privilege can advance the rights of migrant communities. The current toll of the COVID-19 pandemic on racialised migrants represents an urgent call for action to prioritise dismantling structural racism within and beyond the health-care sector.

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1   Hooper MW, Nápoles AM, Pérez-Stable EJ. COVID-19 and racial/ethnic disparities. *JAMA* 2020; **323:** 2466–67.
2   Orcutt M, Patel P, Burns R, et al. Global call to action for inclusion of migrants and refugees in the COVID-19 response. *Lancet* 2020; **395:** 1482–83.
3   Guadagno L. Migrants and the COVID-19 pandemic: an initial analysis. *Migr Res Ser* 2020; **60:** 1–28.
4   Orrenius PM, Zavodny M. Immigrants in risky occupations. In: International handbook on the economics of migration. Cheltenham: Edward Elgar Publishing, 2013.
5   Abbas M, Aloudat T, Bartolomei J, et al. Migrant and refugee populations: a public health and policy perspective on a continuing global crisis. *Antimicrob Resist Infect Control* 2018; **7:** 113.
6   Hayman N, Reid PMJ, King M. Improving health outcomes for Indigenous peoples: what are the challenges? *Cochrane Database Syst Rev* 2015; **8:** ED000104.
7   Ahmed S, Shommu NS, Rumana N, Barron GRS, Wicklum S, Turin TC. Barriers to access of primary healthcare by immigrant populations in Canada: a literature review. *J Immigr Minor Health* 2016; **18:** 1522–40.
8   Guttmann A, Gandhi S, Wanigaratne S, et al. COVID-19 in immigrants, refugees and other newcomers in Ontario: characteristics of those tested and those confirmed positive, as of June 13, 2020. 2020. https://www.ices.on.ca/Publications/Atlases-and-Reports/2020/COVID-19-in-Immigrants-Refugees-and-Other-Newcomers-in-Ontario (accessed Sept 9, 2020).
9   Province of British Columbia. Medical services plan response to COVID-19. https://www2.gov.bc.ca/gov/content/health/health-drug-coverage/msp/bc-residents/msp-covid-19-response (accessed Jan 20, 2021).
10   UN. Resolution adopted by the General Assembly on 19 December 2018. Global Compact for Safe, Orderly and Regular Migration. New York, NY: United Nations General Assembly, 2019.
11   Lenard PT, Straehle C. Legislated inequality: temporary labour migration in Canada. Montreal: McGill-Queen's Press-MQUP, 2012.
12   Strauss K, McGrath S. Temporary migration, precarious employment and unfree labour relations: exploring the 'continuum of exploitation' in Canada's Temporary Foreign Worker Program. *Geoforum* 2017; **78:** 199–208.

Value from health data: European opportunity to catalyse progress in digital health

Innovations in digital health are expected to transform health care, health research, and public health in the years ahead. WHO's digital health strategy emphasises the potential for digital health to transform global health and improve the health of all people.[1] During the COVID-19 pandemic expectations for data and artificial intelligence (AI) have been high, with applications in epidemic modelling, diagnostics, triage and patient outcomes, vaccine and drug development, detection of misinformation, and identification of regions of greatest need.[2] In the laboratory, open sharing of viral genomes has led to rapid development of diagnostics; in the community, countries have introduced digital contact tracing systems and QR code scanning of travel histories, helping to facilitate effective public health surveillance.[3] Yet there are still challenges to overcome before the widespread benefits from data, AI, and digital health can be realised.[4,5] Three of these challenges are crucially important.

First, technical and governance standards must be harmonised. Despite increased use of electronic health records (EHRs), gaps remain in the ability of computer systems and software to exchange and use information, defined as interoperability. Data are collected in ways not universally recognised, with conceptually different values recorded under the same term. Although there has been steady progress towards the development of universal standards, adoption of these standards by health-care systems lags behind.[6] Similarly, inconsistent regulatory and governance approaches hinder progress, because legal requirements differ across data types, purpose of use, and jurisdictions. In 2018, the EU introduced the General Data Protection Regulation (GDPR), but the regulatory landscape for health data processing is not cohesive. Health data governance should ensure the ethical use of data and development of trustworthy digital

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health applications, yet it has received comparably little attention.

Second, there is insufficient clarity over what constitutes evidence of impact and demonstrable benefit for the many digital tools with a patient interface and which entities have authority to assess the evidence.[7] Experimental AI studies provide inadequate insight into the challenges and impact of heterogeneous real-world care settings. There is, therefore, a need for innovative health technology assessment methods to be adopted in a systematic way.

Third, in the complex ecosystem of digital health, stakeholders are driven by diverging incentives.[8] Patients, regulators, pharmaceutical and other commercial companies, health-care providers, researchers, policy makers, and investors have different targets, while often using the same health datasets—eg, EHR or research data. Commercial goals, competition, and attribution all contribute to a splintered digital health landscape, slowing progress in data use.

Political will and decisive action are needed to increase health data access and usability.[8] In November, 2020, at the virtual High-Level Conference Digital Health 2020—EU on the Move, organised by the German Government, the European Commission declared its commitment to the establishment of the European Health Data Space (EHDS), with the aim of facilitating access and use of European health data—eg, EHR, genomic, public health, registry data.[9] This initiative's overall goal is to generate value for European health-care systems, policy, health research, and innovation.

A decisive factor for moving digital health forward is governance. Along with a strong legal foundation in the GDPR, the EHDS will require effective governance and ethical oversight.[10] With this initiative, Europe has the opportunity to recall its fundamental values[11] and set an example of a data governance approach grounded in human rights that promotes dignity, fairness, transparency, inclusion, and accountability. Conditions for data access and use must be clearly articulated, as should conditions for distribution of benefits, with patients and citizens included in negotiations. Both upstream and downstream conditions must be guided by the demands of health equity. Accountability should not be mechanical checks in an opaque digital ecosystem, rather an opportunity for all stakeholders to embrace responsibility and exercise good judgment. The legal protections afforded to privacy are not intended to be antithetical to the common good of public health, despite how it is often portrayed. The legal basis of public interest for secondary uses of data is an ethically defensible option when robust oversight of data initiatives is in place and transparency is guaranteed. Good governance can strike the right balance between individual protections and promotion of the common good of health.[12]

For international data initiatives such as the EHDS to be trustworthy, they must be infused with our shared values. Failure to achieve this will perpetuate underuse and misuse of health data, and poor-performing digital heath tools, ultimately depriving us of much needed health benefits and causing harms. The COVID-19 pandemic has seen some actors present binary conceptions of our challenges: privacy versus health, health versus the economy, or we versus they. These binaries lock societies into narrow options. The same binaries could propel our choices in digital health down a similarly narrow path. The EHDS should avoid this path by clearly defining the best practices for fair benefit sharing, transparent and accountable governance of public and private sector data, true commitment to public dialogue, and global cooperation.

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1 Executive Board 146/26. Data and innovation: draft global strategy on digital health. Report by the Director-General, 23 December 2019. Geneva: World Health Organization, 2019. https://apps.who.int/gb/ebwha/pdf_files/EB146/B146_26-en.pdf (accessed Jan 28, 2021).

2 Nature Machine Intelligence. Finding a role for AI in the pandemic. *Nat Mach Intell* 2020; **2:** 291.

3 Wang C, Ng C, Brook R. Response to COVID-19 in Taiwan: big data analytics, new technology, and proactive testing. *JAMA* 2020; **323:** 1341–42.

4 Cosgriff C, Ebner D, Celi L. Data sharing in the era of COVID-19. *Lance Digit Health* 2020; **2:** e224.

5 Gardner L, Ratcliff J, Dong E, Katz A. A need for open public data standards and sharing in light of COVID-19. *Lancet Infect Dis* 2020; published online Aug 10. https://doi.org/10.1016/S1473-3099(20)30635-6.

6 Horgan D, Hackett J, Westphalen C, et al. Digitalisation and COVID-19: the perfect storm. *Biomed Hub* 2020; **5:** 43–65.

7 Ferretti A, Ronchi E, Vayena E. From principles to practice: benchmarking government guidance on health apps. *Lancet Digit Health* 2019; **1:** e55–57.

8 Blasimme A, Fadda M, Schneider M, Vayena E. Data sharing for precision medicine: policy lessons and future directions. *Health Aff* 2018; **37:** 702–09.

9 European Commission. Press release. Commission and Germany's Presidency of the Council of the EU underline importance of the European Health Data Space. Nov 11, 2020. https://ec.europa.eu/commission/presscorner/detail/en/IP_20_2049 (accessed Jan 28, 2021).

10 European Data Protection Supervisor. Preliminary Opinion Preliminary Opinion 8/2020 on the European Health Data Space. Nov 17, 2020. https://edps.europa.eu/sites/edp/files/publication/20-11-17_preliminary_opinion_european_health_data_space_en.pdf (accessed Jan 28, 2021).

11 European Union. Treaty establishing a Constitution for Europe. *Official J European Union* 2004; **47:** 1–474.

12 Blasimme A, Vayena E. What's next for COVID-19 apps? Governance and oversight. *Science* 2020; **370:** 760–62.