Norwegian Centre for
E-health Research

How can digitalization contribute to a reduction of inequalities and improve health and well-being?

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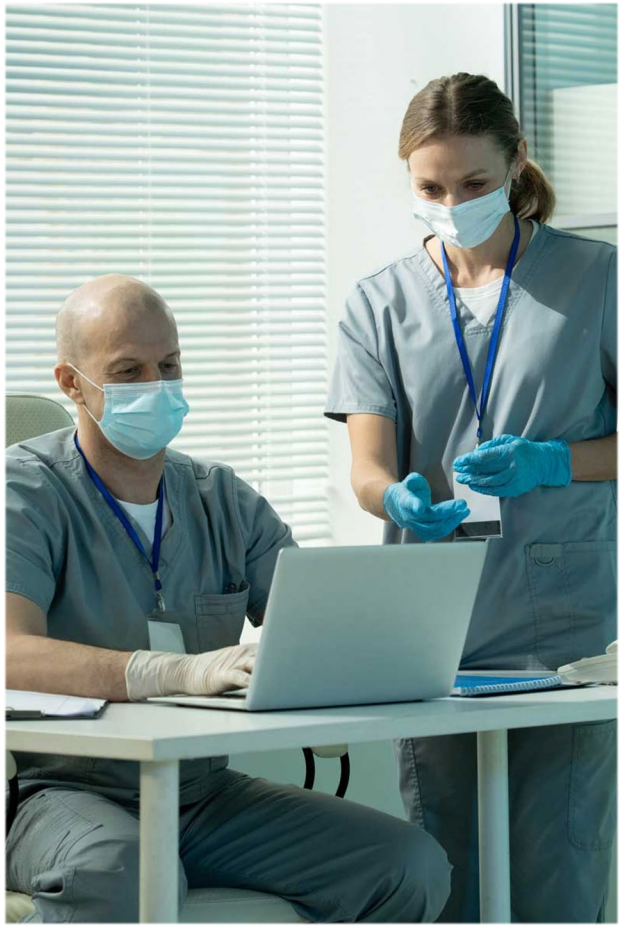
Scope of digital health

- Digital health refers to the broad application of technologies in supporting public health, health care and empowering individuals to better understand and manage their health and well-being.
- Digital health is often referred to as being a “disrupter” in healthcare – challenging and reforming the way in which health services are made available to people. This is one of many lenses through which digital health can be viewed and applied.
- Digital health is also concerned with data – how it is captured, stored, governed, transmitted, secured and used in digital environments.



Social determinants of health

The conditions in the environments where people are born, live, learn, work, play, worship and age that affect a wide range of health, functioning, and quality-of-life outcomes and risks.

- Living conditions
- Working conditions
- Economic stability
- Education
- Lifestyle choices
- Healthcare access and quality

These factors will, in general, reinforce each other.
(OECD, WHO)

Digital determinants of health

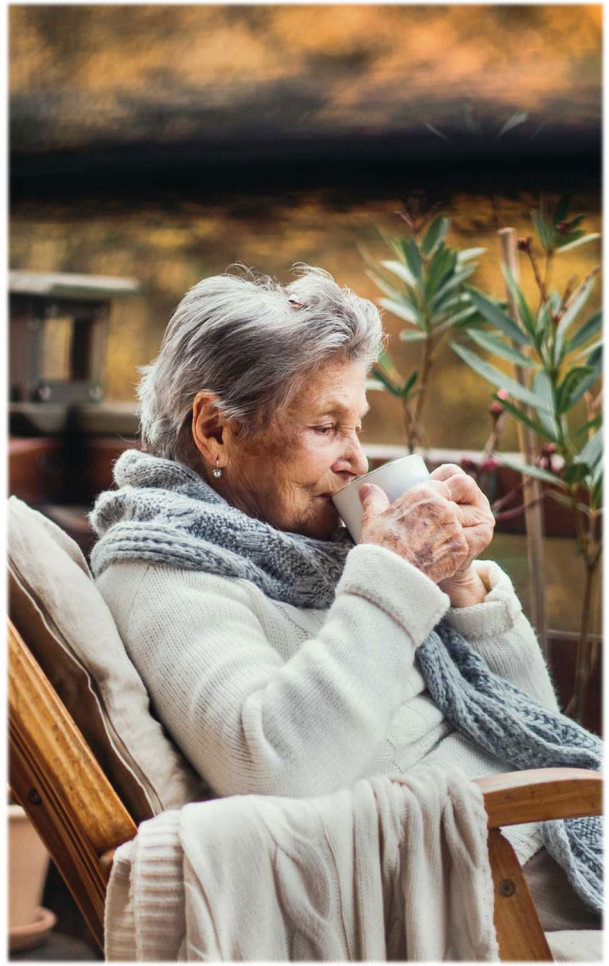
- Access to digital resources
- Use of digital resources for health seeking or health avoidance
- Digital health literacy
- Beliefs about potential for digital health to be helpful or harmful
- Values and preferences for use of digital resources
- Integration of digital resources into community and health infrastructure

  (Crawford and Serhal, 2020)

«The effects of Covid-19 have shed light on the broad disparities within our society and provides an opportunity to address those disparities moving forward.» *(Abrams and Szefler, 2020)*

The digital divide

- The digital divide is access to internet, mobile networks and computers. Typically the gaps between underserved populations and everyone else
- Low and mid-income countries or regions
- But, the divide is about more than connectivity:
  - Health literacy and technical skills (digital literacy)
  - Social divide, gender divide, age divide
  - Affects access to and quality of healthcare services, and achievement of health-related Sustainable Development Goals
- Patient portals and health apps can foster: Greater patient engagement, better support, improved health outcomes



The digital divide – who are affected?

- According to The Telecommunication Development Sector (ITU-D), only half of the global population are using the internet. 3.7 billion people, the majority women, mostly in developing countries – are still offline
- UN Deputy Sec. General Amina Mohammed: “While confronting the pandemic, those without internet access have been unable to benefit from remote education or work, or remote health services. Without decisive action, the digital divide will become the new face of inequality”

Some studies on digital inclusion / exclusion, by our centre

«Digitized patient-provider interaction: How does it matter? A qualitative meta-synthesis.» (Andreassen et al, 2018)

- A synthesis of 15 qualitative studies, that points at structural processes of change
- E-health solutions not only change relationships between patients and health professionals, but also family and gender structures
- What happens when a family member is ill and manages at home with the help of technology and family, instead of going to a health institution? Is it just positive?
- There are signs that distance care and home monitoring can lead to going back to old gender roles >> in turn, this could affect participation in working life
- Patients report feeling both liberated and invaded when their home turns into «a small hospital»
- Many unanswered questions

Person-centred healthcare teams

- Our researchers have studied how care delivery can be re-designed for persons with long-term and complex needs *(Silsand et al, 2021)*
- Internationally: More older citizens with chronic diseases. They account for 2/3 of high-level healthcare costs
- Use new technologies + re-organization of care services
- Aim: Improved outcomes, improved care experience, reduced costs and travelling, early intervention, fewer acute resubmissions to hospitals
- **Pilots and results:**
  - eClinics, mobile teams, multidisciplinary care teams
  - good practices, videoconsultations and home-monitoring
  - improve ICT systems to access patient data
  - key findings: Despite difficulties, health personnel wanted to continue using video meetings
  - persons with reduced cognitive capacity also managed to communicate over video, if supported by relatives or care personnel

Gravity Health – digital medicine information

Prof. Anne Moen, UiO, project coordinator:

«Our mission is to empower patients with digital health information and tools that make them confident, active and responsive in their patient journey. Encouraging safe use of medicines for better health outcomes.»

- International project and a public-private partnership with 39 members from Europe and the US. Co-led by University of Oslo (coordinator) and Pfizer (industry lead)
- Funded with Euro 18.5 Million over 5 years
- www.gravitatehealth.eu

Artificial intelligence – improving healthcare?

- Our Health Analytics department has studied the potential to use AI and machine learning in clinical practice, especially text and images
- AI, machine learning (ML), natural language processing (NLP) and deep learning (DL) help us identify healthcare needs and solutions faster and with more accuracy. Some aims: Improve prediction, prevention, treatment
- Study on elderly patients with chronic diseases in North Norway: Received follow-up by multidisciplinary teams + developed an algorithm to analyse health data and evaluate treatment (exploring the clinical-social-economical-technological) *(Makhlysheva et al, 2020)*
- Review: What are challenges and opportunities in the analysis of unstructured data in electronic health records? For example, unstructured data like free-text discharge summaries have important information about the care or hospital stay, but cannot be easily extracted *(Tayefi et al, 2020)*

Mental health

"Therapists' experience of video consultation in specialized mental health services during the COVID-19 pandemic" *(Gullslett et al, 2021):*

- Study found that therapists experienced advantages in using video consultation with patients.
- Negative: lack of safety for the most vulnerable users, some topics deemed unsuitable, weak clinical assessment.
- We need: More qualitative research - user experiences, co-creation between stakeholders, scaling up use of video consultation.
- Free, low-threshold online service for mild anxiety or depression offered in some areas – no referral from a GP required.
- Another finding is that when young people talk to the e-therapist they may prefer texting over video *(Trondsen, 2020)*

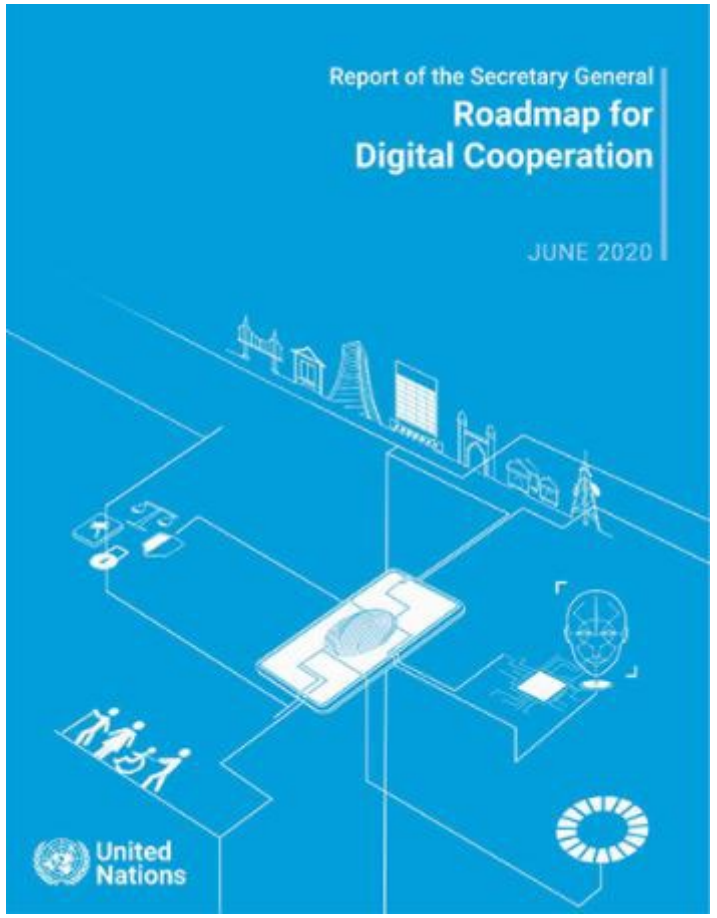
Innovation in primary healthcare

- Report: "Use of e-health tools in primary health care in Norway during the pandemic." A request by WHO/Europe. 15 country vignettes were created to share experiences with how primary health care was strengthened, at WHO's regional session in September.
- Some key takeaways:
  - Those who need and use health services most are least able to use digital tools
  - Need to enhance data collection and knowledge-sharing
  - Nursing homes will keep using tablets to reduce isolation
  - ICT interoperability an issue
- All projects: https://ehealthresearch.no/en/projects

The UN Secretary-General's Roadmap for Digital Cooperation (2020)

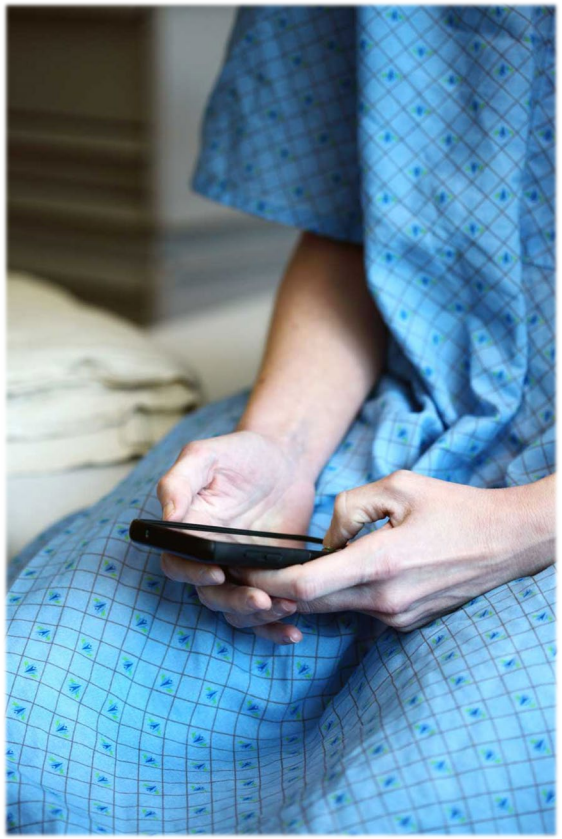
8 key areas for action:

1. Global connectivity by 2030
2. Digital public goods
3. Digital inclusion, including most vulnerable
4. Digital capacity-building
5. Digital human rights
6. Global cooperation on AI
7. Digital trust and security
8. Global digital cooperation



The WHO's vision for empowerment through digital health

- *Accelerate the adoption of safe, inclusive, people-centered digital health services;*
- *Foster the resilience of individuals and communities; and*
- *Enable the digital transformation to systems of preventive health and well-being*



Important questions to ask in our discussion

- “What health inequalities were experienced during the pandemic that might be attributed to a lack of ability to access or use digital health?”
- “How can we enable populations to increase their access to health services digitally, and in particular, those populations who are most vulnerable?
- “How do we define and measure the digital divide in Europe, in the context of health service access?”
- “How can WHO CC’s align around this topic?”