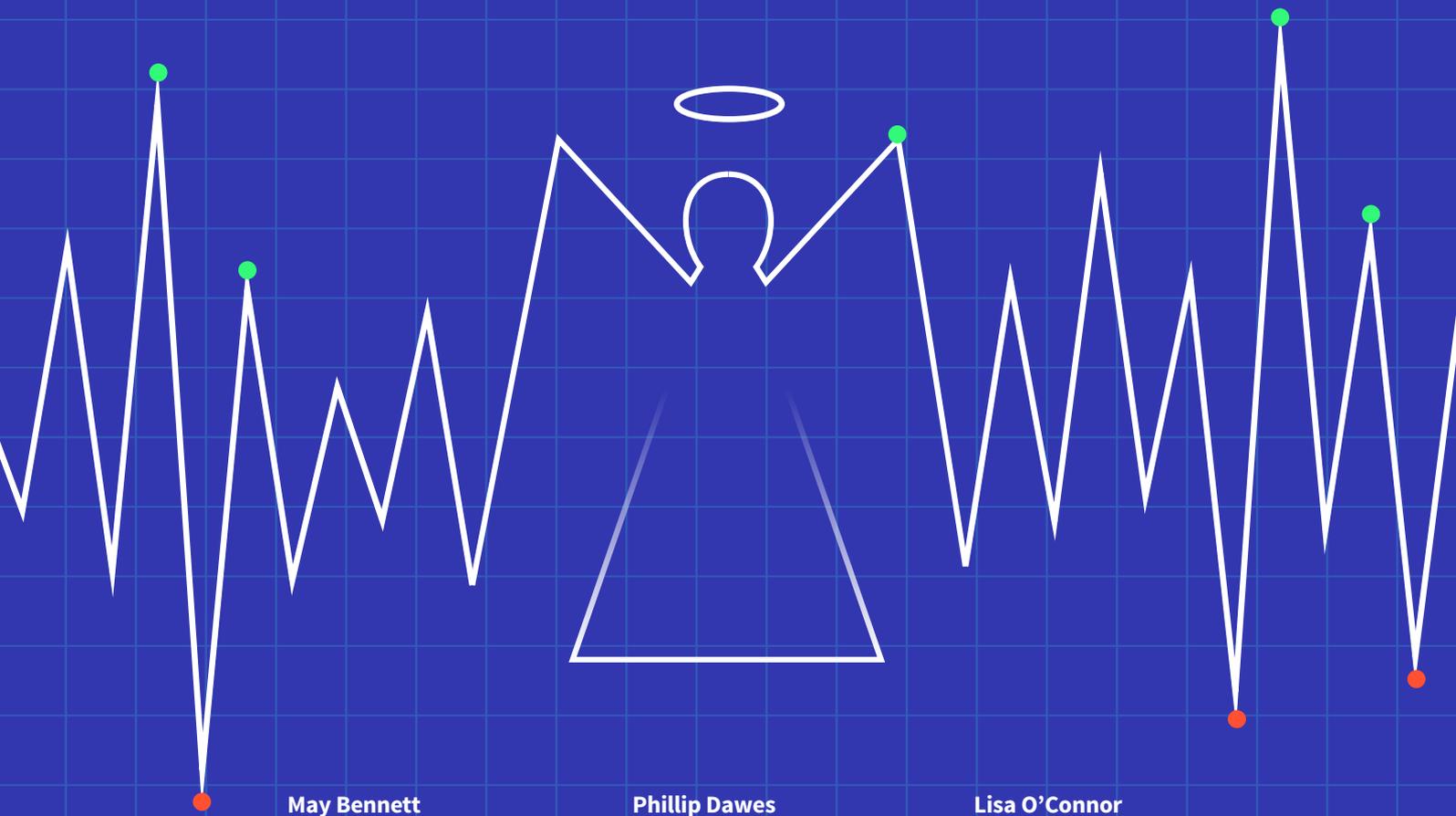


# Angels in the Analytics



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## Boston Medical Center was the city's largest safety-net provider. But with healthcare insurance reform, state funding dried up, and hospital revenue was in free-fall. Here's how it turned a 2010 operating loss of \$34 million into a \$2.5 million gain in two years by deploying advanced analytics to inform decision-making at all levels.

In 2010, Boston Medical Center (BMC) faced intense financial pressures. A large, urban medical center, BMC had been heavily funded by the Commonwealth of Massachusetts to provide a safety net for the city's population that couldn't afford medical care. BMC was the state's largest safety net provider. But the state's funding started disappearing as safety net recipients shifted to private insurance as part of the 2006 Massachusetts healthcare insurance reform law. And the insurance policies that these patients could afford carried high deductibles and offered lower fees for services than the commonwealth previously had provided. BMC revenues began to spiral downward.

The revenue challenge was amplified by the same pressures confronting many healthcare providers today. Reimbursement models were shifting risk from payers to providers by, among other things, switching from fee-for-service to fixed amounts for an entire course of treatment. For certain services, BMC and other local hospitals were losing patients to less costly outpatient settings. Payers started making particularly bold moves. Blue Cross Blue Shield of Massachusetts, for example, began actively driving its Boston plan members to less expensive hospitals outside the center of the city.

Time was not on BMC's side. The organization had to contain costs and make the most efficient use of its existing resources — everything from supplies to labor.

### Daunting Odds

Many healthcare providers are keenly aware that sophisticated data and analytics — the discovery and communication of meaningful patterns within it — are essential to making the decisions organizations need to get right during a time of massive change. However, many fail to get past the starting gate. The sheer volume of raw data in the complex world of healthcare quickly can exceed an organization's ability to act on the information it has accumulated.

When BMC launched an analytics program in 2010, it faced the same struggles that confront many healthcare organizations around the country today. New data frequently are greeted with confusion and suspicion. Reports often are "data dumps" that fail to tell a story and relate information to the challenges at hand. The successful infusion of analytics into everyday management decision making is rare. Typically, the increased volume of data simply generates a muddle of endless debate and the emergence of ad hoc groups and turf wars. Organizations

rarely establish accountability for ensuring that the new data become the foundation for making decisions.

BMC, however, beat the odds and steered clear of the muddle. Its success sheds light on how healthcare organizations can hardwire analytics into critical decisions up and down the management structure.

### The Productivity Question Mark

With revenues in free fall, BMC needed to make the most efficient use of its staff. To do that, the organization had to draw meaningful, measurable links between work volume, revenues and staffing resources. As is the case at a number of healthcare providers, BMC's financial planning process didn't make those connections.

For many healthcare providers, financial and staff planning processes are an annual event. The exercise rarely is anchored on commonly understood productivity measures that would reveal whether or where additional staff resources would be needed in the future. Before BMC embarked on its analytics program, it relied on a similar annual process that lacked meaningful metrics. The staff's actual productivity remained a question mark.

Even when BMC used metrics, they did not meaningfully measure the work. The hospital pharmacy, for example, tracked the number of doses it issued daily. But the functioning of the pharmacy was much more complex. The pharmacists, for instance, were devoting considerable time to evaluating drug interactions and helping physicians determine the best pharmaceutical options for a given treatment. BMC's metrics did not capture those activities, and the hospital knew it.

To answer the productivity question, BMC developed intricate gauges of volume and revenues and determined how staffing resources were deployed against them. But it also had to overcome the hurdles of getting organization-wide buy-in to those gauges before it could use them to drive decision making.

### “We Don’t Believe the Data”

Challenging the validity of new information is a common impulse. In addition to the fact that anything unfamiliar is threatening, BMC's new data potentially could reflect poorly on its managers' ability to administer staff resources.

To build buy-in to the analytics, BMC leaders worked carefully — and unceasingly — with managers across the organization. Leaders met with managers as often as needed to make sure they understood how the information was derived and that it accurately reflected a given situation. In turn, for a full year, managers spent 30 percent to 40 percent of their time, on average, to make sure the staff understood the information and agreed on its meaning. Without that due diligence, the effort never would have taken flight.

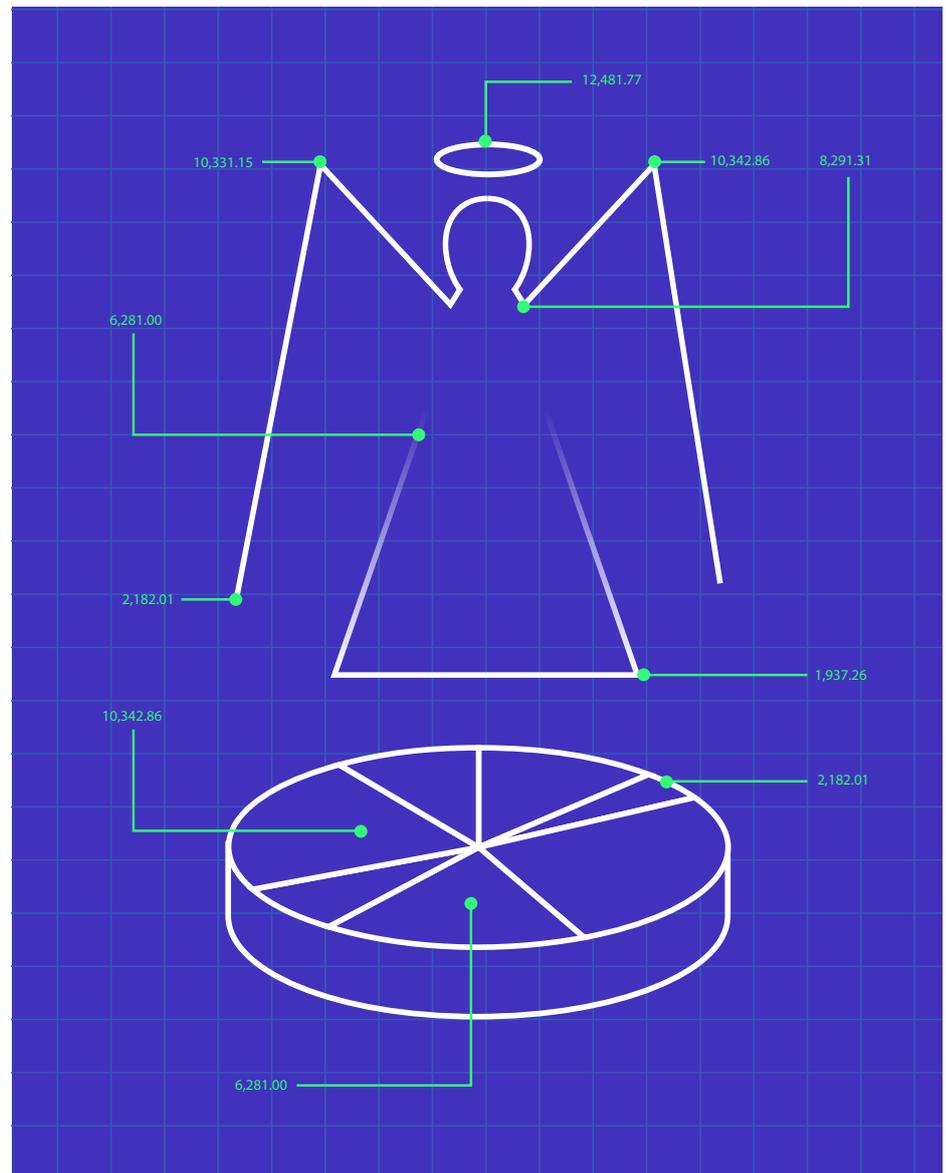
How the information is presented is a critical (and often overlooked) component of analytics initiatives. BMC's reports are highly visual. Presented on a single page, they display the volume of work graphically and the resources deployed against it. This

makes complex links easy to understand and can be shared with the staff. Developing the reports, however, was only the beginning.

The productivity data begged the next question: What parameters could be used to make data comparisons? Improvement goals had to be aggressive enough to address competitive pressures, but those objectives also had to be realistic. To achieve that balance, BMC conducted a major benchmarking effort. Such activity often raises concerns that the benchmarked organizations are too dissimilar for meaningful comparisons. Debating and understanding those differences, however, engages the organization and drives deeper buy-in to the information.

### Hardwiring Data into Decisions

Creating clear links between volume, revenues and deployed resources married two very different healthcare perspectives: the numbers on budgets and balance sheets that measure the financial capabilities and prospects of the organization and the day-to-day reality of patient care. To avoid the perception that the initiative was more about numbers than patients, BMC senior leadership made it clear that whatever actions would be taken to address the organization's financial challenges would not negatively affect patient care. Using analytics, leaders created a common language that the



numbers and health people could use to communicate. With that language, BMC could drive analytics into resource planning processes and fortify decision making across its existing management structure.

At the most senior ranks, for example, time-consuming arguments about the causes of budget variance gave way to more substantive discussions about how to improve performance and allocate resources most effectively. The senior team also could monitor the actions it took and assess their impact.

Nurses, for instance, account for as much as 50 percent of BMC's staff costs. In an institution with a patient care

moving parts of patient care. Factors such as emergencies during a surgery or other unanticipated events are part of a complex picture that was hard to paint. But analytics painted that picture and clearly detailed how staffing was adjusted to accommodate demand. Just as important, by eliminating debates about whose numbers mean what, analytics fostered a productive dialogue between nursing and finance that could focus on improving quality while reducing costs.

At the director level, staff members now had an objective means to measure the performance of their organizations and identify the most powerful opportunities for improvement. Prior to the new

demand and staffing accordingly. The new analytics provided that insight and also allowed frontline nursing managers to show their strengths as effective planners.

### Partnering with Unions

When organizations face financial crises and must negotiate concessions with labor unions, the first hurdle frequently is gaining union leader confidence that management isn't the cause of the problem. The new analytics demonstrated to the unions that the hospital was making the most efficient use possible of resources. As a result, BMC could focus its discussions with nursing unions on the costs of those resources stipulated in collective bargaining agreements.

## At the most senior ranks, arguments about the causes of budget variance gave way to more substantive discussions about how to improve performance.

budget of approximately \$300 million, half of which is staff, inefficiency in the deployment of nurses easily could waste millions. At BMC, nurses are budgeted in the various areas they primarily serve such as the operating room and the emergency room. There also is a floating pool available to be deployed. Although nurses moved between areas, each area's budget reflected a chargeback only if that did happen. The budget shed no light on how the choices made in deploying the nursing staff addressed actual work volume and revenues; productivity remained a mystery.

As a result, the chief nursing officer and chief financial officer often struggled to find common ground. Relying on anecdotal and other incomplete data, it was extremely difficult for them to gain an objective understanding of the many

analytics, directors received reports that detailed only total full-time equivalent (FTE) expense against budget targets. Directors were left to their own devices when it came to comparing those expenses against actual volume and revenues. The result was an all-too-familiar scenario: Funds often went to those directors who were most adept at making their case. Now, with common measures, resources are focused objectively on opportunities to increase efficiency and performance.

On the frontline, managers gained a clearer understanding of what was expected of them and their staffs. Nurses, for example, typically are concerned about maintaining a sufficient staff level to meet any emergency. They are not accustomed to monitoring patterns of supply and

For example, since many nurses were at the top pay grade, it became clear that the current cost structure was unsustainable. As a result, BMC and one of its nursing unions agreed to a voluntary severance program for senior nurses. The agreement allowed BMC to fill some of its nursing ranks with more junior and less expensive professionals where appropriate.

### Recasting Decision Structures

In addition to building decision-making agility up and down the existing management structure, analytics prompted the creation of different organizational structures that brought even greater agility.

BMC established a position control team for staffing decisions and deployment. A cross-functional vice presidential-level group, the team meets regularly to assess staffing needs and to decide where to devote resources. The team works closely with operational executives to understand the impact of any proposed initiative on staffing costs. As a result, the team has been able to implement more appropriate solutions with a firm, objective understanding of the costs and benefits, which, in all probability, would have been impossible before.

The use of floating pools is an example. Although common in in-patient settings,

BMC's out-patient clinics had been relying on FTEs and would overstaff to make sure there was coverage whenever any staff member was out. The analytics, however, showed clinic leaders how and when they could draw on that pool to reduce overstaffing and costs without impairing patient care.

Similarly, BMC's housekeeping organization was regularly incurring excessive overtime costs. The culprit was high turnover. As is the policy in many organizations, housekeeping couldn't recruit for a position until it went vacant. Until open positions were filled, existing staff had to do extra work, resulting in rising overtime expenses. The project control team devised a better solution: It allowed housekeeping to hire sufficient staff to fill gaps, which ultimately reduced costs by lowering the amount of overtime required.

## When the Rubber Met the Road

BMC has created a steady rhythm of productivity improvements and efficiency in its use of staffing and other resources. In 2010, BMC had an

operating loss of more than \$34 million. By 2012, it had turned that into an operating gain of more than \$2.5 million. "The key driver of our ability to reduce expenses while improving quality is actionable data," said Kathleen Walsh, president and CEO of BMC. "That provided focus and discipline in our decision-making process, which was a major factor in our turnaround."

BMC's experience shows that healthcare organizations can adopt complex analytics and use them to drive significant improvements. To do so, organizations should follow these principles:

- **A high-level commitment to patient care:** BMC leaders made it clear from the beginning that the initiative was about more than cutting costs during a financial crisis. The program focused on supplying the right amount of care when and where it was needed — nothing more and nothing less.
- **Data clarity and transparency:** Everyone from the board to the frontlines had access to the

data, which were provided in a consistent, timely fashion. Reports are highly visual and easy to digest.

- **Training and support:** BMC provided thorough training in how to interpret the data and how to manage the improvement efforts that the data inspired and supported.
- **Diligence and leadership support:** BMC leaders and managers lent constant support to the effort. They devoted considerable time and energy to assure that everyone at the hospital understood what the information meant and agreed that it was accurate.

Boston Medical Center is emerging from the financial crisis through its use of data and analytics. The facility has surmounted the barriers to becoming data driven, and its experience can provide a road map for other healthcare providers. ■

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