COVID-19 Crisis and Developing Countries: Digital Health Perspective
By Ambassador Fauzia Nasreen, Dr. Azeema Fareed, Ms. Huma Balouch
Commission on Science and Technology for Sustainable Development in the South (COMSATS)

Technology and Innovation are quintessentially relevant especially in dealing with the multiple threats posed by COVID-19. Most developing countries are already under tremendous stress because of financial constraints, enormous development challenges and technology innovation and knowledge deficiencies. COVID-19 which has disrupted every walk of life is having a multiplier effect on many countries, posing difficult governance choices. Reform and reorientation of the health system and structure is fundamentally important in dealing with the public health issues in the post COVID-19 period, and digital health could help in providing solutions.

Introduction

The onset of the digital age has revolutionized the lives of societies and states, interconnecting the world in so many different ways. However, the paramount question of what percentage of the world population has easy access to information technology remains. Without extensive broadband cover at the national level, the gap between different strata of society could widen with consequences for the "Equality" agenda of the Global Development Goals. Technology and Innovation are thus quintessentially relevant especially in dealing with the multiple threats posed by COVID-19. Most developing countries are already under tremendous stress because of financial constraints, enormous development challenges and technology innovation and knowledge deficiencies. COVID-19 which has disrupted every walk of life is having a multiplier effect on many countries, posing difficult governance choices. Reform and reorientation of the health system and structure is fundamentally important in dealing with the public health issues in the post COVID-19 period, and digital health could help in providing solutions.

The Developing World's Dilemmas

The Novel Coronavirus has, without doubt, exposed in varying degrees the vulnerabilities of states and the international system's ability to manage shocks of the scale of the current pandemic. The outbreak of the contagious disease has multiple dimensions at the national,

regional and global levels, catapulting health and digital technological transformations as meaningful aspects of sustainable security. The health challenges have impacted rich and poor, developed and developing countries alike. However, the absorbing cushion and capacities of countries that are already confronting socio-economic fragility are extremely narrow, compounding the systemic and structural issues. In the situation of weak societies where deprivation is endemic and employment and livelihood openings are severely constrained, the protective measures against the spread of the infectious disease become a colossal challenge. The curtailment of mobility and almost a halt in economic activity is a double whammy for the underprivileged and marginalized segments of society. Protection against the virus and making two ends meet acquire a threatening dimension for these communities. The constricted fiscal space available to the governments aggravates the situation further.

The impact of COVID-19 is compelling states and societies to reorient their development plans in an effort to address imbalances in social sector allocations. Attention to the healthcare system and creation of corresponding infrastructure have perforce become a priority for the planners. The inadequacy of digitalization is additionally limiting new approaches to conducting businesses of daily lives. It is hampering online education, online businesses and most importantly telemedicine and telehealth. Adaptation to new approaches is constrained because of lack of broadband facilities and national telecommunication coverage. In a way the social stratification in terms of access to technology are complicating the already limited opportunities. At the same time there is an increasing recognition that the core aspects of computer science, artificial intelligence (AI), nanotechnology and data computation have been instrumental in managing the COVID-19 health and medicinal problems. The effective use of the combination of the technologies available in the era of the fourth industrial revolution has provided dividends for healthcare system and management. It is expected that these new tools will help in finding drugs and a vaccine that would help in prevention and treatment of the virus.

The developing world's diversity with differentiated levels of growth and prosperity and the capacity to deal with COVID-19 are influenced to a large extent by disparate and multi layered responses. Of course, there are other factors based on scientific speculations that may have played some part in controlling the wild spread of the disease. These include the existing immunity among populations because of certain early childhood vaccinations (for tuberculosis and polio drops) as well as prevalence of such diseases as malaria, dengue, HIV/AIDS that require intake of antiviral drugs on a regular basis.

For countries that have bigger populations and are confronted with multifaceted problems, the situation assumes a dire dimension. The pandemic has taken a heavy toll on the healthcare systems with distinct imprints on socio-economic milieu, commerce and businesses, education and other day-to-day activities. The staggering health systems, outdated health infrastructure already burdened with issues of less spending on health, inefficient health management and planning, dearth of medical staff and medicinal expertise and scientific research and inquiry are key challenges that have made the COVID-19 situations much more severe and complex. There is a hard learning in appreciating that these areas deserve immediate and priority attention.

The current COVID-19 situation has brought increased recognition that Information Technology-induced transformation is the need of the hour as it provides a crucial line of all activities in the health sector. Driven by the urgency to meaningfully contribute to the key 2030 Agenda[i] of "leaving no one behind", the developing countries had already started tapping into the potential of digital innovations, such as Artificial Intelligence, The Internet of Things, Cloud Data Computing and processing systems, remote sensing, Mobile Edge Computing and

crowdsourcing systems applications and research in such areas as climate change, economic development, healthcare, entrepreneurship and job creation and cyber security.

It is abundantly evident that the Healthcare industry in the developing world has been significantly impacted by the recent advances in digital technologies. Some of the developing countries had already experienced such epidemic outbreaks as MERS, SARS, Ebola, Zika etc. South Korea and Singapore's handling of the COVID-19 situation essentially on the basis of extensive testing, tracing and isolating has been quoted as examples of a sound strategy and policy. Digital technology more importantly played a crucial role in their implementation.

Digital Health and Commonwealth

As an organization drawing membership predominantly from the developing world, the Commonwealth, of which the Commission on Science and Technology for Sustainable Development in the South (COMSATS) is an accredited member, took cognizance of the growing importance of digital health as far back as 2010. It launched several initiatives to prioritize the role of digital health by establishing the health hub and Digital Health Network. Since most countries represented in the organization suffer from various socio-economic deprivations and lack in technology, the Commonwealth is acutely aware of the income and development disparities. It emphasizes access to healthcare as a rights-based issue and underscores Universal Health Coverage (UHC) as a fundamental and basic right stressing that "to achieve UHC, it will be necessary for countries to use modern technology in innovative ways to strengthen and re-engineer processes within health systems and health care, as well as adopt innovative ways of using the current health force" (with reference to COVID-19)[ii]. Among the potential benefits and opportunities of using digital technology it listed are enhancing diagnostics and health monitoring particularly for vulnerable populations, data analysis and forward projections and enhancing access and improving equity in the provision of healthcare[iii]. The recommendations included mapping of the use of digital technologies in health service and medicines delivery as well as exploring the opportunities for collaborations in this specific area by establishing a social and business coalition cross-Commonwealth in digital technology.[iv]

COVID-19: Case study of Pakistan

Digital health in Pakistan has its roots in the past few decades with projects like paperless hospital such as Indus hospital, efforts by both the Federal and Provincial health authorities towards digitalizing the health information systems from primary to tertiary care levels and the use of telehealth/telemedicine. COMSATS through integration of its Internet Services has run the Telehealth program since 2001 in selected areas of Pakistan. As a separate initiative, eHealth Association of Pakistan has been established to provide a common knowledge and information sharing and advocacy platform. It is further boosted by a Telehealth Call Centre set up by Aman Foundation. In recent years at the federal and provincial levels more programs and projects have been launched. These include the flagship Prime Minister's National Health Program and issuing of smart health cards. These health cards bear the individual's identification, medical history and data. eVaccs programs have also been unveiled in the provinces of the Punjab, Khyber Pakhtunkhwa and Balochistan. These measures aim to automate the entire process of immunization, from ensuring on-the-field vaccinator attendance to increasing geographical coverage of vaccination.[v]

The enabler in promoting ehealth/emedicine has been Pakistan's recent focus on enhancing its digital capacity. In the last couple of decades of the 21st Century, Information and Communications Technology (ICT) infrastructure in Pakistan has improved with growing internet

penetration and the introduction of high speed internet services (broadband, 3G and 4G technologies), new and improved Information Technology (IT) tools, introduction of smart mobiles and emerging startup businesses. This has facilitated induction of many individuals and organizations in digital health initiatives mostly through mobile applications. The National Health Vision: 2016-2025 envisages development of innovative technologies that need to be incorporated for providing reliable information and evidence based decision making at the district level through the District Health Information System (DHIS). Similarly the Digital Health Policy of Pakistan, 2018[vi] "aims to facilitate and assist (concerned authorities) in the use of telemedicine, leverage access to qualified specialists by building an online network of doctors and paramedical staff, promote digitization and automation of existing hospitals, share information for preventive care through application of ICT tools and technologies and set eHealth service providers accreditation and requisite protocols and standards".[vii]

The COVID-19 pandemic has catapulted digital health to a higher plane with the digital technologies emerging as effective tools for the health care system in Pakistan. A number of digital health programs in the country have been approached for assessing the utilization of IT in response to COVID-19 infections. These programs are both in the Government/public and Private sectors including Pakistan's Ministry of National Health Services Regulations and Coordination (MoNHSRC), software companies like CIT Solutions, telemedicine companies including Sehat Kahani and doctors247online and startups by the National Incubation Center. The Government of Pakistan recently launched a COVID-19 Telehealth portal on twitter and has also created a website. Pakistani doctors and health professionals have been invited to register and volunteer to help COVID-19 patients.

The exceptional circumstances created by the COVID-19 outbreak have enhanced the role of digital health in reaching out to individuals and communities in a lockdown situation as hospitals are focused on dealing with COVID-19 emergencies. The digital health policies and strategies could take into consideration the following, keeping in view that digital health response to COVID-19 in Pakistan has already seen exponential growth and mushrooming of small scale projects and ventures in health care based on digital technology:

- Appreciating the strides Pakistan has made in recent years in popularizing the use of IT in health, the digital health tool assumes significance in supporting the Universal Health Coverage (UHC) system. Coordinated efforts are needed to streamline the process with the help of multiple stakeholders and evolve policies and strategies for the standardization of guidelines, through legislation. This will help in building a resilient and robust response system on a long term basis.
- Evidence-based evaluation of digital health interventions during the ongoing pandemic response and the impact analysis are critical to developing a more efficient and sustainable digital health system.
- Utilization of IT in health disciplines in the light of the experience being gained in fighting the COVID-19 menace highlights the importance of permanent integration of IT infrastructure, tools and solutions within the overall health system and management. This would enable the government to even better manage disaster and emergency situations. There can be some learning from the US's Telemedicine systems which were already in existence and the only action required was to align regulations and laws to the needs and demands of COVID-19.[viii]
- For enhanced coordination and synergetic response, creating networking among all stakeholders such as public health authorities, public and private healthcare organizations and IT companies within the country is needed. It would be extremely

beneficial if triangular cooperation framework is utilized for connecting with the North for research and development (R&D) and innovations in health related fields.

- Key to success for providing digital health facilities at universal level and without any possible discrimination, public-private partnership has a major role. Already in Pakistan, large scale philanthropy-based health care is being provided. Partnership between public and private sectors would ensure effective utilization of energies and finances and avoid duplication of efforts unnecessarily leading to wasting of resources.
- It is vitally important to devise strategies and build health infrastructure for digital and communication technology that excludes no one and is available to all on an equitable basis including the marginalized and poorer as well as rural and urban periphery communities, persons with disabilities, senior citizens, women and children. Their inclusion would improve health at the national, regional and global levels.
- Adhering to the privacy requirements would be imperative to avoid fear syndrome making the participation of citizens less voluntary. Weighing between the ethical concerns and combatting the disease is a delicate issue which requires prudent approach and handling.

Conclusion

The World Health Organization (WHO)[ix] has amply articulated views on the use of digital technologies in health care responses especially in the current situation of COVID-19. As it is, digital health has relevance for all the components of the healthcare system: Governance (data use for policy formulation and personnel management); Information (in the form of Electronic Health Records, e-prescriptions, registries, big data analytics and AI); Health service delivery, training and capacity building; and for Medicine and drug development.

Adapting to the "new normal" environment calls for innovative approaches to healthcare problems especially in the developing countries. Business-as-usual cannot continue if the worsening of the crisis and ensuing fragility are to be avoided. Collaboration and sharing of knowledge and research are absolutely essential as working in silos serves no purpose. It is appreciable that the European Union, WHO, China and other countries have announced huge funding related to research and various other aspects of COVID-19. This is a good demonstration of international solidarity in confronting the large scale of common global threats.

Regional cooperation and utilization of indigenous knowledge and remedies for boosting an individual's internal response system as well as herbal solutions in the developing world could help in many ways. Cooperation among and integration of organizations that have experience in traditional medicine could also be helpful in developing drugs and medicines. There is an urgent need to have a holistic and comprehensive strategy founded on the principles of better health care through digital technology.

[i] United Nations, General Assembly. Transforming our world: the 2030 Agenda for Sustainable Development, 21 October 2015, A/RES/70/1.

[ii] 2020 Commonwealth Civil Society Policy Forum: Strengthening health systems using digital technologies in the midst of the COVID-19 pandemic to ensure universal health coverage, 6 May 2020, Virtual Forum. Available from https://cwcdh.org/documents/2020%20Commonwealth%20Civil%20Society%20Policy%20Forum%20Policy%20Brief%20Final.pdf.

[iii] Ibid.

[iv] Ibid.

ᵛ Report of the Digital Pakistan: *Accelerate to the Digital State – d-Health*. Available from http://digitalpakistan.pk/pdf/d-health.pdf.
ᵛⁱ Digital Pakistan Policy (May 2018). Available from http://moib.gov.pk/Downloads/Policy/DIGITAL_PAKISTAN_POLICY(22-05-2018).pdf.
ᵛⁱⁱ Ibid.
ᵛⁱⁱⁱ Federal & State Policy Changes and Guidance During the COVID-19 Public Health Emergency. Available from http://connectwithcare.org/covid19/.
ⁱˣ World Health Organization, "Digital health". Available from https://www.who.int/health-topics/digital-health#tab=tab_1.

* The views contained in this article are attributable to the author and do not represent the institutional views of the South Centre or its Member States.

SOUTHVIEWS is a service of the South Centre providing opinions and analysis of topical issues from a South perspective.

To view other articles in SouthViews, please click here**.**

To see the previous version of SouthViews, please click here**.**

For more information, please contact Anna Bernardo of the South Centre: Email bernardo@southcentre.int**, or telephone +41 22 791 80 50.**