
HEALTH

How Racism Creeps Into Medicine

The history of a medical instrument reveals the dubious science of racial difference.

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In 1864, the year before the Civil War ended, a massive study was launched to quantify the bodies of Union soldiers. One key finding in what would become a 613-page report was that soldiers classified as "White" had a higher lung capacity than those labeled "Full Blacks" or "Mulattoes." The study relied on the

spirometer—a medical instrument that measures lung capacity. This device was previously used by plantation physicians to show that black slaves had weaker lungs than white citizens. The Civil War study seemed to validate this view. As early as Thomas Jefferson's *Notes on the State of Virginia*, in which he remarked on the dysfunction of the “pulmonary apparatus” of blacks, lungs were used as a marker of difference, a sign that black bodies were fit for the field and little else. (Forced labor was seen as a way to “vitalize the blood” of flawed black physiology. By this logic, slavery is what kept black bodies alive.)

The notion that people of color have a racially defined deficiency isn't new. The 19th century practice of measuring skulls, and equating them with morality and intelligence, is perhaps the most infamous example. But race-based measurements still persist. Today, doctors examine our lungs using spirometers that are "race corrected." Normal values for lung health are reduced for patients that doctors identify as black. Not only might this practice mask economic or environmental explanations for lower lung capacity, but the logic of innate, racial difference is built into things like disability estimates, pre-employment physicals, and clinical diagnoses that rely on the spirometer. Race has become a biologically distinct, scientifically valid category despite the unnatural and social process of its creation.

In her recent book *Breathing Race into the Machine*, Lundy Braun, a professor of Africana studies and medical science at Brown University, reveals the political and social influences that constantly shape science and technology. She traces the history of the spirometer and explains its role in establishing a hierarchy

of human health, and the belief that race is a kind of genetic essence. I spoke with her about the science of racial difference, its history, and its resurgence.

Hamza Shaban: How did the idea of race corrections and differing lung capacity come about?

Lundy Braun: My research suggests that Samuel Cartwright, a Southern physician and plantation owner, was the first person to use the spirometer to compare lung capacity in blacks and whites. The first major study making racial comparisons of lung capacity with a large sample size was the anthropometric study of Union soldiers directed by Benjamin Apthorp Gould, published in 1869.

The idea about the pathology of black lungs circulated in medical groups in the late 19th century but the next scientifically modern racial comparison was published in the *Journal of the American Medical Association* in 1922. This paper was followed by a flurry of studies in the 1920s, some of which continue to be cited in the 2000s. Gould's book also continues to be cited.

Shaban: So within the medical community this is a well-established concept?

Braun: If you look at the scientific literature, virtually everyone in the world has lower lung capacity than people classified as whites. There is a scientific consensus. The question I'm interested in is: How did this idea of difference get into science? And how was difference explained? The problem here is the survival of the framework of innate racial difference.

Shaban: Race correction is actually built into the spirometer, right?

Braun: When I interviewed physicians they were sort of vaguely aware of race correction. But they don't necessarily know that they're activating a correction factor when they push the button or select a certain drop-down menu. Some even argued that they didn't race correct, interestingly enough, but when I looked at the specification sheet, a correction factor was built into the machine.

Shaban: When a patient goes to see their doctor about their lungs, how does the doctor racially classify their patient?

Braun: In my interviews I asked physicians how they assessed race. I got a variety of responses. Many said they just "eyeballed" it—and never asked the individual any questions about their race. Others asked people to self-identify. But it can be awkward to ask someone their race for a lung function test. Patients might wonder why race is relevant for this particular test. So, in general, my research suggests that operators/clinicians simply guess a patient's race based on the usual simplistic physical characteristics historically associated with "race," like skin color—a poor marker for race globally. This guess may have little to do with how someone self-identifies or the richness of their ancestry.

"Race correction" is built into the software of the spirometer globally. To evaluate lung function and to make a recording, the operator/clinician must determine a patient's race. For most modern spirometers, this entails selecting a race option from a

drop down menu or pressing a button. And the options vary by manufacturer.

Shaban: Early and rigorous critiques of a racialized understanding of lung capacity were made by leading black intellectuals: W.E.B Du Bois and Kelly Miller. They recognized how these studies lent support for racist ideology and prejudiced public policy. Why were their criticisms drowned out, even when they pointed to dubious science?

Braun: The short answer would be racism. The more complex answer is that they were almost alone in arguing against racism in science. Then, as now, it's hard to shift mainstream thinking. Lung capacity difference was a deeply entrenched idea by the late 19th century.

An alternative narrative that I point out was by the physician Jedidiah H. Baxter.

Shaban: Baxter did a separate study of black Union soldiers that showed no difference in lung function, right? His findings conflicted with Gould's.

Braun: Yes. And what's interesting there, it gets to the tension between knowledge produced by qualitative and quantitative research: Quantitative data is stripped of context. Gould's was just numbers assembled into a table. He hardly comments at all. His work looks very, very objective, and very scientific.

Baxter produced quantitative data, but he also included rich narratives from army surgeons in the field. These narratives are

racist but the army surgeons weren't willing to write blacks off as having lower lung capacity or that they were incapable of fighting for freedom. The two studies produced different results, and although Baxter's narratives were acknowledged, Gould's study is cited in science journals even today.

The argument I make is that Gould's study looked most legibly scientific—and it drowned out Baxter, and it drowned out Kelly Miller, and it drowned out Du Bois.

Shaban: Why have environmental or socioeconomic explanations for differing lung capacity never been taken seriously over some innate racial factor?

Braun: There have been scientific studies showing that people who live around high pollution areas have lower lung capacity. High pollution areas also map onto minority status. Why we have chosen both in the U.S. and internationally to focus on race to the exclusion of social class, I can only speculate. One piece of the story is that the accumulation of scientific research around a particular idea can make it hard to dislodge. With the spirometer, having the correction factor actually built into the machine makes racial assumptions invisible.

This is a problem not just with lung capacity measurements but with health inequality more generally. There's vastly, vastly, vastly more research on genomics than on the social determinants of health. Part of the problem is the infrastructure of science. What kinds of questions are considered scientific?

Shaban: When you look at the race categories of the U.S. census

and medical dictionaries throughout history, you find a baffling array of contradiction, bias, and hierarchy. Why has race as a biological concept, rather than a social or historical one, continued to attract scientific inquiry?

Braun: I wish I had an answer to that. Why race science is getting reinvigorated at this particular moment, I think is very interesting. Why is race-as-biology being reinvigorated at a time when we are claiming to be color-blind?

One possible piece of the puzzle is: There's a long history of using science to solve social problems. And genomics is very exciting and it seems apolitical. The actual science of it is appealing. It's been sold to the public as a solution to health. But addressing the social aspects of racism and class and gender discrimination is not something we have taken on, or wanted to take on, for centuries.

I am not making an argument never to use race in health research. I think the use of race as a social category is entirely appropriate to study the health effects of a discriminatory social world—but always in combination with gender and measures of class.

It's an entirely different matter to use race as a natural/scientific category to study genetic difference.

Shaban: In the scientific community there's this insurgent belief that political correctness is getting in the way of discovery. This argument holds that the question "Is race real?" is a scientific problem whose truth should be pursued, whereas "Should we

study it?” is a different, political question, one that scientists shouldn’t be too concerned about. What’s your take on this point?

Braun: The scientific and the social are inextricably linked. From the questions that you decide to ask, from the design of your study, from the way the science is interpreted, it’s always bound up with the social.

The claim of political correctness is a silencing mechanism. And it’s usually invoked to silence social and political questioning. I think a much more productive and interesting project is to examine how beliefs and values get into science—and medical instruments.

It is difficult to convey that race is real in terms of its social impact on people's lives and health, yet it is not rooted in nature. Humans are diverse, including genetically, but classifying that diversity is fundamentally a social process.

One strong piece of evidence, something we have known since 1972, against the biological/genetic concept of race is that there is more genetic variation among individuals within conventionally defined racial groups than between individuals of different racial groups. This has been demonstrated by numerous researchers using different methodologies. It is clear from this evidence that looking to genes according to racial group to explain health inequality is misguided.

Shaban: Is history clear that the science of racial difference has always been used to discriminate against non-whites, minorities, or one’s enemies?

Braun: Here I can speak as someone trained as a scientist; scientists are not trained in history. Many people who are working on the genetics of racial difference are very well-intentioned. They're hoping to find something that will help people. What that something might be and how you're actually going to help people through genetics is another story.

There's also the notion that if you are well-intentioned you can avoid some of the past problems.

Because eugenics became so associated with Nazi experimentation, we actually haven't fully appreciated that 20th century eugenics was "normal" science. We tend to overlook the normality of works like craniometry, the measuring of skulls in the 19th century. Eugenics was embraced by people across the political spectrum, and it was seen by many as a way to improve society.

I'm not saying we're in a eugenical period. But the history of the debate around race and science needs to be part of the curriculum in medicine as well as graduate education so that scientists and physicians have a deeper sense of that history, that science is informed by the social and that the social in turn is informed by the scientific.

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