The Mayo Clinic Model for Running a Value-Improvement Program

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In the last six years, a Harvard Business School team has worked with dozens of health care organizations to help them understand the true costs of their treatments for many medical conditions. These efforts were part of the providers’ quest to increase the value of their care delivery — in other words, achieve better outcomes at the lowest-possible cost. The HBS team has been using Time-Driven Activity-Based Costing (TDABC), an approach initially proposed by one of us (Bob Kaplan) and Michael Porter, to help providers pursue the value-based delivery of care.

One of the team’s central findings is that TDABC cannot be delegated to the finance function. The most successful implementations have had strong executive support, exceptional clinical leaders, and dedicated, multi-disciplinary project teams.

Among the implementing provider groups, Mayo Clinic stands out for its exemplary approach, which has enabled it to consistently enhance care delivery and realize cost efficiencies. We believe that others can learn from Mayo’s disciplined approach for value realization projects.

Each Mayo Clinic value-improvement project must:

• gain senior leadership support, including an approved charter
• select a project team with the right skill sets
• engage local physicians for each medical condition studied
• measure both costs and outcomes for comparative analyses of care variation
• test process-improvement suggestions
• record and share end-of-project learnings

We selected one of the most successful Mayo projects, the “Orthopedic Project” for total knee and hip replacements (arthroplasties), to illustrate how a structured and well-executed implementation can improve health care value.

Gain senior leadership support. The clinic created a high-level steering committee to oversee all its costing and value-improvement projects. Establishing this committee signaled that implementing value-based healthcare delivery was an institutional priority. The committee includes the leaders of its clinical practice committee (the dean and the vice dean for practice); its Center for the Science of Health Care Delivery (a hybrid research-practice center); and its quality, supply chain, analytics, marketing, contracting, systems and procedures, finance, and planning functions. The steering committee selects projects to undertake, defines the project charter, generates the buy-in of the leadership of the project’s service line, provides staff support and education for project personnel, and participates in periodic calls with the project team and the HBS team to keep the work moving along the agreed-upon timeline.

The charter for the Orthopedic Project specified the project goals: determine the relevant quality-outcome metrics, use TDABC to identify the resources used and their costs for the existing treatment pathways, and pursue opportunities to improve the value of care delivered. The charter also specified the project’s scope, the timeline and major checkpoints, and the key personnel that would be involved. The scope of the Orthopedic Project included all the direct personnel and major supply costs used — from the pre-surgical visit, when the decision for surgery was made, through the first post-discharge orthopedic follow-up visit. The Orthopedic Project began at Mayo’s flagship campus in Rochester, Minnesota, and then was extended to its locations in Jacksonville, Florida, and Phoenix, Arizona.

Select a project team. Mayo staffs it value-improvement projects with a project leader to coordinate the team’s work, a systems engineering analyst to conduct process mapping, and a financial analyst to provide relevant data. Each person works only part-time on any given project but could work on multiple projects to build a base of experience with applying TDABC to varied clinical treatments. For the Orthopedic Project, each of the three sites had its own project leader and financial analyst; a single systems-engineering analyst led the process mapping at all locations to ensure a common level of detail across them.

Engage local physicians. Every project must have the support of a senior clinician for that medical condition. In addition, each project team interviews several physicians at each site to ensure the process maps captured the existing treatment protocols. Local clinicians and staff generate multiple ideas for improvements and subsequently help to test and implement the recommended changes. Involving the physicians in this way helps ensure that they view the resulting process maps as credible and actionable.

Measure outcomes and costs. Measuring and tracking outcomes in value-improvement projects is essential to ensure that any changes will maintain or improve care quality. The Orthopedic Project team reviewed data, which showed that all three Mayo locations were already performing well on length of stay, complication rates, and 30-day readmission rates compared with a range of national benchmarks. The team also analyzed patient-pain scores during the hospital stay and attempted to access data on patient-reported pain and functionality, both pre-and post-operatively. Unfortunately, fewer than 20% of patients had completed both pre- and post-operative surveys.

The project team developed TDABC process maps at the three locations. These revealed significant practice variations, a source of opportunities for practice improvements. For
instance, the Mayo hospitals used different approaches for controlling patients' pain. For total-knee-replacement procedures, anesthesiologists in Florida used more peripheral nerve blocks, which involved placing catheters to block the femoral nerve. Arizona orthopedists more frequently injected a combination of anesthesia and analgesics into the operative joint. Analysis revealed that patients at the two hospitals reported about the same level of pain during the post-surgery hospital recovery. But the Florida's patients who received the nerve block waited longer before starting to walk and undergo physical therapy. The team hypothesized that these delays could be the cause of Florida's longer hospital stays and higher rates of discharge to skilled nursing facilities.

Test process-improvement suggestions. Every Mayo value-improvement project tests one or more innovations for improving the value of care. In the Orthopedic Project, the Florida hospital changed its pain-control regimen, switching from a peripheral nerve block to the use of peri-articular anesthesia and analgesics. Florida also changed its communications to patients and their families pre-operatively to set clearer expectations for the expected length of stay and where the patient would be discharged from the hospital. Its patients' median pain score during the hospital stay declined from a 3 to a 2 on a 1-10 scale. The mean length of stay declined by 0.4 days to become the lowest of the three sites. It also realized a 24-percentage-point decrease (from 46% to 22%) in the percentage of patients discharged to expensive skilled nursing facilities. Florida site's costs decreased by 15%, now the lowest among the three hospitals.

The Orthopedic Project also led Mayo to pursue other improvement opportunities. It began a pilot study for obtaining patient-reported outcomes from tablets and smartphones and started to address how to eliminate the major variations in cost of prostheses and other supplies at the three sites. A culture of continuous improvement has been established: Personnel at each location now continually review the process maps and associated costs to identify additional process-improvement projects.

Record and share learnings. At the conclusion of every value-improvement project, the project team prepares a summary report. The report includes a comparison of the actual time line and resources used with those planned in the charter. It documents the process and assumptions used for the project, lessons learned, key success factors, recommendations for future projects, and planned next steps. This documentation facilitates learning across multiple sites and projects.

Mayo Clinic's governance structure and project-management approach allow it to support a continual flow of value-improvement projects that consistently deliver better outcomes and lower costs for each medical condition it accepts for study. Following this disciplined, transparent approach should enable all medical institutions to improve the value they deliver, medical condition by medical condition.

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We live in a world where our personal devices—whether they’re in our pocket, car or home—can seamlessly share real-time data with each other. But the same cannot be said for a much more important area of our lives—healthcare. That’s because many of the systems that record and store healthcare data across the care continuum are not integrated. Erasing this so-called integration deficit is a critical next step in healthcare’s evolution as we transition to value-based healthcare.

While many stakeholders see the potential for improved collaboration, the misaligned incentives of many healthcare systems make the prospects for integration a significant challenge. Repeated tests, recurring readmissions, and an incomplete picture of a patient’s overall health are often the result. By working together to manage patient care holistically, the healthcare industry can improve clinical and financial outcomes.

So if the lack of integration is the problem, how do we start working toward a solution? More connected medical technologies—implanted and otherwise—can and should play a crucial role, as will better use of data to help healthcare professionals see a broader view of their patients. Today, many of Medtronic’s technologies are actively generating data, and we are working with the global healthcare community to take our technology, services, and insights and fashion them into solutions that either augment the delivery of care through better patient care management or improve overall system efficiency.

In the spirit of progress and partnership, our work includes:

- Utilizing insulin pump technology, sensors and mobile applications to better manage patients outside of the hospital setting in the Netherlands,
- Combining implanted heart failure technologies, diagnostic sensors, and nursing support to keep heart failure patients out of VA hospitals,
- Collaborating with IBM Watson to identify better care management for diabetes patients by using the patient’s own data,
- Working with hospitals to allow quicker patient discharges by giving doctors and nurses the ability to monitor patient care and progress remotely,
- Partnering with hospitals to manage their cath labs for better patient throughput and outcomes, and
- Working on-site at hospitals to drive improvements in efficiency, quality, clinical outcomes, and patient experience, all within an outcomes-based payment model.

As we’ve seen in our efforts, the successful integration of patient care will require collaboration between providers, suppliers, physicians and payers. At Medtronic, we believe we have an important role to play in the integration of healthcare. There’s an opportunity to harness the data and insights our technologies produce to create a more integrated, patient-centered healthcare system—one that ultimately is set up to achieve and reward the long-term outcomes that are central to a value-based healthcare system.

Learn more about our perspective on integrating care and value-based healthcare here.