
Taking a Broader Approach to Innovation

MARK E. COTICCHIA

INNOVATION MEANS DIFFERENT things to different organizations and people. However, I have yet to find a healthcare executive who does not endorse its importance and the potential for innovation-based impact at his or her institution. At the same time, in private settings, most of my peers talk about the difficulties in structuring and executing innovation activities, setting appropriate expectations, and measuring success.

In this issue of *Frontiers of Health Services Management*, two valuable feature articles portray innovation activities and—important in this context—the origins and structures of two excellent yet disparate healthcare systems. Samet and Smith describe the MedStar Institute for Innovation (MI₂), a free-standing professional entity founded in 2009 to serve the large healthcare system in the Washington, DC, and Maryland area. Meanwhile, Conger describes the history and mission of innovation at OSF HealthCare, a private, integrated system serving the Peoria, Illinois, region. The two articles provide an opportunity to compare these programs not only with each other but also with the program that I lead at the Henry Ford Health System (HFHS) in Detroit, Michigan.

Mark E. Coticchia is vice president and chief innovation officer of the Henry Ford Health System in Detroit, Michigan.

BACKGROUND: INNOVATION AT HENRY FORD

HFHS is an integrated healthcare system with a 100-year history of providing excellent and affordable healthcare and deploying it throughout the challenging market of Detroit, Michigan. It is known nationally for its robust business practices, healthcare innovations, and rapid implementation of those innovations. The breadth of activities within HFHS's health campuses, clinics, and urban outreach activities, combined with its direct relationship

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with its health payer subsidiary, Health Alliance Plan (HAP), provide a rare laboratory to assess the value and extensibility of healthcare innovations.

Henry Ford Innovations (HFI) is a corporate function designed to enhance patient care, research, training, and commercialization opportunities within HFHS. HFI embraces the system's inventive past while preparing it to adapt to the changing world of technology and healthcare. Our strategy is organized around a set of four core programs, each drawing on the successes of the others:

1. *Education and Research*—training the next wave of entrepreneurs and innovators
2. *Technology Management*—commercializing HFHS innovations
3. *Corporate Innovation*—partnering to codevelop next-generation products and services in selected clinical areas
4. *Global Innovation*—expanding quality healthcare around the world

Education and Research

The HFI Education and Research program focuses on the system's internal drivers

of invention, particularly the needs and interests of system clinicians. It provides access to intellectual asset-related resources and programs that include innovation training and education, engineering services for prototypes, seminars designed to enhance networking, programs aimed at developing specific medical products, and broad educational offerings in translational medicine and the entrepreneurial arts. We facilitate and support innovations that can be immediately applied internally toward healthcare outcomes, regardless of whether a monetization opportunity exists through commercial partnering.

The Education and Research program also includes the system's flagship Davidson Fellowship for Entrepreneurs in Digital Health and the internal Davidson Digital Health Challenge, both of which are funded by the William Davidson Foundation. The goal of the nine-month Davidson Fellowship is to educate and train individuals who have a passion for healthcare innovation on the critical issues and processes related to developing and commercializing digital technologies. The Fellows are a cohort of HFHS professionals, including clinicians, information technology staff, and procurement specialists. These professionals are joined by regional leaders to work in teams to develop multidisciplinary innovation skills.

The Davidson Challenge sponsors competition among clinicians, administrators, entrepreneurs, designers, developers, researchers, and others at HFHS to solve an identified problem in healthcare and, ultimately, to make a significant impact on patient care outcomes. Past Challenge topics have included "Clinical Applications of Wearable and Sensor Technology" and "Frugal Innovation," which solicited low-cost solutions to pervasive healthcare problems.

Technology Management

The Technology Management program creates intellectual assets that can serve as cornerstones for market opportunities. In addition to supporting federally funded applied research at HFHS, the program focuses on intellectual assets in the form of patents as well as the know-how and data that emanate from the daily activities of our frontline providers. The program addresses innovation at any stage of the commercialization process, from inception and ideation through early development, validation, and licensing or spin-out. Core activities include opportunity assessment, intellectual property protection, product development, and commercial disposition.

Corporate Innovation

One key differentiator between HFI and other innovation programs is that our activities are not limited to our own assets and technologies. Rather, similar to the partnerships at OSF HealthCare that Conger describes, we engage with startups and established companies to advance products that affect healthcare through our Corporate Innovation program.

Instead of taking a more traditional “academic push” approach that focuses on getting intellectual property out to potential licensees, we work with companies that may already possess breakthrough technologies, development programs, or dedicated professionals to determine whether their products have clinical validity. Our contributions also include clinical process know-how, workflow expertise, target market identification, access to data, and knowledge of payment models.

In return for the licensing of our intellectual property, particularly our healthcare know-how, we typically receive equity or running royalties based on sales. The Corporate Innovation program has become

a key platform to engage targeted organizations in opportunities to improve the delivery of healthcare.

Global Innovation

For US healthcare organizations, the international market is a key opportunity for enhancing revenue. Domestically, declining reimbursement rates and uncertainties surrounding implementation of the Affordable Care Act have put severe strain on operations. The international market presents an opportunity for US hospitals to leverage their brand, technology, and experience to grow revenue. Today, millions of people worldwide lack access to healthcare. To address this problem, clinical programs and innovations are being developed at a rapid pace. There is tremendous international interest in partnering with US hospitals to apply their proven practices, protocols, policies, and technologies to new healthcare infrastructures. The HFI Global Innovation program includes the following:

- *Licensing of know-how* in foreign countries for new hospitals or hospital expansion, including clinical program planning, physical planning, clinical and administrative workflows, medical protocols, staff recruitment, and development. To date, we have executed agreements with hospitals in Saudi Arabia and India.
- *Technology sourcing* to attract promising foreign healthcare technologies that HFHS is interested in using and enhancing to fill a need in patient care.
- *International licensing* to seek new outlets for HFHS’s intellectual property.

SHARED ELEMENTS

The HFHS innovation program shares several key elements with the innovation

programs at MedStar Health and OSF HealthCare. An area of near-perfect alignment is the recognition that a call for change now permeates healthcare and that emerging healthcare needs drive a system's commitment to innovation. The authors of both feature articles astutely point to the ongoing changes in US healthcare economics, including the transition from volume-based models to value-based ones, the consumerization of medicine, and the growth in gross volume of care driven by an aging population (presenting an in-

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creased burden of chronic disease) and a larger number of insured patients as a result of changes in federal patient access laws.

A second strong area of alignment among the HFHS, MedStar Health, and OSF HealthCare approaches to innovation is the conviction that innovation can occur in all facets of healthcare. Accordingly, Samet and Smith recognize the “potential innovation energy [that] resides in each employee” at MedStar Health (page 7), and Conger stresses the need for the OSF HealthCare innovation vision “to be owned by everyone who works at OSF and shared by our partners” (page 18). These beliefs are consistent with what we see daily at HFI.

When I arrived at HFHS after decades of experience in technology management at world-class research institutions (namely, Carnegie Mellon University and Case Western Reserve University), I was pleasantly surprised to find that HFHS's innovation constituent base was not made up only of those engaged in research and publication (of whom we have many, of course) but also of practicing clinicians, such as innovative doctors, physician assistants, nurses, fellows, and technicians.

In fact, one of HFI's first successful projects was the design and launch of the Model G™ patient gown. Named in tribute to the famous automobile produced by HFHS's founder—the Ford Model T—the gown began with a simple idea a little over three years ago: Take a fresh, nonclinical look at items throughout the hospital and generate ideas for improving them. The nonclinical look was provided by HFI designers and clinicians familiar with the current gowns (i.e., nurses and technicians). The iterative development of the gown became a systemwide call to arms. Contributors to the evaluation of the gown ultimately included laundry workers, procurement professionals, and patient satisfaction and quality professionals. In 2014, the Model G was adopted throughout HFHS, and in 2015, HFI licensed it for national distribution.

Another example of a systemwide, multidisciplinary approach to innovation is HFI's integration with HAP, the second-largest healthcare payer in Michigan. This relationship provides HFI with immediate insight on whether insurers will cover a given clinical intervention. Through such access, we are able to navigate pricing constraints, paths to market adoption, and, ultimately, product profitability. This payer perspective is needed now more than ever in light of the volume-to-value transition in US healthcare economics and is supported by the global growth-stage enterprise sector. In the words of Eugene Kandel (personal communication), CEO of Start-Up Nation Central—an independent, not-for-profit organization committed to accelerating innovation in Israel—“the most daunting challenge . . . is no longer meeting technological efficacy, but rather, navigation of complex purchaser and payer dynamics that limit adoption.”

UNIQUE ELEMENTS

While the HFHS, MedStar Health, and OSF HealthCare approaches to innovation strongly align in recognizing a need for innovation and for multidisciplinary, systemwide contributions, two additional strategic elements are critical to the HFHS model: corporate innovation and economic development.

Corporate Innovation

As mentioned earlier, HFHS does not limit itself to its own intellectual assets and opportunities but rather embraces corporate engagement and challenge programs designed to increase the speed of validation and adoption of medical technologies and care efficiencies regardless of their origin. While integration of NIH (Not Invented Here) opportunities can be complicated in not-for-profit healthcare settings, HFHS believes that the numerous challenges facing medicine require the system to be open to opportunities coming from all types of entities across the globe. Simply put, our 23,000 employees are an immense source of creativity and innovation opportunities, but global firms and health professionals facing similar challenges should be called on to help us meet our daily challenges.

To that end, HFHS has developed the ability to structure novel, flexible relationships. Not all systems have the scale and location to readily engage with large, multinational collaborators, but almost all can benefit from relationships with small, privately held firms (just as OSF HealthCare benefits from its technology partners, as Conger describes). Indeed, HFI has accomplished as much through its interactions with small enterprises that were previously unknown to the system as it has with large, commercial entities that have served for decades as suppliers or research

sponsors. As the national and global push for entrepreneurship grows, health systems will see continued opportunities for new engagements. By establishing a corporate innovation program, healthcare innovation functions can address system needs as well as regional economic development challenges.

Economic Development

We at HFI recognize that health campuses are drivers of the “innovation economy.” One of our guiding principles has been that value is created at the confluence of talent, resources, and opportunity, and hospitals and health campuses are prime candidates for such value creation.

Healthcare institutions across the country have a diverse pool of educated talent, as well as a vast array of resources. These resources include infrastructure (e.g., laboratories, equipment), intellectual assets, and an obvious but often overlooked resource: capital. Similar to MedStar Health and OSF HealthCare, HFHS spends billions of dollars annually in the purchase of products and services. This reach promotes health campuses to a level on a par with, if not exceeding, that of academic campuses as drivers of regional economic development. While colleges and universities harbor a critical place in the innovation economy, they often lack the end-user perspective on technology that hospitals possess. Academic researchers are capable of transformational inventions, but they may not see matters through the lens of practical need.

As healthcare institutions drive the innovation economy, they also become a source for attracting top talent to the region. HFI has attracted top clinicians, executives, and professionals from a wide variety of backgrounds to HFHS and southeast Michigan.

CONCLUSION

With years of experience working in the innovation sphere, I can share a number of lessons learned:

- *Innovation programs are created for different reasons and have different elements, but they all rely on professional staff for success.* At the end of the day, innovation is like the execution of a play in football: It is as reliant on the fundamentals of blocking and tackling as it is on overall strategy. Experienced technology management and venture development professionals are vital to success and need to be viewed as investments rather than cost centers.
- *There is value to functional knowledge.* Too many new innovation functions in the “eds and meds” (higher education and healthcare) sector waste resources and get off to bad starts by relying on inexperienced professionals to lead innovation activities. A common mistake is empowering a professional with a track record of success in another field (e.g., an accomplished scientist or doctor) to lead an entrepreneurial or innovation endeavor. As I often joke to my medical colleagues, “You wouldn’t allow an accomplished entrepreneur to perform your medical procedure just because he met a lot of success in business.”
- *The not-for-profit world really is different.* Relying on innovation professionals who have had success solely in the for-profit arena is a common misstep. Stark differences in process, legal regulations, and access to capital hinder many corporate-experienced professionals from making an easy transition to the not-for-profit innovation sector. There is no pool of funding for not-for-profit innovation projects; investigators must partner with support functions to compete for federal and foundation financing. All too often, I have had a for-profit friend say, “You should polish that project by investing a few hundred thousand over the next year, and then it may be ready for licensing.” This is not an economic reality for most institutions.
- *Benchmarking helps.* In the rapidly evolving world of healthcare innovation, knowing what institutions such as MedStar Health, OSF HealthCare, and HFHS are doing provides a solid base on which to build processes and goals for institutional innovation programs.