

Learning Health Systems: Making the Case Against Business as Usual

The Agency for Healthcare Research and Quality (AHRQ) has developed a series of case studies to help health system chief executive officers (CEOs) and other C-suite leaders better understand the concept of a learning health system (LHS) and the value of making investments in transformation. Building this understanding is part of the Agency's ongoing effort to accelerate learning and innovation in healthcare delivery in order to ensure that people across America receive the highest quality, safest, most up-to-date care.

AHRQ defines an LHS as a health system in which internal data and experience are systematically integrated with external evidence, and that knowledge is put into practice. As a result, patients get higher quality, safer, more efficient care, and health delivery organizations become better places to work.

No health system becomes an LHS overnight. Nor is the term "learning health system" widely used yet, even in systems doing this work. As these case studies show, becoming an LHS is an iterative journey characterized by strong leadership, effective use of data in the clinical setting, and both a culture and a workforce committed to continuous learning and improvement.

Becoming an LHS is also increasingly an imperative in an era of health system transformation. There is growing recognition that "business as usual" is no longer a sustainable model. Driving this change are Federal and private-sector initiatives to redirect incentives away from volume and toward a focus on value: better patient outcomes and better quality at lower costs. This value-based care framework includes providing clinicians with strong, actionable data and tools to improve care—and identifying the right performance metrics to hold them and their teams accountable for their patients' care. This framework also includes breaking down silos between

medical care and community services to prevent disease before it occurs and rewarding providers and health systems for results and not activities.

To see systemic change, top leaders must adapt by allocating resources in ways that help to identify best practices and support implementation across the system in a sustainable way.

The health systems profiled for this series have different business models but share a commitment to making systemwide investments in becoming learning health systems.



"The endpoint is more value-based care, but what's missing is the blueprint to get there and maintain solvency as you transition. A learning health system is that model. Get that buy-in and you'll have the space and resources to build it out."

—Andrew Masica, M.D., Vice President and Chief Clinical Effectiveness Officer, Baylor Scott & White Health

Utah Health is a large, academic healthcare system providing care for patients in Utah and surrounding states. **Baylor Scott & White Health** is a nonprofit healthcare system that serves patients in both large cities and small towns across Texas. **HCA Healthcare** is a for-profit healthcare system with 185 hospitals and 119 freestanding surgery centers across 21 States and the United Kingdom. **Denver Health** is a vertically integrated safety-net institution that cares annually for 25 percent of the city’s population. AHRQ has chosen to profile these organizations because they have unique and replicable stories to tell: their C-suite leaders have invested in the people and data resources to allow them to adopt evidence to continuously improve the quality, safety, and cost-effectiveness of patient care.

All of the systems profiled in this series share the following three key traits of an LHS:

- **Making significant investments in data infrastructure**

Health leaders in these systems stressed that being able to use your system’s own data is

essential to understanding what drives both costs and outcomes.



“We have so much clinical and financial data that there’s really no reason we should ever make decisions independent of good data.”

—Charlton Park, M.B.A., Interim Chief Financial Officer and Chief Analytics Officer, University of Utah Health

The health systems profiled are paying attention not just to their patients’ electronic health records but also to the broader array of clinical, claims, financial, and other data they have available to generate new insights and use those insights to improve care.

Utah Health, with a single enterprise data warehouse, has the most mature data model. Its investments in information technology and analytics brings the right data to the right person

at the right time—allowing providers to compare “apples to apples” and make the system work better for patients. In addition, by combining clinical and financial data they can better understand the cost of patient care and identify how that relates to quality and outcomes. **HCA** is starting to apply machine learning, natural language processing, and artificial intelligence to look prospectively at its data to identify diseases faster. Both **Denver Health** and **Baylor Scott & White Health** are moving to integrate their various data sources more seamlessly. All four systems are identifying opportunities to use real-time data to improve system processes and help providers better serve their patients.

- **Fostering a culture of learning**



“Some people provide clinical care, some do research, and some teach the next generation. But we’re all here to do the same thing: provide high-quality care. So we need to take those disparate missions and focus all of us on the same goal.”

—Robin Wittenstein, Ed.D., Chief Executive Officer, Denver Health

At its core, fostering a culture of learning is about empowering staff from all departments and units—from the C-suite to the frontlines—to keep their eyes open for problems and come up with ways to solve them. For these LHSs, culture change means hardwiring the infrastructure and incentives that encourage people to speak up and innovate in order to bring the best, evidence-based ideas into practice. It also means putting in place processes to sustain this work over time.

The health systems profiled have established initiatives to break down barriers among departments and disciplines to foster cross-collaboration and improve quality and performance. All four have also incorporated elements of process improvement methodologies. Both **Denver Health** and **Baylor Scott & White** have formally adopted Toyota’s Lean processes to continuously look for ways to improve patient outcomes and experience as efficiently and effectively as possible. **Denver Health** also has embraced the Kaizen continuous quality improvement approach and implemented Gemba walks—in which system leaders walk around the facility to observe the actual work processes, engage with employees, and explore opportunities for improvement—in all of its ambulatory care clinics. Their LHS journeys offer a way forward for other health systems looking to reset their culture or rethink the structures that can foster meaningful change.

The health systems profiled have established initiatives to break

- **Valuing the role of staff in continuous improvement**



“The industry is reinventing itself: moving from intuition to decision support, redefining jobs, and improving care and efficiencies.”

—Jonathan Perlin, M.D., Ph.D., Chief Medical Officer, HCA Healthcare

LHS leaders agree that everyone in the system has a role in the success of the organization, and every health system has a role in making sure that its workforce has the tools and training to be successful. These health systems have identified opportunities to incentivize innovations both big and small so that every employee recognizes their role in improving patient care and patient outcomes.

Health leaders in these systems stressed that being an LHS also necessitates hiring teams with information technology and analytics skills, and researchers with the ability to apply complex methodologies to improve clinical care. Having people with these skills enables these health systems to glean insights from their own data and use those insights to learn, adapt, and innovate.

The LHSs profiled have built up core capacities and empowered staff involvement in the learning health system journey. **HCA** has hired data scientists to find meaningful signals in a sea of data. **Baylor Scott & White Health** has identified a role for researchers internally to support improved clinical care. **Utah Health** is training its medical residents in process improvement and protocol design improvements to help them better understand their leadership role in improving patient care and patient outcomes. **Denver Health** is piloting a leadership training curricula that includes change management, fundamentals of analytics, and basic Lean processes. Each health system has also adopted strategies to incentivize and reward frontline staff.

Learning From Their Stories

No health system becomes an LHS overnight. Nor is the term “learning health system” widely used yet, even in systems that are doing this work.

None of the health systems profiled for this series set out with the express goal to become an LHS. Each set out to better measure quality across their health system or to identify opportunities to find ways to deliver better care and a better patient experience. These building blocks become foundations for thinking more systemically about what it means to deploy data for continuous learning, and the roles of culture and workforce in doing this work.

These case studies reflect health system leaders sharing their stories. They are intended to provide insights for other CEOs and health system leaders on the value of investing in their own operations to learn, to be sustainable businesses, and to safeguard the health and wellness of their patients. As more organizations look at value-based care and pursue their learning health system journeys, those that do not rethink how they operate risk being left behind.

