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THE FUTURE OF HEALTHCARE STRATEGY:
LAYING THE GROUNDWORK WITH DIGITAL HEALTH TECHNOLOGY

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THE EXEC: REIMAGINING HEALTHCARE WITH A DATA EVANGELIST

By Eric Wicklund

Azizi Seixas, PhD, who is chairing the University of Miami Miller School of Medicine's new Department of Informatics and Health Data Science, talks about the benefits and challenges of using data in healthcare.

KEY TAKEAWAYS

> In an effort to get a better handle on how data is collected and used, the University of Miami Miller School of Medicine has launched the Department of Informatics and Health Data Science.

> Its interim chair is Azizi Seixas, PhD, a noted data evangelist, director of the Media and Innovation Lab and Population Health Informatics at the school's Institute of Data Science and Computing and associate director of the Center for Translational Sleep and Circadian Sciences.

> Seixas says he's leading a new department that "represents a transformative shift in how healthcare is practiced," moving from a reactive model to a proactive one.
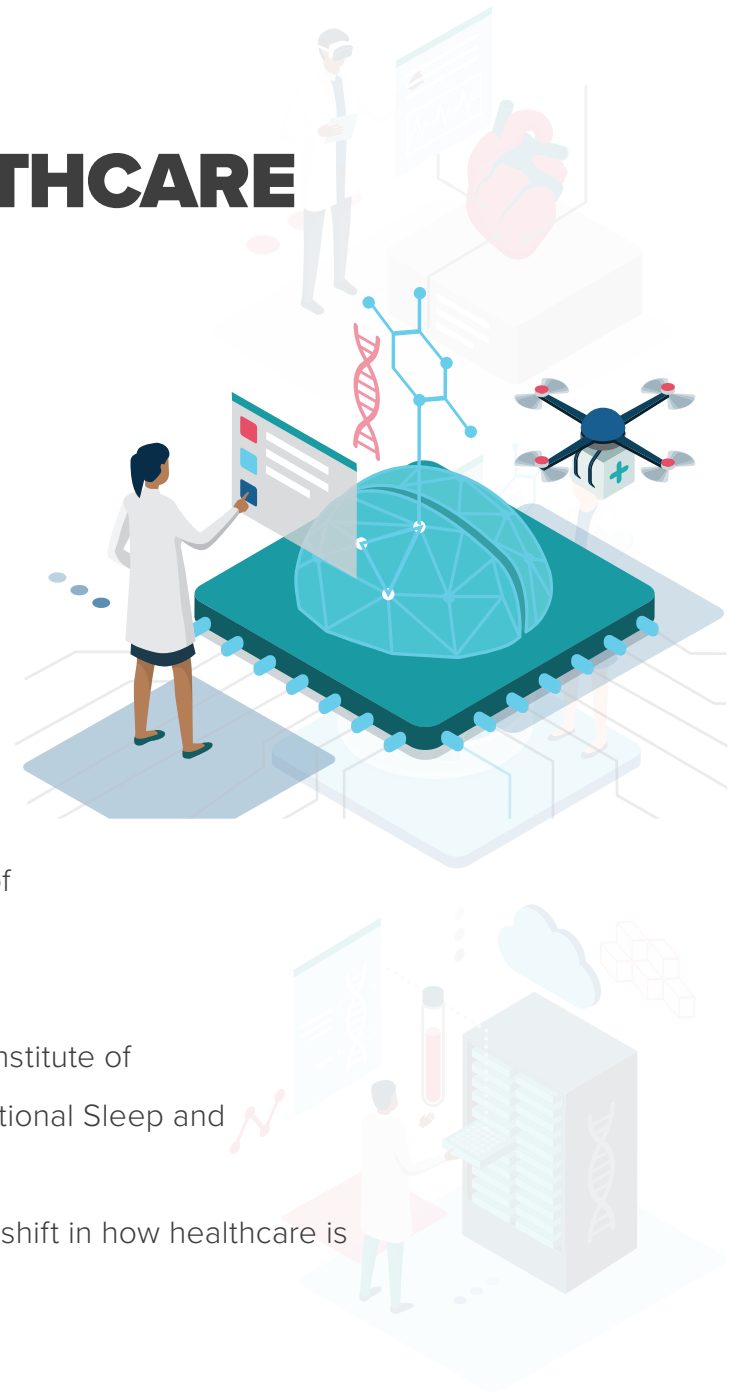
Q. This is a new department. How was it created?

Seixas: The Department of Informatics and Health Data Science was created at the University of Miami Miller School of Medicine to address the growing need for health data analytics and informatics in today's rapidly changing healthcare landscape. The department's focus is on developing innovative solutions to enhance patient care, improve health outcomes, and optimize the use of healthcare resources through the use of data-driven approaches. With the increasing importance of data in healthcare decision-making and research, the [department] is committed to training the next generation of healthcare informatics professionals and advancing the field through cutting-edge research and partnerships with industry leaders.

Q. How will this department affect how healthcare is measured and delivered?

Seixas: By leveraging advanced data analytics, machine learning, and artificial intelligence techniques, the department will enable healthcare providers to identify patterns, trends, and insights in patient data that were previously undetectable.

Azizi Seixas, PhD, interim chair of the University of Miami Miller School of Medicine's Department of Informatics and Health Data Science. Photo courtesy University of Miami Miller School of Medicine.

This will not only improve patient outcomes and reduce the cost of care, but it will also facilitate the development of more effective treatment protocols, personalized medicine, and innovative medical devices. Additionally, the department will develop new methodologies for managing and analyzing health data, making it easier to securely store, access, and share data across different institutions.

Ultimately, the creation of this department represents a transformative shift in how healthcare is practiced, moving from a reactive model that responds to acute illnesses to a proactive model that focuses on preventing disease and optimizing health outcomes through data-driven insights.

Q. What technologies will you be using?

Seixas: We will be focusing on a range of technologies to improve healthcare delivery and outcomes. This includes leveraging the power of artificial intelligence (AI) and machine learning to analyze complex health data and develop predictive models for disease prevention and management. We will also be using digital technology to improve communication and collaboration among healthcare providers, as well as implementing remote patient monitoring to enhance patient care and access. We will also be trailblazing cloud and edge computing to facilitate the use of internet-of-things digital devices for real-time patient care whereby patients can be monitored at home and provide real-time insights to improve and achieve health and wellness.

In addition, our department will be exploring the use of digital biomarkers and digital therapeutics to personalize treatments and optimize health outcomes for patients. We believe that by integrating these cutting-edge technologies into healthcare, we can revolutionize the way healthcare is delivered and improve the lives of patients across the globe.

Q. What are the challenges you see ahead in obtaining and using data?

Seixas: There are several challenges that we anticipate. One of the biggest challenges is data quality, as there is often incomplete or inaccurate data that needs to be cleaned and standardized before it can be used effectively.
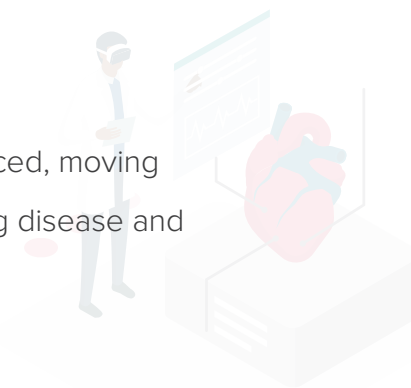
Additionally, there are concerns around data privacy and security, which need to be carefully managed to ensure patient confidentiality and compliance with regulations.

Another challenge is interoperability, as different systems and platforms may use different data formats and structures that need to be reconciled for meaningful analysis. Finally, there are issues around data ownership and access, as different stakeholders may have competing interests in how data is collected and used. Addressing these challenges will be critical to maximizing the potential of health data for improving patient outcomes and driving innovation in healthcare.

Q. What new technologies or strategies do you want to use? What's on the horizon?

Seixas: The [department] is focused on leveraging new and emerging technologies to advance healthcare. One exciting area of focus is digital twins, which can facilitate precision and personalized population health. By creating digital representations of patients, clinicians and researchers can gain a deeper understanding of individual health and develop personalized treatment plans.

Other technologies and strategies we are exploring include advanced analytics, machine learning, and remote patient monitoring. We are also committed to addressing the challenges around data privacy, security, and interoperability to ensure that data is collected, analyzed, and used in an ethical and responsible manner. Overall, our goal is to improve patient outcomes and transform the way healthcare is delivered through innovative uses of technology and data.

Q. How will health systems be able to learn from your department? What do you hope to teach them on how to gather and use data?
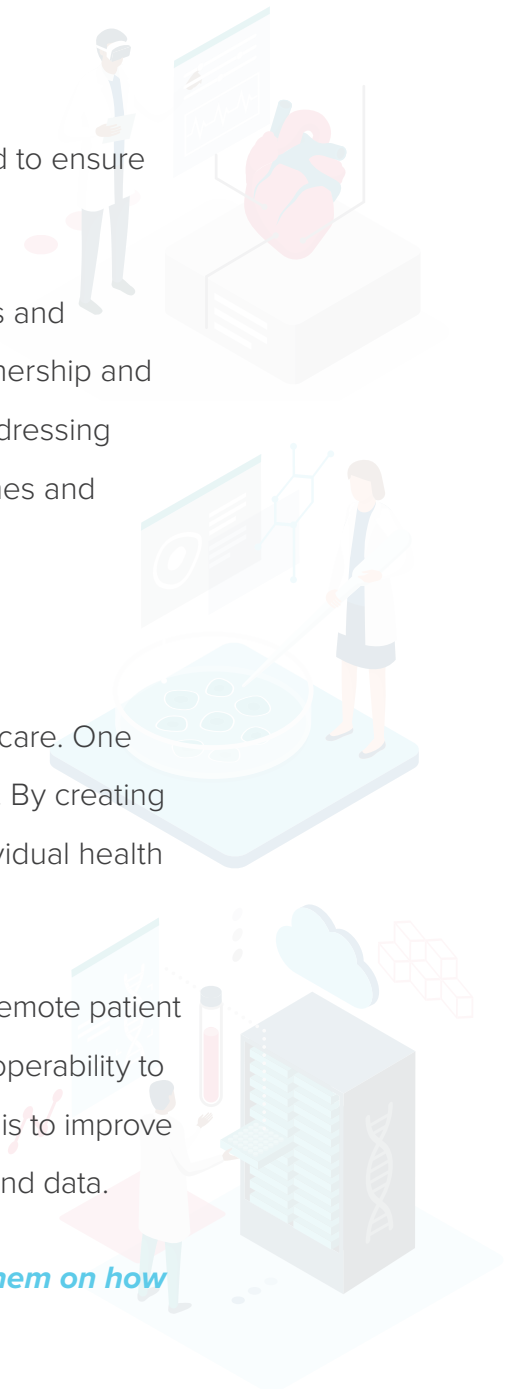
Seixas: In addition to helping healthcare systems learn how to gather and use data, we also hope to work closely with life sciences and clinical operations to advance innovation in these areas. Our department will provide training and education on cutting-edge technologies such as AI, machine learning, and digital biomarkers, as well as offer courses on precision and personalized population health, digital therapeutics, and remote patient monitoring.

Through these efforts, we aim to create a new cadre of medical providers and scientists who are innovative and have a deep understanding of how to leverage data and technology to improve patient outcomes. This will ultimately lead to better decision-making, more efficient operations, and improved overall quality of care.

Additionally, we plan to collaborate with life sciences and clinical operations [department] on research projects that leverage the power of data and technology to accelerate drug discovery, improve clinical trials, and optimize care delivery. Our goal is to create a symbiotic relationship between the various stakeholders in healthcare, all working towards the common goal of advancing patient care and improving health outcomes.

Q. Are there specific programs or services offered by health systems that you feel this department can refine or improve?

Seixas: There are several programs and services offered by health systems that we believe our department can help refine and improve through digital transformation. Our focus is not on any one specific department, but rather on collaborating across all areas of the health system to drive innovation and improve patient outcomes. We will also be instrumental in the digital transformation of the University of Miami Miller School of Medicine.
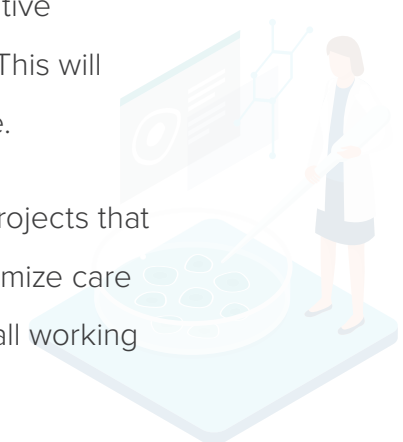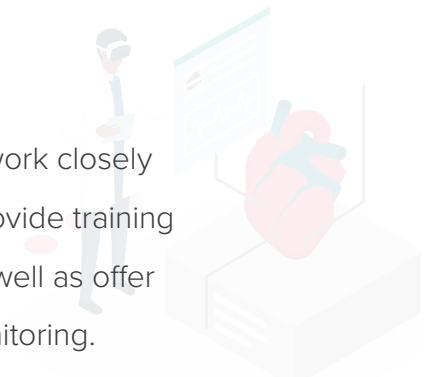
One area of particular interest is improving the efficiency and effectiveness of clinical trials through the use of digital technologies such as AI, machine learning, and digital biomarkers. We also aim to improve the delivery of care through the use of remote patient monitoring, digital therapeutics, and other digital technologies that can help patients better manage their own health.

"The use of AI and technology can help alleviate some of these burdens and allow for more focus on patient care."

Q. Are there any trends or practices in healthcare now that you would like to end? In other words, what are healthcare providers doing wrong?

Seixas: One trend that I would like to see change is the overreliance on hospital-based care.

Many medical procedures and treatments can now be provided at home, with the right technology and support. Additionally, decentralizing healthcare by making it more accessible to all, including those in underserved and remote areas, is crucial. Healthcare providers are not doing anything wrong, but they are often overwhelmed and suffer from huge burnout.

The use of AI and technology can help alleviate some of these burdens and allow for more focus on patient care. We will be focusing on developing innovative solutions that empower patients and healthcare providers, and promote healthcare at home and decentralized care. We hope to be key players in the digital transformation of healthcare and to help improve the overall health of our communities.
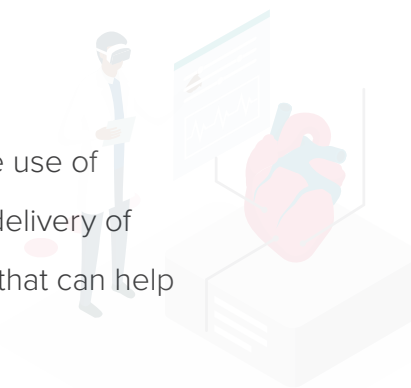
*Q. Do consumers or patients have a role to play in this department?*

Seixas: By using digital technology and tools such as patient portals, wearables, and remote monitoring devices, patients can actively participate in their own healthcare and contribute to the collection of health data. Additionally, patient feedback and input can be used to improve healthcare delivery and inform the development of new technologies and strategies. The department also aims to educate patients and the general public about health data science and the importance of data-driven healthcare decisions.

Q. How do you see your work evolving in, say, 10 years?

Seixas: In the next 10 years, we expect to see significant advancements in healthcare technologies and data science. Our department will continue to stay at the forefront of these developments and help shape the future of healthcare delivery.

We see ourselves expanding our partnerships and collaborations with other institutions and industries to drive innovation and improve patient outcomes. We also anticipate a greater emphasis on precision and personalized medicine, with the use of digital twins and other cutting-edge technologies becoming more commonplace.

Our focus will remain on using data-driven insights to improve healthcare delivery and patient care. Ultimately, we hope to be at the forefront of a paradigm shift in healthcare, where digital technology and data science play an integral role in shaping the future of medicine.■
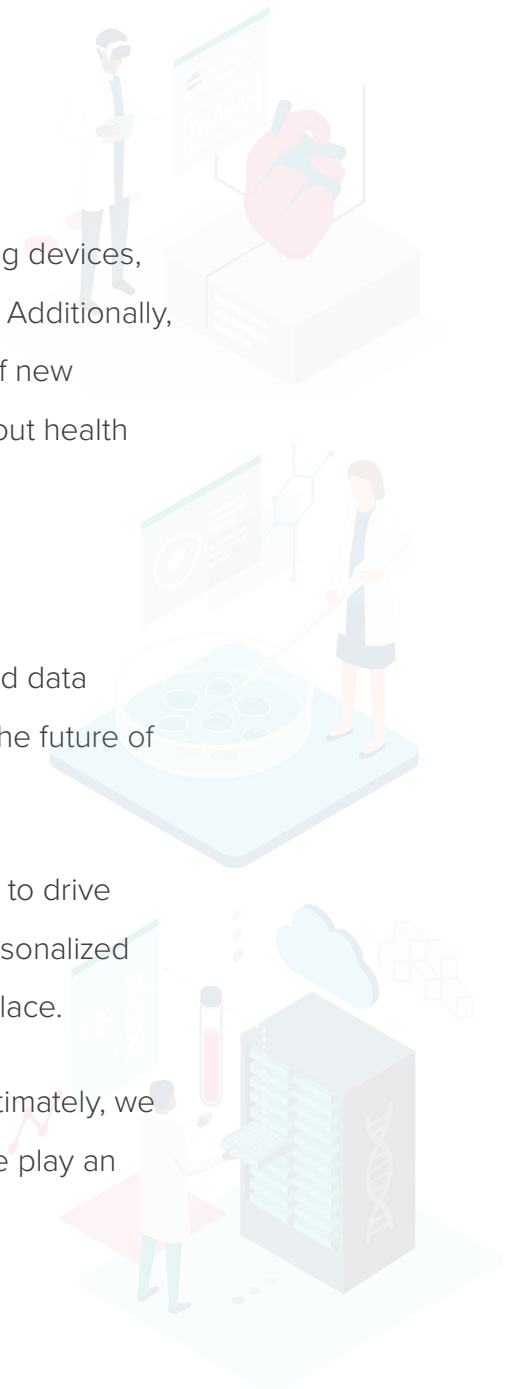
MAKING THE CONNECTION: TRANSFORMING YOUR POINT OF CARE THROUGH GREATER CONNECTIVITY

By Midmark

A fully connected point of care ecosystem is becoming more of a reality as new technologies with greater connectivity are introduced to the industry. A connected ecosystem integrates processes, equipment and caregivers at the point of care to significantly enhance the patient/caregiver experience and improve the quality of care provided in the non-acute environment. It also helps ensure a more satisfying, seamless patient experience by providing a platform where organizations can leverage new technologies, incorporate best practices and employ greater standardization to improve quality of care and outcomes. -

BENEFITS OF A CONNECTED ECOSYSTEM

Connectivity for connectivity sake is not a strategy. And just because something can be connected, doesn't mean it should be. Identify connected technologies that make sense for your patients and care teams and then determine the best way to integrate those technologies strategically and seamlessly into your workflows. Only then can you realize tangible benefits, which can include:

- **Expanding the point of care.** While clinical encounters have traditionally occurred in an exam room setting where caregivers meet with patients in person, that practice continues to be challenged. Greater connectivity provides the digital foundation needed to expand the point of care outside of the traditional model, such as with the use of telehealth.

- **Enabling efficiency and standardization.** Greater connectivity in non-acute environments provides a platform for bringing together every aspect of care to eliminate barriers and inefficiencies by integrating processes, equipment and people. For instance, less manual steps for entering data can help eliminate transcription errors, while automating the vital signs acquisition process can help ensure a higher level of standardization.

Midmark Exam Room

- **Using data to improve outcomes.** A connected point of care ecosystem helps put accurate, actionable and relevant data at the physician's fingertips. Not only will it help improve outcomes, it also allows physicians to use their valuable time more effectively with patients at the point of care.

- **Preparing the exam room for future technologies.** A connected ecosystem provides a foundation from which capabilities can be expanded with new technologies, such as artificial intelligence (AI) and machine learning. For instance, when disparate data sources are combined with modern smart analytics, the "data snapshot" of the patient can basically go from a blurry 2-D picture to a high-resolution 3-D image.
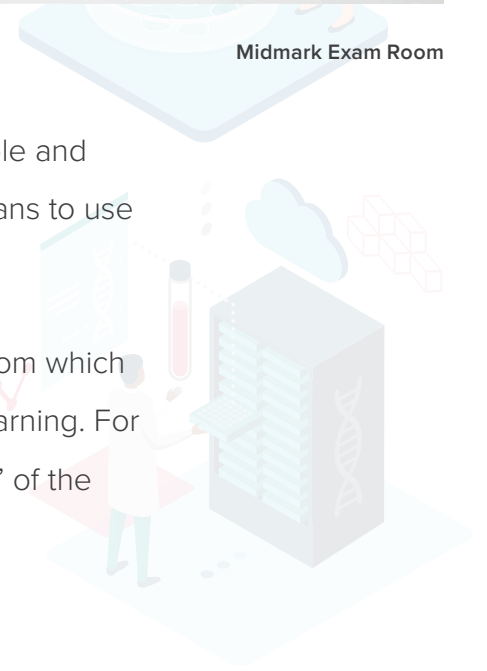
# THE IMPORTANCE OF SEAMLESS INTEGRATION

While there are many benefits of a connected ecosystem, one thing that cannot be overlooked is the need for seamless integration. It can be challenging to integrate technology seamlessly to ensure the intimate and humanistic aspects involved in care delivery are maintained.

The introduction of electronic medical records (EMRs) to the point of care showed us what happens when they are not. As many of you know—and may have experienced firsthand—the EMR technology was not designed with the patient-physician relationship and interaction in mind. As a result, the introduction of the technology initially brought longer wait times, decreased patient satisfaction and caregiver burnout.

The following are five considerations vital to help ensure a truly seamless deployment of new technology at the point of care.

1. **Compatibility.** In order to make informed connectivity decisions, you need to evaluate potential technologies within the context of your current clinical environment and how it performs, as well as any business objectives and growth strategies. Will existing workflows need to be changed? How does the technology impact the provider-patient experience? Is it flexible enough for projected growth? What value does it offer to the quality of care provided?

2. **Exam room workflow.** When it comes to your point of care workflows, there are two ways to look at the technology in question. First, determine how the technology might fit into your existing workflows. Second, identify whether the technology would require a completely new workflow to be created. Real-time locating
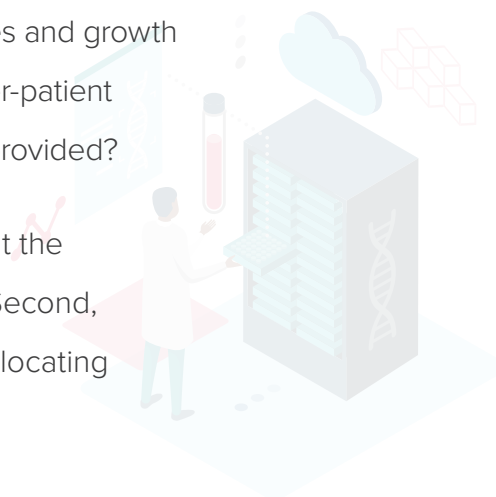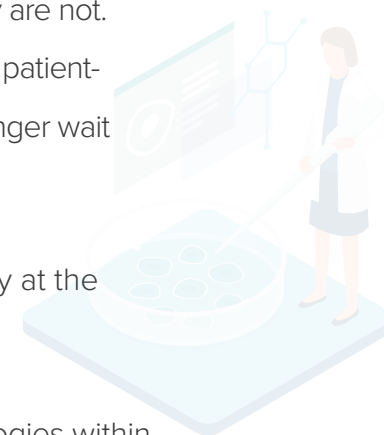
system (RTLS) technology provides insight into how a clinical environment is performing. RTLS makes capturing accurate workflow data possible, as well as providing a vast amount of retrospective detail.

3. Connectivity. Technological advancements are bringing us closer to realizing a fully connected digital ecosystem where point of care processes, equipment and caregivers are integrated to help enhance the care delivery experience for you and your patients. As you look at new technology, identify the level of connectivity it offers and how it will connect with the digital ecosystem you are creating.

4. Delivery and setup. Coordinating equipment and technology deliveries to outpatient facilities are often complicated. Without proper installation or integration, promised performance levels and benefits may fall short of expectations. Research each product and develop a delivery and setup plan. Ask your equipment or technology vendor if they offer delivery setup and/or integration teams that can seamlessly connect the equipment or technology into your unique clinical environment.

5. Staff engagement. It is important to let your staff know what's coming, answer their questions and address their concerns, and explain the benefits of the technology. Staff engagement also means offering structured, hands-on training with the technology and an opportunity to share feedback during the early stages of implementation. When managed properly, the initial negative reaction some staff may have to the changes introduced by new technologies can be effectively minimized and eventually eliminated.

Since integrating connected technology into your non-acute environment can present many challenges, Midmark Delivery Services provides trained integration teams for systems and technology installation. These teams engage

early in your project with the product knowledge and clinical expertise needed to help ensure that your connected solutions are seamless and best suited to your unique clinical workflow. Along with setup and configuration of all Midmark digital diagnostic products, they also perform a final quality audit to ensure the equipment is fully operational.

Increased connectivity at the point of care is making it easier to create seamless healthcare experiences. It helps eliminate barriers by integrating processes, equipment and healthcare providers to enhance patient and caregiver experiences and improve the quality of care delivered and outcomes realized.

For more information, visit the Midmark Design Center. ■
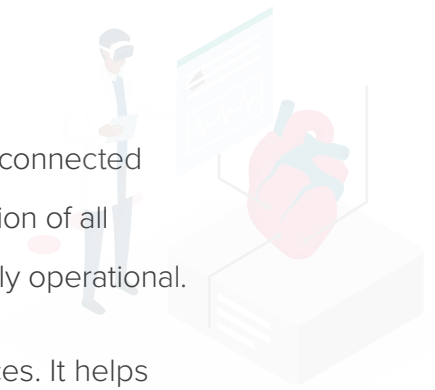
HOW DIGITAL HEALTH LAYS THE GROUNDWORK FOR FUTURE HEALTHCARE STRATEGY

By Eric Wicklund

Baptist Health in Arkansas is adapting digital health tools and platforms to improve inpatient care, a pathway that may change how hospitals of the future do their business.

KEY TAKEAWAYS

> Healthcare organizations are integrating in-person and virtual care to better meet patient needs and expectations and reduce traffic in hospitals

> This will change how hospitals are used in the future, with a strategy to treat more patients at home and save inpatient care for the sickest patients

> With that in mind, health systems are using new digital health tools and platforms and eyeing new strategies that improve workloads and bedside care, and deliver better data to the care team no matter where they are located

Virtual care technology is giving health system administrators new ideas on how to deliver care inside the hospital.

Baptist Health is one of many health systems using digital health to improve its ICU services and connect care providers throughout the Arkansas-based 11-hospital network, improving care at the bedside and enabling small, rural hospitals to reduce transfers and care for more patients. Executives say the platform, which has been in use for roughly 14 years, allows them to coordinate care from the main hospitals in Little Rock and give outlying hospitals with fewer resources the support they need.

"We're improving care at the bedside," says Kourtney Matlock, corporate vice president of population health. "We can expand our specialists' reach beyond our Little Rock locations and help [rural sites] keep more of their patients."

That's especially important as the health system deals with the pandemic, which has filled up hospital beds and strained workloads. And it will be important beyond COVID-19, as hospitals look to move services onto virtual platforms and reconfigure inpatient care so that those occupying hospital beds are the ones who really need hospital-based care.

"This isn't just about how we use technology," says Danny Kennedy, the health system's IS field services manager. "It's about how we use our hospitals."

Kourtney Matlock, corporate vice president of population health, Baptist Health. Photo courtesy Baptist Health.

As the healthcare industry moves toward the concept of hospitalizing the sickest patients, it's turning the concept of remote patient monitoring around. Telemedicine platforms and digital health tools are being deployed within the
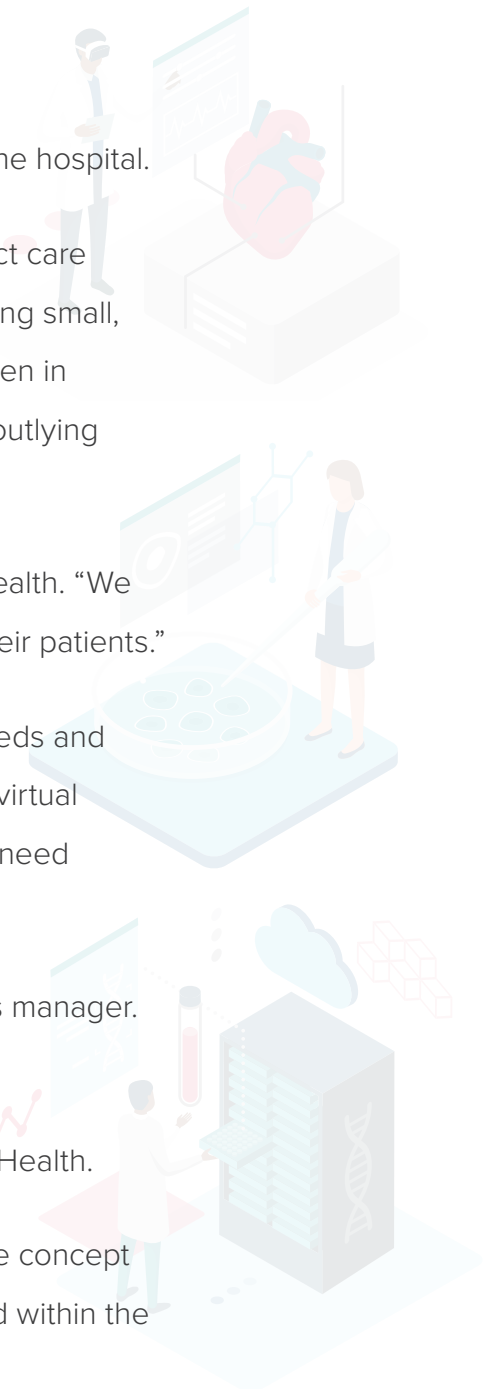
hospital setting to capture more patient data and send it directly to who most needs it, no matter where that care team member is located. That may be the nurse down the hall at a central station who's keeping track of all the patients in a specific area, the hospitalist in Little Rock assigned to watch patients in a small hospital a few hundred miles away, or the specialist who's keeping an eye on a patient with complex care needs at another hospital.
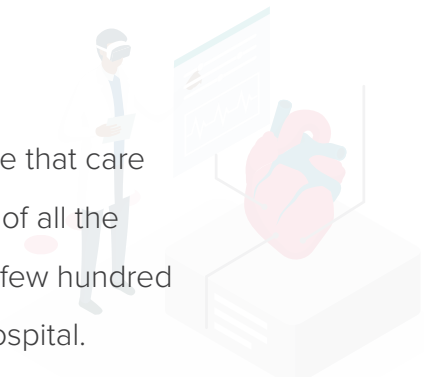
Matlock says Baptist Health had been using a physician group in Israel to remotely monitor its ICU patients up until 2019, when it shifted to a model that kept its care providers within the health system. That's been part of a long-term strategy, she says, to develop inpatient virtual care that makes the best use of staff and allows clinicians to practice at the top of our license.

"We've had a lot of these conversations for years," she says. "We want to be able to utilize our staff differently" and create workflows that benefit them.

Both Matlock and Kennedy say Baptist Health has had many physician champions for virtual care, but there were also a lot of clinicians who didn't want to move in that direction.

Danny Kennedy, IS field services manager, Baptist Health. Photo courtesy Baptist Health.

"A lot of physicians were skeptical at first," Kennedy says. "We could just never get them on board prior to COVID. Now they're coming to us."
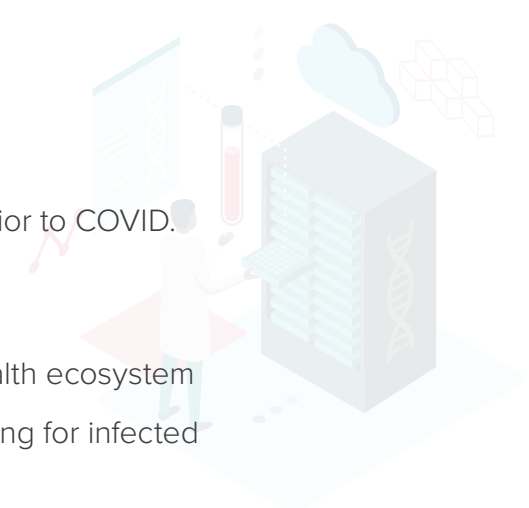
The pandemic changed that, bringing not only clinicians but entire health systems into the digital health ecosystem and cramming five to 10 years of innovation into two years. And while technology was trained on caring for infected

patients and reducing the chances of exposure for care teams, forward-thinking health systems were eyeing strategies that took them beyond the pandemic, where digital health would be used inside the hospital to refine and direct care to where it would be most needed.

That requires a different way of thinking, and one that is challenging health system leaders to recognize that tomorrow's hospital will be considerably different. It will involve more integration, as services are coordinated through digital health channels, and an understanding of how nurses and doctors can be redeployed to improve care management.

Remote patient monitoring will play a significant part in the reimagined hospital of the future, where patients receive more care at home. But that's still a ways off. Matlock notes that Baptist Health had been using an RPM program since 2003, but dropped it roughly two years ago because reimbursement wasn't there to support the service.

"It'll be back," she says. "I see it as one big offering."

It may also include the hospital-at-home concept being shepherded by the Centers for Medicare & Medicaid Services, which combines RPM, telehealth, and in-person services to care for patients at home who might otherwise be in the ICU. That could help hospitals relieve stress on inpatient services and give more patients an opportunity to recover at home, where studies have shown they tend to have more positive clinical outcomes.

Matlock expects that Baptist Health will use some of the technology and strategies they're now using in their ICUs to transition into a hospital-at-home program.
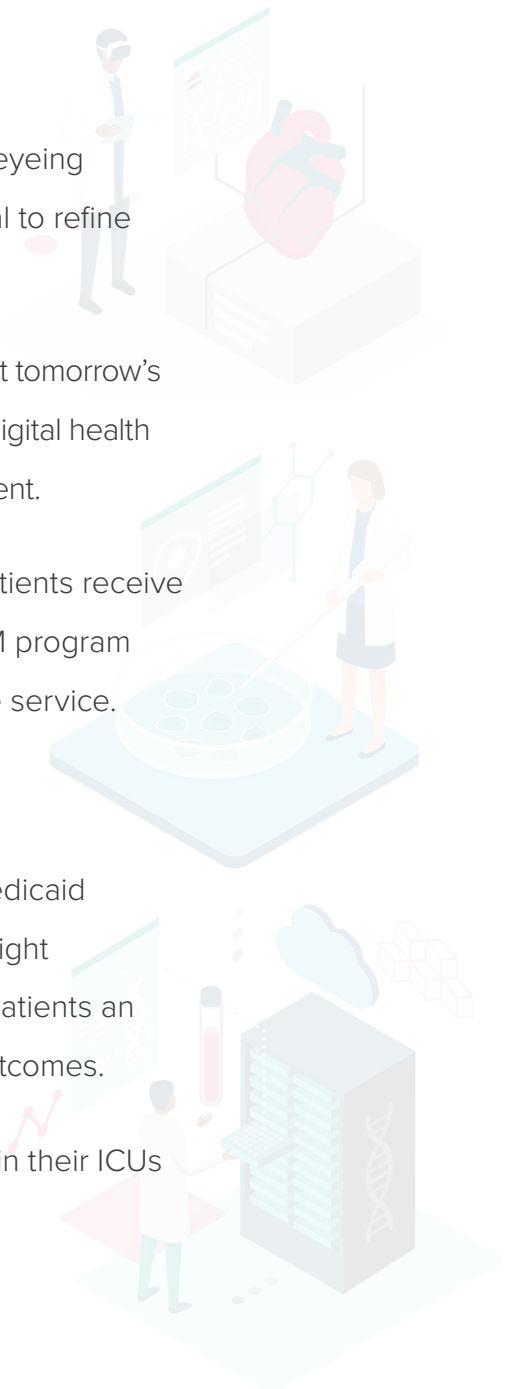
For now, the health system is focusing on the inpatient network. This includes coordinating care with the smaller, more remote hospitals in their network, where ICUs are either small or nonexistent and a patient transfer to a larger hospital might take dozens of phone calls. Linking to the larger hospitals in and around Little Rock enables those small hospitals to expand their ICU capabilities, even create ICU beds where they didn't have any, and care for more patients, keeping them closer to home and their families instead of shipping them off somewhere distant.

"He also notes that some clinicians were hesitant to embrace monitoring and caring for patients in other hospitals, fearing it would add to their workloads and be unreliable."

In some cases, Baptist Health is using telemedicine carts to manage care, and many rooms are being equipped with tablets that synch with a virtual care platform developed by New Jersey-based Caregility and the health system's Epic EHR, allowing not only providers to connect with the patient record but giving patients a means of connecting with friends and family, or for those who need interpreters.

"That was a big satisfier for us," says Kennedy.

He also notes that some clinicians were hesitant to embrace monitoring and caring for patients in other hospitals, fearing it would add to their workloads and be unreliable. But many were convinced as they used the technology, he says, and worked with clinicians in those other hospitals to coordinate care.

"Everyone is a lot more receptive to the concept now that they've used it," he says.
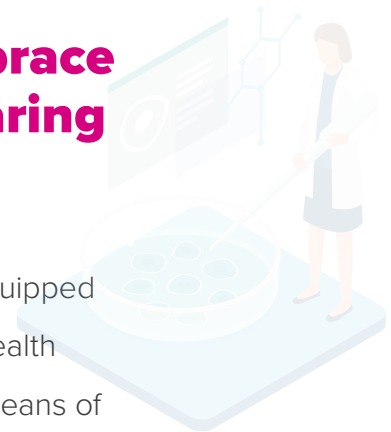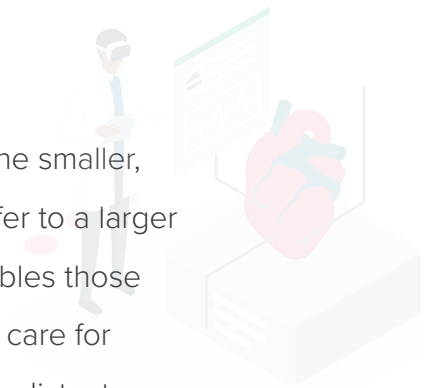
The platform has also allowed Baptist Health to expand the reach of its specialists, giving those smaller hospitals access to pulmonologists, infectious disease and wound care experts, and lactation consultants—neurology consults are being handled through a third party—with more services on the way. This once again allows those smaller hospitals to provide more and better care for the people in their surrounding communities, an important factor at a time when many small hospitals are struggling to stay afloat.

"This once again allows those smaller hospitals to provide more and better care for the people in their surrounding communities, an important factor at a time when many small hospitals are struggling to stay afloat."

Matlock says Baptist Health has been contacted by other healthcare systems about those services, but currently doesn't have the staff or the bandwidth to expand. She says the health system might someday fine-tune its platform to a point where it can market those services through a new business line.

All that is in the future, of course. But it's tucked into a long-term strategy that mirrors the direction of the healthcare industry. Health systems need to reimagine how care is delivered, expanding the platform to cover patients no matter where they need that care, and offering services that interact with the communities they serve. The hospital may sit at the geographical center of that platform, but it will no longer be where everyone goes to get care.∎
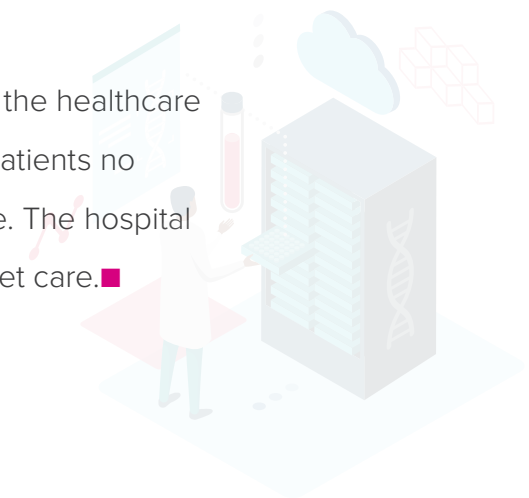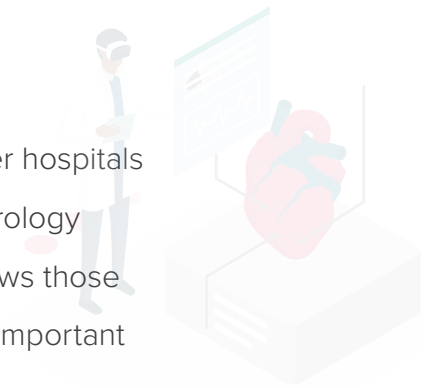
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