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VIEWPOINT

Building Stronger Health Care Systems

Digital Health's Vital Role in Empowering the LMIC Health Workforce

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According to its most recent estimates, the World Health Organization predicts a global shortage of 10 million health workers by 2030. The health workforce shortage has gained international attention, driven by the rising burden of disease, the increased demand for care due to an aging population, and too few clinicians to adequately meet these needs. Noncommunicable diseases (NCDs) are responsible for 74% of all deaths worldwide and 86% of premature deaths in low- and middle-income countries (LMICs). In 2020, the number of people >60 years old eclipsed the number of people under 5 globally, and by 2050, 80% of older people will live in LMICs [1]

To facilitate a stronger health system, governments must contemplate how to support the people within their systems. NCD offers a helpful construct for the strength of health systems due to its significant global prevalence and the resources required to manage conditions. The NCD Alliance published a health workforce paper.[2] that provided practical approaches to enable an optimized health workforce, recommending that countries:

1. Facilitate political engagement on NCD care, inclusive of the allocation of adequate resources for strengthening the health workforce.
2. Enhance multisectoral collaboration to strengthen the health workforce.
3. Put in place global, regional, and national regulatory frameworks for the development, deployment, and retention of human resources for health.
4. Utilize multidisciplinary care teams, with a robust role for community health workers, to deliver NCD education and care at the primary health care level.
5. Leverage digital tools to enhance the capacity and reach of the health workforce.

Current health workforce shortages paired with the time and resources required to recruit, train, and deploy replacements, create an opportunity to rethink where care can be provided and by whom. Technology enables this change because it allows people with less training to provide more care and facilitates the necessary transfer of information to better manage patients, both as individuals and across a population. This supports the objective to promote access to the right care in the right environment with human and technical supports.

Health care occurs in multiple locations: in the home, in the community, and in often distant tertiary centers. Providing care in these 3 environments requires a unified health record, tracking of clinically meaningful parameters and actionable events, and the ability to coordinate clinical processes to optimize efficiency. Many LMICs have proven to be incubators of highly effective purpose-built care solutions that meet the needs of the communities they serve. Examples of programs that have expanded access in the home, in the community, and facilitated access to tertiary centers follow below.

Babyl Rwanda engineered a product and process to provide phone-based access to clinical consults, prescriptions, and facilitated local access to labs as needed in communities that previously lacked access. We note that Babylon Health recently announced that it will wind down operations in Rwanda. However, the technology and its deployment stand as an example of how a simple structure—making clinicians available for consults by phone—extended access to

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care to 20% of the population of Rwanda in 2023.[3] This example illustrates that making new use (clinical consults) of widely dispersed technology (cell phones, which need not be smart phones) can create a system where people access care from home to treat acute and manage various conditions.

Leveraging technology, patients can now consult with doctors through video calls, receive remote diagnoses, and even access their medical records online. The Lyfe platform, created by Lupin Digital Health, presents an example of this type of system. The system connects patients and their care providers to monitor cardiac rehab progress, incorporating data collected from devices in the patient's home/environment and alerting clinicians when data that departs the acceptable range. Enrollees receive human support in the form of coaching and wrap-around dietary guidance. The program points to a 31% decrease in readmissions and a 26% decrease in mortality from patients engaged.[4] This not only ensures timely health care interventions but also saves valuable time and resources for both patients and health care providers.

One of the advantages of digital health in LMICs is its potential to overcome geographical barriers to care access. Digital health technologies, such as telemedicine and mobile health applications, enable health care professionals to reach underserved populations. The Apollo Health System in India has reached remote Himalayan populations in Himachal Pradesh. They built a program, Keylong Telehealth Services, to connect this community with otherwise unavailable specialty care. In this model, a paramedic staffs a combination emergency and hospital room that contains equipment to monitor patient vitals, with satellite-enabled connection to specialists in Chennai who can use a camera and communication system to monitor the patient and to instruct the paramedic to directly administer care in real time. This program paints a vision for how technology expands the reach of a limited number of specialists, such that where one lives does not dictate one's ability to survive a heart attack.

Digital health plays a pivotal role in strengthening health information systems. In many LMICs, paper-based record-keeping has been the norm, leading to inefficient data management and limited capacity for evidence-based decision-making. With the implementation of electronic health records and health information exchanges, medical data can be centralized, allowing for real-time access to patient information and facilitating better coordination among health care providers. Lack of data presents the single biggest challenge to identification of true disease burden and thus creation of the most effective health policy. Absent data to make this case clear, Health Ministries struggle to make the case for investment in NCD and health system strengthening.

Patient agency cannot be forgotten in LMICs. Digital health empowers communities to take charge of their health and well-being. Mobile health applications and wearable devices have transformed the way people engage with their health. These technologies allow individuals to monitor vital signs, track physical activity, and even manage chronic conditions effectively. Through health education and awareness campaigns delivered via digital platforms, people in LMICs can be better informed about preventive measures and healthier lifestyle choices. This proactive approach to health not only reduces the burden on health care systems but also leads to healthier and more productive societies.

In conclusion, digital health holds tremendous potential for global capacity building in LMICs. By embracing digital technologies, these nations can overcome geographical barriers, strengthen health information systems, empower communities, and foster global collaborations. It is imperative for stakeholders to recognize the importance of digital health and work collectively to build robust health care systems that leave no one behind.

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