

Digital Health Equity and Kidney Diseases

By Lipika Samal, Jorge A. Rodriguez, and Patricia C. Dykes

Research on digital health has largely focused on clinical decision support tools to help providers. Much of the research related to chronic kidney disease (CKD) has been on closing the “knowing-doing” gap through computerized clinical decision support and other types of quality improvement tools. Now, the focus is moving to risk prediction tools that are either rule based or model based (regression model or machine learning methods). The goal of these tools is to identify patients earlier for intervention (e.g., before development of acute kidney injury [AKI]), with the goal to improve outcomes.

There has been much less research on digital health tools for patients and their families and care partners. This is concerning since, in the ambulatory setting, active patient engagement is of paramount importance. Digital health tools include patient portals tied to electronic health records (EHRs), mobile applications, remote patient monitoring, and other technology for the provision of telehealth services. Using these tools, patient education about kidney diseases could be tailored to each individual patient. For example, the data in the EHR can be used to stage a patient’s CKD based on laboratory results for serum creatinine or serum cystatin C and the urine albumin-to-creatinine ratio, which would allow a digital health tool to show stage-appropriate educational materials to the patient. Even more importantly, patients themselves can be the ones to remind their physicians about screening and stage-appropriate monitoring (1).

With the enactment of the 21st Century Cures Act, which supports patients’ access to their data, an important step forward is the development of applications that can use interoperability standards. Standards, such as Consolidated Clinical Document Architecture and Fast Healthcare Interoperability Resources, enable the digital health tools to pull in an individual patient’s own data regardless of which EHR the physician or hospital system is using. For example, one application uses this approach to present diabetes-relevant data in a low numeracy-appropriate format (2). This functionality can also be used to help patients separate “signal” from “noise.” For example, a hospitalization for an acute illness often leads to temporary changes in medications for chronic diseases, including CKD, diabetes, and congestive heart failure. These changes can be highlighted for patients so that they can be prepared to discuss long-term dosage changes with their primary care physician (3). Digital health tools are also part of the strategy to improve post-AKI care through federally funded research (4). Such tools can help patients and their primary care physicians discuss a diagnosis of AKI and potential sequelae.

Digital health equity is the fair and just opportunity for patients to engage with and benefit from digital tools. Digital equity is central to ensuring that the implementation of these technologies does not widen health disparities. The key components of digital equity are broadband internet access and affordability, digital literacy, inclusive design and implementation, supportive reimbursement policies, and inclusion of digital tools and orientation for the use of digital tools in self-

management as a standard part of care. There are ongoing, multi-level activities to address these digital gaps (Figure 1). At the federal level, the Infrastructure Investment and Jobs Act promotes the extension of broadband infrastructure, which includes a subsidy program to help patients with their monthly internet costs and devices (5). Health care systems, like the Veterans Administration, have established tablet-lending programs to help patients who do not have devices (6). Additional focus has been placed on ensuring access to digital tools for patients with limited English proficiency. Some hospital systems have translated their patient portals to multiple languages as a commitment to language equity (7). These efforts represent initial steps to ensure a digitally equitable health care system that supports patient engagement and comprehensive kidney disease care.

In addition, there are quite a few opportunities for individual physicians in health care settings, like office-based clinics. National surveys show that there are disparities in provision of patient portals across racial and ethnic groups but little difference in actual use of portals for those who are offered access (8). Physicians and clinic staff in nephrology clinics can screen patients for digital needs and digital tool use at routine visits. For patients lacking device or broadband access, they can be referred to the Affordable Connectivity Program. Additionally, clinics can use EHR data to identify patients who are not using patient portals and offer training support. Older patients and patients with less education can become portal users through training in the clinic setting (9) or at home (10). One approach is to incorporate a digital navigator who can train patients to use these tools (11).

Digital health equity is another way to combat the environmental, medical, and social factors, as well as the effects of structural racism, that contribute to an increased risk of developing kidney failure. Through these key activities for digital health equity, we can all work together to ensure that patients with vulnerabilities derive benefit from digital health tools. ■

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Figure 1. Activities to address digital health equity gaps

