Health Inequities and Technology

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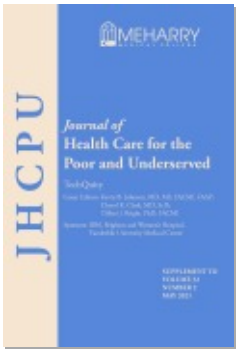

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Health inequities have been present in health care in the U.S. since there have been sociologically distinct groups. The Heckler Report from the Department of Health and Human Services, issued in 1985, was a landmark. It estimated that health disparities accounted for 60,000 excess deaths each year, included recommendations on reducing health disparities, and underscored the need to improve data collection among Hispanic, Asian American, and American Indian/Alaska Native populations where data were scarce.[1] So was "Unequal Treatment: Confronting Racial and Ethnic Disparities in Health Care," a report from the Institute of Medicine issued in 2003, which summarized the growing data that racial and ethnic minorities get lower quality of care and were less likely to get even routine medical procedures compared with non-Hispanic White Americans.[2] But the piece of work that arguably got this into the C-suite of major health care delivery organizations was the Institute of Medicine's "Crossing the Quality Chasm" report which came out in 2001, and represented an inflection point in this area.[3] That report set up the "STEEEP" framework which explicitly called out equity as one of the most important dimensions in health care. Specifically, it suggested that care should be: "Equitable—Providing care that does not vary in quality because of personal characteristics such as gender, ethnicity, geographic location, and socioeconomic status."[Ch.2, Introduction]

Yet even after that time many leaders in health care accepted inequities as part of doing business, as it were. The United States has always had major social gradients in terms of race/ethnicity, wealth, and health care. Organizations recognized that but didn't necessarily see it as part of their mandate to address it. This was the case even though in the mid-1990s and early 2000s, studies were published showing that Blacks were less likely than non-Hispanic Whites to get many types of medical services, including life-saving surgical procedures.[4] Important work on these issues had been done even earlier—for example Nancy Krieger's dissertation on race, class, and breast cancer and hypertension published in 1989.[5] Nonetheless, these issues persist. Blacks have

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lower life expectancy than non-Hispanic White Americans, though today some Asian American subgroups live the longest. There are also major differences in life expectancy by income, with the wealthiest groups living 10–15 years longer than poor Americans.[6]

Even after health inequities have been identified, it has proved remarkably hard to eliminate them. Many have hoped that technical interventions such as decision-support and electronic health records or the use of "big data" would lift quality for all groups so that they would get approximately the same care. [7, 8] However, that has not generally happened.[9] Although care does typically get better with decision support, it tends to get better at about the same rate in different groups leaving the disparities in care still typically about the same. Electronic health records can make it easier to identify LGBT+ patients, who are another vulnerable group.[10] Interventions that have been effective in reducing disparities typically have focused on addressing specific gaps for that specific gender-based, racial, or ethnic groups.[11] Sometimes the barriers focus on language whereas in other instances they appear to be cultural or economic. We do not yet have a recipe that is generalizable to address this critical problem, and the most successful approaches may indeed need to be group-specific. In addition, individuals may identify as belonging to multiple groups (e.g., someone who is Black, transgender, and poor), which requires approaches that consider these multiple intersectional layers to identity to avoid alienating patients and to provide optimal care.

More broadly, there are many causes of inequities. One major cause in the U.S. has been lack of health insurance, and it is abundantly clear that the uninsured have worse outcomes. Medicaid expansion, for example, has been associated with lower mortality rates in cancer patients.[12] Notably the proportion of the population with no insurance has been substantially reduced since the passage of the Accountable Care Act in 2010. Going forward, it appears that the payment mechanisms in accountable care will be used more widely.

Importantly, the U.S. continues to struggle with how to address structural racism., especially related to health care. The deaths of George Floyd, Breonna Taylor, and the advocacy of the Black Lives Matter movement have captured the attention of the nation on the need to address fundamental systemic inequities in the U.S. Organizations of all types both inside and outside health care are taking equity and disparities seriously. While there has been lip service to this previously, what is going on now feels different, and there is a lot of momentum.

Clearly, technology will play a big role. It could either help make things better, or even make things worse, through what has been called the Digital Divide. Having access to digital resources can facilitate health and self-care for some groups. But access to digital resources is sharply different by income level and for racial and ethnic groups that face the greatest inequities, especially Blacks and Hispanics. Doing better with digital health equity will be critical for the future,[13] as Kyu Rhee et al. describe in their piece, "What Is TechQuity?" in this issue.[14]

Access to broadband represents one specific major concern. Over 21 million Americans lack access to broadband. This is an issue even in major urban areas.[15] While New York City has broadband infrastructure covering 99.9% of the population, 2.2 million adults there do not have a home broadband subscription. In more rural areas, such as

the mountains of Appalachia in states such as Tennessee, Kentucky, and West Virginia, there are large areas with no broadband access at all today. Perhaps not coincidentally, these regions have some of the highest rates of opiate usage in the country.[16]

Telehealth access is also critically important. This overlaps with broadband, but there are differences too. The COVID-19 epidemic has underscored the importance of telehealth.[17] Because of the risk of person-to-person viral transmission, organizations around the country switched most outpatient care to telehealth essentially overnight. Black patients and poorer patients were much more likely to receive telephonic as opposed to video visits. In the future, policies on telehealth payment must consider equity.

Personal health records also represent an important avenue for getting care. We assessed the likelihood that Blacks and Hispanics were less likely than non-Hispanic Whites to be enrolled in a personal health record, but that once enrolled, they were just as likely to use the record.[18] In all groups, patients with more comorbid conditions were more likely to enroll, and to use the portal after enrollment.

Artificial intelligence represents perhaps the most exciting technique involving information technology for improving care.[19–21] Here too, however, there are issues for minorities and less affluent patients, and serious concerns about latent bias in algorithms.[22] How to build "fair" models and avoid latent biases is one of the most important areas that must be addressed in medical artificial intelligence.

This issue of the *Journal* addresses nearly all these concerns. It includes a rich array of evaluations and other pieces demonstrating how important it is to use an equity lens in the development and use of technology. Furthermore, making progress in these areas is urgent if we are to make best use of the intense focus of the nation on equity today. It is a certainty that technology will advance and change care in ways that are hard to imagine today. Consider how transformational the World Wide Web has been since its development by British computer scientist Tim Berners-Lee in 1989–90. If the new technologies are to make inequities better and not worse as has so often been the case in the past, we will need a sustained and intense focus on this area.

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