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Human rights impact assessment of health care digitalisation in Kenya

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Authors
The research into the human rights impacts of digital health services in Kenya was conducted in a partnership between the Kenya National Commission on Human Rights – Kenya's National Human Rights Institution, CIPESA - The Collaboration on International ICT Policy for East and Southern Africa which works to promote effective and inclusive ICT policy, and the Danish Institute for Human Rights - Denmark's national human rights institution which works internationally to address the human rights implications of technology use.

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1. Introduction

The evolution of digital health is largely driven by technological advancements, the quest for more efficient healthcare, and the growing demand for available, accessible, affordable and quality services. The United Nations' 2030 Agenda for Sustainable Development recognises the transformative potential of Information and Communications Technology (ICT) in fostering human progress, bridging digital divides, and creating knowledge societies. Despite technological advancements, the World Health Organization (WHO) notes that many countries, including Kenya, have yet to fully leverage digital health for positive outcomes.

The transition from the National Health Insurance Fund (NHIF) to the Social Health Insurance Fund (SHIF) presents a policy shift towards realising Universal Health Coverage (UHC) in Kenya. However, this transition has faced significant challenges that impact the right to health, particularly for vulnerable and marginalised groups (VMGs). A major concern within this transformation is the role of digitalisation in health care management and its implications for service delivery.

It is against this background that the Collaboration on International ICT Policy for East and Southern Africa (CIPESA), the Danish Institute for Human Rights and the Kenya National Commission on Human Rights (KNCHR) undertook a human rights impact assessment on digitalisation of the health care sector in Murang'a, Laikipia, Kisii and Homa Bay counties in Kenya. The assessment included the NHIF to SHIF transition, digitalised solutions in the sector and their potential impacts especially on Vulnerable and Marginalized Groups (VMGs) to access quality health care.

This report presents the findings of the assessment which was conducted through literature review and field data collection, as elaborated in the methodology section below. The report highlights the positive impacts of digitalisation of health services, pressing challenges, and impacts on the state of healthcare. It also provides targeted and actionable recommendations for improving the effectiveness, inclusivity, and human rights compliance of digital health initiatives in Kenya.

As an integral part of a human rights-based approach, this assessment took a gender-responsive approach to adequately reflect the experiences of women and to understand gender relations within households and communities.[1] It included a gender-responsive context analysis and representative participation in engagements as well as the conceptualisation, adaptation, and utilisation of existing public sector digital infrastructure for enhanced gender responsiveness.

A Human Rights-Based Approach to public sector digitisation should include Human Rights Impact Assessments (HRIA) in the conceptualisation, development, implementation, and monitoring of digital solutions, and the results thereof should be made publicly available. As such, HRIA is often called for, but examples of such assessments are hard to come by, making few public examples of HRIA of public digitalisation products. Therefore, this assessment documents and shows outcomes that may serve as a model and practical guidance for conducting future human rights impact assessments in the public sector in Kenya and beyond.

Methodology

Human Rights Impact Assessment (HRIA) is the process through which such risks can be identified and assessed. A Human Rights Impact Assessment (HRIA) is a process for systematically identifying, predicting and responding to the potential human rights impacts of a project or activity. It aims to address the adverse effects on the human rights enjoyment of impacted rights-holders. Ideally, Human rights risks should be considered at the outset of digitalisation conceptualization, planning, public procurement, and application.[2]

This assessment was conducted through a literature review, Key Informant Interviews and Focused Group Discussions, in line with Human Rights Based Approach principles also known as PANEL - Participation, Accountability, Non-discrimination and Equality, Empowerment and Legality. Additionally, the assessment was guided by the Availability, Accessibility, Acceptability and Quality (AAAQ) framework.

The field data collection targeted the counties of Murang'a, Laikipia, Kisii, and Homa Bay. These counties were selected based on various factors, including hosting various Vulnerable and Marginalised Groups (VMGs) including ethnic minorities and marginalised communities, geographical vulnerabilities that have little or no access to social services, including health and digital platforms. Also, they all have county departments dedicated to ICT and digitalisation of services including revenue collection/payments such as healthcare payment bills. They have varying levels of mobile and internet connectivity. Additionally, the counties were selected to represent a national view based on their utilisation of digital health platforms rolled out by the Ministry of Health (MoH), including the KenyaHMIS and KenyaEMR.

The research team (led by KNCHR) engaged with various policy and accountability actors in the healthcare sector in the four counties to ensure ownership and sustainability of the project interventions, and advocate for the prioritisation of VMGs in healthcare digitalisation through integration of human rights norms and standards in the sector. They included national and county government officials, healthcare workers (HCWs), Community Health Promoters (CHPs), Community Health Assistants (CHAs), the National Council for Persons with Disabilities (NCPWD), patients, caregivers, and VMGs- Persons with Disabilities (PWDs), older persons, and indigents.

The study examined the availability of digital health platforms to enhance service delivery, their acceptability by all actors in the sector including Health Care Workers, patients and caregivers, whether they are readily accessible by all including persons with disabilities, older people, illiterate and the rural poor communities. Other areas investigated included the use of technology to enhance healthcare delivery quality while respecting safety and ethical standards, the quality of services offered by digital platforms, and attributes of these platforms such as interoperability, safety, and accessibility, data privacy, usability, and preservation of clinical accuracy.

2. Health sector digitalisation in Kenya

Kenya has attained high ICT penetration rates, with mobile subscriptions reaching 68.8 million as of June 2024, representing a 133% penetration rate, and mobile internet subscriptions standing at 52.5 million.[3] The Universal Service Fund (USF), managed by the Communications Authority of Kenya, is designed to expand access to ICT services in underserved and unserved areas. It invests in infrastructure development such as broadband and mobile networks, in rural and underserved areas like Nairobi's Kibera slum and supports digital literacy initiatives aimed at equipping communities with the necessary skills to utilise ICT services effectively.[4] In the health sector, the USF has funded the computerisation of health centres in partnership with the line ministry.[5]

Despite these advancements, significant disparities in ICT access persist, particularly among rural populations, women, and persons with disabilities. Indeed, the effectiveness of interventions under the USF in ensuring equitable access to digital health services remains a critical question.[6] Nonetheless, the widespread access to mobile technology and the internet has catalysed the development of digital health solutions, offering new avenues for healthcare delivery, including in remote and underserved areas.

The integration of ICT into Kenya's health sector is driven by both government and private sector innovations. According to the Ministry of ICT Strategic Plan 2023–2027 published by Kenya's Ministry of Information, Communications, and Technology,[7] digital platforms have been introduced to streamline health insurance processes and improve service delivery. The Social Health Insurance Fund (SHIF), which aims to provide universal health coverage through an integrated digital platform, is a notable initiative in the government's digitalisation agenda.

Kenya ranks relatively high on The Global Health Innovation Index (2023), which evaluates how countries are using technology to improve health outcomes, especially in areas like digital health infrastructure, telemedicine, and eHealth solutions. Progressive policies in digital health, such as the implementation of the Kenya National eHealth Strategy and the Digital Health Act (2023) are a notable strength that could enhance healthcare delivery and access, particularly in remote areas. However, Kenya is still outperformed by countries like South Africa and Rwanda, which have more established digital health systems and stronger government-backed investments in digital health infrastructure. South Africa, for instance, has been a leader in implementing electronic health records (EHR) systems across various sectors, including HIV/AIDS and tuberculosis care, allowing for better patient tracking and resource management.[8] Similarly, Rwanda has integrated advanced digital health solutions like telemedicine and vaccine registry systems, contributing to its higher ranking due to seamless interoperability between healthcare data systems .[9] It is worth noting that both countries have also benefited from more consistent government-backed initiatives that prioritise healthcare digitalisation at a national level. On the other hand, countries like Nigeria and Uganda rank below Kenya. These countries face challenges in scaling digital health services, primarily due to underdeveloped infrastructure, lower government investment, and gaps in policy implementation.

However, the integration of technology into healthcare services raises concerns about the quality, accessibility, and affordability of care. The Global Digital Health Monitor has highlighted the potential of digital tools to enhance healthcare delivery but also warns of the risks associated with inadequate infrastructure and the digital divide (World Health Organization, 2023). In this context, the role of digital health platforms in either mitigating or exacerbating health inequalities becomes a crucial area of investigation.

Policy and legislative overview

The Constitution of Kenya (2010) under Article 43(1)(a) guarantees the right to health and outlines the state's obligation to ensure access to quality healthcare. Key legal frameworks include the Health Act of 2017, the Data Protection Act of 2019, the Digital Health Act of 2023, the Social Health Insurance Act of 2023 and the National eHealth Policy 2016-2030.

a. The Health Act, 2017:

The Health Act, 2017 provides a framework for integrating digital health solutions while emphasising the need for privacy and security in health data management. The Act prohibits the disclosure of a patient's health information without consent, except under specific conditions such as legal requirements and public interest. Additionally, health data must be handled securely, with clear protocols for storage and access, especially in digital systems. The Act supports the use of technology in healthcare delivery, specifically mentioning telemedicine and electronic health records (EHRs), and provides for the establishment of a National Health Information System to integrate data from different health facilities into a central platform. This system is bound by strict rules concerning data protection, requiring that only authorised personnel access patient records. It encourages the use of digital systems to improve health outcomes but underscores the need for compliance with privacy standards. On data sharing, this law provides that health data should only be shared among authorised entities (such as healthcare providers) and in line with the patient's consent.

b. National eHealth Policy 2016-2030:

The Policy emphasises that digital health solutions must comply with national and international standards for data protection. It encourages encryption, secure storage, and controlled access to sensitive health information. The Policy promotes the development of interoperable health information systems that can share data across different platforms and facilities while maintaining security and protecting patient privacy. It supports the implementation of EHR systems across healthcare institutions, providing guidance on ensuring that these systems are secure, and that patient information is protected from unauthorised access. The policy highlights the need to train healthcare professionals in managing digital health tools and handling data responsibly, ensuring they are aware of their role in safeguarding patient information.

c. Data protection act, 2019:

The Data Protection Act of 2019 sets out a clear framework for protecting personal data, including health data, with specific provisions that ensure the security and privacy of patient information in digital health systems. The Act classifies health data as "sensitive personal

data" (Section 2 & Section 46) and prescribes safeguards that must be put in place when processing this type of data to protect it from unauthorised access or breaches. Under section 25, the Act provides that personal data, including health data, should only be processed lawfully and transparently. Healthcare providers must ensure that the collection and processing of patient data are carried out with the explicit consent of the individual, except in situations where the processing is necessary for the public interest or to save a life.

The Act empowers individuals (data subjects) with the right to access their personal health data, correct inaccurate information, and request its deletion (sections 26 and 27). This provision helps ensure transparency and gives patients control over their health information. Another notable provision is section 30, which specifies that only the data necessary for the intended purpose should be collected. In the healthcare context, this means only relevant health data should be collected and used strictly for healthcare service delivery or insurance purposes, ensuring that patient information is not misused or unnecessarily shared.

d. Digital health act, 2023:

The Digital Health Act of 2023 provides an operational framework for implementing digital health services in Kenya. It addresses the integration of technology in healthcare and aims to ensure that digital health innovations respect patient privacy and confidentiality. The Act mandates the establishment of electronic health systems, to enhance the efficiency of healthcare delivery (section 12). The systems must comply with national data protection laws, ensuring that patient data is secure and confidential. The law promotes the development of interoperable health information systems, ensuring that patient data can securely be shared between different healthcare facilities. It also mandates the use of standardised protocols for data sharing while ensuring compliance with privacy regulations under the Data Protection Act. The Act supports the use of telemedicine and mobile health solutions but requires that these services ensure patient privacy and data security (section 14). Providers must adopt measures to safeguard against data breaches, and all telemedicine interactions must comply with the data protection standards outlined in the Data Protection Act, 2019. Furthermore, section 10 requires that all providers of digital health services must be licensed. This ensures that entities offering telemedicine or other digital health innovations comply with professional standards and legal requirements, including those on data protection and privacy.

e. Social health insurance act:

The Social Health Insurance Act establishes a framework for managing health insurance schemes in Kenya, including provisions related to the digitalisation of healthcare financing and patient data management. The Act requires that personal data collected and used for health insurance purposes is protected (section 22). It emphasises that all information relating to a patient's health or treatment should be treated confidentially, in line with the provisions of the Data Protection Act. Under section 24, the Act supports the integration of digital systems in the management of health insurance schemes, ensuring that claims, payments, and patient records are processed efficiently and securely. It mandates that these systems adhere to national data protection regulations to protect patients' personal and health information. The Act, 2023 doesn't explicitly mention the Availability, Accessibility, Acceptability, and Quality AAAQ framework on health digitalisation by name. However, its provisions reflect these principles as understood under the right to health in Article 43 of the Constitution and in international law (e.g., ICESCR, General Comment No. 14).

County frameworks

The Murang'a County Health Policy 2022-2027[10]and the Murang'a County Health Services Act, 2020[11] provide a robust foundation for implementing digital health systems aimed at improving healthcare service delivery. Both frameworks emphasise digital transformation as a critical tool for achieving universal health coverage (UHC) and ensuring equitable access to healthcare. Murang'a operationalises these national goals by embedding digital health strategies, including Artificial intelligence (AI) applications and EHR systems, into its healthcare policy. These efforts reflect global trends, aligning with the WHO's Global Digital Health Strategy (2020-2025),[12] which promotes the ethical and effective use of technology to improve health systems worldwide. Further, the county is developing a Curriculum and Code of Conduct on Data Protection to ensure compliance with the Data Protection Act, emphasising the importance of safeguarding sensitive health information collected from community members.

Murang'a country is rolling out large-screen computers to all 36 telemedicine sites across the County to enhance patient–doctor interactions and improve the overall virtual care experience. Photo: courtesy of Murang'a County Government

Section 22(1) of the Laikipia County Health Services Act, 2014 provides that information concerning a patient, including confidential information relating to his or her health status, treatment or stay in a health facility, is confidential. Such information is only disclosed under an order of court or informed consent for health research purposes. Additionally, the Community Health Strategy 2021–2025 aims to strengthen the existing County community health information platform (eCHIS) under strategic objective 4.1.[13]

Kisii County has an Information & Communication Technology (ICT) Policy aimed at enhancing interactions between the government and its people, ensuring efficient service delivery and inclusive governance.[14] Central to the policy is a commitment to fostering creativity and innovation through the use of ICT platforms.[15] It outlines a framework to accelerate investment in human resource development and capacity building, ensuring that the county's workforce is well-equipped to leverage emerging technologies.

Linking the legal frameworks to human rights and digital health innovation

The Data Protection Act of 2019 establishes guidelines for handling personal data, crucial for protecting patient information in digital health systems. The Digital Health Act and the Social Health Insurance Act further address the operational aspects of digital health services and insurance schemes. These legal frameworks aim to safeguard human rights while promoting digital health innovations. They also offer a comprehensive legal framework for the protection of personal data in the healthcare sector while promoting the use of digital health innovations.

a. **Human Rights Protections:** The Data Protection Act, Digital Health Act, and Social Health Insurance Act emphasise the protection of human rights, specifically the right to privacy and confidentiality. The provisions ensure that personal health data is not misused, shared without consent, or accessed unlawfully, safeguarding patients' fundamental rights to privacy and autonomy over their personal information.

b. **Promoting Digital Health Innovations:** The laws encourage the use of EHRs, telemedicine, mHealth applications, and other digital health innovations, which are essential for improving healthcare delivery, particularly in underserved areas. These innovations must, however, be implemented in compliance with strict data protection rules, ensuring the privacy and confidentiality of patient data at all stages of digital health service provision.

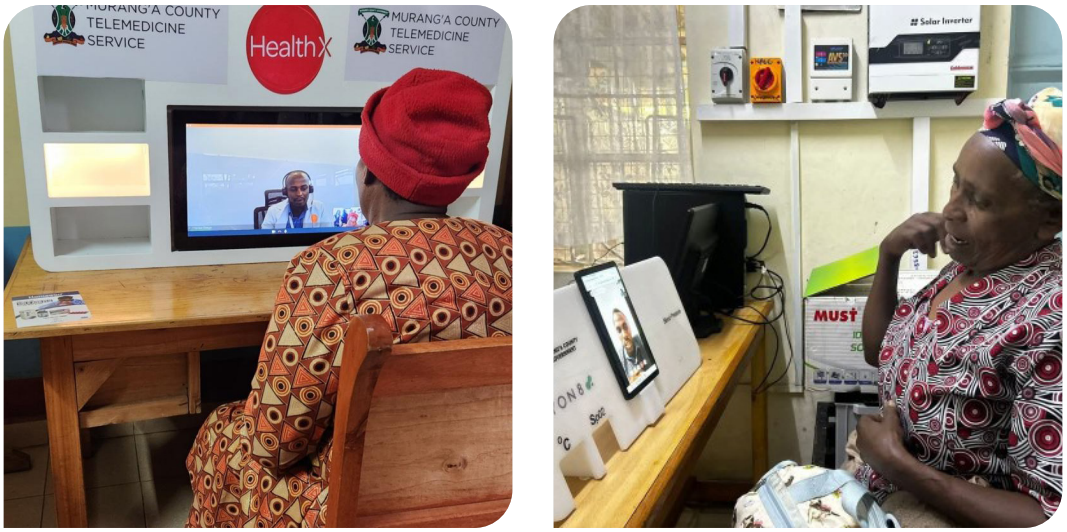
Together, these provisions in Kenya's legal framework balance the need to protect patient information with the promotion of digital health innovations, aligning with international standards for privacy and data security. However, gaps remain in their enforcement and operationalisation. The Data Protection Act, for instance, outlines stringent requirements for the collection, storage, and processing of personal health data, yet compliance among health service providers is reportedly inconsistent. Additionally, the Digital Health Act faces challenges in balancing innovation with regulatory oversight.

The absence of specific provisions addressing the rights of Vulnerable and Marginalised groups (VMGs) within these frameworks further undermines the inclusion of women, sexual minorities, and persons with disabilities from the benefits of digital health innovations.

County digital health initiatives

Murang'a County has positioned itself as a model for digitisation in Kenya's public health sector by leveraging platforms like AfyaKE[16] and telemedicine.

In Murang'a, telemedicine has been introduced in forty (40) health facilities across the county for patients ailing from non-communicable diseases. The pilot exercise, introduced in September 2024, aims to decentralize health services and decongest major hospitals by enabling patients to receive medical consultation remotely. This also enables patients to connect with specialized doctors virtually, reducing the need for physical travel, saving time and costs, ensuring timely medical interventions, especially for those in remote areas. For instance, Sabasaba Health Centre (Level 3) used to attend to more than 100 patients in a day, but the number has been reduced to between 15 to 25 per day. Prior to adoption and deployment of the Afya.KE model (one of the county's e-health systems), Murang'a conducted benchmarking visits in Kisumu, Nakuru, Vihiga and Kajiado Counties to identify the most suitable model for adoption and enhancement of their health sector.[17]



Images of a patient utilizing telemedicine services. Photos courtesy of Murang'a County government website

Murang'a County employed a phased approach to roll out digital platforms, starting with outpatient services before expanding to specialised clinics and inpatient departments. This methodical process ensured minimal disruption and effective integration.

Administrative efficiency including improved service delivery and revenue collection	Enhanced information dissemination and communication
Development of county level policies, codes of conduct for effective use of ICT investments	Integration and scalability for future health technologies
Convenience and flexibility including remote access	Disease outbreak monitoring for research and resource allocation

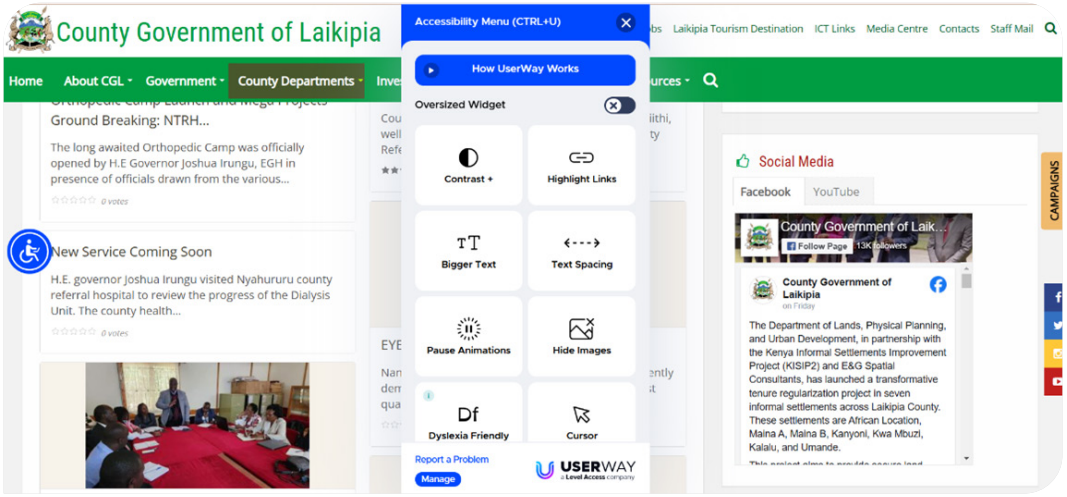
Table1: Benefits of county-level deployment of digital platforms in the health sector

In Laikipia, there is progressive adoption of digitalisation of health services, starting with Level 5 hospitals (Nanyuki and Nyahururu), though some health facilities use hybrid systems - manual and digital. All lower-level facilities (Level 1 and Level 2) utilise solely manual systems. Up to 33 health facilities are linked to the Kenya Health Management Information System (KenyaHMIS).[18]

The county plans to optimise technology for interconnectivity of all its facilities. This is critical in implementing the Sample Referral System (SRS), where the test results are electronically transmitted back to the facility of collection for the next patient management plan. Laikipia county has partnered with UserWay to enhance web accessibility for persons with disabilities.[19]

Kisii County is actively moving toward digitisation and integration of health services but has not fully digitised health services across all its health facilities. For instance, the adoption rate of public assurance into the national health-information system (KHIMS / national repository remains slow: of the 161 healthcare facilities in the county, most continue to use either a hybrid model (combining digital and manual systems) or a fully manual system, particularly for health records management. Hospitals including subcounty

facilities are in the process of rolling out various services. Gucha Sub-County Hospital (Level 4), for instance, employs a hybrid system for various outpatient and inpatient services, including triaging, billing, filing, and administrative operations. The hospital serves as a referral centre for patients from neighbouring sub-counties and is linked to 31 facilities, including two Level 3, seven Level 2, and 21 Level 1 facilities. The hospital's ICT infrastructure is connected to the KenyaHMIS. Despite these linkages, all referrals received by Gucha Hospital are processed manually, archived on computers, and then uploaded to KenyaHMIS - a process described by health workers as tedious. Most available computers lack hospital-specific software and networked systems, forcing health workers to rely on mobile data bundles.



Screenshot of the county health department page with part of the UserWay accessibility menu opened.

As of November 2024, the county was at an advanced stage of rolling out a county-wide Hospital Management System (HMS) to enhance the coordination of patient care and hospital operations. The HMS includes features such as patient registration, appointment scheduling, electronic health records (EHR) management, billing and claims processing, inventory management of health commodities, laboratory reporting, and a patient portal. The system will also support staff rationalisation to improve patient care, minimise errors, and enhance service delivery and revenue collection.

A participatory approach has been adopted in developing and deploying digital platforms, with healthcare workers receiving training on system utilisation before full implementation. Additionally, online platforms such as WhatsApp groups have been established to address functionality issues and collect feedback for system improvements.

In 2022, Homa Bay County, in partnership with M-PESA Foundation and Gertrude's Hospital Foundation, deployed a digital healthcare programme dubbed "Daktari Smart" to improve access to quality healthcare for disadvantaged children. The programme allows healthcare workers at primary health care facilities to use electronic devices to connect children with specialists at Gertrude's Children's Hospital in Nairobi in real-time. This enables the disadvantaged children to access free virtual health consultations, as well as health education and self-care information to help them manage their care effectively.

To ensure that residents in unserved and underserved remote areas have access to essential healthcare services, the county has trained the Community Health Assistants

(CHAs) and Community Health Promoters (CHPs) on using smart phones to disseminate health information. However, the phones lack sufficient capacity and features to effectively execute the assigned functions.

Health Facilities in Kandara. Photo: courtesy labflow.org

Similarly, the county has deployed Scan Form Technology (SFT) in some service points at Homa Bay County Teaching and Referral Hospital. The SFT is meant to eliminate manual data entry, improve efficiency, reduce errors, and enhance patient care. This system transcribes handwriting on paper forms into digital information. Health workers commend the system for saving time in processing of information and eliminating human error in data uploaded into the KenyaHMIS.

Culture and healthcare digitalisation

The counties studied are home to ethnic minorities and marginalised indigenous groups, such as the Yiaaku, Samburu, and Turkana in Laikipia County and the Suba in Homa Bay, who continue to rely on traditional medicine for promotive, preventive, curative, and rehabilitative care. These practices hold deep cultural significance and provide vital healthcare solutions for these communities. In this regard, it is essential to recognise the sensitivities of cultural heritage while integrating technology into the broader healthcare system.

3. Case study of the social health insurance fund (SHIF)

To understand the real-world implications of digitalisation on human rights in Kenya's health sector, it is essential to examine specific digital health platforms in use. One prominent case study is the SHIF platform, developed by the National Health Insurance Fund (NHIF) to provide comprehensive health coverage to all Kenyans. The platform integrates various health services, allowing users to access medical records, make payments, and track health service utilisation online.

While the SHIF platform represents a significant step towards achieving universal health coverage, its implementation has raised several human rights concerns. Firstly, the platform's reliance on digital technology may inadvertently exclude individuals with limited access to ICT infrastructure, particularly in rural areas. Additionally, the platform's data collection practices have potential for violations of privacy, as the mechanisms for safeguarding personal health information remain unclear.

Accessibility and usability, exclusion and impact on women and marginalised groups
A significant portion of the Kenyan population, particularly those in rural and underserved areas, lack access to reliable ICT infrastructure. With its heavy reliance on digital devices (smartphones and computers) the SHIF risks further marginalising vulnerable populations who may already face barriers in accessing healthcare services. Individuals who cannot access the platform due to a lack of connectivity or devices are at risk of being left behind in the national drive for universal health coverage. Elderly populations and individuals with low digital literacy are also disproportionately affected, as they may struggle to navigate the platform even when they have access to digital technology.

Furthermore, the platform lacks critical accessibility features, such as screen readers, making it difficult for Persons with Disabilities to use. Biometric-based registration systems also exclude some individuals with disabilities including the amputees.

> **Accessibility audits of existing and new digital health platforms should ensure compliance with accessibility standards such as the UN Convention on the Rights of Persons with Disabilities (CRPD) and Kenya's Persons with Disabilities Act. Identified gaps should be addressed promptly before full-scale implementation.**

Data privacy violations
The SHIF platform's data collection and management practices have raised questions about the adequacy of privacy protections for personal health information. While the Data Protection Act, 2019 provides a legal framework for safeguarding personal data, including health data, there are concerns about whether the SHIF platform is fully compliant with these regulations. Specifically, the lack of transparency in how patient data is collected, stored, and shared has led to concerns that sensitive health information could be misused or accessed by unauthorised parties.

There are also concerns about potential third-party access to health data, especially in the context of private insurance companies or other actors who may have an interest in the health records of individuals using the platform.

> **The counties should conduct regular training on data protection, privacy, cyber-security, and digital service delivery to improve healthcare workers' ability to manage digital health solutions effectively.**

Informed consent and user awareness:
The SHIF platform collects a wide range of personal health data, including medical history, treatment received, and payment records. However, the level of informed consent obtained from users regarding how their data will be used is unclear. Many users may not fully understand the implications of sharing their health data digitally, particularly regarding how it may be used by the NHIF or shared with other entities. The KNCHR findings suggests that the mechanisms for obtaining informed consent are insufficient, potentially violating individuals' right to privacy and autonomy over their personal health data. Ensuring that users are fully aware of how their data will be handled, and giving them control over its use, is crucial for compliance with the Data Protection Act.

Security of health data:
As with any digital health platform, the SHIF platform is vulnerable to cybersecurity threats. The KNCHR report on the Status of Human Rights in Kenya: Assessing the Progress Made and Areas of Concern July 2023 - November 2024 flagged concerns about the adequacy of the cybersecurity infrastructure in place to protect the platform from data breaches, hacking, or other forms of cyber-attacks that could expose sensitive personal health information. While the SHIF platform has introduced measures to secure online transactions and data sharing, there remain concerns about the overall robustness of these measures, given the increasing number of cybersecurity incidents in Kenya's public and private sectors.

Besides the SHIF, there are other digital health innovations in Kenya. M-TIBA also facilitates health insurance enrolment, claims processing and savings specifically for healthcare. Vezeeta and MyDawa provide users with convenient access to consultations, medications and health information. Together, these platforms demonstrate the potential of digital tools to improve healthcare outcomes and empower users with critical health and financial resources, particularly in urban areas where ICT infrastructure is robust.

However, these platforms face shared challenges around digital literacy, accessibility, and data privacy, which limit their reach and inclusivity. Many users in rural and low-income communities lack the digital skills and resources needed to fully utilise these platforms. Privacy concerns also arise, especially with the sensitive health and financial data collected, underscoring the need for robust data protection and informed consent practices in line with Kenya's Data Protection Act. Addressing these issues through enhanced digital literacy programmes, expanded ICT infrastructure, and stronger privacy protocols could help maximise the impact of these digital health solutions and ensure they uphold human rights for all users.

Transparency and human oversight:
SHIF leverages Artificial Intelligence (AI) for automated decision making - categorising citizens by income to determine individual health coverage premiums. This has led to inflated fees for VMGs that are ultimately left without coverage. The algorithm behind the decisions remains unclear and whether or not affected individuals have the right to appeal decisions.

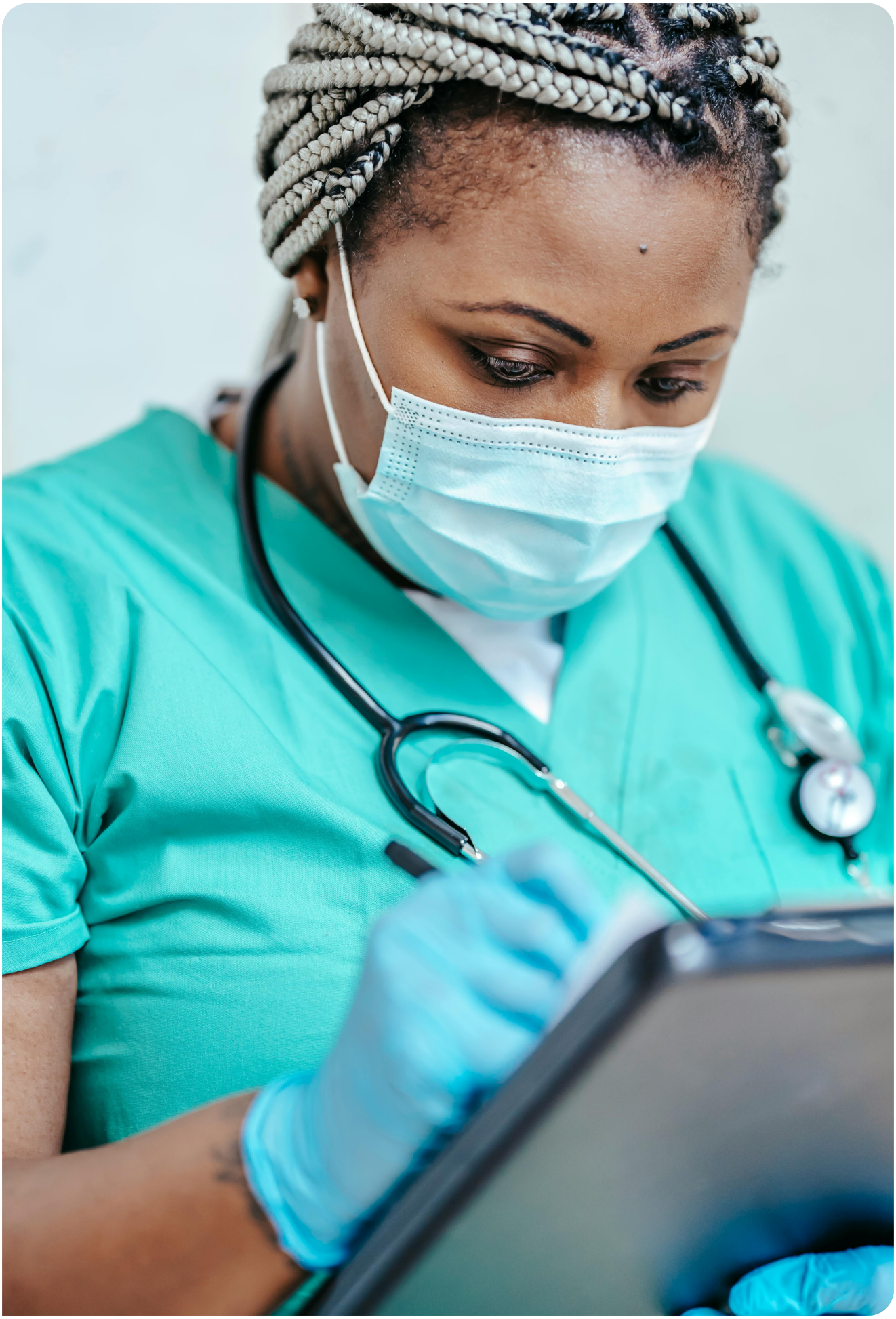
Other challenges include:

- Inadequate involvement of county governments in conceptualisation and development of the platform. This lack of coordination has resulted in operational challenges, including confusion over pending NHIF claims and unclear reimbursement processes under SHA. Many facilities, particularly Level 4 and above, are grappling with implementing the new outpatient service model.

- Inadequate public awareness linked to limited public sensitisation campaigns, misinformation about SHA packages, and low digital literacy among vulnerable groups.

- Community engagement and feedback mechanisms: Despite some efforts to engage communities, the absence of a structured and inclusive complaint and feedback system has limited the ability to address the functionality and effectiveness of the platform.

> **Efforts to enhance public participation and transparency should include proactive dissemination of information on health policies, budget allocations, and digitalization efforts through accessible channels and formats including radio, social media, and community outreach programs, to maximize reach and engagement.**



4. Challenges and gaps in health sector digitalisation

Despite Kenya's progressive policies for digital health, significant gaps remain in the areas of privacy protection, equitable access, and effective governance. Research in digital health transformation across East Africa, including findings from the Kenya National Commission on Human Rights (KNCHR) report, “Gender Audit of the Situation of Women and Other Vulnerable Human Rights Defenders in Kenya”[20] reveals that these gaps disproportionately affect VMGs and women. Key challenges include:

a. Data privacy breaches

- **Inadequate data security measures:** According to a study on health data security in Kenya, there is a persistent gap in data protection infrastructure, especially in community health units, dispensaries, health centres and sub-county public health facilities. This aligns with the KNCHR study titled “The Fragility of Kenya’s Public Health Care Systems: An Assessment Report of Selected County Public Health Facilities," which cited unauthorised access and data misuse arising from a broader regional trend of underinvestment in digital security.

- **Weak enforcement mechanisms:** Various studies indicate that enforcement agencies lack resources and training to monitor data protection effectively. This is a common issue in Kenya, where data breaches often go unaddressed due to insufficient regulatory oversight.

b. Unequal access to digital health services

- Infrastructure constraints, such as access to electricity (grid connections and uninterrupted supply) and internet connectivity, remain a challenge especially in rural and underserved areas. The slowed adoption and utilisation of alternative sources of energy e.g solar, have also compounded the issue. This hinders accessibility and expansion of digital health services to marginalised communities.

- **Gender-based disparities:** Evidence from a study on the digital gender divide in health access confirms that women in Africa face unique barriers, including lack of access to smartphones and social limitations on autonomy in health decisions. In Kenya, cultural and financial barriers further hinder women's access to digital health, particularly in reproductive health services, highlighting a need for gender-sensitive digital policies.[21]

- **Barriers for the elderly and persons with disabilities:** Many elderly persons and Persons with Disabilities face challenges in accessing digital health services due to a lack of digital literacy, assistive technologies, or accessible platforms. Those unable to use digital tools independently often rely on third parties - such as caregivers or family members - to access health services, which raises concerns about data privacy, consent and potential misuse of personal health information. Inclusive design, digital literacy programs and policies that safeguard the autonomy and privacy of these groups are essential in addressing these challenges.

c. Challenges in data governance and consent

- **Inadequate consent protocols:** A review of consent practices in digital health highlights that VMGs, including the elderly and persons with disabilities, often do not fully understand data-sharing practices. This is compounded by literacy challenges, with healthcare providers availing inadequate information on utilisation of the health information obtained.

- **Inconsistent application of data protection principles**: Data privacy awareness is stronger in urban centres, where digital services are better developed. Rural healthcare workers lack training in data protection, leading to inconsistent application of privacy standards.[22]

d. Digital health systems implementation gaps

- **Limited health worker training:** Health workers have inadequate training, infrastructure and system support in digital health management.[23] This affects healthcare staff's adequate management of digital health data, compromising data privacy and security of sensitive health information.

- **Infrastructural challenges:** Health care service providers face infrastructure deficiencies, such as inadequate access to equipment, internet and energy sources, impacting service delivery and the secure management of electronic health records.[24]

e. Concerns over privatisation of public health care

- **Corporate control over public health systems:** The Ministry of Health outsourced the development and management of SHA's Integrated Healthcare Information Technology System (IHITS) to a Safaricom-led consortium. This arrangement grants private companies control over critical public health care infrastructure, including data management and system operations, raising concerns about accountability, public interest protections, and long-term government oversight.

- **Exclusion and disruptions in health care access:** The transition from NHIF to SHIF was poorly executed, with NHIF cards deactivated before SHIF systems were fully functional. Technical failures in biometric verification and claims processing have left many patients without access to healthcare. Additionally, the flawed means-testing system disproportionately excludes vulnerable populations, particularly those without national IDs or stable mobile connectivity, undermining the goal of UHC.

- **Lack of transparency and accountability:** The procurement process for the SHA system has been marred by secrecy, with concerns over single-sourcing and limited government oversight. County governments, which play a crucial role in healthcare delivery, were not adequately involved in the process. Further, the absence of clear regulatory mechanisms to safeguard patient data and ensure equitable service provision heightens the risk of commercial exploitation of public health resources.

5. Gendered impacts and vulnerable groups

Gender disparities in digital health access are well-documented. Research by the Danish Institute for Human Rights (2024) indicates that women and sexual minorities face specific barriers, including digital illiteracy and a lack of tailored services. A gender-responsive analysis is essential to address these disparities and ensure equitable access to digital health services.

The SHIF platform and similar digital health initiatives in Kenya must consider gendered impacts and the needs of vulnerable groups to ensure equitable healthcare access. Gender disparities in technology access often limit women's ability to use digital health tools independently, as many women in low-income households may lack personal mobile devices or financial means for internet access. These barriers restrict women's access to critical health information and services, impacting their health outcomes and, by extension, the well-being of their families. Cultural norms in some communities also contribute to limited access, where women may be discouraged from independently seeking digital health support.

> **This lack of access and autonomy not only limits women's ability to obtain critical health information but also restricts their use of digital health technologies.**
> **- Focus Group Participant.**

For vulnerable groups such as the elderly, persons with disabilities, and rural populations, challenges are compounded by low digital literacy, limited access to ICT infrastructure, and high costs associated with mobile technology. These factors risk further excluding these groups from the benefits of digital health innovations like SHIF. Ensuring that the platform is accessible and tailored to the needs of all users requires a gender-sensitive and inclusive approach. This could involve providing affordable devices, enhancing digital literacy programmes targeting women and vulnerable groups, and implementing offline options where feasible, ensuring no one is left behind in Kenya's digital health evolution.

> **County governments have not established structured mechanisms to actively involve VMGs, including Persons with Disabilities, in the design and conceptualization of digital health platforms. As a result, these groups are excluded during the initial stages, where their specific needs could have been incorporated to create inclusive systems. Also, VMGs lack proper channels to raise complaints on digital health services, leading to frustration and inefficiencies.**

KNCHR officers meeting with vulnerable and marginalised group representatives in Laikipia to deliberate on digitalization of the county's healthcare services. Photo: KNCHR

Photo: Media Lens King/Shutterstock.com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6. Conclusion and recommendations for human rights-based digital health implementation

The digitalisation of Kenya's health sector brings significant potential for improving healthcare delivery through advancements in technology. However, to fully harness these benefits, the process must be managed with careful attention to human rights principles to avoid exacerbating existing inequalities. By addressing identified gaps and implementing targeted recommendations, Kenya can work towards a more inclusive, equitable, and rights-respecting digital health system.

A human rights-based approach is essential to ensure that the benefits of digital health innovations reach all citizens, particularly vulnerable and marginalised populations. The literature reviewed provides critical insights into the potential human rights impacts of digital health platforms in Kenya, underscoring the need for a comprehensive strategy to address regulatory, infrastructural, and participation gaps. Prioritising access to ICT infrastructure, refining the regulatory framework, and fostering meaningful stakeholder engagement are pivotal steps. Through these measures, Kenya can leverage digital health technologies to enhance healthcare while safeguarding the rights and dignity of its citizens.

This assessment identifies three major challenges to achieving these goals. First, a significant digital divide persists in Kenya, particularly affecting rural and marginalised communities. Access to technology and digital literacy remain critical barriers that must be overcome for these populations to benefit from digital health services effectively. Second, although Kenya's regulatory framework is comprehensive in some areas, it lacks specific protections for vulnerable and marginalised groups (VMGs), which increases the risk of exclusion and rights violations. Finally, this assessment underscores the need for inclusive stakeholder engagement, particularly with VMGs, in the design and implementation of digital health initiatives. Without meaningful input from these groups, digital health platforms may fail to address their specific needs and could inadvertently cause harm.

In conclusion, Kenya's journey towards a rights-based digital health system requires a better coordinated approach between the public and private sectors and the participation of rights-holders that addresses infrastructure, regulatory enforcement, workforce training, and gender equality. By adopting the following recommendations, Kenya can create a digital health environment that not only advances healthcare delivery but also protects and respects the rights of all its citizens, particularly those most at risk of exclusion.

> **The transition to SHIF offers Kenya an unprecedented opportunity to deliver its Universal Health Coverage promise. However, systemic gaps risk derailing this vision. KNCHR urges swift, decisive action from the government, healthcare providers, and stakeholders. The cost of inaction is too high for millions relying on affordable, equitable healthcare. - Former KNCHR Chairperson, Roseline Odede, HSC in Press Statement on the State of Human Rights in Kenya – November 2024**

Recommendations for human rights-based digital health implementation

1. **Strengthen enforcement mechanisms:** To ensure robust protection of patient data, Kenya must allocate more resources to regulatory bodies tasked with enforcing the Data Protection Act. Strengthened enforcement mechanisms will enhance compliance and establish accountability for health care providers, with penalties in place for data breaches and unauthorized access.

2. **Expand infrastructure for digital health services:** Equitable access to digital health services requires significant investment in ICT infrastructure, especially in rural and underserved areas. Expanding internet coverage, improving electricity supply, and equipping health care facilities with necessary digital tools will support the integration of digital health solutions across Kenya.

3. **Targeted training for health care workers:** Training health care workers on data protection, digital health systems, and patient privacy is essential. By building capacity among health care staff, Kenya can ensure that data is handled responsibly, and patient rights are upheld. Targeted training also empowers health care workers to effectively manage and operate digital health technologies, reducing the risk of data breaches and misuse.

4. **Promote gender equality in digital health access:** Addressing the digital gender divide is critical for inclusive health care. Policies and programs must work to increase women's access to digital health technologies and provide gender-sensitive training to support their use. Additionally, efforts to dismantle cultural and social barriers that limit women's autonomy in health care decision-making are necessary for true equity in digital health access.

5. **Offline alternatives to ensure inclusivity:** While expanding access to and affordability of internet and digital tools are crucial, not all citizens will be able to access services through digital means. Therefore, feasible and dignified offline alternatives or physical entry point for human assistance should be explored to ensure that no one is left behind in Kenya's digital health evolution.

6. **Prioritise public health investment in line with the abuja declaration:** The government must commit to increasing domestic healthcare financing in line with the Abuja Declaration's target of allocating at least 15% of the national budget to health. Failure to meet this benchmark has left critical health services vulnerable to privatization, undermining equitable access, data sovereignty, and long-term sustainability.

7. **Institutionalise human rights-based collaboration between national and county governments:** Effective digital health implementation requires well-coordinated efforts between national and county governments to ensure policy alignment, resource allocation, and infrastructure development to eliminate disparities. A clear governance framework should define roles and responsibilities, preventing duplication of efforts and bridging digital disparities across the counties. Additionally, regular multi-stakeholder engagements, joint planning sessions, and transparent data governance

structures must be institutionalized to enhance cooperation. This will ensure that digital health systems are interoperable, patient rights are protected, and all individuals - especially marginalized populations - have equitable access to quality healthcare services.

8. **Conduct human rights due diligence:** Over-reliance on private entities in digital health implementation risks deepening disparities and limiting government oversight. Private sector should assess the human rights impacts of digital services to ensure rights-based roll out.

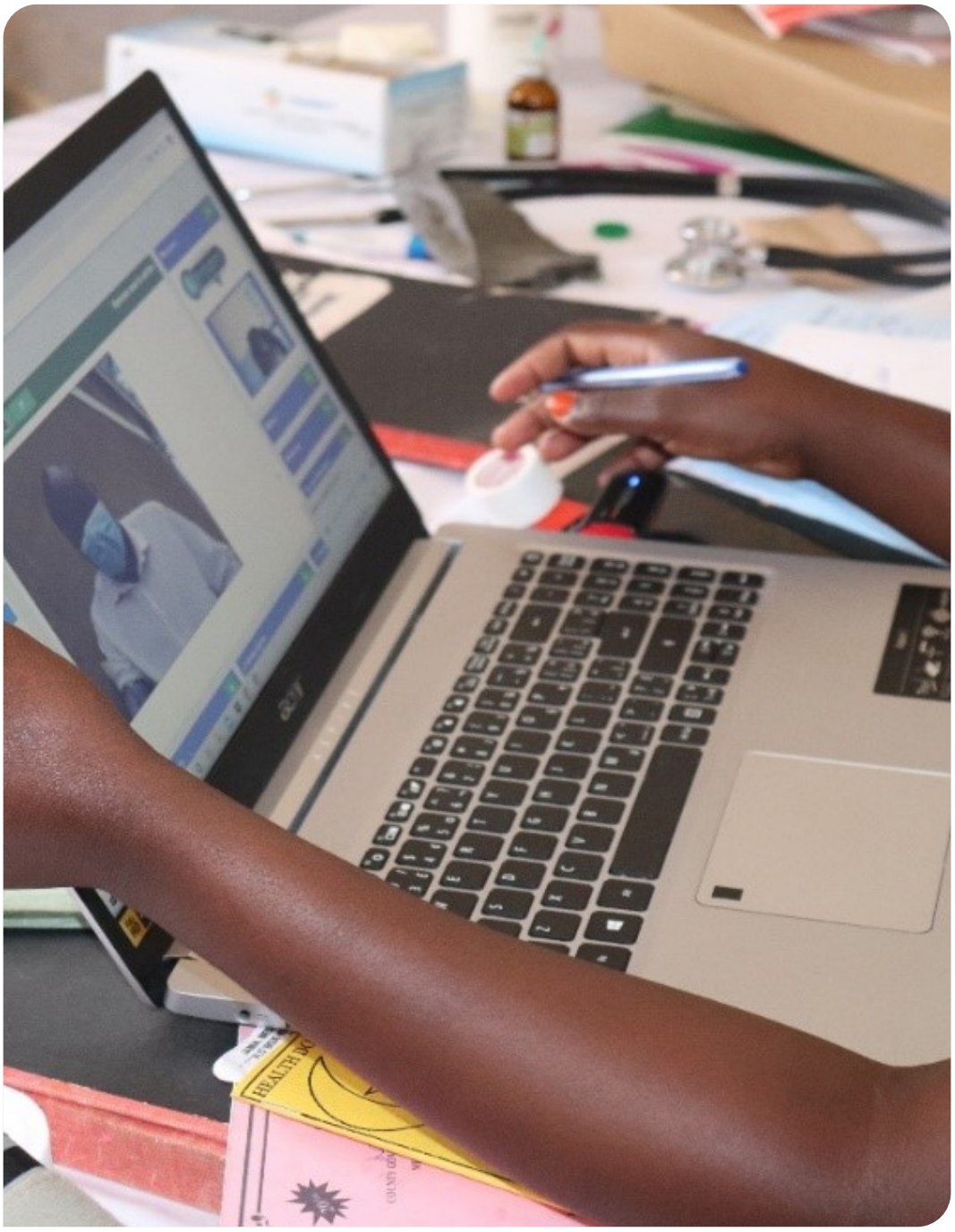

Photo: courtesy pqmd.org

Endnotes

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