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# Advancing personal health and health care by e-Health technology and health coaching

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### Vision

Pick up your mobile phone - now you have the potential to connect with over 6 billion people in the world! Imagine when you are ill or injured connecting seamlessly with your doctor(s) and health-care team as they provide you with prompt individualized and effective care through digital technologies, such as apps, medical devices, and social media. Big data analytics, working in the background, monitor your health status and assist in your personalized preventive and health-care planning. And you have a virtual health coach who works with you on positive behaviors for keeping you healthy while assisting with your prevention and health-care needs.

### The Challenge

Health-care systems are in trouble in (my country) Canada and around the world. Many people do not have ready access to appropriate preventive and health-care services. This is in spite of numerous commissions and task force reports, various efforts at system restructuring and integration, and rapidly rising investments (expenditures) on health care.

Although focusing on health services and patient outcomes is important, the pathways to health go way beyond the health-care system. Other important avenues include social conditions (poverty), behavioral patterns (lifestyle), human biology (genetics), and environmental exposures. Prevention and health promotion are effective ways to reduce the demand for health services.<sup>[1]</sup> Healthier people need medical treatment less often and respond more effectively when treatment is required. This could give our health-care systems breathing space for improving access, quality, and utilization. And, this is where health technologies, variously termed e-Health, m-Health, or Digital Health, offer a great potential for integrating public health and health care in achieving the World Health Organization's longstanding goal of "health for all."

### An Opportunity

Currently, around 75% of the world's population has access to a mobile phone. Worldwide, mobile subscriptions have grown from <1 billion in 2000 to over 6 billion in 2016 – with approximately 5 billion in low- and middle-income countries.<sup>[2]</sup> As mobile phones become "smarter" including wearable devices, networks are doubling in bandwidth roughly every 18 months – reaching out to rural and remote areas. Health-related apps are appearing on a daily basis. So, imagine the potential for health!

However, research on e-Health innovations' development, effectiveness, and deployment is in the early stage and very difficult to conduct.<sup>[3]</sup> Indeed, as technology rushes rapidly ahead, this far outpaces our current research paradigms, especially the putative "gold standard" randomized controlled trial (RCT).

My own experience was the engagement of youth in the development of a website for youth smoking prevention – the "Smoking Zine." We began the work in the early 2000s with qualitative studies on youth and technology and then co-created a highly interactive website. Then, a large-scale RCT was conducted with 14 schools and 83 classes to test the effectiveness of the Smoking Zine on youth smoking intentions and behavior with 3- and 6-month follow-up – but this was interrupted in 2004 by the SARS pandemic in Toronto! Our major paper<sup>[4]</sup> on the results was finally published in a prestigious journal *Health Psychology* in 2008. But by then, the world had changed profoundly with the advent of social media – Facebook, Twitter ... and our so carefully developed health promotion intervention website for youth smoking prevention was largely obsolete.

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## A Way Forward: Academic, Public, and Private Sectors' Partnerships

It is often said that innovation appears at the gaps – somehow bridging and building on them. To realize the potential of mobile and e-Health technology, a broader system approach is needed that spans the academic, public (health care), and private (technology) sectors that often work in relative isolation from each other. Over the past decade, I have been involved in building such multisectoral partnerships around e-Health technologies linked with health coaching for positive behavioral change and system transformation.

We began with the Connected Health and Wellness Project (<http://www.chwp.org>) involving 19 partners with a common vision for transforming Canada's health-care system into a more person-centered approach to health promotion and health-care delivery: Enhancing wellness and chronic disease management through improved access to trusted health information, health coaching, and technology advancements that improve health outcomes. Person-centered health (<http://www.capch.org>) advocates for individuals with the tools they need to take more responsibility for their health and family. The Connected Health and Wellness Project (\$37M Cdn government industry funding) developed and integrated software systems including NexJ Connected Health (<http://www.nexjhealth.com>) and McMaster University OSCAR (<http://www.oscarhost.ca>) and made them available on the cloud. Another significant outcome was groundbreaking research by Ritvo *et al.* on the development and evaluation of health coaching<sup>[5-7]</sup> for patients with type 2 diabetes living in a low socioeconomic community. This work on health coaching is now being extended to other health conditions and contexts, including the Health Ecosphere Project described next.

Currently, we are building the “Health Ecosphere” - an Innovation Pipeline based on a Canadian multipartner collaboration led by York University (Dr. Harvey Skinner) and Southlake Regional Health Centre (Dr. David Williams), along with Dr. Joseph Cafazzo at the University Health Network's Center for Global eHealth Innovation. The partners work with businesses, health-care organizations, and academic research institutes to develop personalized health-care technologies and the state-of-the-art enterprise solutions for customized health promotion, prevention, and health care [Figure 1]. Technologies include health-care apps, medical devices, and big data platforms. These solutions will provide connected and coordinated care across the system by integrating previously segregated markets; keeping people health longer, helping people with chronic disease/injury conditions change their behavior, and leveraging big data analytics to develop and commercialize predictive health solutions - leading to improved outcomes for patients and reduced health-care costs. This \$ 35M Cdn project

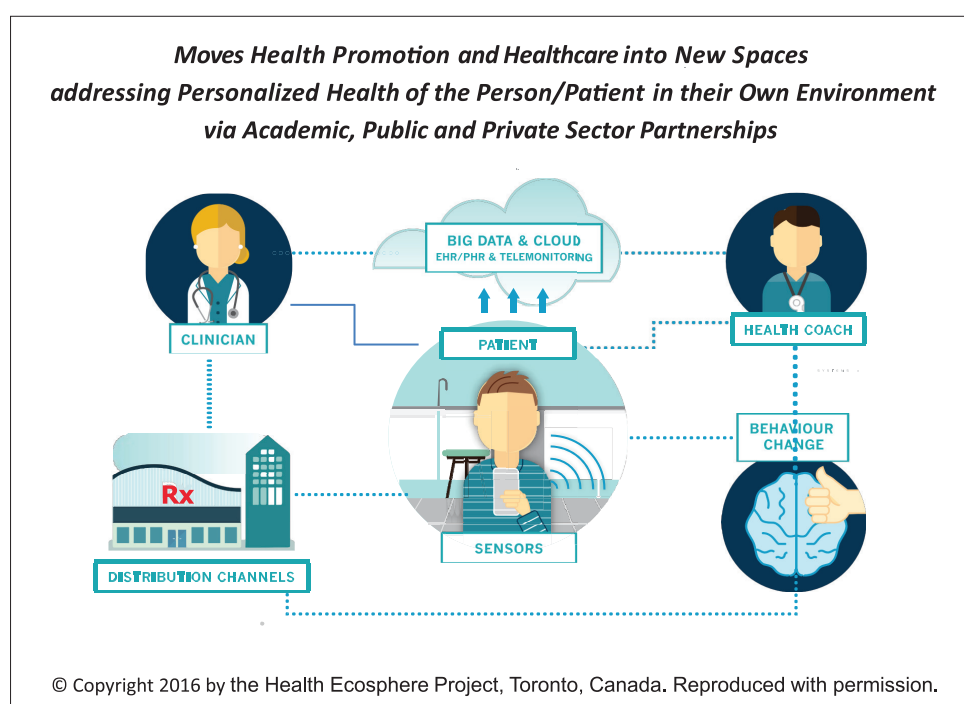


Figure 1: The Health Ecosphere

is funded by government matched by private sector technology partners with contributions from our academic and health-care institutions.

The Health Ecosphere project will lead to the development and commercialization of up to 36 health technologies and services over a span of 3 years. Moreover, the project will provide the groundwork for evidence-based training in health coaching for a range of health conditions including mental health. It will further integrate this service into mobile health technologies, vastly improving scalability and sustainability within health systems: Local to global.

## Health Coaching Training

Health coaching has a promising health promotion and clinical role that facilitates health behavioral change in people/patients with varying health risks and diagnosed conditions across socioeconomic levels. As it is connected with 24 h/day/7 days/week smartphone-based counseling, health coaching is an important public health innovation. Health coaching services are becoming more common in the market, however the term health coaching has vast different meanings and methodologies that differ widely among providers. What York University aims to build are evidence-based professional development programs that set a standard for health coaching programs grounded in state-of-the-art behavioral change models and evidence-based interventions. For example, a certificate program (14 days) in health coaching teaches professionals the foundational competencies and skills to provide health coaching to their clients – in one-to-one practice and team-based care, within private practice and organizations: <http://hltn.info.yorku.ca/health-coach-institute/certificate-in-health-coaching/>.

The opportunities and challenges loom large for advancing both public health and health care through e-Health and health coaching. Multisector partnerships “bridging the gaps” are vital for realizing this potential and we are truly learning how to dance together.

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## Conflicts of interest

There are no conflicts of interest.

## References

1. Skinner HA. Promoting health through organizational change. San Francisco: Benjamin Cummings Publishers; 2002.
2. Mobile Phone Access Reaches Three Quarters of Planet's Population World Bank and infoDev Report. Available from: <http://www.worldbank.org/en/news/press-release/2012/07/17/mobile-phone-access-reaches-three-quarters-planets-population>. [Last accessed on 2016 Dec 16].
3. Dennison L, Morrison L, Conway G, Yardley L. Opportunities and challenges for smartphone applications in supporting health behavior change: Qualitative study. *J Med Internet Res* 2013;15:e86.
4. Norman CD, Maley O, Li X, Skinner HA. Using the internet to assist smoking prevention and cessation in schools: A randomized, controlled trial. *Health Psychol* 2008;27:799-810.
5. Wayne N, Ritvo P. Smartphone-enabled health coach intervention for people with diabetes from a modest socioeconomic strata community: Single-arm longitudinal feasibility study. *J Med Internet Res* 2014;16:e149.
6. Wayne N, Perez DF, Kaplan DM, Ritvo P. Health coaching reduces HbA1c in type 2 diabetic patients from a lower-socioeconomic status community: A randomized controlled trial. *J Med Internet Res* 2015;17:e224.
7. Wayne N, Cercone N, Li J, Zohar A, Katz J, Brown P, *et al*. Data mining of a remote tracking system for type 2 diabetes patients: A prospective cohort study. *J Med Internet Res Diabetes* 2016;1:e1.

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