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► **To cite this version:**

Morgan Mouton, Ariel Ducey, Judith Green, Lorian Hardcastle, Steven Hoffman, et al.. Towards ‘smart cities’ as ‘healthy cities’: health equity in a digital age. *Canadian Journal of Public Health*, 2019, 110 (3), pp.331 - 334. 10.17269/s41997-019-00177-5 . hal-03309988

HAL Id: hal-03309988

<https://hal.science/hal-03309988v1>

Submitted on 30 Jul 2021

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Towards ‘smart cities’ as ‘healthy cities’: health equity in a digital age

Morgan Mouton¹ · Ariel Ducey¹ · Judith Green² · Lorian Hardcastle¹ · Steven Hoffman³ · Myles Leslie¹ · Melanie Rock¹ 

Received: 13 July 2018 / Accepted: 10 January 2019 / Published online: 30 January 2019
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Abstract

The advent of ‘smart’ technologies has already transformed urban life, with important consequences for physical, mental, and social well-being. Population health and equity have, however, been conspicuously absent from much of the ‘smart cities’ research and policy agenda. With this in mind, we argue for a re-conceptualization of ‘digital divides’ in terms of socio-economic gradients at the individual level, and we draw attention to digitally mediated connections as crucial elements for health promotion at an institutional level and for remedying inequities. We do so in part by reporting on a recent symposium. Overall, we begin to integrate the ‘healthy cities’ tradition with the current interest in ‘smart cities’.

Résumé

Le déploiement des technologies numériques a d’ores et déjà transformé la vie urbaine, et entraîné des conséquences importantes sur le bien-être physique, mental et social. La santé des populations et l’équité sont cependant restées largement absentes des discussions politiques et académiques sur les « villes intelligentes ». Afin de contribuer à instruire ce débat, nous proposons de re-conceptualiser la notion de « fracture numérique » en l’associant, à l’échelle de l’individu, à l’idée de gradients socio-économiques. De plus, nous transposons cette notion à l’échelle des organisations engagées dans la promotion de la santé et dans la lutte contre les inégalités, et pour qui l’accès aux technologies numériques et aux données est un enjeu de plus en plus décisif. Ce travail s’appuie sur les réflexions engagées lors d’un colloque organisé récemment, qui a permis d’esquisser un rapprochement entre le champ bien établi des « villes en santé » et l’intérêt actuel pour les « villes intelligentes ».

Keywords Health promotion · City planning · Urban health · Digital divide · Social sciences

Mots-clés Promotion de la santé · Planification urbaine · Santé urbaine · Fracture numérique · Sciences sociales

Public health in the urban century: putting ‘digital divides’ on the agenda

This special issue was prompted by significant challenges to the authority and capacity of public health professionals in Canada. Despite the established consensus around the social determinants of health, forceful arguments have been made that the governmental apparatus for public health ought to

focus only on interventions directly related to healthcare and medicine (Potvin 2014). Countering these demands that public health stick to a narrowly defined lane, we contend that as the rhetoric and technology surrounding ‘smart cities’ continue to grow, a re-invigorated interest in the social dimensions of Information and Communication Technologies (ICTs) is central to ensuring health equity at the population level. Public health scholarship is, we argue, central to tackling the challenges and embracing the opportunities brought by the digital turn in Canadian society. We suggest this re-invigoration can be achieved through a re-conceptualization of what have been called ‘digital divides’. Theoretically, we posit that a relevant framework can be found in the scholarship developed for the study of ‘smart cities’ and influenced by science and technology studies. Practically, we report on a symposium that we organized in June 2018 (Green and Hoffman 2018).

✉ Melanie Rock
mrock@ucalgary.ca

¹ University of Calgary, Calgary, AB T2N 1N4, Canada

² King’s College London, London WC2R 2LS, UK

³ York University, Toronto, ON M3J 1P3, Canada

The uneven digitization of health and healthcare: drafting an agenda for public health

ICTs have profoundly changed health and healthcare, to the extent that practitioners and researchers have turned their attention to ‘big data’ resulting from the now systematic collection of medical data, through such standards as the World Health Organization (WHO)’s ICD-11 (Ghali et al. 2013). The digitalization of our societies, however, extends well beyond medical files and hospital computers. ICTs have already transformed how people interact with their environments and raised significant legal and data sovereignty issues, especially in urban areas (Picon 2015; Balsillie 2018). With this in mind, we organized a half-day symposium focused on ‘healthy cities’ in the digital age. The symposium featured two keynotes—Judith Green (JG) and Steven Hoffman (SH), who are also co-authors—and break-out sessions: (1) ‘big data’ and epidemiology; (2) the digitization of health records; (3) ageing and digital technologies; (4) social media and professional practices; and (5) digital technologies in the context of economic, social, and cultural diversity. The 110 participants included academics, healthcare, and social service providers, as well as policymakers. Our aim was to help in setting an agenda for integrating population health and equity into the discussions surrounding ‘smart cities’.

As JG highlighted in the first keynote, public health is not oblivious to ICTs, but has tended to focus its attention on the ‘quantification of the self’. Studying the diffusion of ‘wearable devices’, social scientists have developed a strong—and necessary—critique of this aspect of ‘digitization’. Such devices emphasize individual bodies and responsibilities for health (Lupton 2013), exonerating governments and marginalizing those without the means to participate in biomedicalized versions of health practices (Carter et al. 2018). These questions should be extended to other aspects of life and health in the ‘smart city’, including the infusion of ICTs into homes, motorized transport, and workplaces. As highlighted by SH during the second keynote of our symposium, ICTs generate data that in the aggregate could be useful in the quest for population health and equity. That said, aggregated data could belie diversity and frank inequity within populations, so care must be taken to address these issues as ‘smart cities’ evolve from ideas to infrastructure. Indeed, ICTs and data derived from them already factor into the emergence of new services and in forms of access. For example, the digitization of transportation schedules (e.g., bus departure times) may incentivize use of public transit but also marginalize those who do not have a smartphone—or are unable to use it to its full potential.

An important theme throughout our symposium was the reconceptualization of the notion of ‘digital divides’. This expression dates back nearly two decades, and is usually

understood as the gap between those who have access to ICTs and those who do not (Norris 2001). We insist that this concept should be reframed, and transformed into a tool better tailored to study the health implications of urban contexts where ICTs have reached near-ubiquity.

First, access to ICTs is *not* dichotomous. Rather, there exists a social gradient, in which physical access to digital devices is only one aspect. The competence of users and the diverse ways in which they interact with the digital also influence the use and consequences of online services. Second, whereas the existing literature has tended to emphasize differences between individuals and social groups, more attention on organizations with policy, community, and service mandates is required. In other words, we seek to extend the definition of ‘digital divides’, to encompass not only individuals but also organizations. Public and community-based organizations face issues that include the capacity to acquire, maintain, and upgrade ICTs, such as computer hardware, software, and electronic storage, not to mention training. As we proceed with this change of scale in order to encompass organizations, urgent questions arise about who owns, manages, and has access to ‘Big Data’ increasingly generated by commercial and statutory sector actors.

Raising—and updating—the question of ‘digital divides’ is, therefore, a way to ‘follow the streams of data’ and look, in a comprehensive way, at the public health effects of Canadian society’s digitization. At the same time, it is a way to reemphasize a classic question for public health: that of the social determinants of health. Asking who has access to which type of data is indeed a way to ask whether ICTs impact on populations evenly, or if they fuel inequity.

Enriching theoretical debates: establishing a dialogue between ‘smart’ and ‘healthy’ cities

As we reflect on the discussions that took place at our symposium, public health seems to be especially well equipped to tackle the question of the ‘digitization’ of cities and health equity. As an applied field, public health researchers and practitioners have been exploring the role of urban environments in enabling citizens to influence their living conditions since its inception (Hancock 1993). More than three decades after its creation, *The Ottawa Charter* remains a touchstone, worldwide, for progressive policies aimed at reducing inequities and enhancing the quality of life (de Leeuw 2017). As indicated by the reference to ‘Ottawa’ in the title, Canadians have played leadership roles in distinguishing the individualist orientation of ‘health education’ from an emphasis on community capacity and policy change in ‘health promotion’ (Hancock 1993).

We argue here that this approach to public health should be applied to an object that has gained prominent attention from scholars and practitioners alike in recent years: ‘smart cities’. This agenda is not without challenges. ‘Smart city’ initiatives differ in nature from ‘healthy cities’, which can be related to a specific policy framework developed under the umbrella of the WHO, tied to specific actors and associated with verifiable outcomes (de Leeuw et al. 2015). In contrast, researchers in the smart city space are confronted with a variety of definitions, reflecting the heterogeneous interests of a variety of actors, from IT companies (Söderström et al. 2014) to local governments and community organizations.

Nevertheless, we can use existing literature on ‘smart cities’ in order to foreground two principles that can help steer public health’s entry in this territory. First, we draw from science and technology studies in thinking of communication networks as *socio-technical* systems (Hughes 1983). In other words, we avoid technological determinism—a common mistake when one considers this kind of object—by considering not only how technology shapes society, but also how technologies are themselves socially constructed. Specifically, technologies emerge out of the interests and claims of certain social groups (e.g., manufacturers), they obey certain constraints (e.g., economic conditions or regulatory frameworks), and they can be appropriated by end-users in a manner that deviates from their original design. It is, therefore, fruitful to take both the social and technical elements of digital infrastructures ‘seriously’, analyzing them in a systematic way.

Second, building on this foundational principle is a way to avoid the ‘technophilia’ that characterizes some of the digitization literature. Authors working on the smart city have indeed warned against the perils of aligning the ‘smart city’ with corporate agendas rather than with democratic objectives (Marvin et al. 2015; Hollands 2008). We join them in this, not out of technophobia, but as part of acknowledging the social and political dimensions of the digital systems that, increasingly, shape health and illness throughout urban environments. Extending Ash Amin’s definition of cities as ‘provisioning machines’ (Amin and Thrift 2017), we underline a need to scrutinize how the distribution of resources affects well-being.

Conclusion

At a time when scholars and professionals warn against the disparagement of public health, we suggest that this field of research is more relevant than ever. We should be at the forefront in providing insight on the processes of urban change tied to ICTs. Public health actors in academic and policy sectors could do worse than to infuse the ideals and mechanisms associated with ‘healthy cities’ into the research and planning of ‘smart cities’. To do so, a dialogue should be established

with a number of actors beyond academic circles, starting with local governments that are increasingly putting ‘smart’ urbanism on their agenda. Discussions during the symposium stressed that we should not restrict this debate to policymakers: in line with a rich tradition within population and public health as well as urban planning, we should involve communities themselves. Only when citizens and community-based organizations reflect on the role ICTs play in health equity will we have a chance to politicize the role of technology and create the conditions for ‘smart’ initiatives to create just cities.

Acknowledgements Ducey, Hardcastle, Leslie, and Rock are members of the O’Brien Institute, while Green belongs to the O’Brien Institute’s International Scientific Advisory Board, and Mouton is a postdoctoral affiliate in the O’Brien Institute. In addition, Mouton holds postdoctoral awards from the O’Brien Institute and the Cumming School. Both Rock and Mouton participate in a series of ‘smart cities’ catalyst initiatives that have received funding from the University of Calgary’s Institute of the Humanities, Libraries and Cultural Resources, and Office of the Vice-President for Research; these initiatives provided inspiration. Also to be acknowledged is the Social Science Research Council of Canada, which funded Mouton through Rock’s Insight Development Grant. Most concretely, this commentary has emerged from the planning process for a symposium to be hosted by the O’Brien Institute on 22 June 2018, which featured Green and Hoffman as keynote speakers. That week, Green was in residence at the University of Calgary as the 2018 Watanabe Lecturer. We also wish to acknowledge CJPH and the reviewers who provided helpful suggestions on an earlier version of this manuscript.

Funding This article was made possible by the University of Calgary, including the Institute for the Humanities; Libraries and Cultural Resources; the Office of the Vice-President for Research; the O’Brien Institute for Public Health; and the Cumming School of Medicine.

Compliance with ethical standards

Conflict of interest The authors declare that they have no conflict of interest.

Publisher’s note Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.

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