Advancing Health Equity: A Data-Driven Approach Closes the Gap Between Intent and Action

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Beginning in 2020, the dramatically higher COVID-19 infection and morbidity rates for communities of color compared to white communities heightened awareness about the human and financial costs of inequitable healthcare. In response, more healthcare organizations are prioritizing advancing health equity and investing in diversity, equity, and inclusion programs and leadership—all of which require data to showcase the most significant gaps and healthcare disparities.

Equity is one of six quality dimensions in healthcare and has been since the National Academy of Medicine (NAM) published "Crossing the Quality Chasm" in 2001. Since 2018, the Center for Medicare and Medicaid Services (CMS) has presented Health Equity Awards to recognize organizations committed to overcoming disparities through a strategic approach to identifying, prioritizing, and addressing improvement areas. Effective quality assessments include equity as a requisite.

Advancing Health Equity: Quality Care Must Be Equitable

According to NAM, quality healthcare must be safe, effective, patient centered, timely, efficient, and equitable. NAM defines equitable as "Providing care that does not vary in quality because of personal characteristics including gender, ethnicity, geographic location, and socioeconomic status."

Yet, healthcare organizations often rely solely on passion and perseverance to address equity. There is a gap in reliance on analytics and augmented intelligence (AI) to identify and address inequitable care. As an industry, would not pursue improvement in the other dimensions, such as safety and effectiveness, without relying on data, and we must close the equity gaps by leveraging data.

NAM's statement on quality care provides a hint as to how to close the gap. If the industry changes "care that does not vary..." to "care that cannot be predicted by...," we open the possibility of using an AI toolset. Health equity becomes the predictive model we hope we would not need to build. We feel

"good" about being able to predict a patient's readmission based on their medication complexity (we might intervene with medication simplification, support, or education). However, we do not feel good about higher readmission risk due to personal characteristics, to include primary spoken language or zip code.

The Universal Benefits of Advancing Health Equity

All healthcare organizations benefit from data to improve health equity and formalize and operationalize equal access to and delivery of healthcare for all patients.

Along with improving clinical outcomes, bolstering health equity improves health systems' operational and financial performance. A 2016 IHI white paper projects that, left unchecked, health disparities could reach an economic burden in the United States of $353 billion by 2050 (Figure 1).
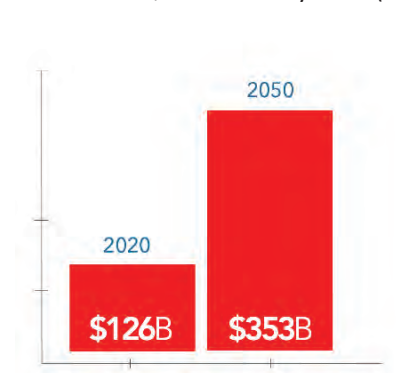

Figure 1: Economic burdens of health disparities if unchanged in the U.S.

COVID-19: A Stark Real-World Example of Health Inequity

COVID-19 demonstrated that U.S. health systems are falling short in health equity. Vulnerable communities have borne the pandemic's brunt from infection rates and risk of death to access to treatment, testing, and vaccination.

For example, based on early pandemic data reported in JAMA, residents in predominantly Black counties in the United States experienced three times the COVID-19 infection rate and six times the death rate of chiefly white counties (Figure 2).
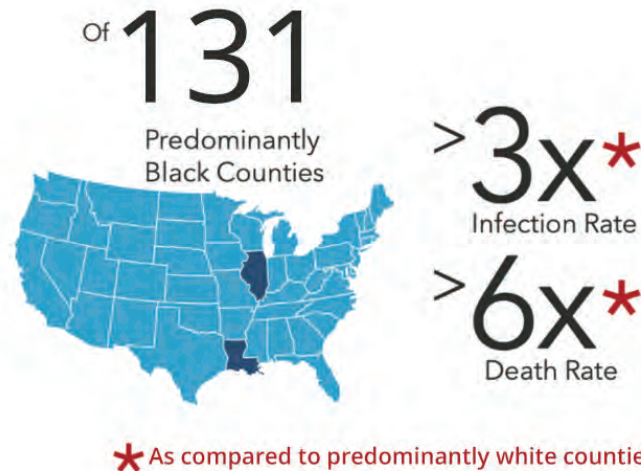

Figure 2: COVID-19 impact predominantly Black versus white counties.

Not surprisingly, the disparity in COVID-19 impact among Black populations reflects decades of documented disparities in healthcare. A report from the Kaiser Family Foundation states that the Black and American Indian or Alaska Native (AIAN) individuals continue to fare worse across most examined health status measures, including physical and mental health status (Figure 3). Meanwhile, Black and AIAN individuals' infant mortality rate is roughly two times higher than for white individuals. Black teens and adults have a more than eight times higher HIV diagnosis rate, and Hispanic teens and adults have a more than three times higher HIV and AIDS diagnosis rate.
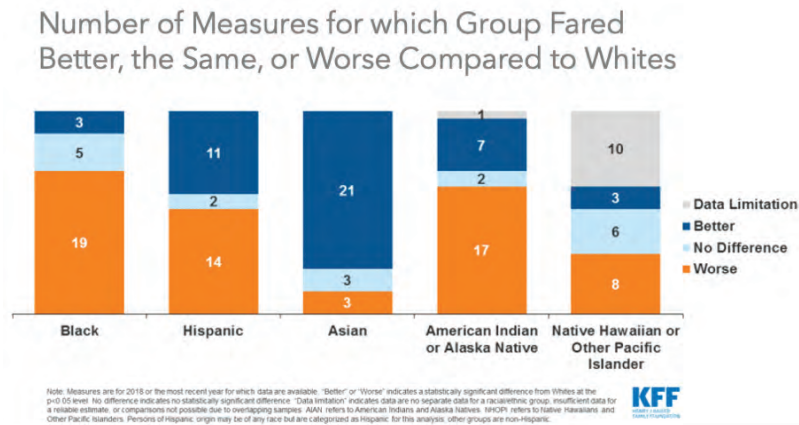

Figure 3: Number of measures for which diverse racial and ethnic groups fared better, the same, or worse than whites.

Healthcare disparities, including those related to COVID-19, are part of broader underlying social and economic inequities, making it more critical than ever for organizations to have data and analytics to understand the personal characteristics, goals, preferences, and circumstances of those they serve. Primary drivers for increased insights include the social determinants of health (SDOH), the conditions in which people are born, grow, live, work, and age—all areas healthcare data hasn't traditionally captured. As COVID-19 further underscores health inequities between U.S. racial and ethnic groups, the industry can't ignore the demand for comprehensive patient data and open analytics.

Health Equity Best Practices: How a Data-Informed Approach Can Deliver Quality for All and Support Short- and Long-Term Economic Success

Making better data-informed decisions is one of the first steps toward achieving greater equity—not just during a crisis like a pandemic but in everyday healthcare. A data-informed approach to health equity directs focus and rational accountability targets to secure resources and provides tools to optimize impact.

For example, Health Catalyst's data-driven health equity solution, currently being piloted, combines an analytics framework with the services expertise to accomplish the following:

- Using data to understand which measures demonstrate the most significant disparities and which personal characteristics drive these disparities.
- Setting measurable goals for improvement.
- Partnering to make meaningful, measurable progress in driving clinical, operational, and financial improvements.

Health Equity via AI

There is justified concern about AI exacerbating disparities if algorithms rely on biased assumptions or data that can reinforce inequities. At Health Catalyst, we share this concern. We also have found ways of using AI to reduce disparities. We do this by ensuring AI empowers organizations to identify where to focus their attention and resources.

Healthcare is accustomed to using predictive models, for example, to anticipate readmission or cardiovascular disease risk, based on clinical factors, such as comorbid burden, medication complexity, or genetics. Someone will likely heal more quickly from a splinter than a car accident.

We have identified a disparity if we can predict care or outcomes based on personal characteristics. When we fail to predict care or outcomes based on personal characteristics, including race, ethnicity, age, gender, sexual orientation, zip code and more, we have demonstrated health equity.

Closing the Gap Between Health Equity Intention and Action

Approaching health equity as a prediction problem opens the entire predictive modeling toolbox to organizations wishing to reduce disparities but lacking quantitative support to pinpoint areas of improvement. This is an unexpected example of how high-quality data analytics replaces anecdotes and assumptions to drive massive, measurable, data-informed improvement.

About the Authors

Trudy Sullivan leads Communications and Diversity & Inclusion efforts as a Health Catalyst leadership team member. She holds a Masters in Business Administration from Kellogg School of Management at Northwestern University, and a BA in History from the University of Portland, Oregon. Sullivan brings experience in B2B, B2C + B2G environments, from innovative high tech companies, including biomedical, semiconductor and aerospace & defense. She spent more than a decade in healthcare, including serving more than one hundred Pacific Northwest hospital customers, as CEO of an American Red Cross blood services region. Sullivan's functional experience includes Operations Management; Human Resources; Marketing; Business Development; Strategy; M & A; Investor, Government + Community Relations; and Brand Development.

Jason Jones is passionate about achieving the Quadruple Aim through better and easier use of data in healthcare, including helping organizations to find analytic focus; helping providers feel that the systems they work for have their backs; and helping people to understand and have their goals and preferences respected for the hopefully brief periods during which they are "patients." Previously, Jones served as Vice President, Information Support for Care Transformation, at Kaiser Permanente (KP). In that capacity, he brought together and co-led the national Hospital and Healthplan Quality and Finance analytic functions and led development of national quality strategy and care delivery IT investments. Prior to that, he was KP's Executive Director of Clinical Intelligence and Decision Support and a Research Scientist in KP's Southern California region. Before joining KP, Jones was a Senior Medical Informaticist for Intermountain Healthcare. He also held analytic and marketing positions at Bayer Healthcare in Wayne, N.J., and Ingenix (now Optum) Pharmaceutical Information Products in Salt Lake City, where he developed a model for converting United Healthcare data into a saleable asset for external customers conducting outcomes research. Throughout his career, Jones has taught graduate courses in statistics to medical informaticists at the University of Southern California and at the University of Utah. He has published dozens of peer-reviewed papers in medicine, predictive modeling, and outcomes improvement.