

# Price-Transparency and Cost Accounting: Challenges for Health Care Organizations in the Consumer-Driven Era

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## Abstract

Health care reform is directed toward improving access and quality while containing costs. An essential part of this is improvement of pricing models to more accurately reflect the costs of providing care. Transparent prices that reflect costs are necessary to signal information to consumers and producers. This information is central in a consumer-driven marketplace. The rapid increase in high deductible insurance and other forms of cost sharing incentivizes the search for price information. The organizational ability to measure costs across a cycle of care is an integral component of creating value, and will play a greater role as reimbursements transition to episode-based care, value-based purchasing, and accountable care organization models. This article discusses use of activity-based costing (ABC) to better measure the cost of health care. It describes examples of ABC in health care organizations and discusses impediments to adoption in the United States including cultural and institutional barriers.

## Keywords

accounting, price transparency, activity-based costing, consumer-driven, health economics, health finance, managerial accounting, ABC, ethics, health care reform

## Introduction

The market is a powerful mechanism for allocating resources and determining prices. Theory posits that a competitive market with marginal cost pricing assures efficient production and optimization of mutually advantageous transactions between buyers and sellers. This mix of productive efficiency and allocative efficiency underpins the broader notion of economic efficiency. Yet America's health care system stands apart. Stories about health care pricing have been widespread in recent years. In February 2013, *Time* magazine's cover story provided detailed anecdotal evidence about the disparity between hospital pricing and actual costs of care.<sup>1</sup> The Centers for Medicare and Medicaid Services (CMS) has made its extensive data sets public, and subsequent articles in the *Washington Post* and the *New York Times* began detailing prices of various procedures<sup>2</sup> as well as price differences that exist between similar institutions.<sup>3</sup> This upsurge in media attention reflects increased interest in the contribution of pricing to the growth of health care expenditures. A key driver behind disparately high spending in the United States is high prices rather than high utilization or quality.<sup>4</sup> Prices often appear arbitrary, failing to represent costs and thereby failing to provide meaningful information. Calls for increased price transparency are proving difficult to

address in an industry with organizations that remain rooted in antiquated billing and cost accounting systems. A sound and credible cost accounting system is necessary to more closely reach economic efficiency. Many organizations are currently unable to measure cost at the patient level in spite of the increasing importance of this capability. Moreover, improvement in accounting systems of health care organizations has never been a central focus of reform. This article provides perspective on why this transition is proving particularly difficult.

## Origins of Health Care Pricing in the United States

The history behind pricing of US health care services is rooted in the origins of health insurance. As medicine progressed in the 19th and early 20th centuries, the demand

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for health care coverage grew and the insurance market evolved. Urban migration and new technology saw families turning to hospital-based rather than traditional home-based care,<sup>5</sup> with financial catastrophe a common result. Because patients were often unable to pay their providers, especially as the Depression set in, health insurance became increasingly popular as a means to ensure payment to hospitals and physicians. Cost emerged as an early concern for the health sector, resulting in the formation of the Committee on the Cost of Medical Care in 1927. The Committee decided that because the majority of the population lived in poverty, a consumer-driven health insurance system would inevitably fail.<sup>6</sup> The American Hospital Association led the drive for hospital insurance, developing guidelines that reduced price competition. Fees were determined through accounting systems that aggregated total costs and spread them across the entire hospital system. These systems were often quite arbitrary in the allocation of large indirect costs.<sup>7</sup>

When Medicare was developed in the 1960s, it used much the same accounting as the insurance industry, and reimbursed providers on their stated expenses including overhead. If costs increased, reimbursements rose with little scrutiny. This changed with the enactment of the Tax Equity and Fiscal Responsibility Act (TEFRA) in 1982, a bill that created limits on reimbursement and led to the implementation of the prospective payment system with diagnostic-related groups (DRGs) in an attempt to better identify and manage costs by patient characteristics. Although DRGs were an important development in better understanding costs, this system has limitations. It has been limited to inpatient care and addresses procedures rather than overall health. Medicare then attempted to control non-hospital costs through other reforms, including the largely failed resource-based relative value system aimed at curbing spending and narrowing payment differentials between primary care physicians and specialists. Today, Medicare utilizes a cost reporting system, requiring providers to report macro-level charges and cost-to-charge ratios by hospital or department. However, because charges do not adequately represent costs, these metrics often fail to provide sufficient insights into what is occurring within the organization. These systems form the foundation of hospital and health system organizational accounting today.

## Activity-Based Costing

Traditional cost accounting systems accumulate either actual direct costs (job-order costing) or standardized direct costs (standard costing) for each product. In the health care setting, the “product” is patient health. Allocating direct costs is not particularly difficult; one simply sums the costs easily tracked to an individual, such as medications, patient supplies, and surgical equipment. It is the allocation of indirect costs that can prove troublesome. This is generally accomplished by allocating a portion of indirect overhead costs,

such as general administrative costs, to each job based on a pre-selected method of allocation. The hourly rate method is such an example, in which a predetermined hourly overhead rate for a particular service is allocated to the patient based on length of time the service is used. Another method uses a predetermined daily overhead rate, in which overhead is allocated to patients based on the length of the hospital stay. A third method can be called the “mark-up” method, in which a preset percentage of the patient’s direct costs are added to the bill to represent overhead. Although convenient, these methods are known to over-allocate overhead to routine high-volume services, and under-allocate overhead to low-volume services. When the cost of services varies significantly, as occurs in many organizations, these misallocations can be quite significant. Overpricing affects the ability to compete in the marketplace, and underpricing affects profitability.

Activity-based costing (ABC) has been slowly gaining traction among hospital financial managers, yet has not been widely adopted as a method to improve the value cycle. First developed in the US manufacturing sector in the 1970s, ABC seeks to identify the best drivers of overhead costs for each product or process, and use those drivers to allocate overhead costs to products. ABC combines concepts of process mapping from engineering with costing models of accounting, and has been successfully expanded to industries such as hospitality and technology.<sup>8</sup> Users of ABC often credit the accounting method with the identification of opportunities to improve efficiency and productivity.<sup>9</sup>

Although individual centers have variations in their ABC methodologies, the overall process is the same, requiring the generation of an activity map detailing each step along the production line. The “production line of health care” begins the moment a patient enters the system and continues throughout the care and follow-up. Costs begin accumulating when the patient calls to schedule an appointment with administration, and continue to accumulate through provider visits, equipment depreciation, and the involvement of ancillary services such as laboratory technology. Often the process of developing activity maps itself yields valuable information on non-value added activities, and creates an early opportunity to address waste. Activity maps are broken into distinct steps, followed by the identification of inputs required at each step such as personnel time, capital depreciation, and variable inputs such as water and electricity. Activity maps can become complicated, including decision nodes to allow for variation one sees in patient care. Simplified models have been attempted, particularly in the process of costing labor. Service industries such as health care have found success in time-driven ABC, in which the minutes that a worker spends on each step are converted into minute cost based off an employee salary. Compared with traditional ABC, time-driven systems require less data, thereby making them more achievable under complex and variable processes.<sup>10</sup> By understanding where resources are

used throughout a patient's health care experience, ABC provides valuable information for management.<sup>11</sup> Increased understanding of processes improves management ability to understand capacity utilization and adjust for changes in staffing and skill mix.

### **ABC in Practice**

Although the potential of ABC to manage price has not yet been a dominant motivation, organizations have benefited from the implementation of improved cost accounting in various means. Boston-based insurer Harvard Pilgrim is using time-driven ABC to help create a bundled payment for rotator cuff repair. The insurer hopes to use its detailed cost information to improve negotiations for bundled payments while improving patient outcomes.<sup>12</sup> ABC has also proven useful in the outpatient environment for cost-effectiveness analysis. Multiple groups have used this methodology to evaluate the efficiencies of its various procedures, allowing the objective evaluation of novel treatment options.<sup>13</sup> ABC can also be used to compare the impact of providing care when adhering to certain quality standards, and thereby may play a role in the evaluation of quality improvement projects.

### **ABC Fails to Gain Traction, So Far**

Most prevalent in large companies and the finance sector, the overall number of companies using ABC in all industries has fallen in the past decade.<sup>14</sup> With the early implementation of ABC, many firms found that their most significant gains originated while evaluating processes to develop activity maps. After initial data collection, many organizations found that the complexity of maintaining the ABC system was too costly and resource intensive. Most returned to less complex metrics to improve performance, but some opted to maintain a "light ABC" system maintaining certain costing details from the ABC model.

Despite known benefits and proven successes in health care, implementation continues to be largely at the department or clinic level.<sup>15,16</sup> Hospitals and providers have historically been reimbursed based on volume rather than actual costs and it was considered unnecessary to detail where costs originated. This was particularly prevalent in hospitals. When reimbursement is not linked to costs incurred, there is little incentive to provide resources necessary to develop and monitor a detailed and expensive costing system. Managed care and other large systems with resources to implement ABC have often chosen not to do so. In the early 1990s, the British National Health Service evaluated ABC and decided instead to utilize costing by health-related groups.<sup>17</sup> The Veterans Affairs health care system has long experimented with methods of novel cost monitoring,<sup>18</sup> yet still uses traditional costing at the department level with a slightly more detailed system that allocates costs by DRG, length of stay,

and bed-section. ABC at the Veteran Affairs (VA) is generally only used for research, where it is popular for evaluating cost-effectiveness of new interventions. The fact that detailed costing systems are not more common in health care suggests that crossover from manufacturing is challenging. Difficulties arise in the scalability of detailed costing models, particularly as different patients in the same production process may accumulate additional costs of comorbidities and complications.

Staff involvement also plays a large role in the success of ABC adoption. Employees often seem concerned about detailing their daily practices to management, with some theorizing that ABC fails in organizations because employees do not have enough buy-in.<sup>19</sup> The development of activity maps requires access to data and personnel, and lack of employee trust creates concerns about the accuracy of self-reported time-driven cost drivers. Personnel may fear that providing accurate information could put their jobs at risk. Subjective measurement bias, likely in attempts to appear more productive and therefore valuable, creates costing models that are based on inaccurate data. Using time-driven ABC systems may prove particularly useful in reducing these discrepancies, because the amount of time spent on each process step is identified by management early in the implementation process.

The implementation and maintenance of ABC systems has been cost prohibitive for many organizations. The resource intensity of implementing ABC comes at a particularly bad time in health care. Hospitals expect reimbursement reductions in Medicare, Medicaid, and disproportionate share hospital payments. The complexity of system integration means that organizations must coordinate finances between increasingly more players. Hospitals have focused on the revenue cycle and payment collection and using cost-tracking technology to identify potential sources of missed revenue rather than identify potential for cost reduction.

### **Consumer-Driven Health Care and Other Reform May Catalyze ABC**

Despite challenges, ABC is expected to draw more attention as efficient cost-based pricing becomes essential for retaining and attracting more patients. The growth of consumer-driven plans has been steady and is already credited with slowing growth of national health expenditures.<sup>20</sup> In 2014, 15% of the nonelderly adult population with employer-sponsored private health insurance in the United States had a consumer-driven plan defined as an insurance policy with a high deductible (in excess of \$1250 for individuals and \$2500 for families) coupled with a health savings account whereas another 11% had a high deductible plan without a health savings account.<sup>21</sup> The combined share of almost 26% has grown significantly from 2005 when the comparable figure was 8%. Higher copayments are also expected to increase consumer sensitivity to price.

Many health care organizations have successfully implemented ABC with improved efficiency, waste reduction, and better quality data for organizational analysis and pricing decisions. Although uptake has historically been slow, we are entering a period of innovation and change. Use of bundled payment is a relatively new feature of health care reimbursement and may facilitate ABC.<sup>22</sup> As attention is re-focused on price transparency and cost reduction, a costing system that is better able to allocate the high percentage of indirect costs in health care organizations and provide marginal, or average cost pricing will prove advantageous. Private sector products to help health care organizations implement ABC are becoming increasingly available and underscore growing demand for more accurate costing methods. The advent of health insurance exchanges is a major development facilitating a new generation of patient-consumers who will scrutinize price. Insurers, accountable care organizations (ACOs) and others will increasingly price their services competitively and transparently to survive.

The evolution of technology, particularly through the use of electronic medical records and other forms of health care information technology, facilitates the ability to properly identify processes across the cycle of care. The ability to generate activity maps across systems will be more achievable, allowing groups to realize economies of scale in the implementation and maintenance of costing systems. However, organizations will need to find the balance between the benefits of better accounting data with the marginal cost of system implementation. The successful implementation of ABC systems has been linked to encouragement by management, use in performance evaluation and compensation, and training in the ABC process.<sup>23</sup> But more research is needed to shed light on implementation.

### Final Comment: Economics, Medicine, and Ethics

One can seek answers at the micro-level as to why ABC has not become widespread. This may be the first place to look. Less obvious may be macro-level explanations. Health care providers have a fundamentally different ethical orientation about the appropriate use of health services than do economists and business professionals. The former, sworn to the Hippocratic or other similar oaths, emphasize the importance of intervention whenever beneficial. Business professionals recognize health care intervention as inefficient, beyond the point where marginal cost exceeds marginal benefit. Many providers prefer not to be faced with decisions about which beneficial forms of care are not worth the cost. Besides it is often not in their financial interest to do so. The convention of averaging costs across the organization serves to obfuscate specific costs and individual accountability for an efficient use of resources. The move toward more transparent pricing undermines the historical evolution of health care as

separate and apart from the world of commerce. It is not always greeted with enthusiasm by many providers who see a relentless slide toward financially driven commercialism. However, it can clearly be argued that existing institutions have failed to provide protection from pecuniary excess. Price transparency portends a long-lasting impact with ethical dimensions, that are generally not explicit.

Despite potential for improving pricing models, ABC is not the primary solution for addressing costs in health care organizations. Accounting is only a measurement tool. ABC does not directly affect cost structure and existing resource use. It will not tell us what is not worth paying for. Achieving the triple aim of reducing cost, improving quality, and improving population health requires improved production and better allocation of scarce resources.

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