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healthcare financial management association hfma.org

patient-level costing and profitability making it work

AT A GLANCE

- > Monitoring costs effectively is increasingly important for healthcare organizations.
- > Traditional costing approaches do not take into account the relationship between cost and consumption and, thus, do not provide a comprehensive view.
- > Patient-level costing can help a healthcare organization obtain accurate, useful costing information that provides deeper insight than can be obtained using other methods.

Increasing changes in how insurers pay for health care in the United

States and public pressure to reduce the overall cost of care are forcing healthcare organizations to move away from revenue-centric approaches to maintain their financial stability. This move requires placing a greater emphasis on measuring, managing, and monitoring the cost of providing care and the resulting profit margins—a change that is necessary even for not-for-profit healthcare organizations.

To reduce costs, provider organizations must take a substantially different approach to managing costs. Measuring costs must involve a *consumption* view of how resource expenditures (e.g., employee salaries, materials, supplies, power) are used for procedures, treatments, surgeries, and the like by individual patients.

Traditional costing approaches in health care, such as those based on ratio of costs to charges (RCCs) or relative-value units (RVUs), are inadequate. RCCs and RVUs use broad averages that do not reflect cost accounting's *causality principle*: Costing should reflect the cause-and-effect relationship between costs and the consumption of resources by cost objects (e.g., patients, procedures) that cause costs to be incurred.

The Data-Driven, Consumptive Approach

A more accurate method of measuring costs is to adopt a comprehensive patient-level cost management analytics approach using data that already exist in a provider's clinical and financial systems. The IT used in health care generates substantial transactional data that can be converted into cost data for each patient, in real time, as costs are incurred. This information is continuously produced, but rarely used.

Industries such as aviation, manufacturing, transportation, and retail are spending billions of dollars equipping their plants, trucks, planes, loading docks, and workers

to produce the kind of cost data needed to improve their analyses and decision making. Most healthcare organizations already have information systems in place that are automatically producing such robust source data, which can be used to enable accurate cost reporting. In health care, however, there often is a large gap between the availability of actual cost data and an organization's ability to use such data for insights and decision making.

Complying with the Causality Principle

Healthcare data—both clinical information and usage logs—reside in electronic health records (EHRs), barcode scanners, pharmacy and lab systems, imaging machines, and nearly every other device and computer system used around the hospital. These rich but neglected data streams contain massive amounts of useful data that can be used for measuring costs. If that information were gathered up, stored, analyzed, and converted into financial terms, and then presented using modern data visualization technology, it would display, in real time, an accurate, detailed, and actionable picture of patient costs. Comparing patient level billing with prices and net revenue collected for these costs enables profit margin analysis. This comparison allows an organization to know where and on what services it is making or losing money, by how much, and why.

This approach to use of data for costing is very different from and much more useful than traditional methods, which rely on dividing up the general ledger accounting system's cost account line items into *cost pools*, a cost accounting term, that are then allocated using RVUs or RCCs. Although the traditional costing methods are appealing on the surface to accountants because they fully allocate all of the consumed expenses into output costs, they are deficient because of their noncompliance with the causality principle, which is the most essential principle of valid cost accounting.

Most managers react to the term “cost allocation” with dismay. They recognize that cost allocations that do not reflect the causality principle simultaneously over-cost some items and therefore must under-cost others because the total costs must be allocated. Thus, although the total allocated cost is correct,

individual patient encounters are costed in error and therefore are misleading. The magnitude of cost error for each item can be substantial, often massive, when not using causality to trace, connect, and assign expenses to those items.

Cost accounting approaches that use the periodic, grossly aggregated data from the general ledger are based on broad averages for cost calculations and loaded with guestimates. These approaches are valid for external financial and statutory reporting required by government regulators and investors. They also will satisfy external audit requirements. But they cannot provide the detailed, accurate cost information that healthcare managers require to gain insights into the business required for effective decision making.

The Business Case for Patient-Level Costing

Patient-level cost reporting and analysis based on causality relationships avoids the deficiencies of traditional costing methods used in health care. It can identify *variances* among the costs of individual patient treatments for similar conditions and outcomes. The purpose is help answer questions on considerations such as why costs are different when one would think they would be similar.

Imagine healthcare managers examining a graph of the distribution of the cost variations for each patient (which most likely would be not a bell-shaped curve but would be skewed left or right). Such a review would create the now-needed conversations to investigate why different patients with similar conditions cost so much more or less to treat than others. More important, these explanations would lead to actions to reduce costs.

Admittedly, each patient will present a situation that is unique to some extent (e.g., age, acuity, unanticipated complications from other ailments), but the use of analytics can separate the signal from the noise. That is, analytics can hold constant one or more variables enabling visibility into what factors cause the variation. Individual or aggregate patient-level costs can be compared on a wide variety of variables and parameters—including the following, for example:

> Time of service

The Use of ABC for Indirect Expenses

The use of the idea of *activities* with respect to patient-level costing suggests a possible connection with activity-based costing (ABC) and its variant time-driven activity-based costing (TDABC). ABC traces and assigns, rather than “allocates,” *indirect* expenses into calculated costs based on costing’s causality principle. ABC traces costs based on “driver” quantity and volume measures that reflect how much of a work activity, employee, or equipment, was consumed by the cost objects referenced in the article. Not all expenses are direct costs. In a healthcare organization, there will be indirect support expenses that are required by the direct costs. For example, there are expenses associated with the technicians needed for maintenance of equipment (such as diagnostic medical devices and patient beds). Assigning those expenses as costs using averages (e.g., number of beds) introduces cost error. ABC more properly reflects diversity (e.g., different types of equipment or beds). In effect, ABC adds indirect costs to the direct costs while still complying with the costing causality principle. Physicians and department managers are likely to be interested only in the direct costs to patients. That is where they can focus. The addition of ABC for indirect expenses provides a more comprehensive view and opportunities to reduce indirect expenses as well.

ABC modeling enables the expenses to serve each patient to be separated from non-patient-related expenses, such as building, heating, air-conditioning, and insurance. In management accounting, non-patient-related expenses are referred to as “business sustaining costs” needed to operate a healthcare facility. Under such an approach, a patient-level cost does not include any costs that the patient did not cause. ABC also allows the behavior of each resource expense to be classified as sunk, fixed, step-fixed, or variable. These classifications are needed for the predictive future, not historical, view of costs for use in effort such as what-if scenario planning and analysis.

Some have the misperception that ABC is excessively complex and not worth the effort to implement. In reality, ABC is simply cost modeling. The misperception exists because many accountants have over-designed their ABC cost model to be more accurate than necessary. Skilled ABC designers know how to restrict the size and complexity of an ABC model to meet acceptable, or “good enough,” levels of cost accuracy.^a

a. For more information, see Cokins, G., and Scanlon, C., “Measuring and Managing Patient Profitability,” *hfm*, April 2017.

- > Inpatient versus outpatient
- > Whether the patient was referred from the emergency department
- > Specific care giver
- > Individual technicians or administrators
- > Specific facilities within a system
- > Consumption of labor, supplies, and medications

Accurate cost information will enable managers to propose alternatives that can lead to standardized procedures and treatments. Managers will be better equipped to influence physicians and nurses to apply best practices and treatment protocols based on data and to reject outdated, less effective, and more costly practices.

The Math and Benefits of Patient-Level Costing

Patient-level costing is event-driven, rather than focused on a fixed time period as with period-based

cost systems (e.g., by month). As costs occur, the data are accumulated in real time. Because the data are generated, gathered, and held at the discrete cost-item level, patient-level cost analytics that are data-driven and provide a consumption-view allow easy aggregations and deeper dives into the information. For example, patients can be compared in terms of their time in the operating room or drug costs at a summary level. Any observed anomaly, variation, or difference of interest can be explored and examined with granularity.

One can understand patient-level costing as “bottoms up” costing with a consumption view. The process starts with each patient. Patients place demands on activities, such as the work of employees performing procedures and the supporting equipment and the usage of supplies and drugs. These activities, in turn, generate expenses—salaries and the cost of the supplies, drugs, equipment, and facilities used. This

data-driven approach provides the most accurate methodology for accurate costing—*direct* costing. The sidebar on page 3 describes how activity-based costing (ABC) similarly applies the consumption view for indirect expenses.

A Call to Action

Unfortunately, despite the benefits that can be achieved both in improved quality of care and in reduced cost, data-driven patient-level cost analytics are infrequently used in the United States. Of the hundreds of American healthcare provider executives and representatives whose costing practices we have observed, only a few healthcare organizations are engaged in or have plans to implement patient-level cost measurement, management, and monitoring. This situation exists despite successful implementation of such systems (in whole or in part) both here and in other parts of the world. The rarity of patient-level costing in the United States is a significant contributing factor to the nation's high cost of care compared with the rest of the world.

Barriers

There are three major reasons healthcare provider organizations do not embrace patient-level costing.

- > The potential to disrupt established processes and meet with resistance from staff
- > Physician resistance to changing their treatment protocols
- > A lack of urgency to make a change

Other reasons include a reluctance to have greater financial transparency, anxiety from being measured and held accountable, and weak organizational leadership. Notice that IT is rarely a barrier: IT systems typically are already in place and proven.

All of these barriers can be overcome—and indeed have been by providers that have adopted patient-level costing. So long as the reporting system is presented as a means to improve patient satisfaction (sometimes as part of a lean management or quality management program), the staff can be expected to enthusiastically accept and leverage the system. Physicians know that changes are imminent. They

respond much more favorably to a cost-reduction discussion using actual costs rather than RVUs, RCCs, or charges they know do not accurately represent the true cost of treating their patients.

A key to successful implementation can be to start with a specific department or diagnosis-related group (DRG) and build on successes and lessons learned from that pilot project. For example, a total joint replacement project can yield positive cost savings in a matter of weeks.

Constructing an enterprisewide patient-level costing system beyond a department or DRG also is feasible. Techniques include starting with rapidly prototyping the costing system's enterprisewide design at a high level and then using iterative remodeling to quickly arrive at a production costing system for the entire healthcare facility that is repeatable, reliable, and right-sized—that is, not too complex but having sufficient cost accuracy.

The healthcare industry is changing, and organizations must evolve to remain competitive. This evolution should include adopting progressive, internal management decision-focused costing practices such as patient-level cost analysis and applying ABC. What is needed now is for each healthcare organization's leadership to possess the vision and willpower to adopt such practices. This vision can foster culture where the users of cost information trust the information provided by their accountants, see the costs as consistent and reflective of the resources and processes they manage, and most important, use it to make better decisions, thereby improving the competitiveness of their organizations. ■

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