Task Force 6
Accelerating SDGs: Exploring New Pathways to the 2030 Agenda

PATHWAYS TO UNIVERSAL DIGITAL ACCESS TO INCLUSIVE HEALTHCARE IN THE G20

May 2023

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Abstract

Universal digital access to inclusive healthcare is a part of the G20's vision to achieve Sustainable Development Goal-3 (good health and well-being), but the pathways to accomplish this are unspecified. India and other countries are in the process of extensively digitalising healthcare. This policy brief provides a roadmap to integrate the digital healthcare infrastructure for affordable, equitable, and universal access. The roadmap is presented using an ontology of universal digital access to inclusive healthcare. Policies related to universal digital access to inclusive healthcare must be based on the large number of pathways encapsulated in the ontology. The known effective pathways to universal digital access to inclusive healthcare must be reinforced, the known ineffective pathways must be redirected, and the unknown new pathways that must be discovered and explored.

The Challenge

1

Universal digital access to inclusive healthcare is part of India's and the G20 countries' Sustainable Development Goal-3 (SDG-3) vision. The challenge of such access is complex and must be defined. Its ontology (see Figure 1[a]) is a clear, concise, and comprehensive definition of the complexity, and a 'map' of the pathways to meet the challenge.

Ontology of universal digital access to inclusive healthcare

When defining 'universal digital access to inclusive healthcare', healthcare can be understood as: (a) physical, mental, and holistic care, and (b) preventive, wellness, illness (episodic, chronic), rehabilitative, and palliative care. These elements are listed as the focus and stage of healthcare in the ontology (Figure 1). Thus, the 6*3 = 18 combinations of focus and stage that denote healthcare include, for example, (a) preventive physical healthcare, and (b) rehabilitative mental healthcare. As such, healthcare policies must address the requirements for these 18 combinations for all population segments.

Digital access must be blended with physical (in-person) access for the delivery of inclusive healthcare. The care must be delivered by a range of personnel, including physicians (generalists and specialists), traditional healers, nurses, health workers, pharmacists, social workers, care providers, peers, and the family. Thus, access to healthcare denotes 2*6*3*10 = 360 possible combinations that include, for example, (a) digital access to preventive physical healthcare by health workers, and (b) physical access to rehabilitative mental healthcare by care providers. The policies must address the requirements for these 360 combinations for all population segments.

Universal access to inclusive healthcare denotes access for all the population segments: urban, rural, underprivileged, indigenous, disabled, adolescent, youth, and the elderly. The requirements of and the services provided to these segments must be differentiated and integrated for effective healthcare. Thus, universal access to inclusive healthcare denotes 2*6*3*10*8 = 2,880 combinations that include, for example, (a) digital access

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a   The ontology in Figure 1 has been developed based on the extensive experience of the authors and selected literature.

to preventive physical healthcare by health workers for urban population, and (b) physical access to rehabilitative mental healthcare by care providers for the indigenous population. The policies must address the requirements for these 2,880 combinations for all population segments.

The three types of forces affecting the delivery of universal access to inclusive healthcare are listed in the second column of the ontology. They are: (a) barriers to, (b) norms for, and (c) drivers of access. Thus, the forces determining access are: 3*2*6*3*10*8 = 8,640, and include, for example, (a) barriers to digital access to preventive physical healthcare by health workers for the urban population, and (b) norms for physical access to rehabilitative mental healthcare by care providers for the indigenous population. The policies must be based on the knowledge of these 8,640 forces.

The policies must: (a) remove the barriers to providing these types of care, and (b) establish norms for providing them, and (c) introduce drivers of the same by managing the seven types of resources (technological, human, informational, financial, spatial, infrastructure, and temporal resources). Thus, there are 7*3*2*6*3*10*8 = 60,480 possible pathways to universal digital access to inclusive healthcare encapsulated in the ontology that include, for example, (a) managing technological barriers to digital access to preventive physical healthcare by health workers for the urban population, and (b) managing financial norms for physical access to rehabilitative mental healthcare by care providers for the indigenous population.

Figure 1: Ontology of Universal Digital Access to Inclusive Healthcare

[Managing]	Resources		Forces		[to/of/for]	Access		[access to]	Healthcare		[healthcare by]	Personnel		[for]	Population		[population]
									Stage	**Focus**							
	Technological	±	Barrier			Digital	±		Preventive	± Physical		Physicians			Urban		
	Human		Norm			Physical			Wellness	Mental		General			Rural		
	Informational		Driver						Illness	Holistic		Specialist			Underprivileged		
	Financial								Episodic			Traditional Healers			Indigenous		
	Spatial								Chronic			Nurses			Disabled		
	Infrastructure								Rehabilitative			Health Workers			Adolescent		
	Temporal								Palliative			Pharmacists			Youth		
												Social Workers			Elderly		
												Care Providers					
												Peers					
												Family					

Source: Authors' own

Countries can systematically choose pathways for universal digital access to inclusive healthcare based on the ontology and formulate policies to implement them. The choice and the formulation must be based on the best available evidence from research, other policies, and practice. The ontological analysis will thus provide a comprehensive roadmap to formulate effective policies for universal digital access to inclusive healthcare in India and the G20 countries.

The G20's Role

2

The G20 can play a key role in addressing the challenge of providing universal digital access to inclusive healthcare by establishing a committee to set an agenda for: (a) research, policy, and practice, and (b) translation of research to policy to practice through feedback and learning. At present, there is no similar unified framework or concerted effort to address the challenge and provide a roadmap. The committee's agenda must inform and be informed by the constituent country agendas, and those of the United Nations (UN) and its agencies, the World Health Organization (WHO), and others.

The ontology of universal digital access to inclusive healthcare must be adopted as a framework for all G20 countries. Within the framework, each country must choose its pathways based on its local requirements, priorities, and resources. The adoption of a common framework will help formalise and transfer knowledge about, and feedback and learnings from the implementation within a country to other G20 and non-G20 countries. Such an approach will help move the cycle of generating and applying knowledge on the challenge from a selective, segmented, and siloed effort to a synoptic, systemic, and systematic one.

The framework must be used to periodically map the state-of-the-art, state-of-the-need, and state-of-the-practice of universal digital access to inclusive healthcare by country. Analysing the gaps between the three states must guide the translation of research to policy to practice and then back to research for feedback and learning to achieve the SDG-3 vision. As such, the G20 committee must help the member countries collaborate, coordinate their policies, and communicate their learning.

Recommendations
to the G20

3

The G20 must form an international committee and encourage the creation of national groups, for universal digital access to inclusive healthcare. These committees must adapt and adopt the ontology as a common framework, and pursue a systemic approach that harnesses the resources and unleashes the forces necessary to deliver such care. These committees must be responsible and accountable for the outcomes. The detailed recommendations to the G20 are organised by the columns of the ontology and then integrated. These recommendations are aligned with the present research, policies, practices, and recommendations of the WHO, UN agencies, and other similar bodies. Their prioritisation must be country specific.

Digital healthcare

The digital healthcare policy priorities must be aligned with, adapted to, and shape each country's healthcare priorities.

- Physical healthcare will continue to be important; mental healthcare is becoming more important; and holistic healthcare is gaining importance (for instance, in India). Digital access must differentiate between and integrate the requirements of these focuses of care.

- The priorities of the different stages of care change with advances in medical knowledge, country demographics, requirements of the population, and the country's healthcare policies. Digital access must longitudinally integrate and support the requirements of different stages of care, from pre-conception to death.

- Digital healthcare must be integrated, people-centred, interoperable, and with high fidelity.

- Digital access to healthcare should help generate data to determine the most effective and efficient interventions for inclusive healthcare of a country's population.

- It should end drudgery and repetitive work, eliminate paperwork, help make better decisions, and offer guidelines to health workers to improve adherence to clinical guidelines.

- Digital healthcare governance must be aligned with the country's healthcare governance structure and legal requirements.

Digital healthcare access

Digital access is necessary but not sufficient for effective and efficient healthcare. It must be symbiotic with physical (in-person) access to healthcare. The capabilities of the combination must be harnessed systematically.

- Digital access to healthcare must complement, supplement, or substitute physical (in-person) access as necessary and appropriate for all stages and focuses of healthcare.

- Digital and physical (in-person) access must be balanced based on the healthcare requirements, personnel delivering it, and the population receiving it.

- Digital access to healthcare must address the new challenges of communication, compliance, adherence, motivation, and behaviour.

- Digital healthcare access and engagement must be proactive and not reactive. It must transform the scale and scope of healthcare by harnessing the power of digitalisation, and not simply satisfy the present requirements and automate the present delivery.

- Digital healthcare access must be equitable and must reduce the disparities in healthcare.

Digital healthcare delivery personnel

Digital access must be available to the full spectrum of healthcare providers based on their role, requirements, and the need they satisfy. It must help automate, 'informate',[b] and then transform their role in healthcare delivery.

- Digital access for a person's healthcare delivery must be transferable across healthcare providers during the lifecycle of care and the person's lifetime.

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b   To informate is to generate information about healthcare delivery and make it visible.

RECOMMENDATIONS TO THE G20

- Digital access must be able to deliver disease-specific programmes and patient-centric care effectively.

- Digital access for a person's healthcare delivery must be trusted, private, confidential, and secure.

- Digital access for a person's healthcare delivery must support and integrate the specialised healthcare functions of the different providers.

- Digital access for a person's healthcare delivery must be included in the curriculum, training, and competencies.

Digital healthcare recipient population

Digital access must be available to all population segments based on their requirements, needs, location, and resources. These must be mapped in detail. The access must adapt to the changing requirements and needs as the populations learn and their expectations evolve. It must address the benefits and challenges of such access for different population segments.

- The provision of digital access to healthcare must be mass-customised to the populations based on their requirements, location, and resources.

- The people belonging to the population segments must be partners in the design, development, and delivery of digital access to healthcare. Their cultural sensitivities must be part of the process.

- Feedback and learning from the populations on digital access to healthcare must result in the simultaneous globalisation and localisation of access.

- Universal digital access to inclusive healthcare must be delivered to all population segments based on their priorities and needs. In the future, their priorities and needs may change significantly because of digital access to healthcare. The feedback must be factored into the policies.

- Aggregate data must be made available to researchers and policymakers to assess the

effectiveness of programmes and interventions.

Digital healthcare forces

Digital access to healthcare policies must establish norms for such access, help overcome the barriers to access, and aid the drivers of the same. However, sometimes, some barriers may be introduced and drivers removed to ensure the legality and conformance of healthcare delivery.

- Governance, legal, and regulatory policies must establish norms for digital access to healthcare.

- The ethics of digital healthcare delivery and receipt must be normalised.

- Resources must be deployed to enforce the governance, legal, regulatory, and ethical norms even at the cost of enhancing the barriers and diminishing the drivers.

- Resources must be deployed to overcome barriers to digital access to healthcare. These barriers may include quality of connection, frequent updates to operating systems and platforms, and personnel fatigue.

- Resources must be deployed to support drivers of digital access to healthcare. These drivers may include education, hand holding, incentives, and operation flexibility.

Digital healthcare resources

Technological and financial resources are necessary but not sufficient for universal digital access to inclusive healthcare. The full spectrum of resources in the ontology must be managed to drive universal digital access to inclusive healthcare, conform to the norms, and to overcome the barriers.

- Technological resources must be accessible to the personnel delivering care and the population receiving it. It must be available for all stages and focuses of healthcare. It must meet the quality requirements of all users.

- Human resources must design, develop, and operate the system effectively and efficiently. It must support the functions of the technology for the personnel

delivering care and the population receiving it. It must also support the functions for all stages and focuses of healthcare. It must assure the quality of universal digital access to inclusive healthcare.

- Informational resources must informate and transform universal digital access to universal healthcare. The information must be about the system, managed by the system, and applied to the system. The information must include that about the population receiving healthcare, the personnel providing it, the different stages of healthcare, and the different focuses. It must provide support for transactions, decisions, interpretation, and knowledge development.

- Financial resources underpin the availability, accessibility, and quality of all the other resources and, consequently, of the system. They must also ensure the continuity of the system across locations and over time—the two key advantages of digital access over physical (in-person) access.

- Spatial resources must be available and accessible for the healthcare personnel and the recipients to maintain the confidentiality, privacy, and security of their interaction. They are needed at both ends for the technology and other infrastructure required for universal digital access to inclusive healthcare. The spatial resources may be independent of that for physical (in-person) access to healthcare or collocated with it.

- Infrastructure resources are non-technological physical resources, such as buildings, plumbing, administration, and other support systems. They are not directly in the path of healthcare delivery but support the personnel delivering and population receiving it.

- Temporal resources help match the availability and accessibility of the healthcare personnel and recipients. They also assure the provision of episodic (any time) emergency healthcare services as well as the ongoing (any duration) regular services.

Universal digital access to inclusive healthcare

The success in providing universal digital access to inclusive healthcare will depend on its governance locally, nationally, and globally by the proposed committees. In addition to formulating policies, governance must include the mission of generating knowledge and applying it through formal research and assessment of policies and practices. It must be aligned and integrated with the country's digital health mission, and utilise the ecosystem created by such a mission effectively. Each country must develop an ongoing learning system with feedback to guide the trajectory of universal digital access to inclusive healthcare.

Conclusion

4

Achieving universal digital access to inclusive healthcare requires a roadmap. This policy brief provides a clear, concise, and comprehensive framework to negotiate the labyrinth of pathways. The framework can be used for the governance of systems to provide such access locally, nationally, and globally. It can be the basis of a learning healthcare system. Further, in many low-income countries there is a substantial need for technology sponsors and financial resources. Every country should assess its current strategies and coordination mechanisms. Universal digital access will benefit from stronger legal bases and adequate capacity building to set up infrastructure that drives the digital transformation process, strengthening institutional frameworks and mechanisms that enhance efficiencies and improve service delivery.

CONCLUSION

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