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# Health Policy and Technology

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## Editorial

# What is ahead for health policy and technology in the 2020s?



The start of a new decade provides an excellent opportunity to reflect on current needs and gaps in healthcare. It is also timely to consider national and international readiness to meet these challenges, including future watching for the new and unexpected for health and disease, both as regards problems and solutions. These considerations are vital to ensure effective and sustainable development and delivery of health policy and technology over the next decade and beyond.

There is no shortage of health issues to consider. These include the growing importance of non-communicable diseases throughout the world, the continuing burden of established communicable diseases, and accelerated risk of new viral and other epidemics – and pandemics – with the ease of formal international travel. The new Wuhan coronavirus [2019-nCoV] epidemic [1] illustrates this well, with spread already of this potentially serious respiratory illness from China as its source to 25 countries in Asia, Oceania, North America and Europe. Reports by the 8th February 2020 to the coordinating European Centre for Disease Prevention and Control of 803 laboratory-confirmed deaths from Wuhan 2019-nCoV infection within 41 days after the first report already exceeds the 774 deaths from SARS [Severe Acute Respiratory Syndrome] coronavirus between 2002 and 2004. Further health-related pressures in the coming decade will include the impact of ageing populations, capacity limits in respite care and residential homes, increasing economic migration from less developed to developed countries, and a growing impact of climate change and pollution on health and disease. Within multiple other health impacts of pollution, observational evidence from the time of the Beijing Olympics in 2008 and recent mechanistic studies point to serious concerns about the role of pollution in triggering cardiovascular events [2]. These findings strengthen the need to tackle pollution effectively.

It is of course important to consider health policy implications both for developed countries and the less developed world. The United Nations Sustainable Development Goals [3] aim for fair and sustainable health at every level globally: from protecting the planet to achieving long-term health, peace and prosperity in local communities. These goals have important public health implications and require coordinated national and international action on economic, environmental and social development.

Malnutrition, including obesity, undernutrition, and other dietary risks, is a leading cause of poor health around the world [4]. Diabetes mellitus is already a worldwide epidemic, adding to the global prevalence of serious cardiovascular diseases, chronic renal disease, degenerative joint disease and other serious complications. Climate change is increasingly likely to impact on health through a

combination of the effects of changing rainfall patterns, from more frequent flooding to new droughts, and other destructive weather events – from high winds to more extreme temperatures.

European cooperation will continue to provide great opportunities for improving the quality of healthcare not only for Europe's ~746 million citizens but also as translatable health benefits for citizens around the world [5]. Examples include the benefits of mobility for training health professionals, generous funding of R & D on healthcare through initiatives of the European Parliament and Commission, integrated regulation and surveillance of medicines and vaccines overseen by the European Medicines Agency, in partnership with responsible national authorities, and Universal Health Coverage across the region through the European Health Insurance Card (EHIC) system [5].

What about obvious concerns for healthcare delivery – at least for the early years of the next decade? There are shortages even in developed, wealthier countries of the clinical staff needed both for acute medical care and for chronic disease management, including the needs of ageing populations – not least caring for dementia from vascular disease and Alzheimer's. Sourcing health professionals from less developed countries is a current pragmatic solution for developed countries but unsustainable – and unfair for less developed countries.

The UK parliament formalized Brexit – divorce from the EU – at the end of January 2020. The type of manpower mobility arrangements for health workers due to be negotiated by the end of 2020 between the UK and EU will have a specific and important bearing on the already hard-pressed medical services in the UK [6]. There remains additional uncertainty following Brexit about arrangements for continuity of supplies of medicines, regulation of medicinal products and transnational access to new medicines across the region [7]. Trade and tariff barriers arising from evolving isolationist policies of the USA are also likely to restrict progress on implementation and the health impact of achieving the UN's Sustainable Development Goals, not least through increased international costs of diagnostics, devices and medicines.

A key measurable goal for the success of health policy is assessing Universal Health Coverage, including access to effective and safe medicines and other health targets within the UN's Sustainable Development Goals. Ensuring that all countries have sustainable and widely accessible health resources is vital to achieving Universal Health Coverage: ie provision of health services for all when needed without suffering undue financial hardship [8].

Antimicrobial resistance (AMR) will continue to be an emerging global threat. The WHO and other agencies have developed

ambitious initiatives to combat AMR. However, a serious barrier to surveillance of AMR is that the worst affected regions of the world, including sub-Saharan Africa, have generated the least data on prevalence and trends of AMR, a key step in addressing the problem [8]. Effective resolution of AMR will need multi-stakeholder international cooperation, including the biotechnology industry and regulatory authorities, and effective international implementation by health authorities and health professionals of guidelines on the judicious use of any powerful new classes of treatment which emerge [9,10].

Developments in diagnostics are likely to include more advanced imaging, increasing availability of point of care testing (biochemical and genomic), and the further extension of genomics into clinical practice, potentially before and around the time of birth. There will be increasing opportunities for using real-world evidence to assist in regulation of medicines, in particular for rare and orphan diseases [11]. Expected further and new therapeutic approaches – many with ethical challenges – include biosimilars, more precision medicines with companion diagnostics [12], regenerative medicine, gene editing, more advanced microsurgery and robotics, therapeutic radiology and new devices for managing diabetes mellitus, pain control, heart disease and many other conditions.

Also in prospect is much more from digital health, including both empowering patients and further transfer of responsibility for health monitoring from health professionals to patients. However, another side to digital health is the power of social media to inform – and misinform – patients, health professionals and other stakeholders about health-related matters. This is one of several reasons for low adherence to long-term treatment, for example for control of high blood pressure [13]. Another possible impact of widespread access to and use of social media has been vaccine hesitancy: delay or refusal to accept immunization [14]. For example, population protection from the potentially serious infectious disease measles has decreased alarmingly both in the general public – and in some regions even among health professionals. To counter this, the European Centre for Disease Prevention and Control has been funded to work jointly with the European Medicines Agency to provide Europe-wide information to vaccine-hesitant populations and respond to their concerns, and to provide toolkits for healthcare workers and public health experts to support their efforts to improve the uptake of immunization programmes [15].

While digital technology extends beyond the realms of digital health, countless innovations in digital technology have the potential to improve but also reduce our health and quality of life. Examples include artificial intelligence, the Internet of Things (e.g. the “smart home”) and 5G. What can we expect of these innovations in the coming years and how can we maximize the benefits of their use but simultaneously minimize the hazards? And whose values should we use when we appraise the benefits and hazards of technologies like this?

The Journal will be publishing further reflections on the above and other pressing issues in prospect for the next decade. We shall publish invited articles by experts in health policy and technology from around the world. The Journal will also welcome papers from authors with a wide range of perspectives on the future of health policy and technology in the next decade and beyond.

## Declaration of Competing Interest

The authors have no conflicts of interest to declare.

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## References

- [1] Huang C, Wang Y, Li X, et al. Clinical features of patients infected with 2019 novel coronavirus in Wuhan. *China Lancet* 2020 Jan 24 S0140-6736(20)30183-5. doi:10.1016/S0140-6736(20)30183-5.
- [2] Xu H, Wang T, Liu S, Brook RD, et al. Extreme levels of air pollution associated with changes in biomarkers of atherosclerotic plaque vulnerability and thrombogenicity in healthy adults. *Circ Res* Mar 2019;124(5):e30-e43.
- [3] Morton S, Pencheon D, Bickler G. The sustainable development goals provide an important framework for addressing dangerous climate change and achieving wider public health benefits. *Public Health* Sep 2019;174:65–8.
- [4] Swinburn BA, Kraak VI, Allender S, et al. The global syndemic of obesity, undernutrition, and climate change: the Lancet Commission report 23 Feb 2019;393(10173):791–846. doi:10.1016/S0140-6736(18)32822-8.
- [5] Singer DRJ, Bakker L, Redekop K. European cooperation on healthcare. *Health Policy Technol* 2019;8(1):1–2.
- [6] *The Lancet Oncology*. UK national health service—beyond repair? *Lancet Oncol* Mar 2018;19(3):267.
- [7] Singer DRJ, Giuliani R. Uncertainty continues about access to medicines after Brexit. *Health Policy Technol* 2018;7(4):323–4.
- [8] Wagstaff A, Neelsen S. A comprehensive assessment of universal health coverage in 111 countries: a retrospective observational study. *Lancet Glob Health* Jan 2020;8(1):e39–49. doi:10.1016/S2214-109X(19)30463-2.
- [9] Carroll M, Rangaiahagari A, Musabeyezu E, Singer D, Ogbuagu O. Five-year antimicrobial susceptibility trends among bacterial isolates from a tertiary health-care facility in Kigali, Rwanda. *Am J Trop Med Hyg* Dec 2016;95(6):1277–83.
- [10] UN interagency coordination group on antimicrobial resistance. No time to wait: securing the future from drug-resistant infections. Report to the Secretary-General of the United Nations. World Health Organization, Geneva; April 2019.
- [11] Beaulieu-Jones BK, Finlayson SG, Yuan W, et al. Examining the use of real-world evidence in the regulatory process. *Clin Pharmacol Ther* Sep 2019. doi:10.1002/cpt.1658.
- [12] Brown NA, Elenitoba-Johnson KSJ. Enabling precision oncology through precision diagnostics. *Annu Rev Pathol* Jan 2020;15:97–121.
- [13] Marshall IJ, Wolfe CD, McKevitt C. Lay perspectives on hypertension and drug adherence: systematic review of qualitative research. *BMJ* Jul 2012;345:e3953. doi:10.1136/bmj.e3953.
- [14] McClure CC, Cataldi JR, O’Leary ST. Vaccine hesitancy: where we are and where we are going. *Clin Ther* Aug 2017;39(8):1550–62.
- [15] Vaccine hesitancy. European Centre for Disease Prevention and Control. <https://www.ecdc.europa.eu/en/immunisation-vaccines/vaccine-hesitancy> Accessed 29th January 2020.