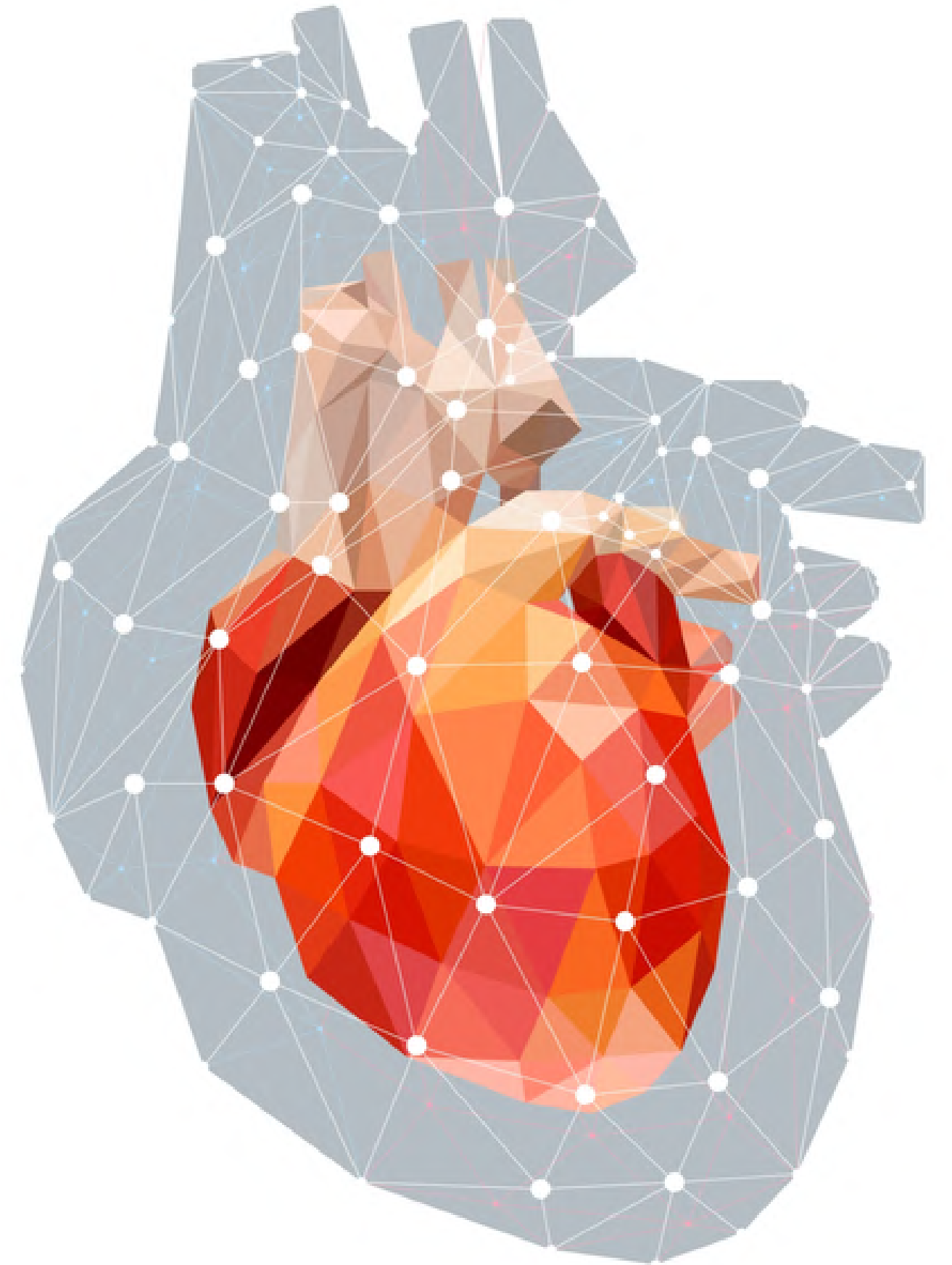


Addressing health inequity through the use of technology

A Whitepaper by



"Digital technology is shaping history. But there is also the sense that it is running away with us. Where will it take us? Will our dignity and rights be enhanced or diminished? Will our societies become more equal or less equal?"

António Guterres, UN Secretary General (2018)³

How do health technologies impact **health equity**, and how can we use technology to ensure **equitable health for all**?



Equiti Health is a specialist consultancy working at the intersection of healthcare, technology and health equity. It was founded by Shoshana Bloom following her work on how advances in digital health risk exacerbating existing inequities in health and access to healthcare services. Shoshana founded Equiti Health with the purpose of working to deploy health technologies in a way that does not leave anyone behind.

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Key Terms

Health inequity

"Differences in the incidence, prevalence, mortality, burden of diseases and other adverse health conditions that exist among specific population groups"

National Institute of Health²

Health technologies

"Technologies that connect and empower people and populations to manage health and wellness, augmented by accessible and supportive provider teams working within flexible, integrated, interoperable, and digitally-enabled care environments that strategically leverage digital tools, technologies, and services to transform care delivery"

HIMMS¹

An Introduction

An ever-increasing evidence-base suggests health technologies are a cost-effective way of treating, improving or preventing ill-health across a population — improving the quality and convenience of care for patients and addressing traditional care delivery issues with accessibility, availability and capacity.⁴ However, as healthcare becomes increasingly digital, some individuals will struggle to leverage the benefits to health from technologies through a multitude of reasons and barriers.⁴ The populations who experience the greatest barriers are often those who are already marginalized due to a variety of factors causing disadvantage.⁵ These populations are also more likely to have a higher prevalence of chronic conditions negatively impacting their health, contributing to worse health outcomes. The resulting 'digital exclusion' further entrenches existing inequities in health and access to services.⁶

Achieving equity in health and wellness is a key challenge for health systems globally.⁴ To address this, we must consider how we can deploy technologies in a way that narrows health inequities. The success of this goal, however, revolves around a better understanding of the factors that impact technology use, the populations that are most vulnerable and face the greatest barriers, and the strategies that have been shown to address this — enabling more equitable use.

Factors Influencing the Use of Health Technologies

While many individuals can and will make full use of technology, there are those who face barriers to doing so. This difference has been termed the 'digital divide'. The resulting 'digital exclusion' serves to widen health inequalities. The World Health Organization defines the digital divide as "*the gap between demographics and regions that have access to modern information and communications technology and those that do not or have restricted access*" and cautions that "*technology must be used to reduce inequalities and not become another mechanism to leave people behind*".⁷ However, this definition fails to fully address the complexity of factors regarding the digital divide and the challenges faced by many individuals.

Comprehensive research by Equiti Health into the process through which health technology influences health equity has uncovered a multitude of significant factors.

Next: Barriers to Health Equity 

Barriers to Health Equity

Our research has identified three primary barriers through which technology impacts health equity:

1. **Access to technology**
2. **Skills and capacity**
3. **Motivation**

These barriers exist along the entire digital pathway and influence whether an individual can and will use health technologies to achieve better health and access to healthcare. They manifest across various vulnerable populations and situations, including geographical, socio-economic, ethnic, age and gender subsets. As a result, health equity cannot be achieved without addressing each theme and in each capacity in which it appears.

Barrier 1: Access to Technology

In order for an individual to use health technologies, they require access to the underlying technology, a stable broadband internet connection and underlying devices. Despite the progress made in expanding global internet coverage, there has not been significant progress in closing the usage gap.

Statistics indicating a growth in internet usage often hide wide variations in use across some sections of society. The UK, for example, has reached 95% internet penetration, yet 26% of UK households with individuals over 75 do not have internet access.⁸ Many rural communities have lower broadband speeds and suffer from a historic lack of investment in broadband infrastructure.⁹ Many of these communities are older, have lower socioeconomic status and are frequently underserved by healthcare provision and have the most to gain from digital access to services.⁹

Furthermore, in the UK, 25 million low-income mobile phone users are on pay-as-you-go plans,¹⁰ many of whom experience 'data poverty', spending up to half their family budget on mobile phone costs — rendering internet-enabled digital devices and data plans unaffordable.

There are also variations in device ownership and use. For example, in the US, 20% of adults do not have access to a smartphone,¹¹ a statistic that is significantly driven by socioeconomic factors and the individual's ability to afford technology. A significant number of people are 'smartphone dependent' — accessing the internet solely through their smartphone. This is more common in some ethnic communities.¹²

Globally, women are more likely than men to lack internet access and devices.¹³ In many developing countries, this flows from women's marginalisation and reduced status in society.¹⁴ In the developed world, it is often men who have lower technology use, particularly regarding health.¹⁵

Next: Barrier 2: Skills and Capacity →

Barrier 2: Skills and Capacity

The second factor influencing health technology use is having the necessary skills and capacity. This requires sufficient 'e-health literacy', which combines **Health Literacy** (an ability to understand, assess and use information to make health decisions) with **Digital Literacy** (the digital skills and capabilities required to use the underlying technology).

Health literacy is linked to health outcomes, with better health experienced by individuals with higher health literacy. Poor health literacy, a critical factor in the use of health technology, is so widespread that it is now considered a global public health issue: 47% of European adults¹⁶ and 36% of US adults were found to have basic or below basic health literacy. In the UK, 7.1 million adults have a reading age of under 9 years.¹⁷ In Sub-Saharan Africa, 64.8% of the population do not have basic health comprehension.¹⁸

Furthermore, many individuals lack the digital skills required to effectively use health technology, creating a significant barrier to use. In the UK, 10.5 million people, or 16% of the adult population, cannot perform basic activities using digital devices.¹⁰

While some progress has been made to improve digital skills in many countries, inequities persist. Ethnic minority populations and those with low socio-economic status or lower levels of education are often associated with the digital skills gap.¹⁹ Older adults may have lower digital abilities and experience age-related decline that can affect dexterity and the ability to learn.²⁰ Many telehealth digital systems are complex and not designed with accessibility for older adults in mind.²¹

Low levels of English proficiency, a particular issue within English-speaking countries, is another common barrier. This issue is particularly prominent in the US, affecting 25.2 million individuals.²² Many technologies are designed in English with a high reading level, making it difficult for the many people who do not fit this profile to use them.²³ Low English proficiency is an insurmountable barrier for many individuals and is associated with a significant decrease in the use of technology to access health services such as video consultations.²⁴

Next: Barrier 3: Motivation →

Barrier 3: Motivation

The third factor influencing health technology use is having the motivation to engage with technology. Motivation is influenced by whether an individual considers the technology valuable and culturally relevant,²⁵ as well as psychological factors such as trust, confidence and privacy concerns. A lack of trust can stem from a mistrust in technology or the wider medical community, which varies across populations. For ethnic minority populations, trust issues may be intertwined with experiences of disenfranchisement, racism, and unjust social policies.²⁶

Whether or not a health technology is viewed as culturally relevant significantly impacts technology use. Cultural beliefs affect both the capacity and willingness to use health technologies and sustain engagement.²⁷ Highlighting the importance of understanding culture and ethnicity in technology design, trust has been shown to increase when a technology is viewed as culturally reflective.²⁶

Having confidence in one's ability to use health technologies influences if someone will use them. Older populations²¹ and ethnic communities²⁸ in particular have been found to lack confidence — requiring support and encouragement.

A lack of trust in the safety and security of an individual's sensitive health information is a barrier to use for some, especially those with conditions attracting stigma and discrimination, such as mental health, HIV, sexual health conditions and some disabilities.^{29 30 31} While most developed countries have robust legislation to ensure data privacy, the same cannot be said for all countries, with only 61% of countries in Africa and 57% in Asia having adequate legislation in place.³² Environment can also play a role in trust for those living in multi-occupancy dwellings who may be less comfortable with technologies such as virtual consultations due to confidentiality concerns.³³

In the final step where technology influences health, an individual must overcome these barriers and then utilize the technology and digital information to inform and influence a change in behaviour.

Next: Health Equity: Improving Health for All →



"Technology must be used to reduce inequalities and not become another mechanism to leave people behind."



World Health Organization

Health Equity: Improving Health for All

Wider systemic influences (political, health system, and social) combine with individual barriers of technology, skills and capacity, and motivation, creating a complex web of interrelated factors that must be examined and addressed to achieve health equity, ensuring technology is designed, deployed and evaluated — considering equity throughout the process.

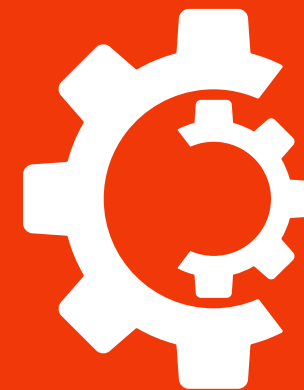
Based on our research, the path to equity in the use of health technologies can be broken down into four phases:



Address System
Influences



Preparing for
Technology



Designing
Technology



Implementing
Technology

1. Address System Influences

Political factors are a powerful influence on equitable technology use. Achieving equity starts with policy interventions to expand access to, investment in, and funding of health technology.

Countries require sufficient investment and equitable reimbursement and regulatory policies and guidelines. Robust data governance helps to increase trust, improving usage. The US, for example, enacted more equitable policies regarding reimbursement and licensing in response to the COVID-19 pandemic, which was a factor in the subsequent exponential rise in health technology use.²⁴

Finally, there is an urgent need to address observed gaps in digital skill and health literacy.



2. Preparing for Technology

Healthcare systems play a central role in shaping equitable use. Providers must consider how best to integrate health technologies into their services and systems to enable **Digitally-Enabled, Equitable Care** — where an individual has continuity of care through whatever medium they wish to access services.

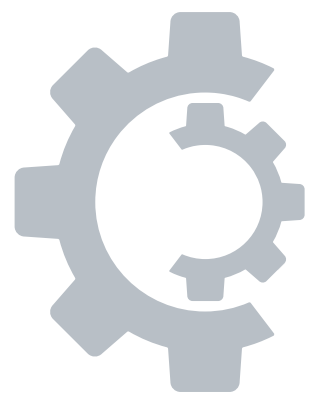
Clinicians require the necessary skills, training, and confidence in using health technologies and the skills to understand the populations and individuals who may face barriers with technology use and how to best support them. Use will be influenced by adequate investment in infrastructure and the degree to which providers engage with local communities through the design and deployment of technology — supporting and encouraging use.



3. Designing Technology

For equitable use, the design of technology must incorporate the needs of the widest range of users. An essential aspect of this is engaging with communities through the design phase to better understand and consider the social contexts of users and their perspectives, preferences, needs, and barriers they face.

Design for Equity approaches can be used to deliver more equitable technology using functionality such as asynchronous and low-bandwidth applications, mobile-first functionality, integrated user support, low literacy and accessibility functionality, simplified authentication, voice-activation, and inbuilt translation.



4. Implementing Technology

Ensuring the widest possible diffusion of technology throughout a population is a critical stage that influences the success of digital transformation programmes.

There is a need to collect and report a range of equity metrics to understand the diffusion of technology across a population, along with continued community engagement to ascertain which populations may require more support or adaptations to achieve equity. Sufficient budget should be allocated to address iterative revisions identified once a technology is in use 'at scale'.

Ongoing monitoring of technology use will help ensure the technology continues to address health equity and improve both health outcomes and access to services.



"Any healthcare development that doesn't rapidly become available to all individuals has the unintended but inevitable consequence of fuelling health inequality."



Geoff Watts, The Lancet Digital Health³⁴



Health technology has the potential to profoundly transform our health services. Equiti Health is working to ensure it is **transformative for all**.

We work with organisations to explore how technology can be designed and deployed in a way that considers access barriers. We work to redesign services to provide **digitally enabled equitable care**. Going beyond digital consulting, we lean into vulnerable populations, understanding their needs, and bringing equity insights into every step of technology design, development, and adoption.

We equip organisations with sustainable solutions that address barriers to access and ensure technology use in health can serve to narrow — not widen — health inequities.

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Some Considerations

- What are the needs of your 'equity populations' and what barriers do they face?
- How can we better design technology to meet their needs?
- Do your users have the skills and confidence to use technologies and what support might they need?
- How can you monitor technology reach and use across different populations?
- Do your clinicians have the right skills to deliver care digitally?
- How can you integrate technology into your healthcare delivery models, processes and systems?

Reach out to us via info@equitihealth.co.uk and let's have a conversation about how we can help you to rethink your digital journey so that it delivers sustainable value from technology to all your users.



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