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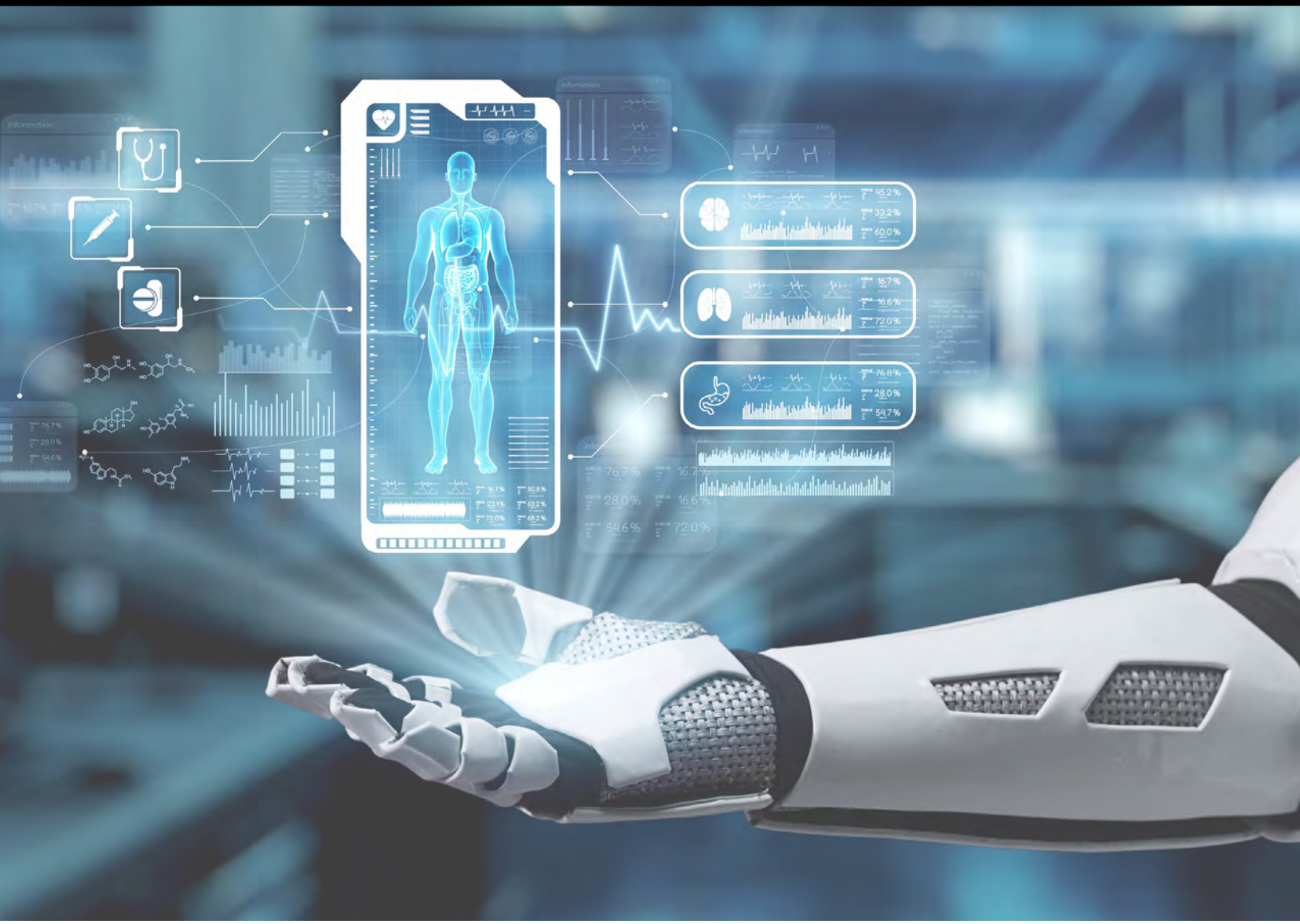

KNOWLEDGE EXCHANGE

AI-powered Health Care: Optimizing Clinical Workflows and Elevating the Patient Experience

Transforming workforce strategies for intelligent technologies

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Introduction

AI-powered Health Care: Optimizing Clinical Workflows and Elevating the Patient Experience

Transforming workforce strategies for intelligent technologies

Artificial intelligence (AI) is revolutionizing health care by optimizing clinical workflows and driving more personalized, efficient and proactive patient care. As adoption accelerates, hospitals and health systems are integrating AI and machine learning (ML) into decision support, diagnostics and administrative operations, driving better outcomes while navigating trust, transparency and scalability challenges. These technologies unlock real-time insights, allowing clinicians to process vast amounts of medical data with unprecedented speed and precision. Using AI to support clinicians develop personalized treatment plans — tailored to genetic profiles, lifestyles and past responses — are transforming patient care, helping ensure that interventions are targeted and effective. In addition, AI empowers patients by delivering more accessible, customized health information, enabling them to actively participate in their own well-being.

This Knowledge Exchange e-book highlights how health leaders are deploying AI and ML, what's needed to scale responsibly and how to navigate the ethical and operational implications of intelligent technologies in health care

Strategic Thinking

10 Strategies to drive transformation and build trust in the AI-enabled health system

1 **Invest in training and data infrastructure.** Modernize data ecosystems to support AI accuracy. Provide hands-on AI education for clinicians, residents and staff.

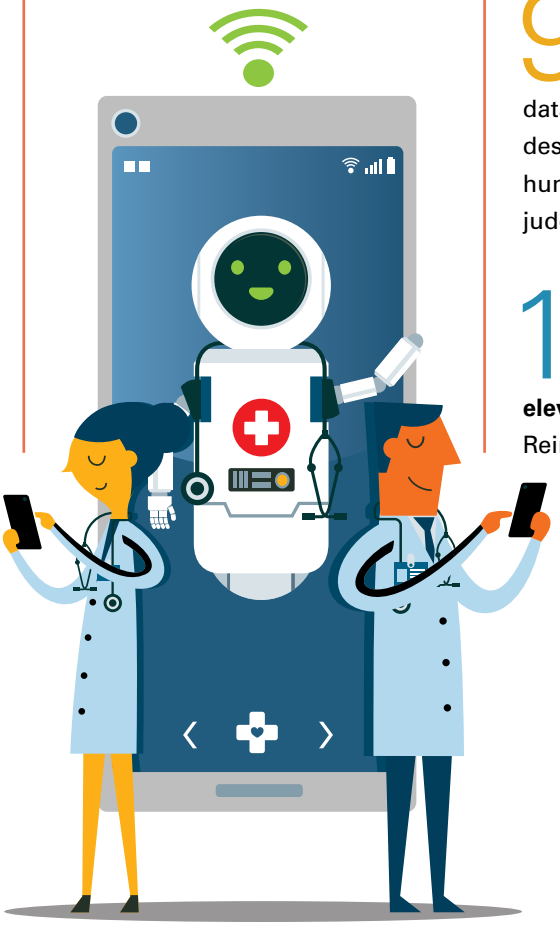
2 **Co-design with clinicians from Day 1.** Involve front-line teams in AI design and deployment. Ensure that tools reflect real-world workflows and integrate with existing systems.

3 **Build trust through transparency and pilots.** Launch structured pilots with clear goals and feedback loops. Demonstrate measurable outcomes and leadership-led adoption.

4 **Streamline clinical workflows with ambient AI tools.** Use ambient listening and note generation to reduce administrative burden. Free up clinicians for high-value tasks like decision-making and patient communication.

5 **Transform patient touchpoints into real-time, consumer-grade experiences.** Deploy chatbots, triage tools and digital front doors for 24/7 access. Meet consumer expectations for on-demand, personalized care.

6 **Redesign workflows and reskill to prioritize empathy, judgment and high-value decision-making.** Shift clinician roles from data collection to strategic care delivery. Train for tech fluency and critical thinking in an AI-augmented environment.



7 **Shift from reactive to proactive care with predictive analytics.** Use AI to anticipate risks and intervene early. Reduce hospitalizations and improve long-term outcomes.

8 **Personalize care plans to foster trust and improve care outcomes.** Support clinicians tailor treatments using genomics, lifestyle data and clinical history. Empower individualized care through intelligent, data-informed decisions.

9 **Prioritize data quality and prompt engineering.** Ensure clean, validated data inputs and effective prompt design. Balance automation with human oversight and clinical judgment.

10 **Redefine professional value. Embrace AI's role in routine tasks while elevating human strengths.** Reimagine clinician identity around empathy, observation and strategic insight.

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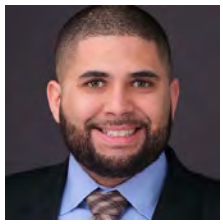

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MODERATOR CHRIS DeRIENZO *(American Hospital Association):* **What do you think are the most significant opportunities for artificial intelligence (AI) to enhance the patient experience and support care teams?**

SUNIL DADLANI *(Atlantic Health):* It's important to begin by envisioning the future of health care. I often refer to the Four P's as its foundation: predictive, preventive, precision-based and personalized. Health care will be in real time, without walls and accessible anytime, anywhere.

What does that mean? It means that patients are no longer just passive recipients of care but are now seen as health care consumers. They expect health care to be as seamless and on demand as services like Netflix. They're more informed, more connected and their experience and engagement are becoming key differentiators for health systems that are striving to stay relevant.

AI and related technologies will play a dominant role across many areas. It starts with patient engagement through any digital front door, through conversational platforms, chatbots, registration systems or triage tools. But we must also look beyond the patient experience to the total experience. That includes the clinician experience and how providers interact with technology. AI will bring value here, too, through ambient voice technologies and decision-support tools that enhance clinical workflows and improve outcomes.

DONNA LYNNE *(Denver Health):* As a CEO, I have to stay close to the moment, especially when talent erosion is not just immediate, but ongoing. We're still facing significant workforce challenges, especially among providers and support staff. Burnout from COVID-19 has pushed many into other professions, and that trend hasn't stopped. We've just completed a yearlong pilot with ambient listening technology, which we've now rolled out to all our providers.

My P's are productivity, patient satisfaction and provider satisfaction. Starting with providers, we've seen a meaningful increase in engagement scores, thanks to the tool we're using. It's not just ambient listening; it's a broader solution that's driving real change. On the patient side, satisfaction scores are up, too, which we hope translates into better retention. Productivity also has improved. What used to be 'pajama time' — after-hours documentation and dictation — is now streamlined, making life easier for both patients and providers.

DAVID ZAAS *(Atrium Health Wake Forest Baptist):* The way we're using technology and AI in health care today is still at the margins. We're enhancing existing workflows, not redesigning them. Most of our clinicians, both physicians and nurses, spend too much of their time gathering and documenting data. Too little of their time is spent on high-value activities like processing information, making decisions or communicating meaningfully with patients and families.

If we fast-forward and imagine designing a new system from scratch, rather than building on what we have today, the priorities shift. I don't need physicians and nurses to be data collectors or recordkeepers. I don't need them to memorize vast amounts of information. What I need are professionals with exceptional judgment, empathy and communication skills.

To transform health care, we must think bigger. Redefining workflows will reshape the skills we need, and the organizations bold enough to disrupt will be the ones that thrive.

MODERATOR: **We're already seeing this shift outside of health care. In law and major consultancies, entry-level roles have changed dramatically. What used to be about gathering, compiling and organizing information is now about asking the right questions and exercising sound judgment.**

A quick show of hands: How many hospitals or health systems represented here have deployed or are about to deploy ambulatory ambient listening for physicians and advanced practice providers? That looks like nearly 100%. Ambulatory clinic visits, with their structured work-

flows, have driven rapid adoption. But inpatient nursing is more complex, with interactions that are either brief or quite long, making implementation more challenging.

DOUG DICKEY *(Oracle Health):* To disrupt the health care ecosystem, we have to think bigger. We're already applying ambient technology on the nursing side, primarily converting ambient input into discrete data. In outpatient settings, it's currently focused on note generation, but we're moving toward full-visit documentation. That means teeing up orders, family and social history, problems, follow-ups, referrals — everything. We're fortunate to have an electronic health record (EHR) system that supports this level of integration.

We're now extending the same approach to inpatient care. Instead of nurses manually entering data into forms, why not have everything prepped for them? And when physicians conduct quick three-minute visits, why not have all relevant orders and documentation ready to go? That's where real efficiency begins.

ROBERT TRESTMAN *(Carilion Clinic):* We're facing multiple transformative challenges at once, unprecedented workforce shortages, a growing disconnect between costs and reimbursement, and not just disruptive technologies but disruptive laws. All of this is shaking a health care system none of us would have designed intentionally. But that gives us an amazing opportunity to rethink what it means to keep people healthy and care for those who are sick. If we use technology wisely, we can improve the patient experience, enhance quality and reliability of care, and free clinicians to do what they do best: Build relationships, care deeply and help people heal.

MODERATOR: How are physicians and clinical staff responding to AI integration, and what factors are influencing their trust, acceptance or skepticism?

WENDY HORTON *(UCSF Health):* We're interested in how AI can be combined with other technologies like sensors and device integrations to support clinical workflows. Even with advanced ambient solutions, I've seen teams still manually recording vitals on paper before entering them into the system. It's critical to think holistically, walk in the care team's shoes and understand their day-to-day realities before applying technology. Otherwise, you risk implementing solutions that feel disconnected and don't help.

Involving the care team from the beginning is essential. Beyond AI, it's about adding technologies that integrate with pumps, beds and other systems to make the technology impactful.

ANDREA LIMPUANGTHIP *(Mercy Medical Center):* We've piloted several ambient listening tools as well as ART (Automated Response Technology). Our main focus has been securing provider buy-in, which is critical for AI success. The system needs to learn each provider's communication style and preferences — what works well and what doesn't. It's easy for providers to underutilize the technology if the responses aren't immediately helpful, but consistent use allows the system to improve and deliver more accurate, personalized responses over time. We're in the second phase of ART implementation and already have seen improvements in both performance and utilization.

ZAAS: I love what we're doing with AI tools at Advocate Health. I use them during my Monday clinics with

DOUG DICKEY | ORACLE HEALTH
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fellows and trainees. Right now, they are still mainly used for documentation, but they have the potential to do much more. We need expanded use of AI tools to assess differential diagnoses or suggest additions to treatment plans. To improve care quality, we need to use their broader knowledge base more intelligently. If integrated into the clinical workflow, these tools could reduce misdiagnoses and lead to more effective, evidence-based care.

MODERATOR: How many of us use chatbots daily? How many of our kids do, and did we even know? That gap matters. A recent study showed that physicians scored 74 on a standardized test, 76 with chatbot help, while the chatbot alone scored 92. We didn't grow up with this tech, but it's native to the next generation. That shift is already reshaping how we learn, lead and deliver care.

NANCY LOHUIS *(Vandalia Health System):* I was speaking with a health intelligence expert who's built many predictive models. He shared that even when he was certain of an outcome, the predictive model's accuracy was only about 40%. That's concerning, especially in medicine, where we rely on evidence-based frameworks like the U.S. Preventive Services Task Force to guide clinical decisions.

AI introduces a tension between innovation and safety. While we're excited about the potential of applying AI to clinical decision-making, we must be cautious. Predictive models need to be rigorously validated because lives are at stake; and because as people always say with 20/20 hindsight, 'Why didn't you identify that this was not safe?'

MODERATOR: A comparison that shifted my perspective: We don't fully understand how numerous medications work, yet we trust them based on outcomes and side effects. Maybe generative AI should be evaluated similarly, not just by its mechanisms, but by its real-world impact. That shift in thinking could help us balance innovation with responsibility.

YSMAEL ALBERT PEGUERO *(Bristol Health):* Our success in gaining clinician buy-in has come from demonstrating that we have strong controls in place. Clinicians are scientists at heart. They're open to experimentation, but only when it's structured. By clearly communicating, 'This is a pilot, here's what we're testing,' we give them confidence in the process. The other key piece is on the administrative side. We're not just adopting AI for clinical use; we're using it ourselves to streamline our own workflows. That transparency builds trust.

DONNA ROACH *(University of Utah Health):* We're actively training medical students and residents on how to use AI tools effectively. But it all starts with data; AI is only as good as the data they are built on. Without a strong data strategy and a modernized ecosystem, results will fall short. We've invested heavily in this, refining a 30-year data warehouse that now supports our AI platforms. Every tool we develop or adopt is validated against this foundation to ensure accuracy and impact on workflows.

Our physician and nursing informaticists play a key role in redesigning workflows, feeding insights back into our EHR governance. We have a strong culture of collaboration, with clinicians eager to improve and innovate.

One caution: Vendors often ask to use our data to train their large language models (LLMs). We decline unless there's a formal partnership. Our data reflect a unique population, the youngest in the country, with distinct comorbidities and disease patterns. Generic models don't capture that nuance. We also avoid locking into

ROBERT TRESTMAN | CARILION CLINIC

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DAVID ZAAS | ATRIUM HEALTH WAKE FOREST BAPTIST

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a single LLM vendor. Our platform currently runs five, and we've seen significant performance differences. We continue to evaluate and optimize across engines to ensure the best outcomes.

MODERATOR: You raised two critical points. First, the stakes in AI have escalated from 'garbage in, garbage out' to 'garbage in, dumpster fire out,' underscoring the danger of poor data; second, success depends not just on data quality but also on how prompts are engineered. So how do we train future clinicians in a landscape where models vary and foundational skills like manual calculation are fading? It's a challenge of balancing trust in tools with critical thinking.

OTELAH PERRY *(Dartmouth Health):* We're preparing students to enter a tech-driven workforce, but it's vital that they remember they're treating people, not only solving problems. While data are important, empathy and observation are irreplaceable. Technology can fail; critical thinking and human connection must remain central. It's all about balance.

LISA ISHII (Johns Hopkins Health System): This generation is tech-savvy, and we're excited to free them and our staff and providers from routine data collection, allowing them to focus on more meaningful strategic thinking.

TRESTMAN: We're working to evolve quality improvement into health systems and implementation science, generalizing insights and making them sustainable. Emerging technologies offer promise. With safe and ethical data sharing, we can uncover key mediators and moderators to tailor solutions across populations. But we expect zero errors from technology, a much higher bar than we set for humans. As we move forward, the challenge will be integrating these tools wisely, avoiding pitfalls and embracing their potential.

DADLANI: The sentiment around AI deployment in hospital systems is evolving and much of it depends on how AI is introduced. When AI is positioned as augmentative supporting rather than supplanting human judgment, it tends to foster greater trust and adoption.

However, there's a significant gap in digital literacy. Many equate AI with generative models, overlooking that AI is an umbrella term encompassing various technologies. Depending on the use case, different AI tools may be used individually or in combination. Within hospital systems, there's still confusion about where and how to deploy these technologies effectively.

In our health system, the sentiment has shifted from an initially uncertain beginning to a very optimistic approach.

That optimism is strongest in areas with clearly defined use cases and measurable outcomes, such as the revenue cycle and patient experience. On the clinical side, where the stakes are higher, trust requires more rigorous validation, especially when human lives are involved. Co-designing solutions with clinicians is essential to building that trust and achieving meaningful results.

AI differs from rule-based technologies by learning from real-world data, not fixed instructions. Its performance can drift over time, so ongoing monitoring, feedback and refinement are essential to maintaining reliability and trust.

MODERATOR: **AI is evolving at an exponential pace and as generative models rapidly improve, we must confront how fixed human intelligence fits into a world of accelerating machine capability. A recent Axios article urged leaders to ask: What are the three things I must do to excel, and how can AI help automate or augment them? For clinicians, tasks like documentation and billing already are being transformed. But as AI begins to touch core aspects of care itself, we'll soon face a deeper reckoning: How do we redefine professional value when technology can outperform us in parts of our job that we've long considered essential?**

ZAAS: AI already is improving our care delivery in many ways including driving efficiency in radiology by handling first reads while preserving clinical judgment. In our clinics, it soon will assist with differential diagnoses and treatment suggestions, not replacing doctors but enhancing care and redesigning how our clinicians practice. As patients increasingly use these tools themselves, it would be irresponsible not to integrate AI into practice. We need to change our mindset: Using AI isn't optional, it's part of delivering safe, high-quality care of the future.

HOLLY SCHMIDTKE *(Aurora Health Care):* Adoption speed matters, but success hinges on integrating AI into clinical workflows and involving front-line clinicians. Patients expect excellent outcomes and increasingly tech-enabled care. Without clinician input, confidence falters and outcomes suffer. Involving the front line is essential to building trust and delivering better care.

HORTON: I agree that adopting AI responsibly is essential, but as health system leaders, we must also protect patient data. Sharing data with vendors for training AI models carries risks, and once released, it is out of our control. It is a reality. AI already surpasses clinicians in some cases, especially in pattern recognition, literature review and doesn't get fatigued. Health care will always be human. Defining our value by tasks alone risks obsolescence. Our future depends on leaning into the human elements while using AI to improve access and deliver safer, higher-quality care.

ROACH: AI is raising competency across our organization, not just in clinical roles, but in support services like finance, DevOps [software developers and operations] and project management. Our AI literacy push revealed strong demand and, as people use these tools, they're realizing that their skills need to evolve. It's elevating expectations, challenging outdated knowledge and driving a culture of continuous learning.

LIMPUANGTHIP: Along with training new physicians to use AI and utilizing feedback from medical students and residents, it's crucial to involve the younger generation, especially since perspectives vary widely across generations. As consumers, younger patients may prioritize convenience over personal interaction; for example, a young person with a urinary tract infection might simply text a provider through Amazon Clinic to get a prescription. Health care systems must find ways to deliver tech-enabled care without losing the personal experience.

MODERATOR: **I was just talking with a friend about how comfortable our kids are with texting. It's no wonder AI-generated responses are sometimes seen as more compassionate than human ones. Health care remains deeply human, but the way we engage has shifted dramatically. Just two years ago, we were banning ChatGPT;**

HOLLY SCHMIDTKE | AURORA HEALTH CARE

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now, using AI feels almost mandatory because of its impact on productivity.

ROACH: During our performance review period, we encouraged using our Copilot tool to assist with summarizing evaluations but set clear parameters to prevent it from making final recommendations. It's designed to support, not replace leadership judgment, especially when managing multiple reports.

ISHII: In my community, there's growing hope that AI will fix every miss. After any untoward outcome — like a missed radiology read — leaders immediately ask, 'Where's the AI solution to prevent this?' It's fascinating how quickly expectations have shifted toward AI as a catch-all safety net.

LOHUIS: Before AI can assist with clinical conclusions, residents need to master foundational skills like summarization and proper history-taking. In our organization, residency leaders chose to delay note generation until third year, out of concern that early reliance might short-circuit essential learning. It raises a critical question: How do we balance AI integration with the need to build deep clinical competency?

PEGUERO: We encourage staff to use approved AI tools, especially as more patients — often younger — skip preventive care and arrive acutely ill. Many prefer quick, text-based solutions over clinic visits. Without a full history, we must act faster, using AI to supplement clinicians and accelerate care delivery.

DONNA ROACH | UNIVERSITY OF UTAH HEALTH

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