

Pediatric Pay-for-performance in Asthma: Who Pays?

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Abstract *Pay-for-performance* is a term referring to a system that uses incentives to reward health care providers for producing an improvement in performance based on quality measures. It has become part of a growing movement to improve the quality of the health care system. The purpose of this article is to review and discuss pay-for-performance and how it relates to pediatrics and asthma.

Keywords Pay-for-performance · Pay-for-performance asthma · Value-based purchasing · Asthma measures · Asthma quality measures · Quality measures · Pediatric quality measures · Pediatric asthma measures

Introduction

Pay-for-performance (P4P) is becoming a ubiquitous and frequently discussed term that is prevalent among health care industry leaders, government policymakers, and health care providers. P4P, also known as *value-based purchasing*, is a system that uses financial and nonfinancial incentives to reward health care providers who achieve a specific level of performance or performance improvement [1]. P4P incentive programs differentiate payment among providers based upon performance of quality and efficiency measures so that desired outcomes occur through changed behavior [2].

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Background and History

In the past, professionalism and professional certification were the basis and cornerstones for health care quality and quality improvement. Medical professionals were expected to have an innate drive for continuous improvement of quality of health care and to better serve patients' interests through lifelong learning [3]. Due to an expanding body of scientific medical literature, the practice of anecdotal medicine underwent critique in the 1970s and 1980s, leading to the birth of evidence-based medicine. This further led to the development of federal agencies such as the Agency for Health Care Policy and Research in 1989, reauthorized as the Agency for Healthcare Research and Quality in 1999, and independent organizations such as the Institute for Healthcare Improvement, based in Cambridge, MA, in 1991 [4–6]. The primary goals and missions of these agencies and organizations were to improve the quality and safety of health care, which could subsequently reduce cost.

Compensation and payment for services in health care previously correlated with the level of profession, time, and amount of care provided, with little regard to differences in methods of management or outcomes [7]. Rising medical care costs have stimulated insurers to develop methods to help control the rate of growth of health care costs in addition to improving quality of care [2, 8]. Linking performance and payment in health care in the United States can be traced back to the early-1990s. HEDIS, originally known as HMO (health maintenance organization) Data and Information Set and revised in 1993 as Healthplan Employer Data and Information Set with the assistance of the National Committee for Quality Assurance (NCQA), has been known as Healthcare Effectiveness Data and Information Set since July 2007 [9, 10]. HEDIS was the outcome of an effort of the HMO Group to establish

measures to evaluate the value of health plans. It covered data on quality, access, satisfaction, utilization, and financial information. HEDIS measures undergo periodic revision, with the most recent updates incorporated in HEDIS 2010 [11]. In 1993, PacifiCare, a large HMO in California, began to evaluate several clinical and patient-reported measures of quality and reported this information to its medical groups. This information was later made public with the purpose of increasing transparency so that consumers would be able to select high-quality groups. More groups, including large employers, later began to use these principles to influence health care quality and affordability, including the Leapfrog Group, which was organized in 1998 [12].

In 1999, a report by the Institute of Medicine, *To Err Is Human: Building a Safer Health Care System*, called for initiatives to reward quality. In 2001, the Institute of Medicine published a white paper, "Crossing the Quality Chasm: A New Health System for the 21st Century," which noted the misalignment of payment and quality, thereby catalyzing the concept of P4P [13•, 14]. This concept of a strategy to better align payment incentives with quality outcomes has since permeated through public and private third party payors and served as an impetus for the development of several private and government-affiliated organizations. More recently, interest and enthusiasm have been demonstrated by the Centers for Medicare and Medicaid Services [1, 15•].

Because of this new interest, organizations such as the NCQA and the Physician Consortium for Performance Improvement (PCPI) were formed [16]. These two groups, in conjunction with the American Medical Association (AMA), have developed Physician Performance Measures, and in particular, the Physician Quality of Care Measurement: Asthma Project. It is important to note that there are other asthma measures, but the most commonly used asthma measure is the HEDIS Appropriate Medications Use for Persons With Asthma [17]. Because of lack of validity testing and concerns regarding the accuracy of the HEDIS measures, the NCQA and PCPI developed a measurement advisory panel consisting of experts in asthma to develop these asthma measures [13•, 18–20]. The current asthma measures developed by the NCQA and AMA-PCPI are reviewed in this article.

Basis of P4P

P4P is structured to base incentives and bonuses upon meeting set targets of performance measures. There are four types of performance measures that are typically used to measure quality of health care: process measures, outcome measures, structural measures, and satisfaction measures.

Process measures address proper delivery of health care, such as prescribing inhaled corticosteroids for persistent asthma or tobacco cessation counseling. Outcome measures may refer to direct outcomes such as the number of hospitalizations, quality of life, or mortality rate. Structural measures pertain to processes such as improvement of health information technology by implementing computer systems and electronic medical record software to enhance capabilities in more accurate and transparent communication of health information. Satisfaction measures refer to the patient's satisfaction with the health care he or she received, which can be the easiest data to obtain but are usually the most controversial aspect of performance measures [13•, 18]. Sources for obtaining the data include claims data, chart data, and survey data. Insurance claims data are the easiest to gather but are less accurate than reviews of the medical chart record.

Accurately defining and obtaining these measurements can be difficult, complicated, and subject to debate. Process measures generally are easier to gather than outcome measures, which can be affected by constraints such as time. An example would be the extended period of time it can take to measure the mortality improvement while satisfactorily controlling diabetes or hypertension. However, process measures may not necessarily be consistent with clinical outcomes [18, 21–23].

Other important considerations regarding P4P measures are their value and fairness. Each P4P measure must be valid and show that a process measure correlates with an outcome measure [13•]. The measures also must account for differences in risk in certain patient populations. It would be unfair to expect comparable performance from a physician who cares for a population with more severe disease, lower socioeconomic status, and increased comorbidities. In addition, there needs to be an adequate sample size of patients, and the data must be collected accurately. For example, if a physician only sees two patients with a particular disease and meets the goals of a measure in only one patient, then he or she would be attaining the required performance in only 50% of his patient population and thereby likely would not receive performance benefits. Lastly, accurate data collection from the provider must be ensured, which can be quite difficult in the absence of an electronic medical record [24].

Concerns Regarding P4P

The advantages of P4P programs seem obvious. Promotion of the use of the most updated peer-reviewed guidelines and recommendations for the most common chronic diseases should lead to improvement in quality, improvement in standardization, and reductions in cost. Unfortunately, it has

not been that straightforward [25, 26]. Although one of the major goals of P4P measures is to reduce cost, some of the measures may paradoxically result in increased cost, which occurred in the United Kingdom when higher-performing physicians were compensated at higher rates [18, 27•, 28, 29]. In addition, Rosenthal et al. [30] evaluated a P4P program and suggested that it may not be cost-effective. However, the particular P4P program that was studied was based on fixed performance targets and not the amount of improvement [30]. Of note, there is an overall lack of evidence to support either cost-effectiveness or cost-inefficiency [15•, 22, 31, 32]. Extensive reviews of the literature have been conducted in an effort to evaluate several aspects of P4P programs, such as outcomes, cost analysis, and effects of financial incentives [24, 32, 33]. There have been positive, negative, mixed, and equivocal results in each of these categories, making it challenging to interpret the true impact of the P4P programs because of differences in designs of the studies as well as in the programs [31].

There is concern that the cost of health care and individual metrics will be the main focus, rather than the quality of health care [34], implying that the physicians may focus more on the individual disease process than on the individual [35]. This issue is of particular concern in complicated patients and patients with multiple comorbidities, such as older adults [36]. In addition, the inordinate amount of time involved in the increased documentation and paperwork required to ensure that the physician is covering all metrics to guarantee a financial bonus rather than the overall care of the patient has been a potential concern [35].

It has not been fully established how much of a financial incentive is necessary to produce change, or how to fairly distribute the incentive among the providers who have improved the most versus those who are already performing well [37]. “Gaming the system” or “cherry picking,” in which providers avoid the sickest patients, has been considered as just one unintended consequence [15•, 22, 27•, 36, 38].

It is difficult to determine how specialists will be subject to the P4P measures [39]. For example, if a patient is referred to a specialist for asthma, it is not clear if the primary physician, the specialist, or both will be responsible for ensuring that quality is maintained based upon the measures. In addition, because it is not uncommon for a patient to see multiple primary care physicians and specialists, determining which physicians will receive financial incentives or withholds is not entirely clear [27•].

Another concern is the conflict that may occur between insurers and providers. Many physicians’ views have been mixed concerning P4P [24]; however, in general, payors view P4P positively, whereas physicians view P4P pessi-

mistically [32]. Some of the pessimism is driven by the belief that P4P is unethical and unprofessional and that it undermines the physician’s sense of altruism [27•, 36, 40].

P4P in Pediatrics

P4P programs and measures have been focused more on diseases that affect adults, but several pediatric-related measures have been developed or incorporated into existing performance measures [9]. The National Ambulatory Care Quality Alliance includes measures related to diabetes, asthma, and other diseases addressing overuse and misuse (e.g., the treatment of children with upper respiratory infections). A recently implemented P4P program in California for pediatric providers includes measures with associated financial and nonfinancial incentives, such as HEDIS measures for well-baby and well-adolescent visits and collection of childhood obesity data. Many state Medicaid agencies are beginning to incorporate P4P into their managed care, with resultant increasing impact upon outpatient pediatric health [1]. Some of the concerns regarding P4P measurements in pediatrics include the lower prevalence of disease possibly reducing the sample size [41].

P4P in Asthma

The overall prevalence and cost of asthma are extensive in adults and in pediatrics, and this burden is the stimulus that drives the development of metrics. It is important to recognize that there are other sets of metrics, such as HEDIS as described above and the Indicator Measurement System, which was created by the Joint Commission on Accreditation of Healthcare Organization [32]. The most commonly used asthma measure is HEDIS Appropriate Medications Use for Persons With Asthma (Table 1) [13••; Schatz, personal communication].

However, there are criticisms regarding its validity and accuracy that have led to the development of asthma measurements by the NCQA. The Physician Quality of Care Measurement: Asthma Project is a joint effort between the NCQA and PCPI, convened by the AMA (AMA-PCPI) [18]. Because of these concerns, the NCQA and PCPI organized a measurement advisory panel that included experts in the field of asthma to develop the following asthma measures [13••, 18, 19]. The group was charged with creating a set of measurements aimed at promoting improved outcomes for patients with asthma and reducing deficiencies in their care. The major intent of developing these measures was to increase standardization, ensure use of evidence-based reliable and transparent methodology,

Table 1 Current HEDIS asthma measure: appropriate medications use for persons with asthma

Numerator: The number of patients with at least 1 dispensing of a controller medication, including inhaled corticosteroids, leukotriene modifiers, cromolyn, nedocromil, or theophylline, but not long-acting β -agonist monotherapy or prednisone, during the second or measurement year.

Denominator: Includes the number of all patients as follows:

- Age 5–50 y
- With persistent asthma, which is defined as having any of the following during the qualification year and during the second (measurement) year:
 - Hospitalization with a primary diagnosis of asthma
 - Emergency department visit with a primary diagnosis of asthma
 - ≥ 4 asthma medication–dispensing events
 - ≥ 4 outpatient visits for asthma and ≥ 2 asthma medication–dispensing events

HEDIS healthcare effectiveness data and information set

(Adapted from Schatz et al. [13••]; with permission.)

guarantee fairness, and ensure quality of patient care. Many of these asthma measures are based on the extensively researched, evidence-based National Heart Lung and Blood Institute/National Asthma Education and Prevention Program Expert Panel Report 3 (NHLBI/NAEPP EPR3) asthma guidelines [42]. A set of seven asthma measures has been developed, as shown in Table 2.

The first five measures are based on the ambulatory care setting and measures; the last two are based on the emergency department and inpatient setting. Each measurement is defined as a ratio determined by a specific numerator and denominator.

The first asthma measure relates to the percentage of patients 5–50 years of age evaluated at least once for asthma control. Evaluation of asthma control is defined as documentation of daytime symptoms, nighttime awakenings, interference with normal activity, amount of short-acting β -agonist used for symptom control, and number of asthma exacerbations requiring oral systemic corticosteroid in the prior 12 months. A validated questionnaire such as the Asthma Control Test can be used. Determination of asthma control is based on the NHLBI/NAEPP EPR3 guidelines.

The second and third asthma measures relate to tobacco use. These measures were developed because evidence has shown that patients who smoke or are exposed to second-hand smoke are at greater risk of having asthma-related health problems [43]. Therefore, determining the percentage of patients with asthma who are asked about use of

tobacco and passive exposure and receive tobacco cessation intervention helps improve the quality of asthma care. Tobacco use cessation intervention may encompass brief counseling (≤ 3 min) or pharmacotherapy.

The fourth measure relates to the ratio of patients with persistent asthma who are prescribed long-term control medications, such as inhaled corticosteroids, or an appropriate alternative long-term control medication per the NHLBI/NAEPP EPR3 asthma guidelines. Possible acceptable exclusions to this measure include documentation of the reason for not prescribing a long-term control medication.

The next measure is the percentage of patients with persistent asthma with an asthma medication ratio greater than or equal to 0.5. The asthma medication ratio is defined as the number of prescriptions for controller medications divided by the sum of controller prescriptions and short-acting relief medications. Exclusions are also allowed in this measure, such as documentation of a patient declining treatment.

The last two asthma measures are related to the emergency department and inpatient setting. Asthma measure number six is the percentage of patients who are evaluated for asthma risk, defined as the number of asthma exacerbations requiring oral systemic corticosteroids in the prior 12 months. Asthma measure seven is the percentage of patients who are discharged from the emergency department or inpatient setting with an asthma discharge plan. The discharge plan must include instructions on how to use discharge medications such as inhaled corticosteroids, referral for a follow-up appointment, and instruc-

Table 2 Proposed physician quality measures for asthma

1. Assessment of asthma control based on National Heart Lung and Blood Institute criteria
2. Screening for tobacco use
3. Provision of tobacco cessation advice if tobacco is used
4. Provision of controller medications for persistent asthma
5. Asthma controller and reliever ratio >0.5
6. Assessment of asthma risk by asking about the need for oral steroids
7. Provision of an asthma discharge plan

(Adapted from National Committee for Quality Assurance [18].)

tions for recognizing and managing relapse of exacerbations or recurrence of airflow obstruction.

It is important to note that defined values have not been assigned to these asthma measure ratios, and the HEDIS measures have been used to compare the compliance proportions and percentages among various health plans without specific targets. Furthermore, the seven new asthma measures have not been finalized. Public comments have been requested, but modifications based on the comments are not complete (Schatz, personal communication).

Conclusions

Despite the myriad of concerns with P4P programs, many argue that they have become irreversibly intertwined with health care and are here to stay. Others state that P4P has not become a *fait accompli* and should be vastly improved and further validated before becoming widespread practice. As implementation increases, there likely will be a growing surge of fervent opponents and proponents, but all ideas and opinions should be respectfully considered. Many questions still need to be answered, and further studies and research are needed. Many would argue that the current health care system is in dire need of substantial improvement in the immediate future and cannot wait for the results of long-term, randomized controlled trials.

Asthma is a common chronic disease with significant morbidity and carries a heavy financial burden; therefore, P4P measures in asthma seem logical. However, there likely will be forthcoming metrics for other diseases in pediatrics, as well as in the adult population. The medical community therefore must become increasingly knowledgeable and involved in quality improvement approaches. Although there undoubtedly will be problems and frustration with P4P programs, ensuring that there can be continual quality improvement to quality improvement is vital.

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