

White Paper

A Re-engineered Delivery Model for Transitions of Care: Addressing Evolving Market Trends

Prepared for Boehringer-Ingelheim by:



Discern, LLC
1501 Sulgrave Avenue, Suite 302
Baltimore, Maryland 21209
(410)542-4470
www.discernconsulting.com

Transitions of Care Pay-for-Performance Program Blueprint

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Key Points

Problem:

The U.S. hospital readmission rate is higher—and sometimes significantly higher—than in other industrialized nations.

Aus	Can	Fr	Ger	Neth	NZ	UK	US
11%	17%	7%	9%	17%	11%	10%	18%

Despite climbing readmission rates, many patient readmissions can be prevented by providing improved quality of care, especially during care transitions. Unnecessary hospital readmissions negatively affect patients and increase healthcare costs.

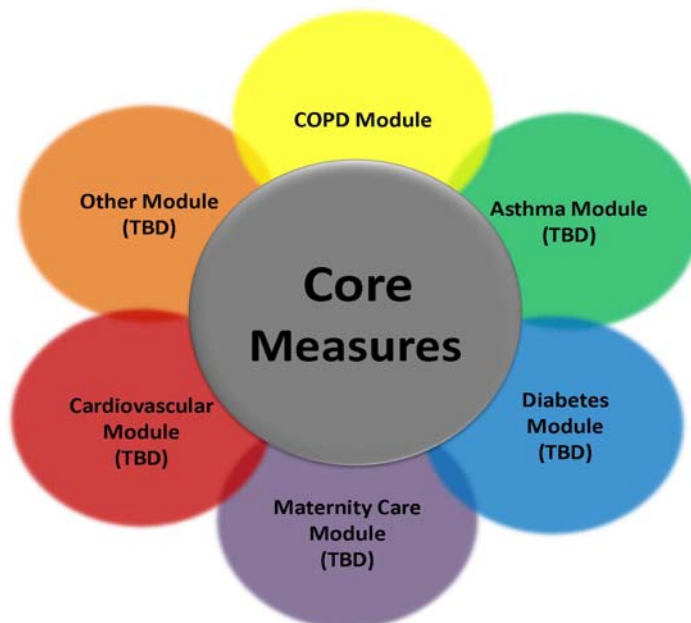
Response:

Pay-for-performance (P4P) programs have been shown to improve health system performance. Guided by a panel of clinical experts, we have developed a P4P program for transitions of care that includes:

- Performance Measures
- Scoring
- Recommended reward levels

The program includes measures and rewards for all-patients and separate modules focusing on specific clinical areas. It is recommended that the implementation of the core measures foundational program be required before implementation of supplemental modules:

- **Core Measures** for all-patients discharged from the hospital (Foundational)
- **COPD Module** patients discharged from the hospital (Supplemental)



Executive Summary

As the health of our nation worsens and chronic disease rates climb, it is becoming apparent that our health system is poorly equipped to meet the challenges it faces. Central to this is a payment system that fails to reward the coordination and communication required to effectively treat patients moving between providers. A more complex health system and increased patient morbidity means patients will experience more transitions of care in an increasingly disjointed system. As defined by The Medicare Quality Improvement Community, transitions of care are when a patient moves between providers and treatment settings as their condition and health care needs change.¹

Successful transitions of care can lead to high-quality patient experiences, improved healthcare outcomes, and lower costs. This is particularly relevant from the point the patient is released from a hospital. If medical care falls short after hospital discharge, readmission rates will be one indicator of this shortcoming.

Poor outcomes in transitions of care and subsequent costs associated with readmissions could be reduced through improved health care management. Pay-for-performance (P4P) programs have shown that physicians are able to improve the quality of care they deliver and that increased payment can be a motivation to do so.

In light of the burden poor transitions of care create and the benefits a pay-for-performance (P4P) program can offer, we propose a new strategy for building a P4P program to improve care once a patient is discharged from a hospital.

In P4P, standards of quality care are reflected through measurement of provider performance. The criteria used as the basis to select measures for inclusion in the transitions of care P4P program were the clinical relevance, clinical impact, and feasibility. With measures selected, we created scoring and reward methodologies to align achievement of established performance levels with increased reimbursement.

Given its prevalence and impact on patient health, burden on payers, and opportunities for improvement, transitions of care is an appropriate candidate for pay-for-performance. This white paper contains the details necessary for a health care purchaser to adopt transitions of care as a new P4P program, or to add it to existing P4P efforts. In addition, a P4P module was created for specific types of patients released from a hospital: those diagnosed with COPD. Although only one module is included in this white paper, the transitions of care P4P system is such that one could add additional modules for other disease states and conditions at a future time.

As P4P programs become more established and mainstream, it will be important for health care purchasers to expand their scope to include the wide range of clinical challenges affecting patients. In addition, this P4P program is compatible with other payment reform initiatives such as the Patient Centered Medical Home (PCMH), Episode-Based Payment, Accountable Care Organizations (ACO), and the Patient Protection and Affordable Care Act of 2010 (PPACA).

Background and Burden of Transitions of Care

The flaws and opportunities for improvement of our nation’s health care system have been well documented.^{2,3, 4,5} An emphasis on specialty and fee-for-service care has led to a disjointed system where from a financial perspective the patient plays the role of widgets and the provider plays the role of a producer who can maximize margins with high volumes and low turnaround times.

A particularly telling symptom of these ails lies in the patient transition among care settings, most notably between the hospital and outpatient care. As defined by The Medicare Quality Improvement Community Website, transitions of care are when a patient moves between providers and treatment settings as their condition and health care needs change.⁶ Operating in an environment with increasing technological and operational complexity, communication and effective collaboration too often suffer to the detriment of both patient outcomes and payer expenditures.

Readmission rates are important in gauging the quality of care transitions, and avoiding them is a key goal for patients, payers and providers. Areas associated with a greater risk for readmission include:

1. Health literacy
2. Patient education on discharge
3. Communication among providers between sites of care
4. Appropriate medical follow-up
5. Issues related to medications⁷

Successful transition from the hospital to the outpatient setting depends heavily on these factors; however, evidence shows the system is failing to address them.

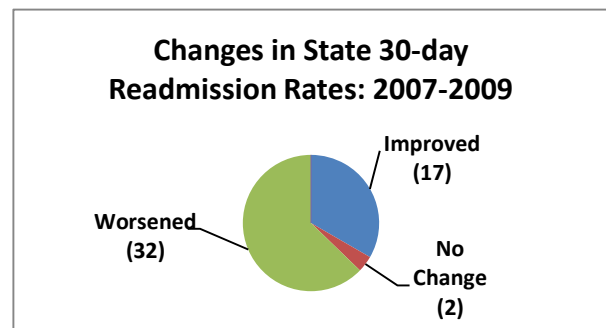
In addition to dealing with a more complex health care system, patient morbidity is becoming increasingly complex across the country. Today, 125 million people are living with chronic illness and those with multiple chronic diseases visit up to 16 different physicians a year.⁸ Not surprisingly, these activities have negative effects on care transitions with one in five hospitalizations being complicated by an adverse post-discharge event⁹ and 30% of post-operative patients having at least one potentially harmful medication discrepancy.¹⁰ Likewise, analysis of Medicare data showed the national average 30-day readmission rates to be around 18%.¹¹ Put into context, the U.S. does not perform well when compared to other advanced healthcare systems throughout the world:

Table 1

Aus	Can	Fr	Ger	Neth	NZ	UK	US
11%	17%	7%	9%	17%	11%	10%	18%

Among 8 industrialized nations, the U.S. had the highest rate of patients who were readmitted to the hospital or had to go to an emergency department as a result of complications that occurred during recovery.¹² Additionally, Medicare data shows that in the majority of states, the 30-day readmission rates are getting worse.¹³

Figure A



Evidence reveals that transitions of care are prevalent and of poor quality. Navigating today’s healthcare landscape, patients are experiencing high numbers of transitions between care settings and are more likely to end up back in the hospital because of resulting complications.

Transitions from the hospital to the outpatient setting deserve particular attention. Of several types of transitions, the hospital to home transition has been shown to have the most problems associated with Emergency Department (ED)

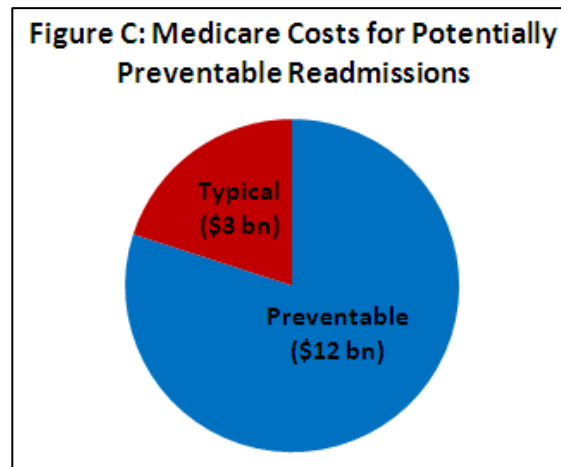
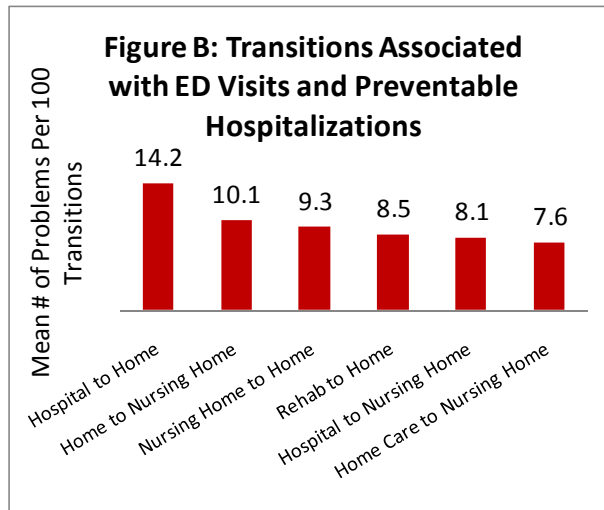
visits and preventable hospitalizations.¹⁴ Both of these outcomes are indicators of poor patient health status, but are also drivers of high health care expenditures. After leaving the care of inpatient providers, patients often rely on and become the responsibility of their primary care physicians. Having a strong relationship and understanding of the patient, these providers are well positioned to provide the necessary monitoring, coordination and care that can reduce the likelihood of a patient experiencing complications and readmission related to the original clinical issue. As mentioned above, patients with higher levels of

morbidity are particularly prone to experiencing poor transitions of care. One example includes patients leaving the hospital with COPD. In each case, there are additional measures physicians should take during the care transition to help avoid that patient experiencing a readmission. Not

only are issues related to poor transitions of care prevalent, but they are also extensive in their burden to both patients and payers. Discontinuity and poor transitions of care have negative impacts on patients’ well-being.⁷ Moreover, suboptimal communication between hospital-based and primary

care physicians at discharge negatively affects continuity of care and can contribute to adverse outcomes.¹⁵ It’s clear that effective communication during transitions is critical. A poor transition often means a poor understanding of health communication which can result in negative consequences for the patient. These include difficulties navigating the healthcare system, non-adherence to prescription

medications and dosages, and missed physician appointments.¹⁶ The consequences of poor transitions for patients range from ineffective courses of therapy to readmission and even death. Many of these issues are in fact preventable. Data

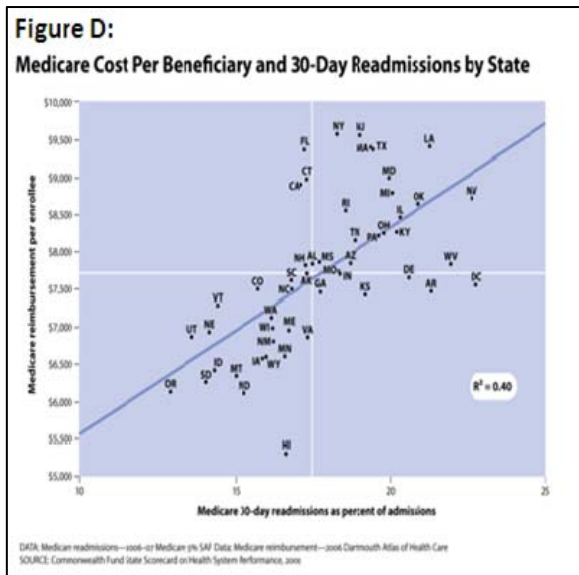


released by Medicare shows that it spends \$15 billion dollars on 30-day readmissions, of which \$12 billion is spent on potentially preventable readmissions.¹⁷

Payers footing the healthcare bill for much of this additional care are significantly impacted via increased expenditures for preventable readmissions. State-by-state, higher 30-day readmission rates directly correspond to higher per patient costs.¹³ The average Medicare payment for a potentially preventable readmission totaled approximately \$7,200.¹⁸ See Figure D.

Compounding employer's health insurance expenses is the cost of lost productivity and absenteeism associated with poor transitions. When considering the most common chronic conditions (which are most at risk for poor transitions), gaps in routine, quality care result in an estimated 66.5 million lost workdays (estimated based on both absenteeism and presenteeism).¹⁹

Because those with chronic disease experience more care transitions, employers can be sure the total economic burden of poor transitions is much higher than direct medical expenses initially suggest. Considerable prevalence, high health care utilization and cost, and severe impact on employee health and productivity are all important reasons that payers should take notice. Organizations seeking to gain a competitive advantage and reduce their expenses would be wise to take a proactive approach to poor quality transitions and costly readmissions.



Transitions of Care - COPD Patients

As defined by the American Thoracic Society in a 2004 report, COPD is a preventable and treatable disease state characterized by airflow limitation that is not fully reversible.²⁰ COPD often includes the presence of chronic bronchitis and emphysema. Because it is not a disease that appears suddenly, signs of COPD vary and are often persistent in nature. Symptoms include:

- Persistent cough
- Increased mucus production
- Shortness of breath, especially during physical activities
- Wheezing
- Chest tightness
- Frequent respiratory infections²¹

The primary risk factor for COPD is smoking, which accounts for 80-90% of COPD deaths. A second major risk factor for COPD is exposure to air pollutants, including those found in occupational settings. Studies have shown that 19.2% of COPD cases were caused by exposure to dust and chemicals while at work.²² Another risk factor is age, as most diagnoses occur after age 40. See Figure E. There is also ongoing research into genetics as an influencing factor for COPD.²³

While COPD most often develops after long-term exposure to pollutants, the disease does affect America's working population. Of the estimated 24 million people with some degree of impaired lung function, only 30% are actually above the age of 65.²⁴ These figures may put the

prevalence of COPD close to diabetes, a disease that receives considerable attention in this country. The National Institute of Health estimates the prevalence of diabetes in the U.S. to be about 23.6 million (both diagnosed and undiagnosed).²⁵

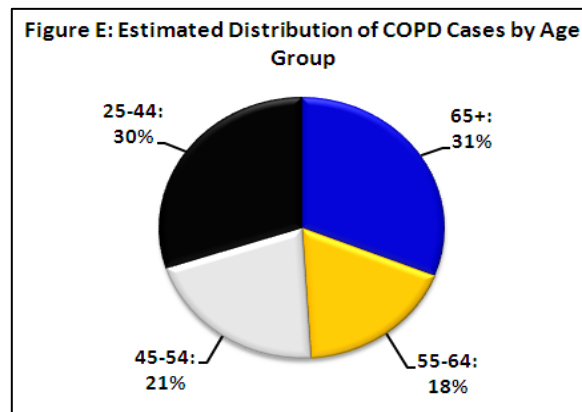
COPD has become the nation's fourth leading cause of death.²⁶ Of the 6 major causes of death from 1970-2002, COPD was one of only two diseases with increased rates; the mortality rate for COPD increased by 102% while diabetes rose 3.2%.²⁷ In 2005, the disease was also responsible for 721,000 hospital discharges – higher than any previous recorded year.²⁸ COPD is often not caught until it has reached moderate and severe stages. For this reason, those with COPD suffer from a poorer quality of life as it can limit even the slightest the amount of activity a person is able to handle.

Burden of Poor Transitions of Care - COPD Patients

At a rate of 22%, COPD patients experience more readmissions than the average hospitalized patient.²⁹ Much of the costs associated with chronic diseases like COPD are attributable to preventable complications and hospitalizations. In 2007, the total estimated cost of COPD nationwide was \$42.6 billion. Direct medical costs were \$26.7 billion, while indirect

morbidity and mortality costs were \$8 and \$7.9 billion respectively.³⁰

On top of this, absenteeism and presenteeism accounts for 58 million lost work days each year. Eight percent of those with

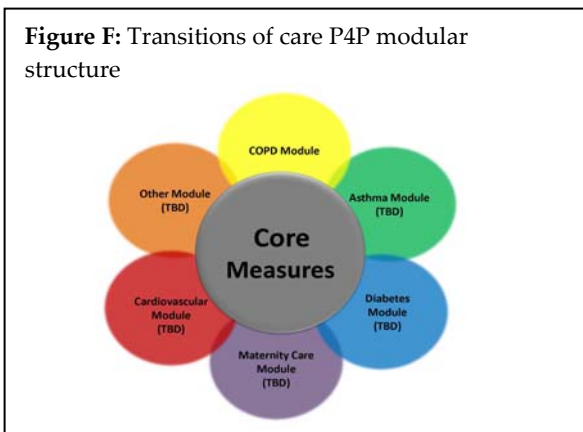


chronic bronchitis and 70 percent of those with emphysema reported that their conditions have limited the amount of work they can do.³¹ The National Business Group on Health reported that indirect costs from lost productivity and disability due to COPD totaled \$16.3 billion in 2004.³²

Transitions of Care P4P Core Measures and Supplemental Modules

In light of the very real burden poor transitions of care create and the benefits a P4P program can offer, we propose a new strategy for building a P4P program to improve care once a patient is discharged from a hospital. In addition to creating a P4P program that covers all patients who are released from a hospital, we propose a P4P program module for a specific patient population: those with chronic obstructive pulmonary disease (COPD). While COPD is the only module included in this whitepaper, other clinical areas such as diabetes, atrial fibrillation and cardiovascular disease could be the focus of future modules.

It is recommended that the implementation of the core measures foundational program be required before implementation of supplemental modules. See Figure F.



Opportunities for Improved Care

Medical errors in the hospital setting receive considerable and deserved attention. There are also significant opportunities to reduce preventable adverse events once a patient is released from a hospital. A guide for improving transitions of care developed by the Institute for Healthcare Improvement and the Robert Wood Johnson Foundation states,

“Poorly executed transitions in care negatively impact patients’ health and well-being, family resources, and unnecessarily increases the costs incurred by health care systems and the patients, families, and communities they serve. Patients are interested in avoiding hospital admissions and, when possible, minimizing symptoms, regaining optimal functioning, and maintaining a good quality of life. These goals cannot be overlooked by health care professionals, and need to be included in the design of patients’ care plans. Maintaining continuity in patients’ medical care is especially critical following discharge from the hospital, and for older patients with multiple chronic conditions this “handoff” period takes on even greater importance.”⁷

Substantial variation exists in rates of readmission across the country. This highlights the issue of poor quality care but also means there is real opportunity for improvement among many providers. According to data published in the 2009

Commonwealth Fund State Scorecard on Health Systems Performance there is almost two-fold variation in readmission rates from state to state. Oregon had the lowest rate of readmission at 13%, while the District of Columbia had the highest rate of readmission at 23%. CMS reports it could save up to \$5 billion a year if all states achieved readmission rates on par with those of the best performing states.¹³

The National Transitions of Care Coalition (www.ntocc.org) outlines six areas for improvement of care:

1. Improve communications during transitions between providers, patients and caregivers
2. Implement electronic medical records that include standardized medication reconciliation elements
3. Establish points of accountability for sending and receiving care, particularly for hospitalists and Primary care physicians who spend a substantial portion of their practice caring for postacute or subacute patients/clients in skilled nursing facilities
4. Increase the use of case management and professional care coordination
5. Expand the role of the pharmacist in transitions of care
6. Implement payment systems that align incentives and include performance measures to encourage better transitions of care

Many preventable incidents are due to failures along these areas. The frequency of communication between hospitals and primary care physicians at patient discharge is found to be very infrequent.¹⁵ Patients tend to have lower readmission rates if their

primary care physician reviews their discharge summary before their first follow-up visit.³³ However, many patients see physicians in follow-up visits before they have reviewed the summary.¹⁵

Studies looking at interventions related to these improvement targets show promising results. Actions in programs showing evidence of reducing hospital readmissions include:

1. Care coordination*
2. Follow-up
3. Patient education
4. Post discharge medication reconciliation

One intervention found that when patients have follow-up appointments arranged, are given enhanced patient education, and have medication reconciliation confirmed, they are 30% less likely to have hospital utilization (ED visits plus readmissions) within 30 days and have a clearer understanding of post-discharge care instructions than those who don't. Total avoided costs averaged \$412 per patient.³⁵

There is room for improvement in both clinical and cost outcomes. Enhanced coordination of care and discharge support has been shown to significantly reduce costs associated with readmissions – over \$21,000 per chronically ill patient.³⁶ Looking at average cost of hospital admissions, readmissions rates and national variation around this mean we can estimate per person savings from reducing readmissions

* Care coordination is a function that helps ensure that the patient's needs and preferences for health services and information sharing across people, functions, and sites are met over time. Coordination maximizes the value of services delivered to patients by facilitating beneficial, efficient, safe, and high-quality patient experiences and improved healthcare outcomes.³⁴

through improved care. Table 2 includes data from a 2006 Commonwealth Fund report that shows variation in readmission rates around the mean national rate of 18%.¹¹ In the United States, the average cost of a hospital admission is \$7,340 per admission.³⁷ Based on this, if average providers were to improve their transitions of care by reducing their patients' readmission rates by 4%, or 14%, it would put them in the top 10th percentile. In addition, achieving a 14% readmission rate would reduce costs due to readmissions by \$294 per patient. Multiplied by an entire employee or member population, cost savings in the tens of millions are possible.

Table 2

National Variation in Readmission Rates	
National Mean	18%
10th Percentile	14%
25th Percentile	16%
75th Percentile	20%
90th Percentile	22%

Physicians can have a direct influence on improving all areas of their patients' transition of care. However, physicians are not currently reimbursed for their efforts in these areas. Until financial incentives are aligned with clinical goals, there will always be an inherent disconnect between the two.

Opportunities for Improved Care – COPD

As one of the most prominent chronic diseases in this country, patients with COPD experience more transitions of care, visiting up to 16 physicians per year.³⁸ This makes them particularly susceptible to poor quality of care so often associated with transitions.

CMS data shows that COPD is the 3rd leading cause of readmissions, contributing to 4% of all readmissions.²⁹ Between 40-50% of COPD patients discharged from hospitals are readmitted during the subsequent year.³⁹

An increased emphasis on education and communication to improve continuity and collaboration between patients and various healthcare providers can reduce the rate of unplanned hospital admissions. Interventions can reduce the rate of emergency department visits for acute exacerbations by over 40% as well as significantly reduced unplanned family physician visits.⁴⁰

P4P Background

Better quality is a common theme of many health care reform efforts, especially in light of the growing evidence base that suggests quality of care is often far from ideal. The opportunities for improving quality while reducing costs are substantial. An analyses of several national and regional data sets published in the New England Journal of Medicine shows that potentially avoidable costs (PACs) account for 22% of all private-sector health care expenditures in the United States.⁴¹

One quality reform movement gaining traction has been the establishment of P4P systems that reward providers delivering higher quality health care. The Agency for Healthcare Research and Quality defines a P4P program as, "any type of performance-based provider payment arrangements including those that target performance cost measures."⁴² P4P programs are designed to address a fundamental flaw in our health care system: often payment is not aligned with optimal

performance, but instead rewards high volume and high intensity services. P4P overcomes this by aligning financial reward with improved outcomes, which are a result of changes in behaviors. Effectively linking physician payment and quality of care is a response to escalating health care costs.

For readmission rates to serve as an indicator of hospital quality and performance, it is necessary to develop a methodology that identifies, in a clinically-precise manner, those readmissions that are potentially avoidable. There are many organizations that exist in this arena that can meet this need such as the Leapfrog Group, Bridges to Excellence (BTE), and the National Business Coalition on Health. These organizations have all developed programs working to improve health care quality.

According to a 2007 P4P and Consumer Incentive Survey conducted by Med-Vantage® and The Leapfrog Group there were 258 P4P programs from 148 sponsors nationwide. The majority of the sponsors are commercial health plans, but the Federal government (CMS), state governments (Medicaid), employer groups and coalitions also offer P4P programs. Most sponsors have more than one P4P program to target different provider types.⁴³

Existing P4P programs cover a range of treatment areas. Bridges to Excellence, a not-for-profit health care quality organization created by employers, physicians, and other industry experts currently has programs in markets across the country. To date, Bridges to Excellence has rolled out programs to reward quality physician care in the following areas:

- Asthma
- Cardiac
- Congestive Heart Failure

- COPD
- Coronary Artery Disease
- Depression
- Diabetes
- Hypertension
- Medical Home
- Physician Office
- Spine⁴⁴

Health plans have been the forerunners in this area, many of which have been rewarding providers for quality clinical performance for years. One of the largest public demonstrations is the Medicare Care Management Performance (MCMP). This is a congressionally mandated test of P4P incentives to encourage physicians to improve the quality of care they provide

The three-year demonstration, which started in July 2007, involves bonus payments to physicians who manage the care of eligible Medicare beneficiaries and that meet or exceed performance standards established by CMS in clinical performance process and outcome measures. The bonuses are in addition to the normal fee-for-service Medicare payment received for services delivered.⁴⁵

As one of the major purchasers of health care in this country, employers are in the unique position of possessing both the motivation to lower costs and improve quality of care, as well as the influence to do so. Large companies may have enough resources and influence to design and implement their own P4P strategies aimed at improving the health of their employees and the value of their health care dollar. Other employers have formed coalitions that combine their purchasing power in an effort to influence health plans to implement value based initiatives like P4P. The National Business Coalition on Health

is one example of this, composed of nearly 60 local employer-led coalitions throughout the country.

A P4P program is one way for employers and payers to align financial incentives with evidence-based quality care. In effect, P4P helps ensure that payers are not just spending money for more care, but instead *quality* care. P4P has the potential to effectively address both the issues of quality improvement and cost efficient spending.

This white paper contains details necessary for a health care purchaser to adopt transitions of care as a new P4P program, or to add it to existing P4P efforts. As P4P programs become more established and mainstream, it will be important for health care purchasers to expand their scope to include the wide range of clinical challenges affecting patients. Given its prevalence and impact on patient health, transitions of care is an appropriate candidate for a P4P program. Supporting the development of a transitions of care P4P strategy is one way in which employers can proactively address the problem for their employees and dependents suffering from poor care transitions.

Compatibility with Other Payment Reform Initiatives

Patient Centered Medical Home

Another payment reform effort gaining traction in quality improvement and value-based purchasing is the patient centered medical home (PCMH). The transitions of care P4P program aligns well with the PCMH, a model built on the premise that partnerships are developed between individual patients and their personal physicians, and when appropriate, the patient's family.⁴⁶ Currently, some 27

multi-stakeholder pilots are underway in 20 states. In the private sector, these pilots are sponsored by health plans as well as coalitions of employers. Other pilots are being designed and implemented through state directives, with the goal of state-wide rollouts once pilot data on improved health care quality and reduced health care costs is collected. On the federal front, the Medicare-Medicaid Advanced Primary Care Demonstration Initiative is rolling out a PCMH model as a demonstration of efficient management and delivery of quality care.⁴⁷

Principles of the PCMH – including physician responsibility, increased communication and access, care coordination, and alignment of payment along these principles⁴⁸ – overlap with those of improved transitions of care discussed throughout this paper. Being patient-centered is crucial for the treatment of patients once released from the hospital to the home or other care setting and is very compatible with the medical home.

Episode-Based Payment

Episode-based payment is another payment reform initiative which establishes bundled payments for specific medical procedures aimed at improving health care efficiency, generating cost savings and better health care outcomes.⁴⁹ Episode-based payment is not a new concept; many types of providers and services are already paid on an episode basis. For example, Medicare has been paying hospitals a single amount for all of the non-physician services provided during a hospital stay, and some commercial insurers use a similar system for payment. In the private sector, The Integrated Healthcare Association (IHA) is launching a pilot project to test whether

episode-based payments for specific medical procedures can improve health care efficiency, generate cost savings and improve health care outcomes.⁵⁰

The episode-based payment model differs from a typical P4P model in that it bundles payment around a comprehensive episode of medical care that covers all patient services related to a single illness or condition.⁴⁹ However, both payment models reward providers for coordinating and providing high quality and efficient care. Therefore the measures detailed in this white paper could be a supplement for those providers already participating in the episode-based payment model.

Accountable Care Organization

The accountable care organization (ACO) is a health care model in which doctors and hospitals agree to take joint responsibility for keeping patients healthy and to share in any financial benefits that result. ACOs must consist of providers able to coordinate services, make investments in infrastructure, and redesign care processes. In this gain sharing framework, hospitals share with physicians any savings resulting from system changes that lead to lower costs.⁵¹

The ACO differs from a purely physician based P4P model since a physician shares in the responsibility of patient care along with other healthcare providers. However, the physician shares in the savings only if the organization meets quality and cost targets, so the ideas of the ACO can be integrated along with a P4P program. Both the public and private sectors have formed ACO pilot programs to measure how well such organizations can hold a set of providers responsible for the healthcare of a patient population.⁵²

The Patient Protection and Affordable Care Act of 2010 supports the expansion and testing of ACOs by establishing two accountable care pilots, one for Medicare and the other for Medicaid. For an ACO to participate in the Medicare pilot program it must have at least 5,000 Medicare patients. A state pediatric ACO pilot program will be established for state Medicaid programs, a pediatric ACO pilot program will be established for January 1, 2012, to December 31, 2016.⁵³

Patient Protection and Affordable Health Care Act of 2010

With the enactment of the Patient Protection and Affordable Health Care Act of 2010 (PPACA), the stage is set for the acceleration towards value based purchasing (VBP) programs such as P4P. Payment reform elements of the PPACA are aimed at controlling health care costs and improving the health care delivery system.

Specifically within the PPACA there are provisions for payment reform to encourage better quality while lowering costs through the creation of value-based purchasing utilized for physician payment.⁵³ The specifics of the many healthcare reform efforts included in the PPACA will be determined as implementation of these new pilot programs proceeds in the coming months and years.

In order to ensure alignment of payment incentives across payers, there are parts of the PPACA that call for an effective linkage to public and private sector payers. For example, the Independent Payment Advisory Board established by the PPACA is charged with submitting proposals to Congress to reduce per capita growth rate

in Medicare spending and also make recommendations to reduce cost growth and promote quality to the private sector.⁵³

Transitions of Care P4P Blueprint

To ensure a medically appropriate and economically viable measurement and rewards structure, we employed the help of several medical and P4P experts and created the following blueprint for a new transitions of care P4P program. The blueprint is organized around three main components:

- Quality measures
- Measurement process
- Scoring and rewards

Quality Measures

To evaluate and select the measures to include in the P4P program, a physician expert panel was assembled. Recommendations on potentially interested physicians were sought from professional medical organizations (i.e., NTOCC, AHA) and physician leaders identified based on published expertise and significant efforts to foster higher quality transitions of care.

As a part of this process, seven candidates were ultimately accepted to make-up the transitions of care clinical advisory committee (the 'Committee'). Of the seven candidates selected, three were specifically tasked with the COPD transitions of care P4P program module. The seven members of the Committee were selected to the P4P program group based on their specialization in care transitions and/or pulmonary disease. All are faculty members at notable institutions and organizations including Boston University School of Medicine, Tufts Medical Center, and Cleveland Clinic. Finally, all have been

heavily involved with research and important clinical trials including the Re-Engineered Discharge (RED) project, Care Transitions Program, and the National Institutes of Health National Emphysema Treatment Trial and Long-Term Oxygen Treatment Trial.

The measure selection process occurred in two phases: Compiling an inventory of existing candidate measures and selection of core program measures for inclusion.

Compile Inventory of Measures

The availability of existing, endorsed measures to assess transitions of care performance avoids the need to develop an entirely new set of measures, a more time consuming process than approving existing ones. Using existing, endorsed measures offers more immediate credibility. In identifying proposed measures for inclusion in a Transitions of Care P4P program, we began by looking at quality measures already in place. Credible health care quality organizations including the Agency for Healthcare Research and Quality (AHRQ), the American Medical Association (AMA), the National Committee for Quality Assurance (NCQA) and the National Quality Forum (NQF) have already created or endorsed and tested measures related to transitions of care.

Our search was conducted online as well as through the National Quality Measures Clearinghouse, a service provided by the U.S. Department of Health and Human Services. The National Quality Measures Clearinghouse supplies an extensive list of publicly available quality measures covering the entire spectrum of health care, and includes a detailed breakdown of each.⁵⁴ Our search for

existing transitions of care measures returned 13 viable measures relevant to a core measures P4P program and 4 measures relevant to a COPD P4P program.

Selection of Core Program Measures for Inclusion

The Committee was tasked with identifying a comprehensive set of measures to evaluate care processes and outcomes for patients after they leave the hospital, which form the basis for pay-for-performance programs as described in this white paper. The feedback was solicited through the use of structured electronic surveys. The responses from the Committee were compiled to determine if there was a consensus on the measures. Discern then followed up with the panel to collect additional feedback as needed.

The Committee evaluated the measures based upon three categories:

- **Clinical Relevance:** How well the measure aligns with current evidence-based treatment guidelines.
- **Clinical Impact:** The extent to which the measure improves health and positive outcomes (e.g., reduced hospital readmissions).
- **Feasibility:** The degree of burden that collecting data for this measure places on providers. (i.e., is providing the required information for this measure practical for a physician?)

Upon conclusion of this evaluation the Committee decided to retain 5 of the 13 core measures and 3 of the 4 COPD measures (See Appendix B for inventoried measures and Appendix D for detailed specifications of selected measures).

Selected Transitions of Care P4P Measures

Core Measures
30-day readmission rate following hospitalization*
Medication reconciliation post-discharge: percentage of discharges from January 1 to December 1 of the measurement year for whom medications were reconciled on or within 30 days of discharge
Percentage of patients, regardless of age, discharged from an inpatient facility to home or any other site of care for whom a transition record was obtained by the primary physician or other health care professional designated for follow-up care within 24 hours of discharge
Percentage of patients, regardless of age, discharged from an inpatient facility to home or any other site of care, or their caregiver(s), who received a transition record at the time of discharge including, at a minimum, all of the specified elements
IF a patient is discharged from a hospital to home and the transfer form or discharge summary indicates that a test result is pending, THEN the outpatient medical record should include the test result within 6 weeks of hospital discharge or indicate that the result was followed up elsewhere or why the result cannot be obtained
COPD Module
Pharmacotherapy management of COPD exacerbation: percentage of chronic obstructive pulmonary disease (COPD) exacerbations for members 40 years of age and older who had an acute inpatient discharge or ED encounter between January 1 to November 30 of the measurement year and who were dispensed a systemic corticosteroid within 14 days of the event
Pharmacotherapy management of COPD exacerbation: percentage of chronic obstructive pulmonary disease (COPD) exacerbations for members 40 years of age and older who had an acute inpatient discharge or ED encounter between January 1 to November 30 of the measurement year and who were dispensed a bronchodilator within 30 days of the event
30-day readmission rate following hospitalization: COPD Patients*

* Concurrent with existing BTE clinical outcomes measures, all the selected measures are presented without risk-adjustment. However, risk-adjustment may be desirable to hedge against characteristics of patient mix a physician might feel provides an inherent disadvantage. If a participating physician feels his/her population warrants risk-adjustment and so desires, they may submit risk-adjusted data as determined by an external performance assessment organization (PAO) based on generally accepted methodologies. See CMS' hospital 30-day readmission rate measure as one example of risk-adjustment:

http://www.hospitalcompare.hhs.gov/Hospital/Static/InformationforProfessionals_tabset.asp?activeTab=2&Language=English&version=+&subTab=8#POC5.

Measurement Process

After identifying which measures will be used to assess performance, the second major component of a P4P program is conducting the actual measurement of care. The process of measurement involves deciding what data are necessary to measure compliance, identifying the source of that data, and analyzing that data to score performance against measure thresholds. The result of this process then determines physicians' performance and whether or not they are eligible for rewards under the P4P program.

Scoring and Rewards

Point values and a scoring system then must be allocated to the measure set in order to assess physician performance against the measures. This was accomplished using the expert panel's scores for each proposed measure. Lastly, financial incentives were derived using an analysis of savings from avoided readmissions and expected improvement in readmission rates. Properly aligning financial incentives with quality care is a key component of a successful P4P program.

Transitions of Care P4P Blueprint: Core Measures

Core Measures

Measure Name	Description
30-day readmission rate	30-day readmission rate following hospitalization
Medication reconciliation	Percentage of discharges from January 1 to December 1 of the measurement year for whom medications were reconciled on or within 30 days of discharge
Transition record after discharge	Percentage of patients, regardless of age, discharged from an inpatient facility to home or any other site of care for whom a transition record was transmitted to the primary physician or other health care professional designated for follow-up care within 24 hours of discharge
Transition record includes specified elements	Percentage of patients, regardless of age, discharged from an inpatient facility to home or any other site of care, or their caregiver(s), who received a transition record at the time of discharge including, at a minimum, all of the specified elements
Pending test result follow-up after discharge	If a patient is discharged from a hospital to home and the transfer form or discharge summary indicates that a test result is pending, then the outpatient medical record should include the test result within 6 weeks of hospital discharge or indicate that the result was followed up elsewhere or why the result cannot be obtained

Core Measures Scoring

Current BTE care link scoring methods were used as a template to develop the program scoring methodology. Based on this, we sought to create a structure to meet the following parameters:

- The sum total of points for the program shall be 100 points, with the attainment of 60 points or greater qualifying the physician for recognition
- The program scoring shall follow a continuous scoring strategy, which allows for physicians to receive partial credit.
- Three program levels shall be developed with each subsequent level representing a higher level of excellence in the delivery of care to discharged patients. A different per patient reward amount is given depending on which level of recognition physicians achieve.

First, weights were applied to each program measure with increasing weight granted to those measures judged to have the stronger clinical impact (i.e. linked to improved patient outcomes). Clinical impact and subsequent measure weighting was included as part of feedback obtained from the expert clinical advisory panel in their review of proposed measures. From this, the scoring methodology was developed by assigning available points to each measure in proportion to these weights, summing to 100 points across all measures (Appendix C provides a grid detailing the weights and scoring methodology).

Ultimately, high quality care is evidenced by reducing hospital readmissions, which are costly and often

indicative of acute episodes that are very likely due to poor quality follow-up monitoring and care by a primary care physician. A low readmission rate directly correlates to improved health status of patients and cost savings from avoided hospitalizations. Payers implementing a pay-for-performance program offer financial rewards based on these assumed savings. Because of this, in our program all physicians must meet a minimum benchmark for hospital readmission rate that is equal to or greater than the 75th percentile (see Table 3 below) to qualify for any recognition level and rewards. Good performance on the remaining measures indicates a higher likelihood that lower readmission rates are actually the result of quality care along the performance measures, and not confounding variables or random chance. Once qualified, the magnitude of physician rewards will be determined based on recognition level and performance along all measures.

Level I: Focusing on a physician-centric† view of measurement, level I looks at individual metrics summed to produce a final score. Using each individual measure, the physicians are scored based on the percentage of patients who meet or comply with the measure multiplied by the total number of points assigned to the measure. For example, if 80% of a physician’s previously hospitalized patients had their

† Physician centric refers to performance assessment involving evaluation of physician performance based upon discrete measures (e.g. medication reconciliation). The results provide a picture of a physician’s performance on a given measure across his or her eligible patient panel. Since the process leads to physician-focused results it is said to be “physician-centric.”

medication list reconciled and there are 20 total points assigned to this measure, the physician would receive 80% of the 20 points [$0.80 \times 20 = 16.0$], or 16 points for the measure. The physician's final score is calculated by summing the score of all the individual measures. If the summed score is 60 or greater, the physician receives a level I recognition (note an exception in the case of denominator subsets- see below).

Level II: Level II is scored the same as level I, however to earn this designation the physician must earn at least 72.5 points across all measures (note an exception in the case of denominator subsets- see below). On the whole, the physician will be meeting the measures for a higher percentage of their patients and thus demonstrating a higher overall level of care (as specified by evidence based guidelines).

Level III: To earn level III recognition, the bar is raised even higher and the physician must earn at least 85 points across all measures (note an exception in the case of denominator subsets- see below). As stated above, this means the physician is delivering high quality care to more of their patients.

It should be noted that 30-day readmission rate measures are scored on a continuous basis, however because expected rates are not on a 0-100% scale scoring is calculated using a slightly different method. Using national readmission rate variation described in Table 2 above, total available points are multiplied by difference between the 90th percentile (poor care) and the physician's

observed rate taken over the range of rates from the 90th to the 10th percentiles.†

Also, certain measures use a specific subset of patients for the denominators. BTE patient sampling methodology requires data on a minimum of 25 separate patients when assessing physician performance. In the case that submitted data does not meet this minimum for a measure with a denominator subset, that measure is dropped from inclusion in the scoring process. The physician is then scored on the remaining measures and available points and must earn the given percentage of total available points to achieve recognition. A score equal to 60% of total available points earns level I, 72.5% earns level II, and 85% earns level III recognition.

Core Measures Rewards

Once the measures are selected and the scoring methodology is developed, the final step in the design of our P4P blueprint is deciding on the amount of rewards a physician can earn when participating in the program. Rewards act as a financial incentive for physicians to improve the quality of care surrounding transitions post-discharge. Incentives are aligned when payers administer bonus payments to physicians whose care is consistent with proper treatment guidelines, as evidenced by high scores on the program's measures. Implementation of a transitions of care P4P program would be sponsored by a health care payer, because whether it is a health insurance plan or self-insured employers, savings from this P4P program accrue to payers as a result of decreased readmissions stemming from reduced complications. BTE establishes recommended reward levels

† See measure specification in Appendix D for an example of score calculation.

based on the predicted amount of savings. When analyzing recommended reward amounts for our transitions of care P4P strategy, we followed the same methodology.

Readmissions after hospital discharge are often avoidable through improved quality of care. Evidence shows that improved care delivered to patients surrounding the transition from the hospital can reduce rates of readmissions. Research by The Commonwealth Fund assessed Medicare variation in 30-day hospital readmission rates and found the national average rate to be 18%. Rates for the 10th, 25th, 75th and 90th percentiles were 14%, 16%, 20%, and 22%, respectively (Table 3)¹¹.

Table 3

Core Measures Readmission Rate: Mean and Variation	
National Mean	18%
10th Percentile	14%
25th Percentile	16%
75th Percentile	20%
90th Percentile	22%

This observed variation enables us to derive rewards based on the quality of care delivered by a physician. Taking a Medicare readmission rate of 18% for an average provider, a slightly above average provider could be expected to have readmission rates of around 17%, one percentage point below the national average. A level I physician in our program is determined to be providing an improved level of care, and therefore can reasonably be expected to reduce readmission rates by this 1%. A physician earning level II recognition is delivering an even higher level of quality and may be assumed to have a readmission rate of 16%, or two percentage points below the national

average (falling in the 25th percentile). Level III represents physicians delivering extremely high quality of care. Top performers could be assumed to fall in the 10th percentile with readmission rates as low as 14%, or four percentage points below the mean. Using this variation in hospital readmission rates, program recognition level can be tied to cost savings.

In the United States, the average cost of a hospital admission is \$7,340 per admission.⁵⁵ A level I physician reducing readmission rates by 1% will be, on average, saving about \$73 worth of avoided hospitalizations per hospitalized patient per year ($\$7,340 \times 1\% = \73). Accordingly, level II physicians avoiding 2% of readmissions would be saving about \$147 per hospitalized patient per year, and a level III physician that avoids 4% of readmissions will generate \$294 per hospitalized patient per year in savings.

In our pay-for-performance program, accrued savings are split between payers and providers, with generally 50% kept by payers and 50% paid to physicians in the form of financial rewards. See Table 4 below for recommended rewards levels based on the above analysis. We believe these amounts are based on sound estimation methodology, however because healthcare purchasers will be paying out rewards, they may wish to implement payment amounts other than those recommended here, based on their own analysis or market characteristics.

Example Rewards Calculation (Level II physician)

.02 readmission rate reduction/yr ×
 \$7340/readmission/hospitalized patient =
\$147/yr/hospitalized patient savings from reduced readmissions

Payer splits savings equally with physician: **\$147**
 ÷ 2 = **\$73.5/yr/hospitalized patient with a qualifying discharge**

Table 4

Potential Savings and Rewards from Reduced Readmissions (Core Measures)*			
Recognition Level	Readmission Rate Reduction	Per Patient With a Hospital Discharge	Suggested Reward Per Patient
Level I	1%	\$73	\$36.50
Level II	2%	\$147	\$73.50
Level III	4%	\$294	\$147

* For payers implementing only the core measures, rewards are paid for every patient included. However, if supplemental modules are implemented in addition to the core measures then the core measures rewards are only given for those patients not also included in the supplemental module(s). This will prevent the payer from double paying rewards for the same patient who is part of more than one module.

Transitions of Care P4P Blueprint: COPD Module

COPD Measures

Measure Name	Description
Pharmacotherapy management of COPD exacerbation: Corticosteroid	Pharmacotherapy management of COPD exacerbation: percentage of chronic obstructive pulmonary disease (COPD) exacerbations for members 40 years of age and older who had an acute inpatient discharge or ED encounter between January 1 to November 30 of the measurement year and who were dispensed a systemic corticosteroid within 14 days of the event
Pharmacotherapy management of COPD exacerbation: Bronchodilator	Pharmacotherapy management of COPD exacerbation: percentage of chronic obstructive pulmonary disease (COPD) exacerbations for members 40 years of age and older who had an acute inpatient discharge or ED encounter between January 1 to November 30 of the measurement year and who were dispensed a bronchodilator within 30 days of the event
30-day readmission rate	30-day readmission rate following hospitalization: COPD Patients

COPD Scoring

The same scoring methodology used for the Core Measures described above is used in scoring physician performance relating to transitions of care for COPD

patients. Again, the structure follows these guidelines:

- The sum total of points for the program shall be 100 points, with the attainment of 60 points or greater qualifying the physician for recognition.
- The program scoring shall follow a continuous scoring strategy, which allows for physicians to receive partial credit.
- Three program levels shall be developed with each subsequent level representing a higher level of excellence in the delivery of care to discharged patients. A different per patient reward amount is given depending on which level of recognition physicians achieve.

Individual measures were weighted for clinical impact using expert panel feedback. Available points were assigned to each measure in proportion to these weights, summing to 100 points across all measures (Appendix C provides a grid detailing the weights and scoring methodology).

As with the Core Measures scoring, physicians must meet a minimum benchmark for hospital readmission rate among COPD patients to qualify for any recognition level and rewards (see further explanation in the Core Measures scoring section above). Once qualified, the magnitude of physician rewards will be determined based on recognition level and performance along all three COPD transitions of care measures.

Level I: Using each individual measure, the physicians are scored based on the percentage of patients who meet or

comply with the measure multiplied by the total number of points assigned to the measure. For example, if 80% of a physician's COPD patients previously hospitalized for an exacerbation received bronchodilators within 30 days of the event, the physician would receive 80% of the 30 points [$0.80 \times 30 = 24.0$], or 24 points for the measure. The physician's final score is calculated by summing the score of all the individual COPD measures. If the summed score is 60 or greater the physician receives a level I recognition (note an exception in the case of denominator subsets).

Level II: Level II is scored the same as level I; however, to earn this designation the physician must earn at least 72.5 points across all measures (note an exception in the case of denominator subsets). On the whole, the physician will be meeting the measures for a higher percentage of their COPD patients and thus demonstrating a higher overall level of care (as specified by evidence based COPD treatment guidelines)

Level III: To earn level III recognition, the bar is raised even higher and the physician must earn at least 85 points across all COPD measures (note an exception in the case of denominator subsets). As stated above, this means the physician is delivering high quality care to more of their COPD patients.

The 30-day readmission rate measures are scored on a continuous basis; however, because expected rates are not on a 0-100% scale scoring is calculated in a slightly different manner. Using the national readmission rate variation described below, total available points are

multiplied by difference between the 90th percentile (poor care) and the physician's observed rate taken over the range of rates from the 90th to the 10th percentiles.[§]

Two COPD measures use a specific subset of patients for the denominators. In the case that submitted data does not meet this minimum for a measure with a denominator subset, this scenario is scored that same as the Core Measures transitions of care program. The individual COPD measure is dropped from inclusion in the scoring process and the physician is then scored on the remaining measures and must earn the given percentage of total available points to achieve recognition. A score equal to 60% of total available points earns level I, 72.5% earns level II, and 85% earns level III recognition.

COPD Rewards

Again, rewards amounts for the COPD transitions of care module were derived from the same scoring methodology used for the above Core Measures rewards (see that section for detailed explanation). Because patients with chronic diseases like COPD experience more transitions of care,⁵⁶ delivery of good transitional care is essential to improving outcomes and avoiding hospitalizations. Improved communication and care planning are important components of effective transitions⁵⁷ and elements which have been shown to reduced rates of admissions in COPD patients.⁵⁸

Using Medicare data, the average 30-day rate of readmission for COPD patients has been found to be 22.6%.²⁹ In the absence of published data on variation of readmission rates for COPD patients, we

§ See measure specification in Appendix D for an example of score calculation.

will apply data from the same research on all-patient readmission rate variation to this average rate. As previously discussed, for a Core Measures dataset the rates for the 10th, 25th, 75th and 90th percentiles were 14%, 16%, 20%, and 22%, respectively (see Table 3 above)¹¹. Accordingly, the 10th, 25th, 75th and 90th percentiles represent a 22% and 11% variation below the mean and an 11% and 22% variation above the mean, respectively. Table 5 below summarizes readmission rate benchmarks when these percentage variations from the mean are applied to the average COPD readmission rate.

Table 5

COPD Readmission Rate: Mean and Estimated Variation**	
National Mean	22.6%
10th Percentile	17.6%
25th Percentile	20.1%
75th Percentile	25.1%
90th Percentile	27.6%

Table 5 enables us to derive rewards based on quality of care delivered by a physician. Taking a readmission rate of 22.6% for an average provider, a slightly above average provider could be expected to have readmission rates of around 21.6%, one percentage point below the national average. A level I physician in our program is determined to be providing an improved level of care, and therefore can reasonably be expected to reduce readmission rates by this 1%. A physician earning level II recognition is delivering an even higher level of quality and may be assumed to have a readmission rate of 20.1%, or 2.5 percentage points below the national average (falling in the 25th percentile above). Level III represents physicians delivering extremely high quality of care. Top

performers could be assumed to fall in the 10th percentile with readmission rates as low as 17.6%, or five percentage points below the mean. Using this variation in hospital readmission rates, program recognition level can be tied to cost savings.

In the United States, the average cost of a hospital admission for COPD is \$7,030 per admission.⁵⁹ A level I physician reducing readmission rates by 1% will be, on average, saving about \$70 worth of avoided hospitalizations per hospitalized patient per year ($\$7,030 \times 1\% \approx \70). Accordingly, level II physicians avoiding 2.5% of readmissions would be saving about \$176 per hospitalized patient per year, and a level III physician that avoids 5% of readmissions will generate about \$352 per hospitalized patient per year in savings.

In our pay-for-performance program, accrued savings are split between payers and providers, with generally 50% kept by payers and 50% paid to physicians in the form of financial rewards. See Table 6 below for recommended reward levels based on the above analysis. We believe these amounts are based on sound estimation methodology, however because healthcare purchasers will be paying out rewards, they may wish to implement payment amounts other than those recommended here, based on their own analysis or market characteristics.

Example COPD Module Rewards Calculation (Level II physician):

$$.025 \text{ readmission rate reduction/yr} \times \$7,030/\text{readmission/hospitalized patient} \approx \mathbf{\$176/\text{yr/hospitalized patient savings from reduced readmissions}}$$

** Rates rounded to the nearest 0.1%

Payer splits savings equally with physician: **\$176**
 $\div 2 = \$88/\text{yr}/$ **hospitalized patient with a
 qualifying discharge**

Table 6

Potential Savings and Rewards from Reduced Readmissions (COPD)*			
Recognition Level	Readmission Rate Reduction	Per Patient With a Hospital Discharge	Suggested Reward Per Patient
Level I	1%	\$70	\$35
Level II	2.5%	\$176	\$88
Level III	5%	\$352	\$176

* For payers implementing only the core measures, rewards are paid for every patient included. However, if supplemental modules are implemented in addition to the core measures then the core measures rewards are only given for those patients not also included in the supplemental module(s). This will prevent the payer from double paying rewards for the same patient who is part of more than one module.

Recommended Next Steps

This P4P program is well suited to address the problems that transitions of care pose to our nation and its health care system; nevertheless the P4P blueprint set forth in this paper remains a blueprint. Sponsors that wish to use our recommendations as a basis for

implementing their own transitions of care P4P program should feel free to modify details to suit the unique needs of their marketplace, member populations and networks. Essential elements of the program design are in place, but there is work to be done to move a transitions of care P4P program from the design phase to the implementation phase. Several steps that will help achieve that goal include:

- Performance Assessment
Organization Development
- Purchaser Education
- Pilot Market Recruitment and
Technical Support
- An ROI model to help purchasers understand the financial benefits of providing better transitions of care for their covered population
- Health Plan Outreach
- Aligning with objectives of the patient-centered medical home (PCMH), accountable care organization (ACO), episode-based payment and other payment reform efforts as detailed in the Patient Protection and Affordable Health Care Act (PPACA)

Appendix A: Transitions of Care P4P Blueprint Fact Sheet

Program Measures

Core Measures

- 30-day readmission rate
- Medication reconciliation
- Transition record after discharge
- Transition record includes specified elements
- Pending test result follow-up after discharge

COPD

- Pharmacotherapy management of COPD exacerbation: Corticosteroid
- Pharmacotherapy management of COPD exacerbation: Bronchodilator
- 30-day readmission rate

Scoring Methodology

- To qualify for rewards, provider readmission rate must meet minimum benchmark.
- Three levels of recognition (Levels I, II, and III)
- Each module made up of all distinct measures
- For each measure, points earned = % of patients meeting the measure X total possible points†
- Each module is scored out of 100 possible points
- 60 pts or more earns **level I recognition**
- 72.5 pts or more earns **level II recognition**
- 80 pts or more earns **level III recognition**
- If denominator subset sample does not meet minimum, measure is not scored and the recognition is achieved by physician earning a percentage of the remaining points available. 60% or greater earns level I, 72.5% or greater earns level II, and 80% or greater earns level II

†Exception: 30-day readmission rate measure scored as:

$$\frac{(90^{\text{th}} \text{ percentile rate} - \text{observed rate})}{(90^{\text{th}} \text{ percentile rate} - 10^{\text{th}} \text{ percentile rate})} \times \text{available points} = \text{points earned}$$

Core Measures Readmission Rate Variation		COPD Readmission Rate Variation*	
National Mean	18%	National Mean	22.6%
10 th Percentile	14%	10 th Percentile	17.6%
25 th Percentile	16%	25 th Percentile	20.1%
75 th Percentile	20%	75 th Percentile	25.1%
90 th Percentile	22%	90 th Percentile	27.6%

*Extrapolated from available data previously referenced

Annual Rewards (Per Hospitalized Patient Per Year)

Core Measures*			COPD*		
Level I	Level II	Level III	Level I	Level II	Level III
\$36.50	\$73.50	\$147	\$35	\$88	\$176

* For payers implementing only the core measures, rewards are paid for every patient included. However, if supplemental modules are implemented in addition to the core measures then the core measure rewards are only given for those patients not also included in the supplemental module(s). This will prevent the payer from double paying rewards for the same patient who is part of more than one module.

Appendix B: Transitions of Care Inventoried Quality Measures

To create the list of candidate measures below, we looked at sources with vetted, existing quality measures suitable for assessing care transitions. This reduced a need to develop an entirely new set of measures for a new Transitions of Care P4P program. Our search returned 13 viable measures relevant to a Core Measures P4P program and 4 measures relevant to a COPD P4P program.

Program Measure	Source
Core Measures	
30-day readmission rate following hospitalization	CMS
All-cause 30-day readmission index	Pacificare
Medication reconciliation post-discharge: percentage of discharges from January 1 to December 1 of the measurement year for adult patients for whom medications were reconciled on or within 30 days of discharge.	NCQA
Percentage of adult patients discharged from any inpatient facility (e.g., hospital, skilled nursing facility, or rehabilitation facility) and seen within 60 days discharge in the office by the physician providing on-going care who had a reconciliation of the discharge medications with the current medication list in the outpatient medical record documented.	AGS, PCPI, NCQA
Percentage of patients, regardless of age, discharged from an inpatient facility to home or any other site of care, or their caregiver(s), who received a reconciled medication list at the time of discharge including, at a minimum, medications in the specified categories.	AMA/PCPI
Percentage of patients, regardless of age, discharged from an inpatient facility to home or any other site of care, or their caregiver(s), who received a transition record (and with whom a review of all included information was documented) at the time of discharge including, at a minimum, all of the specified elements	AMA-PCPI
Percentage of patients, regardless of age, discharged from an inpatient facility to home or any other site of care for whom a transition record was obtained by the primary physician or other health care professional designated for follow-up care within 24 hours of discharge.	AMA-PCPI
Percentage of patients, regardless of age, discharged from an emergency department (ED) to ambulatory care or home health care, or their caregiver(s), who received a transition record at the time of ED discharge including, at a minimum, all of the specified elements.	AMA-PCPI
If an adult patient is discharged from a hospital to home and survives 6 weeks or longer after discharge, THEN a physician visit or telephone contact should be documented within 6 weeks of discharge and the medical record should document acknowledgment of the recent hospitalization.	RAND (ACOVE)
If an adult patient is discharged from a hospital to home and received a new chronic disease medication or a change in medication before discharge, THEN the outpatient medical record should document the medication change within 6 weeks of discharge.	RAND (ACOVE)

If an adult patient is discharged from a hospital to home or a nursing home and the transfer form or discharge summary indicates that a test result is pending, THEN the outpatient or nursing home medical record should include the test result within 6 weeks of hospital discharge or indicate that the result was followed up elsewhere or why the result cannot be obtained.	RAND (ACOVE)
If an adult patient is discharged from a hospital to home or a nursing home and the hospital medical record specifies a follow-up appointment for a physician visit or a treatment (e.g., physical therapy or radiation oncology), THEN the medical record should document that the visit or treatment took place, was postponed, or was not needed.	RAND (ACOVE)
If an adult patient is discharged from a hospital to home or nursing home, THEN there should be a discharge summary in the outpatient or nursing home medical record.	RAND (ACOVE)
COPD	
Pharmacotherapy management of COPD exacerbation: percentage of chronic obstructive pulmonary disease (COPD) exacerbations for members 40 years of age and older who had an acute inpatient discharge or ED encounter between January 1 to November 30 of the measurement year and who were dispensed a systemic corticosteroid within 14 days of the event.	NCQA
Pharmacotherapy management of COPD exacerbation: percentage of chronic obstructive pulmonary disease (COPD) exacerbations for members 40 years of age and older who had an acute inpatient discharge or ED encounter between January 1 to November 30 of the measurement year and who were dispensed a bronchodilator within 30 days of the event.	NCQA
Respiratory disease: percentage of patients discharged from a general medical unit with any diagnosis of COPD who are referred for a chronic disease management service that includes physical rehabilitation, during the 6 month time period.	Australian Council on Health Standards
30-day readmission rate following hospitalization	CMS

Appendix C: Quality Measures Scoring Grid

Core Measures	
Clinical Measures	Points Possible
30-day readmission rate ^{††}	20
Medication reconciliation	20
Transition record after discharge	20
Transition record includes specified elements	20
Pending test result follow-up after discharge ^{‡‡}	20

Total Possible Points:	100
Points for level I recognition	60
Points for level II recognition	72.5
Points for level III recognition	85

COPD	
Clinical Measures	Points Possible
Pharmacotherapy management of COPD exacerbation: Corticosteroid	30
Pharmacotherapy management of COPD exacerbation: Bronchodilator	30
30-day readmission rate	40

Total Possible Points:	100
Points for level I recognition	60
Points for level II recognition	72.5
Points for level III recognition	85

^{††} Provider must meet minimum benchmark rate to qualify for recognition at any level.

^{‡‡} Measure uses a denominator subset. If sample does not meet minimum of 25 patients for denominator subset, measure is not scored and the recognition is achieved by provider earning a certain percentage of the remaining points available. 60% or greater earns level I, 72.5% or greater earns level II, and 85% or greater earns level III.

Appendix D: Transitions of Care P4P Measure Specifications

Core Measures

1. 30-day readmission rate following hospitalization

- **Release date/latest Revision:** October 2009
- **Source:** Based on CMS 30-day readmission rate measures
- **Link:**
http://www.hospitalcompare.hhs.gov/Hospital/Static/InformationforProfessionals_tabset.asp?activeTab=2&Language=English&version=

DESCRIPTION

This measure is used to assess hospital-specific 30-day all-cause readmission rate following hospitalization.⁶⁰

DATA SOURCE

Administrative claims data, rather than medical record data, are used to predict 30-day readmission. Using administrative data makes it possible to calculate readmission without having to do chart reviews or requiring providers to report additional data. Research conducted when the measures were being developed demonstrated that the administrative claims-based models perform well in predicting readmission compared with models based on chart reviews.⁶¹

EXPLANATION

Readmission rates can provide important additional information about quality of care that is currently not captured by the process and mortality measures and is currently unavailable to providers. Variation in readmission, after adjusting for case mix, may reflect differences in providers' general environments (such as coordination of care, patient safety policies, and staffing) or variation in care processes not measured in the current core measure set. Outcome measures can focus attention on a broader set of healthcare activities that affect patients' well being. Moreover, improving outcomes is the ultimate goal of quality improvement, and thus the inclusion of outcomes measures assists in attaining improvement goals.

Readmission of patients who were recently discharged after hospitalization represents an important, expensive, and often preventable adverse outcome. The risk of readmission can be modified by the quality and type of care provided to these patients. Improving readmission rates is the joint responsibility of hospitals and clinicians. This measure is also responsive to the recent call by the Medicare Payment Advisory Commission (MedPAC) to develop readmission measures.⁶⁰

DENOMINATOR^{§§}

Admissions for beneficiaries with a complete claims history for 12 months prior to admission.⁶⁰

^{§§} Concurrent with existing BTE clinical outcomes measures, this measure is presented without risk-adjustment. However, as an outcome measure, risk-adjustment may be desirable to hedge against characteristics of patient mix a physician might feel gives them an inherent disadvantage. If a participating physician feels their population warrants risk-adjustment and so desires, they may submit risk-adjusted data as determined by an external performance assessment organization (PAO) based on generally accepted methodologies. See CMS' hospital 30-day readmission rate measure as one example of risk-adjustment: http://www.hospitalcompare.hhs.gov/Hospital/Static/InformationforProfessionals_tabset.asp?activeTab=2&Language=English&version=+&subTab=8#POC5.

Use Table b to identify ED visits and acute inpatient discharges.

Table b. Codes Identifying Visit Type⁶²

Visit Type	CPT	UB Revenue
Acute Inpatient		010x, 0110-0114, 0119, 0120-0124, 0129, 0130-0134, 0139, 0140-0144, 0149, 0150-0154, 0159, 016x, 020x-022x, 072x, 0987
ED Visit	99281-99285	045x, 0981

Excluded Admissions: Admissions are excluded if they meet any of the following criteria:

- Admissions for patients with an in-hospital death are excluded because they are not eligible for readmission.
- Admissions for patients subsequently transferred to another acute care facility are excluded because we are focusing on discharges to non-acute care settings.
- Admissions for patients who are discharged against medical advice (AMA) are excluded because providers did not have the opportunity to deliver full care and prepare the patient for discharge.
- Admissions for patients without at least 30 days post-discharge enrollment in healthcare plan are excluded because the 30-day readmission outcome cannot be assessed in this group.⁶⁰

NUMERATOR

Number of 30-day readmissions for patients at that provider.

FREQUENCY

Most recent result over the last 12 calendar months from last day of the reporting period

SCORING: See Table 2 for percentile rates.

$$\frac{(75^{\text{th}} \text{ percentile rate} - \text{observed rate})}{(75^{\text{th}} \text{ percentile rate} - 10^{\text{th}} \text{ percentile rate})} \times \text{available points} = \text{points earned}$$

For example, a physician who has a readmission rate of 17% will earn:

$$\frac{(.20 - .17)}{(.20 - .14)} \times 20\text{pts} = 10 \text{ earned points}$$

2. **Medication reconciliation post-discharge: percentage of discharges from January 1 to December 1 of the measurement year for whom medications were reconciled on or within 30 days of discharge⁶²**

- **Release date/latest Revision:** July 2008
- **Source:** Based on NCQA HEDIS 2009 Measure Set
- **Link:** http://www.qualitymeasures.ahrq.gov/summary/summary.aspx?doc_id=14974⁶³

DESCRIPTION

The percentage of discharges from January 1–December 1 of the measurement year for patients for whom medications were reconciled on or within 30 days of discharge.⁶²

DATA SOURCE

Administrative claims data and medical record data

EXPLANATION

Medications are a significant part of care for patients. Adverse reaction to medicines are implicated in a number of hospital admissions, but many medication problems could be prevented by monitoring drug therapy and identifying patients at risk.

Annually there are more than 2 million serious adverse drug reactions and about 100,000 deaths due to medication problems. Noncompliance, nonadherence, lack of communication between patients and physicians and the burden of taking multiple medications can result in drug interactions, adverse drug events, drug overuse and drug underuse. Adverse drug events are a leading cause of morbidity and mortality. A January 2002 Institute of Medicine (IOM) report stated that annually there are between 44,000 and 98,000 deaths as a result of medical errors, while an estimated 7,000 deaths result from adverse drug reactions. If medication reviews are used, potential adverse drug events can be identified and prevented. In one study, the use of medication review lead to a drop in the percentage of patients affected by adverse drug events from 36.9 percent to 9.3 percent.⁶⁴

DENOMINATOR

An acute or nonacute inpatient discharge on or between January 1 and December 1 of the measurement year. The denominator for this measure is based on discharges, not patients. Include all discharges for patients who have one or more discharges on or between January 1 and December 1 of the measurement year.

Readmission or direct transfer: If the discharge is followed by a readmission or direct transfer to an acute or nonacute facility within the 30-day follow-up period, count only the readmission discharge or the discharge from the facility to which the patient was transferred. Exclude both the initial discharge and the readmission/direct transfer discharge if the readmission/direct transfer discharge occurs after December 1 of the measurement year.⁶²

NUMERATOR

Electronic Specification: Medication reconciliation (Table A) on or within 30 days after discharge. A patient had medication reconciliation if a claim/encounter contains a code in Table A.

Table A. Codes Identifying Medication Reconciliation

Description	CPT II
Medication Reconciliation	1111F ⁶²

Medical Record Specification: Medication reconciliation, as documented through either electronic data or medical record review on or within 30 days of discharge. The medical

record must include evidence of medication reconciliation and the date on which it was performed. The following evidence meets criteria.

- A list of medications that were prescribed or ordered upon discharge, *or*
- Notation that no medications were prescribed or ordered upon discharge⁶²

FREQUENCY

Include all discharges for patients who have one or more discharges on or between January 1 and December 1 of the measurement year.

SCORING

Earned Points = [numerator/denominator] x maximum available points for the measure

3. **Percentage of patients, regardless of age, discharged from an inpatient facility to home or any other site of care for whom a transition record was obtained by the primary physician or other health care professional designated for follow-up care within 24 hours of discharge.**⁶⁵

- **Release date/latest Revision:** June 2009
- **Source:** Based on AMA/PCPI Care Transitions Measure Set
- **Link:** <http://www.ama-assn.org/ama1/pub/upload/mm/370/care-transitions-ms.pdf>

DESCRIPTION

Percentage of patients, regardless of age, discharged from an inpatient facility to home or any other site of care for whom a transition record was transmitted to the primary physician or other health care professional designated for follow-up care within 24 hours of discharge.

DATA SOURCE

Administrative claims data and medical record. Administrative claims data collection requires users to identify the eligible population (denominator) and numerator using medical record abstraction (electronic or paper). Users report a rate based on all patients in a given practice for whom data are available and who meet the eligible population/denominator criteria.

EXPLANATION

The AMA cites that the availability of the patient's discharge information at the first post-discharge physician visit improves the continuity of care and may be associated with a decreased risk of rehospitalization. They also cite a recent literature summary, which found that direct communication between hospital physicians and primary care physicians occurred infrequently (in 3-20% of cases studied) and that the availability of a discharge summary at the first post discharge visit was low (12-34%) and did not improve greatly even after 4 weeks (51-77%), affecting the quality of care in approximately 25% of follow-up visits.

DENOMINATOR

All patients, regardless of age, discharged from an inpatient facility (eg, hospital inpatient or observation, skilled nursing facility, or rehabilitation facility) to home/self care or any other site of care.

Administrative Claims Specification: Identify patients discharged from inpatient facility using the following-

UB-04 (Form Locator 04 - Type of Bill):

- 0111 (Hospital, Inpatient, Admit through Discharge Claim)
- 0121 (Hospital, Inpatient - Medicare Part B only, Admit through Discharge Claim)
- 0114 (Hospital, Inpatient, Last Claim)
- 0124 (Hospital, Inpatient - Medicare Part B only, Interim-Last Claim)
- 0211 (Skilled Nursing-Inpatient, Admit through Discharge Claim)
- 0214 (Skilled Nursing-Inpatient, Interim, Last Claim)
- 0221 (Skilled Nursing-Inpatient, Medicare Part B only, Admit through Discharge Claim)
- 0224 (Skilled Nursing- Interim, Last Claim)
- 0281 (Skilled Nursing-Swing Beds, Admit through Discharge Claim)
- 0284 (Skilled Nursing-Swing Beds, Interim, Last Claim)

AND

Discharge Status (Form Locator 17):

- 01 (Discharged to home care or self care (routine discharge))
- 02 (Discharged/transferred to a short term general hospital for inpatient care)
- 03 (Discharged/transferred to skilled nursing facility (SNF) with Medicare certification in anticipation of skilled care)
- 04 (Discharged/transferred to an intermediate care facility)
- 05 Discharged/transferred to a designated cancer center or children's hospital
- 06 (Discharged/transferred to home under care of organized home health service org. in anticipation of covered skilled care)
- 43 (Discharged/transferred to a federal health care facility)
- 50 (Hospice – home)
- 51 (Hospice - medical facility (certified) providing hospice level of care)
- 61 (Discharged/transferred to hospital-based Medicare approved swing bed)
- 62 (Discharged/transferred to an inpatient rehabilitation facility (IRF) including rehabilitation distinct part units of a hospital)
- 63 (Discharged/transferred to a Medicare certified long term care hospital (LTCH))
- 64 (Discharged/transferred to a nursing facility certified under Medicaid but not certified under Medicare)
- 65 (Discharged/transferred to a psychiatric hospital or psychiatric distinct part unit of a hospital)
- 66 (Discharged/transferred to a Critical Access Hospital (CAH))
- 70 (Discharged/transferred to another type of health care institution not defined elsewhere in this code list)

OR

UB-04 (Form Locator 04 - Type of Bill):

- 0131 (Hospital Outpatient, Admit through Discharge Claim)
- 0134 (Hospital Outpatient, Interim, Last Claim)

AND

UB-04 (Form Locator 42 - Revenue Code):

- 0762 (Hospital Observation)

- 0490 (Ambulatory Surgery)
- 0499 (Other Ambulatory Surgery)

AND

Discharge Status (Form Locator 17)

- 01 (Discharged to home care or self care (routine discharge))
- 02 (Discharged/transferred to a short term general hospital for inpatient care)
- 03 (Discharged/transferred to skilled nursing facility (SNF) with Medicare certification in anticipation of skilled care)
- 04 (Discharged/transferred to an intermediate care facility)
- 05 Discharged/transferred to a designated cancer center or children's hospital
- 06 (Discharged/transferred to home under care of organized home health service org. in anticipation of covered skilled care)
- 43 (Discharged/transferred to a federal health care facility)
- 50 (Hospice – home)
- 51 (Hospice - medical facility (certified) providing hospice level of care)
- 61 (Discharged/transferred to hospital-based Medicare approved swing bed)
- 62 (Discharged/transferred to an inpatient rehabilitation facility (IRF) including rehabilitation distinct part units of a hospital)
- 63 (Discharged/transferred to a Medicare certified long term care hospital (LTCH))
- 64 (Discharged/transferred to a nursing facility certified under Medicaid but not certified under Medicare)
- 65 (Discharged/transferred to a psychiatric hospital or psychiatric distinct part unit of a hospital)
- 66 (Discharged/transferred to a Critical Access Hospital (CAH))
- 70 (Discharged/transferred to another type of health care institution not defined elsewhere in this code list)

NUMERATOR

Patients for whom a transition record was transmitted to the primary physician or other health care professional designated for follow-up care within 24 hours of discharge.

Numerator Element Definitions:

- Transition record: a core, standardized set of data elements related to patient's diagnosis, treatment, and care plan that is discussed with and provided to patient in printed or electronic format at each transition of care, and transmitted to the facility/physician/other health care professional providing follow-up care. Electronic format may be provided only if acceptable to patient
- Transmitted: transition record may be transmitted to the physician or other health care professional designated for follow-up care via fax, secure e-mail, or mutual access to an electronic health record (EHR)
- Primary physician or other health care professional designated for follow-up care: may be designated primary care physician (PCP), medical specialist, or other physician or health care professional

Medical Record Specification: Numerator elements to be identified through medical record abstraction.

FREQUENCY

Most recent result over the last 12 calendar months from last day of the reporting period.

SCORING

Earned Points = [numerator/denominator] x maximum available points for the measure

4. **Percentage of patients, regardless of age, discharged from an inpatient facility to home or any other site of care, or their caregiver(s), who received a transition record at the time of discharge including, at a minimum, all of the specified elements⁶⁵**

- **Release date/latest Revision:** June 2009
- **Source:** Based on AMA/PCPI Care Transitions Measure Set
- **Link:** <http://www.ama-assn.org/ama1/pub/upload/mm/370/care-transitions-ms.pdf>

DESCRIPTION

Percentage of patients, regardless of age, discharged from an inpatient facility to home or any other site of care, or their caregiver(s), who received a transition record at the time of discharge including, at a minimum, all of the specified elements

DATA SOURCE

Administrative claims data and medical record. Administrative claims data collection requires users to identify the eligible population (denominator) and numerator using medical record abstraction (electronic or paper). Users report a rate based on all patients in a given practice for whom data are available and who meet the eligible population/denominator criteria.

EXPLANATION

The AMA states that providing a detailed transition record at the time of discharge from the ED improves patient preparation for self-management of post-discharge care and care plan. The AMA also cites several studies that point out gaps in explaining ED discharge instructions which serves to hinder patient's understanding of instructions. Providing a detailed transition record at the time of discharge aligns with clinical guidelines from: American College of Physicians, Society of General Internal Medicine, Society of Hospital Medicine, American Geriatrics Society, American College of Emergency Physicians, Society of Academic Emergency Medicine, and the Joint Commission on Accreditation of Healthcare Organizations.

DENOMINATOR

All patients, regardless of age, discharged from an emergency department (ED) to ambulatory care (home/self care) or home health care

Administrative Claims Specification: Identify patients discharged from inpatient facility using the following-

UB-04 (Form Locator 4 - Type of Bill):

- 0131 (Hospital, Outpatient, Admit through Discharge Claim)
AND

UB-04 (Form Locator 42 - Revenue Code):

- 0450 - Emergency Room
AND

UB-04 (Form Locator 17 - Discharge Status):

- 01 - Discharged to home care or self care (routine discharge)

- 06 - Discharged/transferred to home under care of organized home health service org. in anticipation of covered skilled care

NUMERATOR

Patients or their caregiver(s) who received a transition record at the time of emergency department (ED) discharge including, at a minimum, *all* of the following elements:

- Major procedures and tests performed during ED visit, AND
- Principal diagnosis at discharge OR chief complaint, AND
- Patient instructions, AND
- Plan for follow-up care (OR statement that none required), including primary physician, other health care professional, or site designated for follow-up care, AND
- List of new medications and changes to continued medications that patient should take after ED discharge, with quantity prescribed and/or dispensed (OR intended duration) and instructions for each

Numerator Element Definitions:

- Transition record (for ED discharges): a core, standardized set of data elements related to patient's diagnosis, treatment, and care plan that is discussed with and provided to patient in written, printed, or electronic format. Electronic format may be provided only if acceptable to patient.
- Primary physician or other health care professional designated for follow-up care: may be primary care physician (PCP), medical specialist, or other physician or health care professional. If no physician, other health care professional, or site designated or available, patient may be provided with information on alternatives for obtaining follow-up care

Medical Record Specification: Numerator elements to be identified through medical record abstraction.

FREQUENCY

Most recent result over the last 12 calendar months from last day of the reporting period.

SCORING

Earned Points = [numerator/denominator] x maximum available points for the measure

5. **IF a patient is discharged from a hospital to home and the transfer form or discharge summary indicates that a test result is pending, THEN the outpatient medical record should include the test result within 6 weeks of hospital discharge or indicate that the result was followed up elsewhere or why the result cannot be obtained.**⁶⁶

- **Release date/latest Revision:** 2007
- **Source:** Based on RAND (ACOVE) *Quality Indicators Measure Set*
- **Link:** <http://www3.interscience.wiley.com/journal/117995994/abstract>

DESCRIPTION

IF a patient is discharged from a hospital to home the transfer form or discharge summary indicates that a test result is pending, THEN the outpatient medical record should include the test result within 6 weeks of hospital discharge or indicate that the result was followed up elsewhere or why the result cannot be obtained.

DATA SOURCE

Medical record data.

EXPLANATION

Test results clearly have important implications for follow-up care, and research by RAND Corporation (the measure developer) shows missed tests and evaluations are common post-discharge with default rates of 8% and 12% respectively. The same research also cites the use of missed test metrics in many performance measures as they may result in adverse events post-discharge.

DENOMINATOR SUBSET

A patient is discharged from a hospital to home and the transfer form or discharge summary indicates that a test result is pending

NUMERATOR

The outpatient medical record includes the test result within 6 weeks of hospital discharge or indicates that the result was followed up elsewhere or why the result cannot be obtained.

FREQUENCY

Most recent result over the last 12 calendar months from last day of the reporting period

SCORING***

Earned Points = [numerator/denominator] × maximum available points for the measure

*** Measure uses a denominator subset. If sample does not meet minimum of 25 patients for denominator subset, measure is not scored and the recognition is achieved by physician earning a certain percentage of the remaining points available. 60% or greater earns level I, 72.5% or greater earns level II, and 85% or greater earns level III.

COPD Measures

1. **Pharmacotherapy management of COPD exacerbation: percentage of chronic obstructive pulmonary disease (COPD) exacerbations for members 40 years of age and older who had an acute inpatient discharge or ED encounter between January 1 to November 30 of the measurement year and who were dispensed a bronchodilator within 30 days of the event.**⁶²

- **Release date/latest Revision:** July 2008
- **Source:** Based on HEDIS® 2009: Healthcare Effectiveness Data and Information Set
- **Link:** http://www.qualitymeasures.ahrq.gov/summary/summary.aspx?ss=1&doc_id=13045

DESCRIPTION

The percentage of COPD exacerbations for patients 40 years of age and older who had an acute inpatient discharge or ED encounter between January 1–November 30 of the measurement year and who were dispensed a bronchodilator within 30 days of the event.

DATA SOURCE

Electronic data and/or medical record data

EXPLANATION

The National Heart Lung and Blood Institute (NHLBI) and the World Health Organization (WHO) state that pharmacologic treatment is used control symptom and exacerbations of COPD and improve patient health. Also, bronchodilator therapy is important in the management of COPD symptoms.⁶⁷ It is anticipated that clinicians who provide services for the primary management of COPD will submit this measure.

DENOMINATOR SUBSET

Patients 40 years or older as of January 1 of the measurement year who had a COPD exacerbation as indicated by an acute inpatient discharge or ED encounter with a principal diagnosis of COPD. Follow the steps below to identify the eligible population.

Step 1 Identify all patients who during the Intake Period had an acute inpatient discharge or an ED visit (Table b) with a primary diagnosis of COPD (Table A). Use Table B to identify ED visits and acute inpatient discharges.

Table A

Description	ICD-9 CM Diagnosis
Chronic Bronchitis	491
Emphysema	492
COPD	496

Table B. Codes Identifying Visit Type

Visit Type	CPT	UB Revenue
Acute Inpatient		010x, 0110-0114, 0119, 0120-0124, 0129, 0130-0134, 0139, 0140-0144, 0149, 0150-0154, 0159, 016x, 020x-022x, 072x, 0987
ED Visit	99281-99285	045x, 0981

Step 2 Determine all COPD Episode Dates. For each patient identified in step 1, identify all acute inpatient discharges and ED visits. For ED visits that lead to an acute inpatient stay with a primary diagnosis of COPD (identified in Step 1), exclude the ED visit and include only the inpatient stay.

Step 3 Test for transfers. Exclude Episode Dates on which the patient was transferred directly to an acute or nonacute care facility for any diagnosis.

Step 4 Test for readmission. Exclude inpatient ED Episode Dates on which the patient was readmitted to an acute or nonacute care facility for any diagnosis on or seven days after discharge.

Step 5 Calculate patient inclusion criteria

NUMERATOR

Electronic Collection: Dispensed prescription for a bronchodilator (Table D) on or 30 days after the Episode Date. The user organization may count bronchodilators that are active on the Episode Date.

Table D

Description	Prescription
Anticholinergic agents	<ul style="list-style-type: none"> • albuterol-ipratropium • ipratropium • tiotropium
Beta 2-agonists	<ul style="list-style-type: none"> • albuterol • arformoterol • budesonide-formoterol • epinephrine • fluticasone-salmeterol • formoterol • levalbuterol • metaproterenol • pirbuterol • salmeterol
Methylxanthines	<ul style="list-style-type: none"> • aminophylline • dyphylline • dyphylline-guaifenesin • guaifenesin-theophylline • potassium iodide-theophylline • theophylline

OR

Medical Record Collection: Patients who received an ambulatory prescription for a bronchodilator on or 30 days after the Episode Date. The user organization may count bronchodilators that are active on the Episode Date.

FREQUENCY

An 11-month period that begins on January 1 of the measurement year and ends on November 30 of the measurement year. The Intake Period captures eligible episode of treatment.

SCORING⁺⁺⁺

Earned Points = [numerator/denominator] x maximum available points for the measure

- 2. Pharmacotherapy management of COPD exacerbation: percentage of chronic obstructive pulmonary disease (COPD) exacerbations for members 40 years of age and older who had an acute inpatient discharge or ED encounter between January 1 to November 30 of the measurement year and who were dispensed a systemic corticosteroid within 14 days of the event.⁶²**

- **Release date/latest Revision:** July 2008
- **Source:** Based on HEDIS® 2009: Healthcare Effectiveness Data and Information Set
- **Link:** http://www.qualitymeasures.ahrq.gov/summary/summary.aspx?ss=1&doc_id=13044

DESCRIPTION

The percentage of COPD exacerbations for patients 40 years of age and older who had an acute inpatient discharge or ED encounter between January 1–November 30 of the measurement year and who were dispensed a systemic corticosteroid within 14 days of the event.

DATA SOURCE

Electronic data and/or medical record data

EXPLANATION

The National Heart Lung and Blood Institute (NHLBI) and the World Health Organization (WHO) state that treatment with inhaled corticosteroids reduces the frequency of exacerbations in symptomatic, severe COPD patients with repeated exacerbations.⁶⁸ It is anticipated that clinicians who provide services for the primary management of COPD will submit this measure.

DENOMINATOR SUBSET

Patients 40 years or older as of January 1 of the measurement year who had a COPD exacerbation as indicated by an acute inpatient discharge or ED encounter with a principal diagnosis of COPD. Follow the steps below to identify the eligible population.

Step 1 Identify all patients who during the Intake Period had an acute inpatient discharge or an ED visit with a primary diagnosis of COPD (Table A). Use Table B to identify ED visits and acute inpatient discharges.

Table A

Description	ICD-9 CM Diagnosis
Chronic Bronchitis	491
Emphysema	492
COPD	496

⁺⁺⁺ Measure uses a denominator subset. If sample does not meet minimum of 25 patients for denominator subset, measure is not scored and the recognition is achieved by physician earning a certain percentage of the remaining points available. 60% or greater earns level I, 72.5% or greater earns level II, and 85% or greater earns level III.

Table B. Codes Identifying Visit Type

Visit Type	CPT	UB Revenue
Acute Inpatient		010x, 0110-0114, 0119, 0120-0124, 0129, 0130-0134, 0139, 0140-0144, 0149, 0150-0154, 0159, 016x, 020x-022x, 072x, 0987
ED Visit	99281-99285	045x, 0981

Step 2 Determine all COPD Episode Dates. For each patient identified in step 1, identify all acute inpatient discharges and ED visits. For ED visits that lead to an acute inpatient stay with a primary diagnosis of COPD (identified in Step 1), exclude the ED visit and include only the inpatient stay.

Step 3 Test for transfers. Exclude Episode Dates on which the patient was transferred directly to an acute or nonacute care facility for any diagnosis.

Step 4 Test for readmission. Exclude inpatient ED Episode Dates on which the patient was readmitted to an acute or nonacute care facility for any diagnosis on or seven days after discharge.

Step 5 Calculate patient inclusion criteria

NUMERATOR

Electronic Collection: Patient was dispensed prescription for systemic corticosteroid (Table C) on or within 14 days after the Episode Date. The user organization may count systemic corticosteroids that are active on the Episode Date.

Table C

Description	Prescription
Glucocorticoids	<ul style="list-style-type: none"> • betamethasone • dexamethasone • hydrocortisone • methylprednisolone • prednisolone • prednisone • triamcinolone

OR

Medical Record Collection: Patients who received an ambulatory prescription for a systemic corticosteroid on or 14 days after the Episode Date. The user organization may count systemic corticosteroids that are active on the Episode Date.

FREQUENCY

An 11-month period that begins on January 1 of the measurement year and ends on November 30 of the measurement year. The Intake Period captures eligible episode of treatment.

SCORING##

Earned Points = [numerator/denominator] x maximum available points for the measure

Measure uses a denominator subset. If sample does not meet minimum of 25 patients for denominator subset, measure is not scored and the recognition is achieved by physician earning a certain percentage of the remaining points available. 60% or greater earns level I, 72.5% or greater earns level II, and 85% or greater earns level III.

3. 30-day readmission rate following hospitalization: COPD

- **Release date/latest Revision:** October 2009
- **Source:** Based on CMS 30-day readmission rate measures
- **Link:**
http://www.hospitalcompare.hhs.gov/Hospital/Static/InformationforProfessionals_tabset.asp?activeTab=2&Language=English&version=

DESCRIPTION

This measure is used to assess hospital-specific 30-day all-cause readmission rate following hospitalization for COPD patients.⁶⁰

DATA SOURCE

Administrative claims data, rather than medical record data, are used to predict 30-day readmission. Using administrative data makes it possible to calculate readmission without having to do chart reviews or requiring providers to report additional data. Research conducted when the measures were being developed demonstrated that the administrative claims-based models perform well in predicting readmission compared with models based on chart reviews.⁶⁹

EXPLANATION

Readmission rates can provide important additional information about quality of care that is currently not captured by the process and mortality measures and is currently unavailable to providers. Variation in readmission, after adjusting for case mix, may reflect differences in providers' general environments (such as coordination of care, patient safety policies, and staffing) or variation in care processes not measured in the current core measure set. Outcome measures can focus attention on a broader set of healthcare activities that affect patients' well being. Moreover, improving outcomes is the ultimate goal of quality improvement, and thus the inclusion of outcomes measures assists in attaining improvement goals.

Readmission of patients who were recently discharged after hospitalization represents an important, expensive, and often preventable adverse outcome. The risk of readmission can be modified by the quality and type of care provided to these patients. Improving readmission rates is the joint responsibility of hospitals and clinicians. This measure is also responsive to the recent call by the Medicare Payment Advisory Commission (MedPAC) to develop readmission measures.⁶⁰

DENOMINATOR^{§§§}

Admissions for beneficiaries with principle diagnosis of COPD and a complete claims history for 12 months prior to admission.⁶⁰

^{§§§} Concurrent with existing BTE clinical outcomes measures, this measure is presented without risk-adjustment. However, as an outcome measure, risk-adjustment may be desirable to hedge against characteristics of patient mix a physician may feel gives them an inherent disadvantage. If a participating physician feels their population warrants risk-adjustment and so desires, they may submit risk-adjusted data as determined by an external performance assessment organization (PAO) based on generally accepted methodologies. See CMS' hospital 30-day readmission rate measure as one example of risk-adjustment: http://www.hospitalcompare.hhs.gov/Hospital/Static/InformationforProfessionals_tabset.asp?activeTab=2&Language=English&version=+&subTab=8#POC5.

Use (Table A) to identify all patients with a primary diagnosis of COPD. Use Table B to identify ED visits and acute inpatient discharges.⁶²

Table A

Description	ICD-9 CM Diagnosis
Chronic Bronchitis	491
Emphysema	492
COPD	496

Table B. Codes Identifying Visit Type

Visit Type	CPT	UB Revenue
Acute Inpatient		010x, 0110-0114, 0119, 0120-0124, 0129, 0130-0134, 0139, 0140-0144, 0149, 0150-0154, 0159, 016x, 020x-022x, 072x, 0987
ED Visit	99281-99285	045x, 0981

Excluded Admissions: Admissions are excluded if they meet any of the following criteria:

- Admissions for patients with an in-hospital death are excluded because they are not eligible for readmission.
- Admissions for patients subsequently transferred to another acute care facility are excluded because we are focusing on discharges to non-acute care settings.
- Admissions for patients who are discharged against medical advice (AMA) are excluded because providers did not have the opportunity to deliver full care and prepare the patient for discharge.
- Admissions for patients without at least 30 days post-discharge enrollment in plan are excluded because the 30-day readmission outcome cannot be assessed in this group.⁷⁰

NUMERATOR

Number of 30-day readmissions for patients at that provider.

FREQUENCY

Most recent result over the last 12 calendar months from last day of the reporting period.

SCORING: See Table 5 for percentile rates.

$$\frac{(75^{\text{th}} \text{ percentile rate} - \text{observed rate})}{(75^{\text{th}} \text{ percentile rate} - 10^{\text{th}} \text{ percentile rate})} \times \text{available points} = \text{points earned}$$

For example, a physician who has a readmission rate of 21.35% will earn:

$$\frac{(.251 - .2135)}{(.251 - .176)} \times 40\text{pts} = 20 \text{ earned points}$$

Disclaimer

Measures specifications seen here are adaptations of original specification language used by measure developers (cited as such). Where appropriate, slight adjustments in descriptive language have been made for application to a commercially insured population and physicians in an outpatient setting. The original clinical intent of the measures have been left unchanged with regards to performance indicators. See citations for measure specification in their original form as developed by measure IP owners.

Similarly, we note potential inapplicability of some claims codes (e.g. UB revenue codes) for use by a primary care physician. Program sponsors should feel free to customize many aspects of this blueprint as they see fit, including methodology used to attribute administrative data to build sample sets for the numerator or denominator of each measure.

Appendix D: Bibliography

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