Vol.20 • No.3 • 2022

HealthcarePapers

New Models for the New Healthcare

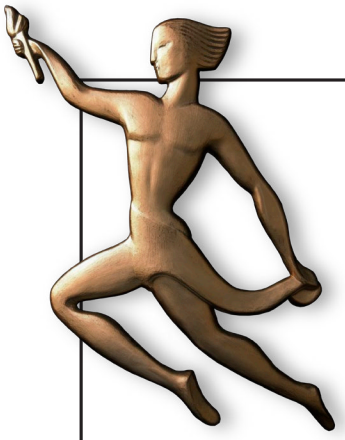
Accelerating Health System Transformation through Research to Achieve the Quadruple Aim and Health Equity

Meghan McMahon, Jessica Nadigel, Erin Thompson, Nida Shahid, Bahar Kasaai, Johanne Richard and Richard H. Glazier

Commentary from Hassane Alami, Stephen Bornstein, Adalsteinn Brown, Andrea Carson, Caroline Chamberland-Rowe, Fiona Clement, Jean-Louis Denis, Carl-Ardy Dubois, Mark Embrett, Vivek Goel, Julia Guk, Shanthi Johnson, Michael Law, Logan Lawrence, Marta MacInnis, Maggie MacLellan, Kimberlyn McGrail, Kathryn McIsaac, Meghan McMahon, Matthew Menear, Jennifer Murdoch, Gail Tomblin Murphy, Andrew D. Pinto, Denis A. Roy, Tara Sampalli, Meaghan Sim, Erin Thompson and Ryley Urban

PM 40069375

www.healthcarepapers.com



Join the conversation

instagram.com/longwoods_publishing

youtube.com/LongwoodsTV

twitter.com/longwoodsnotes

pinterest.com/longwoods

facebook.com/LongwoodsPublishingCorporation

Longwoods.com

HealthcarePapers

New Models for the New Healthcare • Vol.20 No.3 • 2022

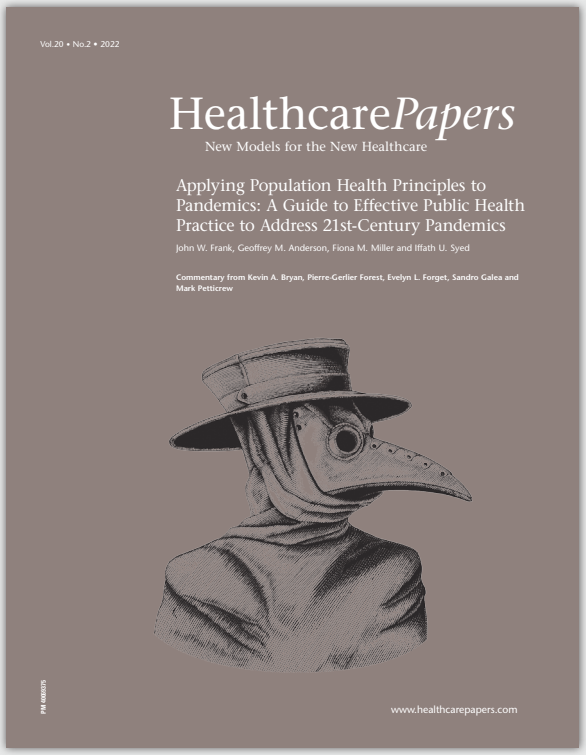
IN THIS ISSUE

INTRODUCTION

INVITED PAPER

COMMENTARIES

Catch up on past issues:
Visit our online archive at
www.healthcarepapers.com



HealthcarePapers

Volume 20 • Number 3

www.healthcarepapers.com

HOW TO REACH THE EDITORS AND PUBLISHER
Telephone: 416-864-9667 Fax: 416-368-4443

ADDRESSES
All mail should go to: Longwoods Publishing Corporation, 260 Adelaide Street East, No. 8, Toronto, Ontario M5A 1N1, Canada

For deliveries to our studio: 54 Berkeley St., Suite 305, Toronto, Ontario M5A 2W4, Canada

SUBSCRIBE ONLINE
Go to www.longwoods.com and click on "Subscribe."

SUBSCRIPTIONS
Individual subscription rates for one year are [C] $122 for online only and [C] $192 for print + online. Institutional subscription rates are [C] $519 for online only and [C] $718 for print + online. For subscriptions contact Barbara Marshall at 416-864-9667, ext. 100 or by e-mail at bmarshall@longwoods.com.

Subscriptions must be paid in advance. An additional tax (GST/HST) is payable on Canadian transactions. Rates outside of Canada are in US dollars. Our GST/HST number is R138513668.

REPRINTS
Reprints can be ordered in lots of 100 or more. For reprint information call Barbara Marshall at 416-864-9667 or fax 416-368-4443, or e-mail to bmarshall@longwoods.com.

Return undeliverable Canadian addresses to: Circulation Department, Longwoods Publishing Corporation, 260 Adelaide Street East, No. 8, Toronto, Ontario M5A 1N1, Canada

EDITORIAL
To talk to our editors please contact Dianne Foster-Kent at 416-864-9667, ext. 106 or by e-mail at dkent@longwoods.com.

ADVERTISING
For advertising rates and inquiries, please contact Matthew Hart at 416-864-9667, ext. 113 or by e-mail at mhart@longwoods.com

PUBLISHING
To discuss supplements or other publishing issues contact Rebecca Hart at 416-864-9667, ext. 114 or by e-mail at rhart@longwoods.com.

HealthcarePapers is published four times per year by Longwoods Publishing Corporation, 260 Adelaide St. East, No. 8, Toronto, ON M5A 1N1, Canada.

HealthcarePapers is indexed in the following: PubMed/Medline, CINAHL, Ulrich's, IndexCopernicus, Embase, Scopus, ProQuest, Ebsco Discovery Service and is a partner of HINARI.

ISSN No. 1488-917X.
eISSN No. 1929-6339
Publications Mail Agreement No. 40069375.

Longwoods.com

Fonds

Health Services Policy Research: Uniquely Positioned to Drive Equitable System Transformation

Recherche sur les services et les politiques de la santé : une position unique pour favoriser une transformation équitable du système

INTRODUCTION

Overview

With the launch of its *Strategic Plan 2021–2026*, the Canadian Institutes of Health Research – Institute of Health Services Policy Research (IHSPR) has embarked on a formidable quest to secure healthcare's holy grail: health system transformation, health equity and the vaunted pillars of the Quadruple Aim (Bodenheimer and Sinsky 2014; CIHR IHSPR 2021).

On first thought, expecting health services policy research (HSPR) to facilitate these lofty goals may appear to be overreaching. The barriers to reaching the desired outcomes are high, deep and broad. They need to be deliberately dismantled to make way for a real, robust and redesigned health system built on well-documented and defined solutions. So, on second thought, HSPR is precisely what is needed, never more so than now. HSPR can raise flags and important questions, for example, about a policy shift's potential for unintended consequences. If heeded, research findings may help halt public investments in proposals built on dubious data and flimsy evidence. Research that shows strong outcomes for radical new approaches in comparable jurisdictions can spur bold systemic changes.

HSPR is ideally – and uniquely – able to provide essential ingredients for success in securing health system transformation. It generates knowledge that informs critical and highly consequential choices about policy, practice, regulation and more. It provides evidence to guide difficult decisions about allocating resources or investing in infrastructure or embracing new approaches to move beyond incremental progress. It shares facts, analyses and tools to help all stakeholders improve health – be it system, population or personal.

HSPR has always been needed and valuable, but, as Roy et al. (2022) note, the focus and funding have not followed. Where will the impetus and conditions for change come from?

Whether the *Strategic Plan 2021–2026* (CIHR IHSPR 2021) is a set-up for success or a document too reliant on "deterministic logic" (Roy et al. 2022: 71) will be revealed in the years to come. From today's vantage point, the ground beneath the strategic priorities is firmer in some than in others. Some conditions present considerable challenges, whereas others are conducive to progress.

Action on Equity Issues Is Non-Negotiable

The opening message of IHSPR's strategic plan (CIHR IHSPR 2021) says that health equity is at the centre of its aims. The need to deliberately acknowledge and meaningfully address inequities and health disparities across all fronts appears to be non-negotiable. But, as Pinto (2022) cautions, it is often also performative. He says that making equity, inclusion and diversity the norm demands sustained efforts that are well-funded and well-designed. That means taking the lead from affected groups in identifying problems and driving substantive changes in culture, workforce and leadership composition and outcomes.

Transformed Systems Are Learning Health Systems

A transformed system that meets 21st-century health needs and system goals must be a learning health system as many commentators note. It must be capable of continuous quality improvement, providing ongoing opportunities for researchers to work across domains, developing and disseminating new knowledge in new ways. Tomblin Murphy et al. (2022) report on successful strategies to embed researchers into a broad range of health-focused organizations, infusing valuable expertise and building new capacities and skills among staff while instilling in researchers new attributes that are key to advancing health system improvement.

Goel and McGrail (2022) describe the undeniable and diverse deficiencies in the country's health data ecosystem, hobbling the timely, effective collection, sharing and use of health data. Heartened by the components for a strong health data system in IHSPR's strategic plan, they suggest the ways and means to maximize the institute's efforts to strengthen digital health solutions and data science, recommending a focus on the sticking points to progress – a fragmented health data foundation, a lack of coordinated data governance and a risk-averse culture.

The evolving HSPR enterprise is an essential and enabling part of a learning health system, serving shared goals and embracing solution-oriented and collaborative research

HSPR is ideally – and uniquely – able to provide essential ingredients for success in securing health system transformation.

(McMahon et al. 2022). But as McGrail et al. (2022) assert, it must also stand apart from that and give room and resources to not only theoretical research and investigations with both long and short shelf lives but also to comparative and interdisciplinary research.

As noted in this issue of *Healthcare Papers*, our collective experience of the COVID-19 pandemic, with its disproportionately harmful effects on racialized and marginalized populations, provided painful and powerful lessons, showing the system's fragility, lack of cohesiveness and entrenched inequities. We witnessed the devastating impact of trying to manage a quickly changing crisis without sufficient information, timely comparable data and evidence to inform the country's pandemic response. When future health emergencies hit – or ideally, before they hit – updated data, analyses and meaningful, actionable evidence

on relevant HSPR should be on hand to help mitigate the harm or even dodge the danger altogether.

Bridging (and Protecting) Divides

The IHSPR strategic plan promotes the establishment of stronger, closer relationships among researchers, communities and leaders in the healthcare system and encourages new kinds of research collaborations. That priority may appear unequivocally sensible. After all, health system silos – nurtured by convention, culture, funding, models and more – are longstanding and legion, inhibiting service integration and thwarting the Quadruple Aim. Communication problems between its disparate parts are seemingly unshakeable. Fostering new research arrangements could generate solution-oriented research and bridge traditional divides to find common cause (and no doubt compromises).

Raising concerns about potential compromises, self-censorship and funder–fundee power dynamics that could stymie critical analysis, McGrail et al. (2022) issue a provocation to challenge the system. Competitive tensions may be high when research questions are being developed or decisions are being made about who will design, fund and conduct the research (and how). Researchers and partner organizations have discrete roles to fulfil and expertise and interests of their own.

Healthcare transformation demands keeping your eye on the prize. For some researchers, that prize may not be on the problem of the day. It may be beyond the horizon, requiring research investments outside of the immediate priorities and needs of the healthcare system. Enhanced measures to protect the science of science and to safeguard public interest transparency may be required to address some of the concerns about the proposed shift to broader research collaborations.

The public interest question is not absent in this issue of *Healthcare Papers*. HSPR is an indispensable, powerful tool that can produce better care for people, safer practice and stronger evidence to guide decision making. That is a public resource with potentially profound impacts on people's lives and on the health of individuals, populations and the system.

Protecting and Promoting the Public Good

The late George Grant was an inimitable thinker and philosopher, whose writing and political commentary in the last half of the 20th century presented novel (and by times controversial) perspectives about far-reaching issues, including the fate of Canadian nationalism, the evolution of the academy's enterprise and the decline of internal and external morality and justice in a technological age (Grant 1965, 1969; Martin 1989).

Although Grant rejected the increasing specialization of academic research pursuits in the social sciences and changing notions of value, decrying the privileging of private pursuit of career advancement over the public interest, his contemplations centred on fundamental questions about virtue, technology, self interest and the public good. (Angus 1989; Grant 1969; Martin 1989). As he used to say to his students: "There is no interest like self-interest." (Grant, personal communication, September–April, 1983–84). The essence of the IHSPR strategic plan – "[to support] the generation of timely, relevant, equitable, and impactful research … to improve the health care system and the overall health and well-being of Canadians" (CIHR IHSPR 2021: 26) – is clearly an expression of public good goals. The task ahead is to ensure that the strategic plan's implementation lives up to that spirit.

– Longwoods Publishing

References

Angus, I. 1989. For a Canadian Philosophy: George Grant. Canadian Journal of Political and Social Theory. 13(1-2), 140-141. Retrieved from Vol. 13 No. 1-2 (1989): *Canadian Journal of Political and Social Theory/Revue canadienne de théorie politique et sociale*.

Bodenheimer, T. and C. Sinsky. 2014. From Triple to Quadruple Aim: Care of the Patient Requires Care of the Provider. *Annals of Family Medicine* 12(6): 573–76. doi:10.1370/afm.1713.

Canadian Institutes of Health Research (CIHR) Institute of Health Services and Policy Research (IHSPR). 2021. *Strategic Plan 2021–2026: Accelerate Health System Transformation through Research to Achieve the Quadruple Aim and Health Equity for All*. Retrieved November 10, 2021. <https://cihr-irsc.gc.ca/e/documents/ihspr_strat_plan_2021-26-en.pdf>.

Grant, G.P. 1965. *Lament for a Nation: The Defeat of Canadian Nationalism*. Toronto: McClelland and Stewart.

Grant, G.P. 1969. The University Curriculum. In *Technology and Empire: Perspectives on North America*. (pp. 113-31). Anansi.

Goel, V. and K. McGrail. 2022. Modernize the Healthcare System: Stewardship of a Strong Health Data Foundation. *Healthcare Papers* 20(3): 61–68. doi:10.12927/hcpap.2022.26842.

Martin, G.R. 1989. Justice in the Thought of George Grant. *Canadian Journal of Political and Social Theory/ Revue canadienne de Worie politique et sociale* 13(1–2).

McGrail, K., F. Clement and M. Law. 2022. Back to the HSPR Basics: The Value of and Need for HSPR That Focuses on Macro System-Level Challenges. *Healthcare Papers* 20(3): 26–32 doi:10.12927/hcpap.2022.26846.

McMahon, M., S. Bornstein, S. Johnson, C.-A. Dubois, E. Thompson and A. Brown. 2022. How Do We Build the Human Capital for a True Learning Healthcare System? *Healthcare Papers* 20(3): 44–52. doi:10.12927/hcpap.2022.26844.

Pinto, A.D. 2022. Can a Focus on Equity, Diversity and Inclusion Transform Health Services Research? *Healthcare Papers* 20(3): 53–60. doi:10.12927/hcpap.2022.26843.

Roy, D.A., M. Menear, H. Alami and J.-L. Denis. 2022. Strategizing Research for Impact. *Healthcare Papers* 20(3): 69–76. doi:10.12927/hcpap.2022.26841.

Tomblin Murphy, G., T. Sampalli, M. Embrett, M. Sim, J. Murdoch, K. McIsaac et al. 2022. The Network of Scholars Strategy: A Case Study of Embedded Research Activities in Nova Scotia to Advance Health System Impact and Outcomes. *Healthcare Papers* 20(3): 33–43. doi:10.12927/hcpap.2022.26845.

INVITED PAPER

Healthcare*Papers*

Accelerating Health System Transformation through Research to Achieve the Quadruple Aim and Health Equity

Accélérer la transformation du système de santé grâce à la recherche pour atteindre le quadruple objectif et l'équité en santé

INVITED PAPER

Meghan McMahon, MSc, PhD
Associate Scientific Director
CIHR Institute of Health Services and Policy Research
Assistant Professor (status)
Institute of Health Policy, Management and Evaluation
Dalla Lana School of Public Health
University of Toronto
Toronto, ON

Jessica Nadigel, PhD
Associate Scientific Director
CIHR Institute of Health Services and Policy Research
Toronto, ON

Erin Thompson, MPH
Project Manager
CIHR Institute of Health Services and Policy Research
Toronto, ON

Nida Shahid, PhD(c)
Project Officer
CIHR Institute of Health Services and Policy Research
Toronto, ON

Bahar Kasaai, MSc, PhD
Project Lead
CIHR Institute of Health Services and Policy Research
Toronto, ON

Johanne Richard
Administrative Assistant
CIHR Institute of Health Services and Policy Research
Toronto, ON

Richard H. Glazier, MD, MPH, CCFP, FCFP
Scientific Director
CIHR Institute of Health Services and Policy Research
Toronto, ON

ABSTRACT

The Canadian Institutes of Health Research – Institute of Health Services and Policy Research's (IHSPR's) Strategic Plan 2021–2026: Accelerate Health Care System Transformation through Research to Achieve the Quadruple Aim and Health Equity for All *(CIHR IHSPR 2021) outlines the Institute's key priority areas for investment and activity over the next five years. IHSPR used an evidence-informed strategic planning process that was pan-Canadian in scope and designed to elicit the health services and policy research priorities of decision makers, providers, researchers, patients, communities and the public. This paper outlines IHSPR's four key strategic priorities for supporting and optimizing research in transforming Canada's healthcare delivery systems over the next five years.*

RÉSUMÉ

Le Plan stratégique 2021-2026 *de l'Institut des services et des politiques de la santé (ISPS) des Instituts de recherche en santé du Canada :* Accélérer la transformation du système de soins de santé par la recherche pour atteindre les quatre objectifs et l'équité en santé pour tous *(CIHR IHSPR 2021) décrit les domaines d'investissement prioritaires de l'Institut et les activités prévues pour les cinq prochaines années. L'ISPS a eu recours à un processus de planification stratégique fondé sur les données probantes, de portée pancanadienne et conçu pour déterminer les priorités de recherche sur les services et les politiques de santé à l'intention des décideurs, des fournisseurs, des chercheurs, des patients, des collectivités et de la population. Ce document décrit les quatre priorités stratégiques de l'ISPS qui visent à soutenir et à optimiser la recherche dans la transformation des systèmes de soins de santé canadiens pour les cinq prochaines années.*

Background

The Canadian Institutes of Health Research – Institute of Health Services and Policy Research's (CIHR IHSPR's) *Strategic Plan 2021–2026: Accelerate Health Care System Transformation through Research to Achieve the Quadruple Aim and Health Equity for All* (CIHR IHSPR 2021), outlines the Institute's key priority areas for investment and activity over the next five years. Using an evidence-informed strategic planning process that was pan-Canadian in scope and designed to elicit the health services and policy research (HSPR) priorities of decision makers, providers, researchers, patients and the public, IHSPR's resulting strategic plan identifies four key strategic priorities:

1. accelerate the discovery of innovations that transform healthcare delivery systems to achieve the Quadruple Aim and improve health equity for all;
2. modernize the healthcare system with digital health solutions and data science;
3. foster the integration of evidence into health services and policy decisions for improved healthcare system performance and outcomes; and
4. strengthen capacity for solution-oriented research and evidence-informed healthcare system transformation.

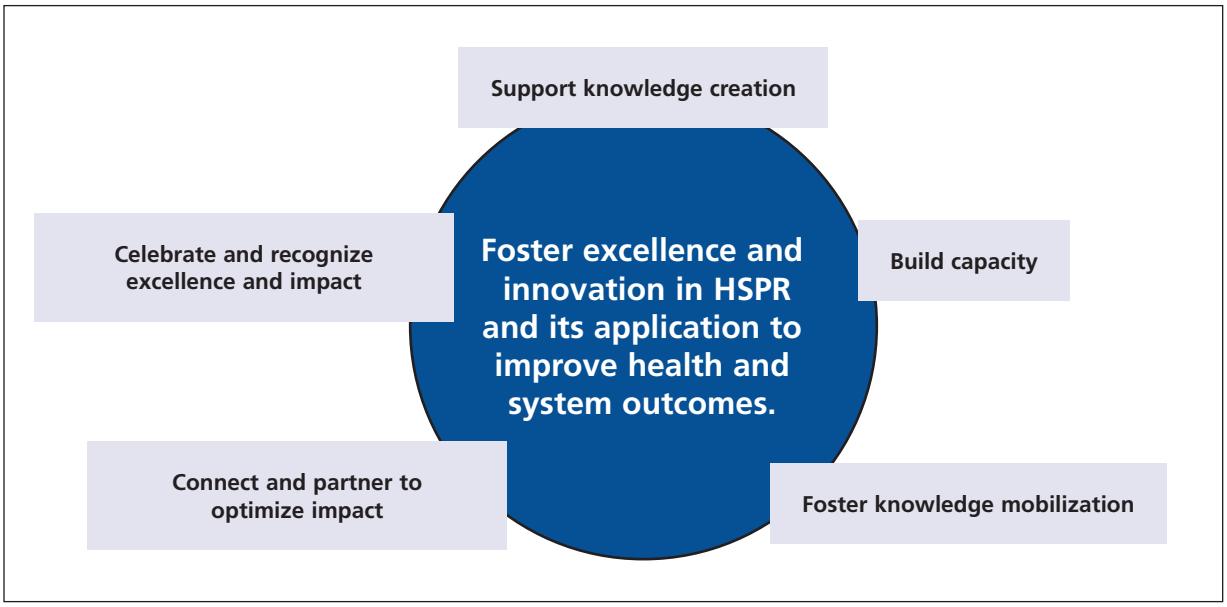
IHSPR entitled the plan *Accelerate Health Care System Transformation through Research to Achieve the Quadruple Aim and Health Equity for All* (CIHR IHSPR 2021) to reflect the need to address the structural, functional and environmental challenges of a healthcare system that was designed 40 to 50 years ago but must deliver accessible, high-quality, equitable, sustainable, coordinated and integrated care in the 21st century. The plan is anchored to the Quadruple Aim and puts health equity at the centre of these aims to signal IHSPR's commitment to ensuring that all research, improvement and transformation efforts are done with the intention of improving health equity (Nundy et al. 2022). The strategic plan was developed throughout the context of the COVID-19 pandemic, which exposed fault lines, racism and discrimination in Canada's healthcare delivery systems and magnified long-standing systemic socio-economic and ethnoracial inequities in all facets of society, including in access to and outcomes of care. This context informed IHSPR's strategic plan and its commitment to equity; to supporting research that advances equitable healthcare services and policies and seeks to understand the equity implications of the policies that determine how health services are funded, organized and delivered; and to supporting a more diverse and inclusive health services and policy research workforce. The ultimate goal of IHSPR's strategic plan is to support the generation of timely, relevant, equitable and impactful HSPR that can be mobilized to improve the healthcare system and the overall health and well-being of all Canadians.

The Current Context of Canada's Healthcare Systems

An increasing trend in healthcare spending in Canada (CIHI 2021a), financial pressure on provincial and federal budgets (with a significant increase in costs due to the COVID-19 pandemic [The Conference Board of Canada 2020]) and consistent suboptimal performance and outcomes – relative to comparable Commonwealth Fund (Osborn et al. 2017) and Organisation for Economic Co-operation and Development countries (OECD 2019) – have created an impetus for transformational change in how Canadian healthcare services are financed, organized, managed and delivered. The COVID-19 pandemic has accelerated this transformation imperative with its profound impact on people, societies and healthcare systems worldwide. By exposing persistent and systemic problems in our healthcare delivery systems (e.g., the gendered, racialized workforce in long-term care; socio-economic disparities in access to prevention and care; insufficient surge capacity to respond to emergencies) and, in some cases, accelerating the uptake of promising innovations (e.g., virtual care) but with inequitable reach (e.g., by geography and socio-economic status), the COVID-19 pandemic has put a spotlight on the necessity to re-evaluate and transform care delivery in Canada to create resilient, inclusive, equitable healthcare systems (CIHI 2021b; McMahon et al. 2021).

The role of HSPR in generating leading-edge evidence to inform healthcare system

Figure 1. IHSPR's core functions



transformation is clear: research investments must be made in areas of high need where there are gaps in evidence and where there is potential to have the greatest positive impact on the health and well-being of the population and the performance of the health system. The evolution of learning health systems across Canada presents a valuable opportunity to align research investments with the priorities and needs of the healthcare system; to strengthen relationships among researchers, communities and leaders in the healthcare system; and to position HSPR as the innovation engine of Canada's healthcare system to achieve the Quadruple Aim and health equity for all.

HSPR in Canada and CIHR IHSPR

HSPR is the field of scientific investigation that generates evidence on how to create systems, policies and organizational structures and invest in programs, services and technologies that maximize health and healthcare system outcomes. Multiple disciplines, professions, sectors and methodologies are harnessed to creatively address healthcare system challenges and high-priority questions.

IHSPR is one of the 13 Institutes at CIHR, Canada's federal health research funding agency. IHSPR is dedicated to supporting innovative research, capacity building and knowledge mobilization initiatives designed to improve the way healthcare services are organized, regulated, managed, financed, paid for, used and delivered, in the interest of improving the health and quality of life of all Canadians.

IHSPR's core work can be organized into five key domains (Figure 1): (1) supporting HSPR knowledge creation, (2) building and strengthening the capacity of the HSPR workforce, (3) fostering knowledge mobilization of HSPR into policy and practice, (4) collaborating and partnering to optimize HSPR impact and (5) celebrating and recognizing the excellence and contributions of the HSPR community.

IHSPR's Values and Commitments

IHSPR supports and will work to uphold the values and commitments articulated in the *Strategic Plan 2021–2026* (CIHR IHSPR 2021). Additionally, IHSPR commits to the following:

- *Excellence, innovation and impact:* supporting excellent, innovative and impactful HSPR that improves the overall health system and health of Canadians, with the ultimate goal of achieving the Quadruple Aim and health equity for all. IHSPR will promote an open science approach to ensure that research and evidence supported by the Institute is accessible in a timely manner to all stakeholders to help accelerate and enable health system transformation.
- *Collaboration for collective impact:* engaging and collaborating with partners within Canada and other countries to support rigorous research and knowledge mobilization activities that achieve measurable impact on health and healthcare system outcomes.
- *Equity, diversity and inclusion:* supporting the principles of equity (fairness), diversity (representation) and inclusion (valued participation), including sex and gender considerations and the needs of people and populations across the life course in all activities undertaken by the Institute, and working to support CIHR's strategic priority of *pursuing health equity through research*.
- *Indigenous Peoples' health:* supporting CIHR's priority of *accelerating the self-determination of Indigenous Peoples in health research*, the *Institute of Indigenous Peoples' Health Strategic Plan 2019–2024* (CIHR IIPH 2019), as well as the *Action Plan: Building a Healthier Future for First Nations, Inuit and Métis Peoples* (CIHR 2016).
- *Environmental sustainability:* taking steps to understand the strategies and actions that can be applied to the Institute's and health systems' activities to prevent, mitigate and respond to the risk to health posed by climate change and other environmental impacts.
- *Continuous learning and improvement:* being a learning organization that continuously monitors and evaluates its programs and activities and uses the results to iterate, adjust and improve. IHSPR strives to be forward thinking, nimble and adaptable as the health research ecosystem and healthcare systems evolve.

IHSPR's Approach to Priority Setting

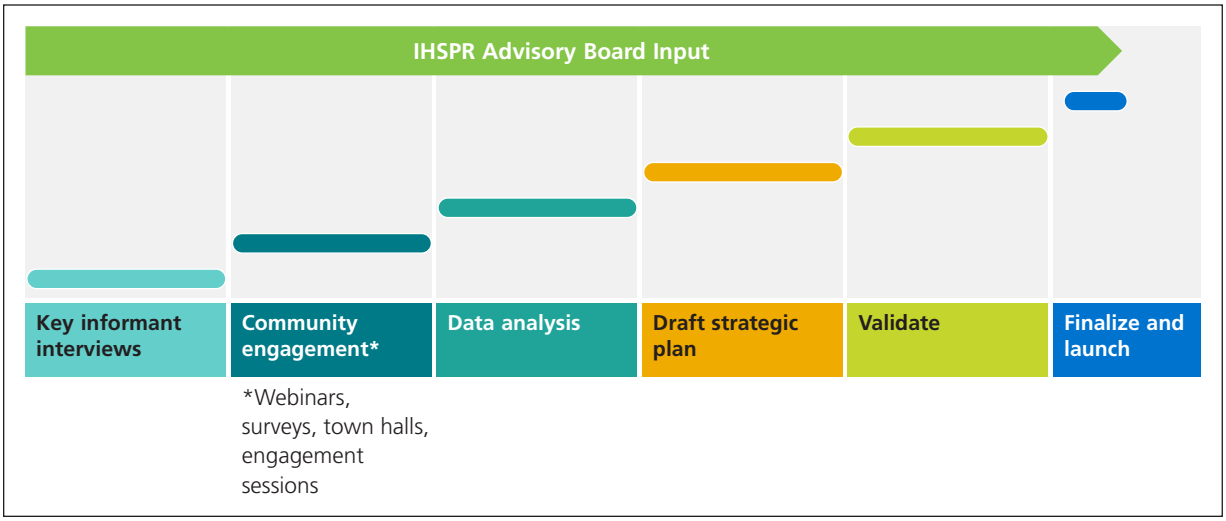
IHSPR identified strategic directions for HSPR through an evidence-informed, multi-pronged, community-engaged and iterative process conducted between May 2019 and January 2021 (Figure 2). Our approach was pan-Canadian with respect to scope of engagement and drew on multiple lines of evidence including the following:

- an environmental scan of HSPR priorities in Canada and other countries;
- analysis of historical HSPR funding investments and impacts;
- semi-structured interviews with individuals from research-based, policy-making, decision-making, clinical, Indigenous and patient-based communities;
- community engagement via Canadian and international conferences, university town halls, patient round tables, online engagement sessions and a community survey;
- strategic-partnership round tables;
- meetings with federal and provincial/territorial departments of health;
- a rapid review of COVID-19 priorities for HSPR (McMahon et al. 2020); and
- engagement with the IHSPR Institute Advisory Board (IAB) throughout the process.

Altogether, more than 2,300 individuals provided input to inform IHSPR's strategic plan.

IHSPR analyzed the input and data to identify common themes, refined the themes into draft priorities for investment and strategies for action and met with its IAB to discuss and finalize the plan. The resulting priorities and actions were shared with the HSPR community for validation in an open town hall virtual forum in June 2021. Consistent with our strategy development process, our strategy implementation approach will be highly consultative and partnered.

Figure 2. IHSPR's strategic planning process



IHSPR's Strategic Priorities

Strategic Priority 1: Accelerating the discovery of innovations that transform healthcare delivery systems to achieve the Quadruple Aim and improve health equity for all

The context

Canadian Medicare has long been regarded as a hallmark of Canadian culture and identity. But today, the healthcare systems that have developed within and around this legislative framework are often seen as focused on hospitals and physicians, siloed across sectors and centred on illness and treatment instead of wellness and prevention. In addition, the COVID-19 pandemic has raised awareness that healthcare systems are outdated and need to be more resilient, adaptable and better prepared to withstand pressing challenges, including future pandemics or emergencies (such as those presented by climate change).

Amid these gaps and challenges, however, there are examples of excellence and innovation that can be found across jurisdictions. This includes team-based primary healthcare with a focus on the social determinants of health, an increased focus on patient and population health outcomes, implementation of digital and virtual care technologies to improve access to care in rural and remote regions, standardized care pathways that improve health outcomes and quality of care while reducing costs and patient and community engagement that informs all levels of decision making. The COVID-19 pandemic has accelerated the adoption of certain innovations that were in the early stages of implementation before the pandemic, such as virtual care (Bhatia et al. 2020; Webster 2020). The pandemic also prompted

heightened attention to certain sectors and challenges such as the long-term care (LTC) sector and the development of new national LTC standards (The Govenor General of Canada 2020).

Modernizing Canadian healthcare is critically needed to ensure that pockets of excellence become standard practice across the country and create meaningful improvements for people, communities and populations. This will require research investment and attention to better understand the equity implications of how healthcare services are organized, funded and delivered; why implementation and innovation flourish in some areas but not others; the key enablers and barriers to implementation; how to contextualize promising innovations for local adaptation and uptake; and the ingredients to successful and equitable sustainability of excellence. Transformation is required to ensure delivery systems are oriented toward, and have the mechanisms in place to achieve, the Quadruple Aim of improved patient experience, better population health, improved provider experience and better value, as well as improved health equity for all. These delivery systems must be resilient, accountable and prepared to deliver consistent, high-quality outcomes, including in times of crisis. HSPR will play a vital role in providing the evidence needed to evaluate current approaches, re-envision a future state for Canadian healthcare and inform the modernization of contemporary delivery systems.

Goal

The goal of the first priority is to support and invest in research that leads to better population health and increased value, while improving health equity and the healthcare experience for patients, families and healthcare providers.

Objectives

The objectives of the first priority are as follows:

1. Generate evidence about innovations in how to organize, finance, manage and deliver healthcare that achieves the Quadruple Aim, improves equity and is accountable to patients and the public. Prioritized areas for attention include the following:
    a. integration of care (including integrated delivery systems and continuity of care);
    b. primary, home and community-based care;
    c. long-term care (including nursing home care and care provided in retirement homes and assisted living facilities); and
    d. the healthcare workforce (including funding and remuneration, training and support, scopes of practice, interdisciplinary collaboration and data systems for planning).
2. Catalyze new research at the intersection of health services and policy and population health that integrates upstream prevention within healthcare delivery settings/approaches to improve health, health equity and well-being, and addresses the social determinants of health.

Strategies to achieve the first priority

Strategies to achieve the first priority include the following:

1. Support large-scale implementation science teams designed to generate cutting-edge research, mobilize knowledge into action, accelerate healthcare system transformation and drive better outcomes.

2. Support cross-jurisdictional research and comparative policy analyses that generate the evidence needed to build high-performing, equitable healthcare systems and services.
3. Embed a health equity lens within research programs to contribute to an equitable HSPR funding system and an equitable healthcare delivery system, including attention to sex and gender; racism; intersectionality; Indigenous Peoples and colonization; income inequality; global health; and rural, remote and northern communities.
4. Increase public awareness about the power of HSPR to address key issues confronting healthcare in Canada. Create opportunities for: patients and the public; Indigenous Peoples and communities; and decision makers, healthcare providers and researchers to work together in generating and applying relevant, high-impact HSPR.
5. Contribute to CIHR's framework for action on global health research to ensure that HSPR priorities, partners and perspectives are incorporated.

Expected impact

In five years, new research on transforming healthcare delivery systems has been generated and mobilized to achieve the Quadruple Aim and address health equity, and HSPR is embraced as the innovation engine of healthcare systems.

Strategic Priority 2: Modernizing the healthcare system with digital health solutions and data science

The context

Throughout the healthcare system, rapid digitization is occurring in most hospitals, doctors' offices, community clinics, pharmacies and diagnostic services. Still, this landscape is characterized by fragmented data systems and platforms; limited interoperability; data islands; regulatory barriers; lack of integration of clinical care and patient-generated data into data systems; challenges with data ownership; concerns with privacy, safety and cybersecurity; minimal provider, patient and public engagement; and critical gaps in data (e.g., lack of race and ethnicity data, lack of measures about equity and racism). Canada has international advantages, including a single payer healthcare system, population-based administrative data, world-leading researchers in big data and artificial intelligence and highly regarded data-related organizations, which it should leverage to seize the digital and data opportunity.

A strong digital health infrastructure underpinning the healthcare system is needed to accelerate system transformation to meet the needs of Canada's diverse population. This was exemplified during the COVID-19 pandemic, when almost all non-urgent care across the country moved to virtual or telemedicine visits, modernizing the healthcare system within days out of necessity. It is now time to continue this transformation and bring all aspects of healthcare into the digital economy through safe, secure interoperable systems. By leveraging Canada's data assets, digital health innovations, advanced analytics and expertise of the HSPR community, we can collaborate with partners to support transformative research to underpin expanded and equitable access to care, enhanced care provision to rural and remote communities and historically underrepresented groups, improved continuity of care and, ultimately, improved overall care provided to Canadians.

Goal

The goal of the second priority is to modernize Canada's healthcare systems through

research on digital health innovations and data science that will help to achieve the Quadruple Aim and health equity for all.

Objectives
The objectives of the second priority are as follows:

1. Support research that enhances the design, implementation and evaluation of digital health solutions – including virtual care technologies – that aim to improve health and patient/provider experience outcomes.
2. Encourage and enhance the use of data and data analytics, including artificial intelligence, in various realms of HSPR as a means to improve health outcomes and health equity.
3. Support a strong digital health ecosystem, in partnership with others, which includes leading-edge HSPR and a diverse community of HSPR scholars engaged in informing and creating an improved data ecosystem; enhanced and equitable data access and data linkage; improved predictive modelling; secure digital health services available to all Canadians; and improved digital health literacy.

Strategies to achieve the second priority
Strategies to achieve the second priority include the following:

1. Design innovative digital health research funding programs that support advanced analytics and the implementation and evaluation of digital health approaches (including, but not limited to, virtual care, e-consultations, e-referral, sensors, patient portals and patient-held records and wearables).
2. Create opportunities for researchers, care providers, decision makers and patients from diverse communities to work together in the digital health space to improve their understanding and use of data and increase their overall digital health literacy.
3. Encourage and promote the use of data sources and platforms by health services and policy researchers, including Strategy for Patient-Oriented Research's (SPOR's) Canadian Data Platform.
4. Work with partners to continue to improve access, linkage and interoperability of data and data systems for HSPR and evidence-informed decision making; support equitable access to data and appropriate data ownership and rights, including within Indigenous communities; and ensure that privacy, safety and ethical and regulatory issues related to data are considered and respected.

Expected impact
In five years, research will inform the creation and implementation of digital health tools that will support timely access to care for Canadians, accelerating progress toward the Quadruple Aim and achieving health equity for all. Digital health literacy will improve across HSPR stakeholders, including researchers, providers, policy makers, decision makers, patients and the public through opportunities to work together and collaborate in the digital health space.

Strategic Priority 3: Integrating evidence into health services and policy decisions for improved healthcare system performance and outcomes

The context
HSPR does not always lend itself to immediate application and impact. Decisions about healthcare, the health system and health policy are being made in an ever-changing environment and often without the

appropriate evidence. This challenge is further compounded when research does not address priority policy or practice questions, meaningfully engage with knowledge users or consider the enablers and barriers present in real-world implementation contexts. To overcome these challenges, HSPR programs and projects should have clear pathways for impact, with the Quadruple Aim and health equity as the ultimate goal (CHSPRA 2018). Clear pathways for impact require a strong emphasis on knowledge mobilization. This includes building trusted and sustained relationships with knowledge users (i.e., an "integrated knowledge translation" approach), which can help foster uptake/implementation and scale and spread. Moving forward, IHSPR will continue to build on funding innovations that aim to bridge the research to impact gap, such as the programs including "Best Brains Exchanges," "Rewarding Success" and "Partnerships for Health System Improvement." IHSPR will continue to support the evolution of learning health systems and learning health organizations across Canada through programs such as the Health System Impact Fellowship that align research to healthcare system priorities and build capacity for rapid learning and improvement.

Goal

The goal of the third priority is to develop innovative HSPR funding programs and support impactful knowledge mobilization that accelerate the development of learning health systems across Canada and continually integrate and mobilize relevant, high-quality, timely evidence into programs, practices and policies that advance the Quadruple Aim and health equity for all.

Objective

The objective of the third priority is to develop impact-generating HSPR programs that align with healthcare system and patient/community priorities, support meaningful engagement of all stakeholders and accelerate the path from evidence to impact through effective knowledge mobilization.

Strategies to achieve the third priority

Strategies to achieve the third priority include the following:

1. Strengthen engagement and collaborative partnerships among researchers and healthcare providers, decision makers and patients/caregivers/family/the public through the design of funding opportunities and knowledge mobilization activities.
2. Accelerate impact through innovative research funding program design: Build upon successful innovative research funding models that include elements of researcher embeddedness, rapid learning, agile implementation, contextualized dissemination, implementation science, scale and spread and alignment with healthcare systems and public priorities.
3. Partner for impact: Collaborate with partners, including provincial funding agencies; federal, provincial and territorial departments of health; Canadian Health Services and Policy Research Alliance (CHSPRA); the Pan-Canadian Health Organizations and the Canadian Association for Health Services and Policy Research; and HSPR organizations in other countries to amplify and optimize the impact and outcomes of strategic research investments and activities.
4. Contribute to the science of science: Develop a research-on-research strategy for IHSPR that informs the creation of high-value, high-impact research programs and supports the HSPR community to plan for impact within their grants. In addition, encourage and support the use of CHSPRA's impact framework, titled *Making an Impact:*

A Shared Framework for Assessing the Impact of Health Services and Policy Research on Decision-Making (CHSPRA 2018), across the HSPR sector and integrate its use within CIHR IHSPR evaluation and reporting mechanisms.

5. Support evidence-informed decision making by patients, providers and decision makers by designing mechanisms that support the mobilization of research evidence in programs, practice and policy.

Expected impact

In five years, IHSPR's strategic research funding programs and activities will be optimized to foster research impact that improves healthcare system performance, equity and outcomes, and there will be stronger research evidence about the pathways to research impact. Strong partnerships among researchers, providers, decision makers, patients and the public will increase the likelihood that adoptable, sustainable and scalable evidence-informed interventions and policies are implemented in the healthcare system.

Strategic Priority 4: Strengthening capacity for solution-oriented research and evidence-informed healthcare system transformation

The context

The magnitude of challenges confronting healthcare systems is unprecedented. Tackling these challenges with evidence-informed solutions requires a highly trained HSPR workforce with cutting-edge research skills and the professional competencies required to lead, inform and implement change. Emerging and established research leaders must be equipped with a toolkit of research and professional competencies, such as inclusive leadership, change management and implementation (Bornstein et al. 2018; CHSPRA 2015; CAC 2021) and skills to incorporate equity, diversity and inclusivity in research and practice. Opportunities must be provided for researchers to work hand-in-hand with decision makers, providers, communities and patients to identify and address high-priority evidence needs. Embedded and partnered research funding programs that position researchers at the coalface of policy and decision making will strengthen the capacity of health system organizations to generate and use research to inform decisions and build enduring relationships between academic and health system organizations. In doing so, embedded and partnered research funding programs can serve as a catalyst for evidence-informed healthcare system transformation.

Sophisticated methodological expertise and interdisciplinary, intersectoral collaboration are also critical elements of tackling complex healthcare delivery system challenges with an equity lens. Research funding programs can help to optimize the interdisciplinary richness of the HSPR field and put a focus on equity by bringing together health services researchers with economists, political scientists, lawyers, artificial intelligence scientists, behavioural scientists, other research experts, decision makers, providers and patients from different sectors to co-develop and apply creative solutions to complex challenges.

Goal

The goal of the fourth priority is to enhance capacity to generate solution-oriented research, apply evidence and implement evidence-informed interventions that transform healthcare delivery systems to achieve the Quadruple Aim and health equity for all.

Objective

The objective of the fourth priority is to train and support the HSPR workforce to tackle the complex healthcare system challenges of

the present and the future and to equip this workforce with the capabilities to inform the implementation of solutions that transform healthcare delivery systems to achieve the Quadruple Aim and health equity for all.

Strategies to achieve the fourth priority
Strategies to achieve the fourth priority include the following:

1. Collaborate with university training programs, health system organizations, research funders and CHSPRA to foster modernized training approaches that equip graduate, post-doctoral and early career researchers with an enriched set of core competencies, applied training experiences and mentorship that amplify their capacity to make a positive health and societal impact throughout their careers within and outside of academia.
2. Support embedded research models across multiple career stages that accelerate the generation of timely, responsive evidence and foster learning health system environments that promote rapid learning and continuous improvement.
3. Strengthen capacity for interdisciplinary and intersectoral collaborations – grounded in principles of co-production and commitment to equity – that harness the expertise of the diverse disciplines and sectors that comprise the healthcare ecosystem, to work together to address complex challenges.
4. Develop HSPR talent for cutting-edge science and methodological innovations that generate new insight and catalyze solutions.
5. Contribute to CIHR's development of a "policy framework … that will address gaps in training and support across all career stages, transitions, and paths" (CIHR 2021: 15) and ensure its relevance and value to the HSPR community.

Expected impact
In five years,

- a new cadre of PhD graduates will be equipped with the research and professional skills to lead evidence-informed healthcare system transformation;
- an increased number of health system organizations will have embedded research capacity, employ researchers within their organizations and embrace a culture of rapid learning and continuous improvement; and
- health services and policy researchers will be working in partnership with decision makers, providers, patients and the public to address high-priority challenges and accelerate evidence-informed healthcare system transformation.

Partnerships

The challenges confronting healthcare systems in Canada are complex and multifaceted. A collective, partnered approach to address shared priorities and accelerate learning health systems will be essential for making a transformative impact and achieve the Quadruple Aim and health equity for all. IHSPR values its partnerships with organizations and communities in Canada and internationally and commits to working collaboratively to implement this strategy. IHSPR also commits to creating and supporting opportunities for integrated partnerships between researchers and knowledge users within its funding initiatives.

Importantly, IHSPR and the HSPR community must continue to foster key collaborative partnerships, such as the CHSPRA. CHSPRA brings together partner organizations from across the country to work collectively on systemic challenges and invest in high-priority areas of interest.

Our Impact

To position HSPR as the innovation engine of healthcare systems (Tamblyn et al. 2016) that advance toward achieving the Quadruple Aim and health equity, IHSPR will be deliberate in its approach to ensure that the systems' needs and those of patients, caregivers and communities are reflected in all facets of its work to implement this strategic plan. IHSPR uses a "relevance by design" approach in its strategic planning, and to guide its investments in program development, engagement activities, funding opportunities and peer review designs. This approach aims to build linkages between researchers and stakeholders to ensure that the research is relevant to the systems' needs. IHSPR's mission has always been to catalyze the application of robust research findings to policies, practice and programs that support high-quality care for Canadians, and its relevance by design approaches have helped move the dial toward impact over the last two decades of research investment.

IHSPR has made clear commitments to health equity and identified equity, diversity and inclusion as a core value in this strategic plan. The true impact of this plan therefore depends on IHSPR taking concrete steps to operationalize these commitments and take action. Initial actions include:

- an enhanced concept of research excellence that includes advancing equity and social impact;
- designing research funding programs that explicitly include health equity in their objectives to signal that all improvement and transformation efforts must be done with attention to equity and an analysis of the equity implications;
- a focused investment in research at "the intersection of health services and policy and population health that integrates upstream prevention within health care delivery settings/approaches to improve health, health equity and well-being, and addresses the social determinants of health" (CIHR IHSPR 2021: 11) to address systemic inequities and reduce disparities; and
- advancing the development of equity metrics and key performance indicators that allow for analysis of progress toward health equity and reduction of disparities (Liburd et al. 2020).

IHSPR will also critically examine its funding programs for potential barriers and biases that could introduce or exacerbate inequities in application and success rates and compromise the diversity of the HSPR workforce. We have a lot to do, and it starts with acting on the commitments identified in this plan.

Moving forward, IHSPR will continue to incorporate relevance by design principles within funding programs, ensure that activities are centred on integrated knowledge translation approaches and support effective dissemination and implementation. Attention to equity, diversity and inclusion will underpin these efforts. IHSPR will use CHSPRA's (2018) *Making an Impact* framework as its guiding light and commit to monitoring and assessing its own impact in order to build improved research funding programs that contribute to greater health, system and social impact.

Concluding Remarks

IHSPR's strategic plan outlines the Institute's key priority areas for investment and activity over the next five years. Using an evidence-informed strategic planning process that was pan-Canadian in scope and designed to elicit the priorities of decision makers, providers, researchers, patients and the public, IHSPR prioritized four key strategic priorities:

1. accelerating the discovery of innovations that transform healthcare delivery systems to achieve the Quadruple Aim and improve health equity for all;
2. modernizing the healthcare system with digital health solutions and data science;
3. fostering the integration of evidence into health services and policy decisions for improved healthcare system performance and outcomes; and
4. strengthening capacity for solution-oriented research and evidence-informed healthcare system transformation.

Through implementation of this plan, IHSPR will support the generation of timely, relevant, equitable and impactful research that can be mobilized to improve the healthcare system and the overall health and well-being of Canadians. Importantly, accelerating healthcare system transformation through research to achieve the Quadruple Aim and health equity for all is a lofty goal and not one that IHSPR can achieve alone. IHSPR is one player in an ecosystem of partners that share a commitment to evidence-informed healthcare system transformation, and IHSPR is committed to working with CIHR's institutes and branches, CHSPRA, provincial funding agencies, ministries of health and health systems, health providers, policy and decision makers, patients, the public and other key partners to leverage collective efforts to advance this goal. As a learning organization, IHSPR is committed to the science of science and will study, learn, adapt and improve programs and activities to optimize their value and contribution to the HSPR community and Canada's healthcare systems.

Acknowledgements

We wish to give very special thanks to our IAB, which comprises dedicated and brilliant individuals from research-based, health services delivery-based, governmental, health charity-based, research funding-based, Indigenous and patient-based communities. Thank you for the rich discussions and your insightful feedback. At the time of writing this strategy report, IHSPR's IAB members included the following members and professional affiliations:

- Stirling Bryan (chair at the time of writing this strategy report [now retired from the IAB]), professor, School of Population and Public Health, University of British Columbia; senior scientist, Centre for Clinical Epidemiology and Evaluation, Vancouver Coastal Health; professor (part-time), Health Economics Research Unit, University of Aberdeen; president, BC Academic Health Science Network.
- Christina Weise (current chair, vice-chair at the time of writing this strategy report), president and CEO, Weise Insights Ltd.
- Katie Aubrecht, Canada Research Chair in Health Equity and Social Justice; assistant professor, Department of Sociology, St. Francis Xavier University.
- Arlene Bierman, director, Center for Evidence and Practice Improvement, Agency for Healthcare Research and Quality.
- Thomas Beaudry, community coordinator, Engagement and Reconciliation, Agriculture and Resource Development, Province of Manitoba.
- Antoine Groulx, family physician; full professor, Clinical Medicine, Université Laval; general director, Alliance santé Québec; scientific director, Quebec SPOR Unit.
- Alies Maybee, patient partner; co-founder, Patient Advisors Network.
- Tom Noseworthy, professor (Health Policy and Management), Community Health Sciences and O'Brien Institute

for Public Health, Cumming School of Medicine, University of Calgary.
- Marcel Saulnier, associate assistant deputy minister, Strategic Policy Branch, Health Canada.
- Anne Snowdon, professor, Strategy and Entrepreneurship; academic chair, World Health Innovation Network, Odette School of Business, University of Windsor.
- Vasanthi Srinivasan, executive director, Ontario SPOR SUPPORT Unit.
- Ross Upshur, head, Division of Clinical Public Health, Dalla Lana School of Public Health.
- Pamela Valentine, president and CEO, MS Society of Canada.
- Verna Yiu, president and CEO, Alberta Health Services.

Correspondence may be directed to: Meghan McMahon, CIHR Institute of Health Services and Policy Research, ICES, 2075 Bayview Avenue, Toronto, ON M4N 3M5. Meghan can be reached by e-mail at mmcmahon.ihspr@ices.on.ca.

The full strategic plan is available on the IHSPR website. Please visit: https://cihr-irsc.gc.ca/f/52481.html.

Le plan stratégique complet est disponible sur le site Web de l'ISPS, à https://cihr-irsc.gc.ca/f/52481.html.

References

Bhatia, R.S., K.G. Shojania and W. Levinson. 2020. Cost of Contact: Redesigning Healthcare in the Age of COVID. *BMJ Quality and Safety* 30(3): 236–39. doi:10.1136/bmjqs-2020-011624.

Bornstein, S., M. Heritage, A. Chudak, R. Tamblyn, M. McMahon and A.D. Brown. 2018. Development of Enriched Core Competencies for Health Services and Policy Research. Health Services Research 53(2): 4004–23. doi:10.1111/1475-6773.12847.

Canadian Health Services and Policy Research Alliance (CHSPRA). 2015, December 7. *Modernizing Health Services and Policy Research Training: A Pan-Canadian Strategy*. Retrieved November 9, 2021. <https://c2756327-591d-43bb-b7c1-8fa96cea8a2.filesusr.com/ugd/5adc92_4b4c942ad52944948995389 2703473cc.pdf>.

Canadian Health Services and Policy Research Alliance (CHSPRA). 2018, August. *Making an Impact: A Shared Framework for Assessing the Impact of Health Servicse and Policy Research on Decision-Making*. Retrieved November 9, 2021. <https://c2756327-591d-43bb-b7c1-a8fa96cea8a2.filesusr.com/ugd/5adc92_3ae941eaedb04ab4a66b6f83f98a479d.pdf>.

Canadian Institute for Health Information (CIHI). 2021a. *National Health Expenditure Trends, 2020*. Retrieved November 8, 2021. <https://www.cihi.ca/sites/default/files/document/nhex-trends-2020-narrative-report-en.pdf>.

Canadian Institute for Health Information (CIHI). 2021b, December 9. Overview: COVID-19's Impact on Health Care Systems. Retrieved December 13, 2021. <https://www.cihi.ca/en/COVID-19-resources/impact-of-COVID-19-on-canadas-health-care-systems/overview-COVID-19s-impact-on>.

Canadian Institutes of Health Research (CIHR). 2016, November. *Action Plan: Building a Healthier Future for First Nations, Inuit, and Métis Peoples*. Retrieved November 10, 2021. <https://cihr-irsc.gc.ca/e/50372.html>.

Canadian Institutes of Health Research (CIHR) Institute of Indigenous Peoples' Health (IIPH). 2019. *Institute of Indigenous Peoples' Health Strategic Plan 2019–2024*. Retrieved November 10, 2021. <https://cihr-irsc.gc.ca/e/documents/cihr_iiph_strat_plan_2019-2024-en.pdf>.

Canadian Institutes of Health Research (CIHR). 2021. *Strategic Plan 2021–2031: The Best Health For All, Powered by Outstanding Research*. Retrieved November 10, 2021. <https://cihr-irsc.gc.ca/e/documents/cihr-strategic-plan-2021-2031-en.pdf>.

Canadian Institutes of Health Research (CIHR) Institute of Health Services and Policy Research (IHSPR). 2021. *Strategic Plan 2021–2026: Accelerate Health System Transformation through Research to Achieve the Quadruple Aim and Health Equity for All*. Retrieved November 10, 2021. <https://cihr-irsc.gc.ca/e/documents/ihspr_strat_plan_2021-26-en.pdf>.

The Conference Board of Canada. 2020, September. *Health Care Cost Drivers in Canada: Pre-and Post-COVID-19*. Retrieved December 10, 2021. <https://www.canadaspremiers.ca/wp-content/uploads/2020/10/CBOC_impact-paper_research-on-healthcare_final.pdf>.

The Council of Canadian Academies (CAC). 2021. *Degrees of Success: The Expert Panel on the Labour Market Transition of PhD Graduates*. Retrieved December 13, 2021. <https://cca-reports.ca/wp-content/uploads/2021/01/Degrees-of-Success_FullReport_EN.pdf>.

The Govenor General of Canada. 2020, September 23. *A Stronger and More Resilient Canada: Speech from the Throne to Open the Second Session of the Forty-third Parliament of Canada, September 23, 2020*. Retrieved December 10, 2021. <https://www.canada.ca/content/dam/pco-bcp/documents/pm/SFT_2020_EN_WEB.pdf>.

Liburd, L.C., J.E. Hall, J.J. Mpofu, S.M. Williams, K. Bouye and A. Penman-Aguilar. 2020. Addressing Health Equity in Public Health Practice: Frameworks, Promising Strategies, and Measurement Considerations. *Annual Review of Public Health* 41(1): 417–32. doi:10.1146/annurev-publhealth-040119-094119.

McMahon, M., M.I. Creatore, E. Thompson, A.M. Lay, S.J. Hoffman, D.T. Finegood et al. 2021. The Promise of Science, Knowledge Mobilization, and Rapid Learning Systems for COVID-19 Recovery. *International Journal of Health Services* 51(2): 242–46. doi:10.1177/0020731421997089.

McMahon, M., J. Nadigel, E. Thompson and R.H. Glazier. 2020. Informing Canada's Health System Response to COVID-19: Priorities for Health Services and Policy Research. *Healthcare Policy* 16(1): 112–24. doi:10.12927/HCPOL.2020.26249.

Nundy, S., L.A. Cooper and K.S. Mate. 2022. The Quintuple Aim for Health Care Improvement: A New Imperative to Advance Health Equity. *JAMA* 327(6): 521–22. doi:10.1001/jama.2021.25181.

Organisation for Economic Co-operation and Development (OECD). 2019. He*alth at a Glance 2019: OECD Indicators*. OECD Publishing.

Osborn, R., M.M. Doty, D.B. Moulds, D. Sarnak and A. Shah. 2017, November 16. *2017 Commonwealth Fund International Health Policy Survey of Older Adults*. Retrieved December 10, 2021. <https://www.commonwealthfund.org/sites/default/files/2019-01/Robin Osborn_2017 Survey Presentation_IHP Symposium.pdf>.

Tamblyn, R., M. McMahon, N. Girard, E. Drake, J. Nadigel and K. Gaudreau. 2016. Health Services and Policy Research in the First Decade at the Canadian Institutes of Health Research. *CMAJ Open* 4(2): E213–21. doi:10.9778/cmajo.20150045.

Webster, P. 2020. Virtual Health Care in the Era of COVID-19. *Lancet* 395(10231): 1180–81. doi:10.1016/S0140-6736(20)30818-7.

COMMENTARIES

Healthcare*Papers*

The Value of and Need for Health Services and Policy Research that Focuses on Macro System-Level Challenges

Valeur et nécessité d'une recherche sur les services et les politiques de santé axée sur les défis au niveau macro-systémique

COMMENTARY

Kimberlyn McGrail, PhD
Professor
Centre for Health Services and Policy Research
School of Population and Public Health
University of British Columbia
Vancouver, BC

Fiona Clement, PhD
Professor and Head
Department of Community Health Sciences
University of Calgary
Calgary, AB

Michael Law, PhD
Canada Research Chair in Access to Medicines
Centre for Health Services and Policy Research
School of Population and Public Health
University of British Columbia
Vancouver, BC

ABSTRACT

Much of health services and policy research is applied. We offer four provocations to stimulate thinking about the relationship between research and the "systems" it aims to influence. We conclude that a focus on partnership implies that researchers need to be empathetic to the timelines and needs of policy makers, while true relationships are bidirectional. Focusing on the priorities of "systems" will emphasize short-term issues. This leads to researchers often conducting post-implementation evaluation, where they have had little involvement in policy or intervention design. Finally, a focus on single-project return of investment will tend to undervalue riskier – but also potentially more rewarding – research.

RÉSUMÉ

Une grande partie de la recherche sur les services et les politiques de santé est appliquée. Nous proposons quatre idées pour stimuler la réflexion sur la relation entre la recherche et les « systèmes » qu'elle entend influencer. Nous concluons que l'accent mis sur le partenariat implique que les chercheurs doivent être sensibles aux échéanciers et aux besoins des décideurs, alors que les véritables relations doivent être bidirectionnelles. Se concentrer sur les priorités des « systèmes » équivaut à mettre l'accent sur les problèmes à court terme. Cela conduit souvent les chercheurs à effectuer des évaluations de suivi après la mise en œuvre de politiques ou d'interventions, dans lesquelles ils ont été peu impliqués. Enfin, l'accent mis sur le retour sur l'investissement pour des projets ponctuels porte à sous-évaluer la recherche plus risquée, mais aussi potentiellement plus intéressante.

Introduction

> Health services and policy research is the field of scientific investigation that generates evidence on how to create systems, policies and organizational structures and invest in programs, services and technologies that maximize health and health care system outcomes. (CIHR IHSPR 2021: 4)

In the newly-launched Canadian Institutes of Health Research – Institute for Health Services and Policy Research's (CIHR IHSPR's) strategic plan, the first strategic priority focuses on health systems changes that will "... achieve the Quadruple Aim and improve health equity for all" (CIHR IHSPR 2021: 11). The plan justifies this priority on the grounds that healthcare systems have continuously increasing costs and yet are not meeting all current needs. A lack of system optimization leads to many inefficiencies, including, for example, the high use of "alternate level of care" beds in hospitals (Lavergne 2015), people forgoing care either due to cost or lack of access (Horrill et al. 2019; Law et al. 2012) and health workforce challenges, such as high turnover and burnout. (Stelnicki et al. 2021).

There are, as the IHSPR strategic plan notes, "pockets of excellence" (CIHR IHSPR 2021: 12) and the COVID-19 pandemic both highlighted systemic weaknesses, overall and everywhere, and created new challenges. The pandemic also created the impetus for, and importantly the realization of, some significant policy changes. For example, the system introduced virtual care nearly overnight (Bhatia et al. 2021), after slow, sporadic and not-very-patient-centric progress for the previous decade (McGrail et al. 2017).

We have seen what can be done when there is collective focus and clear need. Recovery from the effects of COVID-19 will require long-term effort, drawing upon these same kinds of interdisciplinary and multistakeholder collaboration and policy acceleration that happened over the past two years.

Health services and policy research (HSPR) can make significant contributions both to pandemic recovery and to future health system strengthening. Some of this will come through the benefits of health services and policy research that is highly responsive to the declared immediate needs of decision makers. There are, however, risks to putting too many of our eggs in that one specific basket. The IHSPR strategic plan has many aspirations, and the success of HSPR over the coming years will depend on how that plan is implemented, how emphasis is given to its different priorities, how strategic funding is allocated to those priorities and how HSPR is seen and supported more broadly within CIHR.

With that in mind, in this article we outline four provocations to stimulate thinking about the relationship between HSPR and healthcare systems. In particular, we discuss the strengths of HSPR and the stated goal of partnerships and relationships between HSPR practice and healthcare systems planning and delivery. Our contention is that the current focus on "partnership" in the IHSPR strategic plan and elsewhere implies that HSPR needs to do most of the moving if it is to be of greater use to systems. We contend that while HSPR should indeed be prepared to evolve and respond to system needs, so, too should systems reflect on how each might improve its capacity to value both the theoretical and empirical products of HSPR.

Four Provocations

The need to challenge systems

Fundamentally, HSPR assesses system performance and seeks ways to improve. The difficulty in receiving "constructive criticism" is well documented, yet this is crucial for HSPR to achieve impact (Gnepp et al. 2020; Hardavella et al. 2017). Elements that make constructive criticism more likely to be well received include the context of trusted relationships, often built over many years. The focus on embedded researchers and responding to short-term priorities are two effective strategies to building these relationships. An embedded researcher who is able to transition seamlessly between the cultures of policy making and research creates a bridge across the two siloes; this person can help interpret the needs, translate the language and help the two distinct cultures see value in each other. This will only enhance the understanding of the importance and, over time, the impact of HSPR. In addition, responding to the short-term policy priorities of today strengthens the relationship between HSPR and policy. Helping a colleague respond to the crisis in front of them builds trust.

In the end, however, strong relationships are bidirectional and need to be built to enable and support challenging conversations about big systemic issues, including the failures of current practice. Without two-way trust, and the ability for HSPR practitioners to ask something of systems – equal to system partners asking things of HSPR – the relationship is weak and provisional at best. In that case, it would be better described as a one-way bargain in which HSPR practitioners can contribute only on terms set by the system.

We do not suggest that any individual in health systems wakes up in the morning with ill intent toward health services and policy researchers. The power dynamic, however, is that we as HSPR practitioners increasingly rely on partnerships for success with research grants, which brings us closer to the system, but also increases the risk or at least a perceived risk – to future projects or funding or relationships – of saying anything that might be seen as critical.

There are two possible solutions to this. One is that we accept that it is okay, or even desirable, to have researchers who do not have "friends" in the system. Critics are an important aspect of improvement, and not all grants that are sought will get a "stamp of approval" from policy makers, particularly if someone has been critical in the past or if the last thing policy makers want is empirical evidence about the wisdom (or lack thereof) of past or contemplated measures. The other is that the system itself becomes more resilient and tolerant of critique. It seems to us that the latter is more desirable. If that is not possible, then we need to make sure that HSPR funding streams and priorities clearly and unequivocally value and include more fundamental, and potentially challenging, research on equal terms and conditions to partnered and responsive research.

Overemphasis on short-term issues and challenges

In thinking about how HSPR can help, we tend to think in the short term. The interest is in identifying policy-makers' needs, and, more recently, patient priorities. This framing inevitably leads to articulating the challenges that are facing people today – which is understandable and important – but in its most extreme form, crowds out thinking about the challenges that are on the horizon or that we might be able to predict, but with something less than full certainty. Put another way, we tend to think about the second half of the quote above, the "programs, services and technologies," and much less about the "systems, policies and organizational structures" in which those function (CIHR IHSPR 2021: 4).

Part of this challenge may stem from the tension between what we do as academics in HSPR and the education of "HSPR practitioners." We equip Master's and PhD students with analytic tools and theoretical understanding relevant to HSPR, expecting that most will end up working in, or adjacent to, healthcare systems and not in academia. This training in policy-relevant (i.e., short-term) applied research ideally happens in a partnership that includes health system policy and decision makers; patients and families; and clinicians and faculty mentors. Through this, students learn both the theory and methods of HSPR and also develop broader competencies such as interdisciplinarity, collaboration, leadership and networking (Bornstein et al. 2018).

At the same time, as HSPR scientists, many of us are pursuing research that will likely not have an application for a number of years, if ever. One simple example of this is research related to alternate funding models for health services, or research that helps to inform the design and development of learning health systems. These are complex, multi-year endeavours, which draw on deep thinking and multi-disciplinarity.

The applied HSPR realm is a good training ground for students, but neglects the fact that science must also encompass the larger and longer-term pursuit of generalizable knowledge and "truth," as that can be understood in a context of evolving socio-technical systems that either support or diminish health (Carayon et al. 2011).

Academic research in this way can help plant the seeds for fundamental policy change, as well as assess current policy and practice.

Lack of priority on the early "phases" of policy development

A short-term orientation leads to smaller projects with shorter time frames, in order to respond to the "needs" of the system. In such an environment, how does HSPR compare to other parts of science? A useful comparison is to think about the phases of clinical trials. In the early stages of treatment development (phase 1), failure is rife, efficacy is unclear and the widespread adoption of a treatment is far from certain. Potential treatments then go through testing for efficacy (phase 2), effectiveness versus the standard of care (phase 3) and examination of effectiveness and safety after adoption (phase 4).

In health policy, however, there appears to be a limited appetite for seeking "equipoise" and testing new models of care (for example) through studies that are analogous to early-phase clinical trials. Instead, we most often appear to be doing phase 4 studies after the policy has been implemented, and, frankly, the horse has already left the barn. This is the very nature of being responsive to system and patient needs, but it will not drive knowledge generation at the more root level, as this can take years of development and testing and include a lot of failure along the way. To be clear, phase 4 studies of effectiveness and safety are important, but the failure in this case stems from the fact that they are not always, or even often, preceded by exploration of policy efficacy or effectiveness compared to current practice (i.e., phase 2–type or phase 3–type studies), prior to the broad implementation.

We recognize that not all changes can necessarily be evaluated in advance, and there are some examples of "policy trials" in Canada (Persaud et al. 2021; University of Calgary 2018). These examples, however, tend to be small-scale and are not necessarily associated with a clear path to broad implementation if they are successful. Perhaps more importantly, there seems to be an inverse relationship between the scale and cost of implemented policy and its grounding in solid empirical foundations and clear planning for robust phase 4–type assessment. We have all been involved in post-hoc assessments of broad policy initiatives (some, but not all, at the request of or with the support of health systems), and they all suffer for not clearly having such assessments in mind when they were put in place (Lavergne et al. 2016; McGrail et al. 2013).

External pressure for "return on investment" in systems that are at best partially rational

Another challenge for HSPR is the focus on "return on investment" (ROI) in research, knowledge translation and implementation science (Donovan and Hanney 2011). This can have some unintended consequences. First, instead of looking at ROI (for example) as an emergent property of the entire system of funding of health research, current processes (e.g., end-of-grant reporting) conceptualize it as an aggregate of ROI on each individual research project. This puts a focus on the individual rather than the collective, and results in a more risk-averse approach to funding decisions. If every project has to have some kind of ROI, and if failure is not valued, then ideas that are deemed risky will be rejected, even if they are interesting or creative or promising.

To put this bluntly, only small, incremental projects can be known in advance to have a positive ROI. In reality, some research will have impact and some things will not, and as described above, we need to embrace those

potential failures. We should acknowledge that showing that something does *not* work is an important contribution to HSPR knowledge, but if this information is not taken up by the system, then it will by definition have no ROI. Furthermore, some things that do not seem important now will emerge as big priorities later. The ROI in that sense has to be measured over a longer horizon, not just at the point a project is completed. Related to this, it is a foundational principle that science is not about a single study. Instead, it is an accretion of knowledge, with each individual study contextualized within what came before and what needs to come after. This means ROI is really better framed as about a body of work, or a body of research investment.

It is widely accepted by governments and granting agencies that you cannot take an overly bean-counting, utilitarian approach to funding for basic science research because that would leave no room for the creative exploration of fundamental realities, some of which will ultimately generate enormous returns, often in unpredictable ways. The experience of the pandemic, and the fact that the speed of vaccine development rested on decades of science, much of which did not have clear application during its fundamental stages, should make this point clear (Moore and Wilson 2021). HSPR needs to be cut the same slack.

Finally, all of the above-mentioned implies that when a policy window opens (Kingdon 1984), what you throw through it is research that is already completed, or small additions to existing research (e.g., for local context) that can be done in a short period of time. This still does not guarantee that research will be used, because policy is only at best evidence-informed, not algebraically derived from research-based evidence. Equally, this does not mean the research has zero ROI; it just means that other considerations won the day that day. It is sometimes a choice not to harvest the returns from the research at a particular time. That is not the fault of the research.

Conclusion

Our provocations relate to the emphasis we place on short-term priorities and the priority we place on the direct relationship between HSPR and health systems, an apparent ambivalence to the development of macro-level policy interventions parallel to how clinical interventions are developed and a focus on project-based rather than system-based ROI. While the IHSPR strategic plan provides strong guidance on priorities over the next five years, it may underemphasize the trajectory beyond that.

Whether that concern is justified will depend on the investments and priorities that flow from the strategic plan. We absolutely support relationship-based responses to current priorities, the importance of evaluation of existing policies related to funding, organization and delivery of care and the importance of ROI. But this is only one part of HSPR. As tactics are refined and rolled out, they will need to consider, as well, the university-based health services and policy researchers who have interests that might challenge current thinking and current practice. Tactics will need to consider that not all research needs or is able to find willing partners, given the contested nature of some of the work that is of interest to HSPR. They will also need to contemplate ways in which accountability for ROI can be shared with the system. This may mean thinking about opportunities to increase openness of systems to critique, but that project is perhaps not solely the responsibility of IHSPR or CIHR.

The balance in all of this may not be obvious or easy to achieve, but very rarely do important and complex issues have simple solutions. The failure will only be in not trying.

Correspondence may be directed to: Kimberlyn McGrail, 201-2206 East Mall, Vancouver, BC V6T 1Z3. Kimberlyn can be reached by phone at 778-998-3821 or by e-mail at kim.mcgrail@ubc.ca.

References

Bhatia, R.S., C. Chu, A. Pang, M. Tadrous, V. Stamenova and P. Cram. 2021. Virtual Care Use before and during the COVID-19 Pandemic: A Repeated Cross-Sectional Study. *CMAJ Open* 9(1): E107–14. doi:10.9778/cmajo.20200311.

Bornstein, S., M. Heritage, A. Chudak, R. Tamblyn, M. McMahon and A.D. Brown. 2018. Development of Enriched Core Competencies for Health Services and Policy Research. Health Services Research 53(Suppl_2): 4004–23. doi:10.1111/1475-6773.12847.

Canadian Institutes of Health Research (CIHR) Institute of Health Services and Policy Research (IHSPR). 2021. *Strategic Plan 2021–2026: Accelerate Health System Transformation through Research to Achieve the Quadruple Aim and Health Equity for All*. Retrieved March 1, 2022. <https://cihr-irsc.gc.ca/e/documents/ihspr_strat_plan_2021-26-en.pdf>.

Carayon, P., E.J. Bass, T. Bellandi, A.P. Gurses, M.S. Hallbeck and V. Mollo. 2011. Sociotechnical Systems Analysis in Health Care: A Research Agenda. *IIE Transactions on Healthcare Systems Engineering* 1(3): 145–60. doi:10.1080/19488300.2011.619158.

Donovan C. and S. Hanney. 2011. The "Payback Framework" Explained. *Research Evaluation* 20(3): 181–83. doi: 10.3152/095820211X13118583635756.

Gnepp, J., J. Klayman, I.O. Williamson and S. Barlas. 2020. The Future of Feedback: Motivating Performance Improvement through Future-Focused Feedback. *PLoS One* 15(6): e0234444. doi:10.1371/journal.pone.0234444.

Hardavella, G., A. Aamli-Gaagnat, N. Saad, I. Rousalova and K.B. Sreter. 2017. How to Give and Receive Feedback Effectively. *Breathe* 13(4): 327–33. doi:10.1183/20734735.009917.

Horrill, T.C., J. Linton, J.G. Lavoie, D. Martin, A. Wiens and A.S.H. Schultz. 2019. Access to Cancer Care among Indigenous Peoples in Canada: A Scoping Review. *Social Science & Medicine* 238:112495. doi:10.1016/j.socscimed.2019.112495.

Kingdon, J.W. 1984. *Agendas, Alternatives, and Public Policies*. Little, Brown and Company.

Lavergne, M.R. 2015, April 27. *Regional Variation in Alternate Level of Care (ALC) Service Use in British Columbia Hospitals: An Opportunity for Intervention?* Institute for Health System Transformation & Sustainability. Retrieved March 16, 2022. <http://ihsts.ca/wp-content/uploads/2016/06/BC-ALC-Report-Lavergne-2015.pdf>.

Lavergne, M.R., M.R. Law, S. Peterson, S. Garrison, J. Hurley, L. Cheng et al. 2016. A Population-Based Analysis of Incentive Payments to Primary Care Physicians for the Care of Patients with Complex Disease. *CMAJ* 188(15): E375–83. doi:10.1503/cmaj.160692.

Law, M.R., L. Cheng, I.A. Dhalla, D. Heard and S.G. Morgan. 2012. The Effect of Cost on Adherence to Prescription Medications in Canada. *CMAJ* 184(3): 297–302. doi:10.1503/cmaj.111270.

McGrail, K.M., M.A. Ahuja and C.A. Leaver. 2017. Virtual Visits and Patient-Centered Care: Results of a Patient Survey and Observational Study. *Journal of Medical Internet Research* 19(5): e177. doi:10.2196/jmir.7374.

McGrail K.M., M.B. Lilly, M.J. McGregor, A.-M. Broemeling, K. Salomons, S. Peterson et al. 2013. Health Care Services Use in Assisted Living: A Time Series Analysis. *Canadian Journal of Aging* 32(2): 173–83. doi:10.1017/S0714980813000159.

Moore, J.P. and I.A. Wilson. 2021, January 5. Decades of Basic Research Paved the Way for Today's 'Warp Speed' COVID-19 Vaccines. *STAT*. Retrieved February 27, 2022. <https://www.statnews.com/2021/01/05/basic-research-paved-way-for-warp-speed-COVID-19-vaccines/>.

Persaud, N., M. Bedard, A. Boozary, R.H. Glazier, T. Gomes, S.W. Hwang et al. 2021. Adherence at 2 Years with Distribution of Essential Medicines at No Charge: The CLEAN Meds Randomized Clinical Trial. *PLoS Medicine* 18(5): e1003590. doi:10.1371/journal.pmed.1003590.

Stelnicki, A.M., L. Jamshidi, A. Angehrn, H.D. Hadjistavropoulos and R.N. Carleton. 2021. Associations between Burnout and Mental Disorder Symptoms among Nurses in Canada. *Canadian Journal of Nursing Research* 53(3): 254–63. doi:10.1177/0844562120974194.

University of Calgary. 2018. The ACCESS Trial. Retrieved February 27, 2022. <https://www.ucalgary.ca/research/participate/study/13800/access-trial>.

The Network of Scholars Strategy: A Case Study of Embedded Research Activities in Nova Scotia to Advance Health System Impact and Outcomes

La stratégie du Réseau de chercheurs : une étude de cas d'activités de recherche intégrées en Nouvelle-Écosse pour faire progresser l'impact et les résultats du système de santé

COMMENTARY

Gail Tomblin Murphy, PhD, RN, FAAN
Vice President
Research, Innovation and Discovery
Nova Scotia Health
Halifax, NS

Meaghan Sim, PhD
Health Outcomes Scientist
Research, Innovation and Discovery
Nova Scotia Health
Halifax, NS

Tara Sampalli, PhD
Senior Scientific Director
Research, Innovation and Discovery
Nova Scotia Health
Halifax, NS

Jennifer Murdoch, PhD
Health Outcomes Scientist
Research, Innovation and Discovery
Nova Scotia Health
Halifax, NS

Mark Embrett, PhD
Health Outcomes Scientist
Research, Innovation and Discovery
Nova Scotia Health
Halifax, NS

Kathryn McIsaac, PhD
Health Outcomes Scientist
Research, Innovation and Discovery
Nova Scotia Health
Halifax, NS

Caroline Chamberland-Rowe, PhD(c)
Health Outcomes Scientist
Research, Innovation and Discovery
Nova Scotia Health
Halifax, NS

Logan Lawrence, PhD
Health Outcomes Scientist
Research, Innovation and Discovery
Nova Scotia Health
Halifax, NS

Maggie MacLellan, MHA
Coordinator
Research, Innovation and Discovery
Nova Scotia Health
Halifax, NS

Julia Guk, MHA
Program Manager
Research, Innovation and Discovery
Nova Scotia Health
Halifax, NS

Marta MacInnis, MHA
Coordinator
Research, Innovation and Discovery
Nova Scotia Health
Halifax, NS

Andrea Carson, PhD
Health Outcomes Scientist
Research, Innovation and Discovery
Nova Scotia Health
Halifax, NS

Ryley Urban, EIT, MASc
Coordinator
Research, Innovation and Discovery
Nova Scotia Health
Halifax, NS

ABSTRACT

The Canadian Institutes of Health Research – Institute of Health Services and Policy Research's (IHSPR's) Strategic Plan 2021–2026 *for accelerating health system transformation is well positioned to meet the strategic priorities being outlined by many health systems in Canada and internationally (CIHR IHSPR 2021). The IHSPR Health System Impact Fellow program has been a strong influence on the embedded research and scientist program in Nova Scotia, namely, the Network of Scholars Program, which was implemented just before the pandemic. The network includes scientists and scholars from diverse academic backgrounds and skill levels including alumni of the Health System Impact Fellow program. The Network of Scholars has over 30 scholars and approximately 100 academic partners and scientists supporting embedded activities such as rapid reviews, implementation science and rapid evaluation initiatives. These embedded activities are front facing to the needs and priorities of the health system. This commentary highlights the importance of IHSPR's outlined strategic plan and direction, which are consistent with the experience and the needs for embedded supports within the Nova Scotia health system.*

RÉSUMÉ

Le Plan stratégique 2021–2026 *de l'Institut des services et des politiques de la santé (ISPS) des Instituts de recherche en santé du Canada pour accélérer la transformation du système de santé répond aux priorités stratégiques définies dans de nombreux*

systèmes de santé au Canada et à l'étranger (CIHR IHSPR 2021). Le programme des bourses d'apprentissage en matière d'impact sur le système de santé de l'ISPS a eu une grande influence sur le programme intégré de science et de recherche en Nouvelle-Écosse, à savoir le programme du Réseau de chercheurs, mis en œuvre juste avant la pandémie. Le Réseau comprend des scientifiques et des chercheurs de divers horizons universitaires et divers niveaux de compétence, notamment des anciens du programme des bourses d'apprentissage. Le Réseau compte plus de 30 chercheurs et environ 100 partenaires universitaires et scientifiques qui œuvrent à des activités intégrées telles que des examens rapides, la théorie de la mise en œuvre et des initiatives d'évaluation rapide. Ces activités intégrées font face aux besoins et aux priorités du système de santé. Ce commentaire souligne l'importance du Plan stratégique de l'ISPS, qui est conforme à l'expérience et aux besoins de soutiens intégrés au sein du système de santé de la Nouvelle-Écosse.

Background

The vision for a high performing health system is the integration of best possible evidence in planning, service design and delivery. These attributes are considered foundational enablers of a learning health system (LHS) leading to continuous quality improvements, impacts on the Quadruple Aim and innovative and sustainable solutions (Gould et al. 2020). In theory, this is the ideal state for how health systems need to operate and function – that is, being driven by best practice evidence and innovative solutions that guide planning, policy setting and service delivery. However, many health systems are often challenged in applying evidence and solutions in real time (Holmes et al. 2017). A major barrier for research evidence to translate to policy and decision making is the lack of structures or mechanisms for policy and decision makers to access relevant findings in a timely manner and to have the findings presented in a way to make them readily usable for planning, decision making and policy setting (Al Sabahi et al. 2020). Another issue, which has recently been highlighted during the COVID-19 pandemic, is the rapidness and the volume of evidence generated, making it difficult for distillation and interpretation by decision makers in real-time planning (Embrett et al. 2022a, 2022b; Ghaffar et al. 2017; Lavis et al. 2018; Moat et al. 2021; Nova Scotia Health 2021; Tomblin Murphy et al. 2021; Tricco et al. 2020). There are overall challenges to researchers and policy/decision makers to collaborate in a way that supports translation of research knowledge to practice. These challenges underscore the importance of the new strategic priorities from the Canadian Institute of Health Research (CIHR) – Institute of Health Policy Research (IHSPR) that will help guide the strengthening of relationships between researchers and decision makers to co-produce evidence that impacts decisions (CIHR IHSPR 2021).

In its "Strategic Priority 3," IHSPR highlights the importance of integration of "evidence into health services and policy decisions for improved health care system performance and outcomes," (CIHR IHSPR 2021: 17) and it has never been more important as health systems recover from the current pandemic and prepare for a possible next one. As outlined, this priority is not a new direction for healthcare systems but, rather, it reinforces the need for systems to accelerate the use of evidence in planning and decision making. The mission of an evidence-informed rapid LHS – initially described over a decade ago – is to be supported through

leadership that focuses on collaboration and co-learning enabled through integrated data delivery systems, national networks of rapid learning organized around populations and health-related conditions and research networks (Etheredge 2007, 2014). Despite an increasing emphasis on developing LHSs, challenges to integrating research evidence to inform system performance improvements continue to be so in the absence of viable structures embedded within systems to support this integration (Braithwaite et al. 2020).

While paths to implementing an LHS are varied, some consistency is found in experience, such as identification of barriers and enablers. Enablers include a skilled workforce and capacity building (Enticott et al. 2020; Zurynski et al. 2020); embedded scholarship that focuses on maximizing learning for all stakeholders (Damschroder et al. 2021); a continuous culture of learning (Enticott et al. 2020; Platt et al. 2020) fostered through the commitment of organizational leadership and alignment of goals (Damschroder et al. 2021); infrastructure to evaluate investments in evidence-based innovations (Damschroder et al. 2021; Enticott et al. 2020), including data infrastructure (Enticott et al. 2020; Platt et al. 2020; Zurynski et al. 2020); open stakeholder partnerships (Zurynski et al. 2020); and true horizontal and vertical system integration (Damschroder et al. 2021; Enticott et al. 2020).

Gaps continue to be identified (Platt et al. 2020), including the involvement of stakeholders and data integration and the need for a better understanding of the implications of an LHS from a policy and practice perspective. A top challenge to successful integration of LHS is also aligning evidence to the health system priorities or needs (Damschroder et al. 2021).

In today's healthcare context, we view the third strategic priority as a *reaffirmation* of how critical an LHS is (and its related, supportive elements, such as embedded scholarship) to advancing health system priorities toward improved health outcomes for all. We describe throughout this commentary how Nova Scotia is an exemplar of a rapid LHS in both development and action, with a deliberate attendance to the role and positioning of embedded scholarship within the provincial health authority.

IHSPR's strategic priorities and vision for embedded research concur with Nova Scotia Health's (NSH) journey of integrating embedded researchers and scientists within the health system driven by the strategic priorities of the research, innovation and discovery (RID) portfolio (Nova Scotia Health 2020). NSH is the provincial health system and provides health services to Nova Scotians and some specialized services to all Atlantic Canadians. NSH includes employees, physicians and healthcare professionals, teams, volunteers, patient and family advisors, researchers and learners. NSH operates hospitals, health centres and community-based programs across the province. This commentary highlights a key strategy in Nova Scotia and NSH for establishing embedded researchers and scientists, the early impacts of the strategy and the alignment with IHSPR's outlined strategic priorities (CIHR IHSPR 2021).

Embedded Researchers and Role within Health Systems

Embedded research engages individuals working in the healthcare system to highlight implementation barriers and related healthcare system shortcomings through scientific inquiry; it is contextually relevant, focuses on addressing local issues and aligns with organizational priorities, objectives and culture (WHO 2018). The embedding of early- to mid-career researchers of policy,

practice and implementation is considered a crucial and innovative next step to strengthening health systems (Ghaffar et al. 2017) and is recognized for its ability to help improve health system performance (Vindrola-Padros et al. 2017).

There have been several attempts made to define the role and characteristics of an embedded researcher (Kanani et al. 2017) partly because the specifics of the role and definitions may differ between organizations. Several key characteristics, however, have emerged, including that the embedded researcher or scholar (1) is affiliated to an academic institution as well as an organization outside of academia, (2) is seen as part of the team, (3) generates knowledge addressing the needs of the host organization and (4) builds research capacity in the host organization.

Establishing tangible outcomes of embedded scholars directly linked or measured to system or patient outcomes can be challenging. However, the need for and the evidence of embedded scholarly activities within health systems, including emerging strategies and visible structures, are measurable, especially since the onset of the pandemic across Canada and globally. During the pandemic, many health systems have renewed their commitment to work with embedded scientists and academic partners and fund priority research to inform policy and planning. There has been an increasing trend in the conduct of rapid reviews linked to jurisdictions across Canada, although it is not clear how many are linked to sustainable strategies post pandemic (Blanchette et al. 2019). There is also emerging evidence that embedded researchers help build internal capacity for conducting and incorporating research into practice (Kanani et al. 2017). Finally, it has been shown that the integration of researchers working with decision makers and policy makers, providers and teams can help improve uptake of health systems research (Ghaffar et al. 2017; Langlois et al. 2019).

Health System Impact Fellows: Integrating Capacity for Embedded Research into Health Systems Operations

One example of an embedded research initiative in Canada is the CIHR Health System Impact Fellowship (HSIF) (McMahon et al. 2019). The program was created, in part, to address the need to improve skilled research capacity within healthcare organizations. An increase in skilled research capacity will help health systems adopt an LHS approach by enabling evidence-informed system transformation (Sim et al. 2019). A key objective of the program is to provide healthcare organizations with opportunities to integrate academically trained researchers by bringing their scientific expertise and rigour to address real-world challenges and priorities presented within health system settings (McMahon et al. 2019; Sim et al. 2019). The HSIF model is based on a long-standing program called Delivery System Science Fellowship (https://academyhealth.org/dssf) by AcademyHealth based in the US (Kanani et al. 2017), and this program recognizes that embedded researchers are essential to supporting an LHS. AcademyHealth defines LHS as a system "where applied, operationally relevant research is systematically designed, generated, and translated into high-quality care delivery" (Kanani et al. 2017: 570).

NSH's Embedded Research Strategy: A Journey toward Becoming an LHS

The value of embedded research and implementation science in supporting health system transformation and optimal performance for NSH was initially identified in the blueprint for strategic direction for NSH's RID portfolio (Nova Scotia Health 2020). Before the

launch of the Implementation Science Team in RID, an NSH-wide organizational strategy for implementation science was non-existent. The report presented a clear opportunity and a need for an implementation science unit or team to support the integration of best practice evidence and translation into practice and the need for a strategy for an LHS. The report also identified leveraging key enabling structures within the organization, such as the culture for research and quality, capabilities for advanced analytics and the structures for quality improvement. Strong enablers for an enhanced research environment and partnerships include (1) the Research Methods Unit and affiliate scientists program, (2) key structures and partnerships to promote working relationships with academic community and organizations, including grants that supported partnerships such as the QE II Health Sciences Foundation's Translating Research into Care grants and (3) the involvement of patients and families and community advisors in quality improvement and research activities (Nova Scotia Health n.d.a., n.d.b., 2020). The formation of new strategies for the NSH RID portfolio in 2018, including the vision of a health innovation hub, is seen as being instrumental in mobilizing the vision for an embedded research strategy that includes the Network of Scholars and the Implementation Science Team (Brooks 2022; Nova Scotia Health 2020). This team of scholars, referred to as the "Network of Scholars" (NoS), supports the need for evidence aligned with the healthcare system and patient priorities, encourages meaningful participation of all stakeholders and applies principles of integrated knowledge translation. Alumni of the HSIF program play a key role within the NoS as mentors and supervisors for new scholars who are recruited to support the needs and key priorities of the system.

The key strategic priorities of the RID portfolio, namely, to improve priority needs of Nova Scotians through the use of best practice and cutting-edge evidence are aligned with IHSPR's third strategic goal, which is related to enhancing the embedded researcher's role to support the integration of timely evidence into priority health services and policy decisions and to improve health care system performance and outcomes (CIHR IHSPR 2021).

The RID strategy in NSH, implemented in early 2020, calls for teams of embedded scholars; innovators; scientists and clinical and health system champions; and patients and community advisors from across the province to come together in new ways to build a better healthcare system (Nova Scotia Health 2020). The NoS' design is based on the well-established HSIF and other relevant models with its key activities being front-facing to the priorities of the system, including support to conduct rapid reviews, implementation science initiatives and rapid evaluation of implementations (Brooks 2022). These activities are targeted toward strengthening capacity for solution-oriented research and evaluation that drives evidence-informed healthcare system transformation, policy and planning and the creation of learnings for future implementations. This strategic direction reflects IHSPR's "Strategic Priority 4" (CIHR IHSPR 2021: 20) by engaging more than 80 emerging and seasoned health researchers from across the province to facilitate collaboration among local experts, trainees and emerging scholars to increase capacity to develop on-demand synthesis products and other health system–related outputs in a timely manner.

Embedded Fellows and NoS Strategies in NSH

Since 2017, there are six HSI fellows who have been awarded the fellowship to work within NSH. Fellows are fully integrated within RID's broader strategy of embedded scholarship and are developing a nimble

LHS that has similar goals as IHSPR's "Strategic Priority 1" (CIHR IHSPR 2021: 11). Through the structures created by the transformation of the RID portfolio – the development of RID's strategic priorities, the implementation of the Blueprint recommendations and NoS – the HSI fellows have helped accelerate the adoption of embedded scholarly activities within the NSH system. The COVID-19 pandemic has been a catalyst in demonstrating the need for applying rapidly emerging evidence to inform key policies and planning decisions including surge capacity and health human resource planning strategies (Moat et al. 2021; Tomblin Murphy et al. 2021). Other evidence needs addressed by the NoS strategy to inform priority planning and policies include access to care strategies, implementation of service frameworks, rural health planning, virtual care implementations and digital health solutions. These strategic activities are also observed as key activities to achieve IHSPR's "Strategic Priority 2" (CIHR IHSPR 2021: 14) and aim to achieve the Quadruple Aim and health equity for all.

Early Impacts

Nova Scotia is well under way to leveraging on the success and presence of HSIFs leading and supporting key embedded research activities within NSH (Brooks 2022; Moat et al. 2021; Nova Scotia Health 2020; Tomblin Murphy et al. 2021). There are currently over 30 part-time to full-time scholars and scientists working with the network including six HSIFs. There are over 100 affiliate scientists and academic partners working in the network or supporting network activities, including patient advisors, system leaders and providers in various capacities. Key activities of the network are aligned with supporting scholars and scientists to achieve health system competencies and skills that have been developed based on leading practices such as the HSIF program.

Early impacts of embedded activities conducted by NoS and the Implementation Science Team, with key partners, are shown in Table 1.

Globally, the strategic directions in health systems are geared toward a focus on innovation, digital solutions, enhanced and

Table 1. Early impacts of the embedded scientists program in Nova Scotia (as of May 2022)

Embedded activities	Numbers since January 2020
Total rapid reviews Topics related to COVID-19 Topics not related to COVID-19	320 145 175
Total implementation science support initiatives	45+
Total evaluation science support initiatives	50+
Rapid review by priority topics to inform planning and policy decisions	
Related to COVID-19: Public health strategies, personal protective equipment conversation/innovation/management/distribution, drive-through and mobile clinics, virtual care solutions, acute care/long-term care, primary care and home care, COVID-19 management strategies, pulse oximeter and at-home care for COVID-19, long COVID, pregnancy and COVID-19 care, surge capacity planning, health and wellness strategies for healthcare workers, vaccine efficacy and hesitancy, service re-opening frameworks. **Not related to COVID-19:** Access to care, health human resource strategies, collaborative models of care and innovative models, virtual and digital solutions to enhance access and planning across program areas – including primary healthcare, acute care, long-term care and care in community.	

strengthened integration of evidence and research in driving key policy and planning decisions, especially the post-pandemic recovery and plans for strengthening the health system (Agency for Clinical Innovation 2019; Alderwick et al. 2021; CFPC 2020; Department of Health and Social Care 2021; The King's Fund 2021). IHSPR's strategic directions are well positioned to support the directions being taken by jurisdictions across Canada. These priorities have been highly evident in the embedded research activities supported by NoS and the Implementation Science Team in Nova Scotia. Some examples of key activities aligned with IHSPR's strategic directions include the following:

Innovations, data and digital solutions to modernize healthcare:

- multiple rapid reviews conducted to support innovative solutions in service delivery, including virtual care; team models of care to improve access to care in emergency departments and acute, primary and long-term care settings; care at home and in community solutions; and service delivery frameworks
- rapid reviews related to command centres for integration of data and accountability structures to enhance access and flow, use of drones in healthcare and digital and virtual care–related first access to primary care
- implementation science and evaluation initiatives: implementation of innovative virtual care solutions for unattached and attached patients in primary care, chronic disease management and emergency departments and enhancement of nursing and healthcare workforce initiatives

Integration of research and evidence in policy and planning and service delivery (Moat et al. 2021; Tomblin Murphy et al. 2021):

- multiple examples on how rapid reviews, implementation science and evaluation initiatives are shaping informed policy, planning and practice improvement decisions in Nova Scotia as highlighted in Table 1.

Conclusion

Health system transformation into an LHS requires that all stakeholders (e.g., leaders, managers, healthcare providers) rely on effective strategies to integrate evidence into health services and policy decisions. IHSPR's strategic priorities will help guide future research that aims to support this direction. Specifically, in the context of the third strategic priority, the role of embedded scholars, as well as experts outside the health system (i.e., NoS), have a critical role in creating and communicating evidence that has the potential to accelerate brave new directions in healthcare and health system innovations that improve health system performance to achieve the Quadruple Aim. As described in this commentary, NSH's journey has resulted in the successful adoption of embedded research and implementation science strategies for becoming a strong LHS. The alignment of NSH's RID strategy and IHSPR's strategic priorities will only enhance NSH's capacity to ensure that real-time decision making within the organization is evidence informed.

Acknowledgements

We wish to acknowledge additional authors of this work: Danielle Domm, Swarnima Gambhir, Vishal Sahijwala, Kaylee Boyle, Connor Dawe, Kelsey Allen, Ross Walker, Melissa Bryden, Gillian Hatcher and Robert Laureijs. We also wish to show sincere appreciation to all the members of NSH's Implementation Science Team who contribute to RID and NSH's vision of becoming an LHS. Additionally, we want to thank members of NSH's Research Methods Unit

who have been integral in supporting their evaluation efforts in several priority implementations in the province. We also want to acknowledge key partners within the RID portfolio, namely, members from Innovation, Research and Interprofessional Practice and Learning, from Quality and System Performance and from programs and service areas in NSH. Our academic partners in the province continue to play a key role in our journey to becoming an LHS. Finally, we are extremely grateful for the valuable insights and contributions that our patient and family advisors and community members continue to provide to inform and influence our pursuit of evidence and experience-informed decision making.

Correspondence may be directed to: Tara Sampalli, Senior Scientific Director, Research, Innovation and Discovery, Nova Scotia Health, 90 Lovett Lake Court, Halifax, NS B3S 1B8. Tara can be reached by phone at 902-240-4890 or by e-mail at tara.sampalli@nshealth.ca.

References

Agency for Clinical Innovation. 2019. *ACI Strategic Plan 2019-2022*. NSW Government. Retrieved January 15, 2021. <https://aci.health.nsw.gov.au/__data/assets/pdf_file/0005/478040/ACI_Strategic_Plan_2019-2022.pdf>.

Al Sabahi, S., M.G. Wilson, J.N. Lavis, F. El-Jardali, K. Moat and M. Vélez. 2020. Examining and Contextualizing Approaches to Establish Policy Support Organizations – A Critical Interpretive Synthesis. *International Journal of Health Policy and Management* 11(5): 551–66. doi:10.34172/IJHPM.2020.181.

Alderwick, H., P. Dunn, T. Gardner, N. Mays and J. Dixon. 2021. Will a New NHS Structure in England Help Recovery from the Pandemic? *BMJ* 372: n248. doi:10.1136/bmj.n248.

Blanchette, M.-A., M. Saari, K. Aubrecht, C. Bailey, I. Cheng, M. Embrett et al. 2019. Making Contributions and Defining Success: An eDelphi Study of the Inaugural Cohort of CIHR Health System Impact Fellows, Host Supervisors and Academic Supervisors. *Healthcare Policy* 15(SP): 49–60. doi:10.12927/HCPOL.2019.25980.

Braithwaite, J., P. Glasziou and J. Westbrook. 2020. The Three Numbers You Need to Know about Healthcare: The 60-30-10 Challenge. *BMC Medicine* 18(1): 102. doi:10.1186/s12916-020-01563-4.

Brooks, S. 2022, January 11. Nova Scotia Health's Implementation Science Team Accelerating Rapid Reviews for Health System Decision Making. Nova Scotia Health. Retrieved January 25, 2022. <https://www.nshealth.ca/news/nova-scotia-healths-implementation-science-team-accelerating-rapid-reviews-health-system>.

Canadian Institutes of Health Research (CIHR) Institute of Health Services and Policy Reseach (IHSPR). 2021. *Strategic Plan 2021–2026: Accelerate Health Care System Transformation through Research to Achieve the Quadruple Aim and Health Equity for All*. Retrieved November 25, 2021. <https://cihr-irsc.gc.ca/e/documents/ihspr_strat_plan_2021-26-en.pdf>.

The College of Family Physicians of Canada (CFPC). 2020. *Best Advice Guide: Patient's Medical Neighbourhood*. Retrieved January 15, 2021. <https://patientsmedicalhome.ca/files/uploads/PMN_BAG_ENG.pdf>.

Damschroder, L.J., A.J. Knighton, E. Griese, S.M. Greene, P. Lozano, A.M. Kilbourne et al. 2021. Recommendations for Strengthening the Role of Embedded Researchers to Accelerate Implementation in Health Systems: Findings from a State-of-the-Art (SOTA) Conference Workgroup. *Healthcare* 8(1): 100455. doi:10.1016/j.hjdsi.2020.100455.

Department of Health and Social Care. 2021, February 11. Policy Paper Integration and Innovation: Working Together to Improve Health and Social Care for All. Gov.uk. Retrieved March 15, 2021. <https://www.gov.uk/government/publications/working-together-to-improve-health-and-social-care-for-all/integration-and-innovation-working-together-to-improve-health-and-social-care-for-all-html-version>.

Embrett, M., K. Boyle, K. Harvinder, D. Shephard, A. Mansour, J. Guk et al. 2022a, January 7. *Complex Behaviour and COVID-19 Vaccination Pathways*. Nova Scotia Health. Retrieved January 31, 2022. <https://library.nshealth.ca/ld.php?content_id=36209903>.

Embrett, M., C. Chamberland-Rowe, K. Allen, H. Kumar, K. Boyle, M. MacLellan et al. 2022b. Physician Resources for Treating COVID-19 Patients in the Community: Rapid Review. Authors.

Enticott, J., S. Braaf, A. Johnson, A. Jones and H.J. Teede. 2020. Leaders' Perspectives on Learning Health Systems: A Qualitative Study. *BMC Health Services Research* 20(1): 1087. doi:10.1186/s12913-020-05924-w.

Etheredge, L.M. 2007. A Rapid-Learning Health System. *Health Affairs* 26(2): w107–18. doi:10.1377/hlthaff.26.2.w107.

Etheredge, L.M. 2014. Rapid Learning: A Breakthrough Agenda. *Health Affairs* 33(7): 1155–62. doi:10.1377/hlthaff.2014.0043.

Ghaffar, A., E.V. Langlois, K. Rasanathan, S. Peterson, L. Adedokun and N.T. Tran. 2017. Strengthening Health Systems through Embedded Research. *Bulletin of the World Health Organization* 95(2): 87. doi:10.2471/BLT.16.189126.

Gould, M.K., A.L. Sharp, H.Q. Nguyen, E.E. Hahn, B.S. Mittman, E. Shen et al. 2020. Embedded Research in the Learning Healthcare System: Ongoing Challenges and Recommendations for Researchers, Clinicians, and Health System Leaders. *Journal of General Internal Medicine* 35(12): 3675–80. doi:10.1007/S11606-020-05865-4.

Holmes, B.J., A. Best, H. Davies, D. Hunter, M.P. Kelly, M. Marshall et al. 2017. Mobilising Knowledge in Complex Health Systems: A Call to Action. *Evidence and Policy* 13(3): 539–60. doi:10.1332/174426416X14712553750311.

Kanani, N., E. Hahn, M. Gould, K. Brunisholz, L. Savitz and E. Holve. 2017. AcademyHealth's Delivery System Science Fellowship: Training Embedded Researchers to Design, Implement, and Evaluate New Models of Care. *Journal of Hospital Medicine* 12(7): 570–74. doi:10.12788/jhm.2776.

The King's Fund. 2021. The Road to Renewal: Five Priorities for Health and Care. Retrieved September 15, 2021. <https://www.kingsfund.org.uk/publications/COVID-19-road-renewal-health-and-care>.

Langlois, E.V., A. Mancuso, V. Elias and L. Reveiz. 2019. Embedding Implementation Research to Enhance Health Policy and Systems: A Multi-Country Analysis from Ten Settings in Latin America and the Caribbean. *Health Research Policy and Systems* 17(1): 85. doi:10.1186/S12961-019-0484-4.

Lavis, J., F.-P. Gauvin, R. Reid, H.L. Bullock, W.P. Wodchis and A. Hayes. 2018, March 31. *Rapid Synthesis: Creating a Rapid-Learning Health System in Ontario*. McMaster University, McMaster Health Forum. Retrieved April 30, 2022. <https://www.mcmasterforum.org/docs/default-source/product-documents/rapid-responses/creating-a-rapid-learning-health-system-in-ontario.pdf?sfvrsn=6>.

McMahon, M., S. Bornstein, A.D. Brown and R. Tamblyn. 2019. Training for Impact: PhD Modernization as a Key Resource for Learning Health Systems. *Healthcare Policy* 15(SP): 10–15. doi:10.12927/HCPOL.2019.25983.

Moat, K.A., A. Bhuiya and P. Voorheis. 2021, June 9. *Rapid Synthesis: Establishing Supports for Evidence-Informed Health-System Transformation in Nova Scotia*. McMaster Health Forum. Retrieved July 25, 2021. <https://www.mcmasterforum.org/docs/default-source/product-documents/rapid-responses/establishing-supports-for-evidence-informed-health-system-transformation-in-nova-scotia.pdf?sfvrsn=48150480_11>.

Nova Scotia Health. n.d.a. Patient, Family & Public Advisory Council.. Retrieved February 6, 2022. <https://www.nshealth.ca/get-involved/patient-family-public-advisory-council>.

Nova Scotia Health. n.d.b. Quality Improvement & Safety. Retrieved February 6, 2022. <http://www.cdha.nshealth.ca/quality-improvement-safety>.

Nova Scotia Health. 2020. Health System Transformation – Research, Innovation & Discovery. Retrieved January 25, 2021. <http://www.nshealth.ca/health-system-transformation-research-innovation-discovery>.

Nova Scotia Health. 2021, June 11. *Medical vs. Non-medical Masks: Effectiveness for Preventing SARS-CoV-2 Point of Source Transmission: Rapid Review*. Retrieved July 15, 2021. <https://library.nshealth.ca/ld.php?content_id=35917925>.

Platt, J.E., M. Raj and M. Wienroth. 2020. An Analysis of the Learning Health System in Its First Decade in Practice: Scoping Review. *Journal of Medical Internet Research* 22(3): e17026. doi:10.2196/17026.

Sim, M.S., J. Lai, K. Aubrecht, I. Cheng, M. Embrett, E.K. Ghandour et al. 2019. CIHR Health System Impact Fellows: Reflections on "Driving Change" within the Health System. *International Journal of Health Policy and Management* 8(6): 325–28. doi:10.15171/IJHPM.2018.124.

Tomblin Murphy, G., A. MacKenzie, C. MacQuarrie, T. Sampalli and J. Rigby. 2021. Evidence to Care: Learning from a Case Study of Health Workforce Planning and COVID-19 Response in Nova Scotia. *Canadian Journal of Nursing Leadership* 34(4): 19–30. doi:10.12927/cjnl.2021.26693.

Tricco, A.C., C.M. Garritty, L. Boulos, C. Lockwood, M. Wilson, J. McGowan et al. 2020. Rapid Review Methods More Challenging during COVID-19: Commentary with a Focus on 8 Knowledge Synthesis Steps. *Journal of Clinical Epidemiology* 126: 177–83. doi:10.1016/J.JCLINEPI.2020.06.029.

Vindrola-Padros, C., T. Pape, M. Utley and N.J. Fulop. 2017. The Role of Embedded Research in Quality Improvement: A Narrative Review. *BMJ Quality & Safety* 26(1): 70–80. doi:10.1136/bmjqs-2015-004877.

World Health Organization (WHO). 2018, March. *Embedded Health Policy and Systems Research within the System, for the System, Used by the System*. Retrieved January 15, 2021. <https://www.ddcf.org/globalassets/african-health-initiative/18-0502-march-2018-embedded-research-brief.pdf>.

Zurynski, Y., C.L. Smith, A. Vedovi, L.A. Ellis, G. Knaggs, I. Meulenbroeks et al. 2020. *Mapping the Learning Health System: A Scoping Review of Current Evidence. A White Paper*. Australian Institute of Health Innovation, and the NHRMC Partnership Centre for Health System Sustainability, Macquarie University. Retrieved January 25, 2021. <https://research-management.mq.edu.au/ws/portalfiles/portal/134364432/Publisher_version_open_access_.pdf>.

How Do We Build the Human Capital for a True Learning Healthcare System?

Comment construire le capital humain pour un véritable système de santé apprenant?

COMMENTARY

Meghan McMahon, PhD
Associate Scientific Director
CIHR Institute of Health Services and Policy Research
Assistant Professor (status)
Institute of Health Policy, Management and Evaluation
Dalla Lana School of Public Health
University of Toronto
Toronto, ON

Stephen Bornstein, PhD
Co-Chair, Training Modernization Task Force
Canadian Health Services and Policy Research Alliance
Professor
Community Health and Humanities and Political Science
Memorial University
St. John's, NL

Shanthi Johnson, PhD, RD, FDC, FACSM, FGSA
Co-Chair, Training Modernization Task Force
Canadian Health Services and Policy Research Alliance
Professor and Dean
School of Public Health
University of Alberta
Edmonton, AB

Carl-Ardy Dubois, PhD
Co-Chair, Training Modernization Task Force
Canadian Health Services and Policy Research Alliance
Professor and Dean
School of Public Health
Université de Montréal
Montreal, QC

Erin Thompson, MPH
Project Manager
CIHR Institute of Health Services
and Policy Research
Toronto, ON

Adalsteinn Brown, DPhil
Co-Chair, Training Modernization
Task Force
Canadian Health Services and
Policy Research Alliance
Professor and Dean
Dalla Lana School of Public Health
University of Toronto
Toronto, ON

ABSTRACT

Our healthcare systems depend on human capital for effectiveness. The Canadian Institutes of Health Research – Institute of Health Services and Policy Research has prioritized building capacity for "solution-oriented research and evidence-informed health care system transformation" (CIHR IHSPR 2021a: 20) as a core strategic direction. In this commentary, we articulate strategies for positioning PhD-trained scientists at the forefront of this transformation, including refreshing a competency framework that outlines the skill set required for maximum impact, exploring opportunities to expand embedded research career pathways and considering new ways to support the evolution of learning health systems. We conclude highlighting the need to modernize how real-world research impact is recognized.

RÉSUMÉ

L'efficacité de nos systèmes de santé dépendent du capital humain. L'Institut des services et des politiques de la santé, des Instituts de recherche en santé du Canada, accorde la priorité au renforcement de « la capacité de recherche axée sur les solutions et la capacité de transformation des systèmes de soins de santé fondée sur des données probantes » comme orientation stratégique fondamentale (CIHR IHSPR 2021a : 20). Dans le présent commentaire, nous formulons des stratégies pour positionner les scientifiques titulaires d'un doctorat à l'avant-garde de cette transformation, notamment en actualisant un cadre de compétences qui décrit l'ensemble des compétences requises pour un impact maximal, en explorant les possibilités d'élargir les cheminements de carrière en recherche intégrée et en envisageant de nouvelles façons de soutenir l'évolution des systèmes de santé apprenants. Nous concluons en soulignant la nécessité de moderniser la façon de reconnaître l'impact de la recherche dans le monde réel.

Introduction

The COVID-19 pandemic has underlined long-standing problems with our healthcare systems. These problems range from inadequate human capital, inequities in access and outcomes, fragmented and siloed care, poorly coordinated healthcare and public health systems and evidence to policy and practice gaps, among others. None of these challenges should be a surprise to us. For years, we have had clear evidence of significant deficiencies in our healthcare systems. A recent Public Health Agency of Canada report published

the year before COVID-19 emerged highlighted pervasive and profound problems and inequities across the country (PHAC 2018). We have known about the capacity limits of our healthcare systems for a long time. At the start of the pandemic, Frances Wooley of Carleton University noted that "Canada has so few acute-care beds that even the flattest of curves will overwhelm hospitals" (Woolley 2020). As the pandemic has progressed, the consequences of these deficiencies have become increasingly clear.

As governments and institutions have struggled with the pandemic, the need for scientific information in all its forms in shaping our response and informing the public has become evident (Lemay and Fraser-Arnott 2021). The pandemic has also made clear the critical role played by the people who produce and work with this information. Across jurisdictions and different policy approaches, what has been evident is the need for interdisciplinary teams of scientists and health system leaders who can bring timely evidence to bear on pressing challenges and counter misinformation; communicate evidence clearly and transparently to build trust and ensure accountability; engage and collaborate with various governmental and non-governmental stakeholders to develop consensus and coordinated responses; and reconfigure healthcare systems to emphasize equity and adjust to changing contexts. The pandemic has also revealed the importance of agile mechanisms that enable scientists to engage with and inform those in charge of delivering policy responses.

As we recover from the pandemic, it will be important to take stock of the impacts and devastation, build on the lessons learned to address long-standing challenges and move toward healthcare systems that promote population health and well-being and provide excellent and equitable care for all. It will be critical to remember that our healthcare systems depend intimately on human capital for their effectiveness. The Canadian Institutes of Health Research (CIHR) – Institute of Health Services and Policy Research's (IHSPR's) *Strategic Plan 2021–2026* has prioritized building capacity for "solution-oriented research and evidence-informed health care system transformation" as a core strategic direction (CIHR IHSPR 2021a: 20). To do so, IHSPR has emphasized the following mechanisms:

- training researchers who can straddle the academy and the health system;
- embedding research capacity in our health system organizations;
- enriching traditional research training in health services and policy research (HSPR) with the professional competencies needed to lead change and collaborate effectively with diverse stakeholders; and
- building capacity for the interdisciplinary and intersectoral collaborations required to solve complex healthcare challenges.

This full suite of strategies is needed to build the human capital that can effectively advance what we are now calling learning health systems (LHSs) (Institute of Medicine [US] Roundtable on Evidence-Based Medicine 2007) and generate more effective and equitable care. In this commentary, we articulate the ways in which our PhD-trained scientists, with particular emphasis on PhD trainees, may be leveraged to ensure that highly trained human capital is at the forefront of evidence-informed healthcare system transformation.

The Initial Training Modernization Initiative

Prior to IHSPR's latest strategic plan, the Institute launched a pan-Canadian strategy development exercise focused on building an LHS for Canada (Terrence Sullivan and

Associates 2014). A training modernization task force of academic and health system leaders, trainees and research funding agencies was created to address the training modernization necessary to build LHSs. This task force produced a pan-Canadian strategy for modernizing HSPR PhD training (CHSPRA 2015). The strategy included an expanded set of core competencies that encompass professional skills to help PhD graduates have a greater impact on the health system (e.g., leadership, change management) (Bornstein et al. 2018) and open up new career avenues outside the traditional university setting, a plan to build an open-access pan-Canadian curriculum centred on these enriched core competencies and a map of potential career trajectories for PhD graduates in sectors and roles beyond the academy (Bornstein et al. 2018; CHSPRA 2015).

The training modernization strategy also identified the importance of including experiential learning in HSPR graduate training and, to this end, prioritized creating embedded research training opportunities for PhD trainees and graduates to apply their research skills to high-priority challenges identified by health system organizations. Accordingly, the Health System Impact (HSI) Fellowship program was created to address this priority and to increase research capacity within health system organizations and promote a culture of rapid learning and improvement (CIHR IHSPR 2021b; McMahon and Tamblyn 2019). Since its creation in 2017, the program has funded 200 PhD trainees and postdoctoral fellows who have been embedded in more than 100 health system organizations and connected to 24 university training programs across Canada (CIHR IHSPR 2021c). The program has been found to contribute to fellows' competency development, particularly in domains not currently emphasized in most HSPR doctoral curriculums (e.g., leadership) (McMahon et al. 2019).

HSI fellows are recognized for their wide-ranging impacts, including knowledge creation, building organizational capacity to conduct and use research and informing health system decision making (Blanchette et al. 2019; CIHR IHSPR 2021d). Although the aim of this training modernization initiative – to train a new cadre of research leaders with the skills to bring evidence to bear on complex health system challenges – was not new and built on previous Canadian innovations (Hamelin and Paradis 2018; Martens 2008) (https://www.mitacs.ca/en/programs/elevate), it can be seen as the first pan-Canadian effort to build the human capital required to advance LHSs. There is, however, more to be done.

Options for Building the Human Capital We Need

New competencies for stronger and more equitable impact

The COVID-19 pandemic has emphasized the importance and necessity of an even wider set of competencies among health and research leaders to address complex system challenges, engage intersectorally and integrate an equity lens in all facets of research, policy and practice. Three competencies to integrate within the enriched core competency framework and HSPR training programs spring to mind. To begin with, it is clear that an earlier focus on *equity, diversity and inclusion* (EDI) would have led to a stronger and more equitable response to the pandemic. The pandemic magnified long-standing systemic inequities in our health and social systems and catalyzed recognition of the importance of health system leadership with a commitment to equity, an understanding of the drivers of structural discrimination, the skills to engage with historically excluded communities and the tools to identify and implement equity-grounded solutions. The importance of EDI

is not limited to the effects of the pandemic; many, if not all, of the challenges facing our healthcare systems are tightly intertwined with problems of inequity and require a diverse workforce with the training and support to envision and build a more equitable and just future.

The pandemic has also emphasized the critical role of transparency and broad engagement in bringing about effective change. The importance of clear *scientific communication and public engagement* became evident as jurisdictions that possessed both were able to mount more effective responses to the pandemic with greater public support. The role of skilled scientific communicators in helping inform and generate pandemic responses was clear. We witnessed strong scientific communicators become regular and trusted fixtures in the media, while poor communicators became instruments of divisiveness and misinformation. At the same time, public engagement in all of its forms was the defining feature of a successful response to the challenges of the pandemic, including the ability to distill an overabundance of information and manage misinformation, organize coalitions of volunteers, crowdsource innovations, communicate on social media and manage corresponding risks such as harassment and maintain support for public health measures and vaccination. Science communication and public engagement may be new competencies to add to the PhD toolbox.

Reflecting on Canada's experience during the pandemic is likely to generate additional ideas on the competencies that will help our doctoral graduates contribute to stronger and more equitable healthcare systems. Thus, the training modernization task force has been reconstituted and is leading a community engagement exercise with the HSPR and population and public health (PPH) communities to garner input and advice. The training modernization task force is exploring which of the original competencies remain relevant, which should be removed or adapted and what competencies should be added for greater relevance and impact. This engagement will generate a refined and updated competency framework that encompasses the skills PhD trainees will need to address the health system challenges of today and the future.

Following this work, the training modernization task force will then shift its focus to the 2015 training modernization strategy's aspirational goal of building a pan-Canadian curriculum centred on the core competencies. Currently, the competencies have been incorporated in the HSI Fellowship program and are also available, to varying degrees, in some PhD training programs. A recent survey of the HSPR community indicated that the majority of university respondents (e.g., trainees, professors, administrators) felt their program provided little to no training in leadership, change management, project management and dialogue and negotiation (CHSPRA n.d.). A next step for the training modernization task force is to engage with universities across Canada on the scale and spread of the competencies to ensure that all PhD trainees in HSPR and PPH have access to impact-oriented training.

Embedded research and expanded career pathways

Under IHSPR's leadership, the HSI Fellowship program has grown quickly, receiving increasing demand each year from trainees interested in embedded research training opportunities and from health system organizations interested in building their internal research capacity. To date, a considerable cadre of embedded researchers has already been built. Graduates of the program have moved

into research-related careers that span several sectors other than academia, including public health, healthcare delivery and governmental and not-for-profit organizations (Kasaai et al. 2022). They are the change agents of the LHS, and it is worth considering how these embedded scholars, their career paths and the organizations involved can be supported moving forward.

Such support likely requires several changes in the health services and policy ecosystem. The early career stage that follows the doctoral and postdoctoral periods is recognized as a precarious and challenging time, and early career support thus far has focused almost exclusively on traditional career paths within academic settings. Innovative new funding programs are required to help early-career embedded researchers develop sustainable career paths in non-academic or hybrid health system–academic settings. Such programs would provide the time and resources needed to advance their maturity as embedded scholars, their network and relationships across the academic and health system communities and their competencies for health system impact. Such programs would also help to navigate and mitigate some of the potential tensions regarding research independence and academic publishing that could arise in an embedded research context when the researcher is employed by the organization and when the organization sets the priorities for research. Careful monitoring and attention to these potential tensions will be required along with risk mitigation strategies. The HSI Fellowship and embedded research programs in the US offer some insight into possible strategies, including negotiating protected time for independent research through a formal relationship with a university (Isaacson and Simpson 2021) and the use of agreements or contracts specifying the terms and conditions for the embedded research position (e.g., the right to publish, management of confidential information, intellectual property, protected time for independent research, university affiliation).

As demonstrated through the HSI Fellowship program, dual mentorship models that include both a health system and an academic mentor are highly valued (Bornstein et al. 2019). Moving forward, it may be worth considering a mentorship program that supports both the early career–embedded researcher and the mentor to ensure that the latter also receives resources needed to optimize success. This two-pronged approach would recognize the critical but often undervalued and under-rewarded role of mentorship in career progression and impact.

Considering ways of increasing the access of embedded researchers to research funding may also be needed. This could be achieved by revisiting the eligibility criteria for who can hold peer-reviewed grant funds to ensure that the scholars who pursue the embedded research career path are able to compete for and attract research funds within their health system organization.

Likewise, there may be a role for programs that deepen the capacity of embedded research within healthcare organizations, including developing staff expertise to understand and use evidence to inform decisions, strengthening their collaborations and partnerships with academic organizations and improving their internal receptor capacity for rapid learning and improvement. Evidence indicates that developing the capacity and infrastructure within healthcare organizations for the conduct and use of research requires substantial effort but translates into better outcomes and higher quality care (Kitzman et al. 2021). Academic organizations also stand to benefit from strengthened relationships with health system organizations,

including increased insight into health system priorities and opportunities for applied research, an expanded and enriched pool of professors with leadership and real-world expertise, experiential learning and employment opportunities for students and accelerated knowledge mobilization. A multi-faceted strategy that bolsters the capacity development of people (embedded scholars) and health system organizations, and strengthens relationships between universities and health system organizations, may help Canada build and retain the human capital for the "solution-oriented research and evidence-informed health care system transformation" articulated in IHSPR's strategic plan (CIHR IHSPR 2021a: 20).

Modernized concepts of research impact

Finally, to advance embedded research and support evidence-informed healthcare system transformation, universities, research institutes and funding agencies must appropriately recognize and reward impact. Impact in the context of an embedded researcher or embedded research unit within a healthcare organization centres on real-world impact, including bringing relevant evidence to bear on complex decisions, building organizational capacity for rapid learning and improvement and informing health policy and programs. Impact is not defined solely by, or limited to, the number of peer-reviewed publications. It includes the ability to contribute to real-world change that improves the health of people and the performance of healthcare systems. IHSPR and CIHR have identified the importance of working toward more inclusive concepts of research excellence and impact, but, for real change to occur, universities must do the same, particularly when considering promotion, tenure and recognition (Hunter 2019). For example, how does the university evaluate the work of an embedded scholar who has stimulated significant investments in new systems or processes by a health system? How does a peer review committee rank a curriculum vitae (CV) featuring policy impact and partnerships with health system decision makers compared to a CV featuring volumes of publications in high-impact journals? While some universities are making positive progress to recognize the value of engaged scholarship (University of Alberta School of Public Health 2017), widespread culture change is still pending. All partners must reconceptualize how to recognize, reward and value applied research innovations that lead to real-world impact if we are to continue advancing LHSs.

Conclusion

The IHSPR strategic plan envisions a future where researchers have the expertise, training and support for solution-oriented research that addresses complex health system challenges; where healthcare organizations embrace a culture of continuous learning and improvement, embed research expertise within their teams and use data and evidence to improve care; where the boundaries between the academy and the healthcare system are fluid; and where the academy and the broader research ecosystem recognize and reward scholarly contributions that lead to real-world impact. The original training modernization work (phase 1), its redevelopment (phase 2) and the HSI Fellowship program are starting points for generating the leadership and human capital required. However, we must also build a system wherein governments and healthcare providers embody a relentless commitment to data, measurement and accountability to truly establish solution-oriented research and evidence-informed healthcare system transformation.

Correspondence may be directed to: Adalsteinn Brown, Health Sciences Building, 155 College Street, 6th Floor, Toronto, ON M5T 3M7. He can be reached by e-mail at adalsteinn.brown@utoronto.ca.

References

Blanchette, M.-A., M. Saari, K. Aubrecht, C. Bailey, I. Cheng, M. Embrett et al. 2019. Making Contributions and Defining Success: An eDelphi Study of the Inaugural Cohort of CIHR Health System Impact Fellows, Host Supervisors and Academic Supervisors. *Healthcare Policy* 15(Special Issue): 49–60. doi:10.12927/hcpol.2019.25980.

Bornstein, S., M. Heritage, A. Chudak, R. Tamblyn, M. McMahon, A.D. Brown. 2018. Development of Enriched Core Competencies for Health Services and Policy Research. Health Services Research 53(S2): 4004–023. doi: 10.1111/1475-6773.12847.

Bornstein, S., M. McMahon, V. Yiu, V. Haroun, H. Manson, P. Holyoke et al. 2019. Exploring Mentorship as a Strategy to Build Capacity and Optimize the Embedded Scientist Workforce. *Healthcare Policy* 15(Special Issue): 73–84. doi:10.12927/hcpol.2019.25978.

Canadian Health Services and Policy Research Alliance (CHSPRA). n.d. Revisiting the Enriched Core Competencies for Health Services & Policy and Population & Public Health Research. Retrieved January 20, 2022. <https://hsfi.hostedincanadasurveys.ca/index.php/669923?lang=en>.

Canadian Health Services and Policy Research Alliance (CHSPRA). 2015, December 7. *Modernizing Health Services and Policy Research Training: A Pan-Canadian Strategy*. Retrieved January 20, 2022. <https://c2756327-591d-43bb-b7c1-8fa96cea8a2.filesusr.com/ugd/5adc92_4b4c942ad52944948995389 2703473cc.pdf>.

Canadian Institutes of Health Research (CIHR) Institute of Health Services and Policy Research (IHSPR). 2021a. *Strategic Plan 2021–2026: Accelerate Health System Transformation through Research to Achieve the Quadruple Aim and Health Equity for All*. Canadian Institutes of Health Research. Retrieved January 21, 2022. <https://cihr-irsc.gc.ca/e/52481.html#section_6_1>.

Canadian Institutes of Health Research (CIHR) Institute of Health Services and Policy Research (IHSPR). 2021b, October 5. The Health System Impact Fellowship Background: Modernizing Health Services and Policy Research Training for Greater Impact. Retrieved January 21, 2022. <https://cihr-irsc.gc.ca/e/50024.html>.

Canadian Institutes of Health Research (CIHR) Institute of Health Services and Policy Research (IHSPR). 2021c, December 3. The Health System Impact Fellowship. Retrieved January 21, 2022. <https://cihr-irsc.gc.ca/e/51211.html>.

Canadian Institutes of Health Research (CIHR) Institute of Health Services and Policy Research (IHSPR). 2021d, December 6. 2017–19 Embedded Research Impact Casebook. Retrieved February 2, 2022. <https://cihr-irsc.gc.ca/e/52737.html>.

Hamelin, A.-M. and G. Paradis. 2018. Population Health Intervention Research Training: The Value of Public Health Internships and Mentorship. *Public Health Reviews* 39: 6. doi:10.1186/s40985-018-0084-9.

Hunter, D.J. 2019. Meeting the Challenge of the "Know-Do" Gap; Comment on "CIHR Health System Impact Fellows: Reflections on 'Driving Change' within the Health System." *International Journal of Health Policy and Management* 8(8): 498–500. doi:10.15171/IJHPM.2019.37.

Institute of Medicine (US) Roundtable on Evidence-Based Medicine. 2007. *The Learning Healthcare System: Workshop Summary*. National Academies Press.

Isaacson, A. and L.A. Simpson. 2021. Governance and Funding Best Practices for Embedded Research Programs. *Healthcare* 8(Suppl_1): 100433. doi:10.1016/j.hjdsi.2020.100433.

Kasaai, B., E. Thompson, R.H. Glazier and M. McMahon. 2022. Early Career Outcomes of Embedded Research Fellows: An Analysis of the Health System Impact Fellowship Program [Manuscript submitted for publication].

Kitzman, H., B. DaGraca, A. Mamun, A. Collinsworth, K. Halloran, A. Masica. 2021. Embedded Health Systems Science as a Driver of Care Improvement within an Integrated Delivery Organization. *Healthcare* 8(Suppl_1): 100497. doi:10.1016/j.hjdsi.2020.100497.

Lemay, É. and M. Fraser-Arnott. 2021. The COVID-19 Pandemic, the COVID-19 Infodemic, and Information Literacy. HillNotes, Library of Parliament. Retrieved February 2, 2022. <https://hillnotes.ca/2021/04/06/the-COVID-19-pandemic-the-COVID-19-infodemic-and-information-literacy/>.

Martens, P.J. 2008. The Regional Training Centre: If We Build It [Well], They Will Come. *Healthcare Policy* 3(Special Issue). doi:10.12927/hcpol.2008.19809.

McMahon, M., A. Brown, S. Bornstein and R. Tamblyn. 2019. Developing Competencies for Health System Impact: Early Lessons Learned from the Health System Impact Fellows. *Healthcare Policy* 15: 61–72. doi:10.12927/hcpol.2019.25979.

McMahon, M. and R. Tamblyn. 2019. The Health System Impact Fellowship: Perspectives from the Program Leads; Comment on 'CIHR Health System Impact Fellows: Reflections on "Driving Change" within the Health System.' *International Journal of Health Policy and Management* 8(10): 623–26. doi:10.15171/IJHPM.2019.59.

Public Health Agency of Canada (PHAC). 2018. Key Health Inequalities in Canada: A National Portrait – Executive Summary. Retrieved Februrary 2, 2022. <https://www.canada.ca/en/public-health/services/publications/science-research-data/key-health-inequalities-canada-national-portrait-executive-summary.html>.

Terrence Sullivan and Associates. 2014, January. A Pan-Canadian Vision and Strategy for Health Services and Policy Research. Phase 1: Building the Foundation. Retrieved January 21, 2022. <https://cihr-irsc.gc.ca/e/47946.html>.

University of Alberta School of Public Health. 2017. Faculty Evaluation Committee: Guidelines for Merit Increments, End of First Probationary Appointments, Applications for Tenure and Promotion, and the Evaluation of Faculty Service Officers [Internal document].

Woolley, F. 2020, March 19. Coronavirus Is about to Reveal How Fragile Our Health System Is. *Policy Options*. Retrieved January 21, 2022. <https://policyoptions.irpp.org/magazines/march-2020/coronavirus-is-about-to-reveal-how-fragile-our-health-system-is/>.

Can a Focus on Equity, Diversity and Inclusion Transform Health Services Research?

L'accent mis sur l'équité, la diversité et l'inclusion peut-il transformer la recherche sur les services de santé?

COMMENTARY

Andrew D. Pinto, MD, CCFP, FRCPC, MSc
Director, Upstream Lab
MAP Centre for Urban Health Solutions
Li Ka Shing Knowledge Institute
Unity Health Toronto
Associate Professor
Department of Family and Community Medicine
Faculty of Medicine
Dalla Lana School of Public Health
University of Toronto
Toronto, ON

ABSTRACT

The new Canadian Institutes of Health Research – Institute of Health Services and Policy Research's Strategic Plan 2021–2026 *(CIHR IHSPR 2021) holds potential. Barriers are anticipated, including that commitments to equity, diversity and inclusion (EDI) are tokenistic. This commentary provides four recommendations to*

support EDI as transformative. First, EDI must start with an honest history of the role of institutions in upholding injustice. Second, performative EDI must be replaced by changes in money, power and resources. Third, data collection alone must never be the end goal of EDI. And fourth, for EDI to be transformative, it must be grounded in praxis, taking direction from communities and movements seeking justice.

RÉSUMÉ

Le nouveau Plan stratégique 2021-2026 de l'Institut des services et des politiques de la santé des Instituts de recherche en santé du Canada (CIHR IHSPR 2021) présente un certain potentiel. Des obstacles sont anticipés, notamment le fait que les engagements en matière d'équité, de diversité et d'inclusion (EDI) sont symboliques. Ce commentaire fournit quatre recommandations pour soutenir l'EDI en tant que concept de transformation. Premièrement, l'EDI doit commencer par une histoire honnête du rôle des institutions dans le maintien de l'injustice. Deuxièmement, l'EDI de performance doit être remplacé par des changements en matière d'argent, de pouvoir et de ressources. Troisièmement, la seule collecte de données ne doit jamais être l'objectif final de l'EDI. Et quatrièmement, pour que l'EDI soit transformatif, il doit être ancré dans la pratique, en s'inspirant des communautés et des mouvements en quête de justice.

Introduction

Universality is a core principle of the Canadian healthcare system, enshrined in the *Canada Health Act* (1985). Universal access to care when it is needed – regardless of the ability to pay – is deeply embedded in the public's perspectives on our healthcare system and seen as a defining feature of what it means to be Canadian (Soroka 2007). However, alongside this commitment to medicare, Canadians have accepted deep inequities in access to care, health outcomes and the social factors that determine our health. Numerous reports and studies have documented health inequities in Canada, from the *1986 Epp Report*, which noted that "people's health remains directly related to their economic status" (Epp 1986: 3), despite the passing of the *Medical Care Act, 1966* (Government of Canada 2019), two decades prior. A recent study of premature and avoidable mortality in Canada between 1991 and 2016 found that health inequities associated with socio-economic status have persisted or even widened (Shahidi et al. 2020). Canadians who have a low income can experience discrimination when seeking a family physician (Olah et al. 2013), or when accessing specialists, compared to wealthy Canadians (Alter et al. 1999; Dunlop et al. 2000; van Doorslaer et al. 2006). Similarly, Canadians with lower educational attainment can face more difficulty accessing specialist care than those with higher education (Glazier et al. 2009). Other factors that influence who receives health services and the quality of the care they receive include racial or ethnic background, language preference, gender identity and sexual orientation and disability status (Adler and Stead 2015; Gottlieb et al. 2013; Pinto et al. 2016; Weissman and Hasnain-Wynia 2011; Wen et al. 2007).

Health services research plays a crucial role in shaping the design, implementation and performance of health systems and addressing such gaps and challenges. Health services research has been an important means

of deepening our understanding of why inequities persist, what role organizational and financial factors play at multiple levels and how healthcare systems work, or do not, for specific populations. The Canadian Institutes of Health Research – Institute of Health Services and Policy Research's *Strategic Plan 2021–2026: Accelerate Health Care System Transformation through Research to Achieve the Quadruple Aim and Health Equity for All*, has a strong focus on all these areas (CIHR IHSPR 2021). The plan commits to fund research that will contribute to the transformation of healthcare delivery systems in Canada to achieve the Quadruple Aim, which includes a focus on improving the health of populations (Berwick et al. 2008; Sikka et al. 2015), and advance interventions that are focused on "improving health equity for all" (CIHR IHSPR 2021: 5). Related, the plan emphasizes support for research at the intersection of health services delivery and population health practice, with a focus on improving health equity. Finally, a key value that is cited as a guide to the plan is a commitment to equity, diversity and inclusion (EDI), defined in the strategy as fairness, representation and valued participation, respectively (CIHR IHSPR 2021).

Root Cause Analysis

A starting point for considering the potential impact of this new agenda for Canadian health services research is whether it can support a root cause analysis that goes upstream of health inequities (Penman-Aguilar et al. 2013; Pujolar et al. 2016). The persistence of health inequities in the context of near universal coverage for key healthcare services is predominantly a product of the social determinants of health. These are "the conditions in which people are born, grow, live, work and age" and the broader social, economic and political systems that create these conditions (WHO 2008). It is impossible for health systems to significantly reduce inequities without integrated action on social determinants, whereby traditional healthcare services that tackle biological concerns and "downstream" concerns are combined with "upstream" steps to address social issues at the individual and community levels (Pinto and Bloch 2017). Triggered in large part by the work of the World Health Organization's "Commission on Social Determinants of Health" and the publication of its final report in 2008 (WHO 2008), major Canadian health organizations have publicly supported upstream action, including the Canadian Medical Association (CMA 2012), the College of Family Physicians of Canada (CFPC 2015) and the Registered Nurses' Association of Ontario (RNAO 2010), among others.

However, beyond declarations and statements, are Canadian health professionals, their associations and organizations and the governments that finance and manage them truly prepared to tackle the social determinants of health? As others have noted, Canada has a history of calling attention to health inequities and putting forward a strong vision for necessary changes but not following through with concrete actions (Bryant et al. 2011; Raphael 2008). Outside of isolated initiatives in a small number of health organizations (Andermann 2016; Bayoumi et al. 2017; Drozdzal et al. 2019; Jones et al. 2017), action on social determinants in healthcare remains rare. Several reasons for this can be hypothesized. It may be difficult to step back from the narrow goals of a single initiative and understand and address the broader political economy in which decisions are taken – specifically, the current neoliberal state that since the 1980s has focused on individual responsibility and market mechanisms to address many social problems and seen the

diminishment of collective action (Bambra et al. 2009; Poland et al. 1998; Raphael 2015). It may be that the financial and non-financial incentives do not yet exist for health professionals and healthcare organizations for actions on social determinants at both the individual and community levels. In addition, when policies are proposed to redistribute money away from health services and toward social needs, it is perhaps not surprising that there is opposition, even from those in the health sector who had called for greater equity (Stanbrook 2017; Vogel 2017). Finally, it could be that the closely linked community of health leaders, academics and provincial and territorial policy makers in Canada are not able to understand, speak to and address the needs of people who have been made vulnerable by social and economic policies.

Can EDI Transform Health Services Research?

Skepticism and a critical perspective are, therefore, warranted from universities, research institutions, medical journals and funders when considering the much more recent focus on EDI (Tamtik and Guenter 2020). EDI as a concept, process and set of objectives is related to the goals of reducing health inequities, going upstream and tackling the social determinants of health, but is certainly distinct. EDI is focused internally on an organization (e.g., a university department, a research institute, a funder), the individuals who make up or are affiliated with the organization (e.g., faculty members, students, board representatives) and how these individuals relate to one another. One connection between EDI and the social determinants is that both are concerned with the distribution of money, power and resources. EDI has emerged from a long history of struggle for equality by Black, Indigenous and other People of Colour; women; people with disabilities; and many other communities (Black Health Alliance, Health Commons Solutions Lab and Sinai Health 2020). These are the same communities that historically have been excluded and mistreated by health researchers and health organizations. Related, it is essential to recognize that the contemporary focus on EDI has not emerged as a result of dialogue and reflection within traditional institutions or organizations, but in response to mass movements – notably Black Lives Matter – in pushing for social change in the wake of the murders of George Floyd and many others (Neustaeter 2021; Silverstein 2021).

The potential impacts of EDI as a value applied to health services research can be grouped into at least four areas (Odedina and Stern 2021). First, what are the characteristics of the individuals applying for grants to support health services research? Are they representative of the diversity of the population? Who are the reviewers of applications and are there any systematic inequities in who is successful and the amounts granted? Research from the US suggests racial inequity in grant funding is a distinct possibility (Taffe and Gilpin 2021). Second, in terms of capacity building, are individuals, who are from underrepresented communities and those who have faced historic disadvantage, provided with additional support, mentorship, protected time and resources to become future leaders in health services research? Third, what projects, topics and methods particularly succeed in obtaining funds, and is there an emphasis on calls for health services research to tackle health inequities, particularly issues such as addressing systemic racism? Related, is there a focus on funding authentic community-based participatory action research that seeks to engage those who have been made vulnerable by social and economic policies in the design and implementation of interventions? Fourth, and most important, are the

producers of health services research supported to translate findings into policy decisions that support interventions that identify and reduce health inequities, including the anti-racist interventions in health settings (Hassen et al. 2021)?

Recommendations to Support EDI as Transformative

1. *EDI must start with an honest and clear history of the role of science in upholding injustice.* For EDI to be transformative, it must begin with a thorough knowledge of the harm committed by researchers and institutions in the past and present, particularly the impact on Black, Indigenous and other People of Colour (Darroch and Giles 2014; Morton Ninomiya and Pollock 2017; Pinto and Smylie 2013). A knowledge of this troubling history can influence all aspects of research, from the research questions posed to the selection of methods to how data are collected, analyzed and interpreted. While acknowledgements and apologies are important, there must be a commitment to justice and reparations, with both health organizations and health services research funding bodies reporting on the resources dedicated to addressing historic gaps and progress over time.
2. *Performative EDI must stop* (Khazanchi et al. 2021). This means putting a halt to declarations and statements without any fundamental change in money, power and resources being contemplated or implemented. Health organizations, research institutes and funders should commit to a policy of no statements without specific and measurable actions, timelines and transparency.
3. *Data collection alone must never be the end goal of EDI.* All too often, EDI initiatives have focused on the process of measuring the degree of the problem of a lack of representativeness and systemic discrimination in who holds power or is awarded resources. Furthermore, such data, when collected, are often kept hidden from the view of communities and individuals, with the institutional reputation prioritized. If data collection occurs from applicants for funding, employees, faculty or students, there must be transparency so that the numbers can be put in the hands of individuals and communities working for change. Lessons can be drawn from how data that are collected from patients and communities are governed and acted upon. The principles of Ownership, Control, Access and Possession (OCAP®) (FNIGC 2022) regarding Indigenous data are a key part of supporting Indigenous self-governance and sovereignty (Anderson 2019; Pyper et al. 2018). A more recent framework of principles that emerged during the COVID-19 pandemic concerning data from Black and other racialized communities is "Engagement, Governance, Access and Protection" (Black Health Equity Working Group 2021). These approaches can help to ensure that data collection does not become the goal but rather the starting point for accountability, reducing inequities and justice.
4. *For EDI to be transformative, it must be grounded in praxis, "reflection and action upon the world in order to transform it"* (Freire 1970: 51). This is perhaps the most challenging recommendation as it sees health organizations, health services researchers and funders as part of a broader system that either maintains the status quo of inequities and systemic racism or can be part of solutions. However, rather than setting the agenda and taking the lead role, academics, health system leaders and professionals

must listen to and follow the needs of communities and social movements for justice. Although this inversion of power may seem both idealistic and unattainable, community-based participatory action research and patient-oriented research have established a nascent path and set of methods. Related, health services research must be judged with new eyes. Instead of a focus on individual-level metrics that frame science as a series of outputs (e.g., papers, citations, value of grants), we must engage diverse communities in how to assess the value of health services research – for example, considering who benefits from the findings, what the collective impact is and if the research is emancipatory.

Conclusion

These four recommendations to support EDI as transformative for the community of health services researchers that is truly seeking to reduce inequities are just the starting point. Much more, of course, is required of our institutions, associations and governments. Progress will be assessed in whether we have at last narrowed persistent inequities in access, outcomes and quality, fitting with the deep commitment to universality that Canadians cherish.

Correspondence may be directed to: Andrew D. Pinto. Andrew can be reached by phone at 416-864-6060 x 76148 or by e-mail at andrew.pinto@utoronto.ca.

References

Adler, N.E. and W.W. Stead. 2015. Patients in Context – EHR Capture of Social and Behavioral Determinants of Health. *New England Journal of Medicine* 372: 698–701. doi:10.1056/NEJMp1413945.

Alter, D.A., C.D. Naylor, P. Austin and J.V. Tu. 1999. Effects of Socioeconomic Status on Access to Invasive Cardiac Procedures and on Mortality after Acute Myocardial Infarction. *New England Journal of Medicine* 341(18): 1359–67. doi:10.1056/NEJM199910283411806.

Andermann, A. 2016. Taking Action on the Social Determinants of Health in Clinical Practice: A Framework for Health Professionals. *CMAJ* 188(17–18): E474–83. doi:10.1503/cmaj.160177/-/DC1.

Anderson, M. 2019. Indigenous Health Research and Reconciliation. *CMAJ* 191(34): E930–31. doi:10.1503/cmaj.190989.

Bambra, C., M. Gibson, A. Sowden, K. Wright, M. Whitehead and M. Petticrew. 2009. Tackling the Wider Social Determinants of Health and Health Inequalities: Evidence from Systematic Reviews. *Journal of Epidemiology & Community Health* 64(4): 284–91. doi:10.1136/jech.2008.082743.

Bayoumi, I., H. Coo, E. Purkey, C. Klassen, S. French, A. Maier et al. 2017, November 18. Implementing a Clinical Tool to Screen for Poverty in Primary and Pediatric Care Settings [Oral]. North American Primary Care Research Group (NAPCRG).

Berwick, D.M., T.W. Nolan and J. Whittington. 2008. The Triple Aim: Care, Health, and Cost. *Health Affairs* 27(3): 759–69. doi:10.1377/hlthaff.27.3.759.

Black Health Alliance, Health Commons Solutions Lab and Sinai Health. 2020, April 29. *Black Experiences in Health Care Symposium: Bringing Together Community and Health Systems for Improved Health Outcomes*. Retrieved May 10, 2022. <https://static1.squarespace.com/static/5a0d40298dd041f9a60bb3a7/t/5ea9a317983eca78fd95ee6d/1588175652047/Full+Report-+Black+Experiences+in+Health+Care+Symposium+2020.pdf>.

Black Health Equity Working Group. 2021. Engagement, Governance, Access, and Protection (EGAP): A Data Governance Framework for Health Data Collected from Black Communities. Retrieved May 10, 2022. <https://blackhealthequity.ca/wp-content/uploads/2021/03/Report_EGAP_framework.pdf>.

Bryant, T., D. Raphael, T. Schrecker and R. Labonte. 2011. Canada: A Land of Missed Opportunity for Addressing the Social Determinants of Health. *Health Policy* 101(1): 44–58. doi:10.1016/j.healthpol.2010.08.022.

Canada Health Act, R.S.C., 1985, c. C-6. Retrieved May 6, 2022. <https://laws-lois.justice.gc.ca/eng/acts/c-6/page-1.html>.

Canadian Institutes of Health Research (CIHR) Institute of Health Services and Policy Research (IHSPR). 2021. *Strategic Plan 2021–2026: Accelerate Health System Transformation through Research to Achieve the Quadruple Aim and Health Equity for All*. Retrieved May 10, 2022. <https://cihr-irsc.gc.ca/e/documents/ihspr_strat_plan_2021-26-en.pdf>.

Canadian Medical Association (CMA). 2012. *Health Care Transformation in Canada: Physicians and Health Equity: Opportunities in Practice*. Retrieved May 6, 2022. <http://www.deanbrown.ca/forms/Community/Health-Equity-Opportunities-in-Practice-Final-E.pdf>.

The College of Family Physicians of Canada (CFPC). 2015, March. *Best Advice: Social Determinants of Health*. Retrieved May 6, 2022. <https://patientsmedicalhome.ca/files/uploads/BA_SocialD_ENG_WEB.pdf>.

Darroch, F. and A. Giles. 2014. Decolonizing Health Research: Community-Based Participatory Research and Postcolonial Feminist Theory. *Canadian Journal of Action Research* 15(3): 22–36.

Drozdzal, G., R. Shoucri, J. Macdonald, K. Radford, A.D. Pinto and N. Persaud. 2019. Integrating Legal Services with Primary Care: The Health Justice Program. *Canadian Family Physician* 65(4): 246–48.

Dunlop, S., P. Coyte and W. McIsaac. 2000. Socio-Economic Status and the Utilisation of Physicians' Services: Results from the Canadian National Population Health Survey. *Social Science and Medicine* 51(1): 123–33. doi:10.1016/s0277-9536(99)00424-4.

Epp, J. 1986. Achieving Health for All: A Framework for Health Promotion. *Canadian Journal of Public Health* 77(6): 393–24.

First Nations Information Governance Centre (FNIGC). 2022. The First Nations Principles of OCAP®. Retrieved June 13, 2022. <https://fnigc.ca/ocap-training/>.

Freire, P. 1970. *Pedagogy of the Oppressed: 30th Anniversary Edition*. The Continuum International Publishing Group Inc.

Glazier, R.H., M.M. Agha, R. Moineddin and L.M. Sibley. 2009. Universal Health Insurance and Equity in Primary Care and Specialist Office Visits: A Population-Based Study. *Annals of Family Medicine* 7(5): 396–405. doi:10.1370/afm.994.

Gottlieb, L., M. Sandel and N.E. Adler. 2013. Collecting and Applying Data on Social Determinants of Health in Health Care Settings. *JAMA Internal Medicine* 173(11): 1017–20. doi:10.1001/jamainternmed.2013.560.

Government of Canada. 2019, September 17. Canada's Health Care System. Retrieved March 24, 2022. <https://www.canada.ca/en/health-canada/services/health-care-system/reports-publications/health-care-system/canada.html>.

Hassen, N., A. Lofters, S. Michael, A. Mall, A.D. Pinto and J. Rackal. 2021. Implementing Anti-Racism Interventions in Healthcare Settings: A Scoping Review. *International Journal of Environmental Research and Public Health* 18(6): 2993. doi:10.3390/ijerph18062993.

Jones, M.K., G. Bloch and A.D. Pinto. 2017. A Novel Income Security Intervention to Address Poverty in a Primary Care Setting: A Retrospective Chart Review. *BMJ Open* 7(8): e014270. doi:10.1136/*BMJ*OPEN-2016-014270.

Khazanchi, R., F. Crittenden, A.S. Heffron, E.C. Cleveland Manchanda, K. Sivashanker and A. Maybank. 2021, February 25. Beyond Declarative Advocacy: Moving Organized Medicine and Policy Makers from Position Statements to Anti-Racist Praxis. *Health Affairs* Blog. doi:10.1377/hblog20210219.107221.

Morton Ninomiya, M.E. and N.J. Pollock. 2017. Reconciling Community-Based Indigenous Research and Academic Practices: Knowing Principles Is Not Always Enough. *Social Science and Medicine* 172: 28–36. doi:10.1016/j.socscimed.2016.11.007.

Neustaeter, B. 2021, May 25. One Year after George Floyd's Death, Where Does "Defund the Police" Stand in Canada? CTV News. Retrieved May 10, 2022. <https://www.ctvnews.ca/canada/one-year-after-george-floyd-s-death-where-does-defund-the-police-stand-in-canada-1.5441519>.

Odedina, F.T. and M.C. Stern. 2021. Role of Funders in Addressing the Continued Lack of Diversity in Science and Medicine. *Nature Medicine* 27(11): 1859–61. doi:10.1038/s41591-021-01555-8.

Olah, M.E., G. Gaisano and S.W. Hwang. 2013. The Effect of Socioeconomic Status on Access to Primary Care: An Audit Study. *CMAJ* 185(6): 263–69. doi:10.1503/cmaj.121383.

Penman-Aguilar, A., K.M. Harrison and H.D. Dean. 2013. Identifying the Root Causes of Health Inequities: Reflections on the 2011 National Center for HIV/AIDS, Viral Hepatitis, STD, and TB Prevention Health Equity Symposium. *Public Health Reports* 128(6_Suppl3): 29–32. doi:10.1177/00333549131286S305.

Pinto, A.D. and G. Bloch. 2017. Framework for Building Primary Care Capacity to Address the Social Determinants of Health. *Canadian Family Physician* 63(11): e476–82.

Pinto, A.D., G. Glattstein-Young, A. Mohamed, G. Bloch, F.-H. Leung and R.H. Glazier. 2016. Building a Foundation to Reduce Health Inequities: Routine Collection of Sociodemographic Data in Primary Care. *Journal of the American Board of Family Medicine* 29(3): 348–55. doi:10.3122/jabfm.2016.03.150280.

Pinto, A.D. and J. Smylie. 2013. Chapter 6: Indigenous Health and Ethics: Lessons for Global Health. In A.D. Pinto and R.E.G. Upshur, eds., *An Introduction to Global Health Ethics* (pp. 73–83). Routledge.

Poland, B., D. Coburn, A. Robertson and J. Eakin. 1998. Wealth, Equity and Health Care: A Critique of a "Population Health" Perspective on the Determinants of Health. Critical Social Science Group. *Social Science and Medicine* 46(7): 785–98. doi:10.1016/S0277-9536(97)00197-4.

Pujolar, A.E., A. Bacigalupe and M. San Sebastian. 2016. Looking Beyond the Veil of the European Crisis – The Need to Uncover the Structural Causes of Health Inequalities. *International Journal for Equity in Health* 15(1): 39. doi:10.1186/s12939-016-0329-5.

Pyper, E., D. Henry, E.A. Yates, G. Mecredy, S. Ratnasingham, B. Slegers et al. 2018. Walking the Path Together: Indigenous Health Data at ICES. *Healthcare Quarterly* 20(4): 6–9. doi:10.12927/hcq.2018.25431.

Raphael, D. 2008. Getting Serious about the Social Determinants of Health: New Directions for Public Health Workers. *Promotion & Education* 15(3): 15–20. doi:10.1177/1025382308095650.

Raphael, D. 2015. The Political Economy of Health: A Research Agenda for Addressing Health Inequalities in Canada. *Canadian Public Policy* 41(2): S17–25. doi:10.3138/cpp.2014-084.

Registered Nurses' Association of Ontario (RNAO). 2010, January. *Creating Vibrant Communities: RNAO's Challenge to Ontario's Political Parties*. Retrieved May 6, 2022. <http://rnao.ca/sites/rnao-ca/files/CVC_Technical_Backgrounder.pdf>.

Shahidi, F.V., A. Parnia and A. Siddiqi. 2020. Trends in Socioeconomic Inequalities in Premature and Avoidable Mortality in Canada, 1991–2016. *CMAJ* 192(39): E1114–128. doi:10.1503/cmaj.191723.

Sikka, R., J.M. Morath and L. Leape. 2015. The Quadruple Aim: Care, Health, Cost and Meaning in Work. *BMJ Quality & Safety* 24(10): 608–10. doi:10.1136/bmjqs-2015-004160.

Silverstein, J. 2021, June 4. The Global Impact of George Floyd: How Black Lives Matter Protests Shaped Movements around the World. *CBS News*. Retrieved May 10, 2022. <https://www.cbsnews.com/news/george-floyd-black-lives-matter-impact/>.

Soroka, S.N. 2007, February. *A Report to the Health Council of Canada: Canadian Perceptions of the Health Care System*. Health Council of Canada. Retrieved May 10, 2022. <https://publications.gc.ca/collections/collection_2007/hcc-ccs/H174-11-2007E.pdf>.

Stanbrook, M.B. 2017. Tax Reform Plays Politics with Doctors' Reputations. *CMAJ* 189(39): E1249. doi:10.1503/cmaj.171132.

Taffe, M.A. and N.W. Gilpin. 2021, January 18. Equity, Diversity and Inclusion: Racial Inequity in Grant Funding from the US National Institutes of Health. *ELife* 10: e65697. doi:10.7554/eLife.65697.

Tamtik, M. and M. Guenter. 2020. Policy Analysis of Equity, Diversity and Inclusion Strategies in Canadian Universities – How Far Have We Come? *Canadian Journal of Higher Education* 49(3): 41–56. doi:10.7202/1066634ar.

van Doorslaer, E., C. Masseria, X. Koolman; and OECD Health Equity Research Group. 2006. Inequalities in Access to Medical Care by Income in Developed Countries. *CMAJ* 174(2): 177–83. doi:10.1503/cmaj.050584.

Vogel, L. 2017. Hundreds of Doctors Support Controversial Tax Reforms. *CMAJ* 189(40): E1269. doi:10.1503/cmaj.109-5505.

Weissman, J.S. and R. Hasnain-Wynia. 2011. Advancing Health Care Equity through Improved Data Collection. *New England Journal of Medicine* 364(24): 2276–77. doi:10.1056/NEJMp1103069.

Wen, C.K., P.L. Hudak and S.W. Hwang. 2007. Homeless People's Perceptions of Welcomeness and Unwelcomeness in Healthcare Encounters. *Journal of General Internal Medicine* 22(7): 1011–17. doi:10.1007/s11606-007-0183-7.

World Health Organization (WHO). 2008. Commission on Social Determinants of Health, 2005–2008. Retrieved May 6, 2022. <https://www.who.int/teams/social-determinants-of-health/equity-and-health/commission-on-social-determinants-of-health>.

Modernize the Healthcare System: Stewardship of a Strong Health Data Foundation

Modernisation du système de santé : la gérance de solides sources de données sur la santé

COMMENTARY

Vivek Goel, MD, MSc, FRCPC
President and Vice-Chancellor
University of Waterloo
Waterloo, ON
Member
Expert Advisory Group for the Pan-Canadian Health Data Strategy
Ottawa, ON

Kimberlyn McGrail, PhD
Scientific Director
Health Data Research Network Canada
Vancouver, BC
Member
Expert Advisory Group for the Pan-Canadian Health Data Strategy
Ottawa, ON

ABSTRACT

The Canadian Institutes of Health Research – Institute of Health Services and Policy Research (IHSPR) has published its Strategic Plan 2021–2026 *(CIHR IHSPR 2021) and, as members of the Expert Advisory Group for a Pan-Canadian Health Data Strategy, we are providing commentary on the second strategic priority of IHSPR's Strategy related to health data and digital health. Systemic barriers have prevented the timely and effective collection, sharing and use of health data in Canada. Many of these systemic barriers relate to the fragmented health data foundation, lack of coordinated data governance and a risk-averse culture. As IHSPR mobilizes its strategic plan, it will be important to consider and address these factors head-on to contribute to a stronger health data foundation that would help achieve both IHSPR's strategic objectives and meaningfully contribute to elevating Canada's health data ecosystem.*

RÉSUMÉ

L'Institut des services et des politiques de la santé (ISPS) des Instituts de recherche en santé du Canada a publié son Plan stratégique 2021-2026 *(CIHR IHSPR 2021) et, en tant que membres du comité consultatif d'experts pour la Stratégie pancanadienne de données sur la santé, nous commentons la deuxième priorité stratégique du Plan relative aux données sur la santé et à la santé numérique. Des obstacles systémiques empêchent la collecte, le partage et l'utilisation opportuns et efficaces des données sur la santé au Canada. Bon nombre de ces obstacles systémiques sont liés à la fragmentation des sources de données sur la santé, au manque de gouvernance coordonnée et à une culture d'aversion au risque. Alors que l'ISPS déploie son Plan stratégique, il est important d'examiner et d'aborder ces facteurs pour favoriser des sources de données sur la santé plus solides qui permettraient d'atteindre les objectifs stratégiques de l'ISPS et contribueraient à améliorer l'écosystème des données sur la santé au Canada.*

Introduction

The Canadian Institutes of Health Research – Institute of Health Services and Policy Research (CIHR IHSPR) has published its *Strategic Plan 2021–2026* (CIHR IHSPR 2021). We were asked to provide commentary on the second strategic priority of this strategy – modernizing "the health care system with digital health solutions and data science" (CIHR IHSPR 2021: 14) – from our perspective as health data researchers and as members of the Expert Advisory Group (EAG) for a Pan-Canadian Health Data Strategy (PCHDS) (Government of Canada 2021d).

We are excited by the boldness and strength of the strategy that IHSPR has put forward. In particular, we are excited to see the emphasis on adopting the Quadruple Aim as a consistent method of evaluating health systems and improving health equity, driving digital health solutions, enabling aspects of a learning health system and building health workforces to support the digital age.

From the work that we have done on the PCHDS, there are some lessons and learnings that will be relevant for IHSPR as it gets its work under way. Specifically, we note systemic barriers that have prevented the timely and effective collection, sharing and use of health data in Canada – many of which were made more apparent during the pandemic.

The majority of these systemic barriers relate to the fragmented health data

foundation, a lack of coordinated data governance and a risk-averse culture. As IHSPR mobilizes its strategic plan, it will be important to consider and address these factors head-on to ensure IHSPR's success and to contribute to the permanent remediation of those barriers to support Canada's success. In this article, we provide several ideas for consideration in line with strengthening Canada's health data foundation while addressing those barriers.

Background

The COVID-19 pandemic has shone a bright light on the essential requirement for Canada to use its health data better to improve outcomes for all Canadians. This is being acknowledged at senior levels of the government with recognition in the November 2021 Speech from the Throne as "[t]here is work to be done … on improving data collection across health systems to inform future decisions and get the best possible results" (Government of Canada 2021b) and in the December 2021 Mandate Letter for the Federal Minister of Health as "... expediting work to create a world-class health data system ..." (Prime Minister of Canada 2021).

IHSPR has developed a bold strategy for the next five years with a vision to "Accelerate Health System Transformation through Research to Achieve the Quadruple Aim and Health Equity for All" (CIHR IHSPR 2021: 1). One of the strategic priorities to achieve this vision is to "modernize the health care system with digital health solutions and data science" (CIHR IHSPR 2021: 14). This strategic priority, as well as the overall vision, is about the production, organization and use of timely and trusted data to (a) measure the Quadruple Aim, (b) drive new digital and data science solutions and (c) implement those solutions for care, safety, continuous improvement, planning and research.

Since December 2020, we have been developing advice for governments on a PCHDS through an EAG. Through that work, we are proposing a vision and principles for Canadian health data (Government of Canada 2021a, 2021c).

Furthermore, we note that Canada's (now largely digital) health data are systemically fragmented without a coherent foundation of governance, policy, standards or engagement. This systemic fragmentation is caused and exacerbated by several barriers that impede progress. These barriers primarily relate to culture and policy.

As IHSPR embarks on its strategic plan, it will be important for it to consider its role in strengthening the foundation of health data and tactics to overcome the relevant systemic barriers. It is on this basis that we provide this commentary.

Vision to be World-Class

While there is no definitive definition of a world-class health data system, several countries have data systems that support individual empowerment, clinical access and advanced analytics. Notably, health digital and/or data strategies have been advanced in the last two years by the UK, New Zealand, Australia and the Netherlands (Australian Digital Health Agency n.d.; Department of Health and Social Care 2022; Ministry of Health 2021; OECD 2022).

A "world-class [digital] health data system" (Prime Minister of Canada 2021: 3) will have several attributes that are consistent with the EAG's advice, IHSPR's strategic plan and data strategies being advanced by other countries. In one possible definition, such a system would:

- establish individuals as partners in health while achieving their health outcomes;
- foster a loop of continuous improvement through a learning health system; and
- be measured in its outcomes through the Quintuple Aim (Nundy et al. 2022), including reporting outcomes by

socio-demographic factors to identify opportunities to improve equity.

Significantly, with the tools now available, such a system does not need to be a monolithic single national database. With appropriate governance and accountability mechanisms, data can be integrated through distributed networks to enable clinical uses and population and public health, health services management, research and individual use.

Research will be a partner in achieving this, supporting the production and use of data that are timely, usable and connectable. Those data can generate necessary insights today and be flexible and responsive to new questions and capabilities that arise in the future.

To that end, IHSPR should lead work with partners across Canada and around the world to establish an objective framework for a research-enabling world-class (digital) health data system. This would define a clear framework for what success looks like and easy-to-understand metrics that will measure its success.

Culture of Data Stewardship

Achieving the objectives of the PCHDS and IHSPR's strategic plan will require adoption of a culture and practise of data stewardship. Data stewardship will help overcome the risk-averse health data culture that impairs timely data collection, sharing and use.

The risk-averse culture is the result of data custodians incented to reduce or eliminate risk of data misuse from data sharing, without consideration of the risks and consequences of not sharing data. This impacts research through (1) cumbersome processes to gain access to data, (2) data shared with only a high level of aggregation limiting its use in analysis and/or (3) data governed in siloes without use of standards or consideration of how data sets may later be integrated to answer future questions. Side effects of the risk-averse culture include bespoke data-sharing arrangements where clinical data are manually rekeyed for their analysis and a proliferation of smaller research initiatives that miss the opportunity for broader collaboration in Canada or globally.

The systemic barriers – short-term investments and lack of governance – negatively influence pan-Canadian health data research cohorts. Dozens of health cohorts, established for longitudinal studies, are designed for targeted purposes such as child development or aging. These cohorts include more than a million Canadians and are rich sources of research data on diverse populations; however, these cohorts were designed independently. Without commitment of ongoing funding, they are neither comprehensive in their population coverage nor always linkable to other health data, including other cohorts. This limits their current ability to generate cross-cohort insight.

Overall, the current health data culture causes insights to be late, lack sufficient granularity to have the desired impact and/or disproportionately consume limited budgets on administrative tasks rather than insightful research.

A culture of data stewardship would establish a clear *code of conduct* for uses of data, including expectations to:

- reuse data assets (standards, data sets);
- contribute data assets for others to reuse easily;
- simplify data linking to common master data;
- adhere to prescribed privacy law and understand health data policy;
- define scenarios where data must be shared and how new scenarios are reviewed;

- and others as agreed by the health data user community (Paprica et al. 2020).

Furthermore, this code of conduct would clarify the incentives for failing to adhere to the code of conduct, such as penalties for malicious data re-identification.

A consistent code of conduct will simplify negotiations between data collaborators as the expectations of all parties would align with the expectations in *data collaboration (sharing) agreements*. In addition, the code of conduct would articulate a consistent expectation of how to "encourage and promote the use of data sources and platforms … including SPOR's Canadian Data Platform" (CIHR IHSPR 2021: 16).

Canada has an opportunity to lead the world in research with our diverse population and the willingness of Canadians to participate in these types of studies. There is an opportunity for IHSPR to make it easy for researchers to do the right thing in designing and implementing their research studies to achieve their objectives on a timely basis and to support the future exponential value of networked data.

Efforts to establish types of this "code of conduct" are already under way in many communities. To that end, IHSPR can help catalyze and lead efforts to develop a consistent code of conduct across data organizations. When in place, this would radically simplify data access for research while continuing to afford appropriate data protections.

Measuring the Impact of Data Governance and Advanced Analytics

One of the other strategies under IHSPR's "digital modernization" priority is to "design innovative digital health research funding programs that support advanced analytics and the implementation and evaluation of digital health approaches ..." (CIHR IHSPR 2021: 16).

Funding program reviews by governments often rely on a calculation of "return on investment" (ROI). Many advanced analytics programs are challenged to generate quantifiable ROI based on the unknown future value of advanced analytics – either through value creation or through cost avoidance.

Furthermore, there have been prior investments in advanced analytics programs that have not achieved their value by being impaired in their ability to spread and scale across platforms, domains or jurisdictions. That failure to spread and scale is often a result of inconsistent data policies, standards and/or architecture. In other words, the lack of data governance has a direct impact on the challenges of realizing value from advanced analytic programs.

In an equitable learning health system, the algorithms (generated by research) that allow individuals to achieve their health objectives should be available to *all* residents of Canada. Many current funding models are antithetical to that outcome as their focus is often short term and based on locally available and unstandardized data.

To overcome these challenges, IHSPR's innovative funding programs should value and prioritize investment and experimentation that produces generalizable and shareable knowledge. This includes documentation of practices and other innovations like healthcare system–oriented training that would increase replicability from one setting to another. This work would leverage insights from international and jurisdictional partners, identify the essential elements that support scalability and drive spread and scale of innovation across Canada.

Harmonized Policy, Interoperability and Architecture

IHSPR can at minimum contribute, and at maximum drive, strengthening the foundation

of health data policies and interoperability. IHSPR's *Strategic Plan 2021–2026* includes "work with partners to continue *to improve access, linkage, and interoperability of data and data systems*…" (CIHR IHSPR 2021: 16).

No jurisdiction in Canada is incented to drive necessary harmonization and standardization across Canada. Groups that are pan-Canadian, such as IHSPR, can foster consistency through their requirements and funding arrangements. IHSPR also can help highlight the impact of the lack of consistency on research in time, quality and cost. That would serve to catalyze action to harmonize policies and processes and adopt data standards in the areas where it is of the greatest benefit while respecting the autonomy of local health systems. This will simplify the exchange of data across borders and facilitate IHSPR's mission.

This work should also tie into funding programs to minimize avoidable administrative work of data collection and normalization that benefits all jurisdictions to generate timely, impactful insights.

To that end, IHSPR should support research engagement and involvement with provinces and territories and other relevant organizations to develop harmonized data policies, including data access, data de-identification, protection and sharing of intellectual property and simplifying processes for cross-border research. IHSPR can engage with the regular reviews of the Tri-Council Policy Statement on the Ethical Conduct for Research Involving Humans (Canadian Institutes of Health Research, Natural Sciences and Engineering Research Council of Canada, Social Sciences and Humanities Research Council 2018) to ensure that the requirements for research ethics involving health data remain relevant and current.

Furthermore, as interoperability standards are developed, IHSPR should support this work by including requirements in their funding arrangements to reuse data standards, architecture and existing data assets, including master data for linking data sets. Where new standards/assets are required, IHSPR should require that these be shared for others to reuse later.

Building Capacity and Meaningful Engagement

Achieving the objectives in IHSPR's strategy will require improved understanding of digital health and data management among all stakeholders – leaders, health workforces, researchers and the public. That improved understanding will serve two distinct purposes – improving trust between stakeholders for the timely collection, sharing and use of health data and growing the capacity of people who perform essential functions in the generation of insights along the health data supply chain.

Trust must be built through meaningful engagement with stakeholders – most notably the public. Research into public perceptions of digital health data use, the acceptability (or not) of advanced analytics and the factors that influence those perceptions would reveal some important considerations for policy and codes of conduct.

Building capacity would ensure the pipeline of resources to perform critical data functions. This would include capacity at every step of the data supply chain from collection, sharing and use, as well as the data stewardship resources to coordinate all activities and ensure timely access to trusted data for research. Anecdotally, prior investments in advanced analytics that have failed to invest in upstream data functions have consistently failed to achieve their value proposition.

As such, IHSPR should encourage research to collect and understand baseline trust for digital health data use and opportunities to build trustworthiness through specific policies and/or codes of conduct.

Furthermore, IHSPR should explore methods to simplify the ability for individual research projects to incorporate stakeholder perspectives (notably among the public and Indigenous populations) in decisions about specific research/advanced analytics initiatives.

Finally, IHSPR should discover methods to contribute to a program with PTs and Health Canada that improves the health data literacy of leaders with a focus on the value of harmonized health data policy and consistent data standards. That program would improve the practices of data management and data science and build the pipeline of future leaders.

Conclusion

In advancing a world-class digital health data system, IHSPR has the ability to drive many areas that will be essential for long-term sustained success. IHSPR's *Strategic Plan 2021–2026* provides many essential planks of a world-class health data system (CIHR IHSPR 2021). Our advice is for IHSPR to take action that addresses the root cause of why prior similar attempts have been unsuccessful – primarily by influencing the strengthening of the health data foundation for Canada.

IHSPR's role as a strategic pillar of the Canadian Institutes for Health Research has the ability and credibility to champion a culture of collaboration and to drive change through its funding, training and leadership. Success will require partnership across the health sector and beyond. While it will be essential to involve many of the incumbent leaders in health data and digital health across Canada, a crucial success factor will be to involve the public in this work. Similarly, it is essential that First Nations, Inuit and Métis communities are engaged to lead their health data governance efforts to support better outcomes for their communities while contributing to better outcomes for Canada.

While this commentary was focused on the IHSPR's second strategic priority, the recommendations mentioned earlier will benefit IHSPR's other strategic priorities taken collectively as they all require timely access to data in a culture of improved literacy and trust, powered by innovative health data policies.

Articulating the value of consistent application of the Quintuple Aim (as the Quadruple Aim plus equity) will measure what matters most to Canadians. Driving coherence of governance, policy and standards will improve adoption and simplify data collection, sharing and use. That coherence requires trust and collaboration and will support scaling and spreading of excellence all across Canada.

Correspondence may be directed to: Vivek Goel. Vivek can be reached by e-mail at president@uwaterloo.ca.

References

Australian Digital Health Agency. n.d. National Digital Health Strategy and Framework for Action. Retrieved March 29, 2022. <https://www.digitalhealth.gov.au/about-us/strategies-and-plans/national-digital-health-strategy-and-framework-for-action>.

Canadian Institutes of Health Research (CIHR) Institute of Health Services and Policy Research (IHSPR). 2021. *Strategic Plan 2021–2026: Accelerate Health System Transformation through Research to Achieve the Quadruple Aim and Health Equity for All.* Retrieved February 2, 2022. <https://cihr-irsc.gc.ca/e/documents/ihspr_strat_plan_2021-26-en.pdf>.

Canadian Institutes of Health Research, Natural Sciences and Engineering Research Council of Canada, Social Sciences and Humanities Research Council. 2018. *Tri-Council Policy Statement Ethical Conduct for Research Involving Humans: TCPS2 2018*. Retrieved June 2, 2022. <https://ethics.gc.ca/eng/documents/tcps2-2018-en-interactive-final.pdf>.

Department of Health and Social Care. 2022, February 10. Data Saves Lives: Reshaping Health and Social Care with Data (Draft). Retrieved March 29, 2022. UK Government. <https://www.gov.uk/government/publications/data-saves-lives-reshaping-health-and-social-care-with-data-draft/data-saves-lives-reshaping-health-and-social-care-with-data-draft>.

Government of Canada. 2021a, June 17. *Expert Advisory Group Report 1: Charting a Path toward Ambition*. Retrieved February 2, 2022. <https://www.canada.ca/en/public-health/corporate/mandate/about-agency/external-advisory-bodies/list/pan-canadian-health-data-strategy-reports-summaries/expert-advisory-group-report-01-charting-path-toward-ambition.html>.

Government of Canada. 2021b, November 23. Building a Resilient Economy: A Cleaner & Healthier Future for Our Kids. Speech from the Throne to open the First Session of the Forty-Fourth Parliament of Canada. Retrieved February 2, 2022. <https://www.canada.ca/en/privy-council/campaigns/speech-throne/2021/building-resilient-economy.html>.

Government of Canada. 2021c, December 13. *Expert Advisory Group Report 2: Building Canada's Health Data Foundation*. Retrieved February 2, 2022. <https://www.canada.ca/en/public-health/corporate/mandate/about-agency/external-advisory-bodies/list/pan-canadian-health-data-strategy-reports-summaries/expert-advisory-group-report-02-building-canada-health-data-foundation.html>.

Government of Canada. 2021d, December 22. The Pan-Canadian Health Data Strategy: Expert Advisory Group Overview. Retrieved February 2, 2022. <https://www.canada.ca/en/public-health/corporate/mandate/about-agency/external-advisory-bodies/list/pan-canadian-health-data-strategy-overview.html>.

Ministry of Health. 2021, December 10. Data and Information Strategy for Health and Disability: Roadmap 2021–2024. New Zealand Government. Retrieved March 29, 2022. <https://www.health.govt.nz/publication/data-and-information-strategy-health-and-disability-roadmap-2021-2024>.

Nundy, S., L.A. Cooper, K.S. Mate. 2022. The Quintuple Aim for Health Care Improvement: A New Imperative to Advance Health Equity. *JAMA* 327(6):521–22. doi:10.1001/jama.2021.25181.

OECD. 2022. *Towards an Integrated Health Information System in the Netherlands*. OECD Publishing. doi:10.1787/a1568975-en.

Paprica, P.A., E. Sutherland, A. Smith, M. Brudno, R.G. Cartagena, M. Crichlow et al. 2020. Essential Requirements for Establishing and Operating Data Trusts: Practical Guidance Based on a Working Meeting of Fifteen Canadian Organizations and Initiatives. *International Journal of Population Data Science* 5(1): 1353. doi: 10.23889/ijpds.v5i1.1353.

Prime Minister of Canada. 2021, December 16. Minster of Health Mandate Letter. Office of the Prime Minister. Retrieved February 2, 2022. <https://pm.gc.ca/en/mandate-letters/2021/12/16/minister-health-mandate-letter>.

Strategizing Research for Impact

Une recherche stratégique pour exercer un impact

COMMENTARY

Denis A. Roy, MD, MPH, MSC, FRCPC
Deputy Commissioner-Evaluation
Commissaire à la santé et au Bien-être
Quebec City, QC
Assistant Professor
School of Public Health
Université de Montréal
Montreal, QC

Matthew Menear, PhD
Assistant Professor
Department of Family Medicine and Emergency Medicine, Laval University
Researcher
VITAM – Center for Sustainable Health Research
Integrated University Health and Social Services Center
Quebec City, QC

Hassane Alami, PhD
Postdoctoral Researcher
Interdisciplinary Research in Health Sciences
Nuffield Department of Primary Care Health Sciences
University of Oxford
Oxford, UK

Jean-Louis Denis, FCAHS, MRSC, FAcSS (UK)
Professor and Canada Research Chair
Health System Design and Adaptation
School of Public Health
Université de Montréal-CRCHUM-CRDP
Montreal, QC

ABSTRACT

In its Strategic Plan 2021–2026*, the Canadian Institutes of Health Research – Institute of Health Services and Policy Research (IHSPR) convincingly expresses its desire to expand capacity for applied health services and policy research (HSPR) and better mobilize research results for health system transformation geared toward the Quadruple Aim and health equity for all (CIHR IHSPR 2021). These strategic*

priorities echo views widely shared within the HSPR community, and we commend IHSPR for its leadership and vision. Recognizing the systemic challenges ahead of us, this commentary considers the HSPR community's capacity to achieve the promise of learning health systems, given the obstacles likely to hinder their rapid scale-up over the next five years. Next, we consider the spread of virtual care during the pandemic to illustrate the embedded and negotiated nature of innovation in health systems and the need for vigilance as to the social distribution of their benefits and costs. Finally, a critical review of the strategic plan provides insights into how research is governed in the HSPR field. Based on this analysis, it appears essential to reconsider health system transformation as social system transformation and strengthen interdisciplinary and comparative research. Looking forward, developing a science of science to better understand the conditions associated with high-impact research should be a cross-cutting priority for Canada's HSPR community.

RÉSUMÉ

Dans son Plan stratégique 2021-2026*, l'Institut des services et des politiques de la santé (ISPS) des Instituts de recherche en santé du Canada exprime de façon convaincante sa volonté d'accroître la capacité de recherche appliquée sur les services et les politiques de santé (RSPS) et de mieux mobiliser les résultats de recherche pour la transformation du système de santé en fonction des quatre objectifs et de l'équité en santé pour tous (CIHR IHSPR 2021). Ces priorités stratégiques font écho à des points de vue largement partagés dans le milieu de la RSPS et nous félicitons l'ISPS pour son leadership et sa vision. Reconnaissant les défis systémiques qui nous attendent, le présent commentaire se penche sur la capacité du milieu de la RSPS à tenir la promesse de systèmes de santé apprenants, compte tenu des obstacles susceptibles d'entraver leur mise en œuvre rapide dans les cinq prochaines années. Ensuite, nous commentons l'utilisation accrue des soins virtuels pendant la pandémie pour illustrer le caractère intégré et négocié de l'innovation dans les systèmes de santé et pour démontrer la nécessité d'une vigilance quant à la répartition sociale de leurs avantages et de leurs coûts. Enfin, un examen critique du Plan stratégique donne un aperçu de la façon dont la recherche est gouvernée dans le domaine de la RSPS. Sur la base de cette analyse, il apparaît essentiel de reconsidérer la transformation du système de santé comme une transformation du système social et de renforcer la recherche interdisciplinaire et comparative. À l'avenir, le développement d'une science de la science, pour mieux comprendre les conditions associées à la recherche à fort impact, devrait être une priorité transsectorielle pour le milieu canadien de la RSPS.*

Introduction

In his introductory message to the Institute of Health Services and Policy Research's (IHSPR's) *Strategic Plan 2021–2026*, its scientific director, Rick Glazier, aptly summarizes the many tensions and paradoxes besetting health systems in the post-COVID-19 era (CIHR IHSPR 2021: 5). The decision to *Accelerate Health Care System Transformation through Research to Achieve the Quadruple Aim and Health Equity for All* (CIHR IHSPR 2021) and address the structural, functional and environmental challenges facing health systems in Canada is wise, engaging and inspiring.

IHSPR's strategic plan is exemplary in many respects. Drawing on extensive stakeholder consultations and multiple sources of information, IHSPR's approach to setting priorities in the midst of a pandemic must be commended. The strategic plan reflects a clear desire to expand capacity for applied health services and policy research (HSPR) and more effectively convert research results into usable knowledge for health system transformation and improvement. It justly emphasizes the importance of digital health solutions and draws needed attention to the intersections between HSPR and public health. Most importantly, it anchors HSPR in a limited set of core concepts such as the Quadruple Aim, equity, learning health systems (LHSs) and knowledge mobilization (CIHR IHSPR 2021: 4), concepts that have become increasingly accepted within the international research community. As such, we may consider that IHSPR has demonstrated the normative leadership expected by the Canadian HSPR community.

On the face of it, the plan would seem to successfully position our community to address the complex health system challenges observed across the country. We do note, however, a strong deterministic logic underpinning the plan and the vision for HSPR, reflected in statements such as "The role for health services and policy research is to provide leading-edge input to inform health care system transformation is clear: research investments must be made in areas of high need, where there are gaps in evidence, and where there is potential to positively impact the lives of people, the health of populations and the performance of the health system" (CIHR IHSPR 2021: 6). IHPSR's core functions follow a similarly deterministic logic: support knowledge creation, build capacity, foster knowledge mobilization, connect and partner to optimize impact and celebrate and recognize excellence and impact (CIHR IHSPR 2021: 8). A clear pathway for high-performing health systems, right? We suggest that as scientists, cautious skepticism must remain our best companion.

Let us keep in mind that despite progressive increases over the last decade, HSPR's share of research money remains modest. In addition, lessons learned from successes and failures of previous strategic endeavours are not described in the current plan, and one may wonder whether they have been thoroughly evaluated and understood. Moreover, despite the promising nature of the 2021–2026 strategic priorities, they require a leap of faith since no metrics or measurable targets for tracking progress are presented. Nor is it clear whether and how the research impact measurement system developed by the Canadian Health Services and Policy Research Alliance is expected to be used (CHSPRA 2018).

What is clear is that we have a long and winding road ahead: health systems across Canada still display many vulnerabilities, and the overall performance of Canada's health system is average at best (Forest and Martin 2018; Osborn et al. 2017). Our health systems contain many important assets (e.g., clinical and research networks, digital platforms, decision support systems, structures for patient partnership, etc.), and yet across jurisdictions we remain far away from having fully operational LHSs, as leaders face considerable difficulties in connecting these assets to enable learning and sustainable improvement (Lavis et al. 2018). The pace of innovation is accelerating, thanks to basic research and to the digital revolution, but it is also driving cost increases and health inequities (Lorenc et al. 2013). Finally, politics too often trumps evidence in health policy arenas.

This commentary considers how and under what conditions IHSPR's strategic

priorities could help us tackle the complex challenges inherent to health system transformation. The promise and challenges related to the development and spread of LHSs will first be discussed. Building on the lessons learned from the large-scale adoption of virtual health during the pandemic, we will then illustrate some of the issues pertaining to responsible innovation and value-based, equitable health system transformation. Finally, we discuss the way we govern research in the HSPR domain and share insights on how to balance the creation of knowledge or the search for new understanding of problems and solutions with the goal of producing usable knowledge for policy makers and health system leaders.

Advancing LHSs across Canada

IHSPR's third strategic priority explicitly identifies the development of LHSs as a means through which the HSPR community can advance the Quadruple Aim and achieve health equity for all. According to the National Academy of Medicine, learning systems share certain characteristics – including a digital infrastructure that captures the care experience, a scientific infrastructure that enables real-time access to evidence and knowledge, mechanisms for engaging and empowering patients, incentives aligned for continuous improvement and high-value care, processes to ensure access to supportive system competencies and leadership committed to a culture of learning (Institute of Medicine et al. 2013). Indeed, what makes LHSs distinct is the way these various structures and mechanisms are deeply embedded within the system and aligned with the purpose of accelerating learning and improvement (Menear et al. 2019).

IHSPR's strategic plan – with its focus on supports for digital health ecosystems, funding opportunities fostering engagement and collaboration between researchers and other health system partners and modernized HSPR training programs – offers great promise as we collectively build the environmental conditions needed for the emergence of LHSs in Canada. However, as noted by the Health Foundation, the implementation of such systems is best understood as an ongoing journey and not a destination (Foley et al. 2021). Furthermore, many challenges, including several outside of the control of researchers and research funders, are likely to hinder a rapid scale-up of the LHS concept over the next five years: cultures within health organizations that are not aligned with the LHS vision, data sharing challenges and mismatches between the design of our digital infrastructures and the features needed to support continuous learning and improvement, insufficient financial supports and incentive systems, minimal evaluation of innovations, limited collaboration between some important system actors (e.g., industry partners) and an inadequate regulatory environment (Menear et al. 2019; Morain et al. 2017). These obstacles can be overcome, but this will take time and require strong and sustained commitment from leaders at multiple levels. IHSPR and its research community must be among these leaders, but we will not fulfill the promise of LHSs without the help of others.

And it may be that the greatest promise of LHSs is not how they support the routine mobilization of knowledge to clinical practice but instead how they foster a continuous questioning of how we frame problems in the first place, how we think about the types of evidence or knowledge that are needed to tackle these problems and how we collectively pursue health system change in new and innovative ways. Such "double loop" learning, so fundamental to learning organizations, should not be lost at the systems level. The

strategies proposed by IHSPR in relation to its third strategic priority (e.g., innovations in research funding design, supporting science on science) suggest that they may have the reflexive posture necessary to share this vision with other LHS leaders.

Public Policy and System Governance as Foundational Levers for Health System Transformation and Innovation

The COVID-19 pandemic is a textbook case for providing an overall diagnosis of other challenges that may have been in the blind spot of the dominant paradigm on innovation and digital health.

The pandemic was a powerful accelerator of innovation in health systems. After decades of integration difficulties, virtual care became, at various points during the pandemic, the main channel for delivering care and services (Alami et al. 2021). The pandemic has also revealed the extent to which digital infrastructure and technologies have become a primary need in the population. They have emerged as a human right to health as they are necessary to access essential treatments and services (Mazzucato et al. 2018).

At the onset of the pandemic, virtual care was mainly presented as a "virtually perfect" solution (Alami et al. 2021; Hollander and Carr 2020). Political, regulatory, financial and governance barriers were removed in record time (e.g., physician remuneration, telephone consultations, virtual prescribing, reserved acts, virtual consent) (Alami et al. 2021). The "Remote by default" and "digital-first" models were privileged, with good social acceptability (Andrews et al. 2020). At the same time, a part of the population was not ready or equipped to benefit from such a revolution (Alami et al. 2021). Technology thus became an additional barrier for certain disadvantaged populations (e.g., rural, Indigenous, homeless, disabled, isolated elderly, immigrant) to access care and services and may have exacerbated gaps in health.

This echoes studies on innovations, but which are not sufficiently considered. These have already shown that early adopters of innovations benefit more than others, which may perpetuate and/or exacerbate inequalities (Weiss and Eikemo 2017), a phenomenon known as "intervention-generated inequalities" (Lorenc et al. 2013). In this regard, policies and actions in health systems have historically prioritized effectiveness and efficiency over equity and inclusion and have not sufficiently considered the social distribution of benefits and risks of innovations.

The pandemic has provided a valuable window of opportunity to question and re-evaluate our approach to innovation in health systems. More attention should be paid to the fact that innovations are embedded, negotiated and used within wider socio-political, economic, ideological and symbolic processes (Kickbusch et al. 2021). The achievement of their value promise depends on complex systemic and structural contexts, dynamics and contingencies that go beyond the simple issue of interoperability and technological infrastructure (even if important). In this vein, we have to accept the fact that engagement of decision makers and integrated knowledge translation strategies, while essential, will not eliminate the many obstacles to innovation associated with the complexity of interconnections between representations, social structures and knowledge (Fortunato et al. 2018).

Knowledge as a Key Strategy for Health System Transformation

Looking at IHSPR's fourth strategic priority and at the foundational act behind the creation of CIHR, let us now consider the delicate balance between the search for new understanding of problems and solutions and

the goal of producing usable knowledge for health system leaders.

Throughout the years, various strategies like integrated knowledge translation, research alliances and dedicated agencies have been established to promote evidence-informed policies and decision making and increase the impact of research on health system transformation and improvement. These strategies have led to greater collaboration between the research community and decision makers and have informed policies and decisions from time to time. Much energy has been invested to increase the instrumental function of knowledge and the competencies researchers must develop to improve their impact on decisions and practices (McMahon et al. 2019). Less attention has been paid to the types of knowledge that are needed to better understand and influence health system transformation and improvement.

In the HSPR field, discovery science is not just about strategies and techniques to improve services and outcomes. It also involves a systematic and critical assessment of problem framing, of competing theories and on the generation of integrative frames to better grasp the subtleties and complexity of the empirical world (Greenhalgh and Papoutsi 2018; Turner et al. 2016). Knowledge on context, problems and solutions based on a new synthesis between political science, population health and organizational science, for example, may be required but not necessarily demonstrate an immediate potential for application. Growing attention to the importance of context in implementation and improvement sciences are indications of the importance of revisiting predominant theories and methodologies.

A careful reading of IHSPR's strategic plan reveals several characteristics of the way we govern research in our domain. First, IHSPR's four strategic priorities primarily focus on impact- or outcome-driven research. Of course, impact on health system transformation and improvement can be broadly defined, but this is not the route taken in the strategic plan. As mentioned earlier, the strategic priorities emphasize a deterministic view of research and do not explicitly discuss the importance of understanding and shaping realities through innovative frames and concepts. The enlightenment function of research – and more specifically of social science – identified more than 60 years ago by Carol Weiss (1977) as a realistic and effective pathway of influence, needs to be revived and valued in our conversations around high-impact research (Weiss 1977). Second, the strategic plan overemphasizes the engineering of research for external purposes at the expense of valuing a reflexive stance on the types of knowledge we need in our field. IHSPR proposes to develop a science of science to better understand the conditions associated with high-impact research (CIHR IHSPR 2021: 19). This is a promising route to pursue, which may open genuine debates around some of the prevailing views in our field and support reflexive dialogue with policy makers and decision makers. Third, there is no mention in the plan of an essential feature of the HSPR community – that is, that it is composed of multiple epistemic communities with their own theories and methodologies and consequently their own views of how to define high-impact research. By pursuing these three lines of inquiry, our research community will be in a better position to define the content of a science of health system transformation and improvement. It will also be in a better position to locate the pursuit of high-impact research within the diversity of knowledge and perspectives that inhabit the field of health system transformation and improvement.

In conclusion, health system transformation has been, as recognized in IHSPR's strategic plan, a challenging and, at times, disappointing journey (Forest and Martin 2018). Decades of research reengineering based on an instrumental ideology to maximize impact has not culminated in large-scale improvements. One hypothesis that explains such stasis is that there has been a decline in the richness of a field that has become too constrained by a deterministic logic over time. The ability to look at health system transformation as social system transformation and to benefit from interdisciplinary and comparative research has similarly declined over time. One of the priorities for the years to come should thus be about promoting more diversity and inclusivity within our research community and on this basis create new alliances with all concerned groups and stakeholders, including the policy- and decision-makers' communities. While the current focus on equity, diversity and inclusion in research is necessary, an explicit assessment and valuation of the disciplinary mix of our epistemic communities is warranted. Second, it is also time for us to rethink our exchange, translation and co-production vehicles for health system changes. Initiatives and structures to favour a continuous and reflexive dialogue between research community and policy makers, system leaders, politicians and decision makers of all sorts, including citizens, are still in their infancy. We need to build on CIHR's legacy in this regard and go even further. High-impact boundary work across scientists' and policy makers' communities may require a growing attention to the many meanings of a science of science in HSPR. Fundamental questions around the governance of research in our domain need to be answered, and IHSPR is in a privileged position to address these questions. This should be a fifth, cross-cutting, transformative strategic priority for IHSPR.

Correspondence may be directed to: Denis A. Roy. Denis can be reached by e-mail at denis.roy@csbe.gouv.qc.ca.

References

Alami, H., P. Lehoux, R. Attieh, J.-P. Fortin, R. Fleet, M. Niang et al. 2021. A "Not So Quiet" Revolution: Systemic Benefits and Challenges of Telehealth in the Context of COVID-19 in Quebec (Canada). *Frontiers in Digital Health* 3: 721898. doi:10.3389/fdgth.2021.721898.

Andrews, E., K. Berghofer, J. Long, A. Prescott and M. Caboral-Stevens. 2020. Satisfaction with the Use of Telehealth during COVID-19: An Integrative Review. *International Journal of Nursing Studies Advances* 2: 100008. doi:10.1016/j.ijnsa.2020.100008.

Canadian Health Services and Policy Research Alliance (CHSPRA). 2018, August. *Making an Impact: A Shared Framework for Assessing the Impact of Health Services and Policy Research on Decision-Making*. Retrieved March 1, 2022. <https://docs.wixstatic.com/ugd/5adc92_3ae941eaedb04ab4a66b6f83f98a479d.pdf?platform=hootsuite&mc_cid=47f94af269&mc_eid=ffbad33983>.

Canadian Institutes of Health Research (CIHR) Institute of Health Services and Policy Research (IHSPR). 2021. *Strategic Plan 2021–2026: Accelerate Health System Transformation through Research to Achieve the Quadruple Aim and Health Equity for All*. Retrieved March 1, 2022. <https://cihr-irsc.gc.ca/e/documents/ihspr_strat_plan_2021-26-en.pdf>.

Foley, T., L. Horwitz and R. Zahran. 2021, May. *Realising the Potential of Learning Health Systems*. Retrieved March 1, 2022. The Health Foundation, Newcastle Universty. <https://learninghealthcareproject.org/wp-content/uploads/2021/05/LHS2021report.pdf>.

Forest, P.G. and D. Martin. 2018, March. *Fit for Purpose: Findings and Recommendations of the External Review of the Pan-Canadian Health Organizations – Summary Report*. External Review of the Pan-Canadian Health Organizations. Retrieved March 1, 2022. <https://www.canada.ca/content/dam/hc-sc/documents/services/health-care-system/reports-publications/health-care-system/findings-recommendations-external-review-pan-canadian-health-organization/findings-recommendations-external-review-pan-canadian-health-organization.pdf>.

Fortunato, S., C.T. Bergstrom, K. Börner, J.A. Evans, D. Helbing, S. Milojević et al. 2018. Science of Science. *Science* 359(6379). doi:10.1126/science.aao0185.

Greenhalgh, T. and C. Papoutsi. 2018. Studying Complexity in Health Services Research: Desperately Seeking an Overdue Paradigm Shift. *BMC Medicine* 16(1): 1–6. doi:10.1186/s12916-018-1089-4.

Hollander, J.E. and B.G. Carr. 2020. Virtually Perfect? Telemedicine for COVID-19. *New England Journal of Medicine* 382(18): 1679–81. doi: 10.1056/NEJMp2003539.

Institute of Medicine; Committee on the Learning Health Care System in America; M. Smith, R. Saunders, L. Stuckhardt, J.M. McGinnis (eds.). 2013. *Best Care at Lower Cost: The Path to Continuously Learning Health Care in America*. National Academies Press.

Kickbusch, I., D. Piselli, A. Agrawal, R. Balicer, O. Banner, M. Adelhardt et al. 2021. *The Lancet* and Financial Times Commission on Governing Health Futures 2030: Growing Up in a Digital World. *Lancet* 398(10312): 1727–76. doi: 10.1016/S0140-6736(21)01824-9.

Lavis, J.N., F.-P. Gauvin, C.A. Mattison, K.A. Moat, K. Waddell, M.G. Wilson et al. 2018, December 10. *Rapid Synthesis: Creating Rapid-Learning Health Systems in Canada*. McMaster Health Forum. Retrieved March 1, 2022. <https://www.mcmasterforum.org/docs/default-source/product-documents/rapid-responses/creating-rapid-learning-health-systems-in-canada.pdf?sfvrsn=4>.

Lorenc, T., M. Petticrew, V. Welch and P. Tugwell. 2013. What Types of Interventions Generate Inequalities? Evidence from Systematic Reviews. *Journal of Epidemiology and Community Health* 67(2): 190–93. doi: 10.1136/jech-2012-201257.

Mazzucato, M., H. Chow, S. Fitzpatrick, A. Laplane, T. Masini, D. McDonald et al. 2018, October 18. *The People's Prescription: Re-imagining Health Innovation to Deliver Public Value*. UCL Institute for Innovation and Public Purpose. Retrieved March 1, 2022. <https://www.ucl.ac.uk/bartlett/public-purpose/sites/public-purpose/files/peoples_prescription_report_final_online.pdf>.

McMahon, M., A. Brown, S. Bornstein and R. Tamblyn. 2019. Developing Competencies for Health System Impact: Early Lessons Learned from the Health System Impact Fellows. *Healthcare Policy* 15(SP): 61–72. doi: 10.12927/hcpol.2019.25979.

Menear, M., M.A. Blanchette, O. Demers-Payette and D. Roy. 2019. A Framework for Value-Creating Learning Health Systems. *Health Research Policy and Systems* 17(1): 79. doi: 10.1186/s12961-019-0477-3.

Morain, S.R., N.E. Kass and C. Grossmann. 2017. What Allows a Health Care System to Become a Learning Health Care System: Results from Interviews with Health System Leaders. *Learning Health Systems* 1(1): e10015. doi:10.1002/lrh2.10015.

Osborn, R., M.M. Doty, D.B. Moulds, D. Sarnak and A. Shah. 2017, November 16. *2017 Commonwealth Fund International Health Policy Survey of Older Adults*. 2017 Commonwealth Fund International Symposium. Retrieved March 1, 2022. <https://www.commonwealthfund.org/sites/default/files/2019-01/Robin%20Osborn_2017%20Survey%20Presentation_IHP%20Symposium.pdf>.

Turner, S., L. Goulding, J.L. Denis, R. McDonald and N.J. Fulop. 2016. Essay 6 – Major System Change: A Management and Organisational Research Perspective. In R. Raine, R. Fitzpatrick, H. Barratt, G. Bevan, N. Black, R. Boaden et al., eds., Challenges, Solutions and Future Directions in the Evaluation of Service Innovations in Health Care and Public Health (pp. 85–104). *Health Services and Delivery Research* 4(16). doi:10.3310/hsdr04160.

Weiss, C.H. 1977. Research for Policy's Sake: The Enlightenment Function of Social Research. *Policy Analysis* 3(4): 531–45.

Weiss, D. and T.A. Eikemo. 2017. Technological Innovations and the Rise of Social Inequalities in Health. *Scandinavian Journal of Public Health* 45(7): 714–19. doi:10.1177/1403494817711371.

THE AUTHORS RESPOND

Healthcare*Papers*

From Strategy to Implementation: Optimizing the Contribution of Health Services and Policy Research to Equitable Healthcare System Transformation

De la stratégie à la mise en œuvre : optimiser la contribution de la recherche sur les services et les politiques de santé à la transformation équitable du système de santé

THE AUTHORS RESPOND

Meghan McMahon, MSc, PhD
Associate Scientific Director
CIHR Institute of Health Services and Policy Research
Assistant Professor (status)
Institute of Health Policy, Management and Evaluation
Dalla Lana School of Public Health
University of Toronto
Toronto, ON

Jessica Nadigel, PhD
Associate Scientific Director
CIHR Institute of Health Services and Policy Research
Toronto, ON

Bahar Kasaai, MSc, PhD
Project Lead
CIHR Institute of Health Services and Policy Research
Toronto, ON

Nida Shahid, PhD(c)
Project Officer
CIHR Institute of Health Services and Policy Research
Toronto, ON

Richard H. Glazier, MD, MPH, CCFP, FCFP
Scientific Director
CIHR Institute of Health Services and Policy Research
Toronto, ON

Erin Thompson, MPH
Project Manager
CIHR Institute of Health Services and Policy Research
Toronto, ON

ABSTRACT

The Canadian Institutes of Health Research – Institute of Health Services and Policy Research's (IHSPR) Strategic Plan 2021–2026 *(CIHR IHSPR 2021) aims to accelerate healthcare system transformation to achieve the Quadruple Aim and health equity through research. This special issue features a collection of commentaries from academic and health system leaders who were invited to respond to IHSPR's strategic plan and share insights regarding the opportunities the plan presents and areas where more attention may be needed. The present paper features a response from the IHSPR team and outlines the next steps regarding implementation. IHSPR is deeply grateful to the commentary authors for their insight, advice and recommendations, which will help to inform the implementation of the plan.*

RÉSUMÉ

Le Plan stratégique 2021-2026 *de l'Institut des services et des politiques de la santé des Instituts de recherche en santé du Canada (CIHR IHSPR 2021) vise à accélérer, par la recherche, la transformation du système de santé pour atteindre les quatre objectifs et l'équité en santé. Ce numéro spécial présente une série de commentaires de leaders universitaires et du système de santé qui ont été invités à réagir au Plan stratégique de l'ISPS et à partager leurs idées concernant les possibilités que présente le Plan ainsi que les domaines où une plus grande attention est nécessaire. Cet article est une réponse de l'équipe de l'ISPS et décrit les prochaines étapes qui concernent la mise en œuvre du Plan. L'ISPS est profondément reconnaissant aux auteurs des commentaires pour leur perspicacité, leurs conseils et leurs recommandations, qui contribueront à éclairer la mise en œuvre du Plan.*

Introduction

The Canadian Institutes of Health Research (CIHR) – Institute of Health Services and Policy Research's (IHSPR's) *Strategic Plan 2021–2026* (CIHR IHSPR 2021) is ambitious. The plan aims to accelerate healthcare system transformation to achieve the Quadruple Aim and health equity through research. It identifies four strategic priorities

central to achieving this aim, which were prioritized through a cross-country engagement that involved researchers, policy and decision makers, healthcare providers, patients, caregivers, communities and partner organizations. Consistent across these diverse voices and regions was support for the power and promise of health services and policy research (HSPR) as a critical lever for health system transformation. These engagements informed IHSPR's prioritization of *accelerating* the discovery of transformative innovations, *modernizing* the healthcare system with digital health solutions and data science, *integrating* evidence into policy and practice and investing in *people* to drive solution-oriented research and evidence-informed healthcare system transformation. These are exciting but, admittedly, broad priorities, and the true impact of IHSPR's strategic plan will lie in its implementation – in the programs developed, investments made, partnerships built, relationships fostered, people and teams supported, knowledge and innovation sparked and, critically importantly as noted by Pinto (2022), the inequities addressed. Consistent with Nundy et al. (2022), who wrote that "quality improvement without equity is a hollow victory" (p. 521), we believe that health system transformation without equity is a hollow transformation.

Commentary Advice and Inspiration to Support Learning Health Systems

The wise advice provided by our commentary respondents will help to increase the success with which we translate the four strategic priorities into concrete actions with equitable impacts. Our plan focuses heavily on bridging the evidence to policy and practice gap and positioning research as a critical input to better health system performance and outcomes. Implementation science, embedded research, rapid response, interdisciplinary teams and integrating knowledge users throughout the research process are some examples of the research strategies emphasized in the plan. We see exciting exemplars of these strategies in action in Tomblin Murphy and colleagues' (2022) inspiring commentary about learning health systems (LHSs), embedded scholarship and the impressive Network of Scholars in Nova Scotia. To build the human capital needed to truly advance LHSs and to scale and spread innovations such as those in Nova Scotia to other regions, the Training Modernization Task Force (co-led by Steini Brown, Stephen Bornstein, Shanthi Johnson and Carl-Ardy Dubois) recommends focusing on embedded research career pathways and supporting organizations to optimize the value of their engagement with research (McMahon et al. 2022a). The authors caution that these and other training modernization initiatives must include simultaneous efforts to modernize the incentive and reward systems that shape the behaviour of people and organizations within the research ecosystem. They suggest that for embedded research and LHSs to flourish, the concept of research impact must evolve beyond publications to value policy impact and partnerships within the health system. Fortunately, efforts are under way at CIHR and globally to reimagine the concept of research excellence and impact (CIHR 2020, 2021) (https://sfdora.org/), and the Canadian Health Services and Policy Research Alliance (CHSPRA) has produced a forward-thinking framework on measuring the impact of HSPR on health system decision making (CHSPRA Impact Assessment Working Group 2018). These are promising steps that IHSPR will continue to support.

Commentary Guidance to Support the Fundamental Science of HSPR

We appreciate the perspective shared by McGrail et al. (2022) and Roy et al. (2022) that in its commitment to supporting

evidence-informed health system transformation and the advancement of LHSs, IHSPR should not lose sight of the importance of also investing in the fundamental science of HSPR and the macro-level system-level challenges that do not often make their way to the short-term priorities' list of the day. McGrail and colleagues' (2022) four provocations emphasize that the real value of HSPR is only as strong as the theories, methods and frameworks that underpin the field. They suggest the need for a more balanced portfolio of programs and investments that also include consideration of university-based researchers with a "longer-term pursuit of generalizable knowledge" that may not have clear "application during its fundamental stages" (McGrail et al. 2022: 29, 31). This is echoed by Roy et al. (2022) in their suggestion that the enlightenment function of HSPR needs to be "revived and valued" (p. 74) and in their concern about a decline over time in interdisciplinary and comparative research. These are critically important insights and perspectives that IHSPR is actively considering within the rollout of its strategic plan – with initial actions including a new policy research funding opportunity that emphasizes comparative research to address macro-level health system challenges and a new implementation science team funding opportunity that emphasizes interdisciplinary and intersectoral collaborations to advance transformative integrated care. One of the challenges associated with prioritizing and allocating the institute's modest $8.6 million annual strategic budget is understanding and harnessing the complementarity of CIHR's approximately $630 million annual budget for the Project Grant Program, of which about 10% of the funded projects, on average, support investigator-driven research within the third pillar (health systems services) of health research (CIHR 2022).

Commentary Insight about Supporting a Stronger Health Data Ecosystem

Digital health and data science will be key enablers of healthcare system transformation and advancing LHSs, yet Canada's health data landscape continues to be plagued by fragmentation, lack of interoperability, uncoordinated data governance, gaps in data, access barriers and, as noted by Goel and McGrail (2022), a "risk-averse culture" (p. 62). These challenges are not new and continue to jeopardize Canada's research enterprise. Goel and McGrail (2022) outline a role for IHSPR in the health data ecosystem as a steward of a stronger health data foundation and encourage the institute to "champion a culture of collaboration and to drive change" (p. 67) through its funding, convening, partnering and other levers for change. They note that success will require partnerships across the health sector and beyond. Partnerships and collaboration for collective impact are core values in IHSPR's strategic plan and are reflected in the community-engaged approach IHSPR took to identifying priorities. We believe these partnerships and relationships will help position and prepare the institute and the HSPR community to act together on Goel and McGrail's (2022) important recommendations.

Commentary Guidance about the Centrality of Equity

Pinto (2022) describes the inequities that have long underpinned the Canadian healthcare system and that were magnified and exacerbated throughout the COVID-19 pandemic. He identifies a "crucial role [for HSPR] in shaping the design, implementation and performance of health systems and addressing such gaps and challenges [with inequities]" (p. 54) and points to the social determinants of health as a key starting point. He notes that although IHSPR's strategic

plan commits to funding research that will improve health equity and address the social determinants of health (Strategic Priority 1, Objective 2 [CIHR IHSPR 2021: 11]) and identifies equity, diversity and inclusion (EDI) as a core value cross-cutting the entirety of the plan, commitments and values must be followed through with concrete actions. He offers four recommendations for initial attention, calling for a stop to performative EDI (Pinto 2022). IHSPR is actively listening to the advice shared by Pinto and others with health equity expertise. The institute recognizes the importance of its privileged position to engage in and support change to improve EDI in the research ecosystem and is taking strides – some of which we briefly outlined in the introductory essay (McMahon et al. 2022b) – to ensure that HSPR and system transformation efforts are done with the explicit goal of improving health equity and supporting a more diverse and inclusive HSPR workforce.

A Note of Thanks

The future envisioned by IHSPR, to be achieved through the implementation of its strategic plan, involves a thriving, multidisciplinary, highly skilled HSPR community leading ground-breaking and solution-oriented research that advances the scientific field of HSPR, contributes to the evolution of LHSs and accelerates equitable health system transformation. We are deeply grateful to the commentary authors for their insights, advice and recommendations to help inform the implementation of the *Strategic Plan 2021–2026* (CIHR IHSPR 2021). IHSPR also extends sincere appreciation to its Institute Advisory Board and the 2,300 voices that contributed to the plan's development and looks forward to continued engagement, collaboration and collective action to support a world-class HSPR ecosystem and better health and healthcare for Canadians.

Correspondence may be directed to: Richard H. Glazier, CIHR Institute of Health Services and Policy Research, ICES, 2075 Bayview Avenue, Toronto, ON M4N 3M5. Richard can be reached by e-mail at rglazier.ihspr@ices.on.ca.

References

Canadian Health Services and Policy Research Alliance (CHSPRA) Impact Assessment Working Group. 2018, August. *Making an Impact: A Shared Framework for Assessing the Impact of Health Services and Policy Research on Decision-Making*. Retrieved May 2, 2022. <https://www.chspra.ca/_files/ugd/5adc92_3ae941eaedb04ab4a66b6f83f98a479d.pdf>.

Canadian Institutes of Health Research (CIHR). 2020, March 5. Canadian Research Funding Organizations Sign San Francisco Declaration on Research Assessment (DORA). Retrieved May 3, 2022. <https://cihr-irsc.gc.ca/e/51732.html>.

Canadian Institutes of Health Research (CIHR). 2021. *CIHR Strategic Plan 2021–2031: The Best Health for All, Powered by Outstanding Research*. Retrieved May 3, 2022. <https://cihr-irsc.gc.ca/e/documents/cihr-strategic-plan-2021-2031-en.pdf>.

Canadian Institutes of Health Research (CIHR). 2022, March 2. Project Grant: Results. Retrieved May 3, 2022. <https://cihr-irsc.gc.ca/e/49817.html>.

Canadian Institutes of Health Research (CIHR) Institute of Health Services and Policy Research (IHSPR). 2021. *Strategic Plan 2021–2026: Accelerate Health System Transformation through Research to Achieve the Quadruple Aim and Health Equity for All*. Canadian Institutes of Health Research. Retrieved February 2, 2022. <https://cihr-irsc.gc.ca/e/documents/ihspr_strat_plan_2021-26-en.pdf>.

Goel, V. and K. McGrail. 2022. Modernize the Healthcare System: Stewardship of a Strong Health Data Foundation. *Healthcare Papers* 20(3): 61–68. doi:10.12927/hcpap.2022.26842.

McGrail, K., F. Clement and M. Law. 2022. Back to HSPR Basics: The Value of and Need for HSPR That Focuses on Macro System-Level Challenges. *Healthcare Papers* 20(3): 26–33. doi:10.12927/hcpap.2022.26846.

McMahon, M., S. Bornstein, S. Johnson, C.-A. Dubois, E. Thompson and A. Brown. 2022a. IHSPR How Do We Build the Human Capital for a True Learning Healthcare System? *Healthcare Papers* 20(3): 44–52. doi:10.12927/hcpap.2022.26844.

McMahon, M., J. Nadigel, E. Thompson, N. Shahid, B. Kasaai, J. Richard et al. 2022b. Accelerating Health System Transformation through Research to Achieve the Quadruple Aim and Health Equity. *Healthcare Papers* 20(3): 9–25. doi:10.12927/hcpap.2022.26847.

Nundy, S., L.A. Cooper and K.S. Mate. 2022. The Quintuple Aim for Health Care: Improvement: A New Imperative to Advance Health Equity. *JAMA* 327(6): 521–22. doi: 10.1001/jama.2021.25181.

Pinto, A.D. 2022. Can a Focus on Equity, Diversity and Inclusion Transform Health Services Research? *Healthcare Papers* 20(3): 53–60. doi:10.12927/hcpap.2022.26843.

Roy, D.A., M. Menear, H. Alami and J.-L. Denis. 2022. Strategizing Research for Impact. *Healthcare Papers* 20(3): 69–76. doi:10.12927/hcpap.2022.26841.

Tomblin Murphy, G., T. Sampalli, M. Embrett, M. Sim, J. Murdoch, K. McIsaac et al. 2022. The Network of Scholars Strategy: A Case Study of Embedded Research Activities in Nova Scotia to Advance Health System Impact and Outcomes. *Healthcare Papers* 20(3): 33-43. doi:10.12927/hcpap.2022.26845.

Longwoods.com
Better Care | Health Services Publishing, Education & Recruitment