

Harnessing talent to revamp patient care at Penn Medicine

Excerpt based on material that originally appeared in the book *Goliath's Revenge*¹



The volume-based business model of healthcare in the United States has been a major hurdle to progress in health systems. Under this model, the more tests, procedures, and treatments patients undergo, the more revenue the hospital generates. Further, this model is focused on treating patients when they are sick rather than on preventing illness and often misses opportunities to improve outcomes and the overall operating model.

This traditional business model has also created entrenched barriers to innovation, such as thwarting health systems' attempts to deliver better patient outcomes by harnessing digital capabilities. Consider, for instance, the languid pace of change in the sector, where drug-approval processes last decades and innovation traditionally refers to undertaking world-class, years-long academic research to produce scientific breakthroughs. Most health systems give in to these approaches instead of focusing on improving patient experience or making improvements based on recent knowledge. In addition, this sector, like many others, struggles to attract critical digital talent.

Penn Medicine broke through these barriers to reinvent care delivery and reduce costs in healthcare. How? They implemented a talent-first approach inspired by Silicon Valley, pairing cross-functional internal talent with carefully selected outside hires to translate digital innovations into real business results.

A new approach to talent and technology

The impetus for change at Penn Medicine was the hiring of Roy Rosin. In 2012, Rosin made the dramatic leap to the centuries-old health system from Silicon Valley, where he was the head of innovation at accounting-software juggernaut Intuit.

¹ Todd Hewlin and Scott Snyder, *Goliath's Revenge: How Established Companies Turn the Tables on Digital Disruptors* (Hoboken: Wiley, 2019).

If Silicon Valley is exceptional at one thing, it is attracting talent and providing meaningful incentives for accelerating innovation. Rosin recognized that addressing the shortage of digitally savvy talent in healthcare was the first step to unlocking better outcomes for both patients and providers. So he created the Center for Health Care Innovation and tasked different teams on staff with reimagining how care is delivered with a focus on two goals: stemming the runaway cost of healthcare (now 18% of US GDP) and shifting from reactively helping sick patients to proactively keeping people healthy. For its initial targets, the center aimed to curb overuse of emergency rooms, stem excessive seven-day obstetrical readmissions and morbidities, and fix a broken breast milk inventory system.

Rosin sensed that existing staff, many of whom harbored traditional medical attitudes toward progress, would reject his efforts if he brought in a host of Silicon Valley whiz kids to work in the center. So he built upon the interdisciplinary strengths of Penn, which is part of a large and well-respected university system, to create a culture of collaboration across groups that rarely interacted, including business experts, technologists, designers, behavioral scientists, and clinicians. He integrated the most respected clinicians at Penn Medicine with technical talent from Penn's own engineering program and business minds from Wharton. Rosin invested time "resource grafting" individuals with unique strengths into nimble teams, and he sparingly augmented these teams with external hires and specialized contractors. Crafting a staff for the center primarily out of diversely skilled people with existing relationships to one another and to Penn proved easier and more efficient than chasing the few people with both healthcare domain knowledge and deep technical know-how. As a bonus, Rosin's teams were more unified than a collection of outside hires would have been.

To get the most out of these teams in the minimum amount of time, Rosin implemented the agile development methodology that most start-ups in Silicon Valley run but that is rarely seen in healthcare: get a "beta" to market fast, obtain real-world validation, and iterate toward a breakthrough solution. Rosin also sponsored hackathons and innovation challenges to engage an even broader group of potential innovators in solving healthcare's most vexing problems.

Achieving results

In the six years since Rosin joined Penn Medicine, his talent-first approach has had a remarkable impact across three areas: channeling so-called "superutilizers" of healthcare (such as low-income and homeless people), reducing readmissions and morbidities due to pregnancy-related hypertension, and freeing up time for maternity ward nurses. All of these successes address Rosin's overarching goals of stemming costs and proactively treating patients.

Curbing use of acute-care services

Superutilizers consume a disproportionate share of healthcare. Limited preventative care results in the abnormally high use of acute-care services such as emergency rooms. Penn's Shreya Kangovi led a team that developed IMPaCT (Individualized Management for Patient-Centered Targets), a community-health model that focuses on the social determinants of care versus specific therapies or science. Her research around lifestyle and behaviors determined what interventions individuals would respond to or their "behaviorome."



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Rosin’s team gave Kangovi the tools, technology support, and lean methodology to refine and package her model so it could scale and spread across and beyond Penn. For health systems and agencies serving vulnerable populations, IMPaCT produces roughly \$2 in savings for every \$1 invested, results that have earned the model national attention.

Treating pregnancy-related hypertension

Penn doctors knew that hypertension related to pregnancy was the top reason for seven-day obstetrical readmissions and morbidities, such as strokes; it is also responsible for 20% of maternal mortality. But getting the requisite blood pressure readings after discharge was a major hurdle, leading to poor outcomes for patients.

Katy Mahraj, an innovation leader on Rosin’s team with skills in rapid experimentation and care redesign, was able to help top Penn physicians, who had insight into the patient context, develop a breakthrough solution. After iterating on texting protocols with women who were discharged with a blood pressure cuff, this team deployed a novel, automated application backed by behavioral monitoring and analytics with the engineering team from Way to Health, a connected-health platform developed at Penn. Mahraj’s team recently conducted a randomized, controlled trial that achieved dramatically improved outcomes, with an 80% reduction in readmissions, while nearly eliminating adverse health outcomes.

Maintaining breast milk inventory in maternity wards

The planning, tracking, and inventorying of mother’s milk is a critical job for maternity nurses, as it ensures that mothers create enough milk for their babies and that milk does not spoil or expire. This job is time consuming and prone to error: it takes 13,000 hours each year per NICU and lacks a reliable approach for tracking declines in the milk supply. To address these issues, a group of Penn engineering students with strong technical skills and lactation nurses who had deep insight into the problem joined forces to form a start-up called Keriton. The team developed connected bottle sleeves with sensors, readers, and

transmitters to automate the measurement and tracking of breast milk. They later pivoted from the early proof of concept to a software-based system that automates the entire inventory and tracking process. In one NICU, the Keriton system saved 7,000 hours of manual nursing work per year, increased milk received by 40%, reduced expirations by 50%, eliminated dangerous errors, and cut significant costs from labeling and donor milk, delighting both nurses and moms. These savings allowed maternity nurses to commit more of their time to high-value patient-care activities.

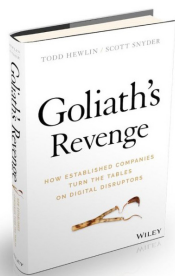
Keriton has been recognized with numerous breakthrough innovation awards and recently attracted external investments from Dreamit Ventures and First Round Capital's Dorm Room Fund.



These successes have enabled Rosin's Center for Health Care Innovation to expand into three discrete units that produce commercialized innovations, combine behavioral science and design expertise to improve health outcomes, and measure the impact of digital health innovations on patients. Rosin has proved that a talent-first strategy, through which existing talent with diverse skills joins forces with specialized support, can help organizations across industries pursue critical digital innovations and achieve significant results. ■

About the author

Scott Snyder (ssnyder@heidrick.com) is a senior fellow at the Wharton School at the University of Pennsylvania and a partner of Heidrick & Struggles' Digital and Innovation Practice. He is based in the Philadelphia office.



To learn more about *Goliath's Revenge*,
by Heidrick Consulting Partner
Scott Snyder and Todd Hewlin, go to
<https://www.heidrick.com/goliathsrevenge>.

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