

Linking Clinical and Financial Data: The Key to Real Quality and Cost Outcomes

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I have a book on my desk that tends to scare people, but its thesis is a great way to introduce the importance of linking clinical and financial data to improve healthcare. The book is called *Show Me the Money* by Jack and Patricia Phillips.

The book isn't there to scare people, of course. It's there because I'm a finance person, and I love the book's discussion about achieving high-value results because it's applicable to today's new healthcare environment.

Health systems didn't need to concern themselves with achieving high-value care until [accountable care](#) took the healthcare industry by a storm in 2010. That's because health systems had a predictable revenue stream from the fee-for-service payment model, and to account for their revenue, they were primarily interested in the financial data they acquired from patient volumes.

The days of only tracking volume with the fee-for-service model, however, are now long gone. Nowadays health systems are tasked with providing high-value or [value-based care](#) along with a new focus on improving the quality of care based on clinical data.

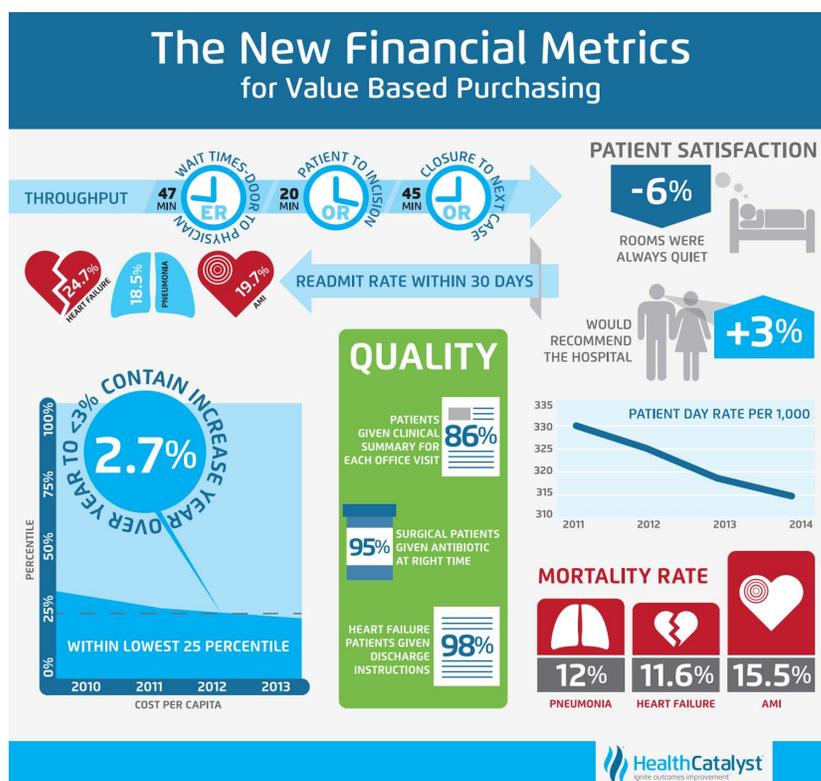
New Clinical Quality and Operational Metrics Required for Value-based Purchasing

While the [switch to value-based purchasing](#) will ultimately improve both quality and cost outcomes, health systems now need the capability of tracking and analyzing many other metrics before they can comply with the government's new mandates. These metrics include the following:

➤ **Throughput.** The time it takes to complete a process, such as [shortening the average wait time in the ER](#) or reducing the time between cases in the OR, now translates directly into money and greatly affects quality. Improving throughput will benefit the organization by reducing cost and increasing patient satisfaction.

➤ **Quality.** With value-based purchasing, hospitals are required to assess and report measures of quality relative to defined benchmarks. Were patients given discharge instructions? Did the care manager schedule follow-up visits? How many falls occurred in the hospital? How many hospital-acquired infections? If hospitals don't report their quality metrics, they'll receive a penalty, further impacting their bottom line.

- **Readmissions.** Quality will also be assessed based on the rates of readmissions for all causes within a certain time period for specific patient populations. For example, what are the [rates of heart failure](#), pneumonia and AMI readmissions within a 30- and 90-day period?
- **Mortality rates.** What are the hospital's mortality rates for pneumonia, heart failure and acute myocardial infarction (AMI) among its patient populations? High mortality rates in pneumonia, health failure and AMI will result in loss of incentives beginning in 2014.
- **Patient satisfaction.** [Patient satisfaction](#) is now tied directly to payment models. How satisfied are patients with their care experience? Was the room satisfactory? Was the family comfortable? Would they recommend the hospital?
- **Cost per episode of care.** [Containing costs](#) is now more important than ever as value-based purchasing systems strive to keep treatment consistent and expenditures appropriate and predictable. Reducing clinical process with variations will improve the cost structure.



The new financial metrics for value-based purchasing include the following: throughput, quality, readmissions, mortality rates, patient satisfaction, and cost per episode of care.

Clinical and Financial Data Challenges

As though health systems weren't already dealing with enough concerns with all of the new metrics they need to capture and analyze, there's one more challenge they're dealing with — accessing linked clinical and financial data from within their systems to provide the right metrics in this new world of value-based reimbursement.

Traditionally, health systems housed their financial and clinical data in separate systems. The original systems were designed this way because financial data needed to be available to certain teams tasked

with specific functions such as cost and payments. Clinical data was housed in systems that would allow clinical teams to focus specifically on readmissions, hospital acquired conditions, and core measures for clinical processes. But the two data systems were not integrated because there wasn't a need.

There is now, however, a need to access the data from [both clinical and financial systems](#) because the data can be leveraged to drive concrete, timely [quality improvements](#). The kind of quality improvements necessary to survive in this new world of accountable care, [quality measures](#), shared savings, and bundled payments while also lowering costs.

Achieving High Value Results — A Winnable Challenge

Achieving high value results for health systems is a winnable challenge, provided the organization approaches the task with a thorough understanding of where it stands relative to clinical quality measures and the financial costs associated with delivering care. But the right tools and teams are necessary to liberate clinical and financial data to link it together to provide a full picture of trends and opportunities.

Enterprise data warehouse and Data Operating System

An [enterprise data warehouse \(EDW\)](#) provides the ability to aggregate data from a wide variety of sources, such as clinical, financial, supply-chain, and HR source systems, in such a way that [a sophisticated analytics system](#) can then leverage the data to drive concrete, timely quality improvements.

However, traditional data warehousing, which solved some of these problems, is no longer good enough. As [Gartner](#) recently reported, traditional data warehousing will be outdated and replaced by new architectures by the end of 2018. And current applications are no longer sufficient to manage these burgeoning healthcare issues. The technology is now available to change the digital trajectory of healthcare.

The Health Catalyst® Data Operating System (DOS™) is a breakthrough engineering approach that combines the features of data warehousing, clinical data repositories, and health information exchanges in a single, common-sense technology platform.

Multi-disciplinary teams

In addition to the EDW and DOS, permanent multi-disciplinary teams of frontline staff (for example, clinicians, quality personnel, analysts, a financial representative, and technologists) can help drive sustainable improvement initiatives by analyzing the data to determine what to target and how best to realize improvement.

The team then set goals that they constantly monitor to ensure they're focused on sustaining quality and [financial improvements](#) as well as clinical and operational outcomes. Once they discover an improvement based on the data and the best practices, then they work to gain buy-in from the clinicians to adopt the improvement.

The "Aha!" Moment

It's important to educate clinicians so they buy in to the improvement and understand the financial implications. In working with health systems for many years, I've discovered that if education and financial results are tied to real, demonstrable clinical improvements, clinical teams will become excited

about the change. By using [easy-to-use dashboards](#) along with DOS, clinicians can visualize their own progress. The “Aha!” moment comes when they can see how the clinical decision they made two days ago affected the bottom line today.

A Health System Example of Linking Clinical and Financial Data to Improve Costs

Here’s a quick example of how a client I worked with benefitted by gaining buy-in from their frontline teams. One of our client hospitals targeted length of stay following an [appendectomy as a key opportunity for quality and financial improvement](#). The frontline team looked at the data in their EDW and discovered that clinicians were prescribing a wide range of antibiotics after an appendectomy.

Based on the outcomes data for each antibiotic, the team decided on a protocol for the entire facility and started encouraging clinicians to prescribe one particular antibiotic following surgery. The antibiotic turned out to be expensive, so any clinician who knew that the hospital was trying to cut costs might simply suggest using a lower-cost medication. But because we had linked the clinical and financial data in the data warehouse and made it available via [dashboards](#), clinicians could see that while pharmacy costs rose, a parallel drop in length of stay (LOS) more than made up the difference. Once clinicians saw these results and caught the vision, they began requesting further refinements to the system. They began asking the team questions like, “Are we giving patients the antibiotic at the correct time after surgery?” Clearly, these clinicians became willing and proactive participants in the process. This is what data-driven [quality improvement](#) is all about.

The Health Catalyst Data Operating System (DOS) — The Key to Linking Clinical and Financial Data

In short, quality and cost improvements require intelligent use of linked financial and [clinical data](#) coupled with education for multi-disciplinary teams who are driving process improvements. DOS offers the ideal type of analytics platform for healthcare because of its flexibility. DOS is a vendor-agnostic digital backbone for healthcare. Using DOS, teams will be able to populate workflow information systems with critical point-of-decision insights and give the organization access to the most recent clinical and financial data. This, in turn, provides the organization with the best way to identify quality and cost improvements and ultimately to achieve high-value results.

About the Author



Bobbi Brown is the Vice President of Financial Engagement for Health Catalyst. Ms. Brown started her healthcare career at Intermountain Healthcare supporting clinical integration efforts before moving to Sutter Health and, later, Kaiser Permanente, where she served as Vice President of Financial Planning and Performance. Ms. Brown holds an MBA from the Thunderbird School of Global Management as well as a BA in Spanish and Education from Misericordia University. She regularly writes and teaches on finance-related healthcare topics.