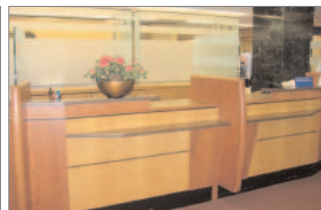


case study

Mayo Clinic SPARC Innovation Program



SPARC presents a significant opportunity to make a difference in how we provide care to our patients at Mayo Clinic.

Mike Schryver, Administrator, Clinic Operations

The 21st century will provide the greatest opportunity in the history of medicine to improve patient care. New technology, new diagnostic tests, and new therapeutics will be most effective if we can... improve the ways we deliver these enormous advances to patients. That's the hope, and the expectation, of SPARC.

Nicholas F. LaRusso, M.D.

Chairman, Department of Medicine, Mayo Clinic
Rochester, Minnesota

Creating the SPARC

Objectives

Innovation and healthcare are constant partners. New miracle drugs, diagnostic breakthroughs and medical advances are practically routine occurrences. Yet while treatment and care methods move forward, how healthcare actually gets delivered to the patient lags behind.

The reasons are many. Infrastructure is difficult and expensive to change. Innovation is messy and disruptive, and hard to conduct in a healthcare setting. Healthcare delivery is a tremendously complicated process involving many people.

But now, industry changes, cost pressures, and changing patient behavior mean hospitals must adapt. External forces have an impact, too. Service levels in all businesses have risen in recent years. Consumers expect better service from everyone, including healthcare providers.

Recently, Mayo Clinic, one of the premier healthcare institutions in the world, established a groundbreaking program to tackle healthcare innovation. “What we’ve never had, at Mayo or anywhere else to our knowledge,” says Michael D. Brennan M.D., chairman of the program, “is a facility that can answer questions—not about a disease, a diagnostic capacity, or treatment—but a laboratory where we can examine how we deliver care to patients. Now we do.”

Sponsored by Mayo Clinic’s Department of Medicine, and developed by Mayo, IDEO, Hammel, Green and Abrahamson, Inc. (HGA), and Steelcase—the SPARC Innovation Program opened in June, 2004. SPARC (an acronym for See, Plan, Act, Refine, Communicate) is designed to identify, develop, test and measure innovative processes for healthcare delivery through real-time experimentation in a clinical setting.

The program is much more than redesigning exam rooms and equipping them with new furniture; it is also about the process and flow of patient care. How and where patient caregiver interactions occur and how to most effectively integrate technology into the patient care experience are essential to informing the space design.

Already, SPARC innovations have begun to ripple through the organization, with important implications for the half a million patients who visit Mayo Clinic every year, and for patients and healthcare providers worldwide who look to Mayo’s leadership in the industry.



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See, Plan, Act, Refine, Communicate

Situation

Many healthcare organizations and consultants strive to improve the healthcare delivery process. What sets SPARC apart is its broad, holistic approach and institution-wide scale, says Ryan Armbruster, director of operations and design for SPARC.

It began with in-depth research at Mayo conducted by the design firm IDEO, a Steelcase subsidiary based in Palo Alto, CA. How patients use waiting areas, technology, and interior spaces; how doctors and patients interact; patient and family expectations; every patient contact point and support system—the entire healthcare process was examined.

“It’s about the total interface between the healthcare deliverer and the patient,” says Alan Duncan, M.D., SPARC’s medical director. “The overarching principle here is patient-centered design.”

Through multiple “deep dive” brainstorming sessions, key concepts emerged for the SPARC laboratory, and new methodologies to generate innovation in healthcare delivery, including ways to

- deeply connect with patient and staff needs
- rapidly prototype service delivery designs and flow of work
- use customer observation and feedback to refine solutions and define opportunities
- brainstorm new ideas for equipment, furniture, space, technology, delivery process and more

Next, a cross-functional team from Mayo, Steelcase and HGA considered Mayo’s care delivery processes. During this two-day co-design session, SPARC began to take shape as the team translated design concepts into applications and interior spaces.

“It was very tricky,” says Maureen Antoine, an HGA interior designer. “We were designing something, but we didn’t know exactly how it would work. We couldn’t say who all the users would be, because different groups would rotate in and out. One group might test this part of the process, and another group might test another part.”

Bringing the collective knowledge of experts in many fields and organizations together for the sake of improving the patient experience has been rewarding.

Michael D. Brennan, M.D.
Chairman, SPARC Innovation Program



“Mayo chose to work on four areas at once: the space, technology, people and process, and the ways people work,” notes Jack Tanis, director of applied research and A&D sales for Steelcase, and a member of the cross-functional team. “It was a terrific challenge but it generated a lot of focus and energy, and that holistic view became a key to the success of SPARC.”

“We knew that if we could successfully link design principles to research methodology,” says Armbruster, “we would have a very powerful model for innovation. We think we have that now.”

What they have on the 17th floor of the Mayo Building in Rochester, Minnesota, has the look and feel of a healthcare system most people have never experienced. It’s a living laboratory of healthcare delivery ideas and inventions, and a model for other healthcare providers.

The glass walls used in SPARC’s program support space reflect a key principle of invention: don’t hide it. Let people see it, experience and respond to it. Collect feedback and use it to inform the design. SPARC is both a laboratory and process for testing ideas and teasing out innovation. On a recent visit, for example, the space was configured to test a freestanding electronic kiosk for quicker and easier check-in.

Prototype clinic rooms feature moveable walls to form different areas for different interactions between patients and staff. Exam rooms include couches that morph into chairs, and flat screen monitors let patients and staff study information together.

“We take prototype products and services and put them in front of users to get immediate feedback at an early, low-cost, low-fidelity stage of development,” says Armbruster. “It’s not uncommon to test ideas this way in other industries, but in healthcare it’s a very novel capability.”

An early SPARC project deconstructed the traditional patient exam room. “Not much has changed in the design of examination rooms in the last fifty years,” says Dr. Brennan. “It’s odd when you consider the advances in technology, education, and other healthcare processes.”



Solution

“We need to better utilize space to deal with different patient visits. Some patient visits require an examination; other visits require sitting down, explaining a diagnosis and treatment outlines with the patient and the family. Traditionally, that’s all been conducted between the same four walls. But that fails to take advantage of flexible environments and furniture, new technologies, and other capabilities.”

The environment where we provide care is critically important.

“We poked and prodded this issue a lot,” says Antoine. “What is an exam room? How can it be most effective? We wanted to fully explore and accommodate the doctor-patient relationship. When doctors talk to patients in a typical exam room, it’s a very linear, top-down kind of thing. In our new prototype room it’s much more collaborative.”

SPARC’s prototype stretches the idea of an exam room to include testing, teaching, family counseling and more. Near the exam table, a worksurface and nesting mobile table are poised for use. Various tools and media are organized on the wall to free up work space. A computer monitor arm makes it possible to adjust who can see the screen. “This is very radical furniture compared to a traditional exam room,” says Antoine.



“The environment where we provide care is critically important,” says Dr. Brennan. “It needs to be welcoming, warm, and most importantly, conducive to learning for the patient and family. Because the more patients understand their condition, the more likely they are to follow the treatment program, and therefore, the better the outcomes. We see space as being critically important to our mission to do the best for our patients.”

“The day after we set up the exam rooms,” says Dr. Duncan, “I was seeing patients in one of them, getting immediate feedback about what was working. The idea is to get the users experiencing it—and getting feedback—before the design is locked down.”

Everyone into the Kitchen



Immersing Mayo staff in the SPARC program has been a priority since the program began. Group workshops, prototype construction and demos, test areas and collaboration touchdown spaces are all part of SPARC.

Any Mayo Clinic group can test a patient care delivery idea using the SPARC space and methodologies. A central “program activities zone” plays center stage for group events. Technology integration provides access to power and data, and glass walls help to contain yet share the innovation process.

“It’s their kitchen for creating and conducting different experiments,” says Antoine. “We used furniture that’s flexible and fluid, so they could move and rearrange things, make the products fit their work and not the other way around.”

“Posts and Beams give it a skeleton, and you can attach products to it. We put kind of a ‘kitchen table’ in the center, a worksurface that hooks onto the beam, and that brings the AV and electrical into the space without being obtrusive.”

Virtually every component of the SPARC space is lightweight or on wheels. Prototypes and ideas are constantly changing. Product concepts, mock-ups and products in production are tested by patients, staff, physicians, visitors and volunteers. Feedback is collected and shared.

Where Innovation Can Flourish

Current SPARC projects reflect the program's broad scope and innovative approach. The self-service electronic kiosk, for example, tackles a longstanding issue in every healthcare space: waiting in line.

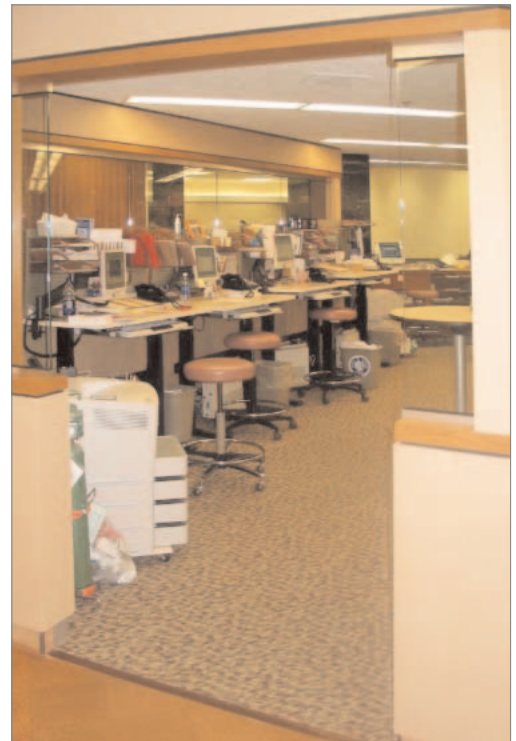
"Many of our patients have difficulty standing in line for check-in," says Armbruster. "The kiosk is similar to what you'd find at an airport. You walk up and enter a little information, and it asks a few questions about what you're here for. It confirms the information with the front desk and you can have a seat."

"We ask patients whether they would use it and how it should work, and cycle all that back into the development of the kiosk. The ability to immediately check in and then have a seat, receives an overwhelming response. Patients say, basically, 'anything so I can just sit down.'"

Another SPARC project considers better ways to provide workspace for staff on patient floors. The prototype abandons traditional notions of built-in desks in favor of mobile products that are easy to move and rearrange. Height-adjustable worksurfaces offer more opportunity for different explorations. Adjustable worktools and monitor arms encourage experimentation.

And that part about innovation being messy and disruptive? Well, that's the value of a separate space set aside for trying new ideas and prototypes. Not only does it "hide the mess," it encourages low-risk trial and error. People feel freer to voice opinions and provide feedback—that can be readily collected and evaluated.

A SPARC-like place, whether a single room or an entire floor, can be a valuable proving ground for products, techniques and processes.



A Global Impact

Results

In its first year, SPARC generated more new ideas to improve healthcare delivery than the program can handle. Patients and families have provided encouraging feedback, and given Mayo Clinic staff members high expectations. The most exciting aspect is SPARC's ability to take a wealth of ideas and conceptualize them and demonstrate value in patient care.

In fact, patients were early adopters, says Nicholas F. LaRusso, M.D., chairman of the Department of Medicine at Mayo Clinic. "We've had nothing but willingness to participate. Patients have been totally supportive."

Mike Schryver, clinic operations administrator, says "SPARC presents the most significant opportunity to make a difference in how we provide care to our patients in my [30+ years] career at Mayo."

"The 21st century will provide the greatest opportunity in the history of medicine to improve the care of patients," notes Dr. LaRusso. "We will make advances in the next two decades that took us 200 years to make in the past. New technology, new diagnostic tests, and new therapeutics will be most effective if we can deliver them to the patient. I believe that Mayo Clinic is the best-positioned organization in the country to redefine and improve the ways we deliver these enormous advances to patients. That's the hope, and the expectation, of SPARC."

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