

Can artificial intelligence save the public health workforce?

By Nicol Turner Lee, Ph.D. | July 16, 2024

This paper was funded and completed in partnership with the National Hispanic Health Foundation. Special acknowledgments for the research and feedback on the paper go to Guadalupe Pacheco, Lilia Rangel, NHHF, Jack Malamud, Bella Panico, and Joshua Turner. The opinions, findings, conclusions, or recommendations presented in this paper solely reflect the author's views and not those of the Brookings Institution, or the National Hispanic Health Foundation, and do not constitute or present the official position of the Centers for Disease Control and Prevention.

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Executive Summary



The public health workforce is facing a staffing crisis that may include the mass exodus of more than 129,000 practitioners by 2025. This shortage poses a grave challenge to marginalized communities, such as Black, Latino, and Native American populations, who depend on public health services and are already subject to significant disparities in their proximity to care.

Artificial intelligence (AI) holds the potential to address these gaps in the public health workforce by providing automation for routine tasks, enhancing personalized care, predicting health trends, and easing administrative burdens. AI can also help drive the recruitment of more diverse professionals into the field, particularly those from underrepresented backgrounds. However, the deployment of AI does pose some significant challenges. In some instances, the data to train AI models may not be wholly representative of the populations increasingly served by public health workers, and they could perpetuate more systemic biases. Public health workers might also be inadequately exposed, trained, or have access to emerging technologies.

This paper examines the history of the public health workforce, examines the current applications of AI in healthcare, and outlines the risks and benefits associated with AI adoption. The importance of mitigating AI's biases and encouraging diversity in AI development are discussed, along with closing the digital access divides of patients and public health workers. In the end, effective AI adoption and use will require coordination among policymakers, healthcare providers, technologists, and communities to ensure that more equitable AI systems can be used in the public interest, especially for healthcare.

Introduction

The public health workforce experienced a 16 to 19 percent decline between 2008 and 2019.¹ The massive exodus of public health professionals, as cited by Health Affairs, reveals that more than 129,000 practitioners will leave or retire from the profession by 2025.² Many workers in the public health field, including doctors, nurses, dentists, health educators, and other related professions, cite increasing job dissatisfaction and the lack of employee motivation as prime reasons for their departures.



129,000 practitioners

will leave or retire from the profession by 2025.

Employed by local, state, and federal agencies to support the broad and specific care needs of populations, public health workers are critical to the social welfare and well-being of residents in the United States. From promoting healthier physical and social outcomes for young people to the role in the more urgent and emergency medical responses to global pandemics, including the more recent COVID-19 outbreak, the decline in the workforce must be taken seriously by public health entities, as well as the incentives for attracting, training, and retaining talent.

The public health workforce is critically important for patients of color, who overwhelmingly rely on governmentled infrastructure for their well-being. Because Black, Hispanic, and Tribal patients experience higher rates of health disparities, they need to have affordable, accessible, and flexible care alternatives, especially in the absence of sufficient health care and proximity to accessible medical providers. Decades-long distrust by communities and patients of color significantly influences their use of public health services, especially after some of the historical health traumas experienced after early scientific and medical experimentation postcolonialism. Some examples will be shared later in the paper.³ Further, other barriers that include lack of access to transportation, language barriers, and even insufficient highspeed broadband access create apparent obstacles to the well-being of patients of color – making local public health resources the primary source of prevention and support.

1 Jonathon P. Leider et al., “The Exodus of State and Local Public Health Employees: Separations Started Before and Continued Throughout COVID-19,” *Health Affairs* 42, no. 3 (March 2023): 338–48, <https://doi.org/10.1377/hlthaff.2022.01251>.

2 Ibid.

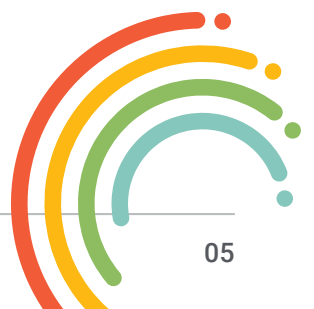
3 Bernice Roberts Kennedy, Christopher Clomus Mathis, and Angela K. Woods, “African Americans and Their Distrust of the Health Care System: Healthcare for Diverse Populations,” *Journal of Cultural Diversity* 14, no. 2 (2007): 56–60.



These are some of the reasons why specific populations lack access to quality health care, prompting the possible exploration of the design, adoption, and use of artificial intelligence (AI) models and applications by health care providers to address and, in some instances, backfill the growing attrition of public health workers. However, given that these emerging and evolving technologies can harbor historical and systemic biases within their computational models, AI's application in public health should be further investigated and interrogated.

In this paper, I argue that while AI can help to offset the adverse effects of the departure of public health professionals by automating specific tasks from patient education and routine assistance to personalized learning and development, flaws will still be inherent within the technology and result in consequences that can reduce equal and democratized access to health care for medically vulnerable communities. AI can also amplify real and hypothetical inequalities due to the underrepresentation of public health workers from diverse backgrounds who fail to identify cultural and other biases or lack the appropriate oversight in their use of AI-enabled models and tools. Internally, any AI designed for and deployed in public health settings involving medically vulnerable populations will require training, and perhaps information-sharing around the most relevant and proper clinical or preventative use cases.

This paper offers a brief history of the public healthcare workforce and definitions of AI. It also provides an overview of the various types of AI technologies used in the healthcare marketplace and where opportunities and benefits arise for the public health workforce. Before concluding, the paper will present proposals and policy recommendations to enable more inclusive design and deployment of AI in public health and the steps towards enabling a more diverse workforce through recruitment and retention of Blacks, Latinos, and Indigenous professionals into the public health workforce.



II. THE HISTORY OF THE PUBLIC HEALTH WORKFORCE

The U.S. public health infrastructure evolved in response to existing and emerging national medical crises and other phenomena, which prompted coordinated responses and perhaps some exercises that resulted in trial and error.⁴ From the early threats of various infectious diseases, including scurvy in the late 1700s, to the more recent outbreak of COVID-19, society – mainly due to population growth, war, and natural disasters – has been affected by environmental and societal stimulations.⁵

In some instances, epidemics have been less traumatic due to the scientific discoveries made over a long period. The emergency authorization of the COVID-19 vaccination came as scientists and epidemiologists leveraged AI to build upon years of existing research and applications.⁶ In other instances, the prevention of diseases can take more time. That is because the well-being of people and their communities is central to effective public health strategies.

Today, public health focuses on the confluence of factors, which include the physical and social sciences, as well as health promotion and other intersections that converge both science and practice.⁷ The latest technological developments in health care have also improved and made more efficient responses to public health crises. However, more is needed to prioritize how the United States responds to medical emergencies and crises, starting with a more robust and resilient workforce. National medical crises have had disproportionate impacts on communities of color, particularly Black, Latino, and Tribal populations, which are detailed below.

The Black community and public health

Communities of color have heavily relied on the nation's safe and active public health ecosystem. A brief history of the role of public health for Black communities surfaces its critical importance. Historic treatment powered by discrimination has negatively impacted the quality and provision of care for Black patients, which have led to lower quality and extreme health disparities when it comes to critical quality-of-life indicators.

To date, Black maternal health surfaces glaring inequalities when it comes to the lifespan of mothers before, during, and after childbirth, and consequently amount to higher infant mortality rates. In 2024, President Biden proclaimed poor Black maternal health outcomes of public concern, citing institutional racism and inequities in care as some of the primary drivers for pregnancy-related deaths.⁸

4 Theodore H. Tulchinsky and Elena A. Varavikova, "A History of Public Health," *The New Public Health*, 2014, 1–42, <https://doi.org/10.1016/B978-0-12-415766-8.00001-X>.

5 Rima F Khabbaz et al., "Challenges of Infectious Diseases in the USA," *Lancet* (London, England) 384, no. 9937 (2014): 53–63, [https://doi.org/10.1016/S0140-6736\(14\)60890-4](https://doi.org/10.1016/S0140-6736(14)60890-4).

6 Faiza Farhat et al., "COVID-19 and beyond: Leveraging Artificial Intelligence for Enhanced Outbreak Control," *Frontiers in Artificial Intelligence* 6 (November 8, 2023): 1266560, <https://doi.org/10.3389/frai.2023.1266560>.

7 Tulchinsky and Varavikova, "A History of Public Health"

8 The White House, "A Proclamation on Black Maternal Health Week, 2024," The White House, April 10, 2024, <https://www.whitehouse.gov/briefing-room/presidential-actions/2024/04/10/a-proclamation-on-black-maternal-health-week-2024/>.

Other chronic conditions, including asthma, pulmonary restrictions, and mental health concerns, permeate the life chances and lifestyles of Black communities. As evidenced in the access to and provision of mental health services to Black communities, who still experience the historical traumas of forced servitude and unwarranted physical and emotional violence, there is a definite need to do more to address these persistent challenges to well-being.⁹

Black communities have also experienced a range of physical attacks on their bodies. From the early stereotypes and abuses from the American Eugenics movement, which crossed the lines between structural racism and discrimination and science, to the botched medical experimentation dating back to early gynecological experimentation on enslaved Black women and including the Tuskegee Syphilis Study. Based on these discriminatory practices, Black patients have an overall mistrust of care systems and public health in general.¹⁰

Consequently, the health equity movement has been confronting these and other historical realities for Black communities, which resurfaced with the widespread vaccine hesitancy during COVID-19.¹¹ The recent global pandemic amplified the fractured relationship between the public health system, Black communities, and other people of color. Not only did existing health inequities become more exacerbated by the 2019 pandemic, but historic and unresolved racial health disparities eroded the trustworthiness of the government's response and the efforts of public health workers deployed by the government for prevention, support, and education for Black communities.¹²



Latinos are **twice as likely to die** from COVID-19.

The Latino community and public health

Latino populations equally experienced similar distrust before the pandemic and throughout its duration. Experiencing many of the same health disparities instigated by the situational power of the quality and provision of health care resources, Latinos, mainly Spanish-speaking populations, were negatively affected by the lack of culturally responsive guidance on medical diagnoses and treatments, insurance or access to health care, and concerns about the side effects of vaccines and their safety in reporting their status to public health workers, and even employers.¹³ Compared to the general population, Latinos were three times more likely to get COVID-19 and twice as likely to die from it.¹⁴ The lack of health insurance coverage for Latinos further exacerbated their exposure to COVID-19 as to their positioning in the U.S. labor market and the accrued benefits afforded to them in certain occupations. The policy challenges around immigration further complicated care for Latino individuals and families, who became increasingly distrustful of government and society, especially among women, and children.

9 "The Black History of Public Health: From Legacies of Racism and Resistance to Futures of Equity and Justice," accessed June 6, 2024, <https://www.communitycommons.org/collections/Black-History-of-Public-Health>.

10 "HEW News" Office of the Secretary, March 5, 1973; Memorandum "USPHS Study of Untreated Syphilis (the Tuskegee Study; Authority to Treat Participants Upon Termination of the Study," from Wilmot R Hastings to the secretary, March 5, 1973.

11 Jude Mary Cénat et al., "A Systematic Review on Vaccine Hesitancy in Black Communities in Canada: Critical Issues and Research Failures," *Vaccines* 10, no. 11 (November 15, 2022): 1937, <https://doi.org/10.3390/vaccines10111937>.

12 Lakshmi Krishnan, S. Michelle Ogunwale, and Lisa A. Cooper, "Historical Insights on Coronavirus Disease 2019 (COVID-19), the 1918 Influenza Pandemic, and Racial Disparities: Illuminating a Path Forward," *Annals of Internal Medicine*, June 5, 2020, M20-2223, <https://doi.org/10.7326/M20-2223>.

13 Holly Ober, "Black Americans' COVID Vaccine Hesitancy Stems More from Today's Inequities than Historical Ones," UCLA, accessed June 13, 2024, <https://newsroom.ucla.edu/releases/causes-of-covid-vaccine-hesitancy-among-black-americans>.

14 Lissette M. Piedra et al., "Latinos and the Pandemic: Results from the National Social Life, Health, and Aging Project—COVID-19 Study," *Journal of Applied Gerontology* 41, no. 5 (May 2022): 1465–72, <https://doi.org/10.1177/07334648211066920>.

This public distrust also significantly impacted the field of research and development, as Black and Latino populations still hesitate to participate in clinical trials.¹⁵ Both communities share similar rates of stalled participation in these trials, with Black participants making up nearly 15% and Latino participants at 11%.¹⁶ These percentages are not proportional to the Black and Latino community's proportion of population, raising concerns about conducting equitable research and producing factual findings.

Tribal communities and public health

Indigenous populations have also been severely disproportionately impacted by the COVID-19 pandemic. As of October 2021, American Indian and Alaskan Native (AI/AN) persons are “3.5 times more likely to die from COVID-19 than non-Hispanic White persons,” and the Navajo Nation experienced the highest per-capita COVID-19 infection rate in the United States.¹⁷ Public health in Indigenous communities is hindered by a disproportionate lack of public health data regarding those communities—in 2021, researchers found that “only 26 US states were able to calculate COVID-19-related death rates for (AI/AN) populations.”¹⁸ In particular, AI/AN persons are highly likely to be subject to racial misclassification.¹⁹

Due to a history of historical repression and colonialism, Indigenous populations have been the subject of a series of chronic social conditions, including alcoholism and depression, alongside alarmingly quantifiable and unwarranted death due to poor maternal health interventions and other health disparities that advance early death, or decreased quality-of-life. The U.S. government, despite its complex history with Indigenous populations, has an infrastructure in place to allocate funding toward healthcare systems in these communities. In 2010, the Indian Healthcare Improvement Act added existing funding to Indian Health Services (IHS). However, it has continued to fall short. IHS provides care to 2.6 million Indigenous people under 574 federally recognized tribes and operates with an allocated budget of about \$6,000,000 per patient. The fund is typically depleted by the middle of the funding cycle, leaving facilities and staff unable to adequately combat the health crises that these communities face.²⁰

15 Allison Spencer and Cary Funk, “A Look at Black and Hispanic Americans’ Views on Clinical Trials | Pew Research Center,” Pew Research Center, November 29, 2022, <https://www.pewresearch.org/short-reads/2022/11/29/how-black-and-hispanic-americans-view-clinical-trials/>.

16 Brian Dreyfus et al., “Understanding Hispanic/Latino Participation in Clinical Trials and Observational Studies, and Strategies to Increase Participation: A Targeted Literature Review,” *Journal of Health Care for the Poor and Underserved* 34, no. 1 (2023): 399–424.; Jill A. Fisher and Corey A. Kalbaugh, “Challenging Assumptions About Minority Participation in US Clinical Research,” *American Journal of Public Health* 101, no. 12 (December 2011): 2217–22, <https://doi.org/10.2105/AJPH.2011.300279>.

17 Kimberly R. Huyser, Aggie J. Yellow Horse, Alena A. Kuhlemeier, and Michelle R. Huyser, “COVID-19 Pandemic and Indigenous Representation in Public Health Data,” *American Journal of Public Health*, October 2021 <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8561074/>.

18 Huyser “COVID-19 Pandemic and Indigenous Representation”

19 Melissa A. Jim, Elizabeth Arias, Dean S. Seneca, Megan J. Hoopes, Cheyenne C. Jim, Norman J. Johnson, and Charles L. Wiggins, “Racial misclassification of American Indians and Alaskan Natives by Indian Health Service Contract Health Service Delivery Area,” *American Journal of Public Health*, June 2014 <https://pubmed.ncbi.nlm.nih.gov/24754617/>; See also, Kristyn M Bigback et al., “Using Record Linkage to Improve Race Data Quality for American Indians and Alaska Natives in Two Pacific Northwest State Hospital Discharge Databases,” *Health Services Research* 50, no. Suppl 1 (August 2015): 1390–1402, <https://doi.org/10.1111/1475-6773.12331>.

20 Jamie E. Ehrenpreis and Eli D. Ehrenpreis, “A Historical Perspective of Healthcare Disparity and Infectious Disease in the Native American Population,” *The American Journal of the Medical Sciences* 363, no. 4 (April 2022): 288–94, <https://doi.org/10.1016/j.amjms.2022.01.005>.

Other contributing factors to a declining public health workforce

Given the necessity of having an inclusive and agile public health infrastructure and workforce during national medical emergencies and beyond, it is essential to dive into the rapid declines in the sector despite the increasing need for its services. Some researchers have attributed the departure to limited career development prospects for existing clinicians and health advocates, the waning recruitment of new talent, and the lack of incentives for retaining the existing public health workforce. Each of these factors motivates individuals for various individual and community reasons. For example, public health care providers are often not compensated relatively or guaranteed job security, which leads to higher rates of transition and overall attrition of public health workers.²¹ History also has demonstrated the difficulty of backfilling vacant roles with highly skilled clinicians, and in the recruitment space, very few opportunities for internships exist, which could result in more sustainable hiring and a more robust talent pipeline.²² Finally, given the diversity of backgrounds of public health workers, very little is done to reward inclusion through wages, succession planning, or leadership roles.²³

Workforce diversity is also a persistent challenge for the sector. Recent research found that the public health workforce lacks diversity proportionate to the general U.S. population. Racial and ethnic disparities among people of color during the COVID-19 pandemic were prone to worsened health outcomes as a result. At its best, the public health ecosystem and echo chamber are rooted in epistemology focused on interdisciplinary exploration and pursuit of equitable health outcomes. When COVID-19 spread rapidly, health practitioners leading the response efforts realized that Black and Latino patients with pre-existing medical conditions or comorbidities were more likely to experience the most grueling aspects of the virus, which could also result in death if not adequately treated. Low-income and impoverished residents, as well as people of color, were two times more likely to die from COVID-19 due to vaccine hesitancy and governmental distrust.²⁴

“When America catches a cold, Black people get the flu.”

Compounding the high rates of infection and death were also the living conditions of individuals from economically distressed or socially isolated communities. In a piece on why Black populations were dying faster from the onset and throughout the pandemic, Rashawn Ray, from the Brookings Institution, started his piece with an age-old adage that eerily spoke to the truth – “When America catches a cold, Black people get the flu” – and spoke to the increasing numbers of medically vulnerable people that were more susceptible to infection, as well as similar numbers of individuals from communities with compounded health, social, and economic disparities.²⁵ Ray also argued in his research that the related risks of living in communities without adequate and nutritional food options, where most of the people worked in spaces with others and thereby risked exposure, were some of the contributing factors to the accelerated pace at which some communities were subjected to and terrorized by COVID-19.²⁶

A more diverse and inclusive public health workforce could identify and mitigate these and other risks to communities of color. However, full representation may be ideal but only sometimes achievable, given the disparities that currently exist in the workforce (See Table 1).

21 Jonathon P. Leider et al., “The State of the US Public Health Workforce: Ongoing Challenges and Future Directions,” *Annual Review of Public Health* 44, no. Volume 44, 2023 (April 3, 2023): 323–41, <https://doi.org/10.1146/annurev-publhealth-071421-032830>.

22 Leider et al., “The State of the US Public Health Workforce”

23 Leider et al., “The State of the US Public Health Workforce”

24 Kazim Beebejaun and Kerry Littleford, “A Diverse Public Health Workforce Is More Important than Ever,” *BMJ* 380 (February 24, 2023): p447, <https://doi.org/10.1136/bmj.p447>.

25 Rashawn Ray, “Why Are Blacks Dying at Higher Rates from COVID-19?,” Brookings, accessed June 6, 2024, <https://www.brookings.edu/articles/why-are-blacks-dying-at-higher-rates-from-covid-19/>.

26 Ray, “Why are Blacks Dying at Higher Rates from COVID-19?”



Table One:
National Institute of Health Report Demographics
of Public Health Workers (2016-2021)

	PH WINS	ASTHO PROFILE	
	Percent	Mean	SD
RACE / ETHNICITY			
Asian	7.36	5.462	9.429998
Black or African American	15.33	14.708	16.6549
Native or Indigenous	0.94	1.636	1.83945
Native Hawaiian or Pacific Islander	0.38	0.71	1.525464
White	53.72	73.794	19.66546
Two or more races	4.3	5.114	4.767664
Hispanic or Latino	17.96	7.422449	9.669718
Not Hispanic or Latino	82.4	92.44286	9.619381
GENDER			
Non-binary/other	1.77	0.386	0.4575935
Female	78.56	74.946	6.966163
Male	19.66	24.666	7.031753
AGE			
Average age	45.73359	47.34898	1.810286
Median age	46	48.07083	3.266331
25th percentile	35	N/A	N/A
75th percentile	56	N/A	N/A
SERVICE			
Years of service	11.95235	10.40204	1.780741

Source: Public health workforce survey data (2016–2021) related to employee turnover: proposed methods for harmonization and triangulation - PMC



In Table One, the researchers used the Public Health Workforce Interests and Needs Survey (PH WINS) to gather information on workforce demographics at a local level. They also relied upon other datasets, including the Association of State and Territorial Health Officials (ASTHO), to glean the study's findings around the extensive work to be done to diversify the field.²⁷ On a positive note, women make up most individuals in the public health workforce. White men are more than 50% of public health workers, with Latino and Black practitioners lagging far behind them.²⁸

The average age of public health workers is 45, which may justify why many still deploy more traditional methods and means to advance their work. For example, public health workers still manage to be 'frontline' and in-person when conducting most of their work. They also rely upon heavy case management to ensure appropriate intervention. In 2016, a program to curb asthma among Latinos, funded by the Centers for Disease Control and Prevention (CDC), called "Promotores de Salud," where frontline workers act as trusted community members through bicultural and bilingual interactions.²⁹ Because asthma is one of the most common illnesses among children of color due to haphazard environmental conditions around their living conditions, the program focuses on mitigating ethnic and racial disparities while providing the community with tools to manage their own interventions.³⁰ Public health engagement included home and community visits, traditional case management, and other assessments conducted, completed, and submitted by local workers. While this program did decrease asthma morbidity for Latinos by 79%, as well as asthma-related hospitalizations and a 56% reduction in visits to the emergency room, it was highly dependent on a robust and available public health workforce.³¹

27 Nicole M. Weiss et al., "Public Health Workforce Survey Data (2016-2021) Related to Employee Turnover: Proposed Methods for Harmonization and Triangulation," *Frontiers in Public Health* 11 (2023): 1306274, <https://doi.org/10.3389/fpubh.2023.1306274>.

28 Ibid.

29 Elizabeth R. Woods, "Community Asthma Initiative to Improve Health Outcomes and Reduce Disparities Among Children with Asthma," *MMWR Supplements* 65 (2016), <https://doi.org/10.15585/mmwr.su6501a4>.

30 Woods, "Community Asthma"

31 Fact Sheet. Promotores de Salud Fact Sheet, available at [omh-promotores-fact-sheet-nhhm-2023.pdf](https://www.hhs.gov/omh/promotores-fact-sheet-nhhm-2023.pdf) (hhs.gov)

III. THE AI CONUNDRUM AND PUBLIC HEALTH

AI has its challenges, primarily cultural biases and a lack of equitable access among certain patients and providers. AI's extended application in healthcare is still widely unknown, and few examples currently prove the technology's efficacy and accessibility. There are also various definitions of AI, which are worth discussing before diving into ways in which it can better harness efficiency to solve pressing problems in public health.

Defining AI

Generally, AI refers to the ability of computers and machines to mimic human-like intelligence to perform tasks and make decisions on an automated basis.³² In recent years and months, advancements in AI have led to various use cases and applications, including powering recommender systems on video streaming platforms, leveraging voice AI for teaching and learning, and relying on facial detection and recognition systems as a tradeoff to airport convenience.

For this analysis, I also rely on definitions and framing that I introduced as part of a new paper on AI use in Black communities, published by the Journal of the Center for Policy Analysis and Research.³³ The arrival of accessible tools powered by generative AI—such as ChatGPT—has surged both AI capabilities and confusion around leveraging AI for medical efficiencies. In recent years, distinctions have emerged around types of AI based on technical complexities, including narrow AI, where the focus is on a specific, limited task like predictive text or image recognition,³⁴ frontier AI, where the focus is on competent foundation or 'general-purpose' AI models that can perform a broad range of tasks,³⁵ and generative AI (Gen AI), where the focus is on creating high-quality and seemingly authentic/humangenerated text, video, or audio.³⁶ The most widely known Gen AI and frontier AI models are Large Language Models (LLMs) like ChatGPT, which form the basis for chatbots and other forms of conversational AI. Gen AI can potentially promote the expansion of deepfakes, misinformation, copyright infringements, and the spread of other harmful content. Deepfakes are false but seemingly authentic representations of a person's voice or image produced by generative adversarial networks (GANs) and other deep learning technologies that enable digital forgery.³⁷

32 "Artificial Intelligence (AI) vs. Machine Learning," Columbia Engineering, October 3, 2023, <https://ai.engineering.columbia.edu/ai-vsmachine-learning/>.

33 Turner Lee, Nicol. A Policy Agenda for AI in Black Communities. Washington, DC. Journal of the Center for Policy Analysis and Research, Congressional Black Caucus Foundation, 2024 JCPAR | The Nexus: Defining the Moment by Congressional Black Caucus Foundation - Issuu

34 Elliot Jones, "Explainer: What is a foundation model?," Ada Lovelace Institute, July 17, 2023 <https://www.adalovelaceinstitute.org/resource/foundation-models-explainer/>.

35 Markus Anderljung, Jonas Schuett, and Robert Trager. "How should we regulate frontier AI models?" University of Toronto, Schwartz Resiman Institute for Technology and Society, July 20, 2023 <https://www.governance.ai/post/frontier-ai-regulation>.

36 "Generative AI: What Is It, Tools, Applications and Use Cases," Gartner, <https://www.gartner.com/en/topics/generative-ai>

37 Meredith Somers, "Deepfakes, Explained," MIT Management Sloan School, July 21, 2020, <https://mitsloan.mit.edu/ideas-made-to-matter/deepfakes-explained>.



Misinformation can come from widely shared deepfakes, or false information widely shared by trusted sources, including health information. Copyright infringements can enable the expansion of the prior two phenomena and result from the lack of direct disclosure of the provenance of online content. The spread of harmful content includes hate speech, cyberbullying, and other forms of misconduct, including health misinformation, conducted over online platforms.

Narrow AI—like the AI used by judges to determine bail or sentence Black and white defendants differently³⁸—can be slightly easier to regulate via disparate impact tests. But frontier models come with more dangerous capabilities that many researchers suggest can threaten public safety and global security.³⁹ Because these capabilities are also layered on top of or integrated into the functionality of narrow AI models, frontier AI can also be more challenging to regulate due to these entanglements.

The conduct of AI

All these forms of AI rely on voluminous amounts of training data, which the systems use to learn how to make correct predictions, perform tasks, or create realistic content. When applied to people, these algorithms take into account both accurate and inferential information about them, including their identities, their demographic attributes, their preferences, and their likely future behaviors.⁴⁰ Latanya Sweeney, a distinguished computer scientist at Harvard, found in her early research on online biases that a “Black- or Latino-identifying name was 25% more likely to get an ad suggestive of an arrest record.”⁴¹ Her thesis back then is no less accurate today when comparing other scenarios for algorithmic discrimination.

38 Jeff Larson, Surya Mattu, Lauren Kirchner, and Julia Angwin, “How we analyzed the COMPAS Recidivism Algorithm,” ProPublica, May 23, 2016, <https://www.propublica.org/article/how-we-analyzed-the-compas-recidivism-algorithm>.

39 Anderljung, M. Shuett, J. and Trager, R., “How should we regulate frontier AI models?” University of Toronto, Schwartz Resiman Institute for Technology and Society, July 20, 2023, <https://srinstitute.utoronto.ca/news/frontier-ai-regulation-challenges>.

40 Nicol Turner Lee, Paul Resnick, and Genie Barton, “Algorithmic bias detection and mitigation: Best practices and policies to reduce consumer harms,” Brookings Institution, May 2018 <https://www.brookings.edu/articles/algorithmic-bias-detection-and-mitigation-bestpractices-and-policies-to-reduce-consumer-harms/>.

41 Latanya Sweeney, “Discrimination in Online Ad Delivery,” January 28, 2013, <https://ssrn.com/abstract=2208240>.



Unfortunately, biased data and algorithms render less favorable outputs for impacted communities. When left unchecked, AI technology can lead to a collective disparate impact that can be worse than discrimination from other humans. While technical and academic distinctions between narrow and frontier AI are evolving, populations of color are equally impacted by any of these systems. Because these communities are underrepresented in the datasets training the AI,⁴² there needs to be more agency to change the trajectory of design and governance and to appeal (or repeal) the adverse decisions. In areas like health care more broadly, and the public health system, more specifically, disentangling AI to enable talent deficiencies seems enticing, or automating certain functions to accelerate care may be critical in the wake of increasing declines in the workforce. Yet, with an under-represented public health workforce, as well as the persistent racial and cultural challenges embedded in generally purposed AI systems, more discussion and experimentation need to occur.

Recent research is beginning to accumulate around the use of AI by medical providers, including the creation of “...individualized treatment plans, predict and map epidemics, flag certain patients for highrisk COVID-19 complications, and take notes during visits automatically.”⁴³ In the area of practice, the 1867 Health Innovations Project at Howard University is partnering with researchers, innovators, entrepreneurs, and corporate partners to incentivize the integration of inclusive AI—including another form of AI through augmented and virtual reality programs⁴⁴—to scale values-based care for patients of the university hospital services, and to reduce health disparities among medically-vulnerable communities.

“...there needs to be more agency to change the trajectory of design and governance...”

The use of AI to identify and mitigate mental health challenges is also widely evolving. Recent debates have focused on the development and use of agent-based, online systems, which can manifest as chatbots for immediate patient response or intelligently designed systems that can replace humans in physical form with machines and/or robots.

42 Joy Buolamwini, “Artificial Intelligence Has a Problem with Gender and Racial Bias. Here’s How to Solve It,” Time, February 7, 2019, <https://time.com/5520558/artificial-intelligence-racial-gender-bias/>.

43 Noelle Serino, “Leveraging AI to reduce health disparities: A closer look at the possibilities,” Lown Institute, September 1, 2023, <https://lowninstitute.org/leveraging-ai-to-reduce-health-disparities-a-closer-look-at-the-possibilities/#:~:text=Here%27s%20a%20real%20world%20example,utilization%20had%20the%20greatest%20need>.

44 Howard University, “867 Health Innovations Project,” <https://medicine.howard.edu/about/1867-health-innovations-project>.

IV. TAI AND THE WORKFORCE

Research analysts have proposed that AI technology will generate consequences for the labor market, particularly for Black and Latino workers. In 2019, a study by McKinsey & Company found that automation was already widening the racial wealth gap.⁴⁵

Specifically, the report found that Black Americans “may have a higher rate of job displacement than workers in other segments of the US population due to rising automation and gaining a smaller share of the net projected job growth between 2017 and 2030.”⁴⁶

In 2023, another study from McKinsey found that generative AI threatens to supercharge this phenomenon by increasing the U.S. racial economic gap by \$43 billion each year.⁴⁷ The racial wealth gap is already a significant issue; the wealth of the median Black family is \$44,900, compared to \$285,000 for the median white family.⁴⁸ McKinsey found that Black workers are overrepresented in jobs that are most likely to be automated, such as office support, food services, and mechanical installation.⁴⁹ McKinsey also found that the advent of generative AI has altered the jobs that can be classified as “future-proof”: jobs that are likely to avoid automation.⁵⁰ These new future-proof jobs will require socioemotional skills, hand-eye coordination, or nuanced problem-solving abilities. McKinsey suggests that focusing on these non-automatable skills could better position Black workers to develop resilience in the labor market.⁵¹

While the implementation of AI technologies is growing, little formal research is being conducted on the impact of that implementation on the healthcare workforce. Some experts, such as the Healthcare Information and Management Systems Society (HIMSS), express optimism that AI tools could help address current issues with the healthcare workforce—personnel shortages, uneven resource distribution, rising costs, and high administrative burdens—but its implementation risks job displacement and raises ethical concerns about privacy and algorithmic bias.⁵² While the impacts remain unclear, AI implementation in the healthcare sector continues to expand: Amazon recently launched a new technology to automate clinical documentation, and some providers are already trying to use AI tools to reduce administrative burdens.⁵³

45 Kelemwork Cook, Duwain Pinder, Shelley Stewart III, Amaka Uchegbu, and Jason Wright, “The future of work in black America,” McKinsey & Company, October 2019 <https://www.mckinsey.com/~/media/McKinsey/Featured%20Insights/Future%20of%20Organizations/The%20future%20of%20work%20in%20black%20America/The-future-of-work-in-black-America-vF.ashx>.

46 Cook et al. “The future of work”

47 Jan Shelly Brown, Matthew Finney, Natasha Korgaonkar, Mark McMillan, Chris Perkins, “The impact of generative AI on Black communities,” McKinsey & Company, December 2023 <https://www.mckinsey.com/bem/our-insights/the-impact-of-generative-ai-on-blackcommunities#/>.

48 Brown et al., “The impact of generative AI”

49 Ibid.

50 Ibid.

51 Ibid.

52 Sandeep Reddy, “The Impact of AI on the Healthcare Workforce: Balancing Opportunities and Challenges,” HIMSS, April 11, 2024, <https://www.himss.org/resources/impact-ai-healthcare-workforce-balancing-opportunities-and-challenges>.

53 Cici Yongshi Yu and George Weykamp, “Health Care’s AI Embrace Boosts Workforce Despite Privacy Risks,” <https://news.bloomberglaw.com/daily-labor-report/health-cares-ai-embrace-boosts-workforce-despite-privacy-risks>.

V. WHERE AI MAKES SENSE IN THE PUBLIC HEALTH WORKFORCE

Before delving into the potential biases of AI and its consequent impact on patients of color, it's essential to recognize the technology's potential benefits for the public health workforce.

Targeted outreach and mentorship

Given the reality of inadequate diversity in the field among public health workers, technology holds promise when it comes to identifying potential workers, especially those from varied backgrounds. Research has suggested that AI can be integrated into workforce tools, which assist in analyzing the data on the demographics, skills, and career aspirations of potential applicants. AI can support recruitment from under-represented communities, and in some instances, help to provide online mentors who can help support the career discovery process for future public health care workers.⁵⁴

Personalized learning and development

In the area of education, AI has been touted as a tool to create and share personalized curriculum for students. The same could apply among public health workers where AI-enabled applications can assess skills, and provide additional learning opportunities for an assortment of public health roles and responsibilities, e.g., health educators, clinicians, case workers, etc.⁵⁵ AI-enabled content can also compile a series of health equity use cases, and documentation to support training and assessment of patient conditions, which can sometimes be experienced in the moment by public health professionals.⁵⁶

Reduction of hiring bias

While the next section will dive more into the challenges of biases embedded into AI models from design to implementation, another opportunity for AI is related to its ability to identify and mitigate them when vetting and retaining workers. Currently, AI is actively used by employers when screening applicants, and with more inclusive inputs into the models can find applicants who may not have direct experience in this field but understand and empathize with targeted communities. Unlike traditional analog systems for hiring, AI can search for keywords that amplify the qualities of public health workers in other professions where there is an exercise of care and trust. This is not to say that hiring algorithms do not come with a new set of challenges. They do, especially when the data that is training the model is not reflective of a more inclusive pool of applicants. However, a more responsible and ethical approach for its use in hiring (given the most appropriate variables) may help to find more candidates in spaces not normally considered among public health recruiters.

⁵⁴ See Webinar on the Power and Promise of AI for Health Equity, NIHCM Foundation, March 26, 2024, available at [The Power and Promise of AI for Health Equity \(nihcm.org\)](https://www.nihcm.org/the-power-and-promise-of-ai-for-health-equity).

⁵⁵ Centers for Disease Control, Looking at AI's Potential on Health Equity, available at [Looking at AI's Potential Impact on Health Equity | 2022 DMI Snapshot | CDC](https://www.cdc.gov/dmip/snapshot/2022/looking-at-ais-potential-on-health-equity)

⁵⁶ Ibid.

VI. THE CHALLENGES OF AI BIASES IN HEALTHCARE APPLICATIONS

These opportunities for AI in public health contexts can be promising and should be further explored in the absence of a more robust record of positive use cases. They also should not diminish the more consequential challenges regarding data quality and the populations represented in datasets training AI models.

Handling inaccurate, false readings and screenings still dominates the dialogue on the public interest applications of AI in healthcare. Finally, limited knowledge is known on the consequences of medical surveillance, especially for patients of color who already distrust the government when it comes to their care and well-being.

Poor data quality

AI tools rely on large datasets for training and operation, meaning poor data quality can negatively affect an algorithm's performance. In the words of Dr. Lucila Ohno-Machado, deputy dean for biomedical informatics at Yale School of Medicine, who recently co-chaired a panel on racial bias in healthcare, "If the data aren't representative of the full population, it can create biases against those who are less represented."⁵⁷

This opinion is no mere hypothetical; data poverty, defined as "the inability for individuals, groups, or populations to benefit from a discovery or innovation due to insufficient data that is adequately representative," is a severe issue in the healthcare field.⁵⁸ People of color remain underrepresented in genetic data and significantly darker skin tones studies in dermatology. Additionally, the vast amounts of new health data generated by wearable devices and electronic health records are more likely from wealthier and healthier users.⁵⁹ The result is a digital health data divide, in which "large segments of populations, particularly the poor and those with low accessibility, are not captured digitally and are underrepresented in the resulting data sets."⁶⁰ This divide has real consequences. Convolutional neural networks used to classify skin lesions in dermatology, for instance, are trained using datasets in which images of black patients comprise just 5% to 10% of the data, leading to lower diagnostic accuracy for Black patients, who already have the highest mortality rate for melanoma.⁶¹ Racial and ethnic minority populations generally are underrepresented in clinical trials, which can result in treatments that are less effective or even harmful for underrepresented groups.⁶² This finding is a widespread issue, with Black and Hispanic people making up only 8% and 11%, respectively, of participants in new drug trials in the US in 2020, despite making up 14.2% and 18.7% of the US population.⁶³

57 Isabella Blackman, "Eliminating Racial Bias in Health Care AI: Expert Panel Offers Guidelines," Yale School of Medicine, December 21, 2023, <https://medicine.yale.edu/news-article/eliminating-racial-bias-in-health-care-ai-expert-panel-offers-guidelines/>

58 Kenneth Eugene Paik, Rachel Hicklen, Fred Kaggwa, Corinna Victoria Puyat, Luis Filipe Nakayama, Bradley Ashley Ong, Jeremy N. I. Shropshire, and Cleve Villanueva, "Digital Determinants of Health: Health data poverty amplifies existing health disparities—A scoping review," *PLOS Digit Health* 2(10), October 2023 <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC10569513/>; Hussein Ibrahim, Xiaoxuan Liu, Nevine Zariffa, Andrew D. Morris, and Alastair K. Denniston, "Health data poverty: an assailable barrier to equitable digital health care," *Lancet Digit Health* 3(4), April 2021 <https://pubmed.ncbi.nlm.nih.gov/33678589/>

59 Paik et al.

60 Paik et al.

61 Natalia Norori, Qiyang Hu, Florence Marcelle Aellen, Francesca Dalia Faraci, and Athnia Tzovara, "Addressing bias in big data and AI for health care: A call for open science," *Patterns*, October 8, 2021, <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8515002/>

62 Alice McCarthy, "Embracing Diversity: The Imperative for Inclusive Clinical Trials," Harvard Medical School, June 30, 2023, <https://postgraduateeducation.hms.harvard.edu/trends-medicine/embracing-diversity-imperative-inclusive-clinical-trials>

63 Ibid; Michelle D. Kelsey, Bray Patrick-Lake, Raolat Abdulai, Uli C. Broedl, Adam Brown, Elizabeth Cohn, Lesley H. Curtis, Chris Komelasky, Michael Mbagwu, George A. Mensah, Robert J. Mentz, Amesika Nyaku, Stephanie O. Omokaro, Judy Sowards, Kendal Whitlock, Xinzhi Zhang, and Gerald S. Bloomfield, "Inclusion and diversity in clinical trials: Actionable steps to drive lasting change," *Contemporary Clinical Trials* Volume 116, May 2022 <https://www.sciencedirect.com/science/article/abs/pii/S1551714422000660?via%3Dihub>

Inaccurate or false readings

Incomplete data that train health AI can lead to inaccurate medical tools, which can have serious consequences. For instance, researchers have raised concern about racial biases in pulse oximetry measurement for decades.⁶⁴

As early as 1990, Jubran and Tobin identified a racial disparity in pulse oximetry. Their study showed that Black ICU patients were more than twice as likely to have falsely high readings compared to White ICU patients. This issue persists, as evidenced by Sjoding et al.'s 2020 research, which found that Black patients were nearly three times more likely to experience undetected low blood oxygen levels (occult hypoxemia) compared to White patients.⁶⁵

This is not the only instance of inaccuracies in diagnostic technologies, and the proliferation of novel AI tools has only heightened this risk. Tools powered by LLMs, such as ChatGPT, are already being used by patients and by one in ten doctors in their day-to-day work, but the factual accuracy of LLMs is not reliable.⁶⁶ According to one study, "for the most advanced model (GPT-4 with retrieval augmented generation) 30% of individual statements are unsupported and nearly half of its responses are not fully supported."⁶⁷ Another study found that, although clinical providers' diagnostic accuracy increased when using standard AI predictions, it significantly decreased when using predictions from "systemically biased AI model[s]."⁶⁸

Medical over-surveillance of marginalized populations

In theory, federal law protects individuals' medical data from access by third parties, such as insurance providers or employers, without the individual's permission. However, increasingly powerful data analytics tools have made it possible to make inferences about an individual's health status through data not protected by the same federal privacy laws protecting medical records. This issue is particularly pertinent for reproductive health. Applications that individuals use to track their menstrual cycles, for instance, collect data that can be used to determine whether an individual is pregnant.

64 Andre L. Holder and An-Kwok Ian Wong, "The big consequences of small discrepancies: Why racial differences in pulse oximetry errors matter," *Critical Care Medicine*, February 1, 2022, 50(2) <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8887789/>.

65 Ibid citing: A. Jubran and M. J. Tobin, "Reliability of pulse oximetry in titrating supplemental oxygen therapy in ventilator-dependent patients," *Chest*, June 1990 97(6) <https://pubmed.ncbi.nlm.nih.gov/2347228/>; Michael W. Sjoding, Robert P. Dickson, Theodore J. Iwashyna, Steven E. Gay, and Thomas S. Valley, "Racial Bias in Pulse Oximetry Measurement," *The New England Journal of Medicine*, December 16, 2020 <https://www.nejm.org/doi/full/10.1056/NEJMc2029240>.

66 Todd Shyrock, "AI Special Report: What patients and doctors really think about AI in health care," *Medical Economics Journal* Vol 100 Issue 7, June 30, 2023, <https://www.medicaleconomics.com/view/ai-special-report-what-patients-and-doctors-really-think-about-ai-inhealth-care>

67 Kevin Wu, Eric Wu, Daniel E. Ho, and James Zou, "Generating Medical Errors: GenAI and Erroneous Medical References," *Stanford University Human-Centered Artificial Intelligence*, February 12, 2024 <https://hai.stanford.edu/news/generating-medical-errors-genai-anderroneous-medical-references>; Kevin Wu, Eric Wu, Ally Cassasola, Angela Zhang, Kevin Wei, Teresa Nguyen, Sith Riantawan, Patricia Shi Riantawan, Daniel E. Ho, and James Zou, "How well do LLMs cite relevant medical references? An evaluation framework and analyses," February 3, 2024, <https://arxiv.org/abs/2402.02008>

68 Sarah Jabbour, David Fouhey, Stephanie Shepard, Thomas S. Valley, Ella A. Kazerooni, Nikola Banovic, Jenna Wiens, and Michael W. Sjoding, "Measuring the Impact of AI in the Diagnosis of Hospitalized Patients: A Randomized Clinical Vignette Survey Study," *JAMA*, December 19, 2023, <https://jamanetwork.com/journals/jama/article-abstract/2812908>

The Supreme Court's decision in overturning the *Dobbs v. Jackson* decision on the constitutional right to an abortion has raised preliminary concerns on how AI applications might cooperate with law enforcement to provide information that could lead to an individual's arrest and prosecution in a state with legal restrictions on abortions.⁶⁹ In April 2024, the Biden administration passed a rule shielding medical records of women from criminal investigations if they cross state lines to seek a legal abortion.⁷⁰ However, even if individuals forgo menstrual tracking applications, other data such as internet searches, text messages, and smartphone location information can be used to prosecute an individual for having an abortion.⁷¹

Digital divide concerns

As of May 2023, 8.3 million homes and businesses lacked high-speed broadband access.⁷² Having limited to no access to affordable and accessible broadband complicates matters, especially in public health. The effectiveness of AI will be highly dependent on internet access for both patients and providers in rural and urban communities. In November 2021, President Biden moved forward with the historic Infrastructure Investment and Jobs Act (IIJA), which is an initial \$65 billion-dollar commitment toward closing the digital divide. Since then, federal and private sector investments have grown, and support for advancing digital equity has been allocated to community-based organizations, including local clinics and health providers. The National Telecommunications and Information Administration (NTIA) in the U.S. Department of Commerce is mainly responsible for driving the deployment of broadband assets in under and un-served communities without access to reasonable and quality speeds of services. Until recently, the NTIA's sister agency, the Federal Communications Commission (FCC), administered the Affordable Connectivity Program (ACP), which provided low-cost subsidies to eligible, monthly broadband services. In June 2024, the ACP program ceased to operate after running out of bipartisan, Congressional funding.⁷³

As AI has become the prime focus for government, the private sector, and local organizations, ubiquitous digital access must be of primary concern to the public health sector. Public health infrastructure must be in a bold place to empower existing and emerging technologies, and doing so will ensure that the workforce can promptly adapt their services to more digital platforms. Equally important is for patients to consider how AI will enable remote health care or virtual visits with doctors and other practitioners. Closing the digital divide will reduce service delivery burdens and enable workforce training, certification, and other professional development opportunities.

Digital equity ensures that public infrastructure does not hinder participation, especially for medically vulnerable populations living in areas stifled by the lack of innovative growth. In my forthcoming book, *Digitally Invisible: How the Internet is Creating the New Underclass*, I argue that ensuring easy access to the internet and necessary digital resources, including hardware, will embolden the next generation of social service and, in this case, public health delivery – which could be guaranteed to meet communities and patients where they are.⁷⁴

69 Kashmir Hill, "Deleting Your Period Tracker Won't Protect You," *The New York Times*, June 22, 2023, <https://www.nytimes.com/2022/06/30/technology/period-tracker-privacy-abortion.html>

70 The Associated Press, "Biden administration tightens rules for obtaining medical records related to abortion," *NBC News*, April 23, 2024, <https://www.nbcnews.com/health/womens-health/abortion-related-medical-records-protected-rcna148946>

71 Hill, 2023.

72 David Shepardson, "US Agency Says 8.3 Million Homes, Businesses Lack Access to High-Speed Broadband," *Reuters*, May 30, 2023, sec. United States, <https://www.reuters.com/world/us/us-agency-says-83-million-homes-businesses-lack-access-high-speedbroadband-2023-05-30/>.

73 "ACP-FAQs-Post-ACP-Ending.Pdf," accessed June 6, 2024, <https://www.fcc.gov/sites/default/files/ACP-FAQs-Post-ACP-Ending.pdf>.

74 Nicol Turner Lee, *Digitally Invisible: How the Internet Is Creating the New Underclass* (Rowman & Littlefield Publishers, Inc., 2024).



VII. PROPOSED POLICIES AND RECOMMENDATIONS

Current public policies

Federal legislation on AI impinges on a range of draft legislation whose futures remain uncertain. The White House Office of Science and Technology Policy (OSTP) has previously issued a Blueprint for an AI Bill of Rights, which outlined nonbinding principles to “guide the design, use, and deployment of automated systems,” and the National Institute of Standards and Technology (NIST) has released an AI Risk Management Framework, which outlined a nonbinding roadmap for identifying and mitigating AI risk.⁷⁵ The most significant and more recent executive action on AI has been President Biden’s Executive Order (EO) on the Safe, Secure, and Trustworthy Development and Use of Artificial Intelligence, which recently touted some of its accomplishments.⁷⁶ While the White House EO has built upon many of the principles outlined in the OSTP’s Blueprint, it also calls for the creation of guidance for the procurement of AI systems, requires developers of specific systems to share safety test results with the government, and instructs NIST to develop standards for red-team testing.⁷⁷

Current congressional legislation that could impact the public health workforce includes the National AI Commission Act, which would create a bipartisan commission to study and propose AI regulations; the AI Labeling Act, which would require developers to include notices on AI-generated content; and the NO FAKES Act, which would prohibit “unauthorized digital replicas of individuals in a performance, including the impersonation of public health officials.”⁷⁸ There is also the Eliminating Bias in Algorithmic Systems Act, which would require all federal agencies that use, fund, or oversee algorithms to establish an office of civil rights focused on algorithmic bias and discrimination, and the latest version of the Algorithmic Accountability Act would mandate impact assessments for any automated decisionmaking systems involved in high-risk contexts such as employment, education, healthcare, finance, and housing.⁷⁹

- 75 The White House, “Blueprint for an AI Bill of Rights,” Accessed January 29, 2024 <https://www.whitehouse.gov/ostp/ai-bill-of-rights/>; Nicol Turner Lee and Jack Malamud, “How Congress can secure Biden’s AI legacy,” Brookings, January 25, 2024 <https://www.brookings.edu/articles/how-congress-can-secure-bidens-ai-legacy/>; NIST, Artificial Intelligence Risk Management Framework (AI RMF 1.0), January 2023 <https://nvlpubs.nist.gov/nistpubs/ai/NIST.AI.100-1.pdf>; Cameron F. Kerry, “NIST’s AI Risk Management Framework plants a flag in the AI debate,” Brookings, February 15, 2023 <https://www.brookings.edu/articles/nists-ai-risk-management-framework-plants-a-flag-in-the-aidebate/>.
- 76 Joseph R. Biden, Executive Order 14110, on the Safe Secure, and Trustworthy Development and Use of Artificial Intelligence, October 30, 2023, <https://www.whitehouse.gov/briefing-room/presidential-actions/2023/10/30/executive-order-on-the-safe-secure-and-trustworthy-development-and-use-of-artificial-intelligence/>.
- 77 Nicol Turner Lee and Jack Malamud, “How Congress can secure Biden’s AI legacy,” Brookings, January 25, 2024, <https://www.brookings.edu/articles/how-congress-can-secure-bidens-ai-legacy/>.
- 78 Office of Senator Amy Klobuchar, “Klobuchar, Booker, Bennet Introduce Legislation to Regulate AI-Generated Content in Political Ads,” May 15, 2023 <https://www.klobuchar.senate.gov/public/index.cfm/2023/5/klobuchar-booker-bennet-introduce-legislation-to-regulate-ai-generated-content-in-political-ads>; Office of Congressman Ted Lieu, “Reps Lieu, Buck, Eshoo and Sen Schatz Introduce Bipartisan, Bicameral Bill to Create a National Commission on Artificial Intelligence,” June 20, 2023 <https://lieu.house.gov/media-center/press-releases/rep-lieu-buck-eshoo-and-sen-schatz-introduce-bipartisan-bicameral-bill>; Office of Senator Brian Schatz, “Schatz, Kennedy Introduce Bipartisan Legislation to Provide More Transparency on AI-Generated Content,” October 24, 2023 <https://www.schatz.senate.gov/news/press-releases/schatz-kennedy-introduce-bipartisan-legislation-to-provide-more-transparency-on-ai-generated-content>; Senate Legislative Counsel, Draft Copy of EHF23968 GFW, Accessed January 29, 2024 https://www.coons.senate.gov/imo/media/doc/no_fakes_act_draft_text.pdf; Rebecca Klar, “Bipartisan bill aims to protect actors, singers from AI recreations,” The Hill, October 12, 2023 <https://thehill.com/homenews/senate/4252277-bipartisan-bill-aims-to-protect-actors-singers-from-ai-recreations/>.
- 79 H.R.6791 – Artificial Intelligence Literacy Act of 2023, Accessed January 29, 2024, <https://www.congress.gov/bill/118th-congress/house-bill/6791>; S.3478 – Eliminating Bias in Algorithmic Systems Act of 2023, Accessed January 29, 2024, <https://www.congress.gov/bill/118th-congress/senate-bill/3478>; S.2892 – Algorithmic Accountability Act of 2023, Accessed January 29, 2024 <https://www.congress.gov/bill/118th-congress/senate-bill/2892>.

Some or all of these proposed bills could address racial discrimination in AI development or deployment if they were to be passed and could directly or indirectly impact the public health sector.

Given that the White House EO included accelerating the AI talent pipeline, there could also be an additional call to action to ensure that these roles identify and retain diverse talent for a more inclusive workforce and diverse options for AI innovators and inventors.

Guardrails for AI Use by the Public Health Workforce

In any next step, public health organizations must prioritize AI design and deployment in their work, along with digital equity efforts, including more diversity in the design and governance of AI systems to include public health professionals, the engagement of impacted communities, the parallel track to improve diversity, equity, and inclusion in the existing public health workforce, and expanded representation in clinical trials. These steps are not to minimize the prior examples where AI can be useful to identify, train, and even hire prospective workers. The main theses behind the proposed recommendations are that the velocity at which AI can be beneficial should come with deliberate guardrails, which ensure that the industry is moving cautiously, and centering marginalized communities.

Design and governance

The design and governance of AI systems can democratize its use and technical leadership, especially as these technologies interact with all aspects of society. For example, a new AI project called 'Latimer' is bringing more inclusivity to LLMs to create more racially sensitive experiences in which Black and Latino populations can feel deeply embedded and represented in generative AI models.⁸⁰ This project is also working to address some of the online biases that start with the data training AI models through explicit partnerships with historically Black colleges and universities (HBCUs) and could also include Hispanic Serving Institutions (HSIs).⁸¹ Increased community engagement is a key factor in expanding the universe of stakeholders interested in AI equity, especially in health care.

Engagement of impacted communities

Another critical component of a culturally efficacious and inclusive AI agenda is the involvement of impacted communities to understand better the impacts and implications of AI for their communities. An AI literacy public health campaign can prepare patients for a more technologically savvy public health workforce and ensure that communities are moving from analog-driven care to those enabled by digital systems like AI. Training public health workers in the opportunities and consequences of emerging and evolving technologies as part of their roles complements, rather than replaces, the work that involves human interactions. The federal government should also invest in national public service announcements, at times without medical distress, to raise awareness of how the public health system will utilize such tools.

80 Latimer, "New large language model application, Latimer sets path to create equity in the future of AI," PR Newswire, October 19, 2023, <https://www.prnewswire.com/news-releases/new-large-language-model-application-latimer-sets-path-to-create-equity-in-the-future-of-ai-301962084.html>.

81 Latimer, "New large language model application".

The parallel track of diversity, equity, and inclusion in the public health sector

The AI ecosystem and the public health workforce face similar challenges regarding workforce diversity, the representation of diverse populations, and the validation that people with the lived experiences of the healthcare traumas of particular groups will stand by them. This is where efforts to address demographic diversity in the field must continue, as well as the surfacing of more formal strategies to include these workers at the table in the design and deployment of AI for the public good. For example, the CDC could establish foundational training among the gamut, researchers, and health workers to better identify and mitigate unconscious and explicit biases in AI models. The training of public health leaders could also center AI on a human-centered framework that respects the physical and emotional states of medically vulnerable populations and their communities. More diverse investigators who can also be trained in inclusive and responsible AI will ensure that datasets are more normalized for populations quickly becoming the majority in society. Without solving and mitigating the lack of diversity in the public health workforce, the same challenges may persist; but, with appropriate professional development, which is institutionalized in the preparation of the current workforce, more can be done to ensure the safety of patients.

Expanded representation in clinical trials

Finally, the increased diversity in clinical trials will help only if done by humanizing methods and in spaces of trust. Just recently, the FDA chief, Robert Califf, prioritized more excellent representation of clinical trials in pharmaceuticals as the pathway to more inclusive AI because the data matters when administering effective patient care.⁸² However this requires AI to be one of many parts in developing and implementing a new and evolving healthcare strategy. Having partners at the table within the public health system will matter in how the workforce embraces and uses AI. An interdisciplinary set of actors, codified in an advisory, should constantly police the outcomes of these technologies when used in national medical emergencies or during public responses. Alongside general stakeholder education and engagement, the collaboration between physicians, healthcare educators, investigators, students, technologists, and others will create a more robust path toward equitable and fair use of AI on medically fragile populations. An effort of this type also helps to avert the misinformation and disinformation associated with AI, contributing to the history of distrust and hesitations among marginalized populations.

Creating a more diverse public health workforce while emboldening AI tools to complement and supplement their jobs has potential in the expanded use and adoption of responsible AI. However, this will only happen through a mix of public policies, health education, and patients' openness to embrace it for the public good and interest. Until then, efforts to integrate AI may have to slowly proceed to recognize how it can further exacerbate rather than heal existing public health traumas, especially for communities of color.

⁸² Speech to the White House AI Aspirations Conference, Washington, DC, Readout: At AI Aspirations, Leaders Project a Vision for How We Can Use AI to Achieve America's Ambitions | OSTP | The White House

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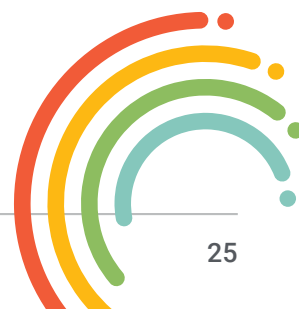
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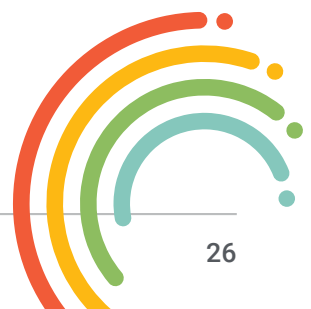
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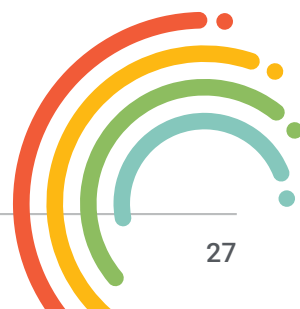
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About the Author



Dr. Nicol Turner Lee is a senior fellow in Governance Studies, the director of the Center for Technology Innovation and serves as Co-Editor-In-Chief of the TechTank blog and podcast at the Brookings Institution, which is a global think tank headquartered in Washington, D.C. Dr. Turner's research encompasses equitable access to technology across the U.S. and abroad.

In December 2024, she unveiled and launched the new AI Equity Lab at Brookings to amplify strategies for addressing discrimination in AI and is working on an "(un)Hidden Figures" data repository to amplify interdisciplinary and diverse voices in the space. She is the author of the book, *Digitally Invisible: How the Internet is Creating the New Underclass* (Brookings Press) on online connectivity. She has appeared throughout various news media, testified before Congress and international global governance bodies, and written extensively on tech and telecom issues. In 2022, she was recognized for distinguished career contributions by the American Sociological Association at the annual conference.

She has her B.A. from Colgate University, and her Ph.D. from Northwestern University. The views in this paper are her own, and do not represent those of the Brookings Institution or the National Hispanic Health Foundation.



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