

How Brigham & Women's Funds Health Care Innovation

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One of the biggest challenges in health care is how to provide innovative, high technology specialty care while reining in costs at the same time. Particularly at a large academic medical center like ours, providing ever-improving care and treating the sickest of the sick often seems unavoidably expensive. But it needn't always be. Since 2013, we have tapped our front lines — our 1,500 physicians and thousands more nurses, PA's, pharmacists and other clinicians — for ways to improve care and reduce costs, using an innovation incubator model that adapts venture capital investment approaches to find and scale the best ideas. To date, these innovations have saved an estimated \$4 million in annual medical expenses while decisively improving quality. Here's how we did it.

The initiative, called BCRISP (Brigham Care Redesign Incubator and Startup Program), invites clinicians to submit short proposals that answer five questions about their ideas: 1) What problem are they are trying to solve? 2) What is their proposed solution? 3) What specific goals would they aim to achieve in a 9-month pilot? 4) What is the potential financial impact (how much money would it save and for whom, including a rough ROI calculation)? And 5) Who have they identified as potential internal sponsors and stakeholders?

Historically, clinicians have been good at describing the clinical value of care redesign proposals, but cost has typically been an afterthought — if it's considered at all. By requiring contributors to calculate the expected ROI of their proposals we encouraged a new cost-focused mindset while also identifying proposals that were most likely to be sustainable.

In the two years since the the Brigham and Women's Physicians Organization (BWPO) launched BCRISP, the program's advisory

board of senior hospital leaders has evaluated 109 applications from 583 clinicians representing all of BWH's clinical departments. Their innovative ideas have ranged from ways to reduce Emergency Department (ED) readmissions for patients with diabetes to managing alcohol dependence to more effectively treating infections for patients with penicillin allergies. In addition to evaluating the proposals' potential to reduce costs and improve quality, these advisors consider how these efforts align with institutional goals and commit to providing ongoing administrative support to projects selected for piloting.

From these 109 applications, the board has selected a total 31 semifinalist projects in two cohorts. Each semifinalist team received seed funding of up to \$5,000, as well as coaching on project design and assistance with data acquisition, to further develop their proposal and start early implementation work. The semi-finalists then each pitched their revised proposals to the advisory board in Shark-Tank style events that were open to the public. Ultimately, the advisors have given 16 proposals the green light — and up to \$50,000 and continued coaching — to launch their pilots. The following four give a flavor of the pilots' breadth and depth.

Improving the transition to long-term acute care rehab. Patients discharged from intensive care to a long-term acute care rehabilitation facility suffer from complex and serious illnesses; more than 40% are readmitted to the hospital within 30 days. This pilot project created a multidisciplinary, cross institutional team to improve care during the transition from hospital to acute care rehab. The team meets with patients and families prior to discharge, providing them with information and coaching about the transition and identifying medical and social issues that may complicate the move. After discharge, clin-

ical teams at both institutions hold weekly videoconferences to review the patients' status, and BWH providers teleconference directly with patients to provide continuity of care and prevent unnecessary return visits to the hospital. The 9-month pilot reduced 30-day readmissions by more than a third (to 25%) — such a dramatic impact that BWH has extended project funding and is expanding it to additional intensive care units.

Increasing vaginal births after Cesarean section. Concerned by the national trend of increasing elective C-sections, BWPO OB/GYN clinicians created a “pop-up window” in the C-section scheduling software that would prompt staff about the likelihood of a successful vaginal delivery for patients planning a repeat c-section. Over the course of the pilot, BWH's VBAC (vaginal birth after c-section) rate increased from 14% to 22%. After the pilot concluded, the tool remained live and the VBAC rate continued to climb to 27%.

Addressing Emergency Department super users. A small number of “super users” accounts for a disproportionate percent of emergency department visits. During one 12-month period, 50 patients accounted for 1,083 ED visits at BWH, or nearly 2% of total ED volume. Such overuse is inefficient, expensive, and frustrating for both patients and providers. To address this problem, the BCRISP program funded a pilot in which community health workers connected with super-user patients outside the ED to address the medical and non-medical issues that led to their frequent visits. These health workers also engaged with BWH hospital-based and outpatient providers to develop care plans for managing super-user patients. Patients reported that these interventions helped to more effectively address their health concerns, and we observed 82 fewer ED visits and 190 fewer hospital admissions than would have been expected.

Improving lung cancer diagnosis and treatment. Patients with potentially cancerous lung lesions benefit from rapid diagnosis and treatment. But the literature shows that patients with certain demographic characteristics — racial and ethnic minorities, women,

the elderly or disabled, the socioeconomically disadvantaged — are less likely to have surgery for lung cancer when it's warranted. A team from thoracic surgery and medical oncology at BWH launched a pilot to improve the diagnosis and management of these vulnerable patients. The program engages a “clinical strategist,” a position that combines aspects of traditional community health worker, patient navigator, and treating-clinician roles to assure patients get the right tests; coordinate testing (for example, to schedule all tests for the same day); and serve as a patient resource and advocate. During the pilot, the clinical strategist approach reduced average time to diagnosis from 175 days to 15 days, and average time to treatment from 194 days to 31 days. By heading off an average of 4 physician visits and 3 diagnostic tests per patient, and providing treatment far earlier in the course of disease, the clinical strategist model generated an estimated \$19,000 in savings per patient.

While these and the other pilot programs have performed well — sometimes dramatically so — there have been various challenges along the way that other institutions can learn from.

Like most provider organizations in the United States, reimbursement is a confusing combination of traditional fee-for-service and newer risk sharing models. With multiple commercial and public payers, each with slightly different payment models, calculating internal financial effect of any care redesign effort becomes dizzyingly complex. While we have been able to estimate how increased efficiency reduces total medical expense with fair confidence, determining what investments make sense in our hybrid payment environment has been more difficult.

The system of recognition and rewards within academic medicine has also presented unexpected challenges. Within our institution, financial and professional rewards are typically realized through publication of peer reviewed research or via increased volume of clinical activity. Implementing practical projects — activities that arguably generate equal if not more immediate value for patients and the institution — have enjoyed less prestige.

While the BCRISP model encourages publication and dissemination of knowledge learned through the pilots, the primary purpose is to quickly identify new care paradigms that improve quality and reduce expense, and to rapidly transform care delivery across our institution.

We were pleased to find, however, that our ability to fund only a small number of pilots didn't undermine broad engagement. One reason engagement has remained high is that we've worked hard to connect unselected proposals to other efforts around the institution — making introductions between individuals doing similar work, sponsoring some applicants in internal process improvement training courses, and trying to identify any additional opportunities that might provide support. When we surveyed BCRISP applicants after our first cohort, we were relieved to find that not a single applicant reported that having applied to the program led to any decrease in interest in pursuing work that would improve value for patients. In contrast, the vast majority, even among those who received no financial or project support, reported that the experience had made them more interested in future work of this type.

Overall, BCRISP has been a transformative program for our physicians and institution — catalyzing understanding and engagement around improving value for our patients, bringing numerous exciting and innovative ideas forward for discussion and evaluation, and rapidly testing, implementing, improving, and scaling those proposals that prove both clinical and financial value.

SPONSOR'S PERSPECTIVE

Improving Outcomes by Erasing the “Integration Deficit”

How the Application of Technology and Use of Data Will Lead to Gains in Patient Outcomes While Reducing Costs

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](#).

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