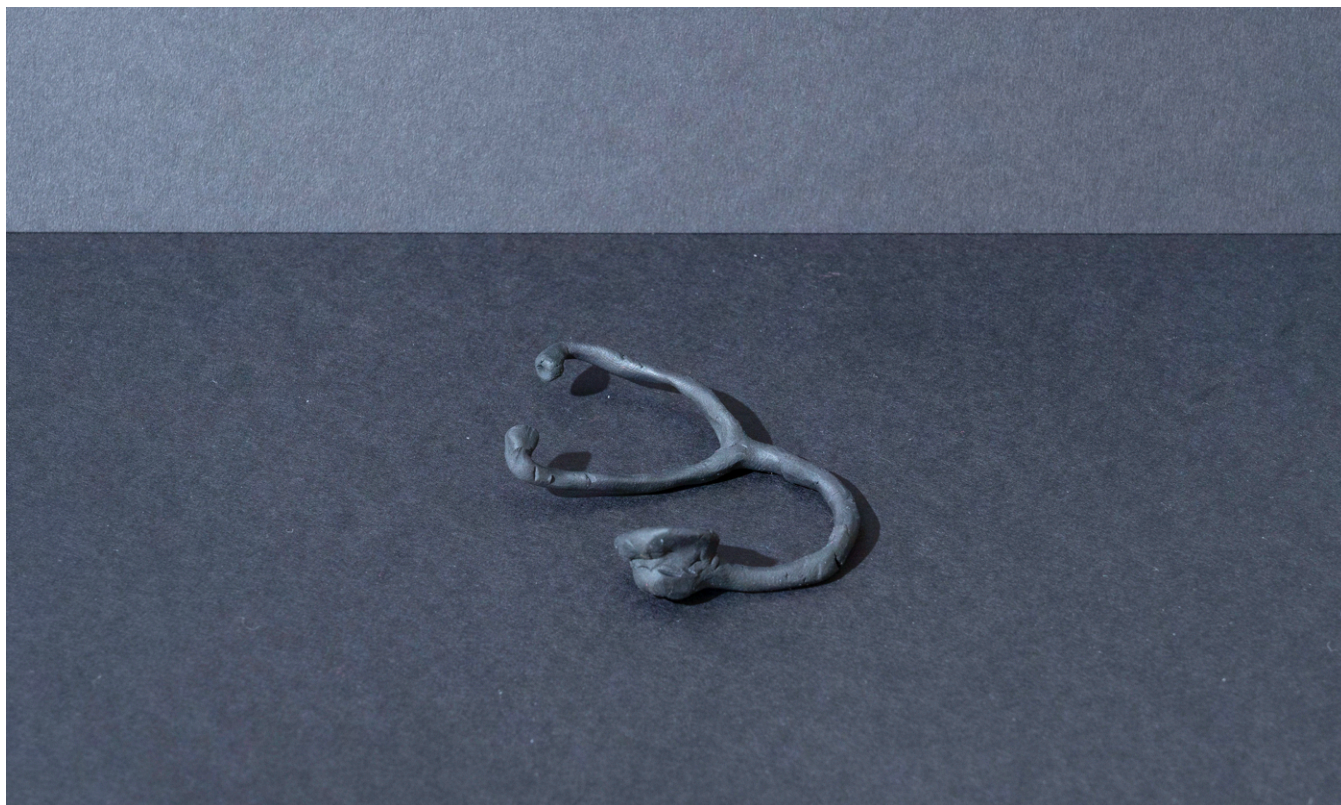




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Race and Medicine: Black People Are Not Born Sick

Tiana Walker, BS¹

¹ University of Virginia School of Medicine

Correspondence should be addressed to T.W. (tw5yr@virginia.edu)

Last fall my white professor, Dr. L was lecturing my second-year medical school class on the logistics of pulmonary function tests (PFTs). PFTs are a common clinical tool used to assess lung capacity, as well as diagnose and monitor pulmonary disease. He started off by listing the factors needed to determine a reference value to compare a patient, “age, height, gender and... race.” Estimated glomerular filtration rate, an indicator for kidney health, is also computed based on whether you are African American. I wondered to myself why we are so often told to calculate race into medicine. Dr. L probed further by challenging our class on how to consider the impact of race, suggesting—as all great teachers do—

that it may be time to reevaluate the status quo. I took this prompt personally. As a black woman who is training to be a physician, I have an investment in distinguishing evidence-based research from mere correlation or worse, sloppy assumption.

The idea that black people have deficient lungs may have first been hypothesized by Thomas Jefferson, the founder of the university I currently attend, in his Notes on the State of Virginia [1]. Anti-abolitionists would cite these notes as justification for the hardships that Blacks were forced to endure. Samuel Cartwright, plantation physician, was motivated to develop his own spirometer and quantified

the black lung deficiency to be 20% compared to Whites [2]. In 1865 after the Civil War, Benjamin

Gould conducted a study on anthropometrical data of black and white soldiers, which he wrote about in *Investigations in the Military and Anthropological Statistics of American Soldiers* [3]. Without accounting for the bleak living conditions of the then-emancipated slaves, Gould arrived at the same conclusion as Cartwright. The ideas set in motion by Jefferson and Cartwright, and further supported by Gould became the framework for clinician handbooks by 1922 [4], and that framework is still used today.

The race science that Thomas Jefferson perpetuated may no longer be formally taught in medical curricula, but society did not escape unscathed. The subtleties of racism today are baked into institutions and societal structures, including social determinants of health (SDH). SDH describe the complex relationship between health and the environment in which we live, work and play. Experts estimate that SDH contribute anywhere between 40%-80% to health outcomes [5,6]. Race and race-related SDH are different, though. Black people are not born sick. While much emphasis is placed on genetic causes for certain disease prevalence seen among black patients, fewer than 0.5% of black deaths can be attributed to hereditary conditions like sickle cell anemia [7]. In my attempt to answer Dr. L's prompt, it did not take long to reflect on the historical, political and environmental injustices imposed on low-income communities, which are not coincidentally largely communities of color. For example, nearly 68% of Blacks and 40% of Latinos live within 30 miles of polluting power plants [8-10].

Here is my answer: there are two main flaws with race-based PFTs. First, there are few comprehensive answers in the literature to explain the differences we do observe between the races. The authors of the Human Genome Project recommended that "in the interpretation of racial differences, all conceptually relevant factors should be considered [11]." These conditions have not been satisfied.

The PFT race correction factors that are used in the U.S are derived from the National Health and Nutrition Survey III. For this national study, PFTs were conducted on a random sample of asymptomatic and non-smoking individuals and included people from various races [12,13]. The authors concluded that African-Americans have a lower average Forced Expiratory Volume, but only half of these racial differences observed could be explained by sitting height, leaving the other half to be explored. In a systematic review, Dr. Lundy Braun, author of *Programming Race into the Machine*, found that most articles that have emerged since 1922 examining race and lung function fail to account for socioeconomic status. While some articles offer anthropometric, environmental and social factors towards explaining the racial differences in the discussion section, nearly 25% of articles cite no reason at all [14].

Second, we fail to accurately and consistently define race and lack language to capture entire populations. "Latino" is considered an ethnicity, not a race category in the U.S census, and so our fastest growing demographic demonstrates wide variation and uncertainty in identifying as either black or white [15]. Race no longer signifies common origins and should not be used as a vague proxy for genetic homogeneity. The use of race for predictive analytics has been mediocre at best; however, collecting racial data retrospectively is indeed imperative. For example, health equity experts have been pleading with health institutions to track racial and ethnic information of Covid-19 patients with the hopes of concentrating and funneling resources and prevention efforts where they are needed—in vulnerable communities of color. The trends we observe help highlight the stark disparities in housing practices, education attainment, and differences in time to treatment and quality of treatment. This data is needed to inform public policy and help reverse systems of structural inequities. Rather than address the systemic issues that lead to these outcomes, we quite literally calculate race into the diagnosis—further perpetuating structural and institutional racism.

Fast forward a couple months from that PFT lecture and this pandemic is unveiling society's gross shortcomings— black people are dying at higher rates than their representation, disparities that are entirely preventable [16]. Just one hundred years ago, activists such as W.E.B. Du Bois fought to convince the white medical professional community about what we now know as SDH: "The high infant mortality of Philadelphia today is not a Negro affair, but an index of social condition." UVA professors and I are finding ourselves making that exact same argument today.

In medical school, SDH topics are often relegated to stand-alone classes, deemphasizing the intimate connection between social condition and health. High rates of type two diabetes among black patients should be spoken about in the same breath as food deserts. Environmental factors, such as exclusionary zoning practices should be spoken about in the same breath as PFTs. It is not enough to offer differences in health trends and then move on unquestioned and unchallenged.

University test writers: if race is used as an identifier in a clinical vignette, include information on the patient's social context. Curriculum committee: survey lecture presentations to ensure race is not purported to be a biological entity. When we teach medical students the perfect science of medicine, we simply cannot divorce from our imperfect world. We must prompt them to ask why they see disparities to avoid the dangerous assumptions of the past and pathologizing race. Only then can we identify the root causes and attempt to mitigate the inequities we see today.

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