

Mitigating Racial and Ethnic Bias in Clinical Algorithms: Ethics, Policy, and Governance

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Mitigating Racial and Ethnic Bias in Clinical Algorithms: Ethics



[Humanities Vantage]

Ethical Considerations Regarding the Use of Race in Pulmonary Function Testing

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- Pulmonary function testing employed a racial correction factor
- Examination of the ethical factors to consider if *keeping* racial correction, or *eliminating* racial correction
 - Implications for patients, care team

Mitigating Racial and Ethnic Bias in Clinical Algorithms: Equity



Doctors Wrestle With A.I. in Patient Care, Citing Lax Oversight

The F.D.A. has approved many new programs that use artificial intelligence, but doctors are skeptical that the tools really improve care or are backed by solid research.

Journal of the American Medical Informatics Association, 0(0), 2020, 1–4
doi: 10.1093/jamia/ocaa133
Perspective



Perspective

Addressing health disparities in the Food and Drug Administration's artificial intelligence and machine learning regulatory framework

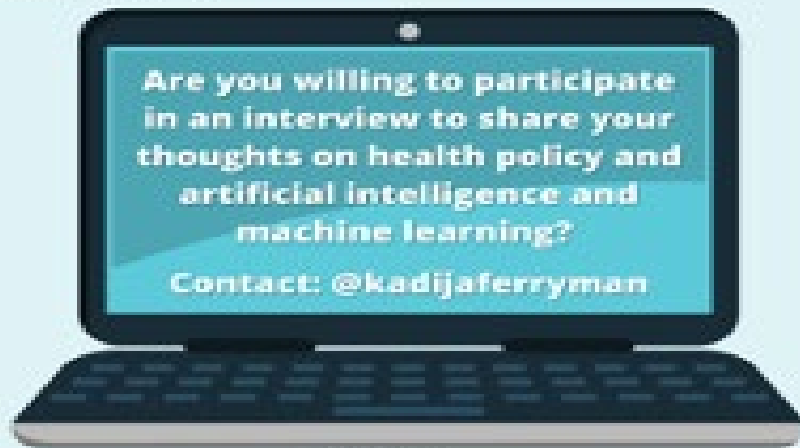
Kadija Ferryman 

Mitigating Racial and Ethnic Bias in Clinical Algorithms: Policy



Advancing Health Equity in AI/ML in Health Regulation and Policy

This project is gathering information from people to identify the potential challenges and policy options for developing federal regulations on the use of artificial intelligence (AI) and machine learning (ML) in medicine. We are asking for people to participate in interviews about health equity, health policy, and the use of artificial intelligence (AI) and machine learning (ML) in healthcare.



Eligibility

- Work at national minority health organization or an organization that focuses on health disparities
- Available to do a recorded virtual interview
- Eligible participants who complete the interview will receive a \$50 gift

Content Analysis of FDA-approved AI devices

- Varied performance testing
- Majority did not include demographic info in performance testing

National Landscape

- Work in this space is new and organizations are looking for ways to prioritize health equity.

Qualitative Interviews

- Concerns of algorithmic bias
- Gaps in implementation within the healthcare system
- Barriers to access health AI
- Limited financial incentives and support for health AI adoption & use

Mitigating Racial and Ethnic Bias in Clinical Algorithms: Policy (*“little p”*)



The NEW ENGLAND JOURNAL *of* MEDICINE

REVIEW ARTICLE

AI IN MEDICINE

Jeffrey M. Drazen, M.D., *Editor*

Considering Biased Data as Informative Artifacts in AI-Assisted Health Care

Kadija Ferryman, Ph.D., Maxine Mackintosh, Ph.D.,
and Marzyeh Ghassemi, Ph.D.

Mitigating Racial and Ethnic Bias in Clinical Algorithms: Policy (*“little p”*)



Table 1. Technical and Artifact-Based Approaches to Data Issues in Medical Artificial Intelligence (AI).

Data Issues	Technical Approach	Alternative or Complementary Artifact-Based Approach
Racial corrections	Attempt to correct model performance after development in order to approximate differences in performance observed between groups	Convene interdisciplinary group to examine history of data and current clinical use; adjust problem formulation (e.g., design model to diagnose inequities ¹⁸), adjust model assumptions, or both
Missing data	Collect additional data on groups; impute missing samples with the use of individual or group data; remove populations that are likely to have data missing from datasets	Convene interdisciplinary group to examine reasons why data are missing (e.g., lack of access or earned mistrust); increase education on structural barriers to medical care
Population disparities (e.g., disparities in diagnosis, treatment, or expenditures)	Use alternative data from diverse sources; exclude data points or variables with population differences as inputs for an AI model; disclose overall diagnostic accuracy and robustness checks	Examine population-level differences in undertreatment and exclusion; allow persons with limited social power or capital to influence the development of AI ²¹ (e.g., conduct community participatory research to understand health care needs), and create new AI tools if necessary

Mitigating Racial and Ethnic Bias in Clinical Algorithms: Governance



Institution Level

IRBs
Committees



State and Federal Regulation

Data privacy laws
Antidiscrimination Laws, Sec.1557
FDA



Nongovernmental Organizations

WHO
CHAI (Coalition for Health AI)

Mitigating Racial and Ethnic Bias in Clinical Algorithms: Summary



- Inter-related roles for **ethics** (including **equity**), **policy**, and **governance** actions to mitigate racial and ethnic bias in clinical algorithms
- Empirical research needed on operationalization and implementation of AI ethics and policy, for ex:
 - Datasheets, model cards & health equity/outcomes
 - Algorithmic assessment tools, audit reports & health equity/outcomes



Thank you!



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Email me for references cited