Reinventing Health Care Delivery:
Innovation and Improvement Behind the Scenes

California HealthCare Foundation

ISSUE BRIEF

HOSPITALS AND HEALTH SYSTEMS ARE creating new entities to explore and exploit non-traditional solutions to a wide range of systemic health care delivery challenges. Known as innovation centers, the organizations are modeled on similar entities from non-health care sectors and focus largely on quality, access, and cost issues. The California HealthCare Foundation interviewed leaders at health care innovation organizations nationwide to learn more about how the centers operate, the objectives they are pursuing, and some of the challenges they face.

Hamstrung by an increasingly complex, costly, and disorganized system of care, health care organizations are following the lead of the corporate world and embracing innovation as a way to overcome the seemingly intractable problems that have undermined U.S. health care delivery for decades.

Today's innovation centers — most of which are affiliated with large hospitals or health systems — range in scope from modest internal programs to large, formalized organizations with dedicated physical space, sizable staffs, and external clients. Key areas of emphasis include facility design, operational efficiency, optimized information technologies, improvements in the patient experience, and care quality.

Participants say the innovation efforts have sprung from a growing consensus that health care's status quo is no longer tenable and that fundamental, rapid change is necessary if the system is to stabilize and prosper in the years ahead.

"Innovation frequently emerges from worst-case scenarios, and we're really getting into worse case scenarios now," says Lyle Berkowitz, MD, founder of the Szollosi Healthcare Innovation Program, an innovation initiative associated with Northwestern Memorial Hospital in Chicago.

"The current system is not sustainable. We're spending too much and getting too little. That's why I think it's critical that we try to make changes now rather than wait until the system essentially collapses."

The sense of urgency surrounding health care's current state is being amplified by the ongoing economic crisis. With total health care costs approaching 16 percent of the Gross Domestic Product and the population of uninsured at about 47 million and growing, providers are scrambling to identify any opportunity to rationalize and streamline their delivery mechanisms.

Corporate Forerunners

The concept of dedicated innovation centers in health care began migrating from the corporate sector in the 1990s, according to Chris McCarthy, an innovation specialist with Kaiser Permanente and director of the Innovation Learning Network. Companies like McDonald's, Bank of America, and Proctor & Gamble established the centers to test new production techniques, work processes, physical spaces, and customer service improvements.

In an earlier era, innovation centers likely would have been termed research and development

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arms. But unlike those predecessors from the world of manufacturing and consumer goods—which typically focused on product improvement—health care innovation today largely is concentrated on strengthening the delivery of services.

Common Objectives

Within a framework of delivery improvement, much of the work is aimed at eliminating barriers between the silos of service and information that have long dominated health care to create a seamless, human-centered, and more cost-effective care process.

"In health care, everybody has their own perspective on what innovation is, and it's a very difficult thing to nail down," McCarthy says. "But I think what many of us mean by innovation is most clearly defined as design thinking, or using design methodologies to create spaces, tools, processes, and techniques that meet the needs of the humans in the system, both the clinicians and the patients, while controlling costs and improving efficiency."

Specific solutions involve the reinvention of primary care with a greater emphasis on virtual physician visits and telemetry in disease management; improved interdisciplinary communications; better patient engagement; wellness and prevention strategies; and refining information technology to meet clinician needs more effectively.

Defining Characteristics

Although models vary, innovation centers typically are created as quasi-independent entities within multi-hospital systems and may be funded through a combination of hospital revenue, endowment funds, and charitable contributions.

Because the nature of innovation necessarily entails rethinking and sometimes overturning the status quo, developing some measure of organizational independence is vital for success, innovation experts say. But by the same token, entities must enjoy unqualified support from the hospital or system administration and buy-in from the organization's medical staff and rank-and-file to be effective.

Innovation ideas themselves frequently bubble up from clinicians on the patient floor. Other times, centers are tasked with broad strategic objectives, such as developing process and design improvements in preparation for major facility construction or renovation projects.

Most innovation experts agree that it is essential to establish and adhere to a rigorous, empirical methodology for advancing a concept from inception through testing, simulation, and finally implementation. Given the often amorphous nature of the work, it is similarly important to develop the tools and skills necessary to measure the success of an innovation. Indeed, the relative absence of precise methods for determining the value of a particular concept or innovation is seen by some as one of the central shortcomings in the present innovation movement.

"I think there is a certain amount of faddishness associated with innovation right now," says David Osborn, Ph.D., founding director of the Vanderbilt Center for Better Health in Nashville. "There is the idea that if we build a cool-looking place with cool technology and hold some meetings there, then we're doing what we need to do. But an innovation center needs to be more than just a Montessori School for adults. The key question is: How much of the work is actually operationalized?"

An examination of nine innovation centers reveals a broad array of projects, approaches, and objectives; advanced methodologies for developing and testing ideas; and a consistent emphasis on producing practical results.

The Idea Lab

Converting ideas into working solutions—particularly in the area of facility design—was and remains the central goal behind Kaiser Permanente's Sidney R. Garfield Health Care Innovation Center. Kaiser launched the sprawling, 37,000-square-foot warehouse-like facility in an industrial district near Oakland, California, in 2006.

The center initially was developed to optimize technologies and design configurations in support of a massive, $30 billion hospital construction investment and system-wide deployment of an electronic health record. Staffed by six, full-time equivalents and equipped with a range of simulated care environments, including an entire mocked-up medical-surgical unit, the Garfield Center today continues to serve as a test bed for workflow improvements, floor plan designs, and new technologies, according to director Jennifer Liebermann.

"Our goal is to road-test how a new technology, workflow, or architectural design actually functions, because it's important to understand how something works before we replicate it a thousand times across the system," Liebermann says. "It can be very difficult, for example, for people to read an architectural plan and know just what 85 square feet really feels like."

Beyond testing new workspaces and workflows, the center also does what Liebermann calls "bake-off" work: comparative analyses and live demonstrations of competing technologies and equipment that Kaiser is considering acquiring. Business units within Kaiser—chiefly the National Facilities Group, Information Technology Group, and Patient Care Services Organization—are the main users of the facility.

"The internal clients tee up projects that meet a set of defined criteria and that are important to them. Then we help them execute," Liebermann says. "The Garfield Center views itself like Switzerland. We don't own any of the projects, but function as a tool and a resource for Kaiser Permanente to innovate."

Although the groundwork for two significant innovation successes predated creation of the Garfield Center, the concepts were tested and fine-tuned at the facility. The first, known as the Nurse Knowledge Exchange, is an easy-to-follow bedside protocol that ensures that vital information is transferred between clinicians during shift change. The process—which engages the patient, the family, and clinicians—was developed and engineered by Kaiser Permanente clinicians and today has been implemented across all 32 Kaiser hospitals and even has spread to facilities outside the organization.

A second major innovation success, known as the KP MedRite, was similarly developed by clinicians under the auspices of a broad innovation mandate. In this case, the objective was a safer, more rigorous and more systematic process for administering medications in hospitals. The resulting process is being rolled out across Kaiser. Significantly, on patient floors where the system already is in place, compliance with accepted meds administration protocols has jumped from 30 percent to approximately 90 percent, McCarthy says.

McCarthy, Liebermann, and others are quick to point out that for every success in the innovation arena, multiple disappointments can be expected. But Liebermann says the benefits of failure can be just as valuable as the lessons of success.

One case in point: In its efforts to improve medication distribution, clinicians working with the Garfield Center decided to try carrying patient medications aboard their mobile workstations, or wireless carts, to improve efficiency by reducing trips to the medication room. Prototype carts were ordered and simulations got underway. But problems quickly emerged. For one thing, the carts were heavier with the newly installed medication drawers and thus more difficult to maneuver.

Second, security concerns arose when the carts were left unattended. There also was confusion about which cart was being used by whom, given that the carts previously were interchangeable.

"The idea solved some problems but introduced a whole set of new ones that we hadn't anticipated," Liebermann says. As a result, the mobile-medication cart concept was dropped. Interestingly, when representatives of a large, for-profit health care system in the southeast visited the Garfield Center some months later, Liebermann shared the experience of the aborted medication carts. Liebermann says the executives explained how their organization had purchased several thousand carts for a similar purpose. Unfortunately, the project proved to be challenging and costly for the same reasons identified in the Kaiser simulation.

"They evidently spent millions on these carts to use across their system and ended up abandoning them," she says.

According to Liebermann, the greatest challenge facing the Garfield Center at its inception was finding ways to define and document the value produced through innovation. With subsequent successes, however, that task became easier and she says that today, the center is viewed internally as an important asset for conducting safe, low-cost tests on ideas, applications, and care solutions.

"In a sense, we don't get credit for a good idea unless it gets implemented," Liebermann says. "A great innovation is just a `bunt' unless you can implement it. But it becomes a home run when it is operationalized on a widespread basis. With a few of those early on, the pressure and scrutiny were reduced."

New Models of Care

Although many innovation centers focus primarily on one or two aspects of the delivery process, Danville, Pennsylvania-based Geisinger Health System is pursuing improvement across the range of delivery elements—facility design, operational efficiency, information technologies, patient experience, and care quality—as a singular objective. Ronald Paulus, the chief innovation and technology officer for Geisinger, says the approach is necessary to get at the overarching problem in health care: discontinuity of care and the resulting costs, quality shortcomings, and missed opportunities it creates.

"Clinicians are seeing the patient—one facet of that individual at one point in time—and they're doing this as they run on a 'hamster wheel' of incentives that says we're going to pay you for one of two things: either for seeing lots of patients per unit of time or for performing procedures," Paulus says.

To realign incentives, minimize variance, and reduce costs, the largely rural Geisinger system has embraced the medical home concept, a care model that focuses on personal care coordination by shifting from episodic acute care to a continuous, comprehensive, team approach. Geisinger has two campuses with three hospitals, as well as 40 community medical practices across 41 of Pennsylvania's 67 counties. Although the system doesn't operate an innovation entity per-se, the entire organization could be considered an innovation center, given its fundamentally different approach to care delivery.

Central to Geisinger's medical home approach, which it calls ProvenHealth Navigator, is providing financial incentives for primary care physicians. Payments are made for a variety of actions that contribute to a more coherent treatment process, including seeing individual patients more frequently, seeing them during off-hours, and generally playing a more direct and involved role in coordinating their care through the system.

Under the ProvenHealth program, internists likewise are paid for adherence to evidence-based guidelines in the treatment of chronic disease and other illnesses. Surgeons and specialists similarly benefit from financial incentives

designed to support adherence to evidence-based care, Paulus says. In addition, physicians are rewarded for collecting and managing patient data, allowing trends to be identified and analyzed.

"If treatment parameters are not met, then we try to work through why it happened so we can fix the process, fix the technology, educate the doctor, the nurse or the patient, or learn something new," Paulus says.

Along with altering the delivery side, Geisinger also is making major changes in the way it charges payers. For a number of surgeries, for example, costs are bundled into a single flat fee. If the patient experiences complications or requires follow-up treatment within 90 days, the system covers the cost.

Paulus says Geisinger's various innovation efforts all build on what he terms the organization's innovation architecture. "The technologies and the lessons from each project are harnessed in support of the next step. It's a continuously evolving improvement paradigm."

The benefits have been substantial since Geisinger's medical home program was launched more than three years ago. The system's average length of stay has been reduced from 6.2 to 5.7 days (albeit still above the California average of 4.7 days) hospital readmissions have dropped by 44 percent, and overall treatment costs are down.

"Inferior quality and high costs are two sides of the same coin," Paulus says. "That means you've got to solve both problems together, because the emphasis on volume is what drives the costs and also produces the inefficiencies and less-than-optimal outcomes."

Assisting Primary Care Physicians

Geisinger's attempts to reinvent the delivery of primary care go to the heart of what many see as a key shortcoming in the present system. It is a problem that is being attacked on multiple fronts. In Boston, Massachusetts General Hospital, the nation's third oldest hospital, has created an organization that is focused exclusively on revitalizing and redesigning primary care. The John D. Stoeckle Center for Primary Care Innovation was launched in 2000 and named for one of the hospital's primary care pioneers.

From the start, the center has concentrated on developing improvements that can be tested and implemented across Mass General's 22 primary care practices, according to Susan Edgman-Levitan, a physician assistant who has run the center since 2003. The diversity of that provider base—groups range from small, private-practice-like entities to large, hospital-based, teaching groups—provides an ideal laboratory for testing ideas that may be applicable nationwide.

"We see our role as helping support primary care doctors as they deliver complex care to an aging population and to try to help them manage their responsibilities—in ways that allow them to go home and sleep at night," Edgman-Levitan says. "The fact is, most primary care doctors are overwhelmed. They don't have enough time and they don't get paid to do the job they're expected to do."

To ease the burden, the Stoeckle Center has developed a relatively simple but highly effective tool to provide help in one of the most important areas of primary care medicine: patient engagement and decision support. Over the past five years, the center has worked with a Boston-based organization, the Foundation for Informed Medical Decision-Making, to provide Mass General patients with short DVDs explaining the pros and cons of various treatment options.

To initiate the service, physicians select an icon on the electronic medical record and the video, along with a brief patient questionnaire, is shipped Netflix-style to the patient. Currently, more than 30 titles are available,

covering a full spectrum of medical issues, ranging from prostate cancer and colorectal cancer screenings to menopause treatments, hip and knee replacements, cardiac issues, and a variety of gynecological problems. Importantly, the videos are created around rigorously vetted evidence-based guidelines.

"It's a wonderful tool for the patient, because they become so much better informed and engaged, and it's also great for physicians, because it saves them time. Plus, it's a source they can trust," Edgman-Levitan says. "We showed one physician the video on colorectal screening and he basically said, 'If I had two weeks to spend with a patient, I would never be able to explain the procedures and the pros and cons of each as well as this video does in 20 minutes."

Yet another initiative involves finding ways to expand the use of—and knowledge about—patient advanced care directives. Given the disproportionate costs associated with late-in-life care, and given that most people are in no position to make judgments about that care when they need it, ensuring more widespread adoption of advanced care directives is essential, Edgman-Levitan says.

The center also played a role in creating what Mass General is calling the Ambulatory Practice of the Future. Like Geisinger's medical home approach, the concept involves realigning incentives for primary care physicians and shifting to a more coordinated, patient-focused care model. The idea will rely heavily on virtual doctor-patient visits through email and video conferences and initially will be made available to Mass General's 23,000 employees. Although the new center is not expected to be operational until early 2010, many of the hospital's employees already have expressed interest in receiving their care from the new entity, Edgman-Levitan says. She adds that the new approach is expected to reduce costs by cutting the number of emergency room visits and hospitalizations.

Meeting Human Needs

Innovation centers don't necessarily need to be large to be successful. Several years ago, Chicago internist Lyle Berkowitz found himself treating Peter Szollosi, a local executive who worked as a creative director with Chicago billionaire investor Sam Zell. Szollosi's illness was serious and his care complex. Over the course of many months, the businessman and physician spent considerable time together and frequently found themselves discussing and lamenting the shortcomings of the delivery system—deficiencies which Szollosi often experienced first-hand.

"We had a great meeting of the minds and we talked about doing something; creating some kind of funded program that could focus on innovation and problem-solving in ways that were not typical or routine in health care," Berkowitz says.

The illness took Szollosi's life in the fall of 2007. But because the businessman's friends and family were aware of his ongoing discussions with Berkowitz, they approached the doctor about creating and funding just the kind of entity the two men had envisioned. Thus was born the Szollosi Healthcare Innovation Program. Affiliated with Northwestern Memorial Hospital, the organization's mission is straightforward: Use creative thinking and diverse technologies to produce a better health care experience for patients, physicians, and others associated with the care process.

"We aren't trying to improve quality in the standard way," Berkowitz says. "Instead, the focus is on improving the overall care experience because we recognize that when patients are involved in a significant health issue, it can be a very scary and confusing time, and how they interpret the experience can play an important part in the healing process. Improving the experience for physicians can be just as important, since they won't use new systems unless those systems are shown to be both efficient and effective."

Berkowitz's innovation initiative is more virtual than physical and is staffed with only one full-time employee. Berkowitz himself continues to see patients half-time and also remains director of clinical information systems for his physician group. Both roles, he says, continually stimulate and inform his innovation efforts.

Much of that work so far has focused on developing improvements around what Berkowitz calls inflection points, or junctures in the care continuum where significant events transpire but where friction or inefficiency often undermine the process.

One example: Berkowitz partnered with Northwestern emergency medicine and primary care physicians to develop a Web-based template that can be used by internists to convey pertinent patient information to the emergency room in a more effective manner, where the notes can then be downloaded and reviewed. The information exchange has improved the continuity of care—particularly for complex cases seen by the hospital's primary care group—and has been incorporated into the electronic medical record application now in use by the ER.

"We were able to develop this in a matter of weeks for a few thousand dollars and get it deployed pretty quickly," Berkowitz says. "I think it shows the kinds of relatively simple things you can do when you work together to solve significant problems."

A related area of interest involves what Berkowitz terms "information visualization," or the ability to quickly grasp and act on key data points amid a fast-moving river of information. "Physicians are truly overwhelmed with data and we don't really have very good tools to weed through it all to determine what is important," he says.

To change that, Berkowitz has been working with graphic designers to develop more effective electronic medical record interfaces. He debuted several of these designs at the Healthcare Information and Management Systems Society (HIMSS) conference last spring and is starting to blog about the topic at his Change Doctor blog (http://drlyle.blogspot.com).

"Most EMRs present data in either a spreadsheet or Word document-type format," he says. "But why does it have to look like that? Maybe it could look like a video game or maybe like Facebook. Maybe the EMR could look like nothing we've ever seen before. "This is an area that is not funded normally, so it's exciting to be able to spend some time working on an issue like this."

Like Liebermann at Kaiser, Berkowitz is quick to acknowledge that pursuing innovation doesn't automatically result in success. In fact, converting a unique idea from concept to reality generally is the exception, not the rule. Yet the low conversion rate of ideas should not dissuade organizations from embracing innovation efforts, he says.

"There has to be a balance between receiving funding and having the freedom to pursue a wide range of possibilities," he says. "There is no guarantee that anything I'm going to do is going to work every time, but we have to try a lot of different things before we can come up with a big winner."

The Human/IT Interface

Like many health care organizations, Vanderbilt University Medical Center's commitment to improving care delivery was accelerated by the seminal 1999 and 2001 Institutes of Medicine Reports, To Err is Human and Crossing the Quality Chasm. The studies, which deconstructed the myth of U.S. health care supremacy and advocated a fundamental transformation in the care process, prompted the Nashville-based medical center to create the Vanderbilt Center for Better Health in 2002.

David Osborn, Ph.D., the center's founding director who now heads up an affiliated health policy arm, says

Vanderbilt's pioneering adoption in the early 1990s of an electronic medical record and physician order entry system—both now supported by evidence-based clinical guidelines—helped jumpstart the center.

In the years since its formation, the center has evolved into a large, multi-faceted organization operating two, 18,000-square foot facilities and employing 15 people. The center provides a range of tools and capabilities for developing, testing, and implementing new health care methodologies, systems and strategies.

About half the work is done for the medical center and medical school; the rest is done for external clients, including other health systems, payers, government agencies and life science companies. Given Vanderbilt's information technology track record, IT continues to be a primary focus of the work, Osborn says.

"I don't know if I would call informatics the centerpiece of health care innovation and reform, but I do think it is essential because it allows you to change processes and make patient care decisions that would be extremely difficult, if not impossible, in a paper world," he says.

One of the central lessons learned at the center has been that while developing new technologies is important, the real challenge lies in adapting them to human behavior—and vice versa—in order to maximize the technology's potential. Too often, Osborn says, organizations invest "a ton of money" into IT systems and not only don't see a return, but actually witness a diminution in productivity.

"Organizations try to force-fit an IT solution without designing the technology around better work processes or around what the clinicians really need," he says. "Essentially, they're asking clinicians to move from paper to electrons without giving a lot of thought to making the clinician's jobs easier or improving care quality."

Breaking down the human side of the technology equation is made easier at Vanderbilt, thanks to the large number of computer scientists on staff who are also clinicians, Osborn says. One recent example of the type of tasks the center tackles: Technology currently exists to implant wireless micro-devices in the chest walls of at-risk cardiac patients to provide early warning of potential heart attacks. The hard part, Osborn says, is figuring out who is responsible for monitoring the device. Is it the primary care physician, the cardiologist, or both? And is the monitoring a stand-alone service or part of a larger care continuum? And what are the responsibilities of the patient? Excessive drinking or drug use likely would trigger false positives. What would happen then?

"It's a good example of how the technological hurdle can be pretty small compared to hurdles that need to be overcome in terms of human behavior and the business processes necessary to operationalize the technology."

Like Kaiser's Garfield Center, the Center for Better Health frequently relies on simulated scenarios to understand innovative concepts more clearly. In one instance, a 16-hospital system was replicated using various areas of the innovation center to represent different hospitals, outpatient centers, and corporate offices. The objective was to help the system determine how best to fast-track the implementation of 11 major IT projects in a two-year period.

Through the years, the Vanderbilt center has developed and codified a rigorous process to move quickly from problem to solution, Osborn says. The design-build-use approach relies on intensive, multi-day workshops, separate groups simultaneously attacking different aspects of the problem, and an iterative approach to solution development.

"Speed is a big deal for us," Osborn says. "Our experience has shown that if we can produce a first iteration quickly and then focus on improving it, that usually gets us

a better answer faster than if we took all the time we needed to come up with the 'perfect' solution."

Osborn and others believe that innovation centers cannot succeed without a significant degree of independence from their sponsoring organization. Innovators need to be free of the political and social pressures that exist within the typical leadership hierarchy, he says. And bringing in the front-line clinicians who will actually be implementing the new ideas is equally important.

"Some innovation centers will cherry-pick the people who've always demonstrated an ability to think outside of the box and they'll come up with the idea," he says. "But then nothing ever comes of it, because the folks that are integral to that part of the organization weren't involved in the effort."

A Comprehensive Approach

As befits its role as the oldest and largest not-for-profit group practice, the Mayo Clinic has embraced the innovation movement with a comprehensive, multi-pronged strategy aimed at advancing the care delivery process on a number of fronts. Created in late 2007, the Mayo Clinic Center for Innovation today consists of five "platforms."

Mayo Clinic Connection is concerned with pursuing the medical home concept and extending electronic delivery of health care via the Internet for patient visits that don't require a physical examination. Prediction & Prevention Experience aims to improve chronic disease outcomes through early detection, exposure modification, and preclinical intervention, including predictive genomics. Wellness Experience focuses on engaging individuals to develop a more effective and comprehensive approach to prevention. Destination Mayo Clinic Experience works to enhance and integrate outpatient care at Mayo. Culture & Competency of Innovation is charged with instilling a culture of innovation into the daily work routines of Mayo.

Gianrico Farrugia, a member of the center's steering committee, a practicing gastroenterologist, and head of the Culture & Competency of Innovation platform, says the center was born from a recognition that rapid changes in care delivery and patient needs required more formalized processes for adapting to—and helping shape—those changes.

"What the center offers is a unique space to develop and nurture new ideas, allow them to grow in a protected environment, and mature and evolve until they're ready to reach the clinical setting," he says.

Each platform includes a multi-disciplinary team made up of physicians, nurses, designers, systems and procedure experts, finance personnel, and IT specialists, Farrugia says. A patient advisory group also plays an integral role. While each platform's activities are, by definition, somewhat unstructured, a rigorous methodology—as is the case at Vanderbilt and Kaiser—has been created to drive and direct the work.

That methodology involves identifying trends, defining opportunities, declaring a focus, framing the topic, designing concepts and prototypes, testing the pilot, and transferring the solution.

Although the center is new, several solutions already have emerged. One involves using Internet-based video conferencing to connect patients and physicians for specialty consultations and second opinions regarding procedures and treatments. Like Mass General, the service initially was offered to employees but has now been rolled out to all patients. Farrugia notes that within a month of its availability, 20 percent of employees chose the virtual consult option as their preferred method of consultation.

A second application—the use of graphical, red-and-green computer screen charts to convey relative heart attack risk for cardiac patients considering the use of statins—also has proven highly successful, he says.

"It's very effective in helping people conceptualize degrees of risk and as a result, it helps them make their own informed decisions about whether taking statins is right for them.

"Something as simple as that can have a profound effect on how engaged patients are in their own care," Farrugia adds. "And it's something that ordinarily wouldn't have emerged without the innovation center and its mechanisms for listening to what patients are telling us."

One of the risks of innovation work is what Farrugia terms the "greenhouse" effect, or the danger that creative but not necessarily practical ideas are developed without a tangible connection to real-world patients, caregivers, or events. To guard against that possibility, Mayo has made sure that each of its innovation platforms is headed by a practicing physician.

"That was a deliberate decision to ensure that the there was a reality check built into the system," he says. "When you're continuing to see patients, I think it provides an important grounding to the innovation efforts."

Beyond ensuring that innovation work is joined at the hip with an organization's day-to-day practice of medicine, Farrugia concurs that creating formal structures to guide and assess innovation is essential.

"There is a perception that innovation is just a scattered, non-focused, and un-measurable process, but that is not the case," he says. "There are people who have devoted their lives to describing the process of innovation and the ways it can be measured. Consequently, creating structure and metrics can make it much more likely that the center will succeed."

Paradigm Shift

Like Mayo, St. Louis-based Ascension Health has adopted a far-reaching approach to innovation. But unlike many centers—which concentrate for the most part on incremental enhancements to the delivery process—Ascension is also concerned with identifying and anticipating larger paradigm shifts that may affect the entire health care sector. Accordingly, the tactical focus of much of its innovation work is directed not inward but out, toward improving health beyond the hospital walls.

"Internal, incremental innovation is something we've already been doing for a while at Ascension," says Hyung Kim, M.D., Ascension's vice president of research and managing partner of the Transformational Development (TD) team. "So the idea was to vest a group that could both identify significant changes occurring in health care and pursue non-traditional approaches to meeting health needs externally."

Ascension is the largest nonprofit and also the largest Catholic health system in the country, with 67 hospitals and more than 500 total health care facilities operating in 20 states and the District of Columbia. Its Transformational Development unit was created in late 2007 and is funded independently from operating revenue. According to Kim, the TD team spends a considerable amount of time scanning a variety of business and industrial sectors to identify ideas, solutions, and techniques that may be applicable in extending care beyond the hospital or physician's office.

Like most other centers, Ascension has codified a process for testing and implementing innovation ideas. Ascension's so-called "funnel" approach borrows from techniques used in the world of high-tech start-ups and venture capital, Kim says. In simplest terms, resources are incrementally allocated and progressively increased as an idea moves ahead through specific stages of development, validation, and testing.

Although relatively new, Ascension's group already has generated four very different initiatives, including one that represents a dramatic departure from the types

of activities traditionally associated with health care organizations.

Known as Enterprising Health, the effort in Flint, Michigan, is designed to attack root causes of inadequate health care in underserved communities by working closely with local individuals to both identify barriers to better health and to develop sustainable small businesses.

Since late 2008, a group of five Ascension staffers have lived and worked in a low-income neighborhood in Flint under the leadership of Marcy Buren, Director at Genesys Health System, Ascension's local Health Ministry there. As part of the project, Ascension has sponsored business education sessions designed to foster entrepreneurial skills within the community. The ultimate objective, according to Buren, is to create a financially self-sustaining enterprise that can provide income to individuals and a range of services to the community. Exactly what shape that business may take remains to be seen. But part of the project's benefit is in the journey itself, Buren says. More than a dozen local residents from widely varying backgrounds --from unemployed individuals to those holding two jobs to make ends meet—already have signed on as "business partners" in the effort.

"The idea is that self-sustaining business enterprises, will, in and of themselves, have a positive impact on the health of the community," Kim says.

On a separate front, the Transformational Development group is preparing to roll out a next-generation care management initiative for diabetics. The approach is being developed in partnership with an undisclosed retailer and will incorporate telemetry to monitor blood pressure, blood sugar, and weight for diabetic patients remotely. Kim says the service will test individuals' willingness to pay out-of-pocket for state-of-the-art care. The first iteration is expected to be tested in the Detroit and Indianapolis metropolitan areas by autumn of 2009.

Ascension also is prototyping online consults—real-time interaction with doctors or advanced practitioners on specific health issues—to improve customer service and streamline the provision of some non-acute care. Like the remote disease management effort, Kim says an overarching goal is to create a service that is so compelling and valuable that consumers willingly pay for it out-of-pocket.

One final area of exploration at Ascension involves the use of ethnographics, or anthropological field methods, to better understand and address health care challenges facing various socio-economic and cultural groups. The initiative includes intensive "immersion" studies aimed at uncovering unique social and cultural barriers to care. Researchers then debrief and brainstorm about possible solutions.

In one recent two-day exercise in Austin, Texas, researchers focused on health records acquisition, maintenance, and sharing, and how record-keeping processes affect the patient experience. From this effort, eight potential improvements were identified and two from the list are currently being explored, Kim says.

Listening to Customers

The ability to thoroughly understand patient needs in order to improve delivery mechanisms has been advanced to a science at Alegent Health, a seven-hospital, 50-plus clinic system serving the Omaha metropolitan area.

In 2005, Alegent launched an extensive customer information gathering initiative in anticipation of a planned, $400 million multi-hospital renovation project. The objective was to incorporate patient feedback into the renovation design. Alegent partnered with a customer research firm and began field work around each hospital service line.

"We recruited patients, went to their homes, went to their treatments and doctors' appointments," says Larry

Niemann, Alegent's Operations Leader for Change Management. "Basically, we followed them around, interviewed them, video and audio-taped them, and asked them what they liked and what they didn't. It was observation in its rawest form."

The collected information, which reached hundreds of transcribed pages and hundreds of hours of video tape, was then painstakingly culled to identify reoccurring themes from which "buckets of needs" were developed. Those needs were subjected to a "decision accelerator process" wherein cross-functional teams were assembled to develop solutions—primarily involving space configurations and work processes—around the identified deficiencies or desires.

The process was completed for oncology, behavioral, maternity medical/surgical inpatient services, and ambulatory services before budget constraints, new executive leadership, and a shift in strategic priorities led administrators to discontinue the effort, Niemann says.

"We didn't change the world or invent the new iPod, but we were able to incorporate a thousand little things that will incrementally change the way our customers receive and perceive their care," he says.

Niemann says that throughout the process, innovation team members became adapt at spotting "the low hanging fruit," or opportunities that could be easily and immediately addressed even before completion of the construction work. One example: In the maternity department, interviews and observation led the Alegent to initiate a "quiet time," or two hours out of each day when clinicians would not interrupt new mothers.

"We could see that it was just a whirlwind of activity around the moms; no downtime, no rest in the whole process," he says, adding that the policy has been well-received by both patients and clinicians alike. "Moms love it, and clinicians like it too, because it gives them time to catch up on some of the paper work they need to do," he says.

Niemann says the decision to terminate the patient experience program reflected a change in organizational leadership, the departure of Alegent's chief innovation officer, and the challenge of demonstrating the project's hard-dollar, return-on-investment.

"Clearly, determining ROI for something like this can be difficult," Niemann says. "It's hard to quantify, upfront, the benefits of improving the experience of the patient, the physician, and the staff members. And that's particularly true given the nature of the work, since where you start and where you end can be very different places. So that was one factor, given the current economic environment."

But Niemann adds that the primary rationale for terminating the effort in his view was a desire by the new leadership to pursue improvements in the patient experience from a different angle. The new administration, he says, is confident that shifting the model to one driven by evidence-based care and relying on quantitative performance improvement metrics will improve the patient experience.

"Previously, we had the philosophy that failure was a part of innovation, that you in effect, 'fail forward' but that you've got to be willing to try different things. What changed was the appetite to experiment with new and unproven models. So the decision was made to go with concepts that were safer and more proven. Basically, our new strategy is that if we provide a high-quality, low-cost product through evidence-based care models, that will, in and of itself, generate a positive patient experience," he says.

In Flexner's Footsteps

Nearly 100 years ago, educator Abraham Flexner produced a book-length report that illuminated the often deplorable state of medical education nationwide. Flexner's study recommended a number of changes; most were adopted to create the foundation of the modern health care system. Today, clinicians at John Hopkins School of Medicine are working through the innovation process to uncover a "new Flexner model" that can have a similar impact in the 21st century.

Peter Pronovost, M.D., Ph.D. and a professor with the John Hopkins School of Medicine, heads up an innovation center created in 2003 to spearhead the effort. The center is organized around the Institute of Medicine's six transformation aims, namely, that care should be safe, effective, patient-centered, efficient, equitable, and timely. For the most part, the center pursues what Pronovost calls "Little I" innovation: Small, incremental changes that improve quality, strengthen processes, and save money. But "Big I" innovation—large, systemic changes in areas like pharmacy and medication distribution, for example—also is on the agenda.

Duplication of Effort?

Pronovost has emerged in recent years as one of the country's major proponents of innovation and is a prominent voice in the field. Yet he admits he's increasingly troubled by what he sees as the duplication of effort taking place as health care organizations scramble to reinvent and improve the care process. Without a more unified approach and greater cross-pollination between innovation entities, he warns, much energy, time, and resources will be lost.

"I think the questions that need to be asked are, 'which pieces of this work are more effectively done through a centralized process and which pieces make more sense when pursued through an individualized, free-market-type approach?,' " Pronovost says.

"The thing about health care is that we have an exceedingly inefficient knowledge market. In other words, the ideas are out there, we just do a really poor job of sharing them. In many respects, health care is still very much a mom-and-pop industry. And I think it's critical that we find ways to change that."

As an example of what he sees as unnecessary duplication, Pronovost points to the development of evidence-based clinical measures required to meet Joint Commission goals. It is painstaking work and something Johns Hopkins has spent literally thousands of man-hours on. Yet it is work being replicated at many other provider organizations nationwide.

"When you stop to think about it, that's just foolish," he says.

It's a sentiment shared by others. Says Niemann of Alegent Health: "I think what health care needs more of is the ability to pull groups together that have common needs and themes and to work on strategies and solutions collectively, rather than trying to recreate the wheel 20 different times and coming up with 20 different solutions, some of which work, some of which don't."

Beyond the duplication of effort, Pronovost sees a related weakness in the current innovation milieu: Effectively measuring the relative value or contribution of a particular idea or improvement frequently is problematic.

Most health care organizations, he says, simply are not equipped to evaluate, for example, clinical guidelines for a particular disease state. Likewise, there is a dearth of follow-up studies to determine which work processes and delivery innovations are proving most effective.

"I think we've been naive to think that organizations can both innovate and evaluate effectively without a substantial investment," he says.

Pronovost believes that what is needed is a centralized organization that could coordinate private-sector innovation efforts around specific delivery and safety challenges. While it's not immediately clear what that entity would look like, he points to the Human Genome Project as an example of a coordinated, problem-solving initiative that included multiple, diverse entities across health care.

"NIH coordinates gene research," he notes. "Why not create an institute for health systems delivery?"

Time will tell whether, and to what extent, innovation centers can or should coalesce into a more integrated whole capable of systematically addressing the system's many choke points. Some sharing between non-profit-based innovation centers already is taking place under the auspices of the Innovation Learning Network, an ad-hoc consortium established by Kaiser Permanente.

The network, created in 2006, includes nine systems that meet several times a year and converse monthly via video conference to exchange ideas on topics such as the future of remote primary care.

Kaiser's McCarthy, the center's director, says that the network—the only one of its kind—is limited in membership to non-competing, not-for-profit organizations. "I think that if there was a for-profit or a competitor involved, it would probably hinder the deep sharing we have among our members. And it's critical that we maintain that openness."

Tomorrow's Tools

It seems likely that the future of health care delivery is being shaped by the innovation efforts underway today, regardless of whether organizations find ways to unite and amplify some of their innovation successes.

"I honestly don't think we'll have a big bang in health care unless or until we have payment reform and some kind of universal system," McCarthy says. "But I do think the approach we're taking now has the ability to make a significant difference, because we're thinking far more critically about the relationship between clinicians and patients than we ever have in the past.

"We're trying to create the best spaces and best tools and best processes to meet the needs of all involved. We're in the early stages of using this approach. But my gut says we're definitely going down the right path."

For innovation to truly work, though, virtually all experts and participants agree that well-conceived methodologies must be developed to test ideas and ultimately transform the most promising ones into viable, sustainable solutions. Likewise, skills and tools must be created to better assess the impact of innovation work, both in terms of quality improvement and cost-effectiveness.

"It's easy to go an inch deep and a mile wide in innovation, instead of a mile deep and an inch wide," says Hopkins' Pronovost. "And that can be self-defeating, especially if you lack the training to truly assess the extent and nature of the improvements you're making."

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