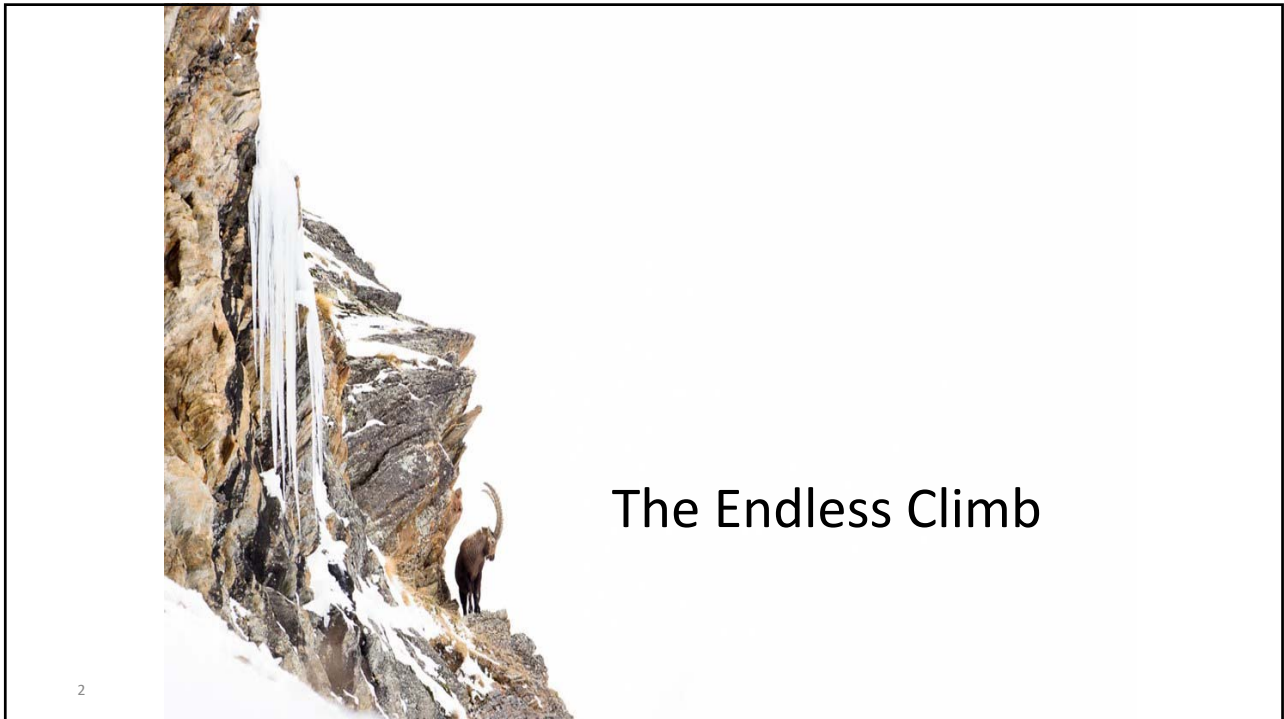


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Dr. Doug Friars, family physician

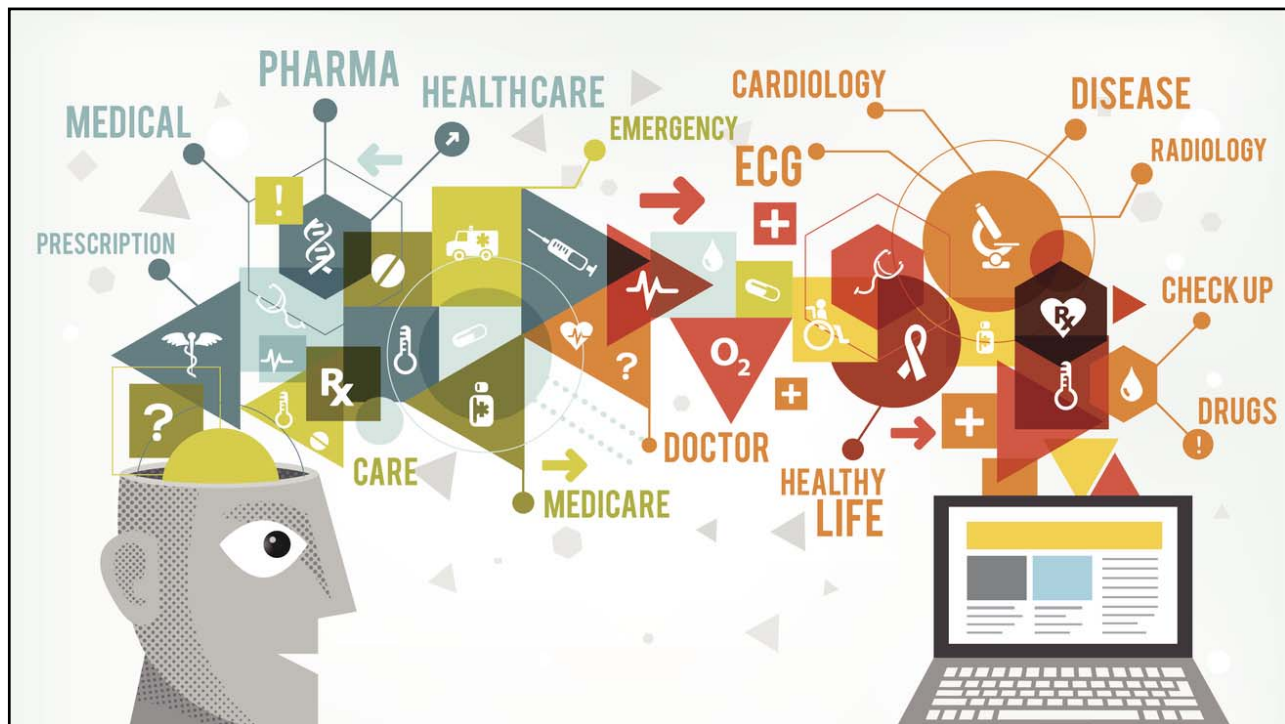
Operation Barefoot,
Wellington County,
ON, 1993

100 doctors walk a
mile (1.6K) barefoot
to protest rural
health care cuts

5







6



7

What Canadians Want

 e-view	 e-visit	 virtual visit	 e-Rx renew
Citizen access to their health information	Secure e-mail with health provider/ place of care	Secure face-to-face video visit with health provider	Request for Rx-renewal
A PHR includes the primary function of viewing health information	An E-Visit is a patient e-service that allows patients and/or their caregivers the ability to communicate with their healthcare team through secure e-mail or SMS messaging	A Virtual Visit is a patient e-service that allows patients and/or their caregivers the ability to meet with their health care provider via a face-to-face virtual encounter, through functions such as video calls	E-Rx Renew is a patient e-service that allows patients and/or their caregivers to renew prescriptions

8

8



Modern health care

9

IoT, Robotics and Blockchain: Towards the Rise of a Human Independent Ecosystem

- With the accelerated development of industrial IoT (IIoT) technologies, a wide range of smart and autonomous devices will be deployed in a variety of digital automation applications including healthcare.
- Gartner estimated that more than 11 billion IoT devices will be installed world-wide by the end of 2018, setting the stage for more than 20 billion IoT devices to be deployed by 2020 .

<https://www.comsoc.org/publications/ctn/iot-robotics-and-blockchain-towards-rise-human-independent-ecosystem> cited Feb 2019

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IEEE Communications Society

10

HSO Launches New Virtual Health Standard

Dec 4, 2018

We are happy to announce that we've launched the new [Virtual Health Standard](#) – a National Standard of services to improve the safety, quality and effectiveness of these services.

The standard, criteria, and guidelines are grouped into five sections covering, Virtual Health service design, Role of the patient in the Virtual Health service, Ethical and Safe Virtual Health service, and Patient records used in the Virtual Health service.

This standard was developed in response to the emergence of virtual health services as an increasingly valuable and viable method of health service delivery, enabling patients to receive care in the comfort of their own home, and reducing the amount of stress caused by travel time, among other benefits.

Virtual health services have changed health care, working to support and communicate with patients living in remote and isolated areas.

What does this new standard mean for patients and families?

Health organizations that deliver virtual health services will have guidance, which works to ensure the quality and safety of these services.

Recent Updates

FNHA and HSO Convene Technical Committee to Develop Cultural Safety and

Committee Expert Dr. Lauri Lee Copeland

ISMP Canada, HSO and CP Come Together to Support Vanessa's Law, the Protecting Canadians from Unsafe Drugs Act

HSO Launches New Virtual Health Standard

HSO Raises the Bar on Biomedical Laboratory and Diagnostic Imaging Service

HSO Launches Five New Public Reviews to Modernize



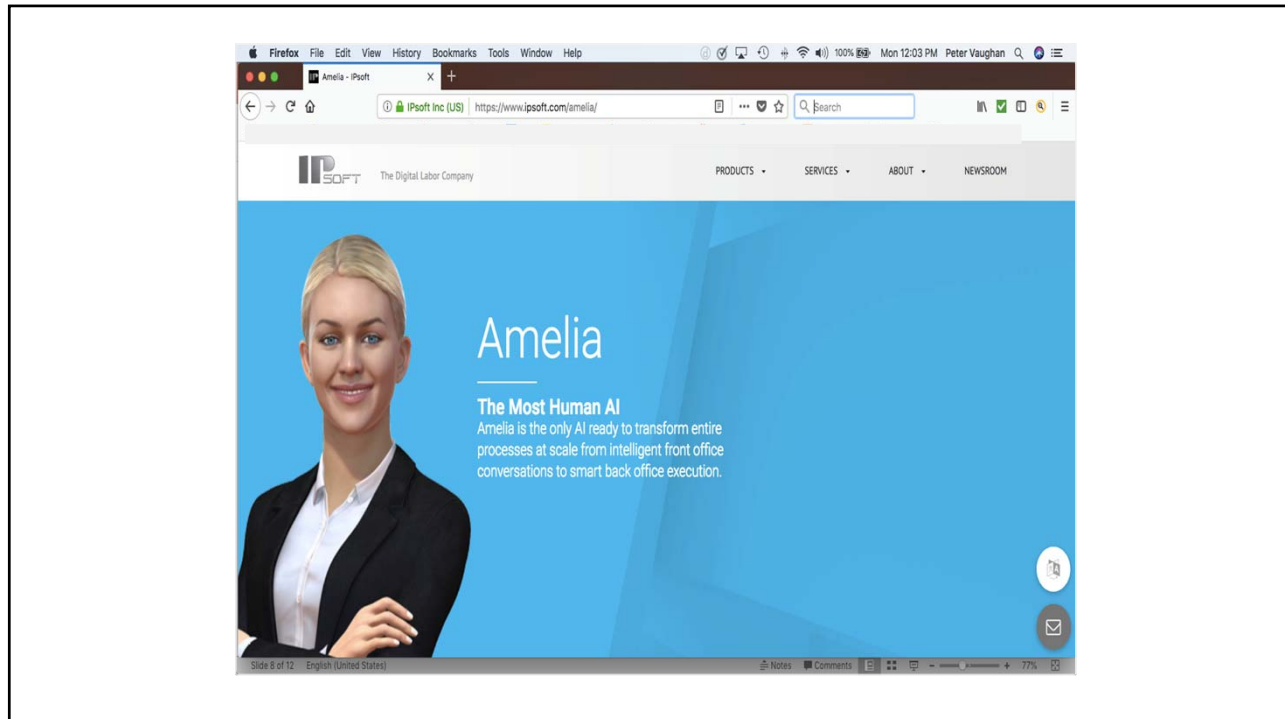
Virtual Care Standards

11

Virtually Everywhere



12



13

REUTERS World Business Markets Politics TV

TELUS Health picks Babylon to bring virtual healthcare to Canada

Paul Sandle 3 MIN READ [Twitter](#) [Facebook](#)

LONDON (Reuters) - Canada's TELUS Health is joining forces with London-based AI company Babylon to bring virtual medical services, including video consultations, to Canadians who do not have a family doctor or are in rural locations far from a surgery.

The Netflix of Healthcare?

 A screenshot of the Babylon website. The main headline reads 'We've hand-picked the doctors'. Below the headline, it says: 'Just 1 in 100 doctors make it through our tough hiring process, so you'll always get high-quality healthcare whenever you are.' There is a 'Book a consultation' button. The website also features a video call interface showing a doctor and a patient.

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Volume 6, Issue 4

Soc. Sci. 2017, 6(4), 135; <https://doi.org/10.3390/socsci6040135> Open Access Feature Paper Article

Digital Ecologies of Youth Mental Health: Apps, Therapeutic Publics and Pedagogy as Affective Arrangements

Simone Fullagar ^{1,*}, Emma Rich ¹, Jessica Francombe-Webb ¹ and Antonio Maturo ^{2,3}

¹ Department of Health, University of Bath, Bath BA27AY, UK
² Department of Sociology and Business Law, University of Bologna, 33-40126 Bologna, Italy
³ Department of Sociology, Brown University, Providence, RI 02912, USA

* Author to whom correspondence should be addressed.

Received: 4 August 2017 / Revised: 19 October 2017 / Accepted: 3 November 2017 / Published: 6 November 2017

(This article belongs to the Special Issue *Pedagogies of Health: The Role of Technology*)

[Full-Text](#) | [PDF](#) [256 KB, uploaded 6 November 2017]

Abstract

In this paper, we offer a new conceptual approach to analyzing the interrelations between formal and informal pedagogical sites for learning about youth mental (ill) health with a specific focus on digital health technologies. Our approach builds on an understanding of public pedagogy to examine the *pedagogical modes of address* (Pedagogical Modes of Address) that are (i) produced through “expert” discourses of mental health literacy for young people; and (ii) *mediate* digital practices created by young people as they seek to publicly address mental ill health through social media. We examine the *affective arrangements* that are evident in examples of digital health technologies and their use by young people and therapeutic publics. Through an analysis of mental health apps, we examine how these modes of address are implicated in the creative process of learning about mental (ill) health, and the *affective* arrangements through which embodied distress is rendered culturally intelligible. In doing so, we situate the use of individual mental health apps within a broader digital ecology that is mediated by therapeutic expertise and offer original contributions to the theorization of public pedagogy.

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MIT News


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The Third Revolution
Graphic: Christine Daniloff

The power of ‘convergence’
In white paper, MIT scientists discuss potential for revolutionary advances in biomedicine and other fields.

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NIH Public Access
Author Manuscript

IEEE Nanotechnol Mag. Author manuscript; available in PMC 2010 October 13.

Published in final edited form as:
IEEE Nanotechnol Mag. 2008 February 15; 1(1): 18–21. doi:10.1109/MNANO.2007.912099.

The convergence of bio, nano, and information technology:
When Worlds Collide

Chih-Ming Ho and Jia Ming Chen
Center for Cell Control and Institute for Cell Mimetic Space Exploration at the University of California, Los Angeles

Nature has seen the evolution of extremely intelligent and complex adaptive systems to drive the biological processes found in everyday life. For example, a cell can fuse information-rich genetic processes with nanometer-scale sensors and actuators, becoming one of the most efficient autonomous molecular systems. These basic processes that occur at the molecular level lead us toward a compelling engineering approach: the fusion of biotechnology, nanotechnology, and information science.

“Singularity”

17

Rurality

Statistics Canada

The population living outside the commuting zone of centres with populations of 10,000 or more.

18

Rural Development in the Digital Age

- A systematic review of 157 papers on digital developments and rural development in advanced countries.
- two major themes: connectivity and inclusion
- In the connectivity theme, the conclusion is that there are persistent and growing differences in data infrastructure quality between urban and rural areas. Public policies to promote the availability or improvement of data infrastructure are essentially responsive, and rapidly outdated by market developments.
- For inclusion, the hampered diffusion of technologies, and the lower average levels of education and skills in rural areas have a negative impact on adoption and use. Generic policies in this field neglect specific local needs.
- The paradox is that rural communities are most in need of improved digital connectivity to compensate for their remoteness, but they are least connected and included.
- One size doesn't fit all: 'customized policies' for poorly connected and digitally excluded rural communities.

Strijker D. and Bosworth G. Rural development in the digital age: A systematic literature review on unequal ICT availability, adoption, and use in rural areas, *Journal of Rural Studies*, Vol. 54, August 2017, pp 360-371

19

Historical Analogies

- Railroad, highways, telephone
- Cost differential
- Economic implications
- Widening gap between urban and rural



20

Closing the Chasm

- No 'magic bullet'
- No single top-down solution is going to work in all rural locations.
- Local community solutions?
- Support from FPT?
- What can local communities do?



EB Parker, Closing the digital divide in rural America, *Telecommunications Policy*, 2000

21

Bringing 5G into Rural and Low-Income Areas: Is It Feasible?

12 Author(s) Luca Chiaraviglio ; Nicola Biehari-Melazzi ; William Liu ; Jairo A. Gutierrez ; Jaap van de Beek ; Robert Bir... [View All Authors](#)

14
Paper
Citations

675
Full
Text Views



Abstract

Document Sections

1. Introduction
2. 5G Technology Challenges
3. Our Vision
4. Economic Analysis
5. Conclusions and Future Work

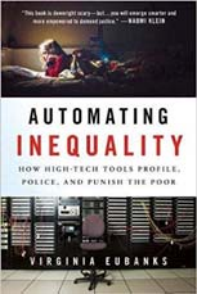
Authors

Abstract:


Nowadays, at least two billion people are experiencing a complete lack of wireless cellular network coverage. These users live in rural areas and low-income regions, where network operators are not keen to invest, mainly due to high capital expenditure and operational expenditure costs, as well as the scarcity of electricity from the grid. We tackle this challenge by proposing a 5G network explicitly designed to serve rural and low-income areas. Our solution investigates the possibility of mounting remote radio heads on top of unmanned aerial vehicles, as well as large cells (LCs) to increase the coverage range. In addition, 5G nodes are powered by solar panels and batteries. Preliminary results, obtained over three representative case studies located in Italy, Cook Islands, and Zimbabwe, show that providing connectivity in rural and low-income areas by means of the proposed 5G architecture is feasible. At the same time, we also show that the monthly subscription fee paid by the users can be kept sufficiently low, that is, less than €1/month in low-income areas, and around €11/month in rural regions.

Published in: [IEEE Communications Standards Magazine](#) (Volume: 1 , Issue: 3 , SEPTEMBER 2017)

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Opinion
A.I. Could Worsen Health Disparities
In a health system riddled with inequity, we risk making dangerous biases automated and invisible.
By Oliver Khutler
Dr. Khutler is an assistant professor of health care policy and research.
The New York Times



<https://www.nytimes.com/2019/01/31/opinion/ai-bias-healthcare.html>

Unintended Consequences

- Poverty
- Disparity
- Literacy
- Equity

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Healthcare Summit 2018

Most common problems for most physicians

- "PAPER WORK" 80%
- Loss of control over work and time
- Inability to get what my patient needs
- Increasing patient complexity without increased pay or time
- Increasing patient demand
- Income expectations unmet
- An environment of "hypercontrol"

➤ Requesting leadership... Chief Complaints

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 Canadian Health Information and Communication Technology Journal Club (CHICTJC)

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Trending: New H-1B visa rules take effect April 1, changing how tech companies hire foreign-born talent

Microsoft and UPMC unveil virtual AI assistant that listens in and takes notes on doctor's visits

BY CLARE MCGRANE on February 28, 2018 at 6:00 am


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The GeekWire Bash, March 7: Get tickets!



25

CBS News / CBS Evening News / CBS This Morning / 48 Hours / 60 Minutes

30 MINUTES EPISODES - OVERTIME - TOPICS



00:01 / 12:55


Well

THE CHECKUP

A Reconsideration of Children and Screen Time

BY FERRI KLASS, M.D. MARCH 21, 2018 6:45 AM

WELL | A Reconsideration of Children and Screen Time

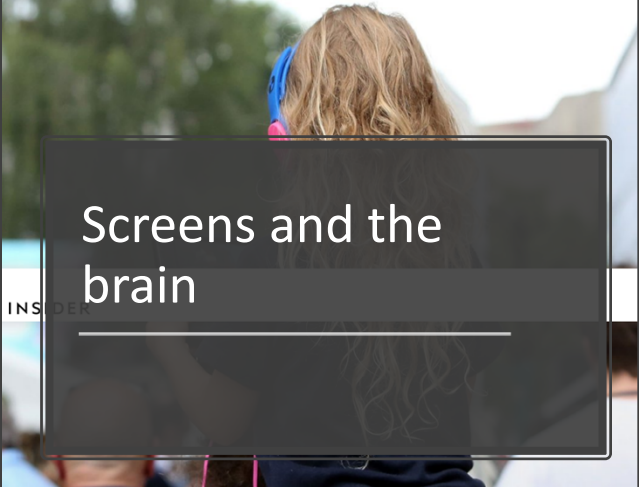


David and Isabella Galatians play on their tablets. The siblings each have their own tablet and each has of their parents' old phones, without a phone plan, to use apps and play games. Emily Best for The New York Times

NEWS - LIFE - TECH - BUSINESS - INSIDE TV


The first long-term study on how screen time affects children's brains suggests more than 2 hours a day could do damage

Julia Nathuin Dec 10, 2016, 2:13 PM




Screens and the brain

26



As little as two hours of TV a day can increase the risk of weight gain, diabetes, and heart disease in **adults**. There are likely several factors to blame, including a sedentary lifestyle, less sleep, and generally **bad** eating habits when engrossed into a **screen**. Jul 19, 2018

[The Effects too Much Screen Time has on Your Health | CareWell ...](https://www.carewellurgentcare.com/.../the-effects-too-much-screen-time-has-on-your-h...)
<https://www.carewellurgentcare.com/.../the-effects-too-much-screen-time-has-on-your-h...>



27

SpringerLink



[International Journal on Digital Libraries](#)
 October 2007, Volume 7, Issue 1-2, pp 17-30 | [Cite as](#)

Little science confronts the data deluge: habitat ecology, embedded sensor networks, and digital libraries

Authors [Authors and affiliations](#)

Christine L. Borgman , Jillian C. Wallis, Noel Enyedy

REGULAR PAPER
 First Online: 10 July 2007

6	887	77
Shares	Downloads	Citations

Abstract

e-Science promises to increase the pace of science via fast, distributed access to computational resources, analytical tools, and digital libraries. “Big science” fields such as physics and astronomy that collaborate around expensive instrumentation have constructed shared digital libraries to manage their data. “Big science” research areas that gather data through hand-crafted fieldwork continue to manage their data locally. As habitat ecology researchers begin to deploy embedded sensor networks, they are confronting an array of challenges in capturing, organizing, and managing large amounts of data. The scientists and

Public Health Ecology

28



The collage features four distinct images. Top-left: A woman in a lab coat and safety goggles looks at a glowing DNA double helix. Top-right: Hands hold a tablet displaying medical data, including a patient name 'David Collins', dates, and a search bar. Bottom-left: A futuristic white robot with a helmet and sensors interacts with a digital interface. Bottom-right: A dark grey title slide with the text 'Medicare 2.0' and 'The Challenges & Opportunities'.

Medicare 2.0

The Challenges & Opportunities

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29



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CBC | MENU


news Federal budget to target Canada-wide high speed internet by 2030

f t r in

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Broadband investments will focus on narrowing urban-rural divide, source says

David Cochrane · CBC News · Posted: Mar 18, 2019 4:00 AM ET | Last Updated: March 18



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Canada Health Infoway



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What We Do Our Partners Solutions Resource Centre Communities

Driving Access to Care

Infoway brings a pan-Canadian focus to improving the patient experience, expanding the health of populations and creating value for the health care system.

WHO WE WORK WITH WHAT WE DO

DIGITAL HEALTH Working for You ACCESS 2022 with the Movement INITIATIVES FOR 2019-2022 Our Plan INFOCENTRAL Collaborative Tool

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