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HEALTH AI: THE PRESENT AND THE FUTURE

This interview is the first in a series with thought leaders, executives, and experts focused on specific issues in health technology. As an executive at the Consumer Technology Association, I have the privilege of working with leaders at the forefront health technology innovation. Three leading experts gave thoughtful answers to questions about the promise and challenges in health AI adoption: Laura Adams, Senior Advisor, National Academy of Medicine (NAM); Dr. Brian Anderson, CEO, Coalition for Health AI; and Dr. David Rhew, Global Chief Medical Officer, Microsoft.

René Quashie, Vice President, Digital Health, CTA

ARE WE ON THE CUSP OF AN AI REVOLUTION IN HEALTHCARE?

Laura Adams: Yes, the signs are that we are on the cusp of a revolution. What makes today's constellation of emergent AI technologies in healthcare revolutionary, in the sense that it is a complete departure from any digital health innovation in the past, is speed, scale, ubiquity, and democratization. AI in healthcare is advancing at a disorienting rate, and we are witnessing an unprecedented ability to scale the technology, particularly generative AI. It is on the path to becoming ubiquitous because, unlike previous digital health innovations that affected only area or component of the field, AI is on pace to become the operational backbone of healthcare and biomedical science, leaving no aspect untouched. However, it might be considered more evolutionary if we consider what it took to get to this point. For AI development and use in health care to be possible, we needed such things as health data in digital format; data standards; the technical capacity to collect, aggregate, store, and share data; trust frameworks; legal, policy and regulatory frameworks, and so forth.

Dr. Brian Anderson: Healthcare has been an understandably tentative adopter of AI. Provider liability, complex workflows and a culture grounded in "do no harm" have rightly necessitated a cautious approach in adopting AI in healthcare.

And, simultaneously, some of the most extraordinary innovation in AI is happening across every domain of healthcare, from clinical trials that powerfully leverage real world data, to medical devices transformed by AI driven insights and automation, to ambient clinical note taking, and patient reported outcomes captured consistently at scale through natural language AI chat.

We believe this presents an important inflection point of AI in healthcare but also challenges that no one organizations or constituency can take without broad collaboration and consensus. CHAI was founded to help foster groundbreaking advancements by ensuring their safe and ethical use—and has private and public collaboration at its core to address this pressing need for healthcare.

Dr. David Rhew: Yes. AI offers the incredible potential to help address some of healthcare's most pressing and complicated challenges. However, it is only useful if adopted and adoption requires that we develop trust in the processes to ensure that AI can be deployed safely, fairly, and responsibly. It also requires that we gain confidence in our ability to use and manage AI. Policymakers can help accelerate AI adoption through public-private partnerships, AI skilling and reskilling programs, and multistakeholder engagement and collaboration.

WHAT ARE TWO OR THREE OF HEALTHCARE'S MOST CRITICAL ISSUES AND HOW CAN AI HELP ADDRESS THEM?

Anderson: There is huge opportunity in the US healthcare system for AI to rectify long-standing, entrenched flaws in the system. In a comparison of 11 high-income countries, The Commonwealth Fund's Mirror Mirror report ranked the US as last in metrics such as: accessibility and equity, quality and cost. AI to healthcare - The US healthcare system is incredibly variable, with geographical and demographic factors playing a large part. AI innovations can mitigate this through telehealth and remote patient monitoring to vastly expand access in underserved urban, rural and remote communities and democratize care. It is important to note that research states that health equity issues can be worsened, not improved, by AI if not implemented effectively. The health AI community is working to make sure AI mitigates rather than entrenches further bias and equity issues.

AI can also be effectively used to address quality and cost issues. When AI plays an assistive role to providers, higher quality of care can be achieved. In terms of cost, AI can reduce administrative burden. Recent reports from McKinsey have projected Generative AI to create $200 billion to $360 billion in healthcare cost savings through productivity improvements. Ultimately, AI will ensure that patients will pay less for higher quality of care.

Adams: Healthcare had a brewing storm in terms of clinician well-being long before the pandemic, but now it is truly at crisis stage. The administrative and cognitive burden has just become too much for many to bear. The reaction we are seeing among practicing clinicians—mostly physicians at this point— to the ambient listening/clinical note generating AI tools is positive, and while still in need of improvement, it seems unlikely that it is largely hype. Other AI applications that are producing remarkable results in reducing cognitive burden are those that draw from the now overwhelming amount of data in the EHR, identifying patterns and relationships and serving up actionable clinical signals to care team members.

But a critical issue that AI won't be able to address is misaligned incentives. Many highly effective digital health tools and other advances are significantly underutilized because when put into practice, they can and often do financially harm the health systems using them.

Rhew: AI can help address some of healthcare's biggest challenges, including the rising cost of care, access to affordable healthcare, and clinician burnout. Approximately 25% of U.S. healthcare spend is waste and AI has the potential to streamline care, improve operational efficiencies, and reduce wasteful spending. AI can help address access issues by being used to screen large populations and identify individuals before they present with signs and symptoms for conditions such as diabetes, cardiovascular disease, hypertension, hyperlipidemia, and cancer. The other issue, as has been discussed is clinician burnout and the role administrative burdens plays in burnout. Many of tasks such as documenting in the EHR, addressing insurance claims, responding to emails can be streamlined with AI.

WHAT ARE SOME OF YOUR CONCERNS ABOUT HOW AI IS BEING USED AND WILL BE USED IN THE U.S. HEALTHCARE SYSTEM?

Rhew: Organizations need to operationalize responsible AI principles. This means implementing responsible AI guardrails with an eye on value and equity. Also, people must feel confident in their ability to use and manage AI responsibly. With every technological advancement, we have seen a lag in the time to acquire skills required to properly adopt technology. To address this, we will need to rethink how individuals get educated and skilled beyond training for AI and technology jobs. All individuals will need to understand how to incorporate AI into their daily work.

The learnings for how to apply AI in a work setting will come largely from industry as opposed to traditional educational institutions. However, the vehicle for educating and training at scale will need to come from trade schools, colleges, and universities. This means that we need a mechanism to capture the learnings from industry and bring them to institutions of learning.

Adams: My biggest concern about how AI is being used is the already widening equity divide between the health systems with the resources and capabilities to bring AI to their patients and the under-resourced settings, such as those in the inner city, medium to small and rural clinics and hospitals, and community health centers. As a nation, we need to move quickly to develop strategies and take action to address their needs, since these are the sites where most American receive their care.

I am concerned that we will miss a tremendous opportunity to develop a national learning health system. If we seized this opportunity, we could develop mechanisms to share learning about our experiences with AI widely and transparently. Essentially, what works and what doesn't, what is required to get the most from AI, what practices enable the best outcomes, and so forth. Anyone deeply engaged in AI in healthcare knows that the sheer number of insights being generated every day has already put any one individual "behind" regardless of their degree of expertise or capability for rapid learning. We will have to band together and share our learning to get the best out of AI for the most people.

WHAT ARE SOME STEPS WE CAN TAKE TO BETTER ENSURE THE ETHICAL AND SAFE USE OF HEALTH AI?

Anderson: CHAI's commitment is to ensure AI in healthcare is responsible and trustworthy. We need to collectively define what this means, and work steadfastly to ensure AI is developed and deployed ethically and safely. Whether it's face recognition software that is 10-100 times less likely to recognize an Asian or African American face, or voice recognition software with almost twice the word error rate for black speakers than white, AI will only entrench existing biases and divides. We now have a unique opportunity to work with underserved, often invisible, communities, to respect data sovereignty and restore its due place in the training and deployment of algorithms.

Adams: One important step we could take would be to bring patients in as partners at the beginning and at every step of the AI lifecycle. In my experience, the mantra, "Nothing about us without us" is golden. Throughout my career, whatever I was envisioning, developing, testing, or deploying, I always achieved better outcomes and deeper personal satisfaction from my work when I and my teams engaged with patients as partners. I strongly recommend that people read The Light Collective's new publication AI Rights for Patients. It provides important, authentic new guidance straight from the source.

It is also critical to develop effective governance with safe and ethical use as the north star—from the policy and regulatory framework and the deployment of assurance labs at the national level, to the thoughtful policy and regulation at the state level that avoids fragmentation and the impeding of progress as an unintended consequence, to the critically important local governance infrastructure. And I would be remiss if I didn't cite the criticality of aligning the principles and commitments undergirding these governance frameworks so that we can promote interoperability as it relates to governance. Under the auspices of our AI Code of Conduct (AICC) Steering Committee, we at the National Academy of Medicine just released a publication entitled Artificial Intelligence in Health, Health Care, and Biomedical Science: An AI Code of Conduct Principles and Commitments Discussion Draft. We reviewed and harmonized more than 60 sets of AI principles, guidelines and frameworks, integrated the learning health system principles, and distilled a set of Code principles and Commitments. We have issued an NAM AICC Call for Public Comment on this discussion draft and we hope to receive robust input to be used to advance the draft principles and commitments.

Rhew: AI algorithms need to be tested in local and diverse data sets. They also need to be assessed post-deployment. Privacy standards should ensure that both data stewards and AI algorithm developers feel comfortable and confident that neither the data nor the AI will be exposed. These are examples of complex challenges that can potentially be solved through public-private partnerships in which policymakers work with developers, implementers, and technology enablers to ensure that AI algorithms are governed and managed appropriately.

> Bill Gates famously said, "We overestimate the change that will occur in the next two years and underestimate the change that will occur in the next ten." Looking ahead ten years, what do you think the healthcare industry will have underestimated about AI?

Adams: First, thinking back to where we were in 2022 and where we are today, AI in healthcare was very likely the exception to Bill Gates' "rule". Few people overestimated the change that would happen during this two-year period. Essentially, we have had a stunned look on our collective faces since 2022 because of the unprecedented speed of AI technology advancement.

In terms of the next ten years, exponential growth is something humans struggle mightily to grasp. Because the process of AI evolution won't be linear, and it is impossible to take into account the outsized impact of what seem like inconsequential factors, I anticipate that we will have underestimated myriad things. This includes AI's capabilities, the difficulty of putting effective governance frameworks in place, the cost and complexity of embedding AI throughout healthcare, the unintended consequences, and the unintended benefits, as well. This points to a need to build our capacity for rapid learning, both individually and collectively. I find this all so exhilarating—what a time to be in healthcare!

Anderson: We are fortunate enough to be working with the top minds and developers of AI in healthcare globally. Their innovations are truly groundbreaking and will undoubtedly have a transformative effect on how we experience healthcare. We too often underestimate how hard it will be to get deployment and implementation of a new era of innovation right. We typically fail to commit the time, resources and collaboration it takes to create an "infrastructure" of best practice, testing and evaluation that builds and earns trust. We are encouraged in the creation of CHAI that initial interest and enthusiasm turned quickly to substantial action and commitment across an ecosystem of diverse and often competing perspectives and interests. The healthcare industry moves cautiously. We believe it can do so without stunting innovation that promises to improve patient outcomes and experience, reduce clinician burden, bend the cost curve, and ensure this innovation serves all.

Rhew: I believe that Yogi Berra once said that predictions are difficult, especially when they involve the future. However, one prediction that I feel confident in making is that AI will continue to improve, enabling us to unlock tremendous opportunities in healthcare.

Today, we see opportunities for AI to help improve operational efficiency. In the next ten years, AI will have increased access to care through large-scale population screenings, improved clinician decision-making, and democratized access to healthcare information globally. In parallel, the healthcare sector will have demonstrated how to operationalize responsible AI guardrails to foster trust in AI and established AI skilling and reskilling programs to help persons properly and responsibly utilize AI.