



DIGITAL SKILLS AND PERCEPTION

Policy Brief
Center for the Governance of Change
September 2021

EXECUTIVE SUMMARY

Considering emerging digital platforms and AI based solutions in healthcare (HC), a proactive approach to education and workforce training is needed to realise their potential for sustainable patient benefits. This entails to:

Build hybrid programs integrating technical and medical training, with talents attracted by opportunities to grow digital competence in medical domain, as basis for portfolio careers.

Create collective, cyclical learning dialogue connecting workforce training, organisation development, healthcare delivery and policy making in face of evolving innovation and practices.

Involve patients in co-design of new HC interventions with health care professionals (HCPs), transforming their passive acceptance towards more active sharing of responsibilities and risks.

DISCUSSION

A diverse group of European stakeholders from the medical profession, medical education, workforce training, organisational development, public policy and academia met on 25th November 2020 to discuss “Digital Skills and Perception” for AI in healthcare. Considering the interconnected topics of workforce preparation and training, as well as patient trust, the discussants addressed three key questions and proposed recommendations for concerted, multi-stakeholder efforts.

1. WORKFORCE PREPARATION

Some AI-based technologies can be opaque, but proper application and use in health care settings requires users to fully understand the characteristics and limitations of the implemented algorithms which in turn require a thorough understanding of the technological principles underlying AI technologies. Usually, the user perceives it as just ‘pressing a button’, but does not fully realise the complexity of the technology behind it. The decision could be made to sacrifice some degree of accuracy/predictive power for explainability; but in parallel, strategies of Workforce preparation must take into account the constant evolution of AI, the changing nature of tasks involved, as well as the attractiveness of the career path for data scientists and digital skills (Ahmad & O’Carrigan). In light of staff shortages, with HCP vacancies of 100,000 and counting in the UK alone, questions of attraction, training and retention of required interdisciplinary talent are further amplified.

This introduces one question:

HOW CAN WE INTEGRATE THIS TECHNICAL TRAINING IN THE MEDICAL DEGREE TO BE PREPARED FOR THE FUTURE?

Solution: Hybrid programs integrating technical and medical training, with talents attracted by opportunities to grow their digital competence in the medical domain, as basis for future portfolio careers.

Actions to take:

Target and attract talent beyond typical profiles as future drivers of change with prospect of Medicine to encompass innovative technology aspect.

Design interdisciplinary, simulation-based curricular growing translational skills.

— Combine the medical curriculum with technological aspects such as unpacking ‘black box’ AI technology, the use and handling of data as driver for technology, etc.

- Focus on study of as well as translational skills between medical and technical domain, and towards the patients.
- Leverage simulation-based education, ensuring patient-focused applications despite limited on-the-job training opportunities in hospital setting during studies.

Redefine the role of clinicians to incorporate traits of technological savviness and adaptability, and **recognise the professional development as a learning journey over time.**

2. WORKFORCE TRAINING & DEVELOPMENT

When considering the use of AI developments in HC, specific related tasks, skills, practices or forms of organising should be in focus. Contrary to attempts to blackbox discreet technologies, and organise and train social processes around them, success lies in embedding confidence and skills of using technologies into the workforce in a continuous process. Likewise, in contrast to the notion of people needing to adapt to technology via an improved design and user training. Training should never be the only solution for successful implementation of AI. These processes should serve as an opportunity to ensure technology meets the needs of clinicians and patients; examples include digital health records or remote consultation, initially considered more laborious as differing to known routines, while creating value for patients, when implemented well.

This introduces one question:

WHAT ARE THE MOST EFFECTIVE METHODOLOGIES TO ENSURE THE CURRENTLY PRACTICING HEALTHCARE WORKFORCE IS UP TO DATE AND COMFORTABLE USING RELEVANT AI DEVELOPMENTS?

Solution: Cyclical, collective learning dialogue connecting conversations on HCP training, wider organisation development, day-to-day delivery of healthcare and policy making in face of ever-evolving nature of technological innovation and practice.

Actions to take:

Orchestrate iterative cycle of testing, learning and improvement of technologies and tools with clinicians, technicians and patients over time.

- Leverage simulation environments for clinicians and technicians to test new technologies and to study use, response and impact for patient of their environment.
- Define desirable behaviours, as well as co-create and test practices around novel tools with practitioners and other concerned parties.
- Incorporate learnings into cycle of developing technology, striving for ways of ever safer and more effective patient application.

Create tailored, continued learning journey for HCPs.

- Engage and educate HCPs in different ways according to their attitudes, behaviours and learning needs towards new tech in light of generational divide and varying perceptions.
- Spread emerging, co-created best practices on technology use and new ways of collaboration through experiential, practical learning and on-the-job application.

Appreciate and embrace digital transformation as larger organisational behavioural change beyond HCPs' skill set and organisational boundaries.

- Facilitate bottom-up conversation, solutions and evolutions centred around concerned parties rather than top-down, state-managed system.
- Create early engagement opportunities and visibility for champions to instil excitement and momentum, with leadership.

3. PATIENT TRUST

The COVID-19 pandemic served as a catalyst for broadened experiences, improved engagement and more informed, nuanced views on the potential and limitations of digital HC solutions i.e. tele-medicine, video-consultation or infection-tracking. Yet, mixed perceptions and trust levels across patients and the public prevail, not having started from a neutral position. Trust is relational and contextual, given the fact that people's views are often informed by their knowledge of other areas or industries. Reasons for these mixed views include the complexity of technology itself, toxic connotation of algorithms, and ill-framed expectations, as well as concerns about exploitation and discrimination resulting from the use of AI. Also, standard tools of good governance such as transparency and accountability were ignored in their implementation and may not be 'automatically' adapted post-crisis.

The solutions and actions proposed beneath require multi-stakeholder efforts, currently emerging across different European national systems. These include Medical schools updating curricula to attract and prepare future talent; Medical society and company-hospital cooperation programs driving workforce training; Public Health bodies facilitating wider organisational transformation through various initiatives; as well as Policy makers and regulators working to accelerate and quality-control these processes.

This introduces one question:

HOW CAN PATIENTS BE INCLUDED IN THE LEARNING PROCESS—WHAT IS THE ROLE OF PATIENTS, HOW TO EARN THEIR TRUST?

Solution: Healthcare provision as co-production or co-design of new HC interventions, with HCPs and patients alike involved in the configuration and adoption of novel technologies—This empowerment of actors marks a shift from the passive role of patients' acceptance towards a more active sharing of responsibilities, particularly in terms of scrutinising and asking questions about the technology. Yet, clinicians will still play a vital role in enabling and building patients' readiness and trust to engage with new technological solutions.

Actions to take:

- Actively encourage patients to participate in the configuration of novel technologies (as described in section 2).
- For HCPs to serve patients as an immediate source for reliable information and confidence in the technologies supporting their adoption process. This needs to include how data is used to develop these technologies, as patients have stake in how their data is used.
- For Policy makers to appropriately define and manage expectations, and demand safe trial and evaluation (such as CONSORT and SPIRIT guidelines), as well as hard regulation and approval needs for implementation of novel HC technologies.
- For developers and stakeholders involved in the implementation to work towards how to make a system *worthy of*, rather than how to *gain* public trust.

ROUNDTABLE PARTICIPANTS

- Johanna Reiss, Project Manager, Business Performance Institute
- Marleen Groenier, Head of Lab for Professional Learning in High Tech Healthcare, University of Twente, Netherlands
- Javier Lezaun, Director, Institute for Science, Innovation and Society, University of Oxford
- Natalie Banner, Understanding Patient Data Lead, Wellcome Trust
- Hans Eguía, GP, Lægehuset Rudkøbing, Denmark; Collaborating Professor, UOC Digital Technologies Expert, SEMERGEN, Spain
- Saif Ahmad, Clinical Lecturer in Clinical Oncology, University of Cambridge; CEO, NeutroCheck
- Patrick Mitchell, Director of Innovation and Transformation, Health Education England
- Susana Frazão Pinheiro, Head, Healthcare and Life Sciences, School of Management, University College London

ROUNDTABLE CONVENORS

- Mireia Crispin, Project Director, IE Center for the Governance of Change
- Marcos Gallego, Research Lead, IE Center for the Governance of Change

POLICY BRIEF LEAD AUTHOR

- Johanna Reiss (described above)

REFERENCES

- IE University Centre for Governance of Change (2020). *Innovation, Sustainability, and the Future of Healthcare: How is AI reshaping healthcare in Europe*. Accessed online on 17 January 2021.
URL: <https://docs.ie.edu/cgc/research/CGC-INNOVATION-SUSTAINABILITY-AND-THE-FUTURE-OF-HEALTHCARE.pdf>