AMA Journal of Ethics®
January 2025, Volume 27, Number 1: E3-5

FROM THE EDITOR

How Historical Legacies Inform Contemporary Epidemiology and Medicine

Emily L. Graul, MSc and Christopher K. Wong, MD, MSc

Essential to the practice of evidence-based medicine are concurrent and recurrent epidemiological analyses of health determinants and outcomes that are well-designed, high-quality, and transparent interventional and noninterventional studies.[1,2,3,4,5,6,7,8,9] The disciplines of medicine and epidemiology are closely intertwined and share the aim of improving health and well-being but are distinguished by their scope: medicine centers on personalized health care for individuals and families, whereas epidemiology encompasses and studies the health of populations.

Their intersection gives rise to notable ethics questions regarding marginalized communities that are typically excluded from or underrepresented in analyses, as well as people lost to follow-up in trials or misrepresented, mis-sampled, or mis-aggregated in data.[10,11,12] These communities' members are also typically ones health systems disproportionately and inequitably fail to reach: those who are uninsured or underinsured or have job, transportation, or food insecurity; those who live with chronic illnesses or disabilities; or those who experience language and cultural barriers when attempting to access care. Epidemiological data thus reflect wider social and structural inequity, biasing how evidence is applied in clinical practice: specifically, guidelines and formulas that draw upon epidemiological research can stem from and propagate social and institutional biases, exacerbating health inequity.[13,14,15] Some consequences of inequity include individuals' and communities' distrust of health care and of how their data are categorized in research and used.[16]

In this issue of the *AMA Journal of Ethics*, we asked contributors to focus on both the past and the present when addressing why interfaces between epidemiology and medicine are clinically and ethically significant. Epidemiology and health research have contributed to medicine's advancement, but such efforts have had ethical shortcomings that deserve attention. Contributors to this issue consider topics such as the inception of epidemiology's and medicine's integration as part of colonialism and industrialization and how these historical legacies undermine both fields today. They also outline the relationships between various institutions and organizations that play roles in bridging epidemiology and medicine for evidence-based health care, including the parties that provide health care; encode data on people's health information; store, process, and interpret data for research; and translate epidemiological findings into clinical practice guidelines. Furthermore, contributors cover the role of institutions that educate health

practitioners and researchers, including fostering awareness of epidemiological bias. Finally, our issue's experts outline the origins of today's health data coding and classification systems and canvass the myriad complexities of thoughtfully handling data. At the heart of all of these endeavors is building and maintaining trust and respect among persons whose experiences are represented by data, clinicians caring for patients, and clinician-scientists who use patients' data.

By examining historical and present convergences of medicine and epidemiology and implications of those convergences, we aim to support clinicians taking a critical eye to evidence that should inform competent, compassionate practice while enhancing epidemiologists' consideration of peoples' lived experiences as they work to generate evidence from data. We hope this issue can serve as a lens and resource for clinicians and trainees to improve health care practice, health research, clinical outcomes, and equity.

References

1. Guyatt G; Evidence-Based Medicine Working Group. Evidence-based medicine. A new approach to teaching the practice of medicine. *JAMA*. 1992;268(17):2420-2425.
2. Garg PK, Platt JM, Hirsch JA, et al. Association of neighborhood physical activity opportunities with incident cardiovascular disease in the Cardiovascular Health Study. *Health Place*. 2021;70:102596.
3. Jones WS, Mulder H, Wruck LM, et al; ADAPTABLE Team. Comparative effectiveness of aspirin dosing in cardiovascular disease. *N Engl J Med*. 2021;384(21):1981-1990.
4. Joseph J, Pajewski NM, Dolor RJ, et al; PREVENTABLE Trial Research Group. Pragmatic evaluation of events and benefits of lipid lowering in older adults (PREVENTABLE): trial design and rationale. *J Am Geriatr Soc*. 2023;71(6):1701-1713.
5. Mangione CM, Barry MJ, Nicholson WK, et al; US Preventive Services Task Force. Statin use for the primary prevention of cardiovascular disease in adults: US Preventive Services Task Force recommendation statement. *JAMA*. 2022;328(8):746-753.
6. Cholesterol Treatment Trialists' Collaboration. Effect of statin therapy on muscle symptoms: an individual participant data meta-analysis of large-scale, randomised, double-blind trials. *Lancet.* 2022;400(10355):832-845.
7. Gupta A, Madhavan MV, Poterucha TJ, et al. Association between antecedent statin use and decreased mortality in hospitalized patients with COVID-19. *Nat Commun.* 2021;12(1):1325.
8. Collins R, Reith C, Emberson J, et al. Interpretation of the evidence for the efficacy and safety of statin therapy. *Lancet.* 2016;388(10059):2532-2561.
9. Riestenberg RA, Furman A, Cowen A, et al. Differences in statin utilization and lipid lowering by race, ethnicity, and HIV status in a real-world cohort of persons with human immunodeficiency virus and uninfected persons. *Am Heart J.* 2019;209:79-87.
10. Mays VM, Echo-Hawk A, Cochran SD, Akee R. Data equity in American Indian/Alaska Native populations: respecting sovereign nations' right to meaningful and usable COVID-19 data. *Am J Public Health*. 2022;112(10):1416-1420.

11. Xiao H, Vaidya R, Liu F, Chang X, Xia X, Unger JM. Sex, racial, and ethnic representation in COVID-19 clinical trials: a systematic review and meta-analysis. *JAMA Intern Med.* 2023;183(1):50-60.
12. Michos ED, Van Spall HGC. Increasing representation and diversity in cardiovascular clinical trial populations. *Nat Rev Cardiol.* 2021;18(8):537-538.
13. Vyas DA, Eisenstein LG, Jones DS. Hidden in plain sight—reconsidering the use of race correction in clinical algorithms. *N Engl J Med*. 2020;383(9):874-882.
14. Visweswaran S, Sadhu E, Morris M, Samayamuthu M. Clinical algorithms with race: an online database. *medRxiv*. 2023;2023.07.04.23292231.
15. Eneanya ND, Boulware LE, Tsai J, et al. Health inequities and the inappropriate use of race in nephrology. *Nat Rev Nephrol.* 2022;18(2):84-94.
16. Mathur R, Rentsch CT, Venkataraman K, et al. How do we collect good-quality data on race and ethnicity and address the trust gap? *Lancet*. 2022;400(10368):2028-2030.

Emily L. Graul, MSc is an MD/PhD student at Emory University in Atlanta, Georgia, in the Medical Scientist Training Program and a trainee associate editor for *Thorax*. She received her master's degree in epidemiology from the London School of Hygiene and Tropical Medicine. She previously worked at Imperial College London in England, where she conducted research in cardiopulmonary epidemiology and held teaching roles.

Christopher K. Wong, MD, MSc is an internal medicine and pediatrics resident at Baylor College of Medicine in Houston, Texas. He received his medical degree from Baylor and his master's degree in global health nutrition from the London School of Hygiene and Tropical Medicine. His professional interests include global health, transition medicine, and health policy.

Citation
AMA J Ethics. 2025;27(1):E3-5.

DOI
10.1001/amajethics.2025.3.

Conflict of Interest Disclosure
Authors disclosed no conflicts of interest.

The viewpoints expressed in this article are those of the author(s) and do not necessarily reflect the views and policies of the AMA.

ISSN 2376-6980