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Deconstructing Inequities — Transparent Values in Measurement and Analytic Choices

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Last year was marked by a once-in-a-generation scourge that focused renewed attention on the long history of structural racism in the United States. By March 2021, more than 500,000 Americans had died of Covid-19, and certain subpopulations have been disproportionately burdened: Black, Latinx, and Native American people account for greater proportions of Covid-19 deaths than of the U.S. population.¹ Concurrently, we have faced the pandemic of Racism-20, brought to light by the murder of George Floyd by a Minneapolis police officer. In the United States, a Black person is roughly five times as likely as a White person to be stopped by the police without just cause, to be incarcerated, or to be killed by the police while unarmed.²⁻⁴

In response to these injustices and to spur systemic change across sectors, a growing number of state and local governments have declared racism a public health crisis.⁵ These declarations are an important first step in the advancement of racial and health equity — a movement on social, political, and economic fronts that requires expanding the power of groups who are most affected by systemic racism and other structural inequities so that they can organize both people and resources, set agendas, shift narratives, and influence decisions and the people who make them.⁶ Another important step, as we in the public health field know, is accurate measurement of progress necessary to hold ourselves collectively accountable and to ensure lasting change.

Public Health Critical Race Praxis (PHCRP), an application of critical race theory, provides guiding principles for the examination and analysis of myriad health equity challenges.⁷ PHCRP foregrounds race as a social construct and requires explication of how racism, as a

display of power over others, shapes and pervades determinants of health and equity. In doing so, PHCRP calls for researchers to reflect on the questions they pose and the disciplinary knowledge they apply. Rather than incorporating only the perspectives of scientists, PHCRP also requires the centering of lived experience.

As the movement for racial justice grows, researchers will create or adapt various metrics and methods for capturing the differences in health determinants and outcomes among racial and ethnic groups. Amid the data deluge that may result, PHCRP encourages due consideration of conceptual and methodologic decisions that reflect the norms and values of researchers and how those norms and values are, or are not, made explicit. What may seem like “objective” methodologic choices can have important implications for resource allocation and policy decisions.

It is worth highlighting some of these considerations and the ways in which measurement and analytic choices can affect what is being examined and concluded about health and equity. These considerations have certainly been pondered before, but application of them does not appear to be standard practice. We see this failure of widespread uptake as a manifestation of structural racism.

THE MEANING OF HEALTH INEQUITIES

The complex concepts of health equity, inequity, inequality, and disparities have been defined in myriad ways. Although some scholars have asserted that inequities are inequalities deemed to be unnecessary, avoidable, unfair, or unjust, interpretations of fairness, justice, necessity, and social acceptability are value-laden and likely to

vary with one's framework of justice, worldview, and lived experiences.⁸⁻¹¹ Paula Braveman and colleagues suggest that health equity speaks to the human rights principle or value that motivates us to eliminate health disparities and that we measure progress toward health equity by tracking the diminishing disparities in health determinants and outcomes.¹² Yukiko Asada contends that choices of methods for measuring health inequalities should reflect one's conceptualization and operational definition of health inequities.¹³ Although some researchers make their operational definition explicit, many do not. Readers are often forced to make assumptions about the values underlying methodologic choices.

What, exactly, in the realm of health inequities should be measured is also a complex question. As Albert Einstein famously noted, not everything that matters is measurable, and not everything that is measurable matters. So who decides what matters and what is measurable? There is incredible power in determining what can be measured, the level of investment in data-collection infrastructure, and who has access to any data collected.

For example, the shortcomings of the infrastructure for U.S. public health data have been on full display in Covid surveillance efforts. In April 2020, Aletha Maybank, chief health equity officer at the American Medical Association, highlighted the missing data on the pandemic, calling on "laboratories, health institutions, state and local health departments and the Department of Health and Human Services to standardize, collect and publish race and ethnicity data so that we can begin to prioritize equity and effectively manage this pandemic."¹⁴ Although, many months later, the collection and reporting of race and ethnicity data in Covid surveillance have become common practice,¹⁵ the ability to link to information on the socioeconomic status of affected people or the conditions in which they live is still limited, if not nonexistent. Measurement, enabled by data collection and infrastructure, is a form of accountability.

COMPARATIVE MATRIX OF POWER AND
OPPRESSION

Equity is inherently a comparative concept, a judgment about how people are situated relative to

others in light of the power and oppression of socially constructed groupings. Patricia Hill Collins's matrix of oppression, for instance, illustrates how groupings are conceived and constructed in a contemporary society with multiple systems of discrimination.¹⁶ Selection of a reference point is an important methodologic consideration in the construction of health equity measures.

Many measures use the population average as the standard for comparison, a method that jibes with the mathematical conceptualization of variation in a population. But what if the population, on average, isn't healthy? Is a small amount of spread around a low average a good thing? Are we willing to accept worsening health in people who start out healthier than that average, as a way of reducing disparities? Take, for example, the recent decline in U.S. life expectancy among middle-aged White Americans: such a decline might be ethically acceptable for some forms of inequality, such as income, but not for health outcomes like life spans of lower-income White people, as Erika Blacksher has argued.¹⁷

These limitations can be overcome by choosing the group with the most favorable outcome as the reference or by setting an aspirational target for all groups to strive for, but these choices have their own drawbacks. Positive social meaning may accrue to a reference group consistently labeled "normal" or "favorable," and the positive valence may itself become a driver of favorable outcomes. Conversely, people or groups with less favorable outcomes may face a social stigma associated with being persistently behind.

Some researchers may wish to avoid acknowledging these issues. Others have chosen to directly address social injustice by naming the most socially privileged comparison group, such as upper-class, White males,^{18,19} or a socially disadvantaged comparison group, such as Black populations.²⁰

Also relevant is the choice between pairwise and summary measures of disparities. Pairwise measures produce a value for each unique combination of subgroups; three subgroups yield 3 values, four yield 6, five yield 10, and so on. For example, consider differences in proportions of children living in poverty among Native American, Asian, Black, Latinx, and White populations. Making 10 separate comparisons can be helpful in pinpointing exactly which subgroups

are affected by or influencing the inequity. But this level of granularity can also hamper the interpretability of the findings. Of note, scholars have observed that poverty is a shallow measure of equity, failing to capture advantages of wealth accumulation across generations and community-level resource allocation despite individual-level disadvantage.²¹

Summary measures, such as between-group variance,²² which captures the variation in exposures or outcomes among multiple identity groups, overcome the data deluge by combining the disparities among subgroups into a single value. Such measures may offer a promising inroad to an intersectional approach to equity measures in which subgroupings are mutually exclusive and overall variation among population subgroups can be captured.

WEIGHING THE VALUE OF SUBGROUPS

Not all summary health equity measures value subgroup identities equally. Considering the population size of the subgroups within a domain, or population weighting, can either mask or highlight the presence of disparities. As Kenneth Keppel et al. point out, it's reasonable to believe, conceptually, that it's only fair to treat all disparities among population subgroups as equally important, regardless of the racial or ethnic groups represented.²³ Thus, use of an unweighted measure can bring recognition to the plight of a smaller subgroup, such as Native American groups in the United States, which would be greatly downplayed by a population-weighted measure. If you are tasked with designing policies or allocating resources to reduce disparities, a population-weighted measure may be a practical choice for ensuring that large subgroups receive resources and that per capita investments can be assessed. However, such a measure may not be the ethical choice.

Measuring the prevalence of a health problem in a population against the absolute burden it imposes can result in vastly different interpretations of an inequity. As we have noted, unarmed Black people are about five times as likely as unarmed White people in the United States to be shot and killed by police. The absolute number of people affected, however, is very nearly the same in the two groups, because White people account for a much larger proportion of the U.S.

population. As David Kindig contends, comparing these relative and absolute numbers leads to two very different conclusions.²⁴ So which is more important for us to consider and act on? Is it a "higher priority" to try to intervene on the basis of the rate or on the basis of the burden? Could the solution ignore historical context? What are the right questions researchers should reflect on and pose as called for by PHCRP?

NAVIGATING INTERSECTIONALITY

People have multiple identities related to defined geographies, races, ethnic backgrounds, educational attainment levels, income classes, genders, sexual orientations, and abilities, among other variables. Since we thus belong to multiple socially constructed groups simultaneously, achieving equity requires addressing multiple dimensions of disparity.²⁵ Different dimensions may be more important to different people in measuring inequality. Ideally, an equity-focused approach to capturing differences in health between and within populations²⁶ would drill down to as many subgroups as possible to capture unique context and experiences — assessing health, for instance, among high-income, Asian, nonbinary people, or those who identify as White women and live in lower-income metropolitan communities.

A caveat for this approach, however, is that the relevant data may be unreliable or entirely unavailable. Slicing the data to uncover layered identities increases the chances of missing or unreliable data and reduces the statistical power for detecting differences. A focus on very small identity subgroups makes analysis and representation difficult. Conversely, completely removing estimates for certain subgroups from analyses because of small numbers or aggregating them within the construct of a larger subgroup effectively removes those groups from the broader context of data that will inform action. An intersectional approach to health equity should acknowledge this tension.

ENVISIONING PROGRESS TOWARD HEALTH EQUITY

Navigating all these choices in measuring equity will not necessarily clarify what progress toward equity means. In addition to being a mathematical exercise, assessment of equity entails norma-

tive judgments. For example, we can evaluate progress using relative or absolute measures of disparity, such as trends in rate ratios or rate differences. Mathematically, although measures of absolute and relative disparity should be perfectly correlated at a single point in time, the direction of change often differs when these measures are compared over time.²³ In the normative sense, tracking progress by means of rate ratios implies that closing the gap alone is of value, independent of other considerations, such as overall population health or the absolute disease rates for each group.²³ Analyses that also capture trends in rate differences can take these other factors into account. While it seems prudent to track both relative and absolute measures of disparity over time, being explicit about why one approach may be preferred over the other is important — especially when the resulting interpretations of the outcome conflict with one another.

Health equity measures can also vary in terms of how much weight is given to improvement in certain groups over time. Some inequality measures are insensitive to which group's health changes; with this type of measure — and using an aspirational target — any improvement affects the inequality similarly, regardless of who benefits from the change. Measures with an “inequality aversion” parameter,¹¹ on the other hand, assign greater value when improvement is seen in the least healthy groups. However, these measures, especially if population-weighted, can be heavily affected by small improvements in large groups or large improvements in small groups. Decisions made in designing measures thus reflect judgments about the value of the health of each group. Is reducing overall inequality the most valuable goal? Or should we first aim to improve the health of the worst-off groups?²⁷

NOW WHAT?

Data never speak for themselves,²⁸ and acting on naked data without taking into account the normative judgments that the underlying measures intentionally or unintentionally endorse could cause more harm than good. Moreover, data untethered from historical context can further cloud the normative judgments that are neces-

sary. These seemingly objective methodologic decisions have implications for the actions they inform.

Continued analytic research and practice combined with an ethical perspective are warranted. No one measure or analytic approach will be best suited for all situations. More broadly, at present, the field of population health does not appear to have conceptual clarity regarding what shapes health and equity, as demonstrated by the variation in frameworks intended to inform measurement.²⁹ One way forward may be for researchers to work together in harmonizing health disparities measurement in the fields of public health, health care, and others, as called for by Deborah Duran et al.³⁰ At a minimum, researchers, community leaders, and policymakers should all transparently discuss and deliberately consider the values underpinning health disparities measures.

Too many lives have already been cut short, and vast gaps in length and quality of life persist for marginalized groups in the United States. Constructing measures on the basis of clear and transparent values is one way to help ensure that health equity research and policy support the dismantling of inequity. Imagine what public discourse and data-informed action would look like if researchers and practitioners routinely named the values and norms underpinning measurement in peer-reviewed manuscripts, community health needs assessments, and pandemic surveillance dashboards. Could standardizing such a practice encourage the public to reflect more deeply and critically analyze the context of inequities? Would the people whose lives are most affected by a given problem have more of a voice in deciding what should be measured and how? What if practice grounded in transparent values could help find common ground and build social solidarity among groups with widely varied identities and lived experiences?

Disclosure forms provided by the authors are available at [NEJM.org](https://www.nejm.org).

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