AMA Journal of Ethics®
March 2022, Volume 24, Number 3: E201-211

MEDICAL EDUCATION: PEER-REVIEWED ARTICLE

How Should Educators and Publishers Eliminate Racial Essentialism?

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Abstract

Racial essentialism—the belief that socially constructed racial categories reflect "inherent" biological differences—exacerbates learners' racial prejudice and diminishes their empathy. Essentialism hinders health professions education programs' capacity to generate a health care work force that motivates ethics and equity in health care and research. This article suggests how health professions educators and institutions should reform pedagogy on race, when clinically relevant, to emphasize racism as the root cause of health inequity. Publishers of research also have key roles in reform and should enforce appropriate and just references to race in journals and health professions education content.

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Essentialism and Inequity

In a large 2005 survey, 22% of respondents supported a genetic explanation of racial inequality.[1] Racial essentialism—the belief that racial groups form discrete genetic categories; that individuals of the same racial category are biogenetically similar; and that different races are fundamentally different—can cause people to perceive racial outgroup members as less worthy of affection and assistance.[2,3,4,5] Indeed, the psychology literature demonstrates that essentialist thinking correlates with greater dehumanization of and heightened discrimination against racial outgroups and is actually a causal factor in increased racial prejudice.[6,7,8,9,10,11,12,13]

What's more, racial essentialism lessens motivation for redress of social inequities.[14,15,16] For example, adults who believe that some groups lack biological potential to be highly intelligent and *children* who believe that human traits are immutable are less likely to support measures—such as affirmative action, welfare, tax-reductions (adults), or volunteering (children)—designed to repair social inequality.[17,18,19,20,21,22,23] In a study of undergraduate students, those who were primed to perceive race as a social construct instead of a biological characteristic have been shown to be more emotionally distressed by social inequality.[15] Conversely, participants primed to view race as a biological construct were more likely to see inequalities as unproblematic and were less interested in sustaining social contact with individuals of

other races.[15] More generally, racial essentialism justifies negative attitudes and perpetuates inequity[24,25]; thus, it is immoral. In the face of devastating educational, economic, housing, and health inequities in communities of color, genetic conceptions of race are direct threats to justice.

This article provides evidence of the ubiquity and negative consequences of racial essentialism. It also offers recommendations for how health professions educators and institutions can reform pedagogy regarding race and racism to combat these harms and suggests a role for publishers in enforcing appropriate and just references to race in journals and health professions education content.

Origins of Racial Essentialism

Even innocuous references to racial biology can reinforce learners' conviction in racial essentialism and negatively alter their attitudes.[15,26,27,28] An announcement declaring that "Research studies indicate there are some medical treatments that work better for Black men and women," for example, increased anti-Black discrimination in learners despite its intent to promote public health.[29] American biology textbooks repeatedly include problematic essentialist teaching that increases student acceptance of racial determinism.[30,31,32,33,34,35,36,37] References to sickle cell anemia's prevalence in Black populations or mention that an individual's race can be determined from skeletal remains, for example, are common.[34,36,37]

Implicit racial bias not only perpetuates an incorrect understanding of race but can also elevate levels of racism and contribute to health care inequities.[29,38,39] Recent research has found that when students read about racial differences in the epidemiology of genetic diseases, they had "(i) greater belief in a genetic cause for racial differences in behavior … (ii) greater tendencies to use genes to explain the racial achievement gap … and (iii) lower intentions to fix this gap if they already believe[d] that race was biological" compared to peers who received identical instruction on skeletal forensics, cystic fibrosis, and sickle cell anemia absent racial terminology.[40] Students who received racialized instruction also demonstrated significantly less interest in socializing with outgroup peers and were less supportive of efforts to address racial education disparities.[41] Notably, these differences in beliefs—engendered after 4 text-based biology lessons that *implied* bioessentialism—persisted for weeks.[41]

Of great concern, then, is that across classrooms and clinics, health care learners are constantly trained with race-based materials that fuel notions of genetic racial determinism.[42,43,44,45] If even K-12 students receive repeated incantations on racial essentialism,[37] imagine the extent of racialized messaging internalized by physicians who complete years of advanced, postgraduate biology coursework. What consequences does this messaging have on their ability to humanize patients, reign in implicit bias, and act against social inequities?

In their seminal work on bioessentalist teaching, William and Eberhardt demonstrate that even unassuming classroom discussions of racial essentialism engender racial prejudice and greater acceptance of racial inequity.[15] They magnify the significance of their findings by emphasizing how easily subtle messaging about racial determinism can potently alter attitudes and behavior. They give the following example:

> Imagine two people, each driving to work to meet a new coworker while listening to talk radio. In one car, a doctor is explaining why she uses racial group membership to tailor her diagnoses and treatment decisions,

arguing that the underlying biology of race affects how individuals respond to different drugs.... In another car, a historian is describing the changing boundaries of racial groups in American history, pointing out that "color" lines have typically been drawn to correspond to economic and political inequities, not physical differences.... If the new coworker is of a different racial group than our drivers, his or her outcomes may well be affected by something as innocuous as the topic of drive time radio.[15]

It is notable—and frightening—that these scholars of bioessentialism chose a *physician* as a prime example of how such messaging can inflict harm. This example highlights the degree to which genetic portrayals of race thrive in medicine[45] and underscores a final point: if essentialist conceptions of race have been shown to be antithetical to health justice, they have no place in medical education.

Race in Medicine

Everywhere you look in medicine, racial labels abound. They exist in coursework, textbooks, and national board assessments.[42,43,44,45,46] They flounce across clinical resources, swagger in racialized treatment algorithms, and guide diagnostic protocol.[45,47]

From the moment patients enter the health care system, race affects their care. It manifests in kidneys and lungs in the form of problematic race corrections for renal and pulmonary function.[48,49,50] It sits in bladders and wombs as a consideration for urinary tract infection and sexually transmitted infection risk.[45] Race tracks along veins (heart failure medication, Joint National Committee hypertension guidelines), buries itself in bones (Fracture Risk Assessment Tool Osteoporosis Tool®), thumps in the heart (atherosclerotic cardiovascular disease risk calculator), and lumps tightly in the breast (breast cancer risk assessment).[45]

Where race goes, medical students are asked to follow. So they memorize racial associations for cystic fibrosis, sarcoidosis, amebiasis, and gallstones.[46] Recent studies have found that 96% of preclinical lecture slides mentioning race at a single institution employ racially essentialist teaching[43] and that a majority of biomedical scholarship fails to define operative variables of race or ethnicity even when the authors' conclusions rely on assumptions of fundamental racial difference.[51,52,53] Racial essentialism is thus deeply rooted in physician training; reifies harmful, reductionist logic; and needs to be addressed.[24,42,43,44,45,48,51,52,53,54,55,56,57,58] Although curricular reform efforts are underway, these activities are sparse, in a minority of institutions, commonly elective, and often bolstered by the labor of student activists.[42,43,44,46,54,58,59]

But racial essentialism is learned even without explicit teaching. Generic statements, such as "girls wear pink," imply categorical uniformity and can increase essentialist biases in learners.[37,60] Research shows that belief that a category is meaningful, informative, and *essential* can be transmitted from parents to children simply through use of generic language.[60] If these lessons can be passed unconsciously within families, they can be transferred from attending physicians to students. So when Black residents are referred to as "you people," or when trainees hear "African Americans get sickle cell anemia," "Hispanic women complain about *total body dolor* and are unreliable historians," or "Asian American tissue is more friable," these generic statements might intensify biases.[61] It is horrifying that a 2016 study demonstrated that a significant proportion of medical trainees believe in fundamental racial differences, including that Black nerve endings are less sensitive and Black skin is thicker.[62] This finding may help to explain why Black patients—even children—suffer from deficient pain management in the hospital.[63]

There are other dangers of racial essentialism in medicine. Essentialist medical approaches contribute to not only interpersonal racial biases but also *systemic* racial biases that create spurious standards of care for patients of color, delay diagnoses, and inhibit patients' ability to access surgeries, treatments, and social resources.[39,45,48,49,64,65] It is shocking that racially essentialist teaching that has been demonstrated to increase belief in immutable racial capacity, create prejudice, and diminish support for policies redressing inequity looks identical to contemporary medical education materials[37,40] (see Figure). Given these documented harms, teaching racial essentialism as a part of physician training is, as Donovan cogently writes, tantamount to "playing with fire."[37]

Figure. Differences Between the Racialized and Non-racialized Texts[a]

	Racialized Text	Non-Racialized Text
1	"The allele responsible for sickle cell anemia is particularly common among people of African descent; about 9% of African Americans are heterozygous for this allele. About 0.2% are homozygous and therefore have the symptoms of sickle cell anemia. In some groups of people in Africa, up to 45% of all individuals are heterozygous for this allele, and 6% are homozygous. Why is sickle cell anemia so common in Africa? It turns out that carriers of sickle cell anemia are more resistant to malaria, a common and serious disease in central Africa." (Raven & Johnson, 2002, p. 260)	"About 2 million Americans (0.6%) are carriers of the allele responsible for sickle cell anemia. Around 72,000 people have the symptoms of the disease because they are homozygous. However, in some groups of people in the world, up to 45% of all individuals are heterozygous for this allele, and 6% are homozygous and therefore have the symptoms of sickle cell anemia. Why is sickle cell anemia so common in some groups of people? It turns out that carriers of sickle cell anemia are more resistant to malaria, a common and serious disease in many parts of the world."
2	http://www.mhhe.com/biosci/genbio/raven6b/information/olc/samplechapter.mhtml. Use this link and then view page 260 of Raven & Johnson (2002) to see the figures used in the experimental text that depicted the distribution of malaria and SCA only in Africa.	http://www.understandingrace.org/humvar/sickle_01.html Use this link to view the figures used in the control condition that depicted the distribution of malaria and SCA in all world populations.
3	"Perhaps the best example is cystic fibrosis (CF), the most common fatal genetic disorder among Caucasians" (Raven & Johnson, 2002, p. 261).	"Perhaps the best example is cystic fibrosis (CF)" (Raven & Johnson, 2002, p. 261).
4	Frequency among human births: cystic fibrosis: 1/2,500 Caucasians sickle cell anemia: 1/625 African-Americans	Frequency among human births: cystic fibrosis: 1/3500 sickle cell anemia: 1/5,000

[a] Reproduced with permission of John Wiley & Sons from Donovan.[37] © 2013 The Authors. *Journal of Research in Science Teaching* published by Wiley Periodicals LLC on behalf of the National Association for Research in Science Teaching.

Eliminating Racial Essentialism

Because race will not (and should not) cease to exist as a variable in scientific research or social identity, literacy on race is necessary for medical training.[47,66] Yet many physicians admit they do not feel comfortable applying race-based metrics in clinical practice,[43] even as they are instructed that race is a biological risk factor.[43,50] And though many doctors readily decry racism, racial essentialism—and the race-based medical protocols it informs—are not always recognized as examples of structural racism that harm communities of color.[39,42,43,45,48,49]

Medical education can facilitate inequity or promote justice.[37,56,67] The Liaison Committee on Medical Education (LCME) standard 7.6 in 2021 required medical schools to provide training on "[r]ecognition of the impact of disparities in health care on all populations and potential methods to eliminate health care disparities."[68] But in the 2017-2018 academic year, only 40.2% of accredited US medical schools documented

curricular content on racial disparities.[69] Because this educational requirement is an initial metric of success, medical institutions and the LCME should seek 100% compliance with this requirement in the coming years. It is important to recognize that even existing curricula on social determinants of health are not standardized, rarely integrated, and seldom engage with analysis of the political economies that engineer institutional racial inequities.[56,69] Teaching social determinants of health as facts rather than as an impetus for social change has left these pedagogical attempts on a "road to nowhere."[56] To prepare learners to think critically when faced with racialized clinical data in their careers and to support learner commitment to health equity, education on race-based medicine should encompass analytic frameworks supplied by critical race theory.[45,54,69,70,71,72,73]

Without active undoing, maltreatment will continue across geographies and generations. As a first step, medical schools should systematically analyze how racial essentialism is being mobilized in current curricula. Efforts to catalog and reform bioessentialist teaching have been undertaken by advocates at the Warren Alpert Medical School of Brown University (AMS); the Perelman School of Medicine; the University of California, San Francisco; and Boston University School of Medicine, among other institutions, and demonstrate that rectifying existing issues requires new and explicit teaching on race, racism, and inequity for students, faculty, and administrators alike.[43,54,58,59] The teachers need to be taught, too. Beyond undergraduate environments, making LCME compliance feasible will require commitment from national authorities in graduate medical education and continuing medical education as well.

These endeavors must be explicitly valued and compensated and institutionally supported. At AMS, for example, students petitioned to establish a dedicated fellowship and remuneration for continued work on equity and critical education. This effort assisted in the formation and implementation of the Brown Advocates for Social Change and Equity Fellowship,[74] which expanded programmatic training across the institution. In parallel, officially recognizing faculty members' labor in justice work through metrics that support tenure and clinical buy-in is critical. Relying on voluntary efforts of professionals of color increases the minority tax—the undue burdens placed on minority faculty for improvement in institutional equity—underestimates the power of racial inequity and undermines the implementation of systematic and sustainable reforms.[75]

Disrupting the foothold of bioessentialism in medicine will take concerted effort in multiple arenas. In addition to educational reform, journalistic mandates for the proper use of racial labels in scientific research must be enforced. Because utilizing race in the production of scientific knowledge is complex and can cause harm, clear guidelines—like those accepted by the Council of Science Editors—are readily available.[76,77] They are, however, often not followed.[51] Editorial boards should require adherence to these standards during review and prior to publication. From a practical standpoint, scientists who do not possess nuanced comprehension of race would face difficulty publishing scholarship. Thus, this measure would incentivize institutions to ensure that trainees are equipped with a robust understanding of race and inequity, as doing so would facilitate successful careers in academic medicine.

As part of developing an accurate understanding of race, physicians must also acquire strong command of structural racism.[78,79,80] Even now, fables of genetic racial differences are being investigated to explain racial inequities in the SARS-CoV-2 pandemic.[81,82,83,84] This type of theorization—which is propounded in prestigious medical

journals today—implicitly sanctions devastating racial health inequities as the natural result of biological variance rather than spotlighting injustices in labor, education, housing, incarceration, health care, and social investment that are the roots of disproportionate pandemic misery.[85]

Conclusion

Unfounded theories of racial biology will not elucidate or remedy the disturbing racial injustices of today. Instead of mitigating racial injustices, race-based medicine ignores centuries of inequity and forces patients into a cage of reductionist logic whereby their disparate suffering is deemed predetermined. Recent studies also demonstrate that use of race-based clinical tools causes systematic underdiagnosis (or overdiagnosis of some conditions) and undertreatment of populations of color.[86,87,88] In obscuring the realities of racism, this iteration of bioessentialism labels bodies of color as inherently deficient, abnormal, or substandard, which not only adds to the burden of racist stigma but also suggests that, without people of color, society would be free of excess disease, crime, and poverty.[50,89,90]

The continued entrenchment of racial essentialism in medical practice and training engenders harm, operates in violation of existing scientific consensus, and ultimately impairs the advancement of scientific scholarship and health equity.[15,37,41,91] Amidst national conversations on race and racism, medical educators and physician scholars should abolish racial essentialism.

References

1. Brueckner H, Morning A, Nelson A. The expression of biological concepts of race. Paper presented at: Annual Meeting of the American Sociological Association; August 13-16, 2005; Philadelphia, PA. Accessed November 23, 2021. http://www.tessexperiments.org/sup/brueckner275_genetics.pdf
2. DeBruine LM. Facial resemblance enhances trust. *Proc Biol Sci*. 2002;269(1498):1307-1312.
3. Hamilton WD. The genetical evolution of social behaviour. II. *J Theor Biol*. 1964;7(1):17-52.
4. Kruger DJ. Evolution and altruism: combining psychological mediators with naturally selected tendencies. *Evol Hum Behav*. 2003;24(2):118-125.
5. O'Gorman R, Wilson DS, Miller RR. Altruistic punishing and helping differ in sensitivity to relatedness, friendship, and future interactions. *Evol Hum Behav*. 2005;26(5):375-387.
6. Plaks JE, Malahy LW, Sedlins M, Shoda Y. Folk beliefs about human genetic variation predict discrete versus continuous racial categorization and evaluative bias. *Soc Psychol Personal Sci*. 2012;3(1):31-39.
7. Kang SK, Plaks JE, Remedios JD. Folk beliefs about genetic variation predict avoidance of biracial individuals. *Front Psychol*. 2015;6:357.
8. Bastian B, Haslam N. Psychological essentialism and stereotype endorsement. *J Exp Soc Psychol*. 2006;42(2):228-235.
9. Haslam N, Bastian B, Bain P, Kashima Y. Psychological essentialism, implicit theories, and intergroup relations. *Group Process Intergroup Relat*. 2006;9(1):63-76.
10. Morton TA, Hornsey MJ, Postmes T. Shifting ground: the variable use of essentialism in contexts of inclusion and exclusion. *Br J Soc Psychol*. 2009;48(pt 1):35-59.

11. Pauker K, Ambady N, Apfelbaum EP. Race salience and essentialist thinking in racial stereotype development. *Child Dev*. 2010;81(6):1799-1813.
12. Rangel U, Keller J. Essentialism goes social: belief in social determinism as a component of psychological essentialism. *J Pers Soc Psychol*. 2011;100(6):1056-1078.
13. Keller J. In genes we trust: the biological component of psychological essentialism and its relationship to mechanisms of motivated social cognition. *J Pers Soc Psychol*. 2005;88(4):686-702.
14. Morning A. *The Nature of Race: How Scientists Think and Teach About Human Difference*. University of California Press; 2011.
15. Williams MJ, Eberhardt JL. Biological conceptions of race and the motivation to cross racial boundaries. *J Pers Soc Psychol*. 2008;94(6):1033-1047.
16. Stone DA. Causal stories and the formation of policy agendas. *Pol Sci Q*. 1989;104(2):281-300.
17. Rattan A, Savani K, Naidu NV, Dweck CS. Can everyone become highly intelligent? Cultural differences in and societal consequences of beliefs about the universal potential for intelligence. *J Pers Soc Psychol*. 2012;103(5):787-803.
18. Karafantis DM, Levy SR. The role of children's lay theories about the malleability of human attributes in beliefs about and volunteering for disadvantaged groups. *Child Dev*. 2004;75(1):236-250.
19. Sears DO, Van Laar C, Carrillo M, Kosterman R. Is it really racism?: the origins of white Americans' opposition to race-targeted policies. *Public Opin Q*. 1997;61(1):16-53.
20. Gilens M. Racial attitudes and opposition to welfare. *J Polit*. 1995;57(4):994-1014.
21. Kinder DR, Sanders LM, Sanders LM. *Divided by Color: Racial Politics and Democratic Ideals*. University of Chicago Press; 1996.
22. McConahay JB. Self-interest versus racial attitudes as correlates of anti-busing attitudes in Louisville: is it the buses or the Blacks? *J Polit*. 1982;44(3):692-720.
23. Sidanius J, Pratto F, Bobo L. Racism, conservatism, affirmative action, and intellectual sophistication: a matter of principled conservatism or group dominance? *J Pers Soc Psychol*. 1996;70(3):476-490.
24. Tsai J, Cerdeña JP, Khazanchi R, et al. There is no "African American physiology": the fallacy of racial essentialism. *J Intern Med*. 2020;288(3):368-370.
25. Andreychik MR, Gill MJ. Do natural kind beliefs about social groups contribute to prejudice? Distinguishing bio-somatic essentialism from bio-behavioral essentialism, and both of these from entitativity. *Group Process Intergroup Relat*. 2015;18(4):454-474.
26. Morrin-Chassé A, Suhay E, Jayaratne T. Ideologically motivated reasoning in response to information about genetics and race. Paper presented at: Penn-Temple Philadelphia Region American Politics Conference; September 20, 2013; Philadelphia, PA. Accessed November 23, 2020. https://dra.american.edu/islandora/object/auislandora%3A61174/datastream/PDF/view
27. Morin-Chassé A, Suhay E, Jayaratne T. Discord over DNA: politically contingent responses to scientific research on genes and race. Paper presented at: Annual Meeting of the American Political Science Association; August 28-31, 2014; Washington, DC.

28. Phelan JC, Link BG, Feldman NM. The genomic revolution and beliefs about essential racial differences: a backdoor to eugenics? *Am Sociol Rev*. 2013;78(2):167-191.
29. Condit CM, Parrott RL, Bates BR, Bevan J, Achter PJ. Exploration of the impact of messages about genes and race on lay attitudes. *Clin Genet*. 2004;66(5):402-408.
30. Lieberman L, Hampton RE, Littlefield A, Hallead G. Race in biology and anthropology: a study of college texts and professors. *J Res Sci Teach*. 1992;29(3):301-321.
31. Levin FS, Lindbeck JS. An analysis of selected biology textbooks for the treatment of controversial issues and biosocial problems. *J Res Sci Teach*. 1979;16(3):199-203.
32. Skoog G. The coverage of human evolution in high school biology textbooks in the 20th century and in current state science standards. *Sci Educ*. 2005;14(3-5):395-422.
33. Swarts FA, Roger Anderson O, Swetz FJ. Evolution in secondary school biology textbooks of the PRC, the USA, and the latter stages of the USSR. *J Res Sci Teach*. 1994;31(5):475-505.
34. Morning A. Reconstructing race in science and society: biology textbooks, 1952-2002. *Am J Sociol*. 2008;114(suppl 1):S106-S137.
35. Willinsky J. *Learning to Divide the World: Education at Empire's End*. University of Minnesota Press; 1998.
36. Donovan BM. Reclaiming race as a topic of the US biology textbook curriculum. *Sci Educ*. 2015;99(6):1092-1117.
37. Donovan BM. Playing with fire? The impact of the hidden curriculum in school genetics on essentialist conceptions of race. *J Res Sci Teach*. 2014;51(4):462-496.
38. Condit CM, Parrott RL, Harris TM, Lynch J, Dubriwny T. The role of "genetics" in popular understandings of race in the United States. *Public Underst Sci*. 2004;13(3):249-272.
39. Chapman EN, Kaatz A, Carnes M. Physicians and implicit bias: how doctors may unwittingly perpetuate health care disparities. *J Gen Intern Med*. 2013;28(11):1504-1510.
40. Donovan BM. Learned inequality: racial labels in the biology curriculum can affect the development of racial prejudice. *J Res Sci Teach*. 2017;54(3):379-411.
41. Donovan BM. Framing the genetics curriculum for social justice: an experimental exploration of how the biology curriculum influences beliefs about racial difference. *Sci Educ*. 2016;100(3):586-616.
42. Braun L. Theorizing race and racism: preliminary reflections on the medical curriculum. *Am J Law Med*. 2017;43(2-3):239-256.
43. Tsai J, Ucik L, Baldwin N, Hasslinger C, George P. Race matters? Examining and rethinking race portrayal in preclinical medical education. *Acad Med*. 2016;91(7):916-920.
44. Braun L, Saunders B. Avoiding racial essentialism in medical science curricula. *AMA J Ethics*. 2017;19(6):518-527.
45. 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.
46. Ripp K, Braun L. Race/ethnicity in medical education: an analysis of a question bank for Step 1 of the United States Medical Licensing Examination. *Teach Learn Med*. 2017;29(2):115-122.

47. Cerdeña JP, Plaisime MV, Tsai J. From race-based to race-conscious medicine: how anti-racist uprisings call us to act. *Lancet*. 2020;396(10257):1125-1128.
48. Eneanya ND, Yang W, Reese PP. Reconsidering the consequences of using race to estimate kidney function. *JAMA*. 2019;322(2):113-114.
49. Braun L. *Breathing Race Into the Machine: the Surprising Career of the Spirometer From Plantation to Genetics*. University of Minnesota Press; 2014.
50. Martin T. The color of kidneys. *Am J Kidney Dis*. 2011;58(5):xxvii-xxviii.
51. Lee C. "Race" and "ethnicity" in biomedical research: how do scientists construct and explain differences in health? *Soc Sci Med*. 2009;68(6):1183-1190.
52. Shim JK. *Heart-Sick: The Politics of Risk, Inequality, and Heart Disease*. New York University Press; 2014.
53. Roberts DE. *Fatal Invention: How Science, Politics, and Big Business Re-create Race in the Twenty-First Century*. New Press; 2011.
54. Amutah C, Greenidge K, Mante A, et al. Misrepresenting race—the role of medical schools in propagating physician bias. *New Engl J Med*. 2021;384(9):872-878.
55. Tsai J, Brooks K, DeAndrade S, et al. Addressing racial bias in wards. *Adv Med Educ Pract*. 2018;9:691-696.
56. Sharma M, Pinto AD, Kumagai AK. Teaching the social determinants of health: a path to equity or a road to nowhere? *Acad Med*. 2018;93(1):25-30.
57. Nieblas-Bedolla E, Christophers B, Nkinsi NT, Schumann PD, Stein E. Changing how race is portrayed in medical education: recommendations from medical students. *Acad Med*. 2020;95(12):1802-1806.
58. Green KA, Parnell S, Wolinsky B, et al. Is race a risk factor? Creating leadership and education to address racism: an analytical review of best practices for BUSM implementation. Boston University School of Medicine; 2020. Accessed January 10, 2022. https://www.bumc.bu.edu/busm/files/2021/06/Racism-in-Medicine-VIG-Final-Report-ExecSummary.pdf
59. Chadha N, Lim B, Kane M, Rowland B. *Towards the Abolition of the Use of Biological Race in Medicine: Transforming Clinical Education, Research and Practice*. Institute for Healing and Justice in Medicine; Othering & Belonging Institute, University of California, Berkeley; 2020. Accessed January 10, 2022. https://www.crg.berkeley.edu/wp-content/uploads/2020/07/TowardtheAbolitionofBiologicalRaceinMedicineFINAL.pdf
60. Rhodes M, Leslie SJ, Tworek CM. Cultural transmission of social essentialism. *Proc Natl Acad Sci U S A*. 2012;109(34):13526-13531.
61. Liebschutz JM, Darko GO, Finley EP, Cawse JM, Bharel M, Orlander JD. In the minority: black physicians in residency and their experiences. *J Natl Med Assoc*. 2006;98(9):1441-1448.
62. Hoffman KM, Trawalter S, Axt JR, Oliver MN. Racial bias in pain assessment and treatment recommendations, and false beliefs about biological differences between blacks and whites. *Proc Natl Acad Sci U S A*. 2016;113(16):4296-4301.
63. Goyal MK, Kuppermann N, Cleary SD, Teach SJ, Chamberlain JM. Racial disparities in pain management of children with appendicitis in emergency departments. *JAMA Pediatr*. 2015;169(11):996-1002.
64. Garcia RS. The misuse of race in medical diagnosis. *Pediatrics*. 2004;113(5):1394-1395.

65. Witzig R. The medicalization of race: scientific legitimization of a flawed social construct. *Ann Intern Med*. 1996;125(8):675-679.
66. Braddock CH III. Racism and bioethics: the myth of color blindness. *Am J Bioeth*. 2021;21(2):28-32.
67. Freire P. *Pedagogy of the Oppressed*. Bloomsbury Publishing; 2018.
68. Liaison Committee on Medical Education. Functions and structure of a medical school: standards for accreditation of medical education programs leading to the MD degree. October 2021. Accessed November 23, 2021. https://lcme.org/wp-content/uploads/filebase/standards/2022-23_Functions-and-Structure_2021-10-28.docx
69. White S, Ojugbele O. Addressing racial disparities in medical education. *Curric Context.* 2019;6(2):1-6. Accessed January 10, 2022. https://www.aamc.org/media/37286/download?attachment
70. Tsai J, Crawford-Roberts A. A call for critical race theory in medical education. *Acad Med*. 2017;92(8):1072-1073.
71. Hatch AR. Transformations of race in bioscience: critical race theory, scientific racism, and the logic of colorblindness. *Issues Race Soc*. 2014;2(1):17-41.
72. Bridges KM. *Critical Race Theory: A Primer*. West Academic; 2018.
73. Ford CL, Airhihenbuwa CO. Critical race theory, race equity, and public health: toward antiracism praxis. *Am J Public Health*. 2010;100(suppl 1):S30-S35.
74. Brown Advocates for Social Change and Equity (BASCE). Warren Alpert Medical School of Brown University. Accessed November 24, 2021. https://diversity.med.brown.edu/our-programs/basce
75. Campbell KM, Rodríguez JE. Addressing the minority tax: perspectives from two diversity leaders on building minority faculty success in academic medicine. *Acad Med*. 2019;94(12):1854-1857.
76. Kaplan JB, Bennett T. Use of race and ethnicity in biomedical publication. *JAMA*. 2003;289(20):2709-2716.
77. Mueller AS, Jenkins TM, Osborne M, Dayal A, O'Connor DM, Arora VM. Gender differences in attending physicians' feedback to residents: a qualitative analysis. *J Grad Med Educ*. 2017;9(5):577-585.
78. Metzl JM, Hansen H. Structural competency: theorizing a new medical engagement with stigma and inequality. *Soc Sci Med*. 2014;103:126-133.
79. Krieger N. Does racism harm health? Did child abuse exist before 1962? On explicit questions, critical science, and current controversies: an ecosocial perspective. *Am J Public Health*. 2003;93(2):194-199.
80. McFarling UL. Troubling podcast puts *JAMA*, the "voice of medicine," under fire for its mishandling of race. *Stat News*. April 6, 2021. Accessed November 24, 2021. https://www.statnews.com/2021/04/06/podcast-puts-jama-under-fire-for-mishandling-of-race/
81. Fogarty H, Townsend L, Ni Cheallaigh C, et al. More on COVID-19 coagulopathy in Caucasian patients. *Br J Haematol*. 2020;189(6):1060-1061.
82. McCoy J, Wambier CG, Vano-Galvan S, et al. Racial variations in COVID-19 deaths may be due to androgen receptor genetic variants associated with prostate cancer and androgenetic alopecia. Are anti-androgens a potential treatment for COVID-19? *J Cosmet Dermatol*. 2020;19(7):1542-1543.
83. Peters MC, Sajuthi S, Deford P, et al. COVID-19 related genes in sputum cells in asthma: relationship to demographic features and corticosteroids. *Am J Respir Crit Care Med.* 2020;202(1):83-90.

84. Giudicessi JR, Roden DM, Wilde AAM, Ackerman MJ. Genetic susceptibility for COVID-19-associated sudden cardiac death in African Americans. *Heart Rhythm*. 2020;17(9):1487-1492.
85. Tsai J. COVID-19 is not a story of race, but a record of racism—our scholarship should reflect that reality. *Am J Bioeth*. 2021;21(2):43-47.
86. Diao JA, Wu GJ, Taylor HA, et al. Clinical implications of removing race from estimates of kidney function. *JAMA*. 2021;325(2):184-186.
87. Zelnick LR, Leca N, Young B, Bansal N. Association of the estimated glomerular filtration rate with vs without a coefficient for race with time to eligibility for kidney transplant. *JAMA Netw Open*. 2021;4(1):e2034004.
88. McClure ES, Vasudevan P, Bailey Z, Patel S, Robinson WR. Racial capitalism within public health: how occupational settings drive COVID-19 disparities. *Am J Epidemiol*. 2020;189(11):1244-1253.
89. Simis MJ, Madden H, Cacciatore MA, Yeo SK. The lure of rationality: why does the deficit model persist in science communication? *Public Underst Sci*. 2016;25(4):400-414.
90. Solorzano DG, Yosso TJ. From racial stereotyping and deficit discourse toward a critical race theory in teacher education. *Multicult Educ*. 2001;9(1):2.
91. Fuentes A, Ackermann RR, Athreya S, et al. AAPA statement on race and racism. *Am J Phys Anthropol*. 2019;169(3):400-402.

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Citation
AMA J Ethics. 2022;24(3):E201-211.

DOI
10.1001/amajethics.2022.201.

Conflict of Interest Disclosure
The author(s) had no conflicts of interest to disclose.

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