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Overview of the Issue

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Journal of Health Care for the Poor and Underserved, Volume 32,
Number 2, May 2021 Supplement, pp. 1-4 (Article)

Published by Johns Hopkins University Press

DOI: <https://doi.org/10.1353/hpu.2021.0046>

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Overview of the Issue

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The year 2020 will be one forever described in the history books. Whether it be for the impact of COVID-19, the movement that began with the deaths of George Floyd and Breonna Taylor, or the catastrophe left behind by more than 26 named storms in one season, 2020 left an indelible mark world-wide. 2020 also shined a bright light on the challenges for the poor and underserved, much of which is reflected in the science and opinions of thought leaders who have experienced it. Indeed, this Supplemental Issue could not have been timed more perfectly to give a voice to so many scientists observing and intervening to make a difference in our health care system's response to current challenges.

The importance of techquity—defined as *the strategic development and deployment of technology in health care and health to advance health equity*—was even more apparent after the events of 2020. COVID-19 upended access to care and illuminated the impact of structural racism as a cause for a widening gap of access during the pandemic. Black Lives Matter became more than a trending hashtag on Twitter, or a movement resulting in peaceful protests and calls for policy reform: it put additional focus on the issue of race as a social and not a biological construct and called into question the rationale for common practices in health care that were triggered by race. A notable example was the emerging realization that kidney function assessment was tied to race and hardwired into many of our electronic health records. The real-world evidence around our lack of techquity was incontrovertible.

This Supplemental Issue of *JHCPU* provides articles that describe challenges to techquity, frameworks to improve the role of technology in care, and examples of how technology can transform health, public health, and health care.

Access to care is described in many of this Issue's articles, with clinical settings including dental care (Simmons), safety-net clinics (Sharma), post-incarceration (Ho/Fuller) and subspecialty medical care (Tanumihardjo) getting specific focus at a general level. One of the many papers framing the issue is by Sieck and colleagues, who orga-

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nize a discussion of techquity issues around Penchansky and Thomas' five A's of access (affordability, availability, accessibility, accommodation, and acceptability). They call for data to monitor technology access using this framework. Dankwa-Mullan, Scheufele, and colleagues summarize the known challenges in equity and inclusivity related to AI development in health care and present a new framework to improve the equitable application of AI technologies. Estrada and colleagues describe a user-centered approach of designing educational learnings—recognizing the special needs of some groups often ignored when new technologies are introduced. The e-learnings focused on sexual and reproductive health information to adolescents in Mexico and provided content around three themes: self-esteem, gender equality, and decision-making and self-efficacy and included digital tools and scenarios to help participants engage with the content. This work highlights the importance involving potential users iteratively in design; the authors note that engaging participants in the design process aided their understanding of the needs of potential users, which yielded more appealing design and content.

mHealth applications

Technologies such as wearable sensors, smartphone apps, and artificial intelligence are the newest part of the infrastructure supporting consumer (digital) health. Techquity issues abound at this leading edge of technology adoption.

Acorda and colleagues conducted a qualitative evaluation of an mHealth application delivering just-in-time adaptive HIV prevention messages to youth experiencing homelessness. The authors found that receiving mHealth app messages and answering the surveys helped participants attain their goal or decrease high-risk behavior frequency. The study also highlights the importance of taking usability and design considerations into account during development.

Connelly and colleagues explore how a text messaging intervention could promote school readiness in low-income families who face increasing barriers associated with poverty, language, limited time for engagement, and lack of clarity around expected kindergarten skills. During the intervention, English or Spanish-literate parents of three- and four-year-old children received three texts weekly, with content, advice, and encouragement on early learning activities to complete with their children. The text messaging intervention promoted positive behavior changes such as increasing the time parents spent reading to their children and how some parents read to their children. Additionally, the intervention delivered content in “digestible” pieces, which parents found easy to integrate into their daily routine while helping them to become more confident teachers of their children.

Gance-Cleveland and colleagues observed disparities in Hispanic perinatal outcomes, which lead to higher rates of obesity, diabetes, gestational diabetes, preterm birth, pregnancy-related hypertension, and infant deaths. Having created *StartSmart*^{TM}, an mHealth app that screens for risk and protective factors, the authors describe the process of translating and culturally adapting this app for Spanish-speaking pregnant women in a federally qualified health center. Patient and provider evaluation results are summarized.

Geana and colleagues describe the process of developing an mHealth application to improve women's health literacy after incarceration in four major domains of women's health: cervical cancer, breast health, reproductive health, and sexually transmitted infections. To minimize digital learning barriers, health literacy, strategic communication, and adult learning theories and models informed the development process. The authors sought to provide a reproducible "guide" demonstrating how others can replicate and scale this approach in other settings with vulnerable populations. The majority of participants found the health information easy to understand and the user interface easy to navigate.

Several papers in this issue examine the use of mHealth tools to address structural racism and other social inequities. Godoy and colleagues present qualitative data on the development of mHealth tools that prioritize the voices of girls and young women who have been affected by commercial sexual exploitation (CSE). The authors' examination of the acceptability and feasibility of mHealth tools designed to address the concerns of CSE-affected girls and women, including the study participants' desires for psychosocial support, health education, and digital assistance navigating complex judicial systems, exemplifies the potential to enhance the power and agency of marginalized populations with tools designed from the perspectives of those with lived experience of inequitable treatment.

Garcia et al. describe a program in which mHealth tools were used successfully to address food insecurity at scale during the COVID-19 pandemic, delivering 95,000 pounds of food through a multilingual, text-based app that connected community-based organizations to patient families that were identified as food insecure.

Stockman and colleagues propose a novel peer navigation and social networking app to improve HIV care among Black women affected by interpersonal violence. Though early in its inception, LinkPositively uses a number of very novel strategies to address a serious and underappreciated epidemic. We think this paper provides a sense of what is possible in the future of mHealth. Another forward-looking paper by Stotz and colleagues focuses on the need for health education resources for Indigenous peoples. Collectively, these papers point to a direction researchers should consider to help improve techquity among marginalized groups.

Telemedicine

In the wake of COVID-19, the emergence of telehealth as a tool for medical care creates new opportunities that enhance ways to interface with care, but also has the potential to exclude those without digital access from receiving care. Monitoring access to telehealth within health systems will be necessary to ensure equity in the use of these tools.

The work by Baker and colleagues demonstrates how a telemedicine intervention was quickly implemented and deployed in West Baltimore neighborhoods to combat the COVID-19 pandemic. The authors used the COVID-19 Vulnerability Index to prioritize patients at high risk by location and then dispatched a mobile health clinic staffed with a registered nurse and community health worker to those neighborhoods, which provided COVID-19 testing, social needs screening (i.e., assess food availability, housing needs, financial situation), telemedicine services (i.e., basic clinical health

screenings to the extent possible virtually), access to the electronic health record, and virtual visits with advanced practice providers.

Hughes and colleagues describe a process for developing a telehealth equity dashboard strategy to create real-time monitoring, metrics, and methods of accountability for the use of telehealth tools as a part of system-wide digital health strategies.

Rodriguez and colleagues describe a framework for enhancing equity in the design of patient portals used to access virtual care, including expanding language accessibility and ensuring greater digital access for patient populations.

Sharma and colleagues focused their COVID-19-era telemedicine evaluation on a safety-net hospital network. Their observational study provides an important look at some of the challenges faced by select patient subpopulations that promise to be the subject of both policy and process change discussions for the next few years.

Espinoza, Chen, and colleagues evaluated wearable device use as an attrition intervention in a comprehensive family-based obesity intervention program using a randomized control design. The authors found participants who received the wearable device as part of the intervention had a significantly greater rate of program completion and less attrition. The authors noted that further work will examine if adopting this technology will result in improved adoption of healthy lifestyle choices.

Systems Approaches

Ultimately, systems of care are required to truly implement a TechQuity agenda. Ogunyemi and colleagues at Charles R. Drew University Center for Biomedical Informatics describe their infrastructure for implementing an array of health information technologies in safety-net clinics and hospitals to serve the South Los Angeles population in ways that enhance access regardless of ability to pay and across digital divides.

Schillinger and colleagues describe a method to automate assessing health literacy, using computational linguistics approaches against secure messages in patient portals. The power of performing analyses like this across an entire population, without additional burden placed on the health system or on patients, is significant.

In summary, this Supplemental Issue of the Journal delivers a holistic view of challenges faced by poor and underserved citizens. Articles provide useful thought leadership, insightful observational data, and intriguing interventional data that will contribute to the dialog that has become a ubiquitous part of the conversation during these tumultuous times. We hope you find it of value.