Baylor Scott & White Health: Building a Foundation for Continuous Improvement

The Agency for Healthcare Research and Quality (AHRQ) has developed a series of case studies to help health system chief executive officers 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 this and other 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 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 new Federal and private-sector initiatives to redirect incentives away from volume and toward a focus on value: better patient outcomes and quality at lower costs. This value-based care framework includes providing clinicians with strong, actionable data and tools—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.

As more organizations look at value-based care and pursue their LHS journeys, those that do not rethink how they operate risk being left behind.

For Baylor Scott & White Health, the journey toward an LHS began in 1999 when Baylor Health Care System's leadership mandated that quality of care needed to be measured across the health system. To achieve this, health system leaders started to set strategic objectives around quality, hired the system's first chief quality officer, and began to build the infrastructure to support continuous quality improvement. Those investments provided the early building blocks for a centralized system that incorporates learning and knowledge generation as part of its day-to-day operations.

This is Baylor Scott & White Health's LHS story.

Snapshot of the Health System

[Baylor Scott & White Health](), headquartered in Dallas, is the largest nonprofit healthcare system in Texas and one of the largest in the United States. The current system is the result of a 2013 merger between Baylor Health Care System and Scott & White Healthcare. The merger created a new organization that serves large metropolitan markets as well as a wide swath of rural parts of the state.

Today, the healthcare system includes 48 hospitals, 185 satellite outpatient facilities, 26 ambulatory surgery centers, 164 primary care clinics, and 503 specialty care clinics, as well as four senior health centers, seven urgent care clinics, and 30 retail pharmacies. Baylor Scott & White Health has over 47,000 employees and more than 7,800 active physicians as well as the Scott & White health plan.

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—Andrew Masica, M.D., Vice President and Chief Clinical Effectiveness Officer

The merger made sense for more than just market power; Baylor Health Care System and Scott & White Healthcare were two systems that shared a common interest in being learning organizations. Both systems were invested in using data to make decisions, incorporating information from multiple perspectives, and keeping the patient front and center. Each also was committed to making investments in its culture and its workforce, the other two keys to a thriving LHS.

As Baylor Scott & White Health continues to integrate, health system leaders remain focused on transforming into an LHS by making significant investments in data infrastructure and analytic capacity, fostering a culture of learning, and valuing the role of frontline staff in continuous improvement.

AT A GLANCE

BAYLOR SCOTT & WHITE HEALTH

EMPLOYEES

47,000
TOTAL EMPLOYEES

7,800
PHYSICIANS

LOCATIONS

48 HOSPITALS

503 SPECIALITY CARE CLINICS

164 PRIMARY CARE CLINICS

185 SATELLITE OUTPATIENT FACILITIES

30 RETAIL PHARMACIES

4 SENIOR HEALTH CENTERS

26 AMBULATORY SURGERY CENTERS

7 URGENT CARE CLINICS

Making Significant Investments in Data Infrastructure

A solid data infrastructure is key to having the capacity to generate insights and apply them to care improvement efforts. With easily accessible data, health system leaders can solve problems or implement new, more efficient and effective ways to deliver patient care.

Baylor Scott & White Health is working to build a standardized data platform. For example, the system expects to complete transition to a single electronic health record (EHR) in all of its fully owned hospitals during 2020. This migration will give these facilities more readily available clinical, billing, and revenue data in a common format.

Baylor Scott & White Health's leaders expect the standardization to make data acquisition less expensive and labor intensive across the health system. Associate Chief Quality Officer Brett Stauffer, M.D., compares the change to data modernization that has happened in other industries like the travel industry. "Once upon a time, you needed a travel agent to book a flight, had to place phone calls to a bunch of hotels to get rates and book a room, and had to purchase a guidebook to plot your course," he says. "Now all the data you need are available online to explore your options and make quick, informed decisions."

But experts agree that, while half of the data infrastructure piece is a single ecosystem from which to extract data, the other half is putting the right data in front of people and translating that information into actionable insights. Likewise, the "right data" for whom? Data analysts are looking at role-specific needs and how best to display those data in a manner integrated with workflow. What data do a physician, a nurse, or a physician's assistant need at the point of care? What data do C-suite leaders need to understand care continuity across service lines or facilities? What data are needed to effectively manage population health or conduct research?

The Baylor Scott & White Quality Alliance: A Model for Cost-Effective Quality Care

The Baylor Scott & White Quality Alliance, the health system's accountable care organization (ACO), offers a model for the overall health system on using data to inform care and improve patient outcomes.

Over the past 5 years, contracts with the Centers for Medicare & Medicaid Services (CMS) and other payers have led to over $280 million in savings against cost of inflation while achieving better health outcomes for patients.

To achieve these results, the analytics team combs through its data to understand the drivers behind a patient's use of healthcare services and find opportunities to help better manage a chronic condition, avoid or

ACOs began as a model under which groups of physicians, hospitals, and other healthcare providers came together to provide coordinated, high-value care to Medicare patients. Under the ACO model, the cost savings from delivering high-quality care and spending healthcare dollars more wisely were shared between the ACO and Medicare.

reduce hospital stays, enhance preventive care, or otherwise improve the quality of care. The team then uses its findings to standardize metrics and build reports across populations so providers within the ACO know how they are being measured and for what they are being held accountable.

In addition, the analytics team has created "value-based dashboards" for every primary care clinician that include medical and pharmacy utilization data, as well as a number of other data sources and metrics. Team members have also created checklists, notifications, and other ways to integrate helpful data into clinicians' workflow. Their aim is to simplify, standardize, and organize information to make it accessible to improve the use of best practices at the point of care.

Baylor Scott & White Health's employees, who are covered under the ACO, are benefiting from this approach. The system's clinicians are armed with data and tools to identify potential problems before they escalate into a health crisis. An emphasis on preventive care has helped the health system hold medical and pharmacy spending flat for the past 5 years (compared with a typical 4 percent annual increase in employee healthcare costs). Having meaningful population health data, coupled with the right processes for understanding and using those data, has led to better patient outcomes and better value for both patients and the health system.

Fostering a Culture of Learning

While a solid data infrastructure and analytics acumen are two key building blocks of an LHS, culture is another. Having robust evidence about what works best doesn't matter if it sits unused. Chief Operating Officer John McWhorter, D.Sc., frames the issue with a simple question: "Why did it take 20 years for people in healthcare organizations to consistently wash their hands?"

"When the evidence is clear, we want to take that best practice and scale it across the organization."

— John McWhorter, D.Sc., Chief Operating Officer

The evidence base was clear that handwashing is essential to infection prevention. But adoption lagged because the culture in most organizations neither supported nor prioritized this best practice.

Keeping this in mind, Baylor Scott & White Health has committed to being an early adopter of best practices and an innovator in healthcare. "When the evidence is clear, we want to take that best practice and scale it across the organization," says Dr. McWhorter. To do so, the organization has built its culture around using data to make decisions. This culture shift empowers staff to identify opportunities and move quickly to implement changes to improve quality, outcomes, and patient experience.

To achieve these objectives, leaders at Baylor Scott & White Health recognized that they needed to implement structures to support innovation both from the C-suite down and from the frontlines up.

Currently, many workflow innovations flow upward. Many are simple changes involving a new approach that a frontline clinician has identified to complete a process more efficiently. Much of the daily innovation comes from morning staff huddles, in which care teams discuss process problems or workflow barriers and brainstorm alternatives.

One example is the timeframe in which blood is drawn from hospitalized patients and sent to the laboratory to help inform care decisions made by physicians during daily rounds. Blood used to be drawn between 3 and 5 a.m. until someone in a daily huddle suggested the patient experience would be improved if care teams opted to move the start time to 5 a.m. The change was made, lab reports are still completed by 7:30 a.m. in time for rounds, and patient experience scores have improved.

To encourage this bottom-up innovation, Baylor Scott & White holds an annual quality improvement summit during which leaders of exemplary improvement projects are invited to

share their team's story. All of the stories are cataloged, providing a robust library of quality and safety improvement ideas that can be tapped by providers, administrators, and staff looking for ideas about how to change a process or address a problem they have identified.

Baylor Scott & White Health also supports top-down innovation. Most notably, health system leaders created a Digital Health Office tasked with identifying enterprisewide initiatives to enhance patient experience, finding ways to make systemwide quality and safety improvements, and spotting opportunities to automate manual processes.

The Digital Health Office team has evaluated almost 300 ideas using a structured, data-driven process that looks at, among other criteria, whether a proposed initiative is backed by rigorous evidence and can be scalable across the organization. By creating a centralized team to evaluate projects in the information technology space, health system leaders have created a sustainable, repeatable process for identifying what works and what doesn't in that area.

One example of a successful project led by the Digital Health team was the redesign of the MyBSWHealth app. The app, which interfaces with the health system's EHR, offers a simple, streamlined experience for current and prospective patients by allowing them to search for providers, conduct telehealth visits, and check wait times at walk-in clinics near their homes.

Baylor Scott & White Health also recognizes that it can't and shouldn't do everything alone. The health system actively participates in several learning collaboratives, sharing ideas and best practices with other organizations leading the way in transforming patient care. For example, Baylor Scott & White Health launched a sepsis quality improvement initiative several years before there was a CMS core measure tracking performance on care processes for sepsis. Building partnerships with organizations who shared a common goal greatly accelerated the health system's own efforts. Benchmarking their progress against other health systems also helped leaders understand how well the organization was performing long before sepsis data were publicly reported.

Valuing the Role of Staff in Continuous Improvement

Having a data infrastructure able to generate insights and a culture that supports improvement based on those data are critical to being a health system that iterates and learns, but neither is possible without having the people in place to do the work. "Attract the talent you need," advises Dr. McWhorter. "You can bring in consultants to build your foundation, or you can invest in assembling people internally who can also sustain that work over time," he explains.

"You have to make sure that every safety and quality initiative you roll out is taught in the onboarding and orientation process because it's new to each new employee."

— Janice Walker, D.H.A., Senior Vice President and Chief Nursing Officer

Baylor Scott & White Health opted to build its workforce and invest in people with the data analysis and research skills to incorporate learning and knowledge generation into day-to-day operations.

It has, for example, set up an internal technology team to operate its Digital Health Office. Similarly, it has prioritized identification and support of people trained in rigorous research and analytics methodologies who can apply their knowledge to using data in a cycle of continuous improvement. Baylor Scott & White Health's chief clinical effectiveness officer, for example, is a physician who also holds a master of science degree in clinical investigation; the director of clinical effectiveness informatics received a doctoral degree in epidemiology and has skills suited to undertaking complex clinical data analytics for the system service lines.

Baylor Scott & White Health has identified another aspect to being an LHS: the role of research in improving clinical care. About 25 percent of the health system's research funding comes from its operating budget, reinforcing the notion that research activities aimed at immediately benefiting patients or improving care delivery and health system operations are prioritized. Within the LHS framework, research can serve as a driver of innovation and care model transformation.

Health system leaders at Baylor Scott & White Health also emphasize the importance of continuously embedding knowledge across the organization. While a culture that values learning is needed, workforce structures must be in place to ensure that knowledge dissemination doesn't happen in one-off initiatives and that institutional know-how doesn't disappear when staff turnover occurs. "You have to make sure that every safety and quality initiative you roll out is taught in the onboarding and orientation process because it's new to each new employee," says Senior Vice President and Chief Nursing Officer Janice Walker, D.H.A.

Key Takeaways

Baylor Scott & White Health has worked to solidify its role as an organization that prioritizes learning and knowledge generation as part of its day-to-day operations to ensure patients get the best care possible. "A learning health system is one that can acquire data from day-to-day clinical operations to generate new insights that are then applied towards care improvement efforts," says Dr. Masica. "It's hard to debate that we should be doing this. But the extent to which health systems actually execute this approach is highly variable."

Health system leaders at Baylor Scott & White Health have done so by focusing on building the organization's data infrastructure, fostering a culture that empowers staff to use evidence for decision making and idea generation, and putting the right people and resources in place so that evidence can inform practice in a continuous cycle of improvement.

Health system leaders stress that becoming an LHS is no longer optional; organizations must be evidence-based in order to continue to achieve high-quality patient care. They also caution that the return on investment can appear piecemeal at first, observed in the small changes such as reduced infection rates or decreases in the use of unnecessary medical care.

Dr. Stauffer uses an example from the tech sector to highlight how health systems must evolve. He notes that Amazon didn't set out to create Amazon Web services; it created an online bookstore and then decided to host it. Eventually, Amazon learned from its own operations and recognized new market opportunities. "Healthcare systems must likewise invest in themselves—to learn, iterate, and be sustainable businesses that safeguard the health and wellness of their patients," he says.