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Digital Health Equity

Current Practices and Approaches of Academic Medical Centers








Association of
American Medical Colleges

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Contents

EXECUTIVE SUMMARY

The enactment of the 21st Century Cures Act and the pandemic-related emergence of telehealth made digital tools a central part of health care. These changes have made digital disparities evident and prompted a need to develop a digitally inclusive health care system. Academic medical centers (AMCs) have had to develop a digital health equity strategy to drive improvements in care and access. Digital health equity generally refers to the ability for all patients to meaningfully engage with and benefit from digital tools.

As part of the cooperative agreement between the AAMC (Association of American Medical Colleges) and the Centers for Disease Control and Prevention (CDC), Improving Clinical and Public Health Outcomes through National Partnerships to Prevent and Control Emerging and Re-Emerging Infectious Disease Threats (FAIN: NU50CK000586), we interviewed leaders from digital health, telehealth, virtual care, and health equity at 11 AMCs across the United States. Our participating institutions were the following:

Boston Medical Center (BMC)

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Henry Ford Health System (HFHS)

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Courtney Stevens, Director of Virtual Care

Johns Hopkins Medicine (Johns Hopkins)

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New York City Health and Hospitals Corporation (NYCHHC)

Kevin Chen, MD, MHS, Senior Director, Design and Evaluation

Oregon Health & Science University (OHSU)

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University of California, Davis, Health (UC Davis Health)

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Jennifer Rosenthal, MD, MAS, Medical Director, Pediatric Telehealth; Associate Professor, Department of Pediatrics

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Delphine Tuot, MD, Professor of Medicine, Interim Division Chief of Nephrology, Zuckerberg San Francisco General Hospital and Trauma Center; Associate CMO of Specialty Care and Diagnostics, Zuckerberg San Francisco General Hospital and Trauma Center; Director, UCSF Center for Innovation in Access and Quality, Zuckerberg San Francisco General Hospital and Trauma Center

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Mass General Brigham (MGB)

Allison Bryant, MD, MPH, Senior Medical Director, Health Equity
Michelle Zelen, MPH, Senior Program Manager in Digital Access

This initiative is part of the AAMC's efforts to improve health care access, collaborate with communities, and advance health equity. A key part of this work is to create tools and promote resources that support partnerships throughout the country between AMCs and their communities to engage with patients, parents, caregivers, and schools, and to support culturally sensitive approaches to improve digital literacy and overcome the digital divide.

The goal of the interviews was to understand AMCs' current and future strategies and activities focused on digital health equity and identify emerging best practices. The interviews covered the following domains: defining digital health equity, current and future digital health equity activities, the role of digital health equity data, COVID-19 vaccination and digital health, and future directions for digital health equity.

Through the interviews, we identified key activities for digital health equity that are currently being undertaken by AMCs. The activities focused on establishing digital health equity leadership and mission, assessing digital needs, supporting digital literacy, adapting the design and implementation of digital tools, ensuring digital tools are a standard part of care, and contributing to policy initiatives (Table 1).

Table 1. Summary of Digital Health Equity Activities by AMCs

Activity	Elements	Current Approaches
Establishing digital health equity leadership and mission	• Digital health equity vision. • Organizational structure.	• Create a digital health equity leadership position. • Establish an environment for complementary relationship between digital and health equity teams. • Incorporate digital health equity into broader institutional goals and strategy. • Use established methodologies (e.g., human-centered design) to guide digital transformation.
Assessing patients' digital needs	• Broadband access and affordability. • Device access and affordability. • Digital readiness and screening.	• Establish tablet/device loaner programs. • Integrate digital screening into care (e.g., existing screening for social determinants of health). • Partner with communities to create kiosks for virtual care at community centers, libraries, and other public places. • Partner with internet service providers around broadband affordability for patients (e.g., Astound). • Refer patients to federal programs such as the Affordable Connectivity Program. • Use electronic health record (EHR) data to identify patients with digital needs.

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Table 1. Summary of Digital Health Equity Activities by AMCs

Activity	Elements	Current Approaches
Supporting digital literacy	• Digital navigation. • Platforms. • Vendors.	• Collaborate with community members to obtain feedback on digital platforms and codesign improved or new digital tools. • Collaborate with digital vendors and EHR companies to design platforms with equity in mind. • Create digital access coordinator or navigator programs to support patients in using digital tools. • Create patient portal simulators for patients to train on. • Institute clear patient portal proxy policies and shared accounts. • Refer patients to community organizations with digital literacy resources. • Translate digital tools (e.g., portals) to align with the linguistic needs of patients.
Adapting the design and implementation of digital tools	• Monitoring use. • Multimodal options.	• Clarify privacy policies to ensure digital tools do not share protected health information with third parties, which is especially important for certain populations (e.g., patients who have undocumented immigration status). • Collaborate with interpreter services to support secure messaging in language-discordant communications. • Create and integrate dashboards on digital use by underserved populations to facilitate review by leaders and guide intervention efforts. • Establish a regular review process to ensure current digital tools support equity efforts and to not introduce new barriers to care. • Facilitate integration of interpreters into telehealth. • Provide multimodal, nondigital options.
Ensuring digital tools are a standard part of care	• Clinical impact. • Clinical team engagement.	• Ensure digital tools are applied for clinical impact by establishing clinical outcomes as part of the implementation strategy. • Seek health care team feedback on digital tools to ensure adoption and ongoing use. • Train health care team members on using digital tools.
Contributing to policy initiatives	• Feedback to policymakers.	• Advocate for extension of policies that support digital health equity, such as reimbursement for audio-only visits. • Engage policymakers to address digital redlining. • Provide feedback for digital equity elements of the Infrastructure Investment and Jobs Act in partnership with the organization's government relations team. • Share digital equity data with policymakers to advocate for better access. • Share impact of digital tools on clinical outcomes with policymakers.

SECTION 1

Introduction

Digital tools such as patient portals, telehealth, and mobile apps have become an integral aspect of the delivery of health care. The COVID-19 pandemic prompted academic medical centers (AMCs) to extend the use of telehealth and other digital tools to all patients, with the goal of improving access to care, patient and clinician experience, health outcomes and cost, and health equity. However, AMCs have had to confront preexisting disparities in who has access to and uses digital tools. Digital health equity has become central to the future of digitally powered health care delivery. While AMCs will not, by themselves, solve all barriers to digital equity, they have a responsibility to understand these barriers and then to study and design innovative and culturally appropriate solutions to overcome them. In this report, we (1) highlight the roles AMCs are playing to improve digital health equity and (2) identify opportunities and evolving approaches that AMCs can adapt, implement, and scale.

Digital health equity applies to a broad swath of tools and services that AMCs can provide. While there is no standardized definition for digital health equity, it generally refers to the goal for all patients to have access to technology and to meaningfully engage with and benefit from digital tools. In this report, we refer primarily to patient-facing digital tools, including texting, mobile apps, telehealth, and patient portals, rather than clinician-facing tools.

Digital inequities have been a long-standing challenge for AMCs. The 2009 Health Information Technology for Economic and Clinical Health (HITECH) Act incentivized health care systems to provide patients access to their data through patient portals.[1] However, digital disparities emerged as patient portal use became widespread.[2] These disparities have extended into the use of telehealth and other digital tools as these modes of care emerged as fundamental through the pandemic. Several AMCs have reported disparities in the use of telehealth, especially video visits, during the pandemic.[3] Digital disparities restrict access to many services, including critical access to the COVID-19 vaccines, because much of the information and scheduling has been online.

As AMCs invest in systems redesign efforts and the technology infrastructure required for robust, high-quality care via digital tools, it is critical that they pay concerted attention to the risk of introducing new barriers that lead to inequitable care. AMCs must assess and then address the multilevel factors that drive digital disparities. Through an approach that highlights the drivers of digital health disparities and showcases examples of the systematic efforts of peer institutions to address these challenges, this report is intended to help shape health system strategies to embrace and leverage digital tools in a manner that respects those systems' fundamental commitment to health and health care equity.

SECTION 2

Current Practices and Approaches to Achieving Digital Health Equity

AMCs have focused their digital health equity approach across three key activities:

- Establishing digital health equity leadership, strategy, and advocacy.
- Assessing and addressing patients' digital needs.
- Adapting the design and implementation of digital tools.

Establishing Digital Health Equity Leadership, Strategy, and Advocacy

For AMCs, digital health equity relies on a clear definition of digital health equity, strategic planning guided by existing frameworks, and an integrated leadership structure. By establishing this foundation, AMCs can ensure that digital tools support organizational goals and the health of communities.

Definition: Digital Health Equity

By defining what digital health equity means for their institutions, AMCs can establish such a vision as part of their overall strategy. However, AMCs may be challenged in defining digital health equity. In our conversations with key experts at AMCs, varied definitions of digital health equity were offered:

- Using cost-effective digital tools to support access to care and health equity.
- Providing all patients with access to care that is supported by, but not limited to, digital tools.
- Ensuring that every patient gets care in the most appropriate form.
- Providing all patients with an equal and just opportunity to access their care digitally.
- Ensuring that all patients have the same opportunities to access health care using digital means.
- Health care systems using digital tools to advance health equity.
- Involving all populations in the development of digital tools.

Most AMCs identified access to technology (i.e., broadband, devices) as a key priority, though affordability was not always identified. Digital health literacy and establishing equitable workflows (e.g., interpreter integration into telehealth visits) were also usually identified as a key component of digital health equity.

Example of Defining Digital Health Equity: "[The] ability for people across a wide range of backgrounds and demographics to be able to access services that are enabled by virtual means."

— Kevin Chen, MD, MHS (New York City Health and Hospitals Corporation)

Digital Health Equity Frameworks

AMCs can use existing digital health equity frameworks to guide their equity strategy. There are several existing frameworks that AMCs can use to guide organizational strategy for teams developing an early approach to digital health equity:

- The California Telehealth Resource Center – Health Equity Toolkit.[4]
- Digital Health Equity Framework.[5]
- Digital Health Equity and the Socioecological Framework.[6]
- Framework for Digital Health Equity.[7]
- Telehealth Equity Impact Assessment Tool.[8]

The team at UC Davis Health used the Digital Health Equity Framework to guide their approach and strategy and to help determine measures for the digital health projects (Case Study 1).

Case Study 1

Digital Health Equity Organizational Structure

University of California, Davis, Health

The UC Davis team informed its digital health strategy with the Digital Health Equity Framework.* Using this framework, the team has established digital health equity goals across operations and information technology (IT) domains, including electronic health record (EHR) and IT applications, telemedicine, data, innovation, and infrastructure. The team has also implemented key equity objectives for its patient portal, telehealth, digital front door, and digital monitoring.

The team captures and tracks the percentage of patients who are new to digital tools, along with patients' digital access (e.g., portal messaging and use of video for care encounters) and whether they are digitally monitored (e.g., using remote monitoring tools). The team also monitors publications and funding related to digital health and digital health equity, as well as new digital technologies developed that relate to health equity. As part of its equity strategy, the group stratifies each of these measures across patient age, race, ethnicity, gender, type of health insurance, language, and Healthy Places Index.

Key Takeaway

Organizations can use existing health equity and digital health equity frameworks to inform a multidisciplinary digital health equity strategy. ■

*Crawford A, Serhal E. Digital health equity and COVID-19: the innovation curve cannot reinforce the social gradient of health. J Med Internet Res. 2020;22(6):e19361. doi:10.2196/19361.

Digital Health Equity Organizational Structure

The organizational structure should create an environment that allows for collaboration between digital teams and health equity teams. A strong connection between these groups is necessary to create a complementary organizational relationship where digital teams and equity teams develop a unified digital health equity vision. AMCs described clear leadership structures for digital teams and health equity teams separately, but "digital health equity leadership" was less well defined.

From our conversations with AMCs, we offer potential leadership structures that facilitate the equitable and sustainable implementation of digital tools (Figure 1). One approach is to identify either digital leaders with strong health equity knowledge or health equity leaders with strong digital health knowledge. Another approach is to ensure that health equity leaders are included in the digital health decision-making process. Some AMCs chose to create digital health equity committees as a meeting place for digital health and health equity leadership. Moreover, a leader who understands both digital health and health equity, such as a medical director of digital health equity, may be able to serve as a bridge between these two key pillars of the health care system. Regardless of the organizational structure, AMCs emphasized the importance of including patients and communities as active stakeholders in strategy discussions. For example, Boston Medical Center has patient and family workgroups that provide feedback on the organization's digital health equity strategy and approaches.

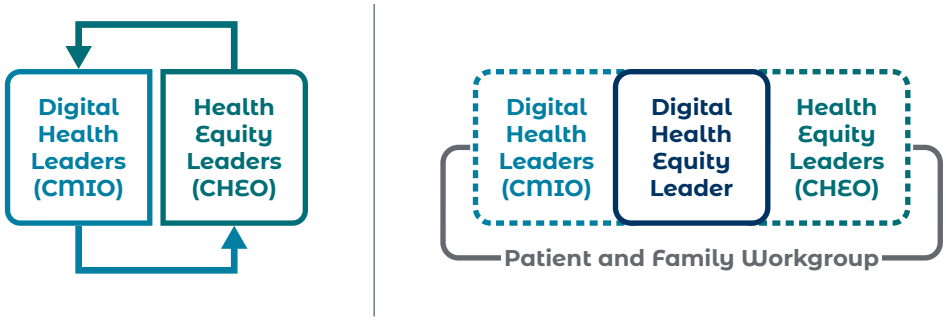

Figure 1. Sample digital health equity organizational structures. CMIO = chief medical information officer; CHEO = chief health equity officer.
Credit: Jorge A. Rodriguez, MD

Contributing to Policy Initiatives

AMC leaders can look beyond their organizations and serve as advocates for digital equity across their communities. An important step is having active discussions with local, state, and federal policymakers that demonstrate how digital disparities present a barrier to health or how digital initiatives are addressing existing health disparities. Johns Hopkins Medicine has leveraged its digital health equity data dashboard to meet with officials at the local (Baltimore) and state (Maryland) levels to advocate for digital equity policies such as reimbursement for audio-only visits — an important means for reaching patients who might not have access to, or the skills needed for, a video visit with a clinician. The New York City Health and Hospitals Corporation (NYCHHC), as a public health care system, prepares reports for local government that bring digital health equity issues directly to local leaders. These types of efforts are critical as continued discussions occur regarding future reimbursement for digital modes of care, such as telehealth.

Assessing and Addressing Patients' Digital Needs

To engage with digital tools, patients need, at a minimum, broadband internet access, appropriate devices, and digital literacy. Broadband equity refers to the ability of patients to access an affordable, high-speed, and reliable internet service that meets their needs.[9] Nationally, approximately 23% of patients lack broadband access.[10] Further, even if broadband is available, affordability may present an additional barrier. For example, 34% of patients reported difficulty paying for broadband.[11] Additional challenges may include data limitations, which pose a barrier to digital activities that require larger data transfers, such as video streaming.

Notably, some patients do not have access to home broadband services but rely on mobile internet connectivity, which may limit their digital experience. Beyond internet access, having consistent access to an appropriate device (e.g., smartphone, tablet, computer) is necessary for patients to engage with digital tools. Fifteen percent of people in the United States report not having access to a smartphone.[12]

Digital literacy is critical for patients to meaningfully engage with digital tools. Digital literacy refers to the "ability to use information and communication technologies to find, evaluate, create, and communicate information, requiring both cognitive and technical skills."[9] In the context of health care, we expect patients to be able to meaningfully engage with and benefit from tools such as patient portals, telehealth, mobile apps, and remote monitoring tools.

Contributing to Policy Initiatives

Understanding the digital needs of patients is often the first step for AMCs seeking to address digital health inequities. Important considerations for assessing digital needs are determining what questions to ask, when to ask them, who should ask them, how to report the answers, and what to do in response to identified digital needs (Table 2). To develop digital needs questions that align with larger digital equity goals, AMCs can draw from previous work and recommendations conducted within their own institutions on social screening or community engagement, peer institutions from around the country, and community organizations.

The questions should ask patients about (1) broadband internet access and affordability, (2) device access and affordability, and (3) digital literacy. An early good practice from leading AMCs involves prioritizing responses to shorter questionnaires that could be quickly implemented into existing workflows and/or screening strategies. Additionally, piloting these questions with community groups provides important insight into the validity and acceptability of the questions administered in specific populations.

All AMCs we interviewed have established some form of digital needs screening or assessment. The most common form of screening is done at the patient level. For example, Boston Medical Center has integrated digital needs screening as part of its robust social determinants of health (SDOH) screening (Case Study 2). Several AMCs included digital screening questions as part of their digital health navigation programs. NYCHHC and the San Francisco Health Network (SFHN) included digital needs questions as part of their assessment of a patient's previsit readiness by the front desk staff or through digital navigators for telehealth visits.

Other AMCs are planning a community-level approach to digital screening. The University of Mississippi Medical Center (UMMC) is undertaking a community needs assessment for telehealth use by partnering with community organizations in the development and deployment of a survey. The survey will collect data to understand the digital needs

Table 2. Key Considerations to Assess Digital Needs

Questions	Considerations
What questions help assess digital needs?	• PhenX Toolkit.[13] • Digital literacy assessment.[14] • Center for Care Innovations Telemedicine for Health Equity Toolkit.[4]

When can digital needs questions be asked?	• Patient level:
	  ◦ Screening for social determinants of health.
	  ◦ Registration.
	  ◦ Admission or discharge from the inpatient setting.
	  ◦ Digital health navigation programs.
	  ◦ Appointment scheduling.
	• Community level:
	  ◦ Needs assessment surveys.
	• Planning and implementation stages of community collaboration efforts (e.g., surveys, health screenings).

What can be done to address identified digital needs?	• Develop organization-funded digital equity programs (e.g., tablet-loaning programs). • Referral to local, regional, or federal digital equity programs (e.g., Affordable Connectivity Program). • Referral to community groups focused on digital equity (e.g., libraries with digital literacy classes).

of communities across the state. UMMC plans to oversample from people living in rural areas with low socioeconomic status and from underserved groups. The survey is part of their work as a Health Resources and Services Administration Center for Excellence.

While AMCs have differing approaches and are at different stages of implementing a digital health screening process, it's clear that is quickly becoming an evolving best practice for understanding and improving digital equity. This is further supported by an increasing acknowledgment that digital health equity is a social determinant of health that impacts multiple domains of a patient's life.[15,16]

Broadband Internet and Devices

Through the screening process, AMCs not only identify needs but can also address broadband internet and device access gaps. Several AMCs are addressing gaps as part of targeted remote monitoring programs (RMPs). For example, UMMC has a long-standing RMP. One of the challenges the center faced was a lack of broadband among rural populations. To address these gaps, leaders worked with the RMP vendor to send patients internet-enabled tablets that relied on cellular connections available in those communities. To minimize problems with connectivity, all their patients receive tablets for the program. The third-party vendor partnering with UMMC's RMP program for equipment distribution checks a state cellular coverage map for each enrolled patient's home address and provides the patient with a tablet that connects to the cellular provider most prevalent in the area. If there is an issue with poor reception or connectivity with that tablet, then a new tablet with an alternative carrier is sent to the patient.

AFFORDABLE CONNECTIVITY PROGRAM

The Affordable Connectivity Program aims to ensure that all households have access to reliable and affordable broadband internet and devices. At the time of this writing, the program offers a "discount of up to $30 per month toward internet service for eligible households and up to $75 per month for households on qualifying Tribal lands. Eligible households can also receive a one-time discount of up to $100 to purchase a laptop, desktop computer, or tablet from participating providers if they contribute more than $10 and less than $50 toward the purchase price."

Patients are eligible for the program if their income is at or below 200% of federal poverty guidelines or if they meet additional criteria. This program can be leveraged by AMCs as a resource to address digital needs identified during the digital screening process. For more information on the program, visit fcc.gov/acp. AMCs can further support patients through the application process by collaborating with internet service providers and community groups (Case Study 2).

While RMP-focused efforts provide technology for a specific clinical need, they may not address broader digital needs. Some health care organizations may want to meet these needs internally and can establish device-loaning programs like those established at the U.S. Department of Veterans Affairs.[17] In these programs, health care organizations directly provide patients with devices, such as iPads, to use for a broad range of health care activities. A successful device-loaning program includes the following:[18]

- Allocating resources (e.g., digital navigators) to support training patients on using the tablets and provide troubleshooting as needed for patients.
- Developing distribution and onboarding workflows for patients getting started with the tablets.
- Ensuring consistent outreach and follow-up to promote tablet use.
- Identifying clinical-use cases that will benefit from tablet distribution (e.g., pair with continuous glucose monitor initiative or use with telebehavioral health visits).
- Working with IT teams to set up device settings and tracking.

"We plan to create hubs with community partners to bridge the digital divide where community and faith-based sites become conduits to care. Here, individuals who may not be technically savvy or who may not have digital access can visit trusted community partners who will be equipped to help patients access telehealth services on-site."

— Caroline E. Compretta, PhD (University of Mississippi Medical Center)

These programs may provide immediate support to patients, but their sustainability and scalability, especially in terms of funding, present significant barriers for AMCs. Thus, AMCs can provide more expansive resources for digital needs by partnering with or referring patients to community-based organizations and federal programs to access existing resources or education. Federal programs such as the Affordable Connectivity Program (ACP), which provides subsidies for internet and device costs, offer sustainable alternatives and may be a promising avenue for AMCs; however, a patient-level screening and referral process will be required to identify patients who could benefit from the program. Boston Medical Center refers patients to the ACP as part of its digital equity strategy (Case Study 2).

Case Study 2

Screening for Digital Needs at the Patient Level

Boston Medical Center

BMC has integrated digital needs screening at several points, and it aligns with the institution's established screening for social determinants of health (SDOH). Patients being scheduled for a telemedicine visit are asked two questions: (1) do you have a smartphone or computer with a camera and microphone? and (2) is that device connected to the internet? Additionally, BMC creates a report to identify patients who meet the following criteria: those who have ever answered yes to the preceding questions, have ever screened positive for additional SDOH questions, have a chronic illness (e.g., diabetes, hypertension, congestive heart failure), and have a telehealth visit coming up in the following two weeks. Patients who meet these criteria are then called 30 minutes before their appointment to receive support for their digital needs.

BMC also has digital health navigators in selected clinics who proactively screen patients in the waiting rooms. Patients with identified digital needs are offered several digital inclusion resources, including digital literacy courses provided by a community organization, training in using the patient portal, and training in using the telehealth platform. For broadband and device needs, they are referred to the Affordable Connectivity Program (ACP).

BMC partnered with an internet service provider that works with patients to complete the application process for the ACP. All these data are integrated into their ACP's data warehouse, along with other SDOH data. Using the SDOH workflows and data infrastructure, BMC can have closed-loop referral processes that allow staff to see whether a patient has received the recommended digital resources. By committing to treating digital needs as a social determinant of health, BMC has leveraged its existing infrastructure and resources to further the digital equity mission.

Key Takeaway

Leverage existing SDOH screening workflows and data infrastructures to integrate digital needs screening into care.

Some digital access needs can also be addressed at the community level by placing technology access points at community sites. UMMC is establishing a statewide school-based telehealth program that aims to include 668 schools. Efforts such as school-based telehealth, health kiosks in public libraries, and community-based organizations create central community access points. This requires multisector and community collaboration to understand the needs, implement the appropriate technology infrastructure, and create a private setting that supports patients visiting these sites to access digital health tools and receive remote care.

Patient Digital Literacy and Skills

As health care and society become increasingly reliant on digital tools, having the skills to confidently interact with technology influences a patient's health. AMCs can support patient digital literacy through personalized assistance in the form of digital navigation. One such means of assistance is digital navigators — team members who facilitate the equitable integration of technology into care.[19] They may have different titles depending on the organization (e.g., digital health navigator, digital access coordinator, telehealth ambassador), and some organizations have also trained community health workers to

provide digital navigation support. Digital navigators can perform multiple tasks that support digital health equity and advocate on behalf of the patient. Digital health navigator skills span five domains: outreach, technology knowledge, digital health knowledge, clinical knowledge, and organizational awareness (Table 3).[20,21] In practice, navigators take on specific responsibilities that support digital equity efforts across the organization.

Table 3. Digital Health Navigator Foundational Skills

Skill	Strategies
Outreach and building rapport	• Assess digital literacy. • Build rapport with patients in a way that is supportive and inclusive and that asks them to consider stepping outside their comfort zones. • Identify and connect with patients who have digital needs. • Screen for digital needs and refer to resources.
Technology knowledge	• Have a general understanding of common technology platforms (e.g., iOS, Android, Windows).
Digital health knowledge	• Be trained in digital health programs (e.g., telehealth, remote monitoring, health apps). • Support other related digital tasks (e.g., email sign-up). • Understand the enrollment processes for digital health programs (e.g., patient portal). • Understand the uses of current digital health tools (e.g., functions of the patient portal).
Clinical knowledge	• Be able to describe how digital tools can improve a patient's health.
Organizational awareness	• Understand the clinical workflows and how digital tools are integrated into day-to-day care.

AMCs are integrating digital navigation at various points of the health care experience. For example, digital literacy training can occur (1) at clinic visits, (2) before telehealth visits, (3) during inpatient admissions, (4) during home visits, (5) during health classes, or (6) as part of community-based digital literacy classes.

Mass General Brigham has implemented a Digital Access Coordinator (DAC) program as part of its United Against Racism initiative (Case Study 3). The DACs are embedded within clinics, stationed in lobbies, or work from central phone banks. In all interactions, the DACs provide outreach to patients and offer support for patient portal enrollment and training. Patient portal enrollment was chosen as a focus of the program because of the significant disparities in access and use of the patient portal — the health system's primary patient-facing digital tool.

Case Study 3

An Organizational Approach to Digital Navigation

Mass General Brigham

MGB established a Digital Access Coordinator (DAC) program. The goal of the program is to address digital literacy gaps and support patients in using digital tools. The program consists of 10 to 12 full-time bilingual staff members who identify patients with digital needs and provide dedicated training on the use of the system's patient portal and telehealth platform. As part of their onboarding, DACs receive training in several areas, including the mission of the program, cultural competency, patient portal and EHR functionality, and clinic workflows. The program continues to iterate and refine its workflows as it approaches the completion of its second year.

Multiple opportunities for referral to the DAC program are important, and some patient outreach models work better than others depending on language and setting. Most DACs are embedded within primary care clinics to allow them to integrate into a clinic's workflows and culture. The DAC program is an integral part of MGB's approach to anti-racism, which comprises a multitude of health equity programs that fall under the larger MGB United Against Racism initiative.

Key Takeaway

Embedded digital health navigators can support patients in using digital health tools as part of their care. ■

The DACs offer support in several languages aligning with the linguistic needs of the population. Similar programs exist at NYCHHC and SFHN. Those institutions focus their outcomes on patient portal enrollment and preparation for telehealth visits, particularly video visits. Some health systems focus their digital training efforts on specific patient populations and on providing peer support. For example, the Henry Ford Health System is piloting a digital inclusion coaching program in which older adults can help their peers use telehealth (Case Study 4).

Other efforts implemented by AMCs have created centralized locations for patients to learn about digital tools overall, such as Ochsner Health System's The O Bar, modeled after Apple's Genius Bar.[22]

"As a clinician, I need to know how to identify low digital literacy because this can impact the health of my patients. And I don't need to teach the patient how to use the technology, but I need to know that there are staff in the hospital and community organizations who can help and whom I can refer to."

— Pablo Buitron de la Vega, MD (Boston Medical Center)

Health care organizations may lack the funding for a dedicated team member to provide one-on-one digital navigation support, so the role of a digital health navigator can be served by other staff members, especially community health workers. To succeed in the navigator role, one should understand the needs of the community and the patient and be able to connect with individuals, establish trust, and provide education as needed — all of which are essential to the community health worker role as well. For example, a community health worker program that uses remote blood pressure monitoring to support patients with hypertension could also include digital navigation. In this case, the community health workers provide digital literacy support as part of the onboarding process for the program.

Case Study 4

Digital Equity for Older Populations

Henry Ford Health System

Henry Ford Health identified a lack of access to and use of digital tools among the system's older patients. Leadership is taking a multipronged approach to addressing these issues. The first step is surveying existing older patients about their digital needs, including connectivity, devices, and literacy. Then Henry Ford Health hosts a series of focus groups to better understand the barriers, facilitators, and perspectives of older adults regarding digital tools.

In contrast to other organizations with whom we spoke, Henry Ford Health is engaging peer digital inclusion coaches and leveraging existing community collaborations to codesign a curriculum that will facilitate peer coaching to support older adults who want to use telehealth. As a part of its commitment to the community, the system held a Virtual Care Equity Summit to share lessons learned and opportunities for digital inclusion among older populations.

Key takeaway

Focusing on specific populations and use cases can facilitate adapting digital health strategies and approaches.

The digital health team at Oregon Health & Science University (OHSU) employed a community health worker in their early efforts to better understand patient preferences for training and support. Other AMCs use either paid staff or volunteers (e.g., medical students, undergraduate students, athletic trainers) as digital health navigators.

Funding for digital health navigation programs can come from varied sources, including external grants from foundations and federal grants or internal funding as part of the digital health or equity budget. However, for sustainable digital health navigation programs, AMCs may be able to collaborate with community organizations to obtain funding from the Infrastructure Investment and Jobs Act.[23] These collaborations are still developing and present a future opportunity to support digital literacy that extends beyond health and into all facets of a patient's life.

"The digital access coordinators (DACs) are a central and valued part of our effort to ensure equity for our patients across the health care setting."

— Michelle Zelen, MPH (Mass General Brigham)

Clinician and Staff Digital Literacy

While much of the focus was placed on patient digital literacy, clinician and staff digital literacy skills were also identified as essential to digital equity. Henry Ford Health System is developing a provider curriculum to train staff on approaches for improving telehealth encounters for older adults. Another AMC highlighted the importance of digital literacy training as part of workforce development. The team from University of Arkansas for Medical Sciences has opened five satellite sites in Arkansas and Tennessee to train current and future health professionals, including high school students, on digital literacy skills.[24] This approach is unique because it focuses on health care professional digital literacy rather than only on patient digital literacy. The investment by AMCs in digital health literacy training as part of youth education efforts represents an opportunity to ensure equity in digital care delivery.

To support their own providers and staff, AMCs can begin by understanding the gaps and opportunities to improve digital health equity among their staff and by creating educational tools grounded in the AAMC's telehealth competencies, targeted to clinicians. AAMC's telehealth competency domains are as follows:

- Access and equity in telehealth.
- Communication via telehealth.
- Data collection and assessment via telehealth.
- Ethical practices and legal requirements for telehealth.
- Patient safety and appropriate use of telehealth.
- Technology for telehealth.

The competencies provide "a roadmap for curricular and professional development, performance assessment, and improvement of health care services and outcomes."[25] The competency in access and equity in telehealth, for example, asserts that "clinicians will understand telehealth delivery that addresses and mitigates cultural biases as well as physician bias for or against telehealth and that accounts for physical and mental disabilities, nonhealth-related individual and community needs, and limitations."[26]

Staff biases can also be a challenge to digital health equity. In our interviews, some AMCs reported that clinical staff were not offering video visits to all patients, which is consistent with previous research.[27,28] For example, the team at UC Davis Health conducted interviews with their staff and found that clinical providers and staff sometimes offered video visits less frequently to certain patients and families,[28] as confirmed by data released by the Office of the National Coordinator for Health Information Technology, which showed that Black and Hispanic patients were offered access to patient portals at lower rates than White patients.[29] The agency recommends performing assessments of scheduling workflows and providing staff education on the importance of offering digital tools to all patients.

Digital Needs Data and Program Evaluation

AMCs are also taking a data-driven approach to digital health equity by reviewing the use of digital tools across patient populations. One common approach is the development of dashboards. For example, Johns Hopkins Medicine developed a telehealth equity dashboard that allows its team to quickly review uptake gaps across populations and telehealth modalities (i.e., audio versus video).[5] This data informs the institution's telehealth equity strategy, supports its advocacy efforts (particularly around the importance of audio-only visits), and supports community collaboration (Case Study 5).[30]

Other AMCs described creating digital equity maps that allow them to see which neighborhoods have low uptake for digital health tools — knowledge that can inform conversation with community-based organizations and support opportunities for new partnerships or collaborations. NYCHHC does just that by sharing its telehealth data use with individual clinics and community organizations to better address identified gaps. It is important to note that AMCs emphasized that data do not tell the full story: establishing relationships with patients and communities is critical to understanding and addressing digital equity (refer to "Assessing and Addressing Patients' Digital Needs" in Section 2).

Community-level measures of digital equity were not consistently used by AMCs. Data from the Federal Communications Commission or the American Community Survey regarding broadband and device access were not reported as consistently being integrated into organizational digital health equity strategies.[31,32] This gap presents an opportunity to use existing data sources to inform current community digital needs.

Case Study 5

Leveraging Electronic Health Record Data to Identify Patients' Digital Needs

Johns Hopkins Medicine

Using easily available electronic health record (EHR) data, Johns Hopkins Medicine developed an EHR tool that identifies patients likely to need digital navigation support. The tool's score, which ranges from 0 through 4 (where 4 represents the highest need) is calculated from patient portal activation status, previous electronic check-ins, and previous telehealth visits.*

In a pilot program, patients who were identified at high risk for needing digital navigation support were contacted by the Johns Hopkins Medicine health IT teams seven days before their telehealth visit. This tool is also used by frontline clinical team support staff to triage which patients should be called before visits.

Key Takeaway

EHR data can be harnessed to proactively identify patients who may need additional support to use digital tools. ■

*Hughes HK, Canino R, Sisson SD, Hasselfeld B. A simple way to identify patients who need tech support for telemedicine. *Harvard Business Review.* Published online Aug. 10, 2021. Accessed Jan. 26, 2023.

In terms of evaluation, AMCs have an opportunity to use implementation science approaches to guide their evaluation strategies. One recommended approach is the RE-AIM (Reach, Effectiveness, Adoption, Implementation, Maintenance) framework.[33] RE-AIM provides a structured approach for program evaluation. There are no accepted measures for digital health equity. For example, organizations adopted a variety of measures for patient portal use and engagement (e.g., enrollment, previous logins, activities performed on the portal). AMCs have chosen metrics based on their organizational needs and the literature on the topic. Many of the current measures focus on enrollment and sign-ups but should shift toward deeper measures of engagement (e.g., use, specific functions used).

Throughout the interviews, participants expressed the need for better data infrastructure to support integration of patient demographics, SDOH, and digital needs data. Additionally, they emphasized the need for outcomes data on the impact of digital health tools on health and health equity outcomes. For example, one AMC highlighted an opportunity to have national organizations develop quality metrics for digital health tools. These identified needs present opportunities for AMCs to take a leadership role in setting the research agenda for digital health equity.

Adapting the Design and Implementation of Digital Tools

Human-Centered Design

The design of digital platforms and programs is a critical component to digital equity. Digital health platforms and programs designed without consideration of historically and economically marginalized populations as target users have a high risk of inducing inequities in access and use. AMCs will need to address these design gaps as part of their digital equity strategy. OHSU has demonstrated leadership in this space through its human-centered design efforts (Case Study 6).

Human-centered design offers a flexible approach for AMCs to ensure that the overall design of the digital experience aligns with their users' needs and each institution's equity goals. Human-centered design refers to a set of practices that centers the human experience in all parts of the design process.[34] This process allows co-creation of solutions with active stakeholder input (e.g., from patients and communities).

The human-centered design process focuses stakeholder input on problem identification, solution development, and solutions testing. AMCs can harness existing relationships with community- based organizations to develop their digital health equity strategy and solutions. For instance, AMCs may have developed relationships with community organizations as part of their COVID-19 pandemic response. These relationships can be further developed to include the community voice in digital equity. OHSU has made the human-centered design process integral to its digital health equity approach. The institution has held brainstorming sessions with community members and then developed prototypes for iterative testing. Additionally, AMCs emphasized the need to have patients be active members of the working groups that develop the solutions and strategies. To facilitate this collaboration, patients, families, and care partners can be compensated for their time to join the meetings and contribute to workflow development and improvements.

Case Study 6

Human-Centered Design Approach to Digital Health Equity

Oregon Health & Science University

In its work to address and ultimately improve digital equity, the Office of Digital Health at OHSU is taking a human-centered design approach to its overall digital strategy. A program called CO-LED (Community Organization-Led Equity by Design) aims to take a step beyond the traditional approach to digital inclusion (i.e., focusing on digital literacy, device access, and internet and broadband access) to incorporate codesigning approaches and solutions to digital barriers with the community. This involves leveraging human-centered design strategies such as journey mapping to understand the digital experience across stakeholders, empathy interviewing to understand the patient experience, and prototyping and low-fidelity testing of potential solutions.

As a first step, the CO-LED team worked with OHSU senior leaders, the office of government relations, and their community relations manager to make sure that outreach efforts to community-based organizations were coordinated and not seen as an additional request to community partners that may already be stretched with requests. The CO-LED team also considered further barriers, such as the historical relationship between AMCs and community partners, the potential lack of time and funding for community partners to participate, and the fact that the core missions of many of such organizations do not include digital health.

Funds were allocated to provide incentive payments to involved community-based organizations, a clear scope of work was defined, and the intention to work against historical injustices was declared. Ultimately, the CO-LED team assembled a coalition of seven community organizations to engage in dialogue and understand community needs. Many of these organizations had a foundation of trust based on preexisting relationships with OHSU.

Through this community coalition, the CO-LED team engaged community-based liaisons (e.g., traditional health workers and directors) in a yearlong human-centered design workshop. Liaisons interviewed community members to better understand the barriers

(continued)

(Case Study 6 continued)

to accessing digital health tools to formulate user personas. They then created a problem statement, design criteria, and napkin pitches, which were taken back to communities for feedback. The team has developed new solutions that are currently being tested as prototypes.

Human-centered design is also used within OHSU teams. As a result of internal work, a team recently launched a virtual care support booth with the goal of building patient confidence in using technology. The team is currently testing various methods (e.g., trying different human-centered design is also used within OHSU teams. As a result of internal work, a team recently launched a virtual care support booth with the goal of building patient confidence in using technology. The team is currently testing various methods (e.g., trying different marketing signs for MyChart Help and Virtual Help, testing various physical locations, using a MyChart Simulator, and testing proactive outreach in partnership with specific clinics) to see what resonates with patients. OHSU's strategy for addressing digital equity is human centered, possibility driven, and iterative.

Key Takeaway

Integrating human-centered design into digital health equity strategy can create a collaborative approach to digitally powered patient care.

AMCs described taking an active role in evaluating vendors to ensure that their platforms are equitably designed and in iteratively adapting the design of the platform. For example, SFHN thoughtfully assessed the video visit platform that would be integrated into its electronic health record (EHR) system. The team's requirements were grounded in ensuring easy access to video visits for all patients. The requirements included sending video visit links via text message and eliminating the need for passwords or downloads to engage in a visit. They then applied human-centered design approaches to refine their video visit workflows. They included additional languages for the text messages, adjusted the design of the text link and patient-facing interfaces, and addressed challenges in supporting different mobile operation systems. Having a codesign relationship with the video platform vendor facilitated making changes that promote digital equity.

One common barrier to digital equity is the lack of multilingual availability of patient-facing software. Most AMCs have translated or are planning to translate their patient portals. While translating the portal can seem like a challenging task, AMCs described focusing on the most common patient languages spoken by local patients as a reasonable place to start. Some patient portal vendors may provide standard translation of static content, but more granular translation may rely on use of professional translation services. These translation efforts will require a collaborative effort between translation services, IT leaders, and equity leaders. Notably, one limitation of translating digital tools is that dynamic content (e.g., patient portal secure messaging) may present an additional challenge. AMCs can implement translation workflows for these messages. In these workflows, non-English messages can be sent to a translator pool. However, these implementations depend on appropriately sourcing translation services.

Implementation and Workflows

As with most technology, implementation strategies and workflows drive staff and patient uptake. In its work on telehealth uptake, the University of California, San Diego noted that "any additional elements that could make the process even more difficult — whether it be a real or perceived element — exacerbated the selective offering of video visits." AMCs are evaluating and iterating on existing digital tool workflows that facilitate equitable access to technology.

One common workflow challenge faced by most AMCs is the integration of interpreters into video visits. With experience, most AMCs developed workflows to schedule and include interpreters in telemedicine visits. The choice of video client can have implications for an AMC's ability to integrate interpreters into care. Telehealth platform vendors need to prioritize interpretation workflows in their development work to align for the equity goals of AMCs. Some of these workflows were limited by preexisting barriers to interpreter access, including inconsistent clinician use, limited interpreter resources, and a lack of reimbursement for interpreter services. AMCs were also learning to balance the use of in-house interpreter staff and third-party interpreter services, which can have economic implications.

Protecting patient privacy is one notable opportunity for AMCs that was not often discussed in our conversations but presents an important consideration for the future of digital health equity. Digital tools provide an opportunity to meet patients where they are, but they can present a barrier for patients who may lack trust in the health care system.[35] Patients must trust digital tools to use them, which includes health systems either keeping personal information private and secure or being transparent about the limitations of digital tools. AMCs have an opportunity to present patients with clear privacy policies as part of the implementation of digital tools.

SECTION 3

Conclusion

AMCs are in the early stages of developing digital health equity strategies and missions. Future directions for AMCs include determining the sustainability and scalability of digital health equity programs, extending and evaluating technology as a tool for equity, and continuing advocacy efforts to ensure reimbursement by public and private payers for care delivered using digital tools. Digital health equity will continue to present opportunities and challenges for AMCs. Through a patient-centered approach to digital health equity, AMCs can ensure that technology aligns with improving the health of patients and communities.

Key Activities for Digital Health Equity

- Engage multidisciplinary stakeholders in digital health and health equity to establish an organization-wide digital health strategy.
- Ensure a clear leadership structure and accountability for executing a digital health equity strategy.
- Advocate at local, state, and national levels for policies that support equitable access to digital health care for all and for digital equity across the lifespan.
- Integrate digital needs screening into existing workflows to facilitate responsiveness to identified digital needs.
- Refer patients to internal or external resources that subsidize broadband internet access and devices.
- Include the digital health navigator role as part of the implementation of patient-facing technology.
- Partner with existing community groups to provide patients with sustainable access to digital literacy support.
- Train staff and clinicians and ensure competency in providing equitable digital care.
- Educate staff and clinicians to offer digital tools to all patients to mitigate health care team biases that may worsen digital disparities.
- Apply human-centered design approaches to create digital health equity interventions that are informed by patient and community input.
- Collaborate with patients with disabilities to co-create digital tools and workflows that meet their needs.
- Implement dashboards that present digital needs and digital access data stratified by patient demographics to highlight emerging digital disparities.

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