

INTRODUCTION

Healthcare in America faces a perfect storm of workforce challenges. As an unprecedented wave of burnout sweeps through the profession, healthcare workers are leaving in record numbers – with 40% of physicians planning to exit within three years and more than a quarter of nurses considering departure within just twelve months. This exodus comes at precisely the wrong moment: America is experiencing a dramatic demographic shift, with approximately 10,000 Baby Boomers turning 65 every day – a trend that will continue until 2030. This growing elderly population, which typically requires more frequent and complex medical care, is creating surging demand for healthcare services. Meanwhile, the shrinking workforce is further straining an already stressed system, creating a widening gap between healthcare supply and demand that threatens to fundamentally reshape access to medical care in the United States.

Technology offers promising solutions to help address this crisis, but implementing effective solutions across America’s diverse healthcare landscape presents its own challenges.

“We’re fully focused on unburdening clinicians from all the clerical work that crushes our souls at night,” said Dr. Shiv Rao, founder and CEO of Abridge, at the CHIME 2024 Fall Forum. “Healthcare is not a homogeneous industry - the needs of a rural community hospital serving 35,000 people look very different than those of an integrated delivery network with hundreds of clinics across multiple states. The challenge is developing technology that can both scale across healthcare while being personalized enough to serve the unique workflows and requirements of each organization.”

This paper explores solutions to these intersecting challenges based on panels from the Fall Forum track theme, Digital Tailoring: Creating Personalized Healthcare Experiences. By examining successful implementations of personalized healthcare technology, we provide a framework for organizations to develop tailored solutions that address the diverse needs of clinicians and patients while building trust through transparency, reliability, and credibility.

SOLUTIONS IN ACTION: FOUR IMPLEMENTATION SUCCESS STORIES

DIGITAL TAILORING FOR DIVERSE PATIENT POPULATIONS

Generative AI and ambient listening technologies are emerging as powerful tools to address healthcare’s administrative burdens while simultaneously improving the patient experience.

For example, healthcare systems serve communities with varying languages, cultural preferences, and healthcare literacy levels. This diversity requires technology solutions that can adapt to both patient and provider needs while maintaining consistent quality of care.

“Today, tens of thousands of conversations are happening in Vietnamese, Mandarin, and Spanish with the help of Abridge,” shared Dr. Rao. “At Reid Health, there’s at least one doctor who speaks Punjabi weekly to her patients. It’s been an epiphany for us over the past couple of years: technology must serve not only clinicians but also patients, accommodating their languages. Unlike the dictation systems I used as a cardiologist, this technology enables true conversations.”

Veena Jones, MD, and Medical Director at Sutter Health shared a similar success story with one of the family physicians she works with. The physician's practice includes more than 50% Mandarin-speaking patients who were able to immediately transition from human translation services to automated documentation that accurately captured conversations in both English and Mandarin. This technological advancement has enabled more natural, direct communication between providers and patients in their preferred languages.

The impact extends beyond basic translation. Cultural preferences and health literacy levels require different approaches to patient education, discharge planning, and ongoing care management. Healthcare organizations must adapt their technological solutions to support these varying needs while maintaining consistent quality of care.

The impact of personalized technology extends beyond basic translation into the complex world of healthcare documentation and revenue cycle management. Healthcare providers face the challenge of documenting care in ways that satisfy multiple stakeholders - patients who need clear visit summaries, other clinicians who need to understand clinical decision-making, and billing offices that require specific documentation for proper reimbursement. This documentation burden is particularly complex given the intricacies of medical coding.

Even experienced physicians struggle with the complex world of medical coding, where clinical care must be translated into precise documentation that satisfies both regulatory requirements and reimbursement rules. A single patient encounter can contain numerous billable elements that require specific documentation approaches - for instance, a diagnosis may need explicit "meet criteria" documented, or certain phrases like "history of" must be avoided to prevent negative impacts on risk adjustment scores. While medical coders excel at applying standardized codes from systems like ICD-10 and CPT, they often lack the clinical context to fully interpret physicians' notes or identify documentation gaps. Meanwhile, physicians focus primarily on patient care rather than mastering the intricate and constantly evolving coding requirements.

Traditional approaches to bridging this gap, such as "lunch and learns" with clinical documentation improvement teams, often result in physicians' eyes glazing over as they try to absorb complex billing rules that feel disconnected from their core mission of patient care. This disconnect between clinical care and documentation requirements can lead to missed revenue opportunities and frustration on all sides.

The challenge is not just about knowing which codes to use, but understanding how to document care in a way that accurately reflects the complexity of medical decision-making while satisfying the technical requirements for proper reimbursement.

"In this country, we're compensated not for the care that we delivered, we're compensated for the care that we documented that we delivered," shared Dr. Rao. By using coding-aware ambient AI technology, healthcare organizations can move beyond the current standard, yet dysfunctional, approach to medical coding and capture all revenue for the work they do.

The return on investment (ROI) for these technological solutions manifests in multiple ways. At Reed Health, the implementation of AI-assisted documentation led to an immediate and dramatic reduction in after-hours documentation time - known in the industry as "pajama time." Their analysis showed that a group of ten doctors previously spent 80-90 hours on after-hours documentation, which was reduced by approximately 80% after implementation. This improvement not only represents direct cost savings but also significantly impacts physician satisfaction and work-life balance.

The success of these implementations demonstrates that while healthcare organizations may have unique needs based on their size, location, and patient population, technology solutions can be tailored to address these variations while still delivering scalable improvements in efficiency, accuracy, and patient care.

DIGITAL TAILORING IN RURAL HEALTHCARE: GUTHRIE CLINIC'S VIRTUAL COMMAND CENTER

When The Guthrie Clinic faced a critical staffing challenge across its sprawling 10,000-square-mile service area in New York and Pennsylvania, they knew traditional solutions wouldn't suffice. Their ICUs were heavily staffed with traveling nurses - a \$7 million annual expense that was draining resources without building long-term capacity. Meanwhile, their dedicated full-time nurses averaged just three years of experience, creating a pressing need for more seasoned guidance. Rather than continue down this unsustainable path, Guthrie's leadership launched an innovative virtual nursing program.

The program relies on a virtual command center where experienced Guthrie nurses serve as virtual ICU specialists and medication nurses, extending their expertise across the organization's entire network. By staffing these positions with their own nurses rather than outsourced staff, Guthrie maintains the personal touch and deep understanding of local communities that has always been central to their mission. This approach creates a supportive environment where less experienced bedside nurses can tap into the wisdom of seasoned colleagues at any moment.

The impact has been transformative. Patient falls with injury dropped by 40%, while ICU stays shortened by nearly a full day. Perhaps most touching are the improvements in patient experience - across all six participating hospitals, patients consistently report better understanding of their discharge instructions, with Press Ganey scores rising 3-6%. For nurses, the program has been equally life-changing, saving 700 nursing hours - equivalent to 58 twelve-hour shifts - in just one quarter, while practically eliminating the need to stay late documenting care.

Behind these impressive numbers lies thoughtful attention to the daily rhythms of hospital life. Virtual nurses start their shifts at 6 AM, ensuring extra support during the critical handoff period when errors often occur. The virtual nursing team works hand-in-hand with bed placement, transfer operations, telemetry monitoring, and security staff, creating a seamless system that supports better care across Guthrie's entire network.

Through this innovative approach, Guthrie is showing how rural healthcare organizations can leverage technology to provide outstanding care while supporting their workforce - proving that with creativity and commitment, geography need not be a barrier to excellence in healthcare delivery.

DIGITAL TAILORING IN RURAL HEALTHCARE: GUTHRIE CLINIC'S VIRTUAL COMMAND CENTER

Memorial Healthcare's Care Coordination Center is an excellent example of how to scale personalized care across a major health system. Serving six hospitals and 3 million people in a geographically concentrated area of Florida, their comprehensive approach demonstrates how advanced technology can transform healthcare delivery while maintaining personal connections with patients.

The center's recent implementation combines multiple cutting-edge elements. At its core, AI-enabled patient monitoring works alongside Epic integration to enable sophisticated patient observation with a 1:20 staff-to-patient ratio - a dramatic improvement from traditional one-to-one observation models. The system incorporates remote patient monitoring for value-based care populations and supports an emerging hospital-at-home program, creating a flexible framework for care delivery across multiple settings.

Their 30-person care coordination hub functions like a healthcare mission control center, managing everything from patient transfers to virtual observation. The technology infrastructure supports multiple use cases: virtual patient observation, remote monitoring of high-risk patients, coordination of patient transfers between facilities, and management of their value-based care population. This integrated approach has virtually eliminated patient falls in monitored areas while significantly improving resource utilization across the system.

The center improved patient transfer times and enhanced communication between care teams, but equally important, it increased satisfaction among both staff and patients. Staff report feeling more supported and better able to focus on direct patient care, while patients benefit from more consistent monitoring and faster response times to their needs.

The program's success relies heavily on change management and stakeholder engagement. Despite initial resistance and concerns about technology replacing human interaction, the center has demonstrated that technology can enhance rather than diminish the human elements of healthcare. The result is a scalable model for personalized care that maintains high care quality while improving operational efficiency.

DIGITAL TAILORING FOR PRECISION MEDICINE: FREDERICK HEALTH'S GENETIC INTEGRATION MODEL

Frederick Health's implementation of precision medicine demonstrates how technology can transform clinical decision-making through intelligent integration of genetic and pharmacogenomic data. Their pioneering program embeds discrete genetic information directly within their EMR, providing physicians with actionable insights precisely when they need them during patient care.

"For pharmacogenomics, we are doing tests on the medications your genes process. You actually have about five genes that help process about 75% of the medications that you take," explains Rice. This genetic information appears as intuitive green, yellow, and red alerts during medication ordering, making complex genetic data immediately useful in clinical decisions. The system updates weekly to incorporate new research, ensuring clinicians always have access to current evidence-based recommendations.

The program's success stems largely from its seamless integration into existing clinical workflows. Rather than requiring providers to access separate systems or take additional steps, genetic insights appear automatically within their normal EMR experience. This integration extends to clinical decision support, where genetic information helps guide treatment choices without disrupting the natural flow of care.

"One of our employees had a daughter who was at college and not functioning well. She was on Lexapro and not doing well for almost a year. The doctor kept increasing her dose," Rice shares. After genetic testing revealed she was a rapid metabolizer of the medication, her treatment plan was adjusted, resulting in significant improvement.

The program maintains financial sustainability through multiple channels. Beyond direct patient care improvements, it enhances clinical trial matching capabilities, improves documentation accuracy, and reduces adverse drug events. The system also creates new revenue opportunities through more appropriate medication management and increased clinical trial participation.

THE PATH FORWARD: BALANCING SCALE AND PERSONALIZATION

The path forward requires a thoughtful balance of standardization and personalization. While technology must scale efficiently across healthcare systems, it must also flex to accommodate the diverse needs of different care settings, from rural critical access hospitals to urban academic medical centers. As the healthcare landscape continues to evolve, organizations that wait to modernize their technology approach risk falling further behind. Those that move forward thoughtfully, using the frameworks and lessons outlined in this paper, can begin creating healthcare environments that work better for everyone - patients, providers, and health systems alike.

“We’re already achieving meaningful results with these technologies today, but there’s so much more opportunity ahead,” said Dr. Rao.

The future of healthcare technology lies not in forcing standardization, but in creating scalable solutions that can adapt to diverse needs while building trust through transparency, reliability, and credibility. By embracing this approach, healthcare organizations can begin bridging the widening gap between healthcare supply and demand, creating a more sustainable future for American healthcare.

ABRIDGE

Digital Tailoring: Creating Personalized Healthcare Experiences

The logo for CHIME (Center for Health Information Management and Evaluation) features the word "CHIME" in a bold, blue, sans-serif font. Above the letters "I" and "M" are three curved, overlapping lines in shades of blue and green, suggesting a globe or a network. A registered trademark symbol (®) is located to the upper right of the "E".

DIGITAL HEALTH LEADERS