

Improving Healthcare Quality through Pay for Performance

Introduction

Healthcare systems are, by design, difficult to manage for two simple reasons. The first is infinite demand. Patients' demands on the healthcare system range from completely unnecessary services to life-saving interventions. Because each patient is an individual, it is challenging to design a system that meets only necessary needs. Providers of healthcare support this infinite demand because healthcare is traditionally structured around a list of services with set fees. Every service provided results in income for the physicians, so it is in their interest to comply with all patient demands. The second reason that healthcare systems are difficult to manage is finite supply. No nation has the resources to meet the infinite demand of patients and providers. Thus, policy makers are presented with an iron triangle of choices (Figure 1) that force decisions regarding access to patient and services, the level of quality of those services, and the cost of those services. Attempts to reduce costs focus on reducing access result in equity imbalance. When attempts to increase quality raise costs, the question of value arises. And when quality and access are in balance, the health of the public may be improved, but the costs may not be sustainable.

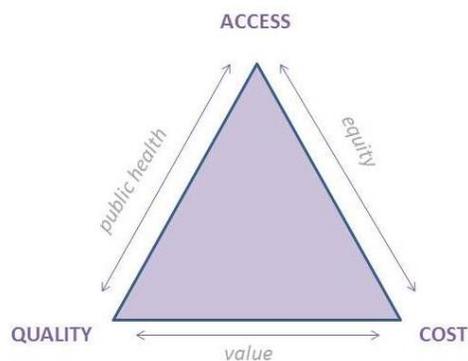


Figure 1: Iron Triangle of Healthcare Policy

population it serves.

Efforts to link quality of care with payment methodologies have been grouped under the general term “Pay for Performance” or “P4P”. Because this a relatively new concept in healthcare management, the term includes a variety of different definitions, models, and programs. This paper reviews current P4P work and considers the pros and cons of this approach for healthcare quality improvement.

Defining Healthcare Quality Improvement

Despite a decade and a half of international focus on the topic, there is no single definition of quality in healthcare. The most commonly referenced definition is from the Institute of Medicine (IoM) in the US (Kohn L T, 2000): *the degree to which health services for individuals and populations increase the likelihood of desired health outcomes and are consistent with current professional knowledge*. The IoM report identified six dimensions where quality is important: safety, effectiveness, patient centeredness, timeliness, efficiency, and equity.

Quality improvement has also proven difficult to define. An often cited definition is “the combined and unceasing efforts of everyone—healthcare professionals, patients and their families, researchers, payers, planners and educators—to make the changes that will lead to better patient outcomes (health), better system performance (care) and better professional development” (Batalden, 2007).

Since the IoM’s report, *To Err is Human* (Kohn L T, 2000), efforts to improve the quality of healthcare have grown internationally. It is now commonly accepted that organizational quality improvement models such as Total Quality Management, Six Sigma, and the Deming Model can be (and should be) successfully applied to the healthcare delivery system. However, problems with patient safety and quality and care remain a challenge (Dentzer, 2011; Winterbottom F, 2012) and there is limited evidence that such efforts are reducing costs in addition to improving quality (Ovretveit, 2009; Friedberg, 2010). And many studies are showing that there are huge and unjustified variations in healthcare utilization and outcomes around the world that persist despite all of the work being done on healthcare quality improvement (Song Y, 2010; Friedberg, 2010; Guterman S, 2011). This paper cannot address all of the various aspects of healthcare quality, but will rather focus on the connection between quality improvement and healthcare costs. Healthcare systems around the world are struggling with rising healthcare expenditures that are simply unsustainable. A model that both improves quality AND reduces costs could revolutionize healthcare systems. Pay for Performance (or P4P) is a solution that is gaining traction internationally.

Defining Pay for Performance

Pay for Performance (or P4P), like quality and quality improvement, has been difficult to define because it

is still emerging and still encompasses a number of different approaches. One of the earlier definitions described pay for performance as “*one of the newest methods of medical compensation, combining reimbursement with quality improvement. Health care providers receive a base payment and, with the achievement of certain quality benchmarks for process measures (care provided) or outcome measures (result of patient care), providers receive certain rewards.*” (Greene SE, 2009). In other words, P4P is an approach used to provide incentives to providers of healthcare services to achieve improved performance by increasing quality of care using defined performance indicators. It represents just one way to address variation in processes and outcomes, and the lack of standardization observed in all health systems. To be clear, all payment systems carry incentives of some sort. For example, fee for service payment systems can give providers an incentive for overuse of healthcare services, while capitation or global systems can lead to underuse or misuse. The key is to design those incentives towards better healthcare. P4P is the only payment system so far that links incentives to quality metrics which theoretically should protect quality against incentives for overuse, underuse, and misuse. A survey of health care opinion leaders indicated that P4P was the single most promising solution to improving the US health care system. The idea is that people and organizations respond to financial incentives. So, if incentives promote quality and efficiency, healthcare will improve (CommonwealthFund, 2005).

P4P has helped healthcare administrators and policy makers to move beyond traditional quality improvement programs that tend to focus on policies and procedures so that the focus is on the processes that lead to healthcare outcomes. P4P programs currently focus on process measures of quality of care, but there is potential for the model to expand to healthcare outcomes, non-financial incentives. And P4P models quickly revealed the potential to reduce costs and improve efficiencies in health care as well as quality (Cutler, 2010). The sector is only beginning to explore the potential of P4P. As such, the term P4P currently encompasses a large number of pilot programs being implemented around the world. Participation in some programs is mandatory, but voluntary in others. In time, those programs will merge into a smaller number of acceptable models.

The Domains of Performance

Quality is commonly described in six domains (Kohn L T, 2000):

- | | |
|--------------------------|---------------|
| 1. Safety | 4. Efficiency |
| 2. Effectiveness, | 5. Equity |
| 3. Patient Centeredness, | 6. Timeliness |

P4P performance concepts have similarly developed around eight domains (Cromwell J, 2011):

- | | |
|---------------------------------|----------------------|
| 1. Patient Safety | 5. Access |
| 2. Effectiveness | 6. Process Quality |
| 3. Patient Satisfaction | 7. Service Quality |
| 4. Efficiency (or cost of care) | 8. Clinical Outcomes |

The first 5 domains on each list correspond to one another directly, but timeliness only indirectly refers to process quality and service quality and clinical outcomes are not clearly reflected in the IoM's quality domains. P4P projects attempt to link physician and/or hospital payments to these eight domains in the following ways (Cromwell J, 2011):

- A. Quality: This approach assesses quality through commonly seen structural, process, and outcome measures and links payment to measures either individually or by combining all of the measures into one aggregate metric.
- B. Reporting: This approach focuses on provider's self-reporting of quality data. This approach helps P4P program administrators to develop the measures, so this is often an entry approach used to test measures or reliability and validity. Once providers and payers are confident in the measures, this usually evolves into a quality approach.
- C. Efficiency: This approach gives providers rewards when they have reduced costs or contained costs (depending on the goal of the program). An example of a measure might be annual expenditures for diabetic patients. Or, incentives might focus on utilization, such as the number of physician visits per year or the number of inpatient days per year for a patient with a chronic disease. This can lead to underuse of services, so some programs choose to use this approach for benchmarking rather than financial incentives.
- D. Value: Value is the key concept in P4P and will become increasingly important in the upcoming years. This approach combines quality and cost measures. One example may be financial incentives for diabetic patients who remain free of retinopathy, cardiomyopathy, nephropathy, and neuropathy AND have reduced inpatient days. The American Affordable Care Act used this approach in the Hospital Value-Based Purchasing Program described later.

P4P systems require very clearly defined measures of the dimensions of performance. Each measure must be carefully and clearly linked to the dimension it is being designed to measure. The measures must be defined to measure performance and demand accountability. In the same way, data sources and data extraction methods must be carefully selected to minimize bias and maximize standardization across organizations. The infrastructure needed to support a P4P program is largely dependent on the

measurement infrastructure. This is an area of intense research and development that can be seen as a long-term investment. In order to ensure that measures are developed soundly, it is important to include physicians (or others whose performance will be evaluated based on those measures) in the early stages of measure development. This will ensure that measures are clinically appropriate and implementable, but more importantly ensures buy-in from providers. When evidence supports the measures, physicians and hospitals can more easily support the program.

Payment Structures

Best Practice Pricing

Price is based on a package of services or a model of care that reflects best practices. Prices are based on evidence based clinical guidelines that are generally accepted by the clinical community. With this model, the clinical pathway identified in the guideline is given a set price. It can be adjusted for patient severity, but is usually determined prospectively and is either paid in full or as a percentage of the guideline that has been implemented. This approach is only applicable to a limited number of services, because of the lack of established clinical guidelines, and focuses on process and clinical outcome measurements.

Normative Pricing

Price is made more favorable when services are provided in the desired way. A common example of this is a higher reimbursement rate for vaginal delivery than cesarean delivery in order to provide an incentive for fewer cesarean deliveries. This approach can be seen in outpatient and inpatient settings and focuses on changing behaviors around certain activities like wait times. It focuses on process and outcome measurements.

Quality Structures Pricing

Price is linked to certain achievements by the organization or provider such as accreditation or participation in benchmarking platforms. A common example of this would be higher reimbursement rates for hospitals with Joint Commission Accreditation. This approach focuses more on process measurements.

Safety and Quality Pricing

This is the approach that is most commonly referred to as P4P. Prices are higher when clinical outcomes are good and lower when they are poor. This approach is different than the other three in that it is adjusted retrospectively according to outcomes actually achieved for patients. For example, a patient that

had a hospital acquired infection during an inpatient stay would be reimbursed at a lower rate. This approach is more difficult to implement than the other three because it depends on collection of actual patient data and requires pricing adjustments at the patient level.

P4P Programs around the World

This section looks at some of the P4P programs that have been implemented around the world. This review is dominated by the US, the UK, and Australia, but also includes examples from Taiwan and France. The examples provided in this paper vary significantly from one another in terms of size, budget, participation, and payment structure. The most common targets of P4P programs are common sense—diabetes, smoking cessation, acute myocardial infarction, hypertension, cardiovascular disease, pneumonia, as well as respiratory diseases like asthma and chronic obstructive pulmonary disease. Most focus on how compliant the providers are to clinical guidelines. Most also work on providing financial incentives, although there are some emerging models that use financial disincentives or penalties to drive improvement in quality and safety (such as never pay models).

The United States of America

25 years ago, healthcare quality improvement efforts focused on structural measures such as licensing and accreditation. The earliest P4P models were initiated not by government or insurance providers, but by a large group of employers who were self-insured (The Leapfrog Group) that was inspired by the 2000 IoM study reporting up to 98,000 Americans were dying every year from preventable medical errors in hospitals (Kohn L T, 2000). The Group decided to work to prevent errors affecting their employees, retirees and families by rewarding hospitals that improved quality and safety.

CMS Premier Hospital Quality Incentive Demonstration Project (HQID)

The Centers for Medicare and Medicaid Services (CMS), a government health insurance program for the poor and elderly has initiated a number of P4P programs. The biggest project is the CMS Premier Hospital Quality Incentive Demonstration Project (HQID) which began in late 2003 (Hospital Quality Incentive Demonstration Project) to understand if financial incentives to hospitals could improve the quality of hospital care. 30 national standards were developed for five patient conditions (Pneumonia,

Hip and Knee Replacement, Heart Failure, Coronary Artery Bypass Surgery, and Acute Myocardial Infarction). Hospitals who participated voluntarily were scored on the quality measures and ranked. CMS paid those in the top 10 percent a 2-percent bonus in addition to the standard Diagnostic Related Grouping (DRG) payment amount. Those in the next 10 percent were paid a 1 percent bonus. The top performing hospitals were awarded \$12 million after the first three years of the project. The next three years of the project was changed to provide financial incentives based on threshold attainment, top performance and significant improvement. And, poor performing hospitals were given a penalty in the form of payment reductions. Over the six years of the project, hospitals raised overall quality in these areas by an average of 18,6% (CMS, 2011) and a total of \$60 million was awarded to high performing hospitals. One study reported that there was no impact on patient outcomes for hospitals in the program and that it was not associated with improvements in mortality (Jha, 2013).

Example of HQID measure (CMS, 2011):

Focus Area(s)	Acute Myocardial Infarction (AMI) and Heart Failure (HF)
Measure Number(s) and Name	HQID-3 and HQID-20: ACEI or ARB for LVSD revised from ACEI for LVSD
Measure Description	AMI or HF patients with left ventricular systolic dysfunction (LVSD) and without both angiotensin converting enzyme inhibitor (ACEI) and angiotensin receptor blocker (ARB) contraindications who are prescribed an ACEI or ARB at hospital discharge. For purposes of this measure, LVSD is defined as chart documentation of a left ventricular ejection fraction (LVEF) less than 40% or a narrative description of left ventricular systolic (LVS) function consistent with moderate or severe systolic dysfunction.
Effective Revision Date	Effective with January 1, 2005 discharges, quarter 2 of year 2 for HQID project.
Rationale	Based on the evolving clinical evidence from the CHARM and VALIANT trials, that demonstrated the use of ARBs is equivalent to the use of ACEIs. Thus, the national expert panel for the AMI and HF measures approved the incorporation of the ARB medication to the original ACEI for LVSD measure. To maintain alignment with the National Hospital Quality Measures, the Premier Hospital Quality Incentive Demonstration incorporated this measure revision.

Figure 2: HQID Example

Participating Hospital Agreement (PHA) Incentive Program

In 2002, Blue Cross Blue Shield of Michigan (BCBSM) launched the PHA Incentive Program. This small scale program includes 85 acute care hospitals in Michigan. Short-term acute care hospitals are grouped into 4 peer groups and measured for quality, cost efficiency and population health management. In 2014, the program paid hospitals nearly \$180 million dollars in rewards. Measures are grouped under five

categories. Each category has a weight that has evolved over the years. Performance is then aggregated into a P4P score

Program Measure	Potential Program Weight	Measure Performance	P4P Score
Collaborative Quality Initiatives (10)	40%	97%	38.8%
Hospital Cost Efficiency	20%	80%	16.0%
Population-Based Performance	20%	100%	20.0%
All-Cause Readmissions	10%	90%	9.0%
Daily Hospital Census Reporting (ADT)	10%	100%	10.0%
P4P, Overall	100%		93.8%

Figure 3: PHA IP P4P Scoring Model

One study looked at the Quality Adjusted Life Year (QALY) of the program and found only a low cost per QALY at \$30,000 which implies that the incentives are cost-effective, but the study was limited. There have been no published studies since evaluating the impact of the program (Nahra T, 2006).

Cost per Case compared to Statewide Mean	Score
More than 0.5 standard deviation below	125%
Within 0.5 standard deviation of statewide mean	90%
Between 0.5 and 1.0 standard deviation above	50%
More than 1.0 standard deviation above	0%

Cost per Case compared to Target Inflation Factor (NHIPI)	Score
Actual \leq 25% of target	125%
Actual more than 25% but \leq 50% of target	90%
Actual more than 50% but \leq 75% of target	75%
Actual more than 75% but \leq 100% of target	62.5%
Actual more than 100% but \leq 125% of target	50%
Actual more than 125% but \leq 175% of target	37.5%
Actual more than 175% of target	0%

Figure 4: PHA IP Example-Hospital Cost Efficiency

The Community Care Transition Project (CCTP)

Within the Affordable Care Act, the Community Care Transition Project received funding in 2012 to test models that improve care transitions from the hospital to other settings and reduce hospital readmissions. This was selected as a focus area for P4P because one-fifth of all Medicare patients (2.6 million elderly

patients) are readmitted to hospital 30 days within being discharged. 72 organizations volunteered to participate in the program. The program monitors performance through quality and utilization measures such as 30-day readmission rates and emergency room visits. Participating hospitals are given 2 year agreements with continued participation if they can reduce their rates of 30-day readmissions. Hospitals receive a reward per discharge that does not result in a readmission (CMS, 2015).

According to the program website, by the end of 2013, the program achieved a 40% reduction in preventable adverse events, a 20% reduction in preventable 30-day readmissions and a savings of \$35 Billion in three years. (CMS, CCTP Readmissions, 2015).

The United Kingdom

Quality and Outcomes Framework (QOF)

In the UK, the government introduced the Quality and Outcomes Framework (QOF) P4P program in 2004. It was designed to reward General Practitioners (GP) each year for how well they care for patients rather than simply how many they treat. The long term goal was to standardize improvements in the delivery of outpatient medical services. Payment was based on 136 measures for family practices. Each measure is worth a maximum number of points. A total of 610 points covered clinical measures (i.e. diabetes and hypertension, 157 points were distributed among public health measures (i.e. smoking cessation, obesity), 100 points were given on quality and productivity (i.e. reduced emergency room admissions and reduced hospital outpatient referrals), and 33 points were given for patient experience measures (i.e. length of patient consultations and patient satisfaction). In 2013-2014, there were a maximum of 900 points available. GP practices were rewarded financially for each point they achieve in the prior year. In 2013-2014, this was about £157 per point. (NHS, 2013). Although participation in the project is voluntary, 99% of GP practices in the UK participated. Early studies found that comparisons of pre-QOF and post-QOF results show significant improvement in patient-level outcomes and some improvement in access by reducing inequalities in the delivery of services, but the overall conclusion is that QOF has made a small but significant improvement to healthcare quality. (Campbell S, 2007). A more recent survey of the literature concluded that QOF has had only a limited impact on improving health outcomes because the measures it uses are process oriented measures. (Langdown C, 2014). An example of QOF measure (NHS, 2013) can be seen in Figure 5.

Hypertension (HYP)

Indicator	Points	Achievement thresholds
Records		
HYP001. The contractor establishes and maintains a register of patients with established hypertension	6	
Ongoing management		
HYP002. The percentage of patients with hypertension in whom the last blood pressure reading (measured in the preceding 9 months) is 150/90 mmHg or less	10	44–84%
HYP003. The percentage of patients aged 79 or under with hypertension in whom the last blood pressure reading (measured in the preceding 9 months) is 140/90 mmHg or less <i>NICE 2012 menu ID: NM53</i>	50	40–80%
HYP004. The percentage of patients with hypertension aged 16 or over and who have not attained the age of 75 in whom there is an assessment of physical activity, using GPPAQ, in the preceding 12 months <i>NICE 2011 menu ID: NM36</i>	5	40–80%
HYP005. The percentage of patients with hypertension aged 16 or over and who have not attained the age of 75 who score 'less than active' on GPPAQ in the preceding 12 months, who also have a record of a brief intervention in the preceding 12 months <i>NICE 2011 menu ID: NM37</i>	6	40–80%

Figure 5: QOF Measure--Hypertension

Australia

Australia's pay-for-performance (P4P) program for general practitioners

The voluntary program pays GPs A\$40 and A\$100 in addition to fee-for-service payment for providing patients recommended diabetes and asthma treatment over a year, and A\$35 for screening women for cervical cancer who have not been screened in 4 years. The program focuses on capacity payments such as for continuity of care and or access to services (Wright, 2012). There was a short-term increase in diabetes testing and cervical cancer screens after program implementation. The increase, however, was for all GPs. Neither signing onto the program nor claiming incentive payments was associated with increased diabetes testing or cervical cancer screening. GPs reported that the incentive did not influence their behavior, largely due to the modest payment and the complexity of tracking patients and claiming payment. (Green, 2013).

Taiwan

Best Practice Pay for Performance Program for Breast Cancer

In 2001 the Bureau of National Health Insurance in Taiwan implemented a P4P scheme for breast cancer.

The program covered both medical costs and drug fees for both inpatient and outpatient services. Hospitals with more than 100 cases of breast cancer annually, a multidisciplinary team for breast cancer care and an in-hospital database that routinely collected survival and recurrence information were eligible to participate in the P4P program. Patients enrolled in the program are paid for through a bundled payment called 'treatment mix' which grouped treatment options (surgery, chemotherapy, radiotherapy etc.) based on guideline recommended treatment for the specific stage of breast cancer. Payment for these 'treatment mixes' are set higher than for the original case-based payment for surgery and the fee for service for other related services. The hospital can receive the P4P payment if the patient receives the full panel of treatments outlined in the plan. One study found that patients enrolled in the program had better quality of care than non-enrolled patients in the form of better 5 year overall survival and a lower rate of reoccurrence (Kuo RNC, 2011).

France

Performance Based Contracts to Improve Individual Practice (CAPI)

In 2009, France introduced a P4P scheme for primary care physicians. The objective was to reduce healthcare expenditures while improving clinical guideline compliance. Performance was rewarded based on measures for prevention, chronic disease management, and cost-effective drug prescribing. The program has faced resistance from physicians and has been criticized because GPs generally have individual practices and many of the measures are regarding coordination of care, so they are not applicable (Maeda, 2013).

Pros and Cons of P4P Systems

It is clear that there are many lessons to be learned from existing P4P programs. Many of those lessons are summarized here in the form of pros and cons.

Pros

1. Reporting on quality measures has become more accepted by providers and used more by payers.
2. The public has access to quality information about the performance of providers for the first time (some P4P programs keep their results confidential, but most accept that public reporting is most effective).
3. Physician level P4P programs can establish a direct link between quality and cost. For example, QOF participating physicians receive 30% of their income from the QOF incentive payments.

4. P4P has been seen to work well for primary care services when clinical guidelines are established and commonly accepted.
5. P4P has the potential to combine quality, cost and access objectives in measures that cover structure, process and outcomes.
6. The system has inherent unintended incentives for providers to avoid complicated high-risk patients and pursue low risk patients instead.
7. P4P requires some ethical evaluation of patient cases. For example, if patient X has no risk factors, but falls during an inpatient stay and patient Y has several risk factors and falls during an inpatient stay, how would disincentives be applied to patient X and Y differently? Another example is with hospital infections because it can be difficult to determine if patients had infections upon arrival or acquired them during the hospital stay.

Cons

1. Although theoretically, P4P systems should improve the quality of care provided, the literature is weak on evidence to support the theory.
2. P4P plans can guide providers towards adverse selection activities whereby they accept patients more easily in compliance with the measures. Difficult, comorbidity patients may be left out.
3. P4P systems must be designed to ensure that hospitals and physicians that serve high numbers of low-income patients can receive enough funding to compete with wealthier organizations for P4P funding.
4. There is no universally accepted definition of good performance. Stakeholders are not in agreement on how P4Ps should be structured.
5. There is no clear consensus on how providers should be given feedback on their performance. When feedback is slow, the value of that feedback is reduced and taken less seriously.
6. The development of measures is not standardized which makes benchmarking and comparisons across organizations and P4P programs difficult.
7. Most hospital information systems are not designed to support the kind of reporting on measures that is required by P4P programs.
8. It is difficult to establish the connection between quality and cost in hospitals because incentive payments do not reach the physicians whose behavior you are trying to change. The link is more abstract and therefore has less impact than physician level P4P programs.
9. P4P systems rank providers according to performance which means that a large number of providers will be labeled 'bad'. This does not support the overall goal of including stakeholders in efforts to improve health care quality. High performers will be rewarded, but poor performers will have penalties so that, in the long term, they will have fewer resources available to them to improve the quality of their services.
10. Healthcare providers may focus their attention only on the areas addressed in the P4P program,

ignoring issues of quality and cost that may be critical to their organization's overall success.

Key Success Factors for P4P Programs

Upon reviewing the literature regarding the various P4P programs around the world, the following key success factors emerge:

1. Incentives need to be large and widespread if the model is to be effective (Jha A. J., 2012)
2. Incentives need to be distributed at the clinical department to be effective (Glasziou, 2012; Jha A. J., 2012; Sutton MS, 2012)
3. The impact of proposed models should be modelled and carefully evaluated both prior to and at regular intervals during implementation (Stockwell, 2010)
4. The impact analysis should include consideration of the potential for regional disparities, as there is some evidence in the literature that some payment for performance models have disadvantaged rural hospitals (Stockwell, 2010)
5. Incentive structures need to focus on engendering improvement across all hospitals rather than just rewarding hospitals/services that are already performing well (Ryan A, 2012)
6. Potential perverse incentives need to be carefully considered (Glasziou, 2012)
7. Methodologies for risk adjustment need to be developed and incorporated (Ryan A, 2012)

Conclusion

Pay-for-performance programs are attractive to health system administrators (especially payers) because they provide increased transparency and evidence of activity. However, while P4P programs in primary care appear to have an effect on the behavior of primary care physicians, there is little evidence that these programs improve health outcomes or healthcare system quality. In addition, these programs may lead to undesired consequences, which need to be considered before their introduction. One thing emerges clearly, that is no single approach is going to solve the iron triangle of quality, access and cost. It will take a combination of programs with incremental impact to improve quality of care and reduce costs to achieve sustainable high quality health care delivery systems. But the selection of those programs must be considered, because misaligned quality drivers can have the undesired effect of negating other programs.

Systems considering P4P programs should ask themselves questions about appropriateness, such as: Will the clinical action defined in the measure actually lead to better patient outcomes? Are there existing measures for the desired behavior that are reliable, valid and most importantly implementable? Does the measure adequately address the reasons that behaviors are not in line with standards? Will money fix the problem or are there other ways to change behavior? Are there any unintended negative drivers associated

with the measure? Once the measures have been selected and concluded to be appropriate, it is necessary to look at the systems and structures that will be needed to achieve the desired change.

P4P continues to be a promising avenue to explore improving quality and cost, but experiments so far have been less than convincing. More research is needed to examine small and large scale P4P programs, to better understand the success and failure points of P4P approaches.

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