Weitzman Institute
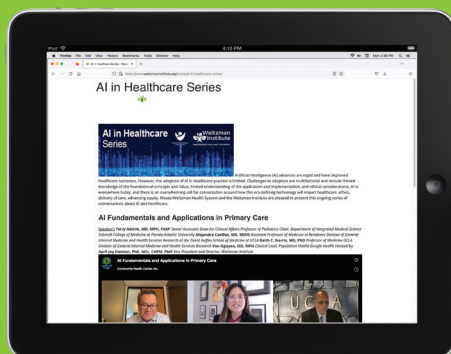inspiring primary care innovation

AI in Healthcare Series

Key Takeaways

- Artificial Intelligence (AI) can potentially improve health disparities, including healthcare quality for underserved populations, and reduce health workforce shortages.

- AI can help integrate social determinants of health and complex factors into patient care.

- Concerns surrounding AI include privacy, security, potential harm, and inaccurate modeling, with no consensus on who or what regulations should address these concerns.

- Health equity in AI will be achieved if the right partners are engaged in all aspects of the development process, including FQHCs, advocates, patients, doctors, regulators, and community members.

The rapid advancement and rise of AI offers great opportunities to improve healthcare outcomes. However, multifactorial challenges such as limited knowledge of AI foundational concepts and value propositions, concerns over healthcare workforce implications, patient-provider relationship issues, and ethical considerations, must still be adequately addressed.

In alignment with its mission to promote equity and optimize health outcomes for vulnerable populations through innovative research, education, and policy, the Weitzman Institute hosted several leading global and domestic AI and healthcare technology subject matter experts in a two-part webinar series titled "AI in Healthcare." Participants discussed the use of AI in primary care and the ways safety-net providers can harness the power of AI to better serve their most vulnerable patients. This brief highlights the main discussion points of each webinar.

Part I: An Introduction to AI in Healthcare for Federally Qualified Health Centers (FQHCs)

Moderator: April Joy Damian, PhD, MSc, CHPM, PMP, Vice President and Director, Weitzman Institute

Webinar Participants (shown above, left to right)**:** Aneesh Chopra, MPP; William Weeks, MD, PhD, MBA; Rowland Illing, DM, MRCS, FRCR

On September 21, 2023, "An Introduction to AI in Healthcare for Federally Qualified Health Centers (FQHCs)," the first webinar in the AI in Healthcare Series, brought together three experts from cutting-edge technology and healthcare to discuss the ways safety net providers can harness the power of AI to better serve their most vulnerable patients: **Aneesh Chopra, MPP**, the first U.S. Chief Technology Officer and co-founder and president of CareJourney; **William Weeks, MD, PhD, MBA**, a physician-economist leading Microsoft's AI for Health program; and **Rowland Illing, DM, MRCS, FRCR**, Director and Chief Medical Officer, International Public Sector Health, for Amazon Web Services and a member of the World Health Organization's Roster of Experts for Digital Health.

AI and Healthcare

> (AI is a) "set of technologies that use existing data to more accurately predict upcoming actions."

Kicking off the discussion, Chopra defined AI as a "set of technologies that use existing data to more accurately predict upcoming actions," applied in healthcare to analyze and act on health-related data. Weeks noted that AI includes the "capacity for a non-human application to learn and adapt to new situations," citing examples of computer imaging programs assisting in identifying leprosy-like lesions, ultimately reducing provider workforce time and burden. Weeks emphasizes how large language models (LLMs) such as ChatGPT consistently save time and resources by performing tedious tasks within the healthcare environment, including benefits approval requests and provider note generations.

AI for Underserved Populations

Today, organizations are using AI to address various health equity issues, including improving the quality of comprehensive care for underserved populations. Illing provides several examples including Samaritan, a Seattle-based AI platform that helps patients without homes find community support, connect to ongoing healthcare, and reach housing and health goals, reducing reliance on emergency hospital visits. Illing also mentioned the benefits of AI-assisted precision medicine in the context of communicable diseases, such as tuberculosis in low- and middle-income countries, "[taking] genomic information, clinical information, pathology information, and then integrating that data using AI, to deliver very personalized recommendations to individuals, [thereby] saving scarce resources and making screenings more accessible."

Concerns

Chopra and Illing discussed privacy as a concern, stating that it is imperative to ensure that AI models protect personal information and that developers consider security issues. Due to the large risk of bias and inequality that has existed in reported data for decades, AI frameworks need to be monitored to ensure they are not perpetuating biases and creating harm (e.g., language models providing the wrong instructions or diagnoses), as well as ensuring intellectual property rights are respected.

Policy Implications

Looking ahead, Chopra believes that, instead of creating an entirely new government agency, healthcare sectors should create their own regulations and guidelines regarding AI technology. Accordingly, he suggests that a multi-stakeholder body, including AI leadership, consumer advocates, patients, doctors, and regulators, convene to identify concerns, create policies and guidelines to address these concerns, and enforce these guidelines based on existing laws and regulations.

Illing recommends more education opportunities for health systems stakeholders, care providers, government officials, and others regarding AI, including digital security and the cloud-based systems that host most AI applications. Weeks suggests the enactment of provider-side policies such as allowing patients to have jurisdiction of where and how their data is utilized.

Part II: AI Fundamentals and Applications in Primary Care

Moderator: April Joy Damian, PhD, MSc, CHPM, PMP

Webinar Participants (shown above, left to right)**:** Terry Adirim, MD, MPH, FAAP; Von Nguyen, MD, MPH; Keith Norris, MD, PhD; Alejandra Casillas, MD, MSHS

On October 26, 2023, "AI Fundamentals and Applications in Primary Care," the second webinar in the AI in Healthcare Series, brought together four experts to discuss the use of artificial intelligence (AI) in primary care: **Terry Adirim, MD, MPH, FAAP**, Clinical Professor of Preventive Medicine and Biostatistics at the Uniformed Service University of Health Sciences; **Von Nguyen, MD, MPH**, Clinical Lead Population Health at Google Health; **Keith Norris, MD, PhD**, Professor of Medicine at the UCLA Division of General Internal Medicine and Health Services Research; and **Alejandra Casillas, MD, MSHS**, Assistant Professor in Residence at the UCLA division of General Internal Medicine and Health Services Research.

AI in Healthcare Administration

AI can be an asset in administrative matters, yet it is important to differentiate between algorithmic AI and generative AI. *Algorithmic AI* has been around for decades and is already used in primary care medicine. Generative AI can help primary care providers reduce the administrative burden that comes with seeing patients, such as writing an appeal letter for a medication or procedure for a patient. Another benefit to using these tools is the ability to predict which patients may need more intensive care or care coordination, and who would benefit from these interventions.

AI can also relieve administrative burden for other services that support providers. For years, there has been an effort to coordinate and improve the flow of patients and staffing. Electronic health records and systems are currently able to integrate this data, and AI offers an opportunity to determine the appropriate flow from operating room (OR) schedules, staffing, and other processes. This is an improvement on many health systems' current scheduling systems, where one specialty may have a certain method for OR scheduling that conflicts with another department or division.

In addition, AI can help integrate social determinants of health and complex factors into patient care by predicting patient needs and organizing resulting data for providers and other multidisciplinary care team members. AI technology can also help manage administrative tasks associated with care, such as documentation and inbox messages, and could be a great help in alleviating and addressing provider burnout, allowing care teams to spend more face-to-face time with patients.

AI in Clinical Cases

Panelists agreed AI could be used to identify patients who are at risk for certain diseases, hospitalizations, and complex care coordination. AI also presents an opportunity to examine national-level data concerning regional and local variations, especially within a specific health system, identifying community-level risk factors for conditions like diabetes, kidney disease, or heart disease. Large language models can guide primary care physicians in selecting the best medications for common conditions seen routinely in primary care, such as hypertension, depression, and asthma. AI can also more precisely determine ideal medications based on patient characteristics, possibly eliminating the need for a trial-and-error period. Similarly, there is also advancement in real-time AI prediction tools. For example, atrial fibrillation can now be predicted using ECG results, and Google has taught its large language model PaLM 2 to score an impressive 85% on the United States Medical Licensing Examination (USMLE). Finally, AI models are used in radiology to read CT scans and mammograms.

Equity in AI

Historically, AI and machine learning systems have not been designed with equity in mind, though this must be at the forefront of future AI development. AI systems should improve health and health outcomes while accounting for equity. This can only be done if the data used in algorithms is diverse, representative, and unbiased. Consequently, standard practice should include incorporating policies around regular audits of AI systems that identify potential bias.

Furthermore, physicians, providers, and care teams should be informed of ways they can detect bias with the AI tools they may be using. End users of AI in healthcare should be engaged in the process of evaluating AI effectiveness. Providers should be able to detect if a tool results in poorer patient health outcomes; transparency and accountability should also be part of the process. A checks and balances system must be implemented, with providers always placing their clinical judgment before any AI tool. This applies not only to diagnosis but also to the availability of AI tools and technology in healthcare settings serving complex and vulnerable patients, as this is where the most benefit and even the most return on investment will occur.

Engaging the Right Partners

To achieve health equity in AI, the right partners must be recruited. Panelists agreed that FQHCs are crucial entities that must be involved in all AI-related matters. FQHCs can provide meaningful data from historically underrepresented populations in research that can mitigate equity issues. As we implement AI in healthcare, we must make sure we are not creating inequalities as these AI models learn. We must be deliberate when integrating datasets and implementing AI to protect, health equity, and FQHCs and other groups should be involved to help ensure the right people have a seat at the table in these processes.

Conclusion

As the use of AI in healthcare increases, including computer diagnostics, precision medicine, and disease outcome prediction, we must understand its potential benefits as well as limitations. Concerns surrounding AI include privacy, security, potential harm, and inaccurate modeling, and no consensus has been reached on who or what regulations will address these concerns. As we continue to see AI benefit underserved populations, health centers and others serving marginalized populations must understand the technology so we can best use it to reduce health disparities. At the same time, it is imperative that these same populations, and additional stakeholders such as FQHCs and community-based organizations, are at the forefront of providing high-quality data representing diverse populations to ensure health equity is part of AI.

In addition, testing models should involve diverse contexts, practices, and populations, the latter of whom may have different skill sets, knowledge, and education. Finally, health policies associated with AI must reflect the evidence generated with the intent that models will continue to be adjusted as new evidence and research tools become available.

For More Information

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Visit our website to view the recordings: **https://www.weitzmaninstitute.org/home/ai-in-healthcare-series/**

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