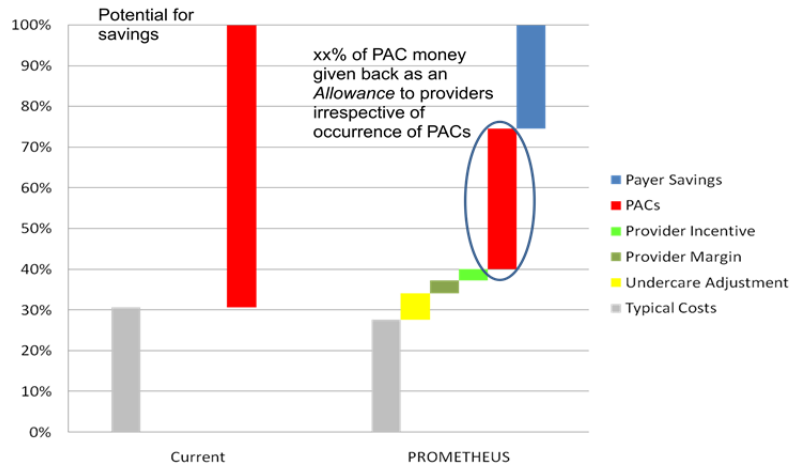
As shown in the figure below, budgets can also be built to include care management fees or performance bonuses for PAC reduction. For example, by adding a 10 percent margin, patient budgets can include resources for improved patient management, such as hiring nurse care managers or implementing patient registries to collect and track how well the practice is meeting, and helping patients meet, treatment and self-management goals. Such systems identify gaps in care, generate reminders that certain elements of care are due, and show which patients need help to achieve better disease control.

Additional money can also be added for PACs that providers would retain as income when they reduce PACs below this “allowance” amount. Budget targets can thus be used to implement shared savings programs (all financial upside) or bundled payments (upside/downside performance risk).

¹³ In addition to the National Quality Forum report on a patient-centered episode of care performance framework, see Richard F. Averil et al, Developing a Prospective Payment System Based on Episode of Care,” *Journal of Ambulatory Care Management*, September 2009: Vol 32, No 3: 241-251; Robert S. Kaplan and Michael E. Porter, “The Big Idea: How to Solve the Cost Crisis in Health Care,” *Harvard Business Review*, 2011, at: <http://hbr.org/2011/09/how-to-solve-the-cost-crisis-in-health-care/ar/pr>; Michael W. Painter and Michael E. Chernew, *Counting Change: Measuring Health Care Prices, Costs, and Spending*, Robert Wood Johnson Foundation, March 2012; Delivery System Reform: Action Steps and Pay-for-Value Approaches, a joint perspective from Intermountain Healthcare, Kaiser Permanente, and Mayo Clinic, at: <http://xnet.kp.org/newscenter/media/DeliverySystemReform.pdf>.

¹⁴ The Centers for Medicare and Medicaid Services has published a number of peer-reviewed papers that delineate in a detailed way the inherent flaws it sees in current Episode Treatment Groupers and Medical Episode Groupers. See Thomas MaCurdy et al, *Evaluating the Functionality of the Symmetry ETG and Medstat MEG Software in Forming Episodes of Care Using Medicare Data*, August 2008: (Acumen, LLC: Burlingame, CA).

Figure 1: Example of HCI3 Budget Targets/Patient Budgets/Bundled Payments



Rationale:

- EOC analysis is retrospective, calculating PAC, typical (expected) and total episode costs for completed episodes (a chronic episode is completed after 12 months). Budget targets are prospective, severity-adjusted, and based on clinical practice guidelines. They show what episodes *would* cost, based on underlying fee schedules, if providers delivered evidence-based care and prevented PACs.
 - Budget targets would establish high, clear, specific, and patient-centered performance goals, based on science and severity-adjusted to reflect each patient's age, gender, and health status. They enable real-time monitoring of actual-to-expected costs. Plans and providers can use this information to improve patients' experience and cost of care *during* patient chronic episodes and implement shared savings or bundled payments to align financial incentives with good quality/cost outcomes.
 - CalPERS' greatest savings opportunities lie not only in reducing chronic PAC hospitalizations but also in lowering average chronic care typical costs. Use of severity-adjusted budget targets, in combination with incentives, would strongly encourage PAC prevention, as well as reduction of unnecessary services.
- 3. *Require contracted plans to report age and gender-adjusted Ambulatory Care Sensitive Admissions (ACSA) and other high health care utilization associated with the underuse, overuse and misuse of health care services.***

Underuse contributes to PACs; overuse and misuse are PACs. ACSAs include a broader set of potentially avoidable admission types than those included in the UCSF data analysis. When ACSAs and rates of elective procedure, tests, and office visits are much higher than adjusted state averages, they should be investigated to evaluate and improve ambulatory care quality and to ensure delivery of appropriate and patient-centered care.¹⁵ Health plan reporting of high rates of ACSAs and other types of utilization is important because research has consistently shown that utilization and cost variations have more to do with the quality and availability of ambulatory care, the supply of health care resources (more specialists, more procedures), and the treatments that providers prefer than with differences in population health status, medical science, patient preferences, or prices.¹⁶

Reporting should be on the CalPERS population and on the health plan's entire book of business claims, with identification of high utilizing providers and communities.

¹⁵ See Agency for Healthcare Research and Quality, www.qualityindicators.ahrq.gov/pqi_overview.aspx.

¹⁶ See Dartmouth Atlas Project, www.dartmouthatlas.com, for more on supply-sensitive services include physician visits, diagnostic tests, and hospitalizations. Preference-sensitive care includes treatments for conditions for which more than one option exists, each with risk/benefit tradeoffs. Treatment should reflect the choices made by *informed* patients.

Rationale:

- Recent research by Stanford health policy professor, Laurence Baker, found extreme variations in elective surgery rates in California between 2005 and 2009.¹⁷ Extreme variations have huge quality and cost implications, yet most commercial health plans are not using population-based analysis to identify high utilization for medical appropriateness review.
 - The UCSF analysis showed that reducing CalPERS *chronic* PAC hospitalizations is one of the biggest savings opportunities, but the analysis was limited to just seven chronic conditions. It would be far better to identify all potentially avoidable ACSAs among CalPERS members for attention and action. Many health care experts and organizations highlight the importance of ACSAs reporting. Milliman, for example, recommends that ACSAs become a “dashboard” metric for health plan and disease management (DM),” noting that ACSAs are an important metric for analyzing effectiveness of DM.¹⁸
 - Broad monitoring of utilization patterns will help to ensure that improved utilization in some areas of the health care system does not result in ballooning utilization in others, especially in the context of payment methods helping to ensure full deployment of existing delivery system capacity.
- 4. *Require contracted plans to submit detailed proposals, with metrics and accountability, for reducing PACs, lowering higher than average expected episode costs, and ensuring delivery of appropriate and patient-centered care, based on EOC, utilization and any other health data that CalPERS requires plans to report. Proposals should outline specific priorities, goals and methods for:***
- Reducing PAC rates and dollars;
 - Ensuring that elective procedures reflect the choices of informed patients and are not driven by provider preferences or supply;¹⁹
 - Implementing *strong* incentives that align provider payment with effective and efficient practices.
 - Providing team-based and integrated delivery system care options;
 - Improving collaboration between contracted plans and physician groups so that:
 - Real-time prescription medication information is provided to physicians, who need to know immediately, not six months later, whether their patients are filling and taking their medications.
 - Disease management and wellness activities are embedded in and supported by clinical practices and become permanent improvements in local health promotion and care delivery.
 - Outcomes measures are collected and reported to CalPERS for common and expensive chronic conditions (e.g., percent of patients with blood pressure under control).
 - Wellness data (e.g., weight, physical activity) are collected and reported to CalPERS by medical group and employer.²⁰

By strong incentives, we mean: a) removal of incentives to deliver too much or too little care; b) the transfer of risk for effective and efficient clinical practice to providers; and c) standardization of payment methods (not rates) to fundamentally improve the incentives under which community providers deliver care.²¹

¹⁷ Vanessa Hurly and Shannon Brownlee, All Over the Map: Elective Procedure Rates in California Vary Widely, Research Summary, California Health Care Foundation, September 2011, available at www.chcf.org/variation.

¹⁸ Kathryn Fitch and Kosuke Iwasaki, Ambulatory-care-sensitive admission rates: A key metric in evaluating health plan medical management effectiveness, January 2009, Milliman Research Report, available at: www.milliman.com.

¹⁹ A systematic review of the effects of shared decision-making tools found a 23 percent reduction in surgical interventions among patients using them, with better functional status and patient satisfaction. See A.M. O'Connor et al., “Patient Decision Aids for Balancing the Benefits and Harms of Health Care Options: A Systematic Review and Meta-Analysis,” May 2004, <http://www.ihl.org/IHI/Topics/Improvement/ImprovementMethods/Literature?PatientdecisionaidsforbalancingthebenefitsandharmssofhealthcareoptionsAsystematicreviewandmetaanalysis.htm>, cited in Donald Berwick, “What ‘Patient-Centered’ Should Mean: Confessions Of An Extremist,” *Health Affairs*, 28, no. 4 (2009), published online, May 19, 2009, available at: <http://content.healthaffairs.org/content/28/4/w555.full.pdf>.

²⁰ Based on a March 27, 2012 telephone interview with Wells Shoemaker, M.D., California Association of Physician Groups.

²¹ A recent Congressional Budget Office research brief summarizing evaluations of 10 major CMS demonstration projects found that only the bundled payment pilot for CABG surgery achieved meaningful savings. The other three value-based payment pilots (shared savings and P4P) achieved little or no savings while six disease management or care coordination pilots left spending unchanged or actually increased it when program fees were included. The CBO concluded that the programs faced “significant challenges in overcoming the incentives inherent in Medicare’s Fee for Service payment system, which rewards providers for delivering more care

Rationale:

- Contracted plans should be held to high, clear, and specific standards for accelerating changes in health care delivery and payment, emphasizing elements of change – enhanced primary care and prevention, coordination, shared decision-making, removal of incentives to deliver too much or too little care – that are regarded as essential for improved health, patient experience, and cost of care.²²
 - Practice-based disease management and community-based health promotion are usually the most effective ways to support improved health outcomes and behaviors, thus reducing PACs. Research shows such programs are better and longer lasting than those offering telephone contact.²³
 - California Association of Physician Group (CAPG) members with demonstrated population health management capacity have expressed interest in working with local agency employers and members making these points:
 - *We have effective disease management and stratified, complex care management programs with local traction. Remote plans do not. Work directly with us.*
 - *We know the local business scene and the specific healthcare dynamics in our communities. Let us interact with local unions as neutral clinicians and advisors regarding benefits choices.*
 - *Our knowledge of employee health and utilization is far more accurate than remote plans and our compact with physicians is far stronger.*²⁴
- 5. Launch a structured program of purchaser outreach, beginning with public agencies, to advance three important goals:**
- A. ***Adoption of a coordinated health plan procurement strategy*** so that purchasers are united in requiring: a) contracted plan EOC and utilization variations reporting; b) accelerated development of clinical/delivery system integration; and c) aligned financial incentives so a large portion of provider income is based on achieving good quality/cost outcomes.
 - B. ***Public agency-led development of a publicly, not privately, controlled claims database*** into which contracted plans would be required to contribute book of business claims, with invitations to other self-insured purchasers to add their data because the greater the claims volume the more useful the analyzed data. Claims would be patient and plan de-identified and used for quality of care research and evaluation purposes defined by public rather than private, interests.
 - C. ***Public agency-led implementation of regional, multi-payer PAC reduction initiatives*** using shared data, patient-centered primary care homes, and standardized payment methods (not rates).²⁵

Rationale:

A. Adoption of coordinated health plan procurement strategy

but does not pay them for coordinating with other providers.” See CBO, “Lessons from Medicare’s Demonstration Projects on Disease Management, Care Coordination, and Value-Based Payments,” January 18, 2012, at: www.cbo.gov/publication/42860.

²² The Commonwealth Fund Commission On A High Performance Health System, *The Path to a High Performance U.S. Health System: A 202 Vision and the Policies to Pave the Way*, February 2009, The Commonwealth Fund, available at: www.commonwealthfund.org/Publications/Fund-Reports/2009/Feb/The-Path-to-a-High-Performance-US-Health-System.aspx?page=all. See also A. Shih, K. Davis, S. Schoenbaum, A. Gauthier, R. Nuzum, and D. McCarthy, *Organizing the U.S. Health Care Delivery System for High Performance*, August 2008, The Commonwealth Fund, available at: www.commonwealthfund.org.

²³ Jack Meyer and Barbara Markham Smith, *Chronic Disease management: Evidence of Predictable Savings*, November 2008, Health Management Associates.

²⁴ Summary of physician group-local employer discussions provided by Wells Shoemaker, MD, CAPG.

²⁵ The Commonwealth Fund has recently proposed 50 to 100 “health improvement communities” that would embrace payment reform, care coordination, and payment reform at the community level to dramatically improve outcomes while lowering overall costs. The Commonwealth Fund Commission on a High Performance Health System, *The Performance Improvement Imperative: Utilizing a Coordinated Community-based Approach to Enhance Care and Lower Costs for Chronically Ill Patients*, April 2012.

- A unified, public purchaser position is needed to accelerate delivery system and payment reforms regarded as necessary for improved outcomes, reduced illness, and lower costs.
- Combined California public purchaser market share is substantial. Depending on whether Medicaid is included, public purchaser market share ranges from a low of 15 percent in San Mateo to a high of 61 percent in Fresno. Without active collaboration, public agencies' combined position in the healthcare market is under-utilized as a force for system-wide performance improvement and cost containment.

Table Three: Public Purchaser Market Share In Selected California Counties

County	County Population	Medi-Cal 2010	Com Insured Pop (CIP) Under 65	St & L Gov't Plan Members	Medicare Enrollees	St & L Gov't CIP Market %	St & L CIP, Medi-Cal Market %	St & L CIP, Medi-Cal, Medicare Market %
Alameda	1,582,420	243,352	946,102	157,753	200,007	17%	34%	43%
Contra Costa	1,079,160	137,511	682,896	107,488	137,053	16%	40%	41%
Fresno	959,318	307,147	354,544	96,095	121,833	27%	61%	67%
Kern	844,642	232,379	348,404	84,608	107,269	12%	47%	55%
Kings	156,172	35,073	69,970	15,644	19,833	22%	48%	56%
Los Angeles	10,473,535	2,382,451	4,609,959	1,049,134	1,330,139	22%	49%	57%
Monterey	438,459	93,797	202,362	43,920	55,684	22%	46%	55%
Orange	3,182,171	433,922	1,792,058	318,758	404,136	18%	34%	44%
Riverside	2,161,163	383,285	1,088,489	216,484	274,468	20%	41%	50%
Sacramento	1,453,495	316,277	760,410	145,597	184,594	19%	43%	51%
San Diego	3,239,223	422,393	1,904,818	324,473	411,381	17%	32%	42%
San Francisco	859,658	130,945	516,406	90,212	109,176	17%	34%	44%
San Joaquin	698,202	173,098	321,943	69,939	88,672	22%	49%	57%
San Mateo	756,892	72,632	507,903	75,818	96,125	15%	25%	36%
Santa Clara	1,890,909	258,598	1,173,062	189,412	240,145	16%	31%	41%
Stanislaus	531,364	132,589	240,967	53,227	67,483	22%	50%	58%
Sonoma	494,675	60,649	306,691	49,552	62,824	16%	30%	40%
Ventura	848,331	124,449	489,701	84,977	107,738	17%	34%	44%

B. Public agency-led development of a claims database for quality research and evaluation purposes that are defined by public, not private, interests.

- Data dispersal in our fragmented health care delivery and purchasing system prevents development of provider-specific Episode of Care outcome and cost information. Colonoscopy, for example, was the *only* episode type for which CalPERS had sufficient numbers to meet the 20 episodes per provider threshold for meaningful provider-level analysis, and then for only a small number of CalPERS providers. *Most colonoscopy providers had only one or two CalPERS members as patients. From an improvement standpoint, it is not enough for a provider to know the episode outcomes and costs for only two of, say, 200 patients. That provider would want and need to know average severity adjusted typical (expected) cost of care and outcomes (PAC rates) for as many patients as possible in order to assume responsibility (and be rewarded) for improving both.*
- Even contracted plans will not have enough claims volume on their own to report EOC information for all episode types and providers. Claims aggregation across contracted plans would generate the most clinically actionable information that CalPERS, plans and providers can use to increase and reward value.
- Legislative efforts to establish a California All Payer All Claims database for quality assessment and reporting failed several years ago, even though 14 states have enacted similar legislation.²⁶ Voluntary data aggregation in California has been slow to develop, restricted as to use, contested because of public reporting, or stalled.

²⁶ National Association of Health Data Organizations, *All-Payer Claims Databases 2.0: The Next Evolution*, July 2011.

- California providers and plans must have access to EOC and other quality/efficiency information to advance their missions, but they should not be able to control the research and quality assessment purposes to which aggregated claims are put. Data analyses would be shared among purchaser, provider, and health plan stakeholders, but not publicly reported.
- The California Hospital Association's recent decision to withdraw from the California Hospital Reporting and Assessment Task Force (CHART) makes its future now highly uncertain. It is important that purchasers have information, as well as providers and plans, on the quality and value of hospital services, which are key cost drivers in health care.

C. *Regional multi-payer PAC reduction initiatives, using shared data, medical homes, and standardized payment methods.*

- Fragmented purchasing means no single payer captures a large enough percentage of PPO providers' patients to change the perverse incentives under which such providers deliver care. Just as EOC information developed for only two of a provider's 200 patients is of limited value from the standpoint of improving delivery systems/protocols (see discussion above), paying differently for only two of a provider's 200 patients does not align incentives fundamentally. If that same provider has an opportunity to retain as performance bonus a large percentage of current PAC dollars for 50 or 75 or 100 patients, then incentives for effective and efficient delivery of care are much more strongly aligned.
- Examples from around the country show, first, that changing the incentive structure in a health care market requires *multi-payer* participation and, second, that multi-payer participation in aligned incentive programs accelerates the pace of change, leading to improved clinical practices, steady reductions in PACs, and lower overall costs. See Appendix B for successful initiatives, many of which include these core elements:
 - a. *Multi-payer support for primary care medical homes*, where a substantial and growing evidence of efficacy (improved care, improved health, lower costs) exists;²⁷
 - b. *Support for clinical practice transformation* through practice participation in structured learning collaboratives or provision of coaches;²⁸
 - c. *Community health teams providing care coordination, health and wellness coaching, and behavioral health counseling* because research shows such programs are better and longer lasting than remote Disease Management (DM) programs (see footnote 21),
 - d. *Care management information systems* that authorized providers can access to identify good candidates for disease management and to examine and improve utilization patterns, guideline adherence, and outcomes.
- By pooling administrative and clinical data with funds for analysis, regional stakeholders can achieve economies of scale and make patient safety and quality improvement "the tide that lifts all boats, not a proprietary trade secret." With substantial overlap in contracted plans' provider networks, it makes far more sense for multiple payers to row in the same direction by standardizing payment methods (not rates) and contributing toward regional care coordination and health information systems to increase and reward value.²⁹

²⁷ See Kevin Grumbach and Paul Grundy, *The Outcomes of Implementing Patient-Centered Medical Home Interventions: A Review of the Evidence on Quality, Access, and Costs from Recent Prospective Evaluation Studies*, Patient-Centered Primary Care Collaborative, available at: www.pcpccnet/content/2009-pcpcc-pilot-guide-0.

²⁸ Kevin Grumbach and James W. Mold, "A Health Care Cooperative Extension Service: Transforming Primary Care and Community Health," *JAMA*. 2009; Vol 301, No 24: 2589-2591.

²⁹ Katherine A. Schneider, "Overcoming Barriers to Improved Collaboration and Alignment: Cultural Issues," *Partners in Health: How Physicians and Hospitals Can Be Accountable Together*, eds, Francis J. Crosson and Laura A. Tollen (San Francisco: Jossey Bass, 2010): 169-184.

Moving From Price-Focused to Value-Based Contracting and System Reform

CalPERS' greatest need is for timely and reliable information on the medical outcomes and cost of care of its beneficiaries, including which providers and plans deliver the best value (e.g., best outcomes at reasonable costs). Currently, CalPERS lacks this information, as do CalPERS' contracted health plans and providers.

The only way for CalPERS to know which physicians, groups, facilities, ACOs, and plans deliver the best value is to require that they aggregate their claims for EOC and other quality evaluation purposes that are defined by public rather than private interests. While commercial health plans have resisted data aggregation for publicly defined quality research and improvement purposes, it is essential for provider and health system performance transparency and accountability, a key goal of CalPERS and of health care reform generally.

Patient and plan de-identified EOC information by physician, group, facility, and ACO does not have to be publicly reported, but it must be shared so that key health plan and provider stakeholders have clinically actionable information to serve their missions and to increase and compete on value, not just price. In short, EOC information in and of itself is a key driver of change and is essential to measuring it.

Accelerating the pace of change, however, will require not just EOC and other utilization and cost information but also multi-payer implementation of standardized payment methods that align provider payment with good quality and cost outcomes. *In order to improve clinical practice patterns now run amok in fee for service, margin opportunity needs to be tied to good quality/cost outcomes for a substantial number of providers' patients, not just a few.*

CalPERS could take these steps to explore development of a coordinated public agency procurement strategy, development of a public agency-controlled data warehouse, and implementation of multi-payer regional PAC reduction initiatives by:

1. Identifying and meeting with public agency purchasers to share data on PAC, typical, and episode costs and to discuss a common procurement position on EOC reporting as essential for assessing value and promoting competition based on it.
2. Reviewing regional opportunities for collaboration, based on public purchaser market share, quality of care issues and concerns, presence of interested providers or plans, and other considerations.

The project scope of work includes CCQC preparation of a work plan for developing a consensus on recommended strategies. We are prepared to review, further explain, and discuss the recommendations contained in this report with health plan, provider, and constituency group stakeholders and to assist CalPERS in anyway deemed feasible.

Conclusion

For the first half of the 20th century, most Americans at one time or another went without needed medical care because they could not afford it. In the second half, many who have come into contact with the health care system have experienced PACs or had something done to them for no sound medical purpose. With tens of millions of Americans still uninsured, many more losing access to affordable care, and wide medically unwarranted variations in quality and cost, proponents of the Patient Protection and Affordable Care Act have rightly called the US health care system “broken.”

CalPERS’ developing agenda for change is aggressive and flexible, as it should be for a State of 38 million very diverse people. The growing recognition that delivery system improvements and aligned incentives are essential for PAC reduction and cost containment, however, does not mean that these changes will be either inevitable or rapidly implemented.

For those changes to occur, purchasers and providers need shared data to motivate and support improvement. Purchasers’ highest priority must be access to timely information they can use to evaluate the quality, calculate the true cost, and assess the value of the care they buy, and then to use their purchasing power to insist on steadily improving value.

Health information technology is responding with information tools unheard of when the Institute of Medicine first sounded the alarm that improvements are urgently needed in the safety, quality, appropriateness, accessibility, and affordability of health care services. It is now possible for purchasers to assess value – what happened to their beneficiaries, at what cost, and which providers and health systems offer high (and low) value -- if we insist that analyses be conducted on the largest possible body of claims data.

HCI3 data analytics used for this report illustrate improved ways of examining health data. Now that the quality and outcomes of care can be measured, reported, and improved under observation, purchasers and beneficiaries must insist it be done. Reporting of clinical process measures and general utilization information is not enough. We can’t afford to continue purchasing the most essential and expensive set of services in our society without knowing what we are paying for and without comparing value across plans, provider groups, delivery systems, and communities.

The UCSF PAC analysis offers a glimpse into what needs to be fixed, finding that PACs among CalPERS’ PPO enrollees are common and costly for 21 episode types: seven chronic conditions cost \$277,588,709 over two years for a subset of CalPERS beneficiary episodes of care analyzed by UCSF,³⁰ of which \$74,681,501 (27%) were for PACs, meaning events that were harmful and reducible by improving quality. High-level overviews of PAC rates, PAC dollars, and average episode costs for CalPERS PPO members now need to be accompanied by episode of care data that enables clinical practices, facilities, ACOs, and integrated delivery systems in California to know what types of PACs occur most frequently among their patients and then to take action to reduce them. The good news is that effective interventions improving care and costs have been documented and can be adapted for application broader implementation in California.

Our five recommendations reflect our respect and support for the strategic directions presented in the Health Benefits Purchasing Review Project report to the CalPERS Board in Monterey in January and align with what has so far been reported about the interest of CalPERS board and staff in adopting a new and more aggressive PPO and HMO health plan procurement policy. While it’s true that California is unlike any other state, we have observed that regional projects across the country have much in common, regardless of how different their larger statewide contexts.

While there are no off-the-shelf templates for quality and cost improvement, the common elements are clear: shared data on outcomes and cost of care, community collaboration, and aligned incentives. We won’t cross the IOM quality chasm without them.

³⁰ UCSF analyzed episode and PAC costs for 90,571 unique patient episodes, based on claims that fell completely within the study period and had no essential information was missing. Episode and PAC expenditures for “incomplete” episodes that fell partially outside the study period, had missing or invalid dates, or were outliers (over \$1 million) are not reported.

Appendix A:

Examples of Provider-Level Analysis and Other Examples of Data

When enough claims are aggregated into a single database, Episode of Care (aka PAC) analysis offers purchasers, plans, groups, facilities, Accountable Care Organizations, and other integrated delivery systems a powerful tool for identifying and reducing high episode costs due to PACs and inefficient clinical practices (overuse).

Below are examples of how all three cost components – total episode costs, typical costs, and PAC costs -- can be reported by medical group, hospital, ACO, integrated delivery system and even by an individual provider, with sufficient case volume. Episode outcomes and cost information can also be reported by geography (e.g., health service area, hospital referral region, county, or other).

Data reveal patterns of care (recurring problems), provide clinical breakdowns of PACs, and can help purchasers and plans assess value. Imagine purchasers and providers being able to see this information for a county, or for an ACO working to increase value, or for Patient-Centered Medical Homes that are paid care management fees to better manage their patients with chronic illness.

Breakdown of episode costs into severity-adjusted typical and PAC enables identification of non-PAC opportunities for cost savings, as when typical costs are significantly higher than average.

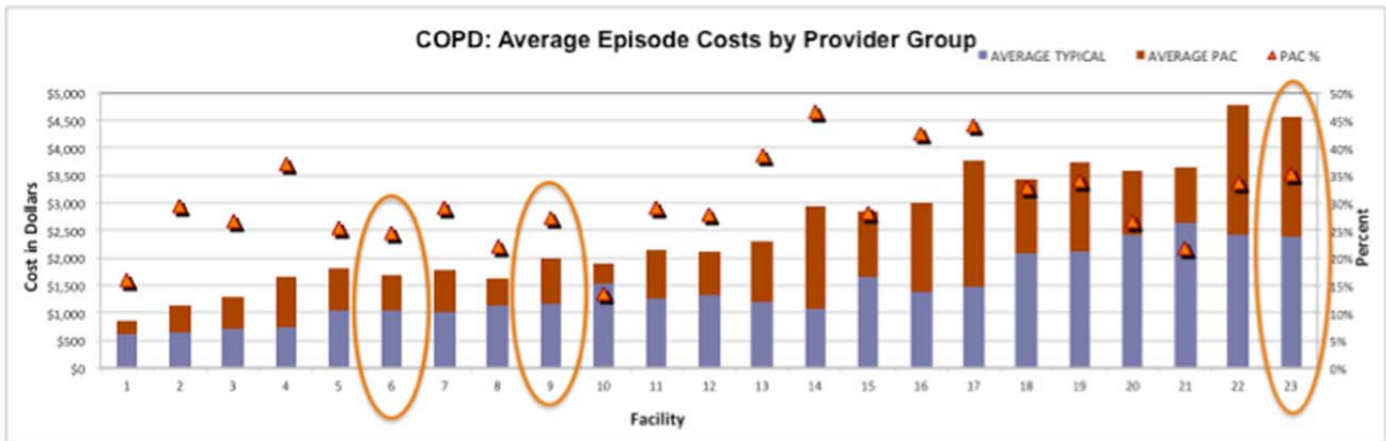
Data aggregation across multiple plans will yield the most clinically actionable information for reducing PACs and increasing value by physician group, facility, ACO, and geography.

Compare Provider Groups on Average, Severity-Adjusted Episode Costs, PAC Percents, and the Ratio of PAC to Typical Costs for Their Patients with COPD

The Blue Bar shows the “typical” component of episode costs.

The Red Bar shows the PAC component of episode costs.

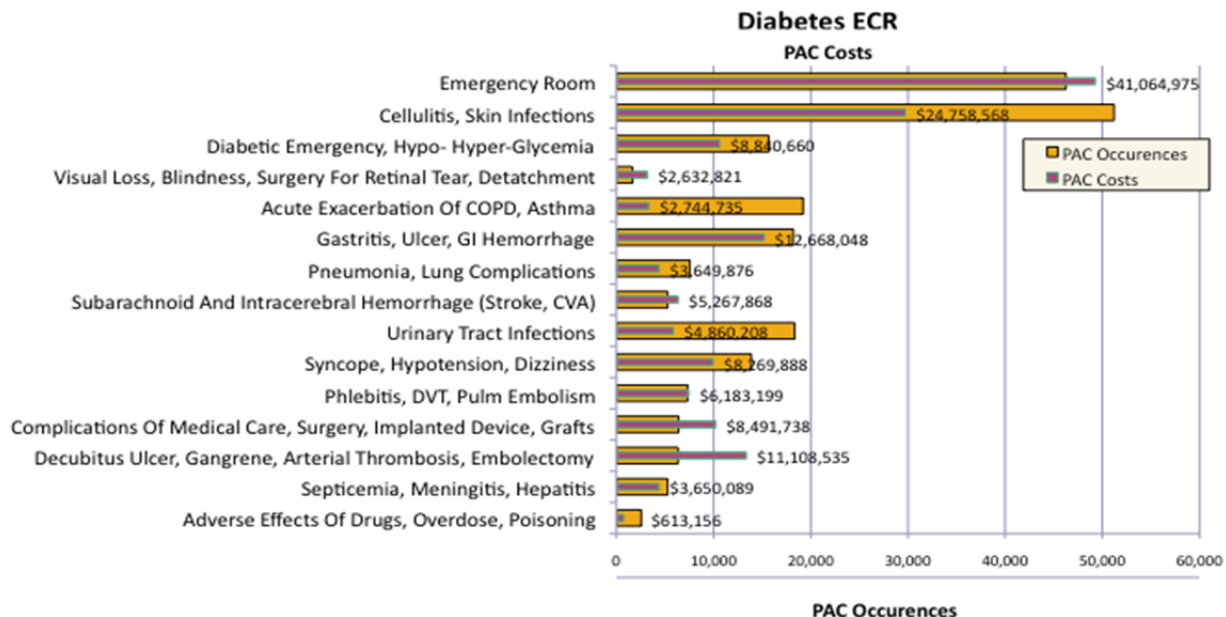
The Red Triangle shows PAC rate (% of total episode cost of care that is PAC-related).



Provider Groups 6, 9 and 23 have the highest volume of COPD patient episodes (volume not shown below). While Provider Groups 6 and 9 look similar, Provider Group 9 stands out as having higher average costs across all components: episode, typical, and PAC costs.

Help Physicians/Groups See the Frequency and Costs of PACs Among *Their* Patients

Episode of Care (PAC) analysis can provide clinical breakdowns of PACs that occur most frequently among patients of a given provider. The chart illustrates data that can be shared with medical groups (or facilities for inpatient medical and inpatient procedural episodes). In this case, it shows PAC events and PAC costs among patients with diabetes.



Help Clinical Practices/Medical Groups Examine Patterns Across Chronic Conditions

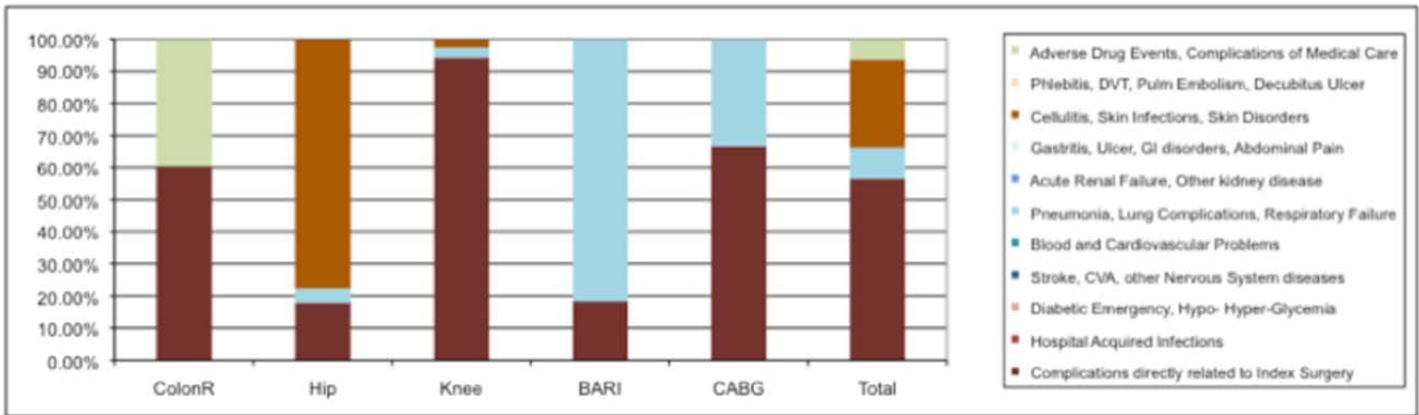
Summary of Chronic PAC Frequency, Percentage of Frequency, and Costs

		Chronic Care Summary		
PAC TYPE	DESCRIPTION	* of PAC Occurrences	% of PAC Occurrences	** Medical Costs
1	PACs Related to Index condition			
	PAC Hospitalizations	47	0.83%	\$745,826
	PAC ED visits, and other Professional Services	1,996	35.19%	\$1,001,075
2	PACs Related to Comorbidities			
	PAC Hospitalizations	105	1.85%	\$1,526,453
	PAC ED visits, and other Professional Services	3,027	53.37%	\$1,814,941
3	PACs Related to Patient Safety Failures			
	PAC Hospitalizations	18	0.32%	\$157,589
	PAC ED visits, and other Professional Services	479	8.44%	\$370,690
	Total PAC occurrences / costs due to Hospitalizations	170	3.00%	\$2,429,868
	Total PAC occurrences / costs due to ED, Prof Services	5,502	97.00%	\$3,186,706
	Total PAC Occurrences	5,672		
* There could be more than one PAC per unique patient				
** Chronic Costs include medical as well as pharmacy costs				

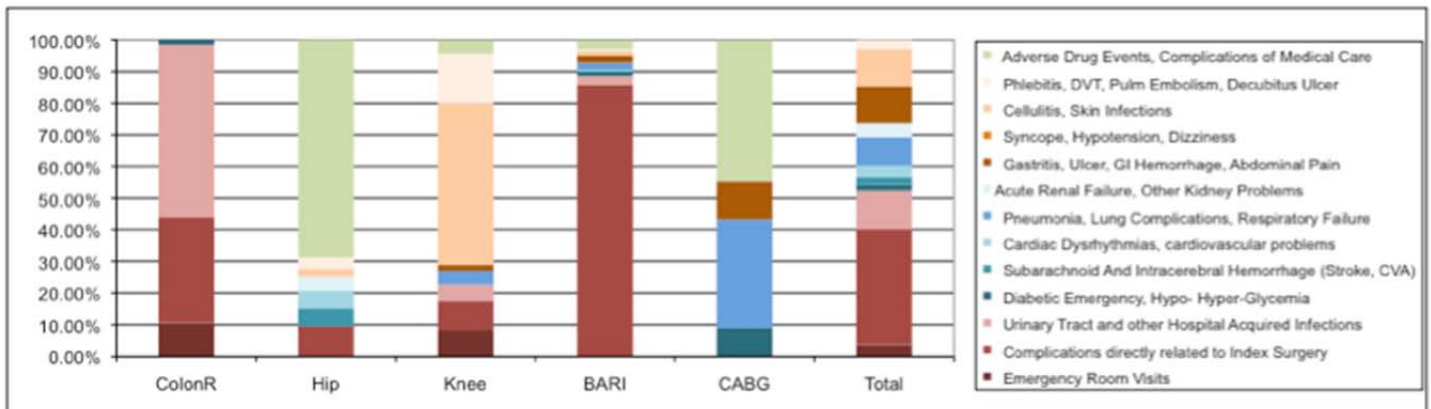
Summary of Inpatient Medical PAC Frequency, Percentage of Frequency, and Costs

		IM Care Summary		
PAC TYPE	DESCRIPTION	* of PAC Occurrences	% of PAC Occurrences	** Medical Costs
1	PACs Related to Index condition			
	PAC IP Index	4	10.00%	\$107,722
	PAC OP Facility/Professional	10	25.00%	\$24,781
	PAC IP Stay Readmissions	1	2.50%	\$7,213
2	PACs Related to Comorbidities			
	PAC IP Index	3	7.50%	\$398,486
	PAC OP Facility/Professional	12	30.00%	\$13,312
	PAC IP Stay Readmissions	4	10.00%	\$96,367
3	PACs Related to Patient Safety Failures			
	PAC IP Index	1	2.50%	\$228,134
	PAC OP Facility/Professional	4	10.00%	\$1,051
	PAC IP Stay Readmissions	1	2.50%	\$14,129
	Total PAC occurrences / costs due to IP Index	8	20.00%	\$734,342
	Total PAC occurrences / costs due to OP Facil/Professional Services	26	65.00%	\$39,144
	Total PAC occurrences / costs due to IP Stay Readmissions	6	15.00%	\$117,709
	Total PAC Occurrences	40		
* There could be more than one PAC per unique patient				
** Chronic Costs include medical as well as pharmacy costs				

See Specific PAC Descriptions/Clinical Breakdown of PACs:
Inpatient Procedure Stays (Hospital A)



Specific PAC Descriptions/Clinical Breakdown of PACs:
Outpatient/Professional Services



Identify Provider-Specific Source of PACs

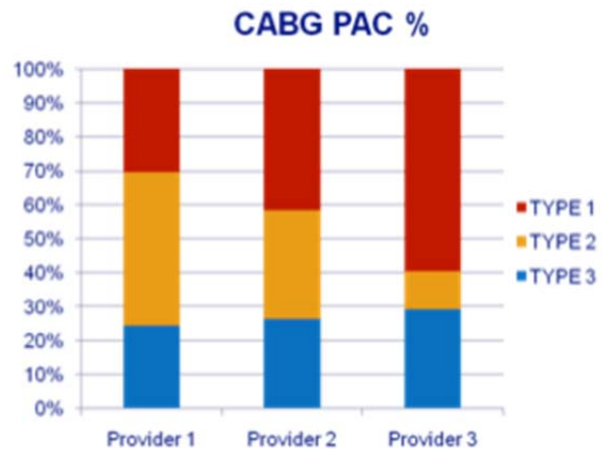
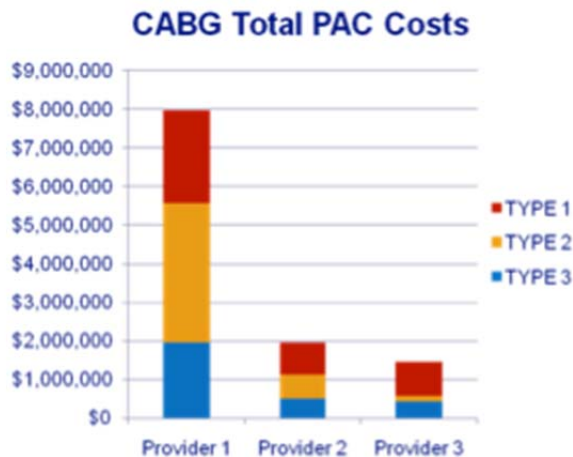
HCI3 data analytics classifies PACs by type. Each type indicates where the intervention is best focused: provider performance (1), care coordination (2), or system level (3).

1. Type One PACs are related to the patient's index condition.
2. Type Two PACs are related to a patient's co-morbidities.
3. Type Three PACs are due to patient safety failures such as a hospital fall.

With enough case volume, provider-specific sources of PACs can be identified and shared with facilities, medial groups, and ACOs/integrated delivery systems.

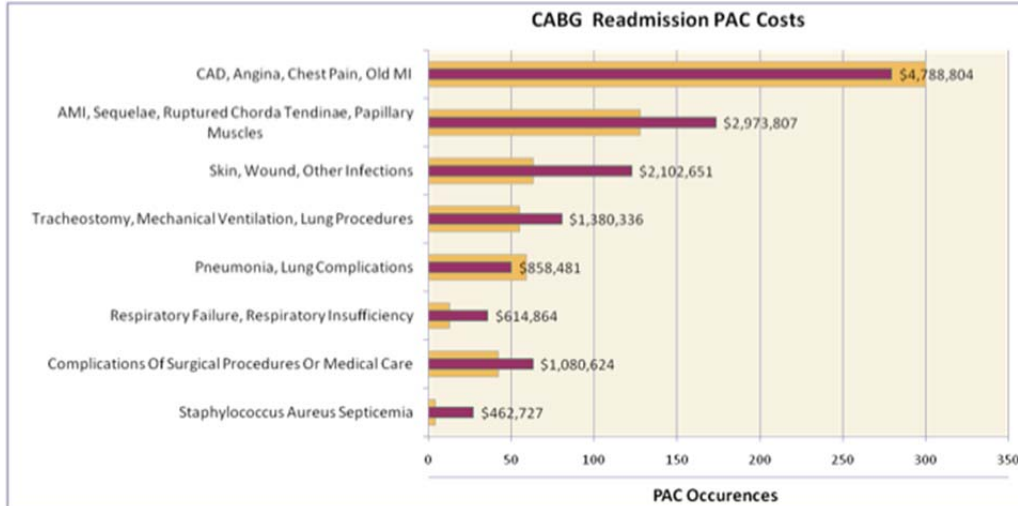
Identify Provider-Specific Sources of PACs Among CABG Surgery Patients

PAC	PAC DESCRIPTION (CABG)	Provider 1		Provider 2		Provider 3	
		# Patients	PAC Costs	# Patients	PAC Costs	# Patients	PAC Costs
TYPE 1	INDEX CONDITION RELATED PACS	219	\$2,405,431	70	\$815,468	84	\$856,672
TYPE 2	PACs DUE TO COMORBID CONDITIONS	224	\$3,617,415	57	\$625,001	61	\$164,158
TYPE 3	PACs SUGGESTING PATIENT SAFETY FAILURES	128	\$1,945,983	34	\$512,001	58	\$419,689
	Total PAC Costs	571	\$7,968,829	161	\$1,952,470	203	\$1,440,519



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Drill Down On One PAC: Readmissions for Heart Bypass Surgery

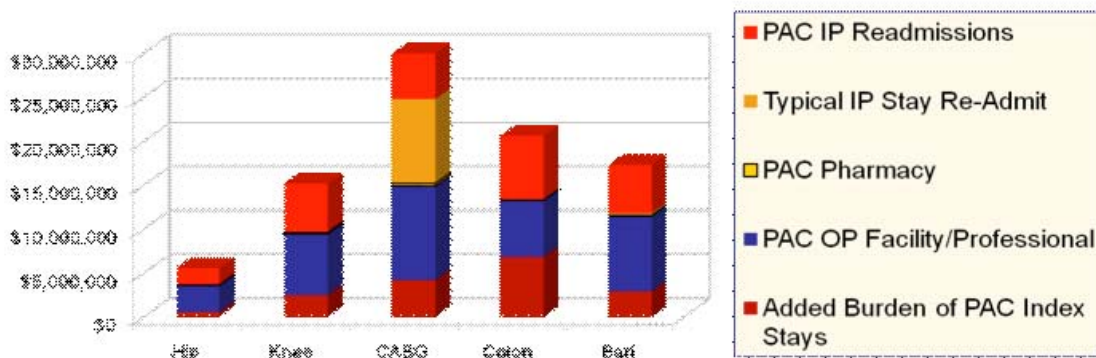
PAC	PAC DESCRIPTION	# OF PATIENTS	Freq of Patients	PAC COSTS	% OF PAC Costs
Type 1	INDEX CONDITION RELATED PACs (PAC Type 1)	760	66.8%	\$16,385,364	67.2%
Type 2	PACs DUE TO COMORBID CONDITIONS (PAC Type 2)	254	22.3%	\$4,742,998	19.5%
Type 3	PACs w PATIENT SAFETY FAILURES (PAC Type 3)	124	10.9%	\$3,261,571	13.3%
	All PACs	1,138	100.00%		



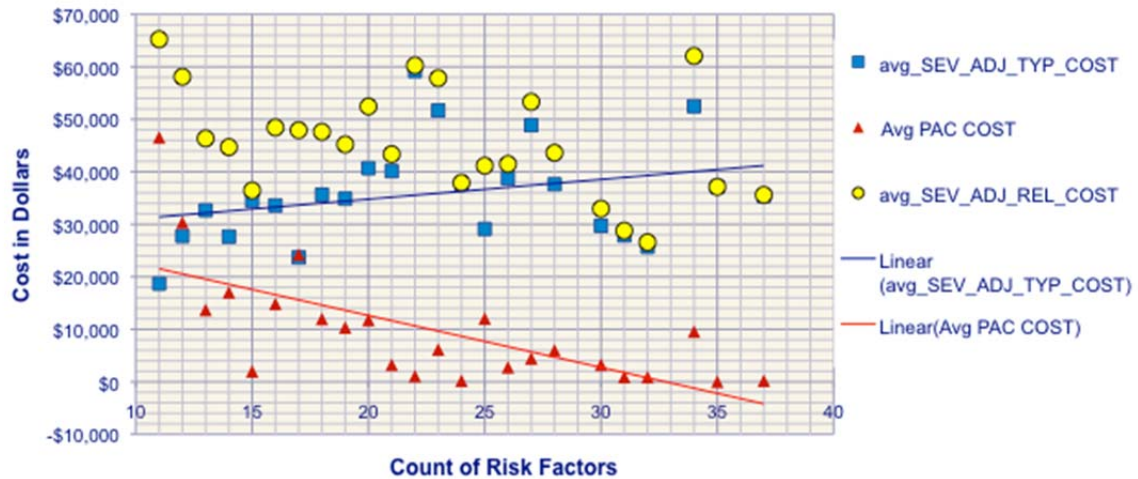
Study Cost Drivers for PACs By Facility

HCI3 data analytics enables examination of PAC cost drivers. For example, the chart below breaks down PACs into PAC inpatient readmissions, PAC pharmacy, PAC outpatient facility or professional services, and “added burden” PAC index stays by inpatient procedures.

Inpatient Procedural PACs

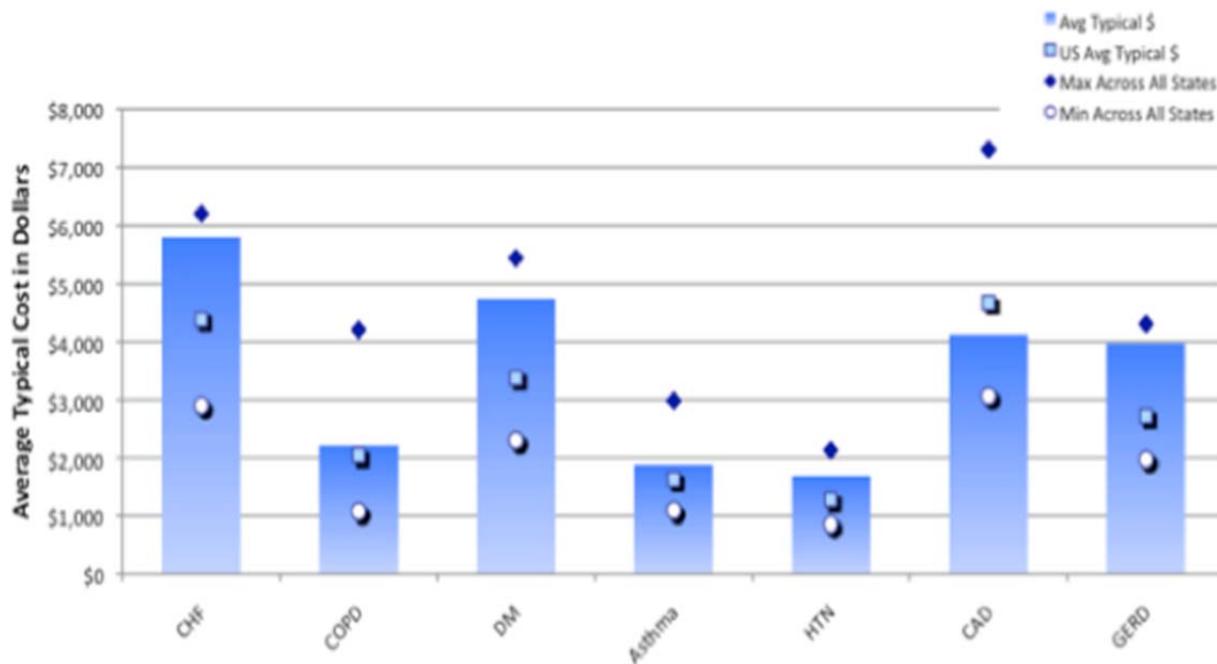


The data below points below show average severity-adjusted “typical Costs” (blue), average PAC costs (red), and average severity-adjusted episode costs (yellow). While average severity adjusted episode costs seem unrelated to patient risk factor count, PAC costs are decreasing as risk factors increase, while severity-adjusted typical costs increase as risk factors increase. Explanation may be that high risk factor patients are directed to Centers of Excellence, where typical costs are high (pricing power), but PACs are low and, so, overall value is still high, illustrating the importance of assessing value, not price.

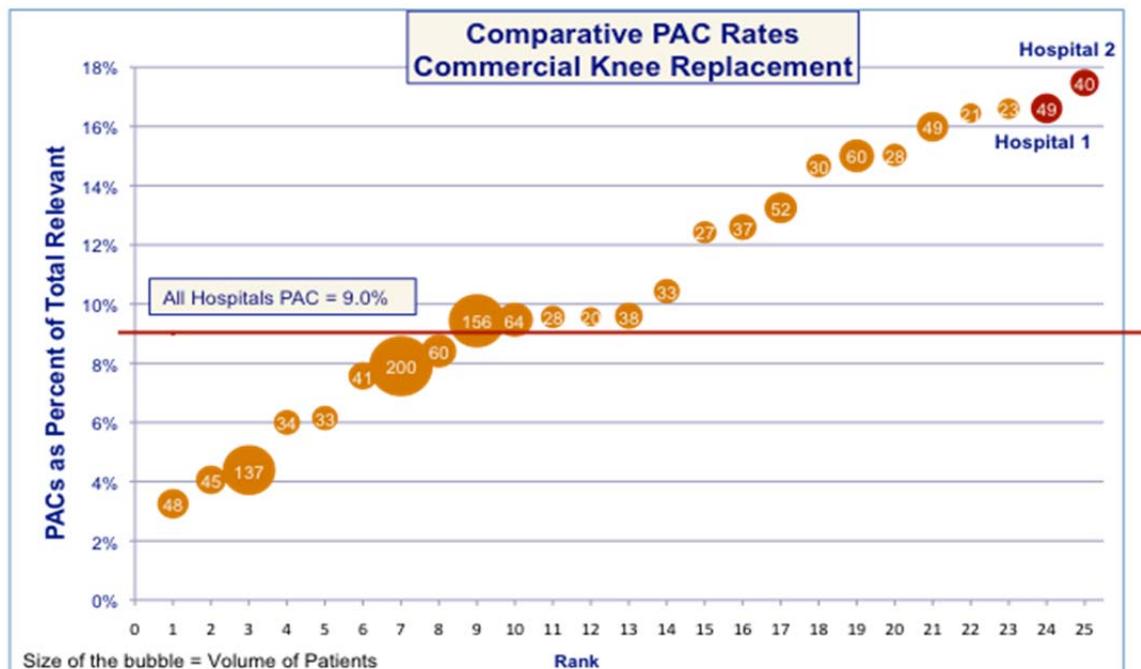
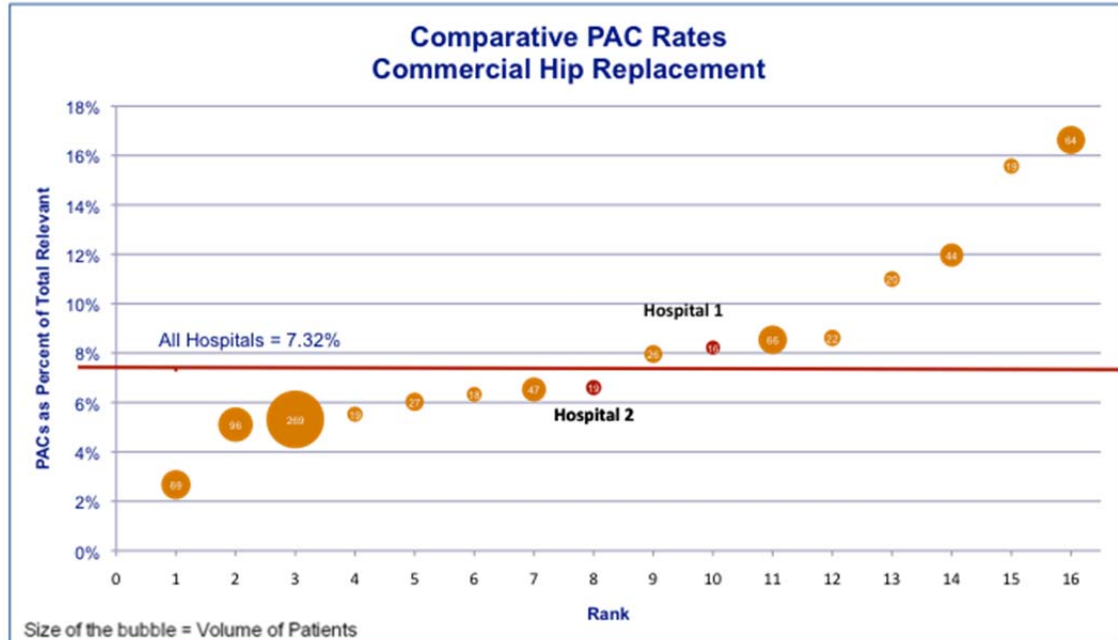


Identify Non-PAC Opportunities for Cost Reduction

Below chart shows that for this population, severity and core-price adjusted average typical costs are higher than the US average for all chronic episodes except heart disease. Patient management may include unnecessary/duplicative services.



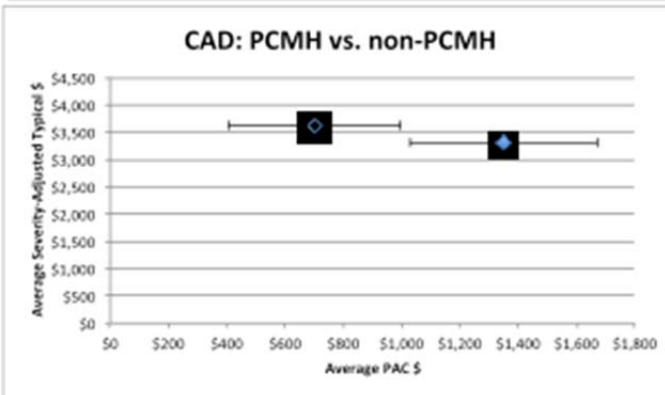
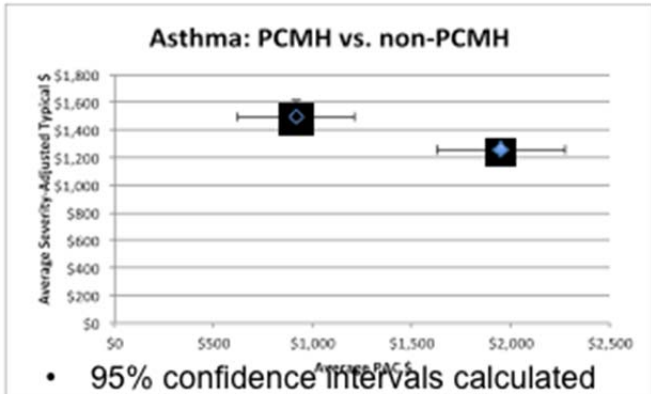
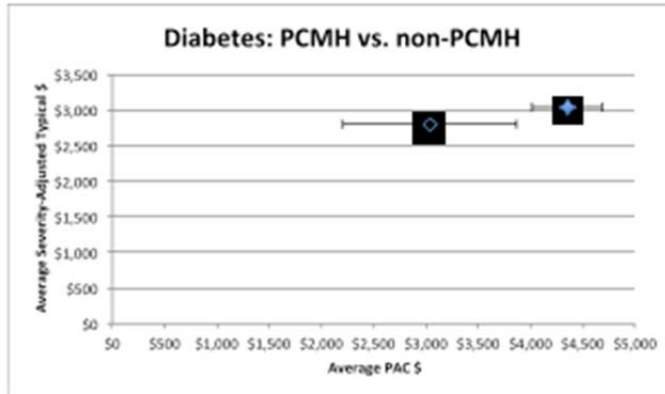
HCI3 has found that patient risk factors are unrelated to PAC events during procedural episodes. The below charts rank hospitals by low to high PACs as a percent of total episode costs. Each bubble is a hospital and the number within it shows the volume of patient cases for knee and hip replacement, respectively. Hospital 1 and Hospital 2 have the highest PAC rates for knee replacement. These same hospitals, however, have much lower PAC rates among their patients who underwent hip replacement.



Evaluate Effectiveness of Patient-Centered Medical Homes in Reducing PACs

HCI3 Episode of Care (PAC) analysis enables comparison of Patient Centered Medical Homes (PCMH) and non-PCMH PAC costs and typical costs. The below shows that Patient-Centered Medical Homes (solid black square) have:

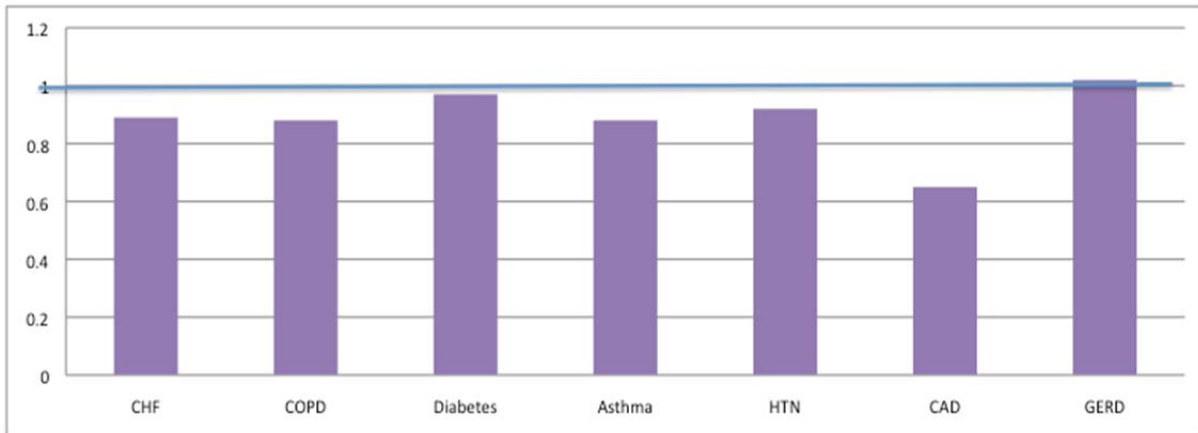
- Significantly lower PAC costs for patients with diabetes, asthma and coronary artery disease
- Significantly lower typical costs for patients with diabetes
- Higher typical costs for patients with asthma and coronary artery disease



- 95% confidence intervals calculated about the means
- PCMH is the black data marker
- PCMH has Significantly lower PAC costs for all 3 ECRs; significantly lower typical costs for Diabetes, but not for CAD or Asthma

Compare Severity of PPO Members to National Reference or HMO Beneficiaries

For the below commercially insured population (CIP) under age 65 shown below, members with chronic illnesses are less severely ill than the HCI3 reference CIP under age 65.

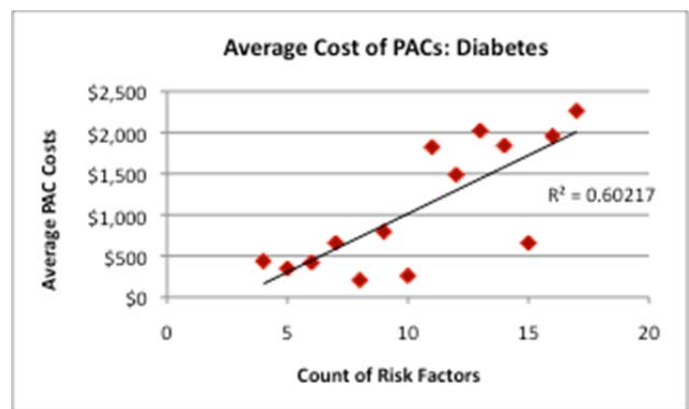
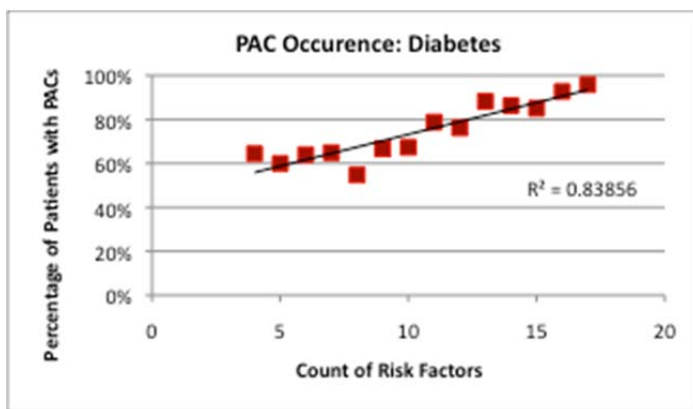


Identify Risk Factors (RF) Among Beneficiaries and Examine Relationships between RF Counts and PAC Frequency and Costs

HCI3 analytics identify patients with high to low risk factor counts and examine the relationship between RF counts and PACs to see if higher risk patient groups are associated with more PAC occurrences and costs. The analysis helps to identify good candidates for disease management.

The left graph shows that 80 to 90 percent of patients with high RF counts will experience at least one PAC. These are the PPO patients who are very likely to see many physicians and have a greater chance of winding up in the ER or being hospitalized because of inadequate care coordination. At the same time, 60% patient groups with fewer risk factors will also experience at least one PAC.

The right graph shows a moderate correlation between RF count and the average cost of PACs, indicating that as RF count increases, so do the average cost of PACs.



Appendix B: Bringing Change to Scale by Using Information and Incentives

Place-based intervention strategies mobilizing public agency (and other) purchasing power at the regional or community level can bring change to scale, achieving system-wide cost containment through quality and safety improvements.

By pooling data and funds for regional quality/cost analysis and improvement, the costs of improvement infrastructure can also be shared, making patient safety and quality improvement “the tide that lifts all boats, not a proprietary trade secret.”³¹

With substantial overlap in commercial plans’ provider networks, it makes far more sense for multiple payers to row in the same direction by standardizing payment methods and contributing toward regional care management and health information organizations that all providers can access for risk identification, disease management, quality evaluation, review of unusual utilization patterns, and steadily improving patient outcomes at lower overall costs.

Below, we briefly describe five regional projects as examples of how they vary while also sharing fundamental similarities of organization and financing. In each project, the quality and cost improvements have been impressive and hopeful. These, and a growing number of other examples, show it can be done.

Why not in Bakersfield, Fresno, Monterey, or other counties where State and local public agencies have substantial market position ranging from 12 to 27 percent of the insured market without Medi-Cal and 46 to 61 percent with it?

By pooling ... data and funds for data analysis and performance improvement, the costs of improvement infrastructure can be shared, making patient safety and quality improvement “the tide that lifts all boats, not a proprietary trade secret.” ...It makes far more sense for multiple purchasers and payers to row in the same direction by standardizing payment methods and contributing toward regional care management and health information networks accessible by all physicians and care managers.

Common Elements Across Most or All of the Regional Projects

1. Multi-purchaser/payer participation
2. Collaboration, based on shared data
3. Physician leadership, primary care focus
4. Payment changes
5. Practice transformation support
6. Shared development of Health Information Network and Community Health Teams providing caregiver access to patient data and community-based disease management, risk assessment and reduction

³¹ See Katherine A. Schneider, “Overcoming Barriers to Improved Collaboration and Alignment: Cultural Issues,” in *Partners in Health: How Physicians and Hospitals Can Be Accountable Together*, ed. Francis J. Crosson and Laura A. Tollen (San Francisco: Jossey-Bass, 2010), 181.

Pennsylvania Multi-Payer Patient-Centered Medical Home Guided by the Chronic Care Model

After Pennsylvania convened multiple insurers and providers in January 2008 to establish incentives for Patient-Centered Medical Homes (PCMH), the State implemented a statewide multi-payer PCMH initiative, guided by the Chronic Care Model (CCM), with a beginning focus on diabetes.

Anti-trust protections were provided to payers and provider groups committed to rolling out this incentive-based program to involve 20-30 practices in each of the four regions. Southeast Pennsylvania (Philadelphia metropolitan region, or SEPA) was the first to participate. Six payers signed participation agreements representing 99.8 percent of private insurers (three Medicaid plans, plus Aetna, CIGNA Healthcare, and Independence Blue Cross), and the 32 participating practices that were diverse in size and patient demographics. Since then, three other payer-supported regional rollouts have been initiated, with a total of 170 practices engaged statewide.

The goal is to transform primary care practices, using diabetes as the initial target disease. The state is also implementing a shared savings model, allowing Northeast region physician practices to retain between 41 and 50 percent of savings, based on performance measured by 14 indicators.

Interventions:

1. *Breakthrough Series Learning Collaborative*, with teams from each practice participating in four intensive two-day “Plan-Do-Study-Act” learning sessions in Year One;
2. *Practice participation in registry-based monthly reporting*. Measures reported included A1C, blood pressure, LDL, eye and foot exams, nephropathy, tobacco use, influenza vaccination, evidence-based treatments, and the percentage of patients meeting indicated parameters;
3. *Practice transformation coaches* sent to participating practices;
4. *Requirement of National Committee for Quality Assurance (NCQA) Level 1 recognition as a PCMH by end of Year One*;
5. *Multi-payer financial reimbursement*.

First Year Results:

NCQA PCMH recognition: All participating practices sought NCQA PCMH recognition and by May 2009, 12 SEPA practices achieved Level One, four achieved Level Two, and 16 achieved Level Three recognition from NCQA.

Guideline adherence/outcomes: Significant improvements in guideline adherence and outcomes for patients were documented. Use of therapies effective in reducing morbidity and mortality in patients improved significantly, as did provider-reported percentages of patients with established self-management goals. A small but statistically significant improvement in outcomes was reported, with greatest improvement in highest-risk patients.

Primary care delivery system transformation: Survey data showed robust chronic care model implementation. Leading changes in how practices operate are shown in Table below.³²

³² See Robert A. Gabbay, M.D., Ph.D., et al. “Multipayer Patient-Centered Medical Home Implementation Guided by the Chronic Care Model,” *The Joint Commission Journal on Quality and Patient Safety*, June 2011, Vol 37, No 6, http://www.bailithealth.com/articles/062211_mpcmhi.pdf and Michael Bailit, *Payment Rate Brief*, March 2011, Patient-Centered Primary Care Collaborative, available at <http://www.pcpcc.net/guide/payment-rate-brief>.

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**“One Best Practice Change” Reported by Southeast Pennsylvania Region Practices at Year One
on Key Components of the Chronic Care Model and Patient-Centered Medical Home**

Access and Communication	<ul style="list-style-type: none"> • Patient reminder systems for primary care and specialty visits • Open-access scheduling • Learning to meld planned visits with open-access scheduling
Patient Tracking and Registry Functions	<ul style="list-style-type: none"> • Using a disease registry to track patients individually and as a population • Implementing an electronic medical record system • Standardized data collection/input into EMR system • Using a standardized visit template to address all needed care • Risk stratification of patients • Embedding clinical guidelines into work flow
Care Management/Delivery System Design	<ul style="list-style-type: none"> • Pre-visit planning and outreach to address care caps • Daily care team huddle to plan care for patients that day • Involving medical assistants more in patient care (completing flow sheets, medication reconciliation) • Introduction of care management for high-risk patients • On-site ophthalmology clinic
Patient Self-Management Support	<ul style="list-style-type: none"> • Change in attitude to recognize patients as team members • Started asking patients how we can help them better manage their conditions • New health educator to provide enhanced self-management support • Developed new diabetes self-management tool geared toward low literacy patients • Group visits • Patient progress reports to help patients track their conditions • More intensive patient education
Change Management	<ul style="list-style-type: none"> • Adoption of Plan-Do-Study-Act process as change agent to focus weekly meetings • Hiring advanced practice nurses to manage improvement processes and train staff

The Vermont Blueprint is an expanding, multi-payer prevention-oriented primary care delivery system model based on Advanced Primary Care Practices (APCPs) and Community Health Teams. Currently implemented in three pilot communities covering 12 percent of the State's population, the Blueprint is undergoing rapid expansion to every health service area in the state.³³

Interventions:

The Blueprint calls for Advanced Primary Care Practices to serve as medical homes, locally based Community Health Teams providing health promotion, disease management and care transition services, an integrated, web-based information system for rapid cycle evaluation and improvement, and support for practice transformation. See descriptions below.

- *Advanced Primary Care Practice (APCPs)*. All insurers pay each recognized APCP an enhanced payment above fee for service, based on the quality of care as defined by NCQA standards.
- *Community Health Teams (CHTs)*. The State's three commercial insurers and the State's Medicaid program participate in funding CHTs at an annual cost per team of \$350,000. Each team serves a general population of 20,000, providing individual care coordination, health and wellness coaching, behavioral health counseling, and linkages to available social and economic support services. Flexible in design, staffing, scheduling, and site of operations, the goal is to provide patients with seamless and well-coordinated health and human services at no charge to patients or practices.
- *Health Information Architecture* includes a centralized registry and a web-based clinical tracking system to produce visit planners to guide patient care and to produce reports that support population management, quality improvement, evaluation, and comparative benchmarking. Practices send data to the registry from the point of care. Physicians and care managers have data access to identify and respond to risk in patient sub-populations.
- *Expansion and Quality Improvement Program* is Vermont's primary care practice transformation extension service that provides coaching to help practices move from episodic care to prevention and support and patient self-management support.

Results:

Significant decreases from one year to the next in hospital admissions and ER visits per 1,000 patients and in related per person per month costs in the two pilots evaluated. Inpatient use per person per month costs decreased 21 percent and 22 percent, respectively, while emergency department use declined 31 percent and associated costs per person per month declined by 36 percent. Overall utilization and costs per person per month dropped 8.9 percent and 11.6 percent, respectively. The Vermont Child Health Improvement Program also performed an evaluation of the pilots in 2010, finding APCP patients were seen more frequently and that Community Health Teams were providing important services to help patients link to essential health and social services.

³³ In 2010, the Vermont legislature passed Act 128 requiring all major insurers to participate in the model as it expands statewide. Vermont's successful application for participation in the CMS Multi-Payer Advanced Primary Care Practice Demonstration Project adds further momentum by including Medicare as a participating insurer. Christina Bielaszka-DuVernay, Vermont's Blueprint for Medical Homes, Community Health Teams, and Better Health at Lower Costs, available at <http://content.healthaffairs.org/content/30/3/383.extract> and Vermont Blueprint for Health, 2010 Annual Report, January, 2011, VT. Department Health Access, http://hcr.vermont.gov/sites/hcr/files/final_annual_report_01_26_11.pdf

North Carolina adopted an enhanced medical home model of care in its Medicaid program in 1998, called Community Care of North Carolina (CCNC) to transform the delivery system from its current reactive model of health care to active management and promotion of health through provision of comprehensive, coordinated, evidence-based, and patient-centered and family-centered primary health care.

Under CCNC, Medicaid enrollees receive care through one of 14 non-profit community networks made up of physicians, hospitals, social service agencies, and county health departments. Each network is responsible for linking their enrollees to a Medical Home, providing disease and complex case management, reporting data to the state, and implementing quality improvement initiatives, based on local needs and resources.

Interventions:

- The State pays an enhanced care management fee of \$3 per member per month (\$5 PMPM for elderly or disabled enrollees) to local networks to hire case managers. The networks elect local physicians as clinical directors to work with a statewide board to organize and direct disease management initiatives. Networks must meet certain requirements: provision of acute, chronic and preventive care, compliance with practice guidelines, patient education, and data reporting.
- The State maintains a Care Management Information System that network case managers can access to identify good candidates for disease/complex case management and examine utilization patterns, guidelines adherence and outcomes. Network case managers and clinical directors are responsible for implementing disease management for asthma, diabetes, chronic care, and congestive heart failure, as well as programs to manage use of high cost services.
- Data from claims and chart review are collected and compared with national and regional benchmarks, and shared with participating practices.

Results:

Two State-contracted external evaluations found substantial savings were achieved by reducing PACs (hospitalizations, ER visits and other avoidable health care utilization):

- A Mercer evaluation found that CCHC achieved savings in every year of its evaluation (FY2003-FY2006) and estimated that savings for FY2006 alone were \$150-\$170 million.
- A University of North Carolina evaluation of patients with asthma and diabetes found savings of \$5.3 million. Additionally, both groups of patients experienced fewer hospitalizations. Ninety-three percent of asthma patients received appropriate maintenance medications and asthma patients had fewer ER visits. Diabetic patients achieved high rates of performance measures such as primary care visits, blood pressure readings, foot exams, lipid levels and A1C tests.³⁴

³⁴ See *Community Care of North Carolina: Putting Health Reform Ideas into Practice in Medicaid*, 5/2009, (www.kff.org/medicaid/upload/7899.pdf) and *The Outcomes of Implementing Patient-Centered Medical Home Interventions: A Review of the Evidence on Quality, Access and Costs from Recent Prospective Evaluation Studies*, Patient-Centered Primary Care Collaborative (www.pcpcc.net/content/2009-pcpcc-pilot-guide-0).

Most providers in Grand Junction, Colorado, are unaffiliated and Grand Junction does not have an integrated delivery system. Nonetheless, Grand Junction “consistently boasts excellent patient outcomes” and is rated by the Dartmouth Atlas of Health Care as having one of the most efficient medical communities in the nation.³⁵ Key elements of Grand Junction’s success include:

- Leadership by Rocky Mountain Health Plans, with 40 percent market share and a dual role as the federal contract administrator for Medicare and Medicaid beneficiaries and large private insurer.
- Involvement of 85 percent of the region’s physicians through the Mesa County Physicians IPA.
- Similar fee for service rates paid to physicians for all patients regardless of insurance source.
- Aligned incentives through performance-based (quality and efficiency) contracts, based on metrics used by the State Medicaid program.
- An organized forum for peer-led medical practice review to examine practice patterns and reduce unwarranted utilization and provision of biannual cost reports to specialty medical groups.
- Involvement of community service organizations broadly addressing human service needs.
- Implementation of a health information technology network that strengthens care management and coordination and limits duplication.

Importantly, the health information technology network – Quality Health Network, or QHN -- was created as a quality improvement resource for the entire medical community serving western Colorado and eastern Utah.

Jointly financed by Rocky Mountain, Mesa County IPA, and the two hospitals in the region, QHN became operational in 2005. There are currently 1,569 users of the network, including physicians, clinics, hospitals, care managers, labs, and insurers.

In combination with electronic medical records, QHN enables “evidence-based collaboration on complex and high-cost cases, across institutions and among clinicians.”³⁶

³⁵ See Len M. Nichols, Micah Weinberg, and Julie Barnes. *Grand Junction, Colorado: A Health Community That Works*, Health Policy Program, New American Foundation, April 2009 and; Thomas Bodenheimer and David West. “Low-Cost Lessons from Grant Junction, Colorado.” *New England Journal of Medicine* 363:15, October 7, 2010: 1391-1393.

³⁶ *Ibid*, p 14.

In 2005, 11 self-insured employers joined with local physicians and Blanchard Valley Health System to launch the Employer Data Project (EDOC), a collaboration between employers and providers in Findley, Ohio to aggregate and analyze claims to identify quality, cost and utilization variation among members.³⁷

Together, the employers purchase health care for 24,980, representing one-third of the population of Hancock County. The goal was to create an on-going forum for improving quality, results and costs.

The EDOC strategy was to analyze aggregated claims, identify unwarranted variation, launch interventions based on data analysis, and then monitor results. Employers and physicians play equal roles in setting the agenda. Key interventions and results are summarized in the table below.

Employer Data Project (aka EDOC) Overview: Concerns, Interventions, and Results

Condition	Concerns	Interventions	Results
High blood pressure	<ul style="list-style-type: none"> • Wide variation in episode costs • Inconsistent adherence to guidelines • Outcomes variation 	<ul style="list-style-type: none"> • Adopted guidelines, updated physicians on proper management • Audited medical charts, reported results to all for action • Employers held worksite screenings, urged follow up if results were high • Provided real-time Rx adherence by patients to their physicians 	<ul style="list-style-type: none"> • 25.5% reduction in combined cost of physician/hospital care • 11% reduction in episode costs • 27% increase in patients with controlled blood pressure from baseline to 4th audit
Diabetes	<ul style="list-style-type: none"> • Underuse of recommended care 	<ul style="list-style-type: none"> • Adopted guidelines, updated physicians • Standardized hospital care to improve blood sugar control of hospitalized patients, as well as prior to elective surgery • Implemented patient registry to eliminate care gaps and tracked and reported results 	<ul style="list-style-type: none"> • Increased % of hospitalized patients with diabetes with basal insulin orders from 47% to 69% • Contributed to reduced hospital infection rate • Increased % of Medical Home patients with diabetes with 1 lipid and 2 A1c tests annually to 95%
Reflux Disease	<ul style="list-style-type: none"> • Wide practice variation 	<ul style="list-style-type: none"> • Adopted guidelines to match evidence-based care standards 	<ul style="list-style-type: none"> • Reduced ER visits by 35%
ER Visits	<ul style="list-style-type: none"> • Pediatrician provider “after hours” referrals • ER referrals back to pediatrician for next-day follow up for no sound medical purpose 	<ul style="list-style-type: none"> • EDOC physicians reported problem • Guidelines adopted for appropriate timing for follow up 	<ul style="list-style-type: none"> • Reduced ER visits for child ear infections from 11.8% to 10.8% in first year

³⁷ See Sarah Klein, *Quality Matters Case Study: Employers and Providers Work Together to Improve Care, Lower Costs*, The Commonwealth Fund, available at: www.commonwealthfund.org.

Appendix C: Overview of HCI3 Episode of Care Analysis and Payment Model

The Health Care Incentives Improvement Institute (HCI3, formerly PROMETHEUS Payment®) developed ECR Analytics -- or Potentially Avoidable Complications (PAC) analysis -- for two core purposes: 1) identifying the dollars that are currently spent on PACs -- ER visits, avoidable hospitalizations and re-admissions, healthcare-acquired complications, and errors; and 2) building a new payment model -- called Evidence-Informed Case Rates-ECRs -- that converts a portion of current PAC dollars into a margin opportunity for providers. ECRs are designed to avoid the problems of fee-for-service and capitation, and provides for maximum transparency in costs and outcomes.

With major funding provided by the Robert Wood Johnson Foundation, HCI3 brought together a wide circle of collaborating and nationally recognized health care experts to develop public domain analytic software -- called **ECR Analytics** -- that:

- o Organizes and sort claims into medical and surgical episodes to identify sources of cost variation within patient episodes, including differences in unit prices, patient severity, clinical practice patterns, and PACs;
- o Creates patient-specific, risk-adjusted **Evidence-informed Case Rates (ECRs)** that include all clinically recommended care, resources to support clinical practice transformation, and a large proportion of current PAC dollars that providers retain as income when they avoid PACs.³⁸

PROMETHEUS Payment® ECR Analytics

ECR Analytics, a SAS-based computer program, analyzes total and average episode cost of care for 21 chronic conditions, acute medical events and surgical procedures and identifies sources of variation within these episodes, patient by patient. These sources may include differences in patient severity, provider fee schedules, clinical practice patterns, and the presence of PACs.

In the PROMETHEUS system, PACs are defined as events that negatively impact patients and are potentially controllable by all of the providers that manage or co-manage them.³⁹ They include:

- Hospital-acquired conditions defined by Centers for Medicare and Medicaid Services;⁴⁰
- Patient safety failures, based on Agency for Healthcare Research and Quality measures;⁴¹
- Hospitalizations of chronically ill patients that research links to lack of care coordination;
- Hospital readmissions that research shows can be reduced with better care transitions.⁴²

PAC rates are not risk-adjusted because risk adjustment assigns values to patient characteristics -- age, gender, medical history, co-morbidities -- to predict utilization and costs. The PAC events listed above are all potentially avoidable regardless of patient's health condition, which means that variation in PACs are driven by delivery system performance, not by patient characteristics. ECR Analytics has shown that PAC rates vary widely and that they are the biggest driver of episode costs variation.

³⁸ PROMETHEUS Payment, Evidence-informed Case Rates, ECRs are registered trademarks of the Health Care Incentives Improvement Institute (HCI3), Inc. 2009-2010, all rights reserved. All charts and figures provided courtesy of HCI3.

³⁹ "Patients," HCI3 notes, "expect a health care system to take care of all their medical needs." Take a diabetic patient admitted into a hospital for heart attack. A patient in an "accountable care" system would receive treatment and follow-up care not only for the heart attack but also for any other health issue. In today's non-system of care, however, "there is no financial downside for providers when defects occur, and there are, to date, no quality measures that create accountability. If a diabetic patient who had an AMI is readmitted within 30 days for hypo or hyperglycemia, we consider that a potentially avoidable complication. While the hospital and cardiologists might disagree, any actual system of care—whether virtually or organizationally integrated—would have to agree since an "accountable care organization" is expected to be accountable not just for what they do in a tightly-defined scope of practice, but also regarding what happens to the patient overall. See "The History of the Development of the Prometheus Payment Model-defined Potentially Avoidable Complications, <http://hci3.org>.

⁴⁰ Department of Health and Human Services Center for Medicare and Medicaid Services: Proposed Rules. 73(84): 23547-23562. Available at: <<http://edocket.access.gpo.gov/2008/pdf/08-1135.pdf>>. Accessed October 29th 2009.

⁴¹ AHRQ. Quality Indicators: Guide to Patient Safety Indicators. 2007. Available at:

<http://www.qualityindicators.ahrq.gov/downloads/psi/psi_guide_v31.pdf>. Accessed October 30th 2009.

⁴² S.F. Jencks, M.V. Williams, and E.A. Coleman: Re-hospitalizations among Patients in the Medicare Fee-for-Service Program. New England Journal of Medicine 2009; 360: 1418-1428.

Importantly, providers and purchasers can examine the science behind ECR Analytics, thus minimizing data disputes. Unlike “black box” proprietary systems, HCI3 reveals the science behind the analytics. Any interested provider, purchaser, or patient can obtain complete information about how HCI3 and collaborating clinical and health policy experts defined: a) each of the 21 episodes of care and the Potentially Avoidable Complications occurring within them; b) the statistical methods used to adjust for patient severity; c) the clinical guidelines informing development of each Evidence-informed Case Rate; and d) the coding used to distinguish “typical” claims from “PAC” claims within episodes.

Performance Versus Insurance Risk in the PROMETHEUS Payment Model

The PROMETHEUS Payment® model distinguishes between “actuarial” and “performance” risk. Actuarial risk is an insurance function: it predicts future health care utilization and costs of an individual or a group based on age, gender, and health status. Performance risk is a function of how consistently and well providers and health systems deliver safe, effective and coordinated care.

Unlike capitation, PROMETHEUS Evidence-informed Case Rates (ECRs) enable providers to manage risk for the health care utilization over which they exert control – hospitalizations of poorly managed patients with chronic illness, medical errors, health care related infections, re-hospitalizations because of poor discharge planning – and rewards them substantially for their success.

At the same time, ECRs do not hold providers accountable for health care utilization that is not potentially avoidable (e.g., events over which they have no control) such as sports accidents, most cancers, or autoimmune diseases like Type 1 diabetes.

Evidence-informed Case Rates (ECRs): How PROMETHEUS “Prices” Episodes of Care

Episodes are priced first by developing a budget for “typical” services, based on a patient’s age, gender, comorbidities, illness severity, and clinical guidelines. Further budget refinements are made, including a 10 percent margin adjustment and upward adjustments for under-use and normal practice variations. Finally, a substantial portion of current PAC dollars is added to the budget.

The more successfully providers work together and with their patients to avoid common and costly problems, the greater the margin opportunity. If PACs exceed the allowance, then providers absorb the additional costs.

Importantly, the model also provides larger margin opportunities for providers to avoid complications in more severely ill patients.

The addition of a large PAC allowance to each patient case rate is both a recognition that not every PAC can be avoided every time and a powerful incentive for providers to deliver clinically effective care, coordinate services, and engage patients as team members in optimizing health outcomes.

Each ECR price is patient-specific and risk-adjusted. ECR prices will depend on patient severity, negotiated rates, and actual PAC rates. Thus, as illustrated by the Figures 2 and 3, the ECR price for patients undergoing episodes will vary substantially.

HCI3 Figure 2: ECR “Build Up” for CABG (heart bypass surgery) and PCI (angioplasty)

	CABG	PCI
Based on 50% of current defect rate	\$6,700 -- \$14,700	\$2,100 -- \$9,360 (OP setting)
Currently based at 10% of typical	\$4,100 -- \$10,800	\$890 -- \$7,260 (OP setting)
Arrived at through step-wise multi-variable regression model	\$6,210 -- \$32,130 (Prof) \$34,420 -- \$76,210 (IP facility)	\$2,670 -- \$18,900 (Prof) \$6,170 -- \$53,700 (OP facility)
Adjusts ECR for local patterns	TBD during implementation	TBD during implementation
Informed by guidelines and empirical data analysis	\$40,630 (IP facility + Prof minimum payment)	\$8,840 (OP faci + Prof min)
Total	\$51,430 -- \$133,840	\$11,830 -- \$89,220 (OP setting)

HCI3 Figure 3: ECR “Build Up” for AMI (heart attack)

	AMI Facility				AMI Professional plus Pharmacy			
	Factors	Patient 1	Patient 2	Patient 3	Factors	Patient 1	Patient 2	Patient 3
Severity Adjusted Cost of Typical AMI Episode		\$7,936	\$41,915	\$81,674		\$1,141	\$6,646	\$17,510
Allowance for PACs		\$1,578	\$5,186	\$9,407		\$279	\$799	\$1,825
Flat Fee Allowance (25% of compl costs spread over all)	\$736	\$736	\$736	\$736	\$171	\$171	\$171	\$171
Proportional Allowance	11%	\$843	\$4,450	\$8,671	9%	\$108	\$628	\$1,653
Margin	0%	\$0	\$0	\$0	0%	\$0	\$0	\$0
Full ECR price for AMI episode (severity + PAC Allowance + Margin)		\$9,514	\$47,101	\$91,081		\$1,419	\$7,445	\$19,335
		Patient 1	Patient 2	Patient 3				
Full ECR price for AMI episode (Stay, Professional & Pharmacy)		\$10,934	\$54,546	\$110,416				
Total Severity adjusted Typical Cost of AMI episode		\$9,077	\$48,561	\$99,184				

Implementation of PROMETHEUS Evidence-informed Case Rates

The PROMETHEUS Payment® model has been designed for retrospective implementation in a fee-for-service-dominated health care system. The model does not require that an integrated organization accept payment for patient episodes. Each ECR is a patient budget against which actual services, or costs, are tracked during the episode. At the end of the year, actual episode costs – both “typical” and PACs -- are reconciled against patient budgets.

Appendix D: Stakeholders Who Were Briefed or Provided Perspective and Input

CalPERS Staff and Board

- Ann Boynton, Deputy Executive Officer, Benefit Programs Policy and Planning
- Doug McKeever, Chief, Health Policy and Program Support Division, with Amanda Attaie and Kevin Brown (Health Benefits Purchasing Review Project)
- George Diehr, Board Member
- Howard Schwartz, Board Member
- J.J. Jelincic, Board Member
- Ron Yank, former DPA Director and Board Member

Health Plans

Anthem Blue Cross

- Robert Honaker, Regional VP, Large Group-Acct. Mgmt,
- Dr. Jeff Kamil, VP & Senior Medical Director, Health Care Mgmt
- David Redfearn, Senior Consultant, Advanced Analytics
- Dr. Sylvia Gates Carlisle, Mgr, Medical Director
- Donna Sieff, Assoc General Counsel Sr.
- Bert Mayhew, Claims Director
- Julie Theodore, Regional Vice President, Medical Operations
- Aldo De La Torre, VP, Provider Engagement/Contracting

Blue Shield of California

- Janet Widmann, Senior VP, CalPERS, Labor, Public Policy, and Strategic Accounts
- Tom McCaffrey, VP, CalPERS Section
- Dr. Michael-Anne Browne, Medical Director for Quality
- Michael O'Neil, Director, Greenfield Team

Kaiser Foundation Health Plan

- Angela Kohls, Director, Northern California Strategic Accounts
- Maria Monrad, VP for Strategy, Analytics and Policy, Office of Labor Management Partnership

Purchasers and Consumers

Constituency Groups

- Christy Bouma, California Professional Firefighters
- Neil Johnson, SEIU L1000
- Roxanne Sanchez, SEIU L1021

Pacific Business Group on Health

- David Hopkins, Senior Advisor

Consumers Union

- Elizabeth (Betsy) Imholz, Director of Special Projects

Provider and Other Associations

- Dr. Wells Shoemaker, Medical Director, California Association of Physician Groups
- Dr. David Perrott, Senior VP and Chief Medical Officer, California Hospital Association
- Lisa Folberg, VP, Medical and Regulatory Policy, California Medical Association
- Brett Johnson, Associate Director, Medical and Regulatory Policy, California Medical Association
- Tom Williams, President and CEO, Integrated Health Care Association (IHA)
- Jett Stansbury, Director of New Program Development, (IHA)
- Jamie Robinson, Board Member, (IHA)