

## Editorial

# Health promotion 4.0

Throughout the world there is the recognition that we are at a turning point of development—The World Economic Forum has used the terms Globalization 4.0 and Industrial Revolution 4.0 as code words for the radical changes underway (World Economic Forum Annual Meeting 2019, Overview, 2019). In health and medicine we are also on to Health 4.0—which basically means the digital transformation of health and medical care, both in its practice and its governance. Some are highly optimistic about future possibilities for prediction, prevention and treatment (Topol, 2013) and a new race has begun for ‘disease interception’ based on identifying medical markers with the goal to catch a disease earlier before any symptoms develop. Presented as a benign goal, it medicalizes our very existence and offers unlimited opportunities for intervention which the proponents do not want to see hampered by legislation. ‘We all need to ensure that there are as few disincentives as possible to developing, approving and delivering disease interception drugs to society’ (McLeverly, 2017). Others are deeply concerned that a new type of surveillance capitalism will be established, which builds on a new logic of behavioural surplus (Zuboff, 2017). The digital transformation implies the integration of digital technology into all areas of life—including health. Some authors take the definition of digital health yet one step further by linking it with the genomic revolution. Sonnier (Sonnier, 2017) for example defines digital health as ‘*the convergence of the Digital and Genomic Revolutions with health, healthcare, living and society*’.

This search for clarity and terminology underlines that ‘digital’ is not something separate but is increasingly integrated into all spheres of life. The Ottawa Charter’s (WHO, 1986) settings approach stated that health is created in the context of everyday life, where people live, love, work and play—today we must add the verbs to google, twitter and chat to this list of everyday behaviours. And this changes the very nature of health promotion. The Charter underlined that supportive environments are critical to create and ensure health, therefore today we must conceptualize social media not

just as tools but consider the virtual space as an environment that can support or be detrimental to health (De Leeuw, 2018). This direction is confirmed by the vision of one of the largest digital platforms in the world, Alibaba: ‘*We aim to build the future infrastructure of commerce. We envision that our customers will meet, work and live at Alibaba*’ (Alibaba Group, 2019).

The list of the health areas affected by digital transformation is long and many analysts agree that technology and artificial intelligence systems (AIs) will radically change medicine and reorient health care systems away from hospitals and institutions to the home. Some even define this as a new era of human progress (Sonnier, 2017). AI can be defined as

‘a system’s ability to correctly interpret external data, to learn from such data, and to use those learnings to achieve specific goals and tasks through flexible adaptation’ (Kaplan and Haenlein, 2019).

A range of jobs in the health sector will disappear, entire professions will be redefined, and new ones will emerge. Social robotics will become part of nursing and care as it is increasingly used to allow interaction with humans *on an emotional level*, for example to comfort and entertain lonely older persons or persons with dementia (Campa, 2016). For health promotion, many of these developments mean that the very logic of health promotion as a social endeavour is challenged. Data analytics will aim to tailor health promotion, prevention and care services to individuals with help of smart devices irrespective of their social context and without regard to inequalities. The search for the Master Algorithm is on (Domingos, 2018).

But most importantly our mindsets, our behaviours and our social norms will change. The new tools and environments can individualize health or they can bring people together, they can support critical health literacy or promote dangerous false health information like the anti-vax movements. The speed of this development is extraordinary and since we are part of the change it is hard to step

back and see exactly where we are going. We have only just begun to scratch at the ethical implications. It is often difficult to assess who the main drivers of this ‘creative destruction’ (Topol, 2013) are—there are so many actors, most of them from non-health industries and many of them transnational. We tend to look only at Amazon, Google and Facebook and their expansion into the world of health. But it is critical to realise that the world’s largest social media market is in China and major Chinese companies are rapidly expanding into Africa and Central Asia.

For example, in October 2018, the founder of Alibaba (a Chinese multinational conglomerate in e-commerce, retail, internet and technology and one of the 10 biggest companies in the world), Jack Ma, signed three agreements with the Rwandan government to create an online platform for exporters to China, as well as facilitate tourism and e-commerce. Similar cooperation is underway along the new Belt and Road Initiative, an infrastructure development project initiated by the Chinese government, following the historical trade routes of the Silk Road by both land and sea (Kickbusch and Nikogosian, 2018). The dominant platforms will not only make money, but they will shape the way development, human *well-being* and health are conceptualized, algorithms are written, and how health data are used. So, the question that arises is not only how citizens (and patients) can be part of shaping Health 4.0 (beyond being users and consumers) but how geopolitical developments will determine the politics of the digital transformation within countries (Lupton, 2014).

Of course none of this was foreseen when developing the Ottawa Charter in 1986. So when I began to reflect on what Health 4.0 means for health promotion and its future I was helped by two important guides—maybe it is symbolic that they too (like the Ottawa Charter) are strongly linked to Canada. The first is the *Montreal Declaration for a Responsible Development of Artificial Intelligence* (2018). Its goal is

‘to establish a certain number of principles that would form the basis of the adoptions of new rules and laws to ensure that AI is developed in a socially responsible manner’ (Bengio, 2018).

Just like the Ottawa Charter is based on the premise that health is a political choice, the Montreal Declaration is based on the premise that ‘*matters related to ethics or abuse of technology ultimately become political and therefore belong in the sphere of collective decisions*’ (Bengio, 2018). Similar to the Ottawa Charter, the Montreal Declaration was written in the course of a 2-year collective process by an interdisciplinary group (including academics from public health) and adopted in December 2018 at a meeting of about 500 people. But unlike the Ottawa

Charter, it was self-organized, not initiated by an international organization.

I urge all health promotion actors—especially those working on the digital transformation—to study the ten principles put forward in the Montreal Declaration precisely because they resonate so deeply with health promotion mind sets. Let me just highlight a few:

The very first principle is the ‘*well-being principle*’ which postulates that AIS must first and foremost permit the growth of the well-being of ‘all sentient beings’. This includes strong health promotion messages such as that AIS must help individuals improve their living conditions, their health, and their working conditions. The ‘*Respect for Autonomy principle*’ makes strong reference to the empowerment of citizens and the fostering of literacy and critical thinking. The ‘*solidarity principle*’ states that ‘the development of AIS must be compatible with maintaining the bonds of solidarity among people and generations’ and includes special reference to health systems. Other principles include equity, democratic participation, diversity and sustainable development—all close to the values and action areas of the Ottawa Charter. Two further important principles can give guidance to health promoters as they enter the digital world: the prudence and the responsibility principle. For example:

‘When the misuse of an AIS endangers public health or safety and has a high probability of occurrence, it is prudent to restrict open access and public dissemination to its algorithm.’

This is where my second guide comes in—it comes from the Centre for International Governance Innovation (CIGI) which is based in Waterloo, Ontario. A very recent working paper analyses the geopolitics of digital governance (O’Hara and Hall, 2018). The authors describe four emerging views of how best to govern the internet, each playing a geopolitical role and championed at the national level:

- the Silicon Valley *open internet*;
- the European Commission model of a well regulated ‘*bourgeois*’ internet;
- the *authoritarian internet* where surveillance and identification technologies help ensure social cohesion and security; and finally
- the *commercial internet* which defines online resources as private property, that its owners can monetize.

There is strong competition between these models in geopolitics as well as in market competition. It is difficult at this stage to judge the extent to which they will develop in parallel or intersect or which will prevail, especially in view of the fact that both national governments and global organisations are not yet prepared for this transformation of politics and commerce which will

require new global agreements, norms and standards in order to 'ensure that it remains beneficial for humankind' (O'Hara and Hall, 2018). Indeed it is difficult to be prepared as many of the new developments cannot be resolved with 20th century policy tools. The United Nations have only recently established its High-Level Panel on Digital Cooperation to draw up proposals for improving global governance in relation to digitalisation. The World Health Organization (WHO) will present its digital strategy in May 2020 for adoption by member states. A first WHO Symposium on the Future of Digital Health Systems in the European Region was hosted by the European Office of the WHO as a step along the way.

In this context, the Health in All Policies approach gains a new dimension as health and access to health data and inclusion of users and patients will be a critical factor in the two most powerful models of internet governance: the market and the authoritarian model. The politics of health are no longer just played out in national parliaments or governing bodies of international organisations but in codes and platforms, and affect competition, trade and anti-trust laws for example. The literature that helps us navigate is growing: Shoshana Zuboff (2017) warns of surveillance capitalism, Olivia Banner (2017) explores how patient voices in the digital health industry create a new form of communicative biocapitalism, and Barbara Prainsack (2017) raises deep questions about the ethics and politics of personalized medicine. Their work reinforces that we need to explore new governance models to ensure the principles that the Montreal Declaration and the Ottawa Charter stand for. Indeed some argue that as the relationship between humans and machines in the 21st century will change so fundamentally, we will need to go back to *first principles* (Irwin, 1988) and question the very core of our knowledge and understanding.

Given this high level of complementarity between the documents I have introduced, I want to propose an initiative to bring health promotion leaders together with authors and supporters of the Montreal Declaration to further develop our common thinking on the digital transformation and AIS and what this means for health, well-being and health promotion. Maybe this can be done as part of the preparation process for the next global conference on health promotion organized by the WHO or the next IUHPE conference in 2022 (possibly in Montreal?). This is all the more important in view of the larger political environment in which the digital transformation is occurring, making it critical that approaches committed to values such as democracy, empowerment, common goods and public responsibility prevail.

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## REFERENCES

- Alibaba Group. (2019) *Company Overview*. <https://www.alibabagroup.com/en/about/overview> (8 February 2019, date last accessed).
- Banner, O. (2017) *Communicative Biocapitalism: The Voice of the Patient in Digital Health and the Health Humanities*. University of Michigan Press, Ann Arbor.
- Bengio, Y. (2018) The Montreal Declaration: Why we must develop AI responsibly. *The Conversation*, 5 December 2018. <https://theconversation.com/the-montreal-declaration-why-we-must-develop-ai-responsibly-108154> (8 February 2019, date last accessed).
- Campa, R. (2016) The Rise of Social Robots: a review of the recent literature. *Journal of Evolution and Technology*, 26, 106–113.
- De Leeuw, E. (2018) The short-sighted sycophant's selfie. *Health Promotion International*, 33, 1–3.
- Domingos, P. (2018) *The Master Algorithm: How the Quest for the Ultimate Learning Machine Will Remake the World*. Basic Books, New York.
- Irwin, T. (1988) *Aristotle's First Principles*. OUP, Oxford.
- Kaplan, A. and Haenlein, M. (2019) Siri, Siri, in my hand: who's the fairest in the land? On the interpretations, illustrations, and implications of artificial intelligence. *Business Horizons*, 62, 15–25.
- Kickbusch, I. and Nikogosian H. (2018) Interface of health and trade: a view point from health diplomacy. *BMJ Global Health* 3, e000491.
- Lupton, D. (2014) *Digital Sociology*. Routledge, London.
- McCleverty, P. (2017) Disease Interception: What it means and why it is important Guest blog. EFPIA, 21 September 2017. <https://www.efpia.eu/news-events/the-efpia-view/blog-articles/21092-017-disease-interception-what-does-it-mean-and-why-is-it-important-guest-blog/> (13 February 2019, date last accessed).
- Montreal Declaration for a Responsible Development of Artificial Intelligence. (2018) <https://www.montrealdeclaration-responsibleai.com/the-declaration> (8 February 2019, date last accessed).
- O'Hara, K. and Hall, W. (2018) Four Internets: The Geopolitics of Digital Governance. CIGI Paper No.206.
- Prainsack, B. (2017) *Personalized Medicine: Empowered Patients in the 21st Century*. New York University Press, New York City.
- Sonnier, P. (2017) *The Fourth Wave: Digital Health*. Independently Published.
- Topol E. J. (2013) *The Creative Destruction of Medicine: How the Digital Revolution Will Create Better Health Care*. Basic Books, New York.
- World Economic Forum Annual Meeting 2019, Overview. (2019). [http://www3.weforum.org/docs/WEF\\_AM19\\_Meeting\\_Overview.pdf](http://www3.weforum.org/docs/WEF_AM19_Meeting_Overview.pdf) (8 February 2019, date last accessed).
- World Health Organization. (1986) The Ottawa Charter for Health Promotion (First International Conference on Health Promotion Ottawa, 21 November 1986). <http://www.who.int/healthpromotion/conferences/previous/ottawa/en/index.html> (8 February 2019, date last accessed).
- Zuboff, S. (2017) The age of surveillance capitalism: the fight for a human future at the new frontier of power. Public Affairs, New York.