

HEALTHCARE

# POLICY

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## Politiques de Santé

*Health Services, Management and Policy Research  
Services de santé, gestion et recherche de politique*

**Volume 12 + Number 1**

**Of Mussels and Men**

ROBERT G. EVANS

**A Better Prescription: Advice for a National Strategy  
on Pharmaceutical Policy in Canada**

STEVEN G. MORGAN ET AL.

**Healthcare in Canada's North: Are We Getting Value for Money?**

T. KUE YOUNG, SUSAN CHATWOOD AND GREGORY P. MARCHILDON

**Mapping Collaborative Relations among Canada's  
Chronic Disease Prevention Organizations**

DAMIEN CONTANDRIOPOULOS ET AL.

**Financial Incentives and Cervical Cancer Screening Participation  
in Ontario's Primary Care Practice Models**

CIARA PENDRITH ET AL.

*Data Matters + Discussion and Debate + Research Papers  
Knowledge Translation, Linkage and Exchange*

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*Health Services, Management and Policy Research*  
*Services de santé, gestion et recherche de politique*

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*Healthcare Policy/Politiques de Santé* seeks to bridge the worlds of research and decision-making by presenting research, analysis and information that speak to both audiences. Accordingly, our manuscript review and editorial processes include researchers and decision-makers.

We publish original scholarly and research papers that support health policy development and decision-making in spheres ranging from governance, organization and service delivery to financing, funding and resource allocation. The journal welcomes submissions from researchers across a broad spectrum of disciplines in health sciences, social sciences, management and the humanities and from interdisciplinary research teams. We encourage submissions from decision-makers or researcher–decision-maker collaborations that address knowledge application and exchange.

While *Healthcare Policy/Politiques de Santé* encourages submissions that are theoretically grounded and methodologically innovative, we emphasize applied research rather than theoretical work and methods development. The journal maintains a distinctly Canadian flavour by focusing on Canadian health services and policy issues. We also publish research and analysis involving international comparisons or set in other jurisdictions that are relevant to the Canadian context.

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*Politiques de Santé/Healthcare Policy* cherche à rapprocher le monde de la recherche et celui des décideurs en présentant des travaux de recherche, des analyses et des renseignements qui s'adressent aux deux auditoires. Ainsi donc, nos processus rédactionnel et d'examen des manuscrits font intervenir à la fois des chercheurs et des décideurs.

Nous publions des articles savants et des rapports de recherche qui appuient l'élaboration de politiques et le processus décisionnel dans le domaine de la santé et qui abordent des aspects aussi variés que la gouvernance, l'organisation et la prestation des services, le financement et la répartition des ressources. La revue accueille favorablement les articles rédigés par des chercheurs provenant d'un large éventail de disciplines dans les sciences de la santé, les sciences sociales et la gestion, et par des équipes de recherche interdisciplinaires. Nous invitons également les décideurs ou les membres d'équipes formées de chercheurs et de décideurs à nous envoyer des articles qui traitent de l'échange et de l'application des connaissances.

Bien que *Politiques de Santé/Healthcare Policy* encourage l'envoi d'articles ayant un solide fondement théorique et innovateurs sur le plan méthodologique, nous privilégions la recherche appliquée plutôt que les travaux théoriques et l'élaboration de méthodes. La revue veut maintenir une saveur distinctement canadienne en mettant l'accent sur les questions liées aux services et aux politiques de santé au Canada. Nous publions aussi des travaux de recherche et des analyses présentant des comparaisons internationales qui sont pertinentes pour le contexte canadien.


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2016 Ted Freedman Award

# CONGRATULATIONS!



The **2016 Ted Freedman Award** was awarded to the Institute for Clinical Evaluative Sciences (ICES), Health Quality Ontario (HQO), and the Institute of Health Policy, Management and Evaluation (IHPME) in recognition of: *Quality Improvement (QI) at the Frontline: Improving and Driving Excellence Across Sectors (IDEAS)*. The award was presented at CAHSPR 2016 in Toronto and accepted by Vivian Ng, Ximena Camacho and Jennie Pickard.

▲  
The Ted Freedman Award for Innovation in Education: a self-portrait in bronze of the artist as a patient recovering from brain surgery, by award-winning sculptor Amy Switzer.

From left to right: ►  
Ximena Camacho, Vivian Ng  
and Jennie Pickard.  
Photo courtesy of HQO.



**An Honourable Mention** goes to Silvia Lizett Olivares Olivares, Mildred Vanessa López Cabrera, Martha Ruth Loyola Segura and Jorge Eugenio Valdez García at the School of Medicine at Tecnológico de Monterrey. In recognition of: *Competency-Based Faculty Development Program for Clinical Educators*.

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## Engaging Citizens and Patients in Health Research: Learning from Experience

“**N**OTHING ABOUT ME WITHOUT ME” HAS BECOME A RALLYING CRY FOR THOSE aiming to strengthen citizens’ and patients’ voices in healthcare (Delbanco et al. 2001). The importance of these perspectives in research is gaining ground. Having patient advocates advise on research priorities has become more common. Granting agencies are making meaningful engagement a condition of some types of research funding. And citizens, patients and communities are involved in co-design of many research studies, as well as in the dissemination of their results.

What is driving these trends? Individuals choose to become more actively engaged in research for many different reasons. Often they have a mix of personal and altruistic motives that can evolve over time (healthtalk.org, n.d.). Likewise, researchers and research agencies that wish to strengthen citizen and patient engagement have a range of motivations. Easier recruitment of participants, better quality research that is more applicable in a given context and more culturally relevant, increased uptake of research findings, a sense of moral obligation, democratic ideals such as accountability for and transparency of public funds invested in research, empowering patients and avoiding exploitation by ensuring a fair distribution of the benefits of research are among the reasons commonly cited (Esmail et al. 2015; Tindana et al. 2007).

Experience from Canada and elsewhere shows that achieving these types of benefits is possible but not guaranteed. For example, tokenism checks the box but rarely delivers significant value. Simply appointing a single representative to a steering committee or surveying patients is unlikely to generate the transformative potential of truly meaningful engagement.

If you are embarking on this journey as a researcher or as a citizen/patient – and I encourage you to do so – there are a growing number of resources to help guide your way, including frameworks, case studies, evaluations, guidelines, training and tools. Together they represent much experience and wisdom, but we still have much to learn about how to navigate the challenges which can arise at a practical and policy level. Examples include ensuring clear mutual expectations, incorporating a diversity of views, addressing potential bias, recognizing the importance of historical context and the impact of research on individuals and communities, appropriate resourcing and training, valuing the contributions of all involved in research and sustaining engagement over the research lifecycle.

To help advance effective citizen and patient engagement in research, we welcome submissions to *Healthcare Policy/Politiques de Santé* on these and other questions, both as research papers and as evidence-informed discussion and debate articles. Equally, we encourage authors to describe how citizens, patients and other stakeholders have contributed to the research process when presenting the results of research. A diversity of experiences and evidence can only enrich our collective understanding and opportunities for further development.

JENNIFER ZELMER, PHD

*Editor-in-chief*

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## Impliquer les citoyens et les patients dans la recherche sur la santé : l'expérience comme mode d'apprentissage

« **R** IEN SUR MOI SANS MOI » EST DEVENU LE CRI DE RALLIEMENT DE CEUX qui veulent donner voix aux citoyens et aux patients dans les services de santé (Delbanco et al. 2001). L'importance de cet aspect dans la recherche gagne de plus en plus de terrain. L'avis des patients sur les priorités de recherche est une pratique de plus en plus en vogue. Les organismes de subvention font de l'engagement significatif une condition pour certains types de financement de recherche. Les citoyens, les patients et les communautés s'impliquent dans la conception de plusieurs études de recherche de même que dans la diffusion des résultats.

Qu'est-ce qui motive ces tendances? C'est pour diverses raisons que les gens souhaitent s'impliquer davantage dans la recherche. Souvent, c'est un mélange de raisons personnelles et altruistes qui prennent de l'ampleur (healthtalk.org, sans date). Dans le même ordre d'idée, chercheurs et organismes de recherche qui veulent favoriser l'engagement des citoyens et des patients sont motivés par nombre de raisons. Les plus courantes sont le recrutement des participants, une recherche de meilleure qualité applicable à un contexte donné et plus pertinente du point de vue culturel, une meilleure mise en application des résultats de recherche, un sens de responsabilité morale, des idéaux démocratiques tels que la reddition de compte et la transparence pour les investissements publics, l'autonomisation des patients et, finalement, une distribution plus juste des bénéfices de la recherche afin d'éviter les situations d'exploitation (Esmail et al. 2015; Tindana et al. 2007).

L'expérience au Canada et ailleurs montre que ce type d'avantages est réel, bien qu'il ne soit pas garanti. Par exemple, les gestes symboliques font certainement bonne figure mais ils donnent peu de résultats. Le simple fait de nommer un représentant à un comité directeur, ou encore de mener un sondage auprès des patients a peu de chance de donner lieu à des changements transformationnels ou à un engagement véritable.

Si vous envisagez une telle démarche à titre de chercheur ou de citoyen/patient – et je vous incite à le faire –, vous disposez d'une panoplie de ressources pour vous guider, notamment des cadres de travail, des études de cas, des évaluations, des directives, de la formation et des outils. C'est là un ensemble appréciable d'expériences et de connaissances, mais il reste bien des choses à découvrir sur la façon de faire face aux défis qui peuvent surgir aux plans pratique et politique. Ces défis ont trait, par exemple, à la définition claire des attentes réciproques, à l'intégration d'une diversité de points de vue, aux biais possibles, à l'importance des contextes historiques, à l'impact de la recherche sur les personnes ou les collectivités, à la présence ou non de ressources et de moyens de formation, à la juste reconnaissance des contributions de chacun et à l'importance d'une participation active tout au long du cycle de la recherche.

Pour contribuer à l'essor de la participation des citoyens et des patients, *Politiques de Santé/Healthcare Policy* accepte les propositions d'articles sur ces questions et d'autres sujets, que ce soient des rapports de recherche, des discussions fondées sur les données probantes ou des débats. Nous encourageons aussi les chercheurs à décrire comment les citoyens, les patients et les autres partenaires ont contribué au processus de recherche lors de la présentation de leurs résultats. La diversité d'expériences et de données ne peut qu'enrichir notre compréhension collective de même que les progrès à venir.

JENNIFER ZELMER, PHD

*Rédactrice en chef*

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# Of Mussels and Men

## Des moules et des hommes



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### Abstract

Some species are more equal than others. Robert T. Paine (American ecologist, 1933–2016) discovered that if you remove starfish – what he called a “keystone species” – from a tide pool, the complex ecosystem collapses. Without the predator starfish, mussels choke out other animals and plants. This phenomenon is general. Sea otters eat the sea urchins that eat the kelp that provides food and habitat for other species. On the vast Serengeti plains, wildebeest “mow” the grass, protecting habitat for many other species. Understanding the “rules” that govern the numbers and diversity of species in an ecosystem is essential to efficient and sustainable management. But those same rules apply to us. Free of predation, humans are swarming over the planet, choking out other species. We are the planetary mussels. What next? A “mussel-bound” world, or perhaps renewed microbial predation?

### Résumé

Certaines espèces sont plus égales que d'autres. Robert T. Paine (écologiste américain, 1933–2016) a découvert que si l'on retire les étoiles de mer – qu'il qualifie d'espèce clé de voûte – d'une cuvette de marée, l'écosystème complexe s'y dégrade. En l'absence du prédateur qu'est l'étoile de mer, les moules prolifèrent et étouffent les autres espèces d'animaux et de plantes. Ce phénomène se répète partout. Les loutres de mer se nourrissent d'oursins qui, eux, broutent les laminaires qui fournissent habitat et alimentation à d'autres espèces. Dans les vastes plaines du Serengeti, les gnous « fauchent » l'herbe, protégeant ainsi l'habitat de plusieurs espèces. Pour une gestion efficace et durable des écosystèmes, il faut comprendre les « règles » qui gouvernent le nombre et la diversité d'espèces qui y vivent. Ces mêmes règles s'appliquent

aussi à nous. Libérés de la prédation, les humains essaient partout sur la planète et bousculent les autres espèces. Nous sommes les moules de la planète. Où cela mènera-t-il? Dans un monde dominé par les « moules », ou encore, à un nouveau type de prédation microbienne?

## Small (Science) Is Also Beautiful

Big Science is way cool: Large Hadron Colliders finding the most fundamental particle of all, probes landing on comets, telescopes in space reaching to the outer edge of the knowable universe – very high “gosh!” factors. But there is also science of the most elegant simplicity, seemingly almost trivial, yet with very significant implications. A case in point: Robert Paine and the starfish.

Messing about in tide pools has a fascination all up and down the demographic spectrum. But Paine, an ecologist at the University of Washington, came up with a better-than-average excuse for incorporating such messing about into his paid employment. This description of his work is from an episode of the extraordinary CBC radio program *Quirks and Quarks*, hosted by Bob McDonald. The guest being interviewed, Dr. Sean Carroll, is a biologist and author, most recently of *The Serengeti Rules* (on which more below). Paine’s experiment, starting in 1963, consisted of nothing more radical than removing all the starfish from a number of tide pools, every month for an extended period of years, and observing how this affected the types and numbers of different flora and fauna in the pool community. Undisturbed pools in the same location served as controls.

Starfish are the top predators in this little world, being adept at opening and eating shelled creatures and having no natural enemies. But the removal of the top predator did not result in a general flourishing of other species. To the contrary, the ecosystems in the “treated” pools collapsed. The pool communities became overrun (so to speak) with mussels. Nothing else could break into their shells to eat them, and as they occupied all the available rock surfaces, other species – both plant and animal – were crowded out. Starfish, it turned out, were the “keystone species” (Paine’s term) on which the balance of the whole community depended: remove them and that community collapses (“Some Animals Are More Equal Than Others” 2016).

There are two salient aspects to this observation. First is that the web of ecological relationships – interactions among species – can be much more complex than a simple bilateral predator–prey link. But second, some species, the keystones, have powerful indirect impacts on others for which they are neither predator nor prey.

Keystone species have been identified much more widely. (Some have been discussed on *Quirks and Quarks*.) Carroll mentions the sea otter, which, by feeding on and keeping in check the population of sea urchins, prevents the “deforestation” of kelp beds that offer food and sanctuary to a number of other species, including fish and sea birds.

## The Keystone Lawnmowers

But the keystone species need not be the top predator in an ecosystem. On the vast plains of the Serengeti, where a large and complex ecosystem supports an extensive array of animals,

plants, and insects, the keystone species turns out to be – the wildebeest. Huge herds grazing across the plains act as “a million lawnmowers” to keep the growth of grass in check. Cutting the grass protects habitat for butterflies and other insects; it also reduces fire danger and so protects trees that offer habitat to birds and climbing animals. The king of the beasts, the lion, may look pretty impressive, but is really a figurehead. The well-being of the Serengeti community depends on the herds of humble gardeners (who gnu?).

The importance of the wildebeest was worked out by ecologists studying the Serengeti in the 1960s; Carroll refers particularly to the work of Tony Sinclair at the University of British Columbia. These researchers came to the Serengeti at a fortuitous time in its history. As Carroll notes, to understand how a complex ecosystem works, biologists need an opportunity to observe its response to a perturbation. Bob Paine’s crowbar prying off the starfish was such a perturbation in the tide pools.

The perturbation in the Serengeti was disease and recovery. Starting in the 1800s, wildebeest and buffalo had been dying from diseases spread from domestic cattle. These diseases had drastically reduced the populations from historic levels. But starting in the 1960s, vaccines developed to protect domestic herds had largely removed the pressure of mortality on the wild populations. Carroll says that the fleets of wildebeest “lawnmowers” increased from 200,000 to 1.4 million in only 15 years. There was the ecologists’ natural experiment, a perturbation on a massive scale.

## Learning the Rules – and Following Them

The Serengeti is an amazing place. But Carroll’s book is titled *The Serengeti Rules* because he focuses on the rules that regulate interactions among the region’s myriad inhabitants, and indeed among all living things. More generally, all of nature is regulated, and science is about discovering the rules that govern the natural world. In the physical world, these are sometimes amazingly simple, as with Newton’s Universal Law of Gravitation (well, at least until Max Planck came along and turned the quantum theorists loose). But in the biological world, the rules governing the interactions among living species are much more messy and complex. The basic theme of Carroll’s book is that there are such rules.

These rules are illustrated on a grand scale in the Serengeti. The numbers and types of living things are regulated by a complex web of feedback mechanisms arising from the numbers and behaviours of all the other species in the ecosystem. The last 50 years of ecological research, whether in the Serengeti or in Pacific tide pools, or anywhere else on Earth, has provided ever more examples not only of the negative feedback processes that regulate the biological world but also of the critical importance in each ecosystem of certain keystone species on which the whole regulatory framework depends.

All very fascinating, but what does this have to do with healthcare policy? The answer is two-fold. The first came out in the conversation between Sean Carroll and Bob McDonald, but the second was conspicuously absent. And as is often the case, what was said was interesting but what was *not* said was crucial.

On the first level, understanding the rules that govern the natural world, both physical and biological, is extremely important for human activity, as we pursue our individual and, particularly, our collective objectives. The feedback mechanisms illustrated in the Serengeti on a macro scale also operate on a micro scale, inside our bodies. Homeostasis, maintaining the organism in a healthy state, depends upon the interaction of a huge number of feedback processes. If these go haywire, the results can vary from uncomfortable to deadly. The many varieties of cancer all have in common the failure of the feedback processes that govern the proliferation of cells.

Carroll puts more emphasis on the importance of “knowing the rules” at the macro scale. For better or for worse, human activity now has major direct and indirect impacts throughout the biosphere. And since there are now 7.4 billion of us on the planet, and counting, we had better know the rules if only to be able to keep feeding ourselves. If you do not know what you are doing, the ecosystem can be an expensive place to find out.

Carroll, as a scientist, seems relatively optimistic about the progress that has been and is being made in the ecological sciences. We, or at least the scientific community, are learning more and more about the rules. With that knowledge, humans could, in principle, increasingly manage the biosphere in a sustainable way, to our collective and long-term advantage.

### *De Nobis Fabula Narratur*

But here, I think, both Carroll and McDonald failed to bring out a truly fundamental point: *the Serengeti rules apply to us.*

The human population is still increasing steadily. It is variously forecast to top out at somewhere near 11 billion around mid-century, but those forecasts are based on economic models in which fertility rates decline with increasing prosperity. Those models depend upon an underlying assumption of cultural homogeneity. Simple mathematics shows that the rate of growth of an aggregate of diverse components will eventually converge to that of its most rapidly growing component. The populations of Germany, Russia and China may be stable or declining, but the average rate of growth will increasingly be dominated by Ethiopia, Somalia and Pakistan. (Those larger populations may, however, increasingly be located elsewhere, for example, in Europe.)

And maybe not. Forecasting is notoriously hazardous. What we know for sure is that the total human population has risen a lot and is still rising, and any projections of top-out are a long way away and (in at least one opinion) based on quite shaky assumptions.

In any case, we are probably far beyond the point at which the Earth’s resources – including its atmosphere – would permit the whole population to live in the current North American lifestyle, even if we were not expecting another four to five billion people over the next few decades. It is true that the prophets of population doom of 50 years ago have been proven wrong – so far. But it is worth noting that Norman Borlaug, the biologist generally credited as the “father of the Green Revolution” that averted the threat of mass starvation, said in his Nobel Prize acceptance speech that he had bought us 40 years. The 40 years were up in 2011.

So, we are the mussels in the planetary tide pool. We have already crowded out many other species. We reserve and protect little stretches of rock for some to live on, while other species have simply gone extinct or soon will. We have escaped from the feedback processes that once kept our numbers in check and maintained a balance with the other species in our global ecosystems. To borrow one of Carroll's nastier examples of biological systems out of control, *Homo sapiens* is a cancer on the planet. We are not regulating our own numbers, and nothing else is helping us to do so.

### So, Who's in Charge Here?

This is not exactly a new insight, and certainly not to Carroll or to McDonald. But their discussion of the importance of elucidating "the rules" presumes that, knowing the rules, we as a species can better manage our planetary environment. We are in charge, the steersmen, and need only better knowledge to make the right decisions.

This conception of our position in the ecosystem has a very long history – all the way back to Adam. Carl Becker (1932) traces the way in which mediaeval patterns of thought were carried over into the preconceptions of the eighteenth-century rationalists. The Great Chain of Being, for example, placed God at the top, angels and humans next, then the various other animals that have no souls. When God and the angels were removed, the Great Chain became the Tree of Life, with us at the top and uniquely endowed with culture and the capacity for thought. Only in the last few decades have biologists recognized that the "Tree" is actually a very dense bush with many vertical branches that sometimes intersect, and that "survival of the fittest" is actually a circular concept. Fitness has no other definition than survival. (The oysters are far ahead of us in that department.) Moreover, many other animals can think and have unambiguously identifiable cultures.

And maybe we are not quite at the top of the food chain. It has been so long since humans last had to take seriously the threat from large predators. But perhaps we have been looking through the wrong end of the telescope. It may be the micro-organisms that will enforce the Serengeti rules. Historically, micro-organisms have killed off millions of humans, particularly among large populations living under crowded conditions. Mass epidemics, but also a steady toll on infants, enforced the rules.

### Catching a Break – and Dropping the Ball

Public health, sanitation, and the antibiotic revolution changed all that. But the bugs are back. They have proven much more resilient, much more dangerous, than lions and tigers and bears. A recent cover of *The Economist* is graced by a gruesome-looking skull composed from various shapes of pills and tablets. The cover story is "When the Drugs Don't Work: How to Combat the Dangerous Rise of Antibiotic Resistance" (2016). To this must be added the rise of new diseases – most recently, the Zika virus.

This resilience is not unexpected. It has been understood for at least a generation that the profligate use of antibiotics in medicine and agriculture would bring us to this point. Responsible physicians and epidemiologists have been sounding warnings for at least 50 years. But no effective response has been forthcoming, and now we are told that the newest superbugs are beyond the reach of our most powerful antibiotics. Now what?

Well, now, presumably, vulnerable patients begin to die of untreatable infections. Hospitals and healthcare professionals will have to rediscover the routine infection control measures of the pre-antibiotic era. The larger point is that “knowing the rules” does not mean that humans, collectively, can figure out how to obey them. Like Paine’s mussels, or cancers, our population just keeps on growing. Sometimes we get a break that temporarily relaxes the rules, as with the antibiotic revolution or Borlaug’s Green Revolution, which staved off the consequences of overpopulation for 40 years. But both revolutions may now have run their course.

### Stewing in Our Own Juice?

As for the fact that we are heating up the planet, again, science has been telling us this for decades. But the liars and deniers, with strong economic and even religious interests, succeeded in obscuring the obvious and necessary responses. Now the facts are out in the open, and the need for concerted international action is universally understood. But to date, international commitments have been too limited and actions too slow. We have plenty of science; we need better politics.

A planet ever more crowded with people, like a tide pool full of mussels, may turn out to be biologically sustainable, albeit rather dull. But if the temperature keeps rising, there will be *moules à la marinière*.

### Note

This will be the last *Undisciplined Economist* column to benefit from conversations with Managing Editor Ania Bogacka. Many thanks for your counsel over the years, Ania, and good luck in your future endeavours! – Robert G. Evans

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# A Better Prescription: Advice for a National Strategy on Pharmaceutical Policy in Canada

Une meilleure ordonnance : conseils pour une stratégie canadienne nationale relative aux produits pharmaceutiques



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## Abstract

Canada needs a national strategy to fulfill its obligation to ensure universal access to necessary healthcare, including prescription drugs. A 2004 attempt at a national strategy for pharmaceutical policy failed because it lacked clear vision, logical planning and commitment from federal and provincial governments. The result of uncoordinated pharmaceutical policies in Canada has been more than a decade of poor system performance. In this essay, we present a framework for a renewed national strategy for pharmaceutical policy. Building on published research and international frameworks, we propose that pharmaceutical policies of federal, provincial and territorial

governments be coordinated around a core health-focused goal. We strongly suggest policy actions be taken on four core objectives that are necessary to support the overarching health goal. If implemented, the proposed strategy would offer clear benefits to all Canadians who use medicines, federal and provincial governments and to the economy as a whole. We therefore argue that political leadership is now needed to articulate and implement such a plan on behalf of Canadians.

## Résumé

Le Canada doit se doter d'une stratégie nationale afin de respecter son obligation d'assurer un accès universel aux services de santé nécessaires, notamment les médicaments sur ordonnance. La tentative de 2004 en ce sens a connu l'échec en raison d'un manque de vision claire, de planification logique et d'engagement de la part des gouvernements provinciaux et fédéral. Le manque de coordination des politiques relatives aux produits pharmaceutiques au Canada a donné lieu à plus d'une décennie de faible rendement pour le système. Dans cet essai, nous proposons un cadre de travail pour le renouvellement de la stratégie nationale relative aux produits pharmaceutiques. À la lumière de recherches publiées et de cadres de travail internationaux, nous proposons que les politiques des gouvernements provinciaux, territoriaux et fédéral s'articulent autour d'un objectif de santé commun. Nous suggérons fortement que l'action politique porte sur quatre objectifs clés, nécessaires pour appuyer l'objectif de santé commun. Si elle était mise en œuvre, la stratégie proposée se traduirait par de réels avantages pour les Canadiens qui prennent des médicaments, pour les gouvernements provinciaux et fédéral ainsi que pour l'ensemble de l'économie du pays. Nous affirmons donc, pour le bien-être des Canadiens, qu'il est temps de mettre en place le leadership politique nécessaire pour articuler et mettre en œuvre un tel plan.



## Introduction

Canada needs a national strategy for pharmaceutical policy and now is the time to make it happen owing to the current alignment of government interests at federal and provincial levels. Since 2010, provinces have been voluntarily collaborating on prescription drug pricing through a Pan-Canadian Pharmaceutical Alliance; and some provinces, most notably Ontario, have been calling for federal-provincial collaboration to establish a universal pharmacare program to make medicines more accessible to all Canadians (Hepburn 2016; Hoskins 2014; Lynas 2010). At the federal level, the Liberals' 2015 election platform included promises to negotiate a new health accord and to work to make prescription drugs more affordable in Canada, promises that ended up in the new health minister's mandate letter after the Liberals formed government in late 2015 (Canada 2015; Liberal Party of Canada 2015). Perhaps not surprisingly then, in January 2016, when the federal, provincial and territorial health ministers met for the first time in many years, they created a working group to explore pharmaceutical policies aimed at reducing prices, at improving prescribing and the appropriate use of drugs, and at improving coverage and access to medicines for Canadians (Canada 2016).

The World Health Organization (WHO) has long recommended that countries coordinate their pharmaceutical policies to meet their obligation to provide universal access to safe, affordable and appropriately prescribed medicines (Bigdeli et al. 2014; WHO 1988, 2001). The WHO and others have argued that such goals can only be achieved in an equitable and sustainable way through the coordination of many policies that affect the pharmaceutical sector (Australia 1999; Bigdeli et al. 2014; Morgan et al. 2009; WHO 2001).

The case for a coordinated pharmaceutical strategy is particularly strong in Canada, where policies critically important for managing pharmaceuticals are controlled by different levels of government. Canadian provinces hold primary responsibility for healthcare delivery, educating and licensing health professionals, and coverage of pharmaceuticals. Few of these provincial policies are coordinated, either through agreements between provinces or through agreements between provinces and the federal government. As a result of this lack of coordination – and, arguably, as a result of the significant differences in the size and wealth of provinces – the accessibility, use and cost of medicines varies considerably across Canada (Daw and Morgan 2012; Morgan et al. 2013).

The federal government in Canada holds limited responsibility for drug coverage – it provides drug coverage for select populations that account for just 2% of total prescription drug costs in Canada (CIHI 2015). But the federal government holds primary responsibility for regulating pharmaceutical products, regulating pharmaceutical marketing and setting intellectual property rights and related policies. Because such policies affect the availability, price and use of medicines, those federal policies have been a source of friction with the provinces, which bear most of the resulting costs (Anis 2000).

It is notable that, starting with the Royal Commission on Health Services in 1964, national commissions in Canada have consistently recommended reforms to better coordinate pharmaceutical policies and to better integrate them with other components of the healthcare system (Canada 1964, 1997, 2002a). The Romanow Commission of 2002 recommended that all governments in Canada work together to integrate medically necessary prescription drugs with the *Canada Health Act* – thereby creating national standards for universal access to necessary medicines (Canada 2002b). Romanow also specifically recommended that a National Drug Agency be created to coordinate a wide range of pharmaceutical policies, including evaluating new drugs, negotiating drug prices and coverage decisions, monitoring of drug safety and effectiveness, and providing information to patients and healthcare providers (“We Need Romanow’s National Drug Agency” 2003).

Shortly after the Romanow Commission, as part of the 2004 Health Accord, the federal, provincial and territorial governments agreed to try coordinating pharmaceutical policies through a National Pharmaceuticals Strategy (Canada 2004). Some promising reforms were launched in the years that followed, but the strategy ultimately failed. As early as 2009, the Health Council of Canada declared the 2004 strategy a lost opportunity for much-needed federal and provincial cooperation – noting that, while federal and provincial governments could reform pharmaceutical policies in isolation “... there are [policy] interdependencies and limitations to what individual jurisdictions can achieve on their own” (Health Council of Canada 2009b).

The 2004 strategy arguably failed because it lacked a clear vision and plan that governments were committed to work toward. From the outset, there wasn't a shared understanding of what the pharmaceutical policies of federal, provincial and territorial governments were ultimately striving for on behalf of Canadians. Without a clear vision or goal around which to build the strategy, the list of nine priority elements identified in the 2004 strategy lacked a coherent structure and overarching purpose; moreover, several of the core elements of the 2004 strategy amounted to little more than studying policy problems with few, if any, measurable objectives against which governments' actions (or inactions) could be evaluated. Consistent with the notion that there was little shared vision and commitment, the then federal health minister, Leona Aglukkaq, testified before a 2011 Senate committee that the National Pharmaceuticals Strategy was essentially suspended because "... in order to have a national plan there had to be a national agreement. There was not always consensus around what that would look like" (Canada 2011). The Health Council of Canada attributed part of the lack of shared vision to the changes in government that occurred shortly after the 2004 Health Accord and to the significant disagreement between levels of government regarding the commitment of resources necessary to coordinate and implement critical policy reforms (Health Council of Canada 2009a).

The result of uncoordinated pharmaceutical policies in Canada has been more than a decade of poor system performance. There are examples of promising initiatives and collaborations – such as the establishment of the Pan-Canadian Pharmaceutical Alliance and the CIHR Drug Safety and Effectiveness Network – but, on the whole, and on the basis of the experiences of the entire population (rather than select populations covered by targeted policies), our system lags behind international best practices. Relative to comparable countries, Canadian patients in most provinces face the most significant financial barriers to filling prescriptions, the highest annual burden of out-of-pocket drug costs, and the least frequent prescriber-use of error-reducing drug information systems and e-prescribing tools (Morgan et al. 2013; Schoen et al. 2012). Canada's system is also one of the most expensive systems in the world, resulting in per capita pharmaceutical expenditures that are higher than all other Organisation for Economic Co-operation and Development (OECD) countries with the exception of the US (Gagnon 2014; OECD 2014). Paradoxically (given our high level of pharmaceutical spending), Canada attracts the lowest amounts of pharmaceutical research among comparable countries (OECD 2012; PMPRB 2014).

Governments in Canada should strive for better outcomes for their citizens – and many international comparators show that they could achieve better outcomes. Pharmaceutical policies in the UK, for example, achieve better access to medicines, lower burdens on patients, more frequent use of electronic prescribing assistance tools and far lower total pharmaceutical spending (Morgan et al. 2013). Yet, the UK attracts five times as much pharmaceutical research and development on a per capita basis than Canada does (OECD 2012) – indicating that effective pharmaceutical policies are not a threat to local research investment.

In this essay, we present a framework for a renewed national strategy for pharmaceutical policy in Canada. We developed this framework through a multi-year process that included reviewing research literature and policy frameworks developed by Canadian policy makers, by the WHO and by other countries; doing two pan-Canadian surveys of policy makers (in 2009 and 2014); and holding workshops of the Pharmaceutical Policy Research Collaboration, a national team of university-based experts in pharmaceutical policy. On the basis of that work, we propose that a pharmaceutical strategy in Canada be designed in a manner consistent with WHO guidance and international best practices. We recommend that governments commit to a pharmaceutical strategy that explicitly aims to improve the performance of the overall Canadian health system and, thus, to improve the health of Canadians by achieving four, inter-related objectives: universal access to necessary medicines; appropriate prescribing and use of medicines; value for money spent on medicines; and patient safety.

The importance of strategic policy action on the objective of access to medicines has been delineated elsewhere (Morgan et al. 2015). In this essay, we provide a broader view of a renewed pharmaceutical strategy in Canada. This includes “pharmacare” reforms that provide universal, equitable access to medicines as well as a wide variety of other policy initiatives that will shape access to medicines and other key dimensions of the performance of the pharmaceutical component of Canada’s healthcare system. If implemented, this strategy would offer clear benefits to all Canadians who use medicines, their governments and to the economy as a whole.

## A Clear Vision and Plan

Achieving high performance in pharmaceutical policy requires focus on clear goals and objectives, awareness of policy instruments and options, and understanding of the roles and interactions of different policy actors (Morgan et al. 2009). The starting place in this is a shared vision of the aspirations and priorities we have for public policy in the pharmaceutical sector. Without a vision, we cannot create a strategy – the very definition of which is “... a careful plan or method for achieving a particular goal” (Merriam-Webster 2016).

According to the WHO, the overarching goals of a national pharmaceutical strategy should always be consistent with the country’s broader health objectives (WHO 2001). Our proposed goal for Canada’s strategy, therefore, is that pharmaceutical policies of federal, provincial and territorial governments should be coordinated in ways that “equitably and sustainably promote the health of Canadians.”

Stating that a national strategy for pharmaceutical policies should be dedicated to promoting a healthier nation may seem obvious, but it is necessary and will be transformative if governments across Canada commit to it. It is necessary because, despite being advertised and sold in ways that may make them appear to be consumer goods, pharmaceuticals are actually potent but important inputs to formal healthcare. Prescription drugs, in particular, are inextricably tied to the use of other healthcare services by way of their prescription-only status.

It therefore follows that pharmaceutical policies ought to be coordinated in ways that, first and foremost, support the goals of the broader healthcare system in which they are situated.

A health-focused vision is transformative because it establishes clear goals for all governments to strive for when making pharmaceutical policy: equitable and sustainable improvements in the health of Canadians. Such a health-centred focus requires that policy makers, healthcare providers and even the general public see investments in pharmaceuticals – particularly public investments in pharmaceuticals – in the context of the broader determinants of health, both for individual patients and for the population as a whole. This frame of reference will help all relevant actors to identify when medicines are the best approach to improving health and when other investments would yield greater value. It should also help focus pharmaceutical policy development, coordination, implementation and evaluation on measurable health-related goals rather than surrogate measures of system performance – such as the speed of regulatory approval times or the numbers of medications on a formulary. An explicitly health-focused national pharmaceutical strategy may be particularly transformative in Canada, where the management of pharmaceuticals used in the community setting – which account for 90% of the pharmaceutical market in Canada – has not, yet, been fully incorporated into the management of the rest of the public healthcare system.

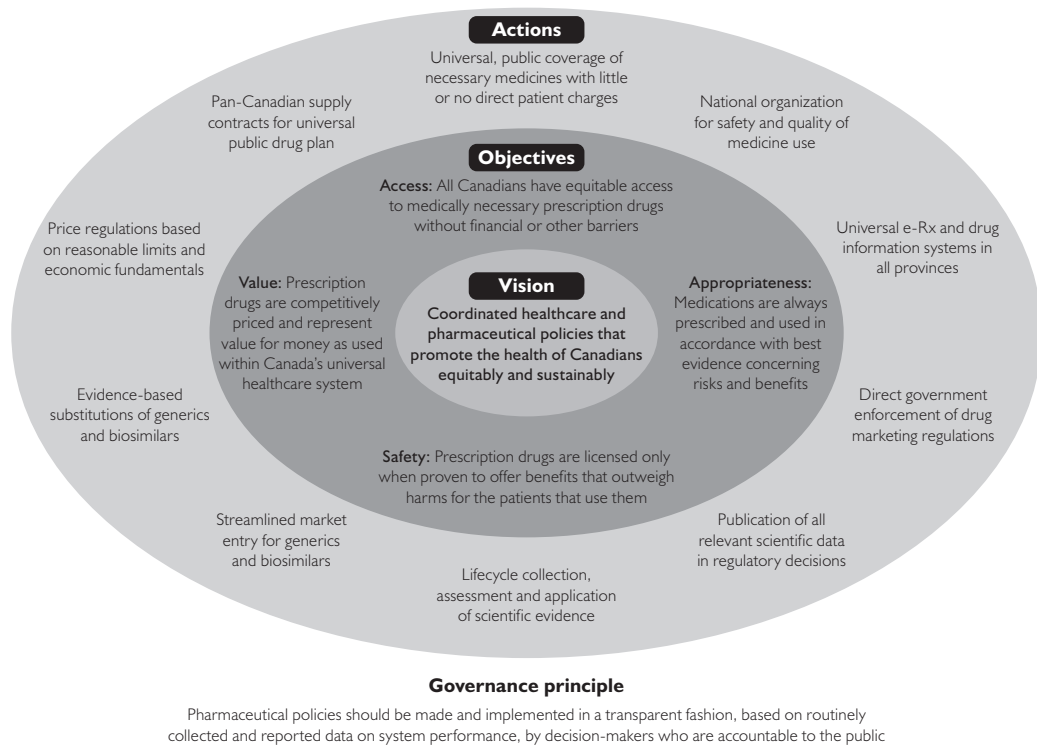
A clear health-focused vision will also help balance conflicts with secondary policy goals in the pharmaceutical sector. For example, a health focus will dictate strong national policies on drug pricing and affordable access to medicines in an era where trade agreements often provide pharmaceutical manufacturers greater market power (Lopert and Gleeson 2013). Resolving conflicts between different policy objectives does not disregard economic development in the pharmaceutical sector; but it does imply such objectives should not be pursued at the expense of public health and patient safety.

### Specific Objectives and Strategic Actions

Our guiding, health-centred vision provides an important touchstone, but further objectives must be delineated if coordinated policy actions are to be selected, implemented and monitored. Policy frameworks developed by the WHO and others suggest that Canada should focus on four core objectives related to the overarching health-centred vision: (1) universal access to necessary medicines; (2) appropriate prescribing and use of medicines; (3) value for money spent on medicines; and (4) patient safety (Australia 1999; Bigdeli et al. 2014; Morgan et al. 2009; WHO 2001).

As shown in Figure 1 and Table 1, and described in the sections that follow, we propose strategic policy actions that would help Canada to achieve each of the four core objectives of the national strategy. Finally, also drawing on WHO guidance, we propose, as an overarching governance principle, that pharmaceutical policies be made and implemented in a transparent fashion, based on routinely collected and reported data on system performance (Bigdeli et al. 2014; WHO 2001).

**FIGURE 1.** A renewed strategy for pharmaceutical policy, guided by a clear and compelling vision with supporting policy objectives and actions



### Access

The *Canada Health Act* ensures all Canadians have access to medically necessary physicians' services and hospital care – including all prescription drugs used in hospital – through universal, comprehensive, public health insurance. This system of universal health coverage in Canada does not extend to medications used in the community. Outside of hospitals, prescription drugs are financed by an incomplete patchwork of public and private drug plans that leaves approximately 10% of Canadians with no prescription drug coverage at all and a further 11% with limited drug coverage, requiring them to pay for most of their prescription drug costs out-of-pocket (Angus Reid Institute 2015; Barnes and Anderson 2015; Daw and Morgan 2012).

The absence of universal coverage of necessary medicines creates significant access problems. In July 2015, a national survey found that 14% of Canadians reported that they or members of their household didn't fill a prescription in the past year because of cost. A further 9% either didn't renew a prescription or skipped doses to make prescriptions last longer because of cost (Angus Reid Institute 2015). Though there are regional variations in the rates of cost-related non-adherence to medications – from 19% in Quebec and Manitoba to 29% in British Columbia – international surveys suggest that all provinces in Canada experience these problems at rates greater than comparable health systems in Europe and Australasia (Morgan et al. 2013; Osborn et al. 2014). Research suggests the problem stems

from inadequate drug coverage, regardless of income level (Law et al. 2012). Lack of access because of inadequate insurance is associated with significant adverse health outcomes, including premature death (Booth et al. 2012; Kesselheim et al. 2015).

**TABLE 1.** Details concerning suggested elements of a renewed strategy for pharmaceutical policy in Canada

<b>Guiding vision:</b> <i>Coordinated federal, provincial and territorial pharmaceutical policies that work with other healthcare policies to promote equitable and sustainable improvements in the health of Canadians</i>		
<b>Policy objectives</b>	<b>Strategic policy actions</b>	<b>Policy actors</b>
<b>Access:</b> <i>All Canadians have equitable access to medically necessary prescription drugs without financial or other barriers</i>	<ul style="list-style-type: none"> <li>• Universal, public coverage of medically necessary prescription drugs by 2020</li> <li>• Fair, transparent and evidence-based system of determining which drugs are covered under a universal drug plan</li> <li>• Coordinated procurement policies as per value objective of renewed National Pharmaceuticals Strategy</li> </ul>	<ul style="list-style-type: none"> <li>• Provinces as administrators</li> <li>• Federal government to enable and ensure national standards</li> <li>• Relevant agencies (e.g., Canadian Agency for Drugs and Technologies in Health)</li> </ul>
<b>Appropriateness:</b> <i>Medications are always prescribed and used in accordance with best evidence concerning risks and benefits</i>	<ul style="list-style-type: none"> <li>• Government to take direct responsibility for enforcing regulations concerning the promotion of medicines</li> <li>• Completion of population-based electronic prescribing and drug-information systems in all provinces by 2020</li> <li>• Establish or designate a national organization to coordinate initiatives regarding quality of medicine use</li> </ul>	<ul style="list-style-type: none"> <li>• Health Canada for regulatory enforcement</li> <li>• Canada Health Infoway and provincial and federal governments for electronic prescribing and information systems</li> <li>• New national agency or mandate expansion for existing agency for coordination of initiatives</li> </ul>
<b>Value:</b> <i>Prescription drugs are competitively priced and represent value for money as used within Canada's universal healthcare system</i>	<ul style="list-style-type: none"> <li>• Pan-Canadian price and supply contracts for patented drugs covered under the universal public drug plan</li> <li>• Streamline market entry for generics and biosimilars</li> <li>• Modernization of pharmaceutical price regulations to include non-patented medicines and reasonable price limits based on economic fundamentals</li> </ul>	<ul style="list-style-type: none"> <li>• Arm's-length agency for supply contracts, with representation of patients, health professionals and governments</li> <li>• Federal government for streamlining generic and biosimilar entry</li> <li>• Regulatory and mandate changes for Patented Medicine Prices Review Board</li> </ul>
<b>Safety:</b> <i>Prescription drugs are only licensed when proven to offer benefits that outweigh harms for the patients that use them</i>	<ul style="list-style-type: none"> <li>• Publication of all relevant scientific data concerning both positive and negative regulatory decisions</li> <li>• Lifecycle approach to collection, assessment and application of scientific evidence</li> </ul>	<ul style="list-style-type: none"> <li>• Health Canada for regulatory policy and transparency</li> <li>• Provincial governments for collecting and making available real-world data</li> <li>• Federal government for enabling timely analysis and publication of real-world data</li> </ul>
<b>Governance principle:</b> <i>Pharmaceutical policies should be made and implemented in a transparent fashion, based on routinely collected and reported data on system performance, by decision-makers who are accountable to the public</i>		

To ensure universal access to necessary medicines, several national commissions on healthcare in Canada have recommended that federal, provincial and territorial governments implement a universal, public drug plan that brings medically necessary prescription drugs into Canada's single-payer healthcare system (Canada 1964, 1997, 2002a). In 2015, a universal "pharmacare" system involving little or no direct charges to patients (to ensure covered prescriptions are accessible without financial barriers); a national formulary (to achieve equitable, evidence-based coverage across provinces); and a transparent, pre-defined budget (to ensure sustainability and efficiency *vis-à-vis* other investments in healthcare) was endorsed by over 280 university-affiliated experts in healthcare policy and clinical practice from across Canada (Morgan et al. 2015).

Not every medication should be covered under such a universal pharmacare plan in Canada – nor is every medication covered under comparable systems worldwide. Reasonable limits need to be set – and they should be set through transparent, publicly

accountable coverage decision-making processes. However, if the selection of medications to be covered under such a program is guided by public health goals and the best available evidence, a universal pharmacare system will not only contribute to the access objective of a national pharmaceutical strategy, it could also contribute to other core objectives, including appropriateness and value for money.

In a manner similar to contributions toward the cost of provincial health insurance programs for medical and hospital care, federal contributions to the cost of universal pharmacare could help all provinces to afford to participate and to ensure that all provinces provide coverage that meets national standards (Morgan et al. 2015). Although such a pharmacare program would change both the federal-provincial and private-public mixes of prescription drug financing in Canada, research has shown that a universal public drug plan could reduce total prescription drug costs by billions of dollars per year (Gagnon 2014; Gagnon and Hebert 2010; Morgan, Law et al. 2015).

### *Appropriateness*

There is good evidence that the quality of medicine use in Canada could be improved. In 2013, more than one in three Canadians (37%) over age 65 filled at least one prescription for medicines believed to pose unnecessary risks for older adults – at a total direct cost of over \$400 million for prescriptions alone (Morgan et al. In Press). Such prescribing has negative impacts on patient health and health system demands. It is estimated that one in six hospitalizations in Canada could be prevented if prescription drugs were prescribed and used more appropriately (Samoy et al. 2006).

There are many causes of inappropriate medication use, including too much reliance on information from drug companies, pressure to prescribe from patients and peers and cultural expectations that may bias assessments of the risk and benefits of treatments (Cullinan et al. 2014; Hoffmann and Del Mar 2015; Mintzes et al. 2013; Spurling et al. 2010). Strategies to address inappropriate medication use therefore need to be multi-faceted and coordinated to respond to all those factors. They also need to be sustained over time (Sketris et al. 2009).

Canadian efforts to improve the quality of prescribing have historically been fragmented, but show growing potential for a coordinated national effort. A number of promising initiatives promoting appropriate prescribing have been led by provinces, some with shared support through national agencies (Sketris et al. 2009). Physician leaders are also taking action through a Canadian chapter of the Choosing Wisely initiative to inform doctors and patients about overuse of certain prescription drugs and diagnostic tests (Levinson and Huynh 2014). Further, Canada Health Infoway has helped provinces develop infrastructure for prescription monitoring and surveillance and the federal government has funded work to develop a national strategy on prescription drug abuse (Smolina et al. 2016).

More can be done to improve prescribing appropriateness through a coordinated national strategy. At the federal level, Health Canada could better limit unwanted effects of commercial marketing activities by taking more direct responsibility for enforcing existing regulations

concerning the promotion of medicines to patients and to professionals, ending self-regulation by industry (Lexchin and Mintzes 2014). Similarly, more stringent rules on conflicts of interest at Canadian teaching hospitals and universities would help to ensure future health professionals are trained based on best available evidence rather than commercial influences (Rochon et al. 2010; Shnier et al. 2013); further, legislated disclosure of financial ties between health professionals and the pharmaceutical industry, as is now done in the US, would increase transparency and help to mitigate the effects of conflicts of interest of practicing health professionals (Boozary and Lexchin 2014). Taking such actions at a federal level would protect institutions – and, indeed, provinces – from the threat of investment-related repercussions should they enact such policies at a local level. Though such threats would not necessarily be credible, they can place significant pressures on local decision-makers and thereby limit regional actions to address known pharmaceutical policy problems (Morgan and Cunningham 2008).

At the provincial level, governments can improve patient and professional education and engagement in matters related to quality of medication use. To provide foundational support for the monitoring and evaluation of prescribing practices and outcomes, all provinces should commit to timely completion of population-based electronic prescribing and drug information systems. Such systems can be used to alert pharmacies to potential interactions between different prescriptions for the same patient and to notify authorities of problematic and potentially fraudulent medication use; furthermore, if well designed, such systems can also be used to provide real-time clinical decision support, including flagging potential dosing errors and providing evidence-based, point-of-care treatment recommendations (Smolina et al. 2016).

Collaborations between provinces and the federal government on prescribing appropriateness will require administrative and operational support. This will likely require a new national agency – or an expanded mandate of an existing agency – to coordinate quality improvement initiatives. The role of NPS MedicineWise within Australia’s national strategy for quality use of medicines is one example of how a national agency can help ensure that quality improvement initiatives can be developed, implemented and evaluated across a diverse federation (Australia 2002; NPS MedicineWise 2015). All regions in Canada would benefit from a dedicated agency that pooled capacity to mount and evaluate quality-improvement campaigns – even if such campaigns are to be delivered by provinces and territories.

### *Value*

A system to provide equitable access to necessary healthcare – including prescription drugs – must be designed to be financially sustainable; otherwise, health-related goals will not be achieved in an equitable and ongoing way. Given that Canadians will spend approximately \$30 billion on prescription drugs in 2016, it is important to ensure that medicines are priced competitively and only used when they represent value for money relative to other means of promoting the health of patients and the population as a whole. Unfortunately, Canada’s current approach to managing pharmaceutical expenditures is fragmented across jurisdictions and between public and private sectors in ways that limit our capacity to control prices and encourage cost-effective medication use.

At every level, current and past efforts to control the cost of pharmaceuticals in Canada have been hampered by fractured jurisdiction and lack of coordination. The federal government regulates only patented drug prices, and only on the basis of comparisons to official “list” prices of medications in a handful of other countries. Provinces, minus Quebec, have been negotiating drug pricing collectively through the Pan-Canadian Pharmaceutical Alliance since 2010, and Quebec and the federal government have recently joined those negotiations. However, even when all governments participate in a negotiation, it applies only to public drug plan purchases – which cover less than 50% of prescription drug expenditures in every province (CIHI 2015) – and only in the jurisdictions that actually implement the negotiated agreement. That limits governments’ bargaining power and the extent to which negotiated prices apply, as uninsured patients are powerless to negotiate better prices from suppliers and even private insurers are ill-equipped to manage pharmaceutical costs (Gagnon 2014).

Although many Canadians have private drug coverage, the insurance companies offering those plans lack the financial incentives, negotiating capacity, and clinical authority necessary to effectively control prices and manage the allocation of expenditures across competing demands for healthcare. Not only are private insurers isolated from the management of the rest of the healthcare system – and thereby in a limited position to weigh the total costs and benefits of use of medicines *vis-à-vis* other healthcare services – they are also providing an insurance product that is most commonly purchased as part of complex labour negotiations in which the perceived generosity of the coverage is critical (O’Brady et al. 2015). These characteristics of private drug insurance (in the context of Canada’s public healthcare system) result in extraordinary waste: private sector analysts estimate approximately \$5 billion per year spent by employers on drug benefits is wasted because private drug plans are not well-positioned to manage drug prices, cost-effectiveness, or the prescribing and dispensing decisions of Canadian health professionals (Express Scripts Canada 2015).

Unfortunately, governments cannot simply step in to help uninsured patients or private insurers to obtain better prices without including them within the publicly managed drug coverage system and related price negotiations. The primary reason for this is that negotiated drug prices are now routinely kept secret in the modern pharmaceutical market because so many nations – including Canada – have historically regulated drug prices based on what manufacturers charge in other countries (Docteur et al. 2008; Seiter 2010; Vogler et al. 2015). In response to this practice, brand-name pharmaceutical manufacturers now artificially inflate the list prices of their medicines worldwide; then, instead of giving every country the same price reductions offered to those with effective negotiating power, pharmaceutical manufacturers now simply do price deals in secret with individual countries (Morgan et al. 2013b). This means that governments in Canada cannot simply lower the publicly available price paid by everyone in the country – including private insurers – because manufacturers would then have to give that lower price to countries around the world.

The net effect of Canada’s fragmented pricing and expenditure management policies is higher total spending on pharmaceuticals than any comparable country with a universal

healthcare system (OECD 2014). Significant improvements could be made by aligning coverage of medically necessary prescription drugs with Canada's universal, public healthcare system to consolidate purchasing power and to provide providers, managers and citizens with better incentives to carefully weigh the benefits and costs of pharmaceutical and non-pharmaceutical treatment options.

It is simple economic logic that purchasing power would be maximized through the creation of a pan-Canadian single-payer system for medications selected for universal coverage. Such a system would both provide sizeable and predictable rewards to manufacturers who price competitively and protect patients from paying list prices inflated by the worldwide practice of secret price rebates. It is also simple economic logic that a program integrated with the management of medicare – including the collection and analysis of linked health data sets – would improve the capacity of all provinces and territories to employ evidence-based risk sharing policies. These policies could set rebates on drug prices according to the rate and appropriateness of the use of the medicine under the drug plan and, in some cases, according to the actual impacts of the drug on patient health outcomes (Morgan et al. 2013a).

Whereas confidential rebates are needed to obtain competitive prices for patented medicines in today's global pharmaceutical market, more transparent tools are needed to secure better generic drug prices. The process by which generic manufacturers currently gain access to the Canadian market involves uncertainties – and costs – not faced in comparable markets (Grootendorst et al. 2012). A pharmaceutical strategy that included a commitment to streamline market entry by removing unnecessary barriers to generic entry would improve market access for generic competitors and thereby increase the effectiveness of other policies designed to obtain a more competitively priced and secure supply of generic drugs in Canada.

Once on the market, generics are currently priced in ways that allow retail pharmacies to collect sizable rebates from generic manufacturers without passing those rebates on to payers (Competition Bureau 2007; Law and Kratzer 2013). These secret rebates for generic drugs do not benefit patients, government drug plans or private drug plans. In contrast, competitive tendering processes under a universal drug plan would achieve much more transparent, competitive prices for the public system – with estimated savings on the order of 50% or more of current generic drug prices (Beall et al. 2014; Gagnon 2014; Law and Morgan 2011; Morgan et al. 2007). Supply contracts for generic drugs can even be designed to limit the risk of drug shortages and sudden price increases (Gagnon 2012; Gagnon 2016; Morgan 2013a).

With patents now expiring on many high-cost biologic drugs, similar evidence-based licensing, purchasing and reimbursement policies should be applied to biosimilars – competing versions of off-patent biologic drugs (Renwick et al. 2016).

Finally, despite the importance of negotiated contracts as a means of controlling prices, recent cases of extraordinary pricing of both patented and non-patented drugs suggest that regulatory policies may still be needed to prevent abuse of market power in the pharmaceutical sector (Bach 2015; Carrier and Kesselheim 2015). To this end, a renewed national strategy for pharmaceuticals should include a commitment to modernize Canada's price regulations,

which should apply to patented and non-patented medicines alike. It will be important for Canada to work with other countries to establish regulations on drug prices that are grounded in economic and ethical fundamentals concerning the balance between consumer protection and investor rights, access to medicines and incentives for innovation (Bach 2015; Vogler et al. 2015).

### *Safety*

Efforts to ensure new medicines generate greater benefits than harms for patients mean that all medications are subject to regulatory review before they come to market and monitoring afterwards. This work is of paramount importance to public health because, while patients suffer if they cannot get effective treatments, patients who experience unwanted side effects of medicines also suffer, sometimes irreversibly, from harms that medications can cause. Biological factors ultimately drive the effects of drugs on patients; however, measurable policy process factors – including regulatory rigour, scientific transparency, and outcomes monitoring – all work to minimize harms.

Unfortunately, there is evidence to suggest that Health Canada may currently be erring too much on the side of expedited access to medicines of promising but unproven potential to safely and effectively improve patient health. Out of 345 new active substances that were approved between 1997 and 2012 and evaluated for their therapeutic benefits by independent organizations, 91 were given priority reviews. Only 52 of them, however, were judged to be therapeutically innovative (Lexchin 2015). In addition to this tendency to grant priority reviews to many drugs that are comparable to others on market, drugs having received a priority review in Canada have a 34% chance of acquiring a serious safety warning compared to just under 20% for those given standard reviews (Lexchin 2012).

The federal government has made some improvements in regulation with the passage of the *Protecting Canadians from Unsafe Drugs Act*, known as Vanessa's Law. This law gives the government a number of powers Canadians likely thought it already had: i.e., the power to initiate mandatory recalls of unsafe drugs, to compel manufacturers (and others) to provide safety information, to impose conditions on market authorizations and to compel companies to revise labels to clearly reflect health risk information (Herder et al. 2014; Hohl et al. 2015). Despite these improvements, more needs to be done.

A national strategy that included commitments to routinely collect, assess and publish scientific information about drug safety and effectiveness throughout the lifecycle of pharmaceutical products would provide critical information to regulators, healthcare providers and patients. This commitment to transparency would begin even before drugs come to market, as exemplified by the European Medicines Agency, which makes all clinical trial data publicly available (Bonini et al. 2014). Greater transparency can even help manufacturers because access to de-identified data from trials can help all manufacturers to increase the efficiency of drug development by reducing unnecessary duplication of efforts (Eichler et al. 2013). Moreover, greater communication about clinical trials – even before they are conducted – can help to design trials that meet not only the regulator's information needs but also those of

clinicians, patients, and managers of the healthcare system who ultimately determine how quickly and often new products are used in clinical practice (Backhouse et al. 2011).

Because the needs for scientific rigour and transparency continue over the life course of a medicine, a national strategy for pharmaceutical policy in Canada should include commitments from federal and provincial governments to monitor the use and safety of all prescription drugs on the market (Lemmens and Gibson 2014). No one jurisdiction in Canada has the population size and technical capacity to effectively monitor all of the potentially important indicators of drug safety and effectiveness. Thus, a national strategy is needed, whether through a centralized repository or distributed data analysis network – such as the Drug Safety and Effectiveness Network of the Canadian Institutes of Health Research. Commitment to these safety measures is needed because the quality of the science relies on the quality of the drug and linked health data collected and made accessible for analysis. To ensure valuable information is generated from the data in a timely and appropriate manner, the federal government could assist provinces to complete the implementation of required data infrastructure, standardize data systems for meaningful secondary uses and develop the scientific capacity needed for a pan-Canadian approach to drug safety surveillance.

### *Governance*

The final ingredient for effective national pharmaceutical policies is good governance. The form of governance required begins with buy-in. Though many national and international reports and commissions have recommended that Canada strive for a system that provides universal access to safe, affordable and appropriately prescribed medicines, failure by federal, provincial and territorial governments to clearly commit to those goals has resulted in poor pharmaceutical policy performance in Canada.

It is important to note that the failure of federal and provincial governments to agree to clear goals for pharmaceutical policies does not necessarily imply that the majority of Canadians would not agree to a clear set of goals and objectives for such a system. Students of healthcare policy in Canada will know that different levels of government in Canada occasionally cling to notions of jurisdictional autonomy and independence, which can impede the development of a national strategy in this sector – despite the potentially significant benefits of a strategy for Canadians in every region of the country.

Thus, whether through the new federal, provincial and territorial working group, or through another mechanism, Canada's policy makers can take the first step to good governance in pharmaceutical policy by identifying and committing to a clear vision and set of logically related policy goals for federal, provincial and territorial policies in this sector. Governments must develop and commit to their own vision and plan if a strategy is truly going to be transformative. And they will need to do so with input – throughout the process – from key stakeholders, including the Canadian public, health professionals and health system managers. We believe that the model presented in this essay is a good place to start related deliberations and consultations.

Once a vision for a country's pharmaceutical strategy is identified, the WHO recommends that governments commit to transparency and accountability throughout the policy process, including listening to stakeholders and engaging citizens in its development (Bigdeli et al. 2014; WHO 2001). To do this requires investment in the collection, analysis and publication of data on the performance of pharmaceutical policies – including public opinion data as appropriate. Measuring progress in this way will not only help keep policy makers accountable but also allows for ongoing policy adaptation and improvement. In this way, clarity of the policy vision and measures of accountability creates a virtuous circle: it helps to identify truly strategic actions to be taken, provides compelling grounds for those actions and thereby buttresses policy makers against political pressures to divert from the strategic course. In a federation like Canada's, that collective commitment to a clear, transparent plan may have tremendous advantages in a sector, like this one, where coordinated actions are in the collective interest.

## Conclusion

Royal commissions in Canada have long recognized the need for more coordinated pharmaceutical policies in Canada. The 2004 National Pharmaceuticals Strategy was the first explicit attempt of federal, provincial and territorial governments to do this. Unfortunately, that attempt at coordinating policies failed to be transformative because it lacked clear vision, logical planning and commitment from federal and provincial governments. The result has been continued poor performance of the pharmaceutical component of Canada's healthcare system.

Building on international frameworks for drug policy, we have provided a framework for Canada that could form the basis for a clear, compelling and transformative strategy for coordinated pharmaceutical policy in Canada. The framework uses an overarching public health vision to identify a logical set of interrelated, measurable objectives to be pursued by policy actors throughout the system and across jurisdictions.

With those objectives in mind, we have suggested a variety of strategic policy actions that, if implemented in an integrated fashion, would help meet the objectives of access, appropriateness, value and safety; and, in so doing, they would support the overarching goal of improving the health of Canadians through coordinated pharmaceutical and health policies.

Whether or not one accepts the overarching, health-focused vision of the strategy outlined above, it is clear every government's actions – and inactions – on policies within their jurisdiction will have significant effects on interrelated pharmaceutical sector outcomes and, thus, overall health system performance. With a new health accord in negotiation, the prospect for a new strategy on pharmaceutical policy is high. To make transformative change happen for the better, leaders in federal, provincial and territorial governments will have to delineate a logical framework for coordinated policy action to achieve desirable policy goals and objectives. Moreover, they will need to embrace cooperation, coordination and accountability rather than historical patterns of autonomy and apathy in pharmaceutical policy. Thus, what is needed now is political leadership – at all levels of government – to define and commit to a clear and logical pharmaceutical strategy on behalf of all Canadians.

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# Building Rural Surgical Networks: An Evidence-Based Approach to Service Delivery and Evaluation

## Création de réseaux ruraux pour la chirurgie : une démarche fondée sur les données probantes pour l'évaluation et la prestation des services



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### Abstract

Formalized rural health service delivery networks are emerging as an over-arching response to the attrition of rural surgical and maternity services in Canada. In effective networks, there is strong collaborative leadership, form follows function, core network elements are identified and site-specific variations are accommodated to meet the surgical needs of the population in each geographic catchment. The network catchment must reflect the natural alliances that already exist among health professionals, policy makers, health administrators, academic institutions and communities. Although each key stakeholder plays a key role in determining success, value is added through the synergistic interplay of all participants.

### Résumé

Les réseaux officiels de prestation des services de santé constituent une réponse à l'attrition des services ruraux de maternité et de chirurgie au Canada. Dans les réseaux efficaces, il y a un fort leadership de collaboration, la forme suit la fonction, les éléments centraux sont définis et on tient compte des variations locales pour répondre aux besoins en chirurgie de chaque bassin géographique. Le bassin d'un réseau doit correspondre aux alliances naturelles qui existent déjà entre les

professionnels de la santé, les responsables de politiques, les administrateurs de la santé, les institutions universitaires et les communautés. Bien que chaque intervenant clé joue un rôle important pour assurer la réussite d'un réseau, la réciprocité synergétique de tous les participants y ajoute de la valeur.

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## A Case for the Need for Networks in Rural Health Services Delivery

The recent publication of the *Joint Position Paper on Rural Surgery and Operative Delivery* (Iglesias et al. 2015) was remarkable, not only due to the cross-professional endorsement procured (College of Family Physicians of Canada, Society of Obstetrics and Gynecology Canada, Canadian Association of General Surgeons and the Society of Rural Physicians of Canada) but also due to the clear template it provided for the effective delivery of surgical services to rural communities. The position paper arises from the expressed need to curb the attrition of rural surgical and maternity services across Canada, a phenomenon reflective of international trends in rural healthcare. The suggested framework for an effective and sustainable solution rests on networks of care between rural, regional and tertiary settings.

Networks of health service delivery are not a new construct, based as they are on appropriate triage from low-resource levels of care (typically rural) to secondary and tertiary care (typically large urban centre), and the attendant socio-professional relationships involved in such healthcare transitions. Rural communities in Canada have depended on and thrived within these networks. Current attention to the efficacy of networks as a rural health services solution is based on *formalizing* and *optimizing* naturally occurring constructs for the purposes of development and support. Two caveats apply: form must follow function and, although core network elements may be identified, there will be natural and essential site-specific variation (one size does *not* fit all). Furthermore, the development of such networks must be based on geographic population catchments, and it is the responsibility of the network to meet the surgical needs of the entire population within its geography. This requires determining the appropriate location of care to meet the needs of the patient from rural to referral to tertiary.

For rural surgical and obstetrical services, this implies a regional organization of the scope of practice and resources required to implement surgical programs, decided through consensus agreement between the sites. A network may emerge between a referral centre and one or more rural sites. The BC Joint Standing Committee on Rural Issues report, *The Sustaining of Small Rural Surgical Services in British Columbia* (Grzybowski and Kornelsen 2013b), identified characteristics of rural surgical/perinatal surgical networks. Summarized, they include the assumption that rural surgical and obstetrical programs become outreach extensions of core referral hospital surgical programs, and the organization of services respects the sustainability of both the regional programs and the rural programs. The degree of integration in the program may vary depending on influencing factors, the most prominent being the degree of isolation of the smaller service. We would anticipate highly integrated networks being relatively proximal to regional referral centres, with a viable but different surgical relationship (network) model for more isolated settings.

Although examples of “mandated cooperation” (institutionalization) of networks exist in highly structured administrative contexts, for independent and autonomous players in the care system (care providers, administrators and rural communities), voluntary collaboration would likely be more satisfying and enduring. The originating ethos behind the network will influence the ultimate framework, despite the potential of fluidity of form – fluidity that likely remains with the maturation of the network.

### Building Networks: The Physical Profile

The geo-physical system “container” for the networks reflects the natural referral patterns between rural and regional referral sites across a geography formalized into population catchment areas surrounding each hospital facility (for example, the population within one-hour surface travel time of each facility). The sum total of the facilities-based catchments across a region forms the integrated or “meta catchment” for the network – the framework through which all evaluative and improvement activities can occur (Grzybowski and Kornelsen 2013a). This positions the location in which a procedure takes place as a network outcome, and supports and allows timely and regular feedback to the individual services within a quality improvement envelope. Again, the network catchment must not be an artificial construct, but instead, reflect the natural alliances that already exist – or could exist. From this starting point, more pragmatic planning can take place.

Of all the qualities of highly functional health services networks, *collaboration and trust* have been noted as paramount (Bonk 2000; Kilbride et al. 2011). Although good facilitation and leadership, as well as repeated interactions among network players, are necessary to develop these core qualities, they need to be underscored by a shared recognition of mutual benefit of network activities arising from all players. Furthermore, just as trust is the leading criteria for successful networks, lack of trust is the primary reason for network failure. Trust may be fostered through leadership that has the social authority to validate both the network and the need for the network (Robeson 2009).

When applied to surgical networks, on-the-ground leadership from a mutually respected party is essential. This may require a combination of clinical and administrative leadership with established credibility and acceptance by all involved. This key role must be filled by someone having the capacity to provide direct or indirect support for the tasks of its members, enabled by a supporting infrastructure to focus resources and allocate responsibilities. The core leadership attribute of “boundary spanning” refers to the individual’s or groups’ capacity to “reach across borders, margins or sections to build relationships, interconnections and interdependencies in order to manage complex problems” (Williams 2002).

Alongside building the network scaffolding, applied and pragmatic work needs to occur, including developing a clear and consensus-based statement of the networks’ purpose, goals and objectives and the most effective communications infrastructure for both administrative and clinical communication (Bonk 2000; Robeson 2009; Woodland and Hutton 2012). A likely enabler will be new interpretations of telehealth, judiciously applied, to augment

existing established communication, both within the network and more broadly between professions. This can allow the development of communities of practice (Wenger et al. 2002) within the network, which have been shown to act cohesively by reinforcing interprofessional collaboration and reducing the geographic and social isolation of members. Simultaneously, with the development of communities of practice is the need for an articulation of appropriate membership and attendant roles and function. The principle of inclusion for network membership must be maintained, but within the pragmatic confines of productivity (the capacity to manage). Research literature notes the imperative for clearly defined roles leading to increased participation and efficiency.

### **Applying Network Concepts to Surgical Services in Rural Canada**

As it is inherently contingent on productive relationships between key stakeholders, network development in rural Canada may benefit from a formal articulation of players that warrant inclusion. Woollard (2006) worked to identify the “pentagram partners” in a social accountability framework. He non-hierarchically included health professionals, policy makers, health administrators, academic institutions and communities (Woollard 2006). Although each plays a key role in determining success, it is the synergistic interplay that increases the likelihood of success. For example, administrators must be intimately involved in decisions regarding the clinical scope of practice in each site to ensure that the appropriate resources are available. The procedures available in the local site must respond to the demographic needs of the population (community) and an evaluative framework must be in place to measure both process and summative outcomes of the model (academia) to enable course correction if necessary.

The reporting and examination of outcomes are now recognized as challenges for all of surgical practice. Networks can deliver outcome data at a population catchment level in a format amenable to the National Surgical Quality Improvement Program (NSQIP) analysis, making a strong evaluation framework a by-product of network development. Additional population health data can be measured, tracked and linked to both health outcomes and health system measures, including volume and scope of surgical procedures in each site, wait times and patient and provider-reported data such as satisfaction.

A by-product of the inclusion of the pentagram partners is the synergistic alignment necessary to increase communication between, for example, clinical teams that feel their Health Authority leadership may be out of touch with the reality of front-line care. Likewise, the deliberate inclusion of community representation ensures a service responsive to the needs of communities as opposed to the practitioner- or administrator-centred needs. Importantly, this engagement framework will support necessary discussions with regional surgical organizations at a provincial level to create jurisdictionally responsive scopes of practice to respond to the needs of the local population.

A realistic appraisal of challenges is essential in network development, starting with those that, if not resolved, preclude growth and sustainability. In the case of rural surgical

networks in Canada, such a “deal-breaker” is the productive interprofessional relationships between family physicians and their specialist colleagues, whom they rely on for clinical mentorship and support. Although historically this has been challenging, particularly the relationship between family physicians and general surgeons (Kornelsen et al. 2013), the multi-party endorsement of the *Joint Position Paper* signals a new era, at least with organizational leadership. Creating the conditions for this ethos of collaboration to flourish among members on the ground, however, will be essential in realizing the vision. This may be done in part by ensuring greater transparency of Family Physicians with Enhanced Surgical Skills (FPESS) training and the adherence to a standardized curriculum with interprofessional assessment of skills (Caron et al. 2015), but it is also required that this transparently extend to the day-to-day clinical practice of the rural sites by involving FPESS in itinerant surgeries or providing support for FPESS procedures at their sites. Other mechanisms of inter-site relationship building will include network-based continuing education and professional development involving a cross-section of network membership from multiple sites, integrated multi-site patient review and collaborative review of outcomes data.

Building the environment in which networks can flourish requires the investment of capital to facilitate, for example, expanded operating room days for specialists in the rural sites, additional equipment that may be necessary, additional nursing lines for pre-operative, operative and post-operative care, but also a mechanism for engaging key stakeholders to position the network in a way that responds to local needs (i.e., sessional fees for meeting to plan). With these key supports in place, there is a strong potential for effective and sustainable surgical and maternity care networks across rural Canada.

### Rural Surgical Networks in Canada: The Way Forward

We must approach the development of rural surgical networks in Canada with a sense of cautious optimism that acknowledges the variation in support among general surgeons and across geography. In a recent qualitative study with general surgeons from Western Canada on specialists’ perceptions of FPESS (Kornelsen et al. 2016), participants thematically expressed concerns over training, competence and avenues for Continuing Medical Education and Continuous Quality Improvement. Almost all participants emphasized the need for a standardized educational curriculum and evaluation process for family physicians providing procedural care; currently, the only accredited postgraduate program in Canada that provides such training is at the University of Saskatchewan’s Prince Albert site. Such a curriculum has been developed and proposed by the National Working Group on Enhanced Skills (Caron et al. 2015) to both standardize skills and to ensure a low-volume rural practice focus is maintained. Levels of support for enhanced surgical skills is even more fractured by geography with general surgeons in Western Canada and the far North more amenable than their colleagues in Central and Eastern Canada, due, in part, to geography and historical precedent.

Networks of rural surgery and maternity care are emerging as an over-arching solution to cement the sustainability and viability of small surgical services in Canada. They are, however,

not a panacea for the structural challenges that have beset healthcare across rural Canada. These include larger debates on the value and efficacy of generalism versus specialization and the attendant interprofessional discordance these debates evoke. There are clinical concerns, such as the safety of procedural care in low-volume services and professional concerns regarding the need for a standardized curriculum and attendant evaluation and monitoring framework that must be addressed by best available evidence. With the development of networks, there is a place to address these difficulties as they will demand and provide an approach and venue for respectful dialogue. Ultimately, we are closer than we have been for the past several decades to fashioning a solution that can address the healthcare needs of rural residents. Grounding our activity in meeting this objective will ensure we stay the course.

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# Identifying Distinct Geographic Health Service Environments in British Columbia, Canada: Cluster Analysis of Population-Based Administrative Data

Identifier les différents environnements de services de santé en Colombie-Britannique, au Canada : analyse typologique des données administratives en fonction de la population



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## Abstract

Definitions of “urban” and “rural” developed for general purposes may not reflect the organization and delivery of healthcare. This research used cluster analysis to group Local Health Areas based on the distribution of healthcare spending across service categories. Though total spending was similar, the metropolitan areas of Vancouver and Victoria were identified as distinct from non-metropolitan and remote communities, based on the distribution of healthcare spending alone. Non-metropolitan communities with large community hospitals and greater physician supply were further distinguished from those with fewer healthcare resources. This approach may be useful to other researchers and service planners.

## Résumé

Les définitions d’« urbain » et de « rural » dans les contextes généraux ne s’appliquent pas nécessairement à l’organisation et à la prestation des services de santé. Dans le cadre de cette recherche, l’analyse typologique a servi pour étudier les régions sanitaires locales en fonction de la distribution et des dépenses de santé dans les différentes catégories de services. Bien que

les dépenses totales soient similaires, les régions métropolitaines de Vancouver et de Victoria sont considérées de façon distincte des communautés non métropolitaine et éloignées, et ce, uniquement en fonction de la distribution et des dépenses de santé. Les communautés non métropolitaines dotées de grands hôpitaux communautaires et d'un plus grand effectif de médecins se distinguent de celles où il y a moins de ressources en santé. Cette démarche peut être utile pour les chercheurs et les planificateurs des services de santé.

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## Background

An extensive body of literature has examined healthcare services across urban and rural contexts. Typically, areas are grouped according to urban and rural categories, and then measures of use, quality or outcomes are compared. Multiple definitions of urban and rural places exist in Canada (du Plessis et al. 2001). These use information on population size, density and/or distance or connectivity to large urban centres to classify areas. Definitions specific to healthcare policy have also been developed, and incorporate information on the location of healthcare resources (Kralj 2009; Leduc 1997; Olatunde et al. 2007; Rosenberg and Hanlon 1996). Of course, there are factors beyond supply or location of healthcare resources that shape utilization, including income, education and availability of transportation (Wilson 2004).

Rather than first classifying areas based on urban/rural definitions and/or supply of healthcare resources, and then comparing patterns of service use, the present analysis classifies areas based on service use directly. Using population-based data from the province of British Columbia (BC), areas that are similar with respect to the distribution of healthcare spending across categories of care are grouped. Population and health system characteristics of the grouped areas are then compared.

## Methods

### *Data*

This analysis used data on per capita healthcare spending across 89 Local Health Areas (LHAs) in BC, with populations ranging from under 4,000 (Kettle Valley) to over 300,000 (Surrey). LHAs are the smallest unit of geography commonly used in the context of healthcare in BC, and are nested within 16 Health Services Delivery areas and five Health Authorities. They represent geographic boundaries relevant to healthcare managers and policy makers, and are the smallest unit at which data can be accessed.

Average per capita spending, stratified by LHA, sex and age group, was obtained from the Health System Matrix, produced by the Modeling and Analysis Team, within the Health System Planning Division of BC's Ministry of Health. All services used by an LHA's residents are attributed to that LHA, regardless of where they were accessed. Analysis included the following administrative data sources, with spending subdivided into categories as indicated:

- *Medical Services Plan Fee-for-Service Payments to Physicians.* These were grouped into: GP services in office; GP services in hospital/other locations; medical specialist services provided in office; medical specialist services in hospital/other locations; surgical specialist services provided in office; surgical specialist services in hospital/other locations; pathology/laboratory services, all locations; and diagnostic imaging, all locations.
- *Hospital Discharge Abstract Database.* Hospital costs derived from Resource Intensity Weights (CIHI 2011a) were grouped into: medical care; day surgery; in-patient elective surgery; trauma and emergency surgery; and other, including obstetrics, gynecology, oncology, palliative care and pediatrics.
- *Home and Community Care.* Spending includes home/community supports provided by health authorities (nursing care, home support services, rehabilitation services, adult day care and public funding to Community Services for Independent Living clients) and residential care/assisted living (publicly funded support services provided in assisted living settings and residential care, including convalescent care, transition care and respite).
- *PharmaNet Pharmaceutical Spending.* Spending is the total value of prescription drugs dispensed from community pharmacies, including drugs paid for by PharmaCare, private extended health plans and patients.

Five years of data were averaged (2004–05 to 2008–09) to ensure stable values in less populous LHAs. Spending was indirectly standardized using the age and sex distribution of the entire BC population (averaged over the five years of pooled data) as the standard population.

To capture health system characteristics within each area, individual-level data on patient age, sex, neighbourhood income and LHA of residence, as well as physician supply and hospital service delivery were obtained from the MSP registry file (British Columbia Ministry of Health 2011a), payment data (British Columbia Ministry of Health 2011b) and discharge abstract database (CIHI 2011b), accessed through Population Data BC and linked across the data sets using individual patient- and physician-specific study identification numbers. All inferences, opinions and conclusions drawn in this manuscript are those of the author, and do not reflect the opinions or policies of the Data Steward(s).

There are notable gaps in the available data, including services provided through the BC Cancer and Renal agencies, and some payments to physicians through alternate payment plans. Day surgeries performed on BC residents in Alberta are missing from the hospital data, though other acute care received by BC residents in Alberta is captured.

### *Hierarchical cluster analysis*

The intent of this analysis was to identify groups of LHAs that have similar patterns of healthcare service use, measured as the distribution of spending across the categories of care described above. Hierarchical clustering starts from the point where each data point (in this case LHA) is a single “group,” and then successive linkages are made to minimize within group differences and maximize between group differences.

Age- and sex-adjusted LHA-level per capita spending for each category of care (15 total) was standardized with a mean of zero and standard deviation of one. Hierarchical clustering was done using Stata's cluster command and Ward's minimum variance method (minimizing the total within-cluster sum of squares) (StataCorp 2013).

To confirm the consistency and reliability of the cluster solution, the analysis was re-run using earlier years of data (2002/3–2003/4), an alternate clustering technique (k-means), as well as with alternate variable specification (collapsing or subdividing within categories, for example, subdividing home and community care services, or collapsing all physician services by specialty but not location of services).

## Results

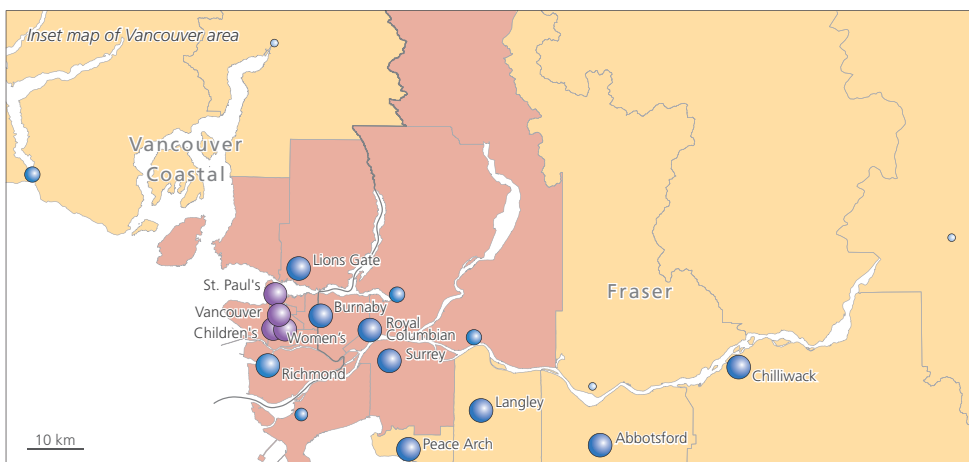
Cluster analysis revealed three very distinct high-level clusters, which are labelled metropolitan, non-metropolitan and remote. This was supported by the Calinski–Harabasz index in both Ward's and k-means clustering. A pictorial representation of the revealed clusters is provided with a dendrogram (Appendix 1, available at: <http://www.longwoods.com/content/24717>). This visually represents information about how LHAs are grouped. At the bottom of the figure, each LHA is treated as its own cluster. The LHAs are combined at various levels of similarity (joined by horizontal lines), until, at the top of the figure, the whole province is grouped together. The height of the lines gives information about the similarity of the clusters. Long vertical lines (for example, separating "metropolitan" and "remote" LHAs) indicate a distinct separation between clusters. Shorter lines (for example, separating "non-metropolitan" clusters (a) and (b) reflect clusters that are not as distinct).

All LHAs in the "metropolitan cluster" are located in densely populated urban areas in and surrounding Vancouver and Victoria. The "remote" LHAs are in isolated coastal and northern areas of the province. The "non-metropolitan" LHAs encompass the remaining area of BC outside the Lower Mainland and southern Vancouver Island (Figure 1). The next division in hierarchical clustering further subdivided non-metropolitan LHAs into two smaller clusters, labelled (a) and (b). These divisions were also confirmed by the k-means four-cluster solution.

Table 1 describes the distribution of average per capita spending across categories, by cluster. Metropolitan residents used the most physician services and were more likely to see physicians out of hospital. They also used more diagnostic and imaging services than non-metropolitan residents, and slightly more pharmaceuticals. Non-metropolitan residents had higher spending on GP services provided in hospital, as well as medical, day surgery and elective hospital services. Remote residents had very high use of hospital services and much lower use of other physician services. Looking within non-metropolitan areas, cluster (a) had slightly higher use of specialist services, laboratory, imaging and pharmaceuticals, and cluster (b) had higher use of GP services in hospital and medical hospital services. Despite these differences by categories of care, total per capita spending differed by less than 7% overall: \$68 between metropolitan and non-metropolitan LHAs, and \$153 between metropolitan and remote LHAs.

# Identifying Distinct Geographic Health Service Environments in British Columbia, Canada

FIGURE 1. Map of clusters and hospitals



**TABLE 1.** Average per capita healthcare spending by cluster and percent distribution by category

	Metropolitan	Non-metropolitan		Remote
		a	b	
<b>Total spending</b>	\$2,424	\$2,356	\$2,358	\$2,271
<b>Percentage of total spending by category</b>				
Physician services				
GP office	5.9	5.5	5.1	1.4
GP hospital	1.7	2.9	3.7	1.6
Medical office	1.8	1.3	0.9	1.5
Medical hospital	2.6	1.4	1.0	1.3
Surgical office	0.6	0.6	0.5	0.5
Surgical hospital	4.2	4.1	3.1	4.4
Diagnostic services				
Laboratory/pathology	2.8	2.5	2.4	3.2
Diagnostic imaging	2.9	2.7	2.3	2.8
Hospital services				
Medical	9.7	11.3	14.9	25.7
Day surgery	2.7	3.1	2.8	3.7
In-patient elective surgery	3.4	4.4	4.2	5.0
Trauma/emergency	6.2	5.7	5.4	7.0
All other hospital	15.3	14.2	14.5	17.1
Home and community care	21.0	21.2	22.2	17.3
Pharmaceuticals	19.1	19.0	17.1	7.7

Table 2 describes population and health system characteristics by cluster. These variables were not included in the cluster analysis but help to understand factors that likely shape the spending patterns across categories. The majority of British Columbians live in metropolitan LHAs (58%) (Table 2). A higher percentage of metropolitan residents are female and a lower percentage are in the youngest and oldest age groups (though all spending was age–sex standardized prior to cluster analysis). A very high percentage of remote residents are in the lowest income quintile.

**TABLE 2.** Population and health system characteristics by cluster

	Metropolitan	Non-metropolitan		Remote
		a	b	
Number of LHAs included	20	37	24	8
<b>Population, n (%)</b>				
Cluster population	2,466,656 (58.0)	1,448,567 (34.0)	323,074 (7.6)	18,058 (0.4)

## Identifying Distinct Geographic Health Service Environments in British Columbia, Canada

**TABLE 2.** Continued

	Metropolitan	Non-metropolitan		Remote
		a	b	
<b>Sex*</b>				
Female	1,282,606 (51.1)	732,143 (50.7)	159,792 (49.3)	8,900 (48.0)
<b>Age*</b>				
0–19	449,082 (17.9)	271,993 (18.9)	66,101 (20.4)	4,184 (22.5)
20–39	676,882 (27.0)	350,956 (24.3)	80,955 (25.0)	4,762 (25.7)
40–59	805,771 (32.1)	432,984 (30.0)	99,809 (30.8)	5,720 (30.8)
60–79	443,646 (17.7)	298,405 (20.7)	63,129 (19.5)	3,271 (17.6)
80+	132,341 (5.3)	87,933 (6.1)	13,968 (4.3)	618 (3.3)
<b>Income quintile*</b>				
1 (highest)	477,675 (18.3)	322,603 (21.5)	66,493 (19.9)	717 (4.3)
2	493,406 (18.9)	322,382 (21.5)	70,513 (21.1)	914 (5.5)
3	528,686 (20.3)	305,227 (20.3)	64,558 (19.3)	2,094 (12.6)
4	549,503 (21.1)	276,490 (18.4)	62,711 (18.8)	4,388 (26.3)
5 (lowest)	556,982 (21.4)	275,611 (18.3)	69,752 (20.9)	8,542 (51.3)
<b>Health system</b>				
Physician supply (per 100,000 residents)				
GPs	118.0	132.2	134.9	165.5
Medical specialists	64.3	35.7	10.8	20.7
Surgical specialists	44.8	41.8	10.8	0.0
Laboratory specialists	9.3	8.8	3.8	0.0
Imaging specialists	3.2	3.3	0.3	0.0
Unknown specialty	27.0	21.1	20.4	51.7
Hospital facilities (total number of facilities within cluster) <sup>§</sup>				
Teaching	6	0	0	0
Large	8	8	0	0
Medium	4	10	6	0
Small	1	13	19	5
Other	4	2	0	0
Volume and complexity of hospital service delivery (for hospitalizations occurring within cluster, regardless of location of patient residence)				
Separations per 1,000 residents	258	294	218	262
Resource Intensity Weight (RIW) per 1,000 hospital separations	1,589	1,214	911	850

\*Missing information on sex for 1,794 individuals, on age for 127,895 and income for 69,609. <sup>§</sup>Hospitals were classified by peer group (academic, large, medium and small community) according to the Canadian Institute for Health Information's methodology (CIHI 2013).

Although population characteristics vary, what more clearly differentiate the identified clusters are the health system resources available. Not surprisingly, metropolitan LHAs have more total physicians per capita and particularly more medical and surgical specialists (Table 2). Though these physicians see patients from across the province, they may be more accessible to metropolitan residents. All of the province's teaching hospitals are located within the metropolitan cluster. The high average Resource Intensity Weight (RIW) per hospital separation among metropolitan hospitals reflects their role as tertiary care centres, seeing complex patients from across the province. Non-Metropolitan cluster (a) can be distinguished from (b) by the fact that it has relatively greater physician supply (especially specialists), and is the location of all large community hospitals outside metropolitan LHAs.

When examining cluster stability by altering variable specifications, years of data and clustering technique, a handful of LHAs changed assignment, mostly between the two non-metropolitan clusters (a) and (b), but the overall cluster structure was robust to these changes in analysis.

LHAs along the Alberta border were grouped together within the non-metropolitan (b) cluster. This may, in part, reflect missing data on Alberta day surgeries, but this assignment has good face validity and these areas are similar in other characteristics as well. Missing data from BC Cancer and Renal agencies are not expected to have influenced results, as these are province-wide agencies responsible for planning services for patients in all included LHAs.

## Discussion

The face validity of this clustering exercise is remarkably high. It groups areas that are similar in their geography and access to healthcare resources, though only information on healthcare spending was included. The primary distinction revealed by cluster analysis is between the metropolitan areas, including Vancouver and Victoria in the southwest, and the remainder of the province. This is important as many urban/rural definitions group much smaller "urban" centres along with the largest metropolitan areas (du Plessis et al. 2001). Results also highlight that very remote communities, though representing a small proportion of the total population, are distinct.

For comparison with Figure 1, Appendix 2 (available at: <http://www.longwoods.com/content/24717>) shows the Statistical Area Classification (SAC) groupings of Census Subdivisions (CSDs) overlaid with LHA boundaries (Statistics Canada 2015). The SAC approach groups CSDs according to whether they are part of a Census Metropolitan Area (CMA, population of at least 100,000) or Agglomeration (population of at least 10,000), and then categorizes the remaining areas by "metropolitan influence," based on the commuting flow of the employed labour force. CSD and LHA boundaries differ, but it is notable that clustering based on healthcare spending still yields generally similar groupings to the SAC approach: LHAs identified as remote in clustering correspond to weakly or not metropolitan influenced CSDs; LHAs in non-metropolitan (b) correspond to weakly or moderately metropolitan influenced CSDs; and LHAs in non-metropolitan (a) include strongly metropolitan influenced areas,

Census Agglomerations and the CMAs outside of Vancouver and Victoria (Kelowna and Abbotsford-Mission). For healthcare-related analysis, the SAC classification system is an improvement over binary urban–rural definitions (du Plessis et al. 2001), though it still does not identify Vancouver, Victoria and immediately surrounding areas as distinct.

This approach to categorizing areas based on cluster analysis may be useful to other researchers and healthcare system managers, either to classify health regions or to check if other definitions of urban and rural correspond adequately to observed patterns of use. More accurately describing how health system composition and organization differ across regions is important to craft policies that are appropriate to different settings.

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# Opportunities and Barriers to Rural, Remote and First Nation Health Services Research in Canada: Comparing Access to Administrative Claims Data in Manitoba and British Columbia

Appuis et obstacles à la recherche sur les services de santé en milieu rural, éloigné et autochtone au Canada : comparaison de l'accès aux données administratives sur les demandes de remboursement au Manitoba et en Colombie-Britannique



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## Abstract

Access to geographically disaggregated data is essential for the pursuit of meaningful rural, remote and First Nation health services research. This paper explores the opportunities and challenges associated with undertaking administrative claims data research in the context of two different models of administrative data management: the Manitoba and British Columbia models. We argue that two conditions must be in place to support rural, remote and First Nation health services research: (1) pathways to data access that reconcile the need to protect privacy with the imperative to conduct analyses on disaggregated data; and (2) a trust-based relationship with data providers.

## Résumé

L'accès à des données ventilées géographiquement est essentiel pour la recherche sur les services de santé dans les milieux ruraux, éloignés et des Premières Nations. Cet article explore les appuis et les défis associés à la recherche qui utilise les données administratives sur les demandes de remboursement dans deux modèles distincts de gestion des données, soit celui du Manitoba et celui de la Colombie-Britannique. Nous estimons qu'il doit y avoir deux conditions pour appuyer la recherche sur les services de santé en milieu rural, éloigné et des Premières Nations : 1) des voies d'accès aux données qui protègent la vie privée tout en permettant de procéder à des analyses à l'aide de données ventilées; et 2) une relation de confiance avec les fournisseurs de données.

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## Introduction

The past decade has seen important changes in the organization of primary healthcare (PHC) services across most provinces. Sadly, few (if any) of these changes have focused on the PHC needs of rural and remote populations (Hutchison et al. 2011; Levesque et al. 2012). Yet, approximately 20% of the Canadian population lives in communities of 10,000 residents or less (Statistics Canada 2006). Research that utilizes health administrative data to document the performance of PHC systems in Canadian rural and remote communities remains scant (Gershon et al. 2011; Jaakkimainen et al. 2012; Shah et al. 2003; Widdifield et al. 2013). Moreover, there is limited population-based evidence policy makers can draw from to inform the development of rural, remote and First Nation health systems (Green et al. 2013; Lavoie et al. 2010, 2011). This lack of knowledge perpetuates the implementation of models informed by urban-centric research (Pong et al. 2012).

While this problem is partially due to fewer researchers conducting studies that examine PHC service delivery in rural and remote areas, there are important logistical barriers that create obstacles to accessing community-level health administrative data for rural and remote PHC research. We highlight some structural challenges by comparing processes of access to health administrative data in Manitoba and British Columbia.

## Background

Rural, remote and First Nations’ access to healthcare services is necessarily linked to geography. Distance, the quality of roads, differential access to and use of family physicians and rural hospitals, and recruitment and retention issues create unique challenges, which can contribute to poorer health outcomes, higher rates of avoidable hospitalization and higher healthcare costs (British Columbia Provincial Health Officer 2009; Cloutier-Fisher et al. 2006; Green et al. 2013; Lavoie et al. 2010, 2011; Shah et al. 2003). Even though challenges associated with rural access are unevenly distributed, most studies tend to aggregate data across large geographical areas, mainly to overcome methodological limitations associated with small sample sizes. As a result, evidence generated about smaller communities is overshadowed by larger urban populations.

Methodological solutions, including aggregating data over multiple years rather than geography and using rolling samples to increase stability of results, have been used with good results (Lavoie et al. 2010, 2011). Moreover, using unadjusted rates can illustrate differences in absolute needs, thereby reflecting different demographics and needs. Indeed, challenges to conducting rural-specific research need not be methodological. Using Canada’s administrative claims data to provide information on health service use and delivery could support pivotal research in Indigenous, rural and circumpolar health (Canadian Academy of Health Sciences 2011). However, concerns over privacy have resulted in structural challenges in accessing administrative claims data for research purposes. We draw on two separate studies funded by the Canadian Institutes of Health Research to compare the process of approval to access the administrative claims data.

## Methods

This paper draws on the experience of researchers in British Columbia (BC) and Manitoba (MB), engaged in First Nation, rural and remote health services research, using administrative data (Table 1). Both studies required data to be extracted on a per community basis, using six-digit postal codes, which is considered a higher risk for potential individual identification.

**TABLE 1.** Comparator studies

Study	Focus	Data sources	Investigators
Innovation Supporting Transformation in the Health of FN & Rural/Remote Manitoba Communities (the <i>iPHIT</i> study)	Rural, remote and First Nations in MB	Administrative claims data (e.g., billing, discharge abstract), file created by research team containing six-digit postal code	Katz, Lavoie, Avery Kinew, Gregory, Eni, Star, MacKinnon, Martens, Sinclair, Anderson De-Coteau, Gibson, Goertzen.
Towards closing the gap: Using evidence to identify the need for investments in primary healthcare services on BC First Nation reserves (the <i>Closing the Gap</i> study)	First Nations on-reserve in BC	and primary healthcare model (nursing station, nursing centre, none)	Lavoie, Wong, Green, Martens, O’Neil

## Findings

Table 2 details the processes of accessing administrative claims data in both provinces.

**TABLE 2.** Accessing administrative claims data

Province	Data custodian	Process to approval of data request	Data released to researchers
BC	Population Data BC (PopData)	<ul style="list-style-type: none"> <li>• UBC (Wong) ethics approval is followed by UNBC (Lavoie) approval</li> <li>• DAR is submitted to the PopData RLU for their detailed review</li> <li>• Once all requirements have been met, the DAR is submitted to the appropriate data steward (e.g., Ministry of Health) for approval</li> </ul>	Data available for use by researchers, most often in PopData secure research environment
MB	Manitoba Centre for Health Policy (MCHP)	<ul style="list-style-type: none"> <li>• University of Manitoba ethics approval is obtained</li> <li>• FNHGC approval is obtained</li> <li>• Review is conducted by the HIPC, in accordance with MB's <i>Personal Health Information Privacy Act</i></li> <li>• Once approvals secured, the project is queued and an analyst is assigned to work with the research team in the execution of the design of the analysis strategy</li> </ul>	Data analyzed by a MCHP analyst or analyst employed by researcher through remote access sites

UBC = University of British Columbia; UNBC = University of Northern British Columbia; DAR = Data Access Request; RLU = Researcher Liaison Unit; FNHGC = First Nations Health Information Governance Committee; HIPC = Health Information Privacy Committee.

The Closing the Gap study's Data Access Request (DAR) was developed by an experienced staff member of the Centre for Health Services and Policy Research (CHSPR), supported by Wong. Both had considerable experience in the development of DARs from previous studies. The first version of the DAR was submitted in late May 2011 to population data (PopData) BC for review, resulting in a lengthy series of questions from the Research Liaison Unit (RLU) officer and two separate requests for Ethics amendment (University of British Columbia [UBC] and University of Northern British Columbia [UNBC]) related to slight differences in language between the DAR and the ethics submissions. The nature of the questions were regarding the justification and rationale for requesting specific data fields (six-digit postal code) and whether the information we were linking to the administrative claims data was gathered from publicly available sources. Revisions and renewed ethics approvals were submitted to the RLU in Dec 2011, and the DAR was submitted to the BC data steward (Ministry of Health). This resulted in the DAR being sent back to the RLU at PopData BC in late Dec 2011, with a third request for ethics amendment, again related to slight differences in language. The revised DAR was re-submitted to RLU in Feb 2012, along with ethical approval letters. This resulted in another series of amendments being requested by the RLU and a fourth amendment to ethics submissions. A revised version of the DAR with ethics approvals was submitted to the data steward (Ministry of Health) in May 2012. The Ministry approved the DAR in Sept 2012 and data were released to the researchers. In November 2012, the project programmer, who had previously worked with BC administrative data, notified the research team that key variables were missing from the DAR. A revised version of the DAR was submitted to the Ministry in January 2013. This resulted in another series of questions. The team received an e-mail in July 2013 stating that the Ministry was prepared to sign off on the DAR. The data were received in August 2013.

The iPHIT study's DAR was drafted by the Research Manager and finalized in July 2013 with input from the research team consisting of Drs. Lavoie, Katz and Stephanie Sinclair from the Assembly of Manitoba Chiefs. Applications to the University of Manitoba (U of M) and the Health Information Privacy Commission (HIPC) of Manitoba Health were submitted simultaneously in August of 2013. The iPHIT Study received conditional approval from the HIPC, pending clarification of acronyms of variables utilized in the study. The clarification was promptly submitted to the HIPC, and the HIPC and University of Manitoba granted final approval for the project in September 2013. The Assembly of Manitoba Chiefs – Health Information Research Governance Committee's (HIRGC) application was submitted in September 2013 and approved in October 2013. Approval by HIRGC was required, because the study population included a large proportion of registered First Nations in Manitoba. It was not discovered until March 2014 that the Manitoba Centre for Health Policy (MCHP) had not received a copy of the approval letter from the HIRGC and the data could not be extracted until such approval was confirmed. The letter was forwarded in March 2014, a programmer was assigned and analyses began.

## Discussion

Differences in time lapse between the two studies are significant: it took 26 months for the BC study and 8 for the MB study. In both cases, the data sets being accessed were under the purview of the data steward: none required external partners' (such as the federal government) approval. We attribute differences in lapses of approval to the operational models of accessing administrative data. In BC, the data are available to research teams for analysis within a secure research environment once the data steward (e.g., Ministry) approval is provided. The RLU facilitates DARs and provides advice as to level of detail and completeness. In MB, once these approvals are provided, the data are released to MCHP programmers who conduct required analyses defined by the researchers.

In BC, the release of data directly to researchers can create discomfort over the potential breach of privacy, despite confidentiality agreements and ethical oversight. We attribute the untimely release of data in BC to researchers, in part, to the lack of a trusted ongoing relationship with a specific health centre or organization. It is unrealistic to expect all health services researchers interested in using BC health administrative data to develop and maintain trust-based relationships with the main data steward, the Ministry of Health. By contrast, the MCHP's role as a "trust broker" is thus important. This is key for timely rural analyses, since these analyses raise specific issues about privacy and cell size that are often not present in urban-based analyses.

## Opportunities to Lead in Rural Health Services Research: Key Barriers to Overcome

Provincial ministries are responsible for ensuring that the privacy and confidentiality of their residents is respected when health administrative data are used for research. The current conditions for data access by researchers can facilitate (as in MB) or discourage (as in BC) rural, remote and First Nation health research. No matter which process is used, it is clear that studies funded for three years cannot accommodate a system that takes 26 months to process DARs.

We understand that both PopData BC and the Ministry of Health are working to significantly shorten the time frame of the review of DARs in order to provide data to researchers within a three-month time frame. However, this may not address the specific needs of rural, remote and First Nation health researchers. We suggest that BC can learn from Manitoba MCHP to develop a process to facilitate DARs and access to data focused on rural, remote and First Nation health research. This is important: health outcomes are poorer in rural, remote and First Nation communities, resulting in high rates of avoidable hospitalization (British Columbia Provincial Health Officer 2009; Lavoie et al. 2010). Studies of rural-centric health services are needed to inform policies. This is an area where Canada could be a world leader.

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# Healthcare in Canada's North: Are We Getting Value for Money?

## Services de santé dans le Nord canadien : y a-t-il optimisation des ressources?



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### Abstract

*Objective:* To determine if Canadians are getting value for money in providing health services to our northern residents.

*Method:* Secondary analyses of data from Statistics Canada, the Canadian Institute of Health Information and territorial government agencies on health status, health expenditures and health system performance indicators.

*Results:* Per capita health expenditures in Canada's northern territories are double that of Canada as a whole and are among the highest in the world. The North lags behind the rest of the country in preventable mortality, hospitalization for ambulatory care sensitive conditions and other performance indicators.

*Discussion:* The higher health expenditure in the North is to be expected from its unique geography and demography. If the North is not performing as well as Canada, it is not due to lack of money, and policy makers should be concerned about whether healthcare can be as good as it could be.

## Résumé

*Objectif :* Déterminer s'il y a optimisation des ressources dans la prestation des services de santé pour les citoyens du Nord canadien.

*Méthode :* Analyses secondaires des données sur l'état de santé, les dépenses de santé et les indicateurs de rendement du système de santé provenant de Statistique Canada, de l'Institut canadien d'information sur la santé et des organismes gouvernementaux territoriaux.

*Résultats :* Les dépenses de santé par personne dans les territoires du Nord canadien sont le double de celles du Canada dans l'ensemble et elles figurent parmi les plus élevées au monde. Le Nord canadien est en retard sur le reste du pays pour ce qui est de la mortalité évitable, de l'hospitalisation pour des états de santé pour lesquels les soins ambulatoires seraient préférables et pour d'autres indicateurs du rendement.

*Discussion :* On peut s'attendre à des dépenses de santé élevées dans le Nord canadien en raison du contexte géographique et démographique particulier. Si le rendement n'y est pas aussi efficace que dans le reste du Canada, ce n'est pas à cause d'un manque d'argent; les responsables de politiques devraient se demander si les services de santé y sont aussi efficaces qu'ils le devraient.

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## Introduction

Increasing healthcare costs in Canada over the past several decades have been hotly debated by policy makers, researchers and practitioners over its extent, causes and solutions (Marchildon and Di Matteo 2015). Total health expenditures accounted for 11% of GDP in Canada in 2014, and healthcare spending by provincial governments as a proportion of all provincial government expenditures ranged from 43% in British Columbia to 30% in Québec (CIHI 2015). This spending potentially crowds out other public goods and services, which could have an impact on redressing disparities in the social determinants of health.

In the three northern territories, health expenditures are considerably higher on a per capita basis than the Canadian average, yet, in terms of population health outcomes, the North lags far behind that of the South, while considerable health disparities persist between the Aboriginal and non-Aboriginal populations (Young and Chatwood 2011). Because of the North's unique demography and geography and differences in constitutional status for its governments, it is often excluded from broader debates on healthcare in Canada, for example, in a recent review of how provinces compare internationally in "bending the cost curve" (Marchildon and Di Matteo 2015).

This paper addresses healthcare in Canada's North using currently available data to determine if Canadians are getting value for money. The term "value for money" has a more

specific meaning than common usage when it is used in the context of health system performance. It measures the level of achievement in health status, system responsiveness and equity (“value”) relative to the financial, human and technical resources (“money”) used (CIHI 2013).

We restrict our purview to the three northern territories of Yukon, Northwest Territories (NWT) and Nunavut. While “northern conditions” also prevail in the remote regions of some provinces, extracting sub-provincial regional data is difficult. Our comparator is Canada as a whole. From an equity perspective, the whole of Canada represents what is achievable with current resources, which should be a policy aspiration if not goal. We are motivated by the need to inform policy makers, providers and consumers with evidence in designing strategies to improve health system performance and, ultimately, the health of the residents in the North.

## Methods

We reviewed publicly accessible databases and documents from Statistics Canada, the Canadian Institute of Health Information (CIHI) and territorial government departments. Data were extracted and reorganized for tabular or graphical presentation. Where appropriate, 95% confidence intervals of selected indicators were included, as published by the reporting agencies. We have performed additional analyses on a merged Canadian Community Health Survey data set (for the period 2007–2014), using the Statistics Canada microdata files accessed from the branch regional data centre located at the Institute for Circumpolar Health Research in Yellowknife.

## Results

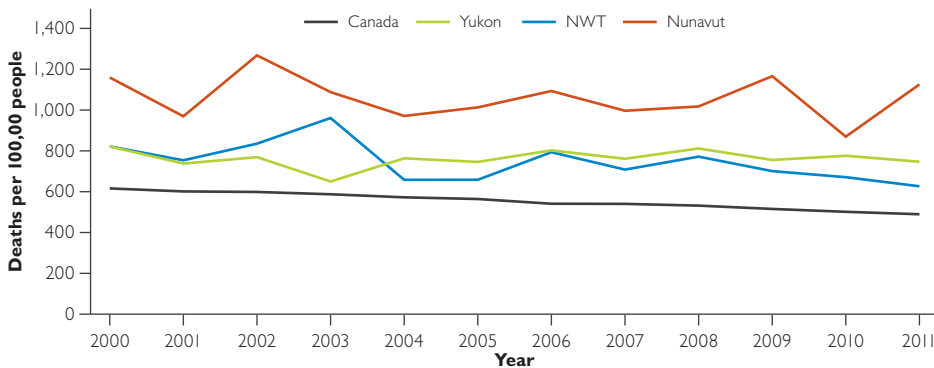
### *Characterizing the North*

The combined population of the three territories accounts for 0.3% of the total population of Canada, with only 110,000 people spread thinly over about 40% of the land mass of the country (Statistics Canada 2012). Aboriginal people (First Nations, Inuit and Métis) constitute approximately 25% of the population of Yukon, 50% of the population of NWT and 85% of Nunavut. About 45% of the total population of the North reside in the three territorial capitals of Whitehorse, Yellowknife and Iqaluit. About 75% of the population of these three cities are non-Aboriginal (Statistics Canada 2013), although the proportion varies considerably among them. Despite its small population, the North matters for the reason that northerners are Canadians, and their health and healthcare should be the concern of all Canadians, particularly in a national system that purports to provide universal access to a prescribed set of medically necessary health services.

The population distribution highlights the fact that there are, in reality, two healthcare contexts in the North: one that is urban, similar to that which exists in much of southern Canada, and the other consists of a network of health centres in small remote communities staffed by nurses and community health representatives, supported by occasional visiting physicians (Marchildon and Chatwood 2012; Marchildon and Torgerson 2013). This network is bound together by the transportation, e-health and telecommunication systems.

The North generally fares worse than Canada as a whole in most health status indicators. The health gap is widest in Nunavut, smallest in Yukon, with NWT in between, differences which reflect in part the health disparity gap between Aboriginal and non-Aboriginal Canadians nationally. The Nunavut–Canada gap is also strongly influenced by geographical factors, especially as none of Nunavut’s communities are accessible by roads. Figure 1 shows that the disparity in age-standardized mortality rate from all causes has not been reduced over the period 2000–2011 (Statistics Canada 2016a).

**FIGURE 1.** Age-standardized\* mortality rate from all causes, the three territories compared to Canada, 2000–2011



\*Age-standardized to the 1991 Canadian population.  
Source: Figure drawn from data in Statistics Canada’s CANSIM Table 102-0552.

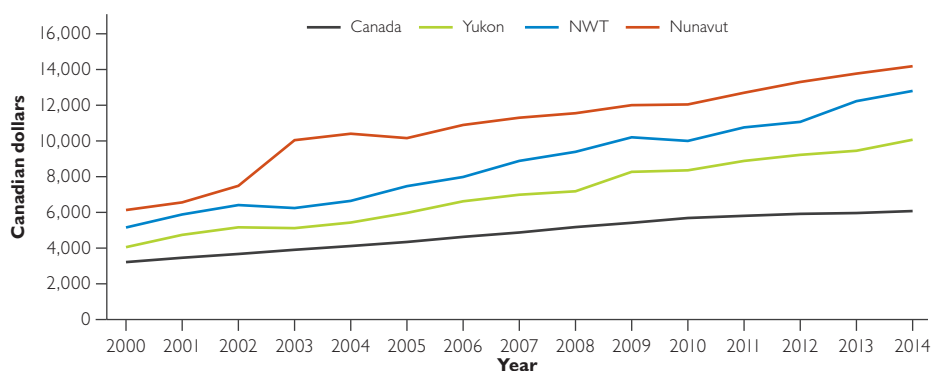
Of increasing concern are emerging chronic diseases and injuries (including youth suicide) in the Aboriginal population, part of the health transition that has been observed in many populations undergoing rapid social, economic and lifestyle changes (Peters 2013; Young and Bjerregaard 2008). Territory-wide data obscure the considerable disparity that exists between the Aboriginal and non-Aboriginal populations within the North, which has been well documented in the research literature. However, official territorial government health data are usually not disaggregated into First Nation, Métis, Inuit and non-Aboriginal population sub-groups (Northwest Territories Health and Social Services 2011; Yukon Health and Social Services 2013). Often, Nunavut data, because of the overwhelming proportion of Inuit in the population, are used as surrogate for Inuit data.

*Is healthcare too expensive?*

In 2014, per capita total health expenditures in current dollars reached \$10,060 in Yukon, \$12,791 in NWT and \$14,174 in Nunavut, a ratio of 1.7, 2.1 and 2.3 times, respectively, compared with the Canadian national average of \$6,069 (CIHI 2015). The trend is upward and more pronounced than the Canadian average (Figure 2).

If one compares per capita total health expenditures in the three territories with all the countries in the world (WHO 2016), Nunavut and NWT would exceed even the US, the highest-ranked country in the world, with Yukon following close behind it.

**FIGURE 2.** Trend in per capita total health expenditures, the three territories compared to Canada, 2000–2014, in current Canadian dollars



Source: Figure drawn from data in the Canadian Institute of Health Information's *National Health Expenditures Trends 1975–2015* report.

For the period 2010–2014, total health expenditures accounted for 13% of Yukon's GDP, 11% of NWT's and 21% of Nunavut's, compared to 11% in Canada (CIHI 2015). Provincial/territorial (P/T) government health expenditures as a percentage of total P/T government expenditures was 17% in Yukon, 18% in NWT and 23% in Nunavut. This was lower than the Canadian average of 35% (CIHI 2015), even though the per capita health expenditures in dollars were higher.

Because of their large Aboriginal population, direct health expenditures by the federal government were substantially higher in the territories than elsewhere in Canada. However, the territorial governments are still the main source of healthcare financing, accounting for 66%, 69% and 80% of total health expenditures in Yukon, NWT and Nunavut, respectively. Direct federal health expenditures did not exceed 15% in any of the three territories (CIHI 2015).

Table 1 compares the distribution of health expenditures by use of funds between the territories and Canada. With the exception of drugs, the territories exceed Canada in all other categories. As in Canada, hospital care accounts for the highest proportion of health expenditures in the territories. Of note is the several-fold increase in "other health spending," which includes medical transportation (CIHI 2015).

As medical transportation is not separately reported in the CIHI report, we reviewed the territorial finance departments' budget documents. The NWT Department of Health and Social Services' actual expenditures for "medical travel" (which includes emergency evacuations, non-emergency travel and patient escorts) almost doubled from \$9.96 million in 2004/2005 to \$19.52 million in 2013/2014 (Northwest Territories Finance, various years). At no time during this decade did medical travel exceed 6% of the total operation and maintenance budget of the department. Nunavut, with 78% of the population of NWT, spent about three times as much on medical travel during the same period, given the much greater reliance on air travel in Nunavut relative to the NWT. During this period, medical travel accounted for between 15% and 20% of the Nunavut health department's budget (Nunavut Finance, various years).

**TABLE 1.** Total health expenditures by use of funds in the three territories compared to in the whole of Canada, mean 2010–2014 period

Territory	Hospitals	Other institutions	Physicians	Other professionals	Drugs	Capital	Public health	Admin.	Other health spending	Total
<b>Per capita expenditures (\$)</b>										
Yukon	2,284.30	1,734.80	958.80	692.90	746.00	418.50	1,367.10	387.10	808.30	9,397.70
NWT	4,547.80	908.50	1,144.10	659.70	697.10	1,006.60	915.00	475.50	1,350.40	11,704.70
Nunavut	4,657.20	1,273.40	1,527.10	573.90	662.30	734.50	1,352.60	1,100.20	1,597.20	13,478.40
Canada	1,757.80	615.70	887.70	584.30	955.10	279.80	316.80	178.60	359.30	5,935.10
<b>Ratio territory/Canada</b>										
Yukon	1.3	2.8	1.1	1.2	0.8	1.5	4.3	2.2	2.2	1.6
NWT	2.6	1.5	1.3	1.1	0.7	3.6	2.9	2.7	3.8	2.0
Nunavut	2.6	2.1	1.7	1.0	0.7	2.6	4.3	6.2	4.4	2.3
<b>Percentage distribution</b>										
Yukon	24.3	18.5	10.2	7.4	7.9	4.5	14.5	4.1	8.6	100.0
NWT	38.9	7.8	9.8	5.6	6.0	8.6	7.8	4.1	11.5	100.0
Nunavut	34.6	9.4	11.3	4.3	4.9	5.4	10.0	8.2	11.9	100.0
Canada	29.6	10.4	15.0	9.8	16.1	4.7	5.3	3.0	6.1	100.0

Source: Table based on data in the Canadian Institute of Health Information's *National Health Expenditure Trends 1975–2015* report.

Is too much being spent overall on healthcare in the North? On a per capita basis, healthcare is more expensive in the North relative to Canada, and, indeed, the countries of the world. Healthcare, however, does not yet pose a stress to the economy of the North or overall government program expenditures. The higher expenditure in the North relative to the Canadian average is to be expected from the need to deliver services to widely scattered, small communities. For Canada as a whole, spending proportionately more on a numerically small population with high levels of health needs and geographical barriers to healthcare access can be “justified” on social policy grounds. Elsewhere, we have argued for the need for the Canada Health Transfer to take into account “unavoidable” cost factors imposed by demographic and geographical characteristics of the population served (Marchildon and Mou 2013).

### *How is the health system performing?*

The more important question is whether northerners receive adequate value for the comparatively large amount of money being expended on healthcare. We shall focus on a few key indicators for which data are available for the North.

A well-performing health system is expected to have fewer potentially avoidable deaths from either preventable and/or treatable causes than a health system that is not (CIHI 2016a). Table 2 compares the age-standardized rates of total, preventable and treatable causes of mortality between the territories and Canada in two three-year periods (CIHI 2016b). The rates for the territories are significantly higher than Canada's, with the exception of Yukon, for which the rate of treatable mortality comes close to Canada's. Among the three territories, Yukon and NWT do not differ significantly from each other, whereas Nunavut is significantly higher. The gap between the North and Canada is wider for preventable than for treatable mortality. This would suggest that the North is performing better in delivering treatment services (which are also provided by tertiary referral centres in the provinces) than in addressing population-level health determinants and public health interventions. For the territories, there were no statistically significant differences between the two time periods, whereas that of Canada had declined. As CIHI's database on ambulatory care sensitive conditions (ACSC) for the territories did not extend further back beyond 2006, we were not able to establish longer time trends.

**TABLE 2.** Age-standardized\* rate of avoidable mortality from preventable and treatable causes in the three territories compared to whole of Canada, mean (95% CI) 2006–2008 and 2009–2011 periods

	Period	Canada, mean (95%CI)	Yukon, mean (95%CI)	NWT, mean (95%CI)	Nunavut, mean (95%CI)
Total	2006–2008	185 (184, 186)	270 (235, 306)	269 (234, 305)	438 (373, 504)
	2009–2011	171 (171, 172)	234 (204, 265)	239 (206, 271)	434 (374, 494)
Preventable	2006–2008	119 (119, 120)	185 (156, 214)	176 (147, 204)	318 (262, 374)
	2009–2011	111 (111, 112)	177 (150, 204)	159 (133, 186)	333 (280, 386)
Treatable	2006–2008	66 (65,66)	86 (65, 106)	94 (72, 116)	120 (86, 155)
	2009–2011	60 (60,61)	58 (43, 73)	80 (61, 98)	101 (72, 131)

CI = confidence interval. \*Age-standardized to the 1991 Canadian population.

Source: Table based on data from the Canadian Institute of Health Information's health indicators interactive database; a list of causes of avoidable mortality is provided in the indicator library.

A more specific performance indicator for primary care services is the rate of hospitalizations for ACSC. These are conditions where appropriate primary care services would have reduced the need for hospitalization (CIHI 2016a). Throughout the period, 2001–2013, all three territories have age-standardized rates of ACSC hospitalization rates exceeding that of Canada, and is highest in Nunavut, averaging three times higher than the Canadian average (CIHI 2016b). There are few comparative data on ACSC among Aboriginal populations. One study showed that ACSC rates among First Nations in Manitoba were about three times higher than all Manitobans; moreover, communities with better access to primary care services reported lower ACSC rates (Lavoie et al. 2010). That study did not separate out First Nations in northern Manitoba. Furthermore, direct comparison with the territorial rates cannot be made, as the diagnostic codes used in defining ACSC were different.

Access to physician services is tracked by surveys such as the Canadian Community Health Survey (CCHS) (Young et al. 2015). The proportion of individuals in the population who had a regular doctor and who had contact with a medical doctor in the past 12 months was lower in Nunavut and NWT than Canada as a whole, while that of Yukon is comparable (Statistics Canada 2016b), reflecting the different degrees of urbanization among the territories and the nurse-based system of primary care outside the capital cities. The disparities between Aboriginal and non-Aboriginal people are most pronounced in Nunavut and least in Yukon (Table 3). Recognizing that use of physician services can be expected to be lower in the nurse-based northern systems, we analyzed a merged 2007–2014 data set of CCHS. By identifying respondents who had contact with a family doctor OR a nurse in the preceding 12 months, the gap between Aboriginal and non-Aboriginal respondents was narrowed but not erased. In Nunavut, the proportion was increased from 44% to 65%, still much lower than the non-Aboriginal rate in that territory or the Canadian rate.

**TABLE 3.** Access to physician services by Aboriginal identity groups in the three territories compared to in the whole of Canada, 2007–2010 period\*

	Canada	Yukon			NWT					Nunavut			
	Total	First Nations	Métis	Non-Aboriginal	Total	First Nations	Métis	Inuit	Non-Aboriginal	Total	Inuit	Non-Aboriginal	Total
Contact with a medical doctor													
%	79.9	78.7	66.6	81.5	80.4	59.0	64.7	59.1	74.0	67.5	44.3	76.2	51.9
95% CI	(79.7, 80.2)	(74.4, 83.0)	(53.4, 79.8)	(79.4, 83.6)	(78.5, 82.3)	(54.3, 63.7)	(52.7, 76.8)	(45.8, 72.4)	(71.0, 77.1)	(64.9, 70.1)	(40.1, 48.5)	(69.7, 82.7)	(48.3, 55.4)
Have a regular doctor													
%	84.7	74.4	68.8	78.5	77.2	24.0	33.9	24.1	52.2	39.8	8.9	24.5	12.5
95% CI	(84.5, 85.0)	(68.0, 80.7)	(56.1, 81.6)	(75.3, 81.6)	(74.4, 80.1)	(18.0, 30.1)	(24.5, 43.3)	(10.4, 37.7)	(48.8, 55.5)	(37.4, 42.3)	(6.6, 11.1)	(19.1, 29.9)	(10.4, 14.6)

95% CI = 95% confidence interval.

\*Data suppression for Inuit in Yukon and First Nations/Métis in Nunavut due to small population. Data refer to population aged 12 and above who have (a) contact with a medical doctor or (b) a regular doctor in the previous 12 months.

Source: Table based on data from Statistics Canada’s Canadian Community Health Survey, merged 2007–2013 data set, retrieved from CANSIM Table 105-0512.

According to the CCHS, the proportion of the population who were very and somewhat satisfied with the health services they receive was in the 80%+ range in Yukon, NWT and Canada. However, the proportion in Nunavut was significantly lower (Statistics Canada 2016c). A high level of patient satisfaction was also reported by surveys conducted internally by the NWT Department of Health and Social Services (NWT Health and Social Services 2009).

Indicators such as wait times for medical procedures are not routinely computed for the territories. In response to gaps on performance measures identified in recent auditor general

reports, Yukon and NWT have begun to develop performance frameworks to address comprehensive needs for measurement (NWT Health and Social Services 2015; Yukon Health and Social Services 2014).

Given the high proportion of “outflow” – territorial residents receiving healthcare out of their territory of usual residence (CIHI 2010) – performance indicators do not refer exclusively to the system that exists within the territories, but encompass institutions and providers in other parts of southern Canada to which northern patients are referred.

## Discussion

The answers to the two questions we pose: “Is healthcare too expensive?” and “How is the health system performing?” suggest that there is considerable room for improvement in obtaining greater value for public money. We can also lay to rest the notion that, if the northern healthcare system is not performing as well as Canada as a whole, it is due to the lack of money. Policy makers should be more concerned about whether healthcare can be as good as it could be given the relatively high level of expenditures.

There is considerable opportunity to improve the effectiveness of direct public health interventions judging by substantially higher preventable mortality in the North. The causes of mortality with the greatest impact on life expectancy (Peters 2013) also point to the need for strategies that go beyond the healthcare system, for example, tackling long-standing issues of food security (Council of Canadian Academies 2014), housing (Kohen et al. 2015), income, education, employment and other social determinants of health (Inuit Tapiriit Kanatami 2014). Within the healthcare system, there are technological and human resource solutions to improve efficiency, for example, optimizing medical travel and promoting the use of remote presence technologies (Mendez et al. 2013). Given the high proportion of Aboriginal people in the population, the improving cultural responsiveness of the health system will reduce barriers to access that are not due to geographical isolation.

An important limitation of our study is that we only managed to find a limited set of health system performance indicators for the North. Even when indicators exist, its applicability to the northern situation is debatable (for example, measures of the health workforce, given the reliance on short-term locums). It is clear that more northern-specific evidence is needed, and the development of performance measure frameworks by territorial health departments is an encouraging sign. In addition, it would be helpful to assemble and then compare the results of these measures with the northern regions of Canadian provinces – an exercise that would also be of benefit to provincial governments.

Broadening comparisons with the northern regions of Canadian provinces would allow decision-makers to pinpoint areas in which there is the greatest divergence between healthcare investments and health system outcomes. Focusing remedial measures on these “hot spots” would likely generate the greatest benefit in the short term and, eventually, could trigger broader system changes to improve healthcare to geographically dispersed, high-needs populations.

Unfortunately, there are serious constraints in making comparisons between the territories and the northern regions of the provinces. Foremost is the complete unavailability of health expenditure data and the limited availability of some health outcomes and health system performance indicators, largely restricted to data on mortality and survey-based risk factor prevalence.

Although CCHS contains a large set of healthcare variables, many of these are not consistently collected or not at all in the North (Young et al. 2015). The CCHS is further limited by the fact that it sampled from only 92% of Yukon's, 96% of NWT's and 71% of Nunavut's population prior to 2013. The coverage in Nunavut increased to 92% post-2013 (Young et al. 2015).

Regardless of data availability, we maintain that comparing the North with all of Canada is important from a policy perspective. In Canada, the locus for policy change is at the level of provincial and territorial governments, and their health ministries are the de facto stewards of 13 provincial/territorial health systems within a highly decentralized federation. The provinces and territories, not health regions, are responsible for determining the policies, programs and other instruments that are best designed to improve health outcomes in the most resource-efficient way possible. They are also democratically accountable for all expenditures and need to balance health expenditures against all other needed public investments. Territorial decision-makers should not be satisfied with achieving parity with the similarly disadvantaged northern regions of provinces. For this reason, we consider it important to compare the three territorial health systems with the provincial systems in the rest of Canada.

There is yet another comparison that we could make – that is, comparing the Canadian North with other circumpolar regions, where both health system input and output data are available, thus introducing the international dimension. We have previously presented evidence for the relevance and usefulness of such comparisons (Young and Chatwood 2015). The comparison between Nunavut and Greenland, on both sides of Davis Strait, is particularly instructive, as they are highly comparable in terms of demography, geography and health status, but vastly different in their healthcare organization and health expenditures level.

While different levels of governments (as well as the private sector) contribute resources to healthcare for northerners, it is the three territorial governments, which are under a fiduciary obligation to their residents to organize their health systems in as efficient a way as possible in order to extract additional value for money. The northern health system is part of a Canadian health system, despite its considerable divergence from provincial norms. Canadians should be informed about the strengths and weaknesses of the northern system, despite its very small share of the national population, and contribute to its improvement.

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# The Independence of Ontario's Public Health Units: Does Governing Structure Matter?

## Autonomie des bureaux de santé publique en Ontario : la structure de gouvernance a-t-elle une importance?



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### Abstract

Do autonomous health units fulfil their mandate better than ones that are integrated into municipal structures? Many observers of Ontario's public health system seem to think so, but this assumption is based on very little evidence. This paper seeks to help fill this gap by grounding a comparison of the spending growth of two health units with different governing structures in the multilevel governance literature. The study finds that, after an increase in provincial funding, an autonomous health unit, the Middlesex-London Health Unit, behaved more in accordance with provincial expectations than Hamilton Public Health Services, which is integrated into the City of Hamilton. The paper contributes by providing theoretical and empirical explanations for variation among local health units.

### Résumé

Les bureaux de santé autonomes remplissent-ils leur mandat mieux que les bureaux qui sont intégrés aux structures municipales? C'est ce que pensent plusieurs observateurs du système de santé ontarien, mais cette hypothèse se fonde sur bien peu de données probantes. Cet article vise à combler cette lacune en comparant, à la lumière de la littérature sur la gouvernance multiniveaux, les décisions de dépenses de deux bureaux de santé qui fonctionnent selon des structures de gouvernance différentes. L'étude a permis d'observer qu'après un accroissement

du financement provincial, le comportement du bureau autonome de Middlesex-London était plus conforme aux attentes provinciales que celui des Services de santé publique de Hamilton, un bureau de santé intégré à la Ville de Hamilton. L'article poursuit en fournissant des explications théoriques et empiriques sur la variation au sein des bureaux de santé.

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## Introduction

Whenever problems emerge in Ontario's public health system, recommendations are made to make boards of health more autonomous from municipal control (Campbell 2004; Capacity Review Commission 2006). Despite these repeated calls for structural change, little has been made. Moreover, very little research has been done to determine whether autonomous boards of health actually fulfil their legislative mandate better than boards that are integrated into municipal structures and controlled by municipal councils. There is, however, an emerging strand of the Canadian literature on multilevel governance that has explored these questions in other policy areas (Eidelman 2013; Filion and Sanderson 2014; Horak 2012; Lyons 2015a, 2015b; Sanderson and Filion 2013). The findings from this literature suggest that specialized jurisdictions, like conservation authorities, economic development agencies and waterfront re-development corporations, perform their mandate more faithfully than general-purpose governments. By comparing the spending growth of the Middlesex-London Health Unit (MLHU) and Hamilton Public Health Services (HPHS), two similar health units with different governing structures, during a time when the capacity of Ontario's public health system was in question, this paper reports on whether the findings from these other policy areas are transferrable to the field of public health. Additionally, the findings provide public health policy makers a wider frame of reference as they continue to grapple with questions about board of health governance. The hypothesis was that the MLHU, which is an autonomous health unit, would behave more in accordance with provincial expectations than HPHS, which is integrated into the City of Hamilton's municipal structure.

What follows proceeds in five sections: The first provides some background on Ontario's public health system and connects the debate over health unit governance with the multilevel governance literature. The second justifies case selection and explains the study's hypothesis in more detail. The third reports the results of a comparison between the municipal levy and total cost-shared program spending increases of the MLHU and HPHS with the operating expenditure increases of their main municipal funders. In Ontario, the costs of most public health programs are shared between the province and municipal governments. The MLHU provides services within the City of London and the County of Middlesex, but the City of London is, by far, its biggest municipal funder. The City of Hamilton is HPHS's only municipal funder. The fifth section discusses the study's findings. The conclusion discusses the relevance of these findings for decision-makers and in relation to the findings from the literature on multilevel governance.

## Background

In Ontario, local health units are responsible for the delivery of public health services. Whereas most other provinces have transferred municipal responsibilities for public health to regional authorities with little or no accountability to local governments, municipalities in Ontario continue to play an important funding and oversight role in this policy area (Hancock 2002; Siegel 2009). Some health units are integrated into municipal structures, but others operate completely separate from their municipal overseers. There are currently 36 public health units in Ontario. Governance structures vary, but in general, they can be divided into two categories: autonomous and integrated. Twenty-two are autonomous, meaning that they operate as distinct local governments, separate from any municipality. The remaining 14 are integrated, meaning that they operate within the administrative structure of a municipality. The boards of autonomous health units are composed of both municipal and provincial appointees, whereas single-tier or regional councils serve as the board of health for most integrated health units (four of them – Chatham-Kent, Huron, Lambton and Toronto – have provincial appointees on their boards as well. But the health unit staff are municipal employees, and provincial appointees cannot outnumber municipal appointees) (see Pasut 2007: 16). A medical officer of health (MOH), who is a specialist physician in public health, leads each health unit. In integrated health units, the MOH is a municipal employee and reports to the city manager regarding certain administrative functions, whereas the MOH in an autonomous health unit reports solely to the board of health.

The province and member municipalities share the costs of delivering public health programs. Under the *Health Protection and Promotion Act* (HPPA), the enabling legislation for Ontario's health units, contributing member municipalities are obligated to pay what the board of health deems necessary to defray the costs of delivering mandatory public health programs. (These were known as the Mandatory Health Program and Service Guidelines until 2008, when they were updated as the Ontario Public Health Standards.) But the provincial contribution to public health spending, which is based on what the minister considers appropriate, has varied considerably in recent years (Pasut 2007). Before 1997, the province funded 75% of the mandatory program budgets for most boards of health and municipalities funded the remaining 25%. In 1996, the Social Services Sub-Panel of the Ontario *Who Does What?* panel concluded that the province has the primary interest in public health and that public health services should be delivered by provincially appointed and funded boards of health (Crombie and Hopcroft 1996). However, this recommendation was never implemented. Instead, public health and many social services were downloaded to municipalities in 1997, with the province assuming more responsibility for education (see Graham and Phillips 1998). This total download of public health lasted until 1999, when the province moved to a 50/50 funding formula (Campbell 2004). The 50/50 formula stayed in place until 2004. In 2005, the province began to phase in a return to its previous mandatory program contribution level of 75%. This increase in provincial funding was in response to the fallout from two public health emergencies – the *Escherichia coli* outbreak in Walkerton in 2000 and

the Severe Acute Respiratory Syndrome (SARS) epidemic in 2003 – and was intended to increase the capacity of the public health system. The province’s original plan was to reach the 75/25 funding split within three years, but it has since capped its annual increases. By 2011, for example, only 17 health units (out of 36) had reached the 75/25 funding split for mandatory programs (MLHU 2012).

The inquiry and commission reports that came out in the wake of Walkerton and SARS were critical of the integrated health unit model, arguing that it prevents health units from fulfilling their mandate (Campbell 2004; O’Connor 2002). For example, the SARS Commission argued that, without full control over administrative and personnel decisions, MOHs are limited in their ability to deliver the required public health services. In plainer language, “basic protection against disease should not have to compete for money with potholes and hockey arenas” (Campbell 2004: 18). The Capacity Review Commission (CRC), which was tasked by the province with reviewing the organization and capacity of local health units, also advocated for autonomous health units. It recommended that “public health units should be governed by autonomous, locally based boards of health. These boards should focus primarily on the delivery of public health programs and services” (CRC 2006: 30). In contrast, the Association of Municipalities of Ontario (AMO), a group representing Ontario’s municipalities, argued that as long as municipalities are required to partially fund health units, they should have some governance and financial control (AMO 2006).

The issue of health unit governance has been in the spotlight more recently as well. An assessment report looking into misspent funds at the District of Algoma Health Unit recommended replacing municipal politicians on the board with skills-based appointees, and raised the possibility of a merger with the neighbouring Sudbury and District Health Unit. The Huron County Health Unit and the Perth District Health Unit are also in the process of negotiating a merger (Broadley 2015). And provincially, the Ministry of Health and Long-Term Care has proposed a closer relationship between public health units and Local Health Integration Networks (LHINs). Under this proposal, LHINs, provincial agencies responsible for the delivery of healthcare services at the regional level, would be given responsibility for the funding and oversight of public health units (Ontario Ministry of Health and Long-Term Care [MOHLTC] 2015).

The debate over the structure of public health units mirrors debates in the literature on multilevel governance over the advantages and disadvantages of specialized versus general-purpose jurisdictions. Those who support specialized jurisdictions maintain that they are more efficient and responsive, whereas supporters of general-purpose jurisdictions argue that specialization reduces accountability and negatively affects coordination (see, for example, Berry 2009; Foster 1997; Mullin 2009). Recent Canadian literature in this area, however, has provided some more nuance to this debate. Specialized jurisdictions with some financial autonomy appear to pursue their mandate more faithfully than general-purpose jurisdictions, but the policy consequence of this characteristic varies (Eidelman 2013; Filion and Sanderson 2014; Lyons 2015a, 2015b). For example,

specialization can lead to coordination problems in policy areas, like economic development and waterfront development, where specialized agencies often lack full functional control (Filion and Sanderson 2014; Lyons 2015b). But, in other areas, like watershed management, specialization has been shown to contribute positively to the wise management of resources and the protection of public safety (Lyons 2015a). Public health is a good policy area to further this line of inquiry, because, regardless of governance structure, boards of health must meet the same provincial requirements. For example, all health units must inspect food premises, provide immunizations and support healthy pregnancies, among other things. Thus, comparing the spending growth of autonomous and integrated health units has relevance for both the ongoing debate in Ontario over the structure of public health units and the theoretical debate over specialized and general-purpose jurisdictions.

## Methods and Hypothesis

In this study, the variable of health unit governance was isolated by comparing two similar health units with different governing structures. The MLHU and HPHS were selected, because their jurisdictions have similar social, demographic and economic characteristics (see MOHLTC 2009, 2014), but the MLHU is an autonomous health unit and HPHS is an integrated health unit. (Case selection on the explanatory variable avoids bias, because it does not preclude variation on the dependent variable [King et al. 1994].) Both the MLHU and HPHS also have a single-tier municipal government as their largest municipal funder, an important constant for the purposes of this research.

The above notwithstanding, any study comparing only two cases has its limitations, and this one is no exception. While the MLHU and HPHS are the two largest health units, by population, in their peer group and are similar on measures such as housing affordability, rates of employment, number of food premises and number of nursing homes, they are not identical. For example, Hamilton's population size is larger by about 100,000 people, but the MLHU covers a territory that is more than two times as large (MOHLTC 2014). These differences represent significant cost drivers, and, although in the same direction, they are not fully accounted for in this research design. Additionally, the findings could be made more generalizable by including more cases in the study. This is a possible avenue for future research; however, the jurisdictional characteristics of Ontario's 34 other health units differ significantly, posing challenges for larger comparisons as well.

Information was collected from provincial, municipal and health unit documents, media reports and through correspondence and interviews with local officials. All of the budget numbers presented below are in the public domain, so permission was not needed to disclose the names of the two health units. Interview data was used to help explain the observed differences in behaviour between the two health units. Twelve interviews were conducted between October 2012 and April 2013. Interviewees were deliberately selected based on their expertise in this area and included municipal politicians and health unit staff. In order to

protect their anonymity, interviewees are not directly identified in the paper. The timeline for the study was from 2003 to 2014. Comparable data was only available as far back as 2003, and province-wide, the last full municipal council term ended in late 2014.

The study's hypothesis was that the MLHU would be more likely to behave in accordance with provincial expectations than HPHS, because autonomous health units do not have to juggle as many competing priorities as municipalities do. During a time – after Walkerton and SARS – when the capacity of the public health system was in question, it was expected that the MLHU board would make a greater effort to ensure that the increase in the provincial funding translated into an increase in public health spending. On the other hand, it was expected that Hamilton City Council, acting as the board of health, would use the increase in provincial funding to reduce the impact of public health spending on the property tax base. Accordingly, cost-shared program funding increases should closely resemble overall municipal expenditure increases.

It should be acknowledged that increases in funding do not necessarily lead to better public health outcomes. However, the intent here is not to measure program quality, but to make observations about health unit behaviour. Whether or not decision-makers believe that health units should be more responsive to provincial or local expectations, they have limited information about how health units actually behave when these expectations may differ. This is the contribution of this study.

## Cases and Results

The municipal contribution to public health spending is known as the municipal levy. This levy covers a portion of mandatory program spending and related cost-shared programs. Because of the period under study, it is important to reiterate that the province has been transitioning from an equal cost-sharing arrangement for mandatory programs toward a 75% provincial and 25% municipal funding model since 2005. Mandatory programs include programs in the areas of chronic disease and injury prevention, family health, infectious diseases, environmental health and, since 2009, emergency preparedness. Related cost-shared programs include the Vector-Borne Diseases program and the former Public Health Research Education and Development (PHRED) program. The PHRED program and its funding envelope were uploaded to Public Health Ontario beginning in 2010.

The annual growth of the levy that the City of London pays to the MLHU and the MLHU's total cost-shared program funding growth were compared with the annual growth of the City of London's approved operating expenditures. The same comparisons were done for HPHS and the City of Hamilton. (Although municipal budgets consist of both operating and capital expenditures, approved operating expenditures were used, because this is the category that health unit expenditures fall under.) These within case differences were also compared across cases. Most of the time period covered by this study was supposed to be a time of growth for public health spending. The province increased funding during this period with the hopes of increasing the capacity of all public health units, not reducing the

amount contributed by municipalities. Both the minister of Health and Long-Term Care and the chief MOH made this clear (see, for example, City of Hamilton 2004). However, because of the cost-shared nature of public health, any corresponding decreases in municipal funding would offset some of these gains.

### The Middlesex-London Health Unit and the City of London

The MLHU is an autonomous health unit serving the City of London and the neighbouring Middlesex County. For most of the study period, the board was made up of five provincial representatives, three County councillors, two City of London councillors and one community representative appointed by the City of London. According to a number of interviewees, the MLHU, which was one of the lowest per capita funded health units in Ontario at the time, viewed the increase in funding as a clear commitment by the province to strengthen the public health system – not simply re-arrange the same level of funding. Through negotiations with its municipal funders, the City of London and the County of Middlesex, the MLHU brokered an agreement to keep levy contributions frozen as the province made the transition to the 75/25 funding model. This transition was originally supposed to be phased in over three years; however, with the capping of provincial increases since 2006, this time frame was pushed back considerably (MLHU 2011). As explained by interviewees, the City began asking to have its contribution reduced in 2009, arguing that the MLHU's budget was increasing at a much faster rate than its own. The MLHU refused these requests until 2012, when it agreed to reduce the City's levy by \$100,000. Middlesex County's levy, which does not appear in Table 1 (although it is accounted for in total cost-shared funding), was \$1.18 million for most of the study period. The County supported the City in its efforts to reduce the municipal levy, but the City took the lead.

As Table 1 illustrates, there was an increase in the municipal levy in 2004, in the immediate aftermath of SARS, and then it was basically unchanged afterward. Even as the City's share of the levy remained at just under \$6.2 million per year, the MLHU's cost-shared budget increased by over 12% annually from 2005 to 2007. But these increases began to slow considerably from 2008. The provincial caps really began to take effect after this (as did the uploading of the PHRED program), and, as mentioned above, the municipal levy was nominally reduced beginning in 2012. Taken over the entire period, the MLHU's annual levy increase barely registers at 0.4%, whereas its cost-shared budget increased by 5% annually. In comparison, overall operating expenditures for the City of London increased by 4.3% annually, which is only marginally lower. Indeed, on a year-to-year basis, the City's annual expenditure increases exceeded the MLHU's cost-shared budget increases for seven of the 11 years included in this study.

In short, the MLHU kept its municipal levy stable between 2003 and 2014 in order to take advantage of the increase in provincial funding. However, this strategy really only brought three years of significant increases for the MLHU: 2005, 2006 and 2007. Interviewees from both the MLHU and the City of London explained that the City initially agreed to this strategy, but grew

frustrated by the pace at which the transition to the 75/25 funding split was taking place. The MLHU's autonomy allowed it to ignore the City's requests for a levy reduction for quite some time, but provincial expenditure caps began to cut into the annual increases anyway. For the entire period, the MLHU's annual levy increase was much lower than the City's overall expenditure increases. Its cost-shared program funding increases, on the other hand, did exceed municipal expenditure increases, but not by much. These results lend some support to the hypothesis that autonomous health units would be better positioned to take advantage of the increase in provincial funding. The MLHU was able to capture more fully the provincial increases by keeping municipal contributions frozen, rather than reducing them. When the City wanted its contribution reduced, it was unable to bring the health unit immediately under control.

**TABLE 1.** Middlesex-London Health Unit (MLHU) levy and cost-shared funding and City of London expenditures

Year	MLHU				City of London	
	City of London's levy (\$)	City of London's levy increase (%)	Total cost-shared funding (\$)	Cost-shared funding increase (%)	Operating expenditures (\$)	Operating expenditures increase (%)
2003	5,869,765		13,984,470		488,700,000	
2004	6,195,059	5.5	14,748,000	5.5	519,820,000	6.4
2005	6,195,059	0	16,654,000	12.9	556,900,000	7.1
2006	6,195,059	0	18,765,000	12.7	611,900,000	9.9
2007	6,195,059	0	21,065,000	12.3	634,500,000	3.7
2008	6,195,059	0	21,699,000	3.0	649,600,000	2.4
2009	6,195,059	0	22,339,000	2.9	675,000,000	3.9
2010	6,195,059	0	22,209,000	-0.6	700,600,000	3.8
2011	6,195,059	0	22,640,172	1.9	718,400,000	2.5
2012	6,095,059	-1.6	22,911,686	1.2	729,500,000	1.5
2013	6,095,059	0	23,198,916	1.3	752,100,000	3.1
2014	6,095,059	0	23,518,593	1.4	776,151,000	3.2

Sources: Author's calculations; City of London budget documents; MLHU budget documents; and MLHU staff member, e-mail message to author, July 21, 2015.

## Hamilton Public Health Services and the City of Hamilton

In Hamilton, public health is delivered by the Public Health Services Department and council serves as the board of health. As illustrated by Table 2, there was an immediate increase in the City of Hamilton's contribution to public health after SARS (2004), followed by a significant reduction between 2005 and 2007. Nonetheless, increases in provincial funding allowed for an increase of HPHS's cost-shared program funding. The rest of the period saw increases in the annual levy in the range of 1.3 to 2.8%, except for 2011 when the increase was negligible. Taken over the entire period, HPHS's municipal levy actually decreased by

about 2% annually, whereas its cost-shared budget increased by about 3.9% annually. In comparison, overall municipal expenditures increased by an average of 4% annually. This is much higher than HPHS's levy growth, but nearly the same as its cost-shared funding growth. On a year-to-year basis, the City's annual expenditure increases exceeded HPHS's cost-shared budget increases for nine of the 11 years included in the study.

**TABLE 2.** Hamilton Public Health Services (HPHS) levy and cost-shared funding and City of Hamilton expenditures

Year	HPHS				City of Hamilton	
	City of Hamilton's levy (\$)	City of Hamilton's levy increase (%)	Total cost-shared funding (\$)	Cost-shared funding increase (%)	Operating expenditures (\$)	Operating expenditures increase (%)
2003	10,761,003		21,522,006		485,342,000	
2004	12,358,421	14.8	24,716,842	14.8	519,824,000	7.1
2005	11,617,282	-6.0	25,816,070	4.4	555,348,000	6.8
2006	9,426,762	-18.9	26,933,890	4.3	574,370,590	3.4
2007	7,244,323	-23.2	28,036,250	4.1	601,619,490	4.7
2008	7,448,253	2.8	28,854,971	2.9	630,065,330	4.7
2009	7,563,594	1.5	29,524,797	2.3	649,061,131	3.0
2010	7,711,504	2.0	30,357,796	2.8	673,013,178	3.7
2011	7,711,744	0.0	30,846,979	1.6	692,391,326	2.9
2012	7,808,293	1.3	31,234,171	1.3	705,070,639	1.8
2013	7,988,362	2.3	31,951,448	2.3	727,278,080	3.1
2014	8,123,287	1.7	32,493,148	1.7	748,316,520	2.9

Sources: Author's calculations; City of Hamilton budget documents; HPHS budget documents; and HPHS staff member, email message to author, August 14, 2015. (In 2014, the municipal levy was actually \$8,820,787 and the cost-shared budget was \$35,283,148. However, \$697,500 of the levy and \$2,790,000 of the cost-shared budget were one-time expenses spent for the consolidation of HPHS office space, not public health programming.)

In sum, the City of Hamilton was able to exert much greater control over HPHS's levy than the City of London was over the MLHU's levy. The City of Hamilton's behaviour aligns with the hypothesis stated above, because it used the increase in provincial funding to reduce the impact of public health spending on the property tax base. As explained by the interviewees from Hamilton, and as indicated in Table 2, the City quickly moved to reduce its contribution to public health spending as the province's increased. HPHS staff who were interviewed would have liked to see less of a reduction in the municipal contribution, but explained that the "team mentality" of being a municipal department prevented them from making a more forceful case. Nonetheless, cost-shared program funding for HPHS still increased over this period fairly consistently. In fact, average annual cost-shared budget increases are basically the same as the average annual increase for municipal expenditures. Even with increases to provincial funding, the City of Hamilton was able to quickly get HPHS's budget increases under control.

## Discussion

During a period of increasing provincial funding, the City of Hamilton was able to exert greater control over the cost-shared program funding increases of HPHS – an integrated health unit – than the City of London was able to exert over the cost-shared funding increases of the MLHU – an autonomous health unit. The City of Hamilton quickly moved to reduce its contributions to HPHS once provincial increases were implemented, thereby freeing up money to spend on other municipal priorities. The MLHU, on the other hand, seized this opportunity by convincing its municipal funders to maintain their contributions, thereby capturing the provincial increase more fully. The City of London asked to have its contribution reduced beginning in 2009, but the MLHU refused. This stalemate continued until 2012, when the MLHU cut the City's levy by \$100,000. By then, however, provincial spending caps had really started to take their effect and annual cost-shared expenditure increases were nowhere near the level they were during the early part of the study period. These findings are consistent with the study's hypothesis. The more autonomous health unit, the MLHU, did behave more in accordance with provincial expectations than HPHS, which is integrated into the City of Hamilton's municipal structure. Despite the consistency with the hypothesis, the limited scope of this study means that it is unable to account for all of the different variables in a complicated policy field. At least one of these, the issue of per capita funding, should be addressed, though.

The purpose of this study was to compare the spending growth of two similar health units with different governing structures during a period of increasing provincial funding. The key observation was the behavioural change exhibited by the MLHU in response to changing provincial expectations. Nonetheless, as mentioned earlier, the MLHU was one of the lowest per capita funded health units in the province prior to the funding increase. This certainly holds true in a comparison with HPHS. Taking the two census years during the study period as examples, the MLHU spent \$44.43 per capita in 2006 and \$51.55 in 2011. HPHS, on the other hand, spent \$53.38 per capita in 2006 and \$59.33 in 2011. Clearly then, the behavioural change of the MLHU, notwithstanding, HPHS still spends more per capita. Again, more spending does not necessarily lead to better health outcomes, but this difference in per capita spending does need to be considered. In terms of the study's findings, this indicates that while integrated health units may exhibit consistent behavioural traits, even as provincial expectations change, autonomous health units may act with more or less independence depending upon the proportion of funding that they receive from their municipal contributors. In other words, integrated health units are treated and act like any other municipal department no matter what the proportion of provincial funding is. Autonomous health units, on the other hand, may be worse off when municipal funding represents a larger proportion of their funding. The MLHU was only able to act with the kind of independence that the authors of the Walkerton, SARS and CRC reports attribute to autonomous health units after the funding formula was changed. But, by this point, it was already far behind other comparator health units.

## Conclusion

The findings from this study are important for both the ongoing policy debate in Ontario over the structure of public health units and the debate in the literature on multilevel governance over specialized and general-purpose jurisdictions. The MLHU did exert some independence during a time when the capacity of the public health system was in question. HPHS did not act with the same level of independence, but it started out from a healthier funding position; so, perhaps the need was not as strong. Clearly, more research is necessary, but these findings provide some initial insight into the behaviour of autonomous and integrated health units. Many in the public health field have argued that autonomous health units are in a better position to pursue their legislative responsibilities than health units that are integrated into municipal structures. The MLHU did behave according to these expectations after the funding increase, but, prior to this, it took its budget direction from its largest municipal funder. Under this arrangement, it was not able to act with much independence and fared worse in terms of per capita funding than HPHS. In other words, autonomous health units might only be able to act according to provincial expectations when most of their funding comes from the province. Thus, governing structure appears to matter, but its effects are contingent on where most of the money is coming from.

This study's findings also align with other recent findings from the multilevel governance literature. Specialized jurisdictions, which have some autonomy from municipal control, do pursue their legislative mandate more faithfully than similar municipal departments. However, autonomy, in and of itself is not enough, it must come with a level of financial independence. The consequences of the single-mindedness of specialized jurisdictions also vary by policy area and by what policy characteristic is being measured. While this study's findings are very preliminary, they do offer, at least, a partial explanation for variation among local health units, which is something that local and provincial policy makers have been struggling with for quite some time. The generalizability of the findings is limited, but it is strengthened somewhat by its consistency with findings from an existing literature. And, indeed, one of the goals of this study was to alert decision-makers in Ontario's public health system to a broader theoretical debate about the advantages and disadvantages of specialized jurisdictions.

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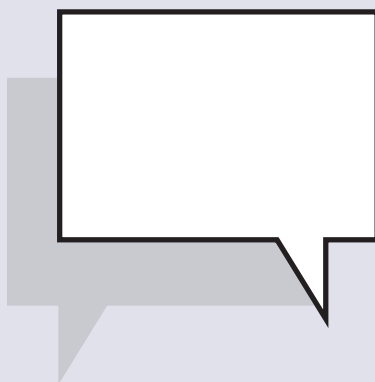
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# A Qualitative Study on Incentives and Disincentives for Care of Common Mental Disorders in Ontario Family Health Teams

## Étude qualitative des mesures incitatives et de dissuasion dans les équipes Santé familiale ontariennes pour les soins pour les troubles mentaux les plus courants



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### Abstract

*Background:* An opportunity to address the needs of patients with common mental disorders (CMDs) resides in primary care. Barriers are restricting availability of treatment for CMDs in primary care. By understanding the incentives that promote and the disincentives that deter treatment for CMDs in a collaborative primary care context, this study aims to help contribute to goals of greater access to mental healthcare.

*Method:* A qualitative pilot study using semi-structured interviews with thematic analysis.

*Results:* Participants identified 10 themes of incentives and disincentives influencing quality treatment of CMDs in a collaborative primary care setting: high service demands,

clinical presentation, patient-centred care, patient attributes, education, physician attributes, organizational, access to mental health resources, psychiatry and physician payment model.  
*Conclusion:* An understanding of the incentives and disincentives influencing care is essential to achieve greater integration and capacity for care for the treatment of CMDs in primary care.

## Résumé

*Contexte :* Les soins de santé primaires offrent l'occasion de répondre aux besoins des patients souffrant des troubles mentaux les plus courants (TMC). Il y a, dans les soins primaires, des obstacles qui restreignent la disponibilité de traitements pour les TMC. En cherchant à mieux comprendre les mesures incitatives qui favorisent les traitements ainsi que les moyens de dissuasion qui y font obstacle dans un contexte de soins primaires en collaboration, cette étude entend contribuer à l'atteinte des objectifs d'accès aux traitements pour les maladies mentales.

*Méthode :* Étude qualitative pilote qui fait appel à des entrevues semi-dirigées et à l'analyse thématique.

*Résultats :* Les participants ont dégagé dix thèmes de mesures incitatives et de dissuasion qui influencent la qualité des traitements pour les TMC dans un établissement de soins primaires en collaboration : demande élevée de services, tableau clinique, soins axés sur les patients, attributs des patients, éducation, attributs des médecins, organisation, accès aux ressources en santé mentale, psychiatrie et modèle de rétribution des médecins.

*Conclusion :* La compréhension des mesures incitatives et de dissuasion qui influent sur les soins est essentielle pour atteindre une plus grande intégration et une meilleure capacité pour le traitement des TMC dans le contexte des soins primaires.

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## Introduction

Depression and anxiety, also referred to as common mental disorders (CMDs), are two of the leading mental health causes of disability and a major cause of mortality (Ferrari et al. 2013; Katzman et al. 2014; Lepine and Briley 2011). The greatest opportunity to address the needs of patients with CMDs resides in primary care (Craven and Bland 2013; Cuijpers et al. 2012; Jenkins and Strathdee 2000; Mohamoud et al. 2012). Several authors have argued that important barriers to the optimal prevention and management of CMDs in Canadian primary care services lie in the misaligned incentive systems currently in place (Dewa et al. 2001; Durbin et al. 2016; Mulvale et al. 2008; Rush et al. 2013; Steele et al. 2013).

A systematic pan-Canadian primary care reform began in the early 2000s (Hutchison et al. 2011). Key reform objectives included promoting population-based service delivery, shifting from a disease-focused and problem-based approach to a patient-centred preventive care orientation, improving access to care and facilitating integration across different services (Hutchison et al. 2011). In Ontario, three main trends can be distinguished. The first is a shift away from the fee-for-service based remuneration to a capitation-based system where the main component of the physician compensation is based on the number of (age- and sex-adjusted) patients under their care and is largely dissociated from the actual number of services rendered to these patients (Hutchison

and Glazier 2013; Hutchison et al. 2011). The second is patient enrolment to individual physicians, intended to promote continuity and patient-centred care. The third was the transformation of some practices (most of which function under a capitation-based system) into interprofessional teams called Family Health Teams (FHTs) (Hutchison and Glazier 2013; Hutchison et al. 2011).

FHTs are one primary care model in Ontario implemented in 2005, intended to help address the treatment gap for CMDs by building capacity and improving access to mental health services (Ontario Ministry of Health and Long-Term Care [MOHLTC] 2005). FHTs bring family physicians together with healthcare providers – nurses, social workers, pharmacists and others – to provide interdisciplinary team-based care (MOHLTC 2005). FHTs are intended to be a flexible model resulting in variation between them in terms of the type and the number of healthcare providers. Despite the intention, barriers continue to deter integration of mental healthcare services in FHTs (Ashcroft 2014; MOHLTC 2014; Pottie et al. 2008).

Incentives and disincentives are used in the design of healthcare systems to help guide the desired goals (Biller-Andorno and Lee 2013; Conrad 2010). An incentive refers to a motivator that encourages the action of professionals, teams and organizations (Conrad 2010; Custers et al. 2008). A disincentive can be something that operates as an intentional or unintentional deterrent that discourages action (Ashcroft et al. 2014; Enjolras 1999). Understanding incentives that promote and the disincentives that deter treatment for CMDs in primary care will help to achieve goals of greater access to mental healthcare (Craven and Bland 2013; MOHLTC 2014). The objective of this study is to identify factors that help promote or deter the treatment of CMDs in FHTs located in Toronto, Canada. Consequently, this study helps provide an understanding of incentives and disincentives that are contextually relevant to a new model of team-based primary care.

## Method

The setting for this study was FHTs located in Toronto, Canada. An exploratory qualitative design was used (Miles and Huberman 1994) and the study population was composed of physicians practising in FHTs. Research Ethics Board Approval was obtained for this study through the Centre for Addiction and Mental Health (CAMH) located in Toronto, Ontario. It involved purposive sampling by e-mailing invitation letters to physicians and FHTs within the Greater Toronto Area, with the aim of acquiring a small sample for an in-depth qualitative study (Guest et al. 2006; Miles and Huberman 1994). Physicians interested in participating in the study responded to the invitation by contacting the first author (R.A.) by e-mail or telephone. In-person interviews were scheduled at a time and location most convenient to participants. Telephone interviews were offered to participants who indicated a preference for it.

Interviews were conducted by the first author (RA) and lasted 45–60 minutes. Each interview began with the interviewer reading an opening statement (see Table 1). Our intention was to enable participant-driven identification of incentives and disincentives within the broad framework provided as guidance. Interview questions were structured around four key

areas of treatment for CMDs: identification and/or screening, pharmacological treatment, psychological treatment and collaborative care. The decision to frame our interview questions around these four key areas was inspired by the quality standards of care for depression and anxiety provided by the National Institute for Health and Care Excellence (NICE) (NICE 2011, 2014, 2016). Field notes were made immediately after completing each of the interviews. Written informed consent was obtained from each of the participants prior to the interview.

**TABLE 1.** Semi-structured interview guide

<b>Interviewer’s opening statement prior to start of interview</b>
"This interview is going to explore incentives and disincentives for the treatment of common mental disorders in Family Health Teams. Common mental disorders refer to depression and anxiety. Incentives are those things that encourage treatment, whereas, disincentives are those things that deter treatment."
<b>Identification</b>
<ul style="list-style-type: none"> <li>• Please describe your experience in diagnosing and treating common mental disorders (CMDs).</li> <li>• What challenges might discourage identification of CMDs in your Family Health Team (FHT)?</li> <li>• What might help facilitate the identification of depression and/or anxiety in your FHT?</li> </ul>
<b>Screening</b>
<ul style="list-style-type: none"> <li>• Do you have any experience in screening for CMDs?</li> <li>• What challenges might discourage screening of CMDs in your FHT?</li> <li>• What might help increase screening for CMDs in your FHT?</li> </ul>
<b>Pharmacological treatments</b>
<ul style="list-style-type: none"> <li>• What is your experience in using pharmacological treatments for CMDs?</li> <li>• What challenges might discourage you from using pharmacological treatments for CMDs?</li> <li>• What might help you in providing pharmacological treatments for CMDs?</li> </ul>
<b>Psychological treatment by non-physicians</b>
<ul style="list-style-type: none"> <li>• Do you have any psychological treatment by non-physicians in your FHT?</li> <li>• What challenges might discourage psychological treatment for CMDs by non-physicians in your FHT?</li> <li>• What might help increase psychological treatment for CMDs by non-physicians in your FHT?</li> </ul>
<b>Collaborative care</b>
<ul style="list-style-type: none"> <li>• Do you have any experience with collaborative care in your FHT?</li> <li>• What challenges might discourage collaborative care for CMDs in your FHT?</li> <li>• What might help you in providing collaborative care for CMDs?</li> </ul>

Interviews were audio-recorded and transcribed. Once transcription was complete, the transcribed document was reviewed to ensure it matched the audio-recorded interview. Each participant was assigned a code to protect anonymity and was sent a copy of their transcribed interview via e-mail to review and make changes wherever they felt it necessary. This was done to ensure that data was captured accurately and participants were able to delete any information that might compromise their confidentiality upon publication of findings.

Thematic analysis (Braun and Clarke 2006) was used to analyze the data. Data collection, transcription, coding and analysis were interrelated processes. Each transcript was read at least twice and the core concepts were identified (Miles and Huberman 1994). A preliminary coding scheme was developed after identifying the major themes. NVivo, a qualitative data analysis software, was used to help organize the data analysis. Recruitment stopped when no new themes were being identified from the transcripts.

## Results

Qualitative semi-structured interviews were conducted between June and August 2013. Invitational letters were e-mailed directly to 111 FHT physicians and to the general e-mail address provided on the website of 33 FHTs who asked for it. The sample for this study consisted of the first 10 primary care physicians who responded to the invitation to participate. Sizes of FHTs varied from small to large. Three participants were from the same large FHT that had more than 60 physicians attached to it. The remaining seven participants were each from different FHTs. Six in-person interviews were conducted and four telephone interviews. Ten themes emerged from the data acting as incentives and/or disincentives influencing treatment of CMDs. With the exception of patient-centred care, each of the themes contains both incentives and disincentives for the treatment of CMDs. The 10 themes are: high service demands, clinical presentation, patient-centred care, patient attributes, education, physician attributes, organizational factors, access to mental health resources, psychiatry and physician payment model. Table 2 demonstrates the type of care that was discussed in relation to the emerging theme.

**TABLE 2.** Type of care for CMDs that is related to the identified incentive/disincentive theme

Identification and screening	Pharmacological treatment	Psychological treatment	Collaborative care
<ul style="list-style-type: none"> <li>• High service demands</li> <li>• Clinical presentation</li> <li>• Patient-centred care</li> <li>• Patient attributes</li> <li>• Education</li> <li>• Physician attributes</li> <li>• Organizational</li> <li>• Physician payment model</li> </ul>	<ul style="list-style-type: none"> <li>• Patient-centred care</li> <li>• Patient attributes</li> <li>• Education</li> <li>• Mental health resources</li> <li>• Psychiatry</li> </ul>	<ul style="list-style-type: none"> <li>• Patient-centred care</li> <li>• Patient attributes</li> <li>• Mental health resources</li> <li>• Psychiatry</li> </ul>	<ul style="list-style-type: none"> <li>• Organizational</li> <li>• Mental health resources</li> </ul>

### *High service demands*

All participants described the identification of CMDs being relatively easy because of the frequency of patients presenting symptoms. “I see a lot of it in my practice ... Most of my patients at some point would have either anxiety or depression ... [It’s] the commonest thing we treat here” (P9). Participants described CMDs as a core part of practice in primary care, yet all participants said that they struggled to meet the high service demands required to treat CMDs, particularly with existing time constraints. Time restrictions impeded identification and ongoing treatment of CMDs. “I have to admit that I’m not going to dig, because I have 15 or 30 minutes ... it’s a can of worms, worms that I can’t get into” (P1).

### *Clinical presentation*

Clinical presentation acted as an incentive: CMDs were considered easily identifiable, because the symptoms were clear and physicians were confident that patients would generally improve with treatment. On the contrary, participants found it challenging when their patients did not improve despite treatment. Clinical complexities can act as a disincentive as well: “There’s ... people that we are missing that are not identifying depression or anxiety ... because we’re blind to the fact that there’s an underlying depression causing the problem, or there’s other complexities that are making it difficult for us to identify, willingly or unwillingly” (P3).

### *Patient-centred care*

Patient preferences influence the course of treatment and participants emphasized wanting to be flexible so as to provide patients with their treatment of choice. All participants described the therapeutic relationship as an incentive for both the patient and the physician. “We have relationships with our patients so they feel comfortable coming and especially exposing their vulnerable side” (P5). The long-term therapeutic patient–physician relationship was described as particularly important for the identification and treatment of CMDs, as well as a motivator to meet the care needs of the patients. “I had known her for twenty years ... I had time limitations. But you can imagine, I made time for her” (P5).

### *Patient attributes*

When patients were a good fit for the existing resources, this was considered a motivator for family physicians. But when they were not a good fit for the types of treatment available, this was a disincentive. A further disincentive was when patients were perceived to have lower levels of motivation for change.

### *Education*

All participants believed that they were able to identify and provide short-term treatment for CMDs. “I feel very comfortable with short-term treatment, crisis intervention, stabilization” (P5). However, participants indicated that their training did not equip them for the long-term management of CMDs, treatment of complex patients with CMDs, nor the psychological counselling needs of patients with CMDs. Participants also raised concerns about moments in their education that they felt may contribute to stigmatization and act as a systemic deterrent for physicians, which may have a potential impact on one’s practice. “I actually have a very distinct memory of the first time that I was on the ward and I heard my attending making fun of the patient after we left the room ... that is really problematic ... what you’re saying in the implicit messages that you’re giving to students” (P8).

### *Physician attributes*

Participants described physician attitudes, beliefs, the desire to provide good patient care and confidence in their clinical abilities as a motivator for treatment. Yet participants expressed limitations to their scope of practice that act as a disincentive; for example, feeling less confident in situations where there might be co-morbidity or complexity. “[I’m] reasonably comfortable with first step augmentation but it sort of depends ... on how much co-morbidity and complexity there is” (P3). Participants also talked about how feeling overwhelmed acts as a disincentive to the identification of CMDs and reaching out to existing resources. “The unspoken disincentives ... I as a family doctor ... feel overwhelmed by some of the acute things” (P6). Another physician described how feeling overwhelmed as a result of personal life stressors can impact on care: “[When I] have gone through a period ... of deaths and illness in my family, I’m less likely to be looking for mental illness if it doesn’t come up” (P1).

### *Organizational factors*

Organizational factors acting as incentives include culture, leadership, team relationships and electronic medical records (EMRs). An organizational culture acts as an incentive by setting organizational goals and priorities for care. “We made mental health one of our initial clinic priorities ... [and] decided that identification and optimization of treatment for depression should be the major thrust of what we do as a team” (P4). Another physician said that mental healthcare was “in the fabric” (P10) of their FHT. Participants also stressed the importance of formal and informal leadership within the FHT in order to implement collaborative care. EMRs helped facilitate communication between team members and provided an easy referral mechanism. EMRs helped facilitate care by having screening tools accessible, tracking patient changes and acting as a reminder to perform certain tasks during clinical encounters.

Interpersonal relationships with colleagues helped facilitate communication about patient care and helped physicians and the various team members understand each other’s roles in relation to treatment for CMDs. Geographical co-location of health providers enhanced collegial relationships and facilitated access to psychological resources. Not being geographically co-located was described as a disincentive by limiting communication and collaborative care. “Being geographically distributed is a hindrance because it’s hard to form a relationship with someone that you’re not with” (P4). In some cases, this leads to limited collaboration and access to other health providers. Some physicians indicated that some health providers are underutilized because of a lack of awareness of roles.

### *Access to mental health resources*

#### INTERPROFESSIONAL HEALTH PROVIDERS

Interprofessional health providers (IHPs) act as incentives for both patients and physicians. All participants described how FHTs have made mental healthcare providers, like pharmacists and social workers, available to patients in a way that was not there prior to FHTs. “It has opened up the whole context of being able to see a social worker for counselling that was never there before” (P7). IHPs improved pharmacotherapy treatment and access to psychological treatment. “An incentive is the pharmacist. We have pharmacist[s] on our team and they really help with the pharmacotherapy piece. They give physicians great confidence around complex problems” (P4). Participants stated that IHPs are an incentive, because the referral process is easy. Psychological resources are made accessible to patients without financial costs. IHPs help improve patient outcomes and the physician burden is decreased. “Since our mental team was added ... I don’t have to deal with all of it on my own” (P6).

A disincentive to treatment exists when accessing FHT resources is difficult, because of growing waitlists that make it difficult for patients to get in to see a social worker or a mental health counsellor in a timely manner. “There’s always more demand than we have supply in mental health services” (P6). All participants described the lack of case management and long-term psychological resources as problematic.

#### COMMUNITY-BASED RESOURCES

Having patients with the financial means to access private counselling services was one way to help improve access to FHT resources for those without financial resources. However, all participants described accessing community resources as problematic, because of the lack of available counselling resources. “Trying to find counselling services in the community ... that are long-term and ... don’t require insane waiting lists is basically impossible” (P8). Participants also talked about selective accessibility also being problematic. “They’ll say ... if the patient doesn’t have goals then we won’t work on them ... It’s usually a more subtle no. It sometimes doesn’t recognize that this person can’t set goals. Or can’t clearly announce their goals ... There are still some challenges particularly around this area” (P3). Patient access to community resources was difficult unless they were in a crisis. Participants also indicated that patients who weren’t considered a good fit for community services, because they were perceived as having a lower level of motivation, or considered more complex, have a much harder time accessing services.

All physicians described accessing community resources as a highly burdensome process that may deter treatment. “A lot of what used to be receptionist work has now gone to the doctors ... You actually still have to sit down and do it. For me that’s not a problem, but [it is] for a lot of doctors” (P7). Another physician stated, “I don’t have time to sit there and call people and find this out” (P9). Determining what resources are available was described as problematic. All participants described the referral process itself as being increasingly burdensome for physicians and a potential deterrent: “I have to admit, there’s times that I look at the form and go, ‘Ah, no!’” (P7). Participants indicated that they were less likely to pursue a referral if the process was burdensome.

All participants identified waitlists to community resources as a major deterrent to psychological treatment, and physicians may not pursue a referral if they know waitlists are long. Long wait times can also increase patient burden and distress. “When they learn that there are these long wait times, there’s a sense of disbelief but also of anger ... I try to put it back to them, like, this actually is not my problem. So, how do you see yourself helping yourself?” (P3) Participants in this study indicated that a lack of access to community resources might result in greater use of drug therapy than if psychological resources were available. “Getting people onto pharmacological treatments ... I think unfortunately happens too often because people don’t have access to counselling services” (P8). As a result, not having resources for psychotherapy becomes an incentive for drug therapy.

#### *Psychiatry*

All physicians identified easy access to psychiatry consultations whose flexible approach and personality were a good fit for their particular FHT as an incentive. “The other incentive ... is we have a consultant psychiatrist who works with us who we can speak to on the phone who provides indirect consultation to us ... Every time that I speak to her, I learn something new and then it lets me look after a whole bunch of other patients better” (P4).

Participants also stated that patients in a crisis tended to have good access to psychiatry; yet, all participants considered limited and untimely access to psychiatry a disincentive. All participants talked about difficulties accessing psychiatry when a patient is not in an acute crisis. All participants also expressed concerns that psychiatry does not provide psychotherapy, longitudinal care or ongoing follow-ups. “They will diagnose the patient but they won’t do the ongoing care ... I am very comfortable in the diagnosis state. What I’m not good at is treating ... but they will not keep the mood and anxiety disordered patients ... I am a short-term intervention ... beyond that, I really am looking for help” (P5).

### *Physician payment model*

The physician payment model was identified as an incentive for treatment and can facilitate scheduling that is compatible for treating CMDs. “By far the number one thing that allows me to actually appropriately address the needs of this population is the payment model” (P8). Participants stated that payment models that support booking longer appointments, or are not reliant on how many people a physician sees in a day, are more aligned with providing good mental healthcare.

Physician remuneration can also act as a disincentive for treatment, because there is a lack of specific financial incentives for CMDs. The lack of financial incentives is problematic when financial incentives exist for other types of treatment. “What I’m incented to do in my practice by the government is to really look after really well my diabetics and my congestive heart failure patients using the flow sheet because I’m getting paid way more to look after those patients than anyone else. So, mental health does fall behind” (P4). Despite some of the previous benefits, participants indicated that physician payment models could also act as a disincentive for scheduling. Participants also indicated that physicians might not refer to some external resources even if there is a benefit for patients with CMDs, because there is a financial penalty built into the payment model. Participants indicated that a disincentive might exist when physician payment models do not take into account the higher levels of service required to treat patients with CMDs or patients with complex care needs. “There are patients that are over-using you as a resource and that is not reflected in the model ... I could pick some key people that are technically young and healthy as viewed by the government, but who really do use our resources A LOT. I would say that’s not reflected well enough probably” (P2). Another physician stated: “There’s definitely an incentive to not take complicated patients on because payments run the same so why would you take on the most complicated patients instead of the least complicated person? And certainly there is an incentive to take on the least complicated person” (P3).

## **Discussion**

This study identified a broad range of incentives and disincentives that influence the treatment of CMDs. CMDs are a core part of practice in primary care, and with adequate training, physicians are able and confident in their abilities to identify and begin treatment.

Effectively educating primary care physicians to better recognize and manage CMDs requires curriculum that stimulates attitudes, skills, as well as content knowledge (Gask 2013). Education to improve care for CMDs, however, is most effective when accompanied by other strategies, such as use of guidelines, consultations with psychiatrists, collaborations with case managers and organizational supports (Gilbody et al. 2003; Kroenke et al. 2000). Physicians in this study emphasized that they, and the culture of the FHTs they work in, view mental healthcare as important. Participants described how organizations that make mental healthcare an organizational priority imbed tools and resources so that physicians and other care providers can better meet the unique care needs required for CMDs. Further, participants also stressed that effectively treating CMDs requires more time and service than other types of health issues. Physician payment models and having easy access to a range of IHPs facilitates treatment for patients seeking care for CMDs in FHTs. However, high service demands, complex patients, organizational factors, limited access to psychological counselling and psychiatry, overwhelmed physicians and physician payment models are deterring treatment for CMDs.

Despite wanting to provide patient-centred care that is flexible and responsive to patient's individual needs, poor access for psychological resources makes it challenging. Long waitlists for psychological and psychiatric resources means that patients are not receiving optimal treatment for CMDs (Ivbijaro 2012; NICE 2011). Raine et al. (2005) demonstrated that limited professional relationships deterred referrals, transfer of patient care, increases physician burden, and reduces physicians' abilities to provide optimal care. Physicians in our study emphasized the importance of having relationships with psychiatry, and voiced expectations of psychiatry that they believe are not being met. Physicians in this study desire improved access to psychiatrists particularly with more intensive and longitudinal involvement. Limited access to resources such as psychology, social work and psychiatry may be increasing physician burden and detracting from the collaborative intention of the FHT model (MOHLTC 2004; Sherman et al. 2010). Despite being in a collaborative model, physicians described the personal impact of feeling overwhelmed, which is harmful to physicians and can negatively affect patient care (Fralick and Flegel 2014).

There is a strong association between physician payment models and the quality of clinical care (Conrad 2010; Custers et al. 2008; Enjolras 1999; Steel et al. 2007). FHTs' innovative physician payment model may be restricting intention of greater access to mental healthcare (MOHLTC 2009). Despite payment models helping facilitate scheduling and appointment bookings, the FHTs' model's innovative payment model appears to be problematic for patients with CMDs. Financial incentives that are inclusive of various health conditions but exclude mental health can deter treatment for CMDs (Post et al. 2009). Disincentives exist in physician payment models that deter care for patients with complexity or CMDs, because they are believed to require more services than patients who are healthier (MOHLTC 2014; Sherman et al. 2010). Despite CMDs being easily treatable in primary care, disincentives may be deterring FHTs from achieving optimal integration of primary mental healthcare.

Participants in this study indicated that they were providing quality treatment for patients with CMDs despite disincentives that existed. What this suggests is that the range of incentives and disincentives may interact, some having more influence than others do.

There are several limitations to this study. As a pilot study with a small sample, findings cannot be generalized. No two FHTs are alike, which means that the results from this study may or may not be relevant to FHTs other than those included in this study and poses some challenge to transferability of findings. Also, because the letter of invitation did include a statement describing the objective of this study, and participants voluntarily opted into this study, bias selection is possible. Thus, it is possible that the perspectives of the 10 physicians interviewed in this study may not be representative of all FHT physicians. Given that FHTs are a collaborative care model, only including physicians in the sample means that our study provides only one perspective. There are other healthcare providers within FHTs – such as nurses, social workers and pharmacists – whose perspectives on incentives and disincentives would be of benefit. This study presents only one perspective. We decided that interviewing FHT physicians is the best sample population to begin an investigation on incentives and disincentives. All FHTs include physicians; as well, the FHT model was designed around a physician-centred incentive model. This initial study with FHT physicians provides a foundation of knowledge to build on. Other healthcare provider and patient perspectives will enrich future studies investigating incentives and disincentives for the treatment of CMDs.

Despite the limitations, there are several benefits of this study. Although we are not able to draw conclusions from this study, it does help us explore some of the challenges that exist. Its qualitative approach provides breadth and richness to understanding the topic of incentives and disincentives in FHTs that currently does not exist (Miles and Huberman 1994). This study is the first to our knowledge that explores physicians' perspectives of incentives and disincentives for the treatment of CMDs in FHTs, and thus additional research is needed to guide quality care in this area.

Providing high-quality care for CMDs involves other professionals be involved and so, seeking a broad range of perspectives is necessary. Research that can provide comparative data to other healthcare provider perspectives will be valuable. To fully appreciate the complexity of the system of incentives affecting mental healthcare in FHTs, we recommend that future research seek to involve the perspectives of stakeholders beyond the clinical teams, such as other mental health providers in communities, professional associations and policy makers and service users. Given that the bulk of literature on primary care incentives focuses on single-provider models of care, future research is needed to generate knowledge about incentive models relevant for interprofessional primary care settings. Realigning incentive systems for interprofessional primary care contexts is necessary if optimal prevention and management of CMDs is going to be achieved in Canada (Dewa et al. 2001; Durbin et al. 2016; Mulvale et al. 2008; Rush et al. 2013; Steele et al. 2013). Understanding incentives and disincentives influencing care is essential in order to achieve greater integration and capacity for care (Ashcroft et al. 2014; Craven and Bland 2013).

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## Mapping Collaborative Relations among Canada's Chronic Disease Prevention Organizations

### Cartographie des relations de collaboration entre les organismes canadiens de prévention pour les maladies chroniques

DAMIEN CONTANDRIOPOULOS, NANCY HANUSAİK, KATERINA MAXIMOVA,  
GILLES PARADIS AND JENNIFER L. O'LOUGHLIN

#### Abstract

In the field of chronic disease prevention (CDP), collaborations between organizations provide a vital framework for intersectoral engagement and exchanges of knowledge, expertise and resources. However, little is known about how the structures of preventive health systems actually articulate with CDP capacity and outcomes. Drawing upon data from the Public Health Organizational Capacity Study – a repeat census of all public health organizations in Canada – we used social network analysis to map and examine interorganizational collaborative relationships in the Canadian preventive health system. The network of relationships obtained through our study shows that provincial boundaries remain a major factor influencing collaborative patterns. Not only are collaborations scarce on the interprovincial level but they are also mostly limited to links with federal and multi-provincial organizations. Given this finding, federal or multi-provincial organizations that occupy central bridging positions in the Canadian CDP collaborative structure should serve as key players for shaping CDP practices in the country.

#### Résumé

Dans le domaine de la prévention des maladies chroniques (PMC), la collaboration interorganisationnelle est un processus fondamental pour l'action intersectorielle ainsi que pour l'échange de connaissances, d'expertise et de ressources. Cependant, peu de connaissances existent sur les liens entre la structure de ces réseaux de collaboration et la capacité d'action ainsi qu'avec les résultats de la PMC. En nous appuyant sur des données tirées du *Public Health Organizational Capacity Study* – un recensement de tous les organismes canadiens de santé publique – nous avons utilisé des méthodes dérivées de l'analyse des réseaux sociaux pour cartographier et examiner les relations de collaboration interorganisationnelle dans le domaine de la PMC. Les résultats de notre étude montrent que les frontières provinciales demeurent un facteur d'influence important sur les schémas de collaboration. Non seulement les relations sont-elles rares au niveau interprovincial, mais elles se limitent presque exclusivement à des liens entre les organisations fédérales et multiprovinciales. À la lumière de ces résultats, les organisations fédérales et multiprovinciales qui occupent une position centrale dans la structure canadienne de collaboration pour la PMC devraient agir comme joueurs clés dans l'élaboration des pratiques de PMC au pays.

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## Financial Incentives and Cervical Cancer Screening Participation in Ontario's Primary Care Practice Models

### Incitatifs financiers et participation au dépistage pour le cancer du col de l'utérus dans les modèles de soins primaires en Ontario

DAMIEN CONTANDRIOPOULOS, NANCY HANUSAİK, KATERINA MAXIMOVA,  
GILLES PARADIS AND JENNIFER L. O'LOUGHLIN

#### Abstract

*Objectives:* The primary objective of this paper is to compare cervical cancer screening rates of family physicians in Ontario's two dominant reformed practice models, Family Health Group (FHG) and Family Health Organization (FHO), and traditional fee-for-service (FFS) model. Both reformed models formally enrol patients and offer extensive pay-for-performance incentives; however, they differ by remuneration for core services (FHG is FFS; FHO is capitated). The secondary objective is to estimate the average and marginal costs of screening in each model.

*Methods:* Using administrative data on 7,298 family physicians and their 2,083,633 female patients aged 35–69 eligible for cervical cancer screening in 2011, we assessed screening rates after adjusting for patient and physician characteristics. Predicted screening rates, fees and bonus payments were used to estimate the average and marginal costs of cervical cancer screening.

*Results:* Adjusted screening rates were highest in the FHG (81.9%), followed by the FHO (79.6%), and then the traditional FFS model (74.2%). The cost of a cervical cancer screening was \$18.30 in the FFS model. The estimated average cost of screening in the FHGs and FHOs were \$29.71 and \$35.02, respectively, while the corresponding marginal costs were \$33.05 and \$39.06.

*Discussion:* We found significant differences in cervical cancer screening rates across Ontario's primary care practice models. Cervical screening rates were significantly higher in practice models eligible for incentives (FHGs and FHOs) than the traditional FFS model. However, the average and marginal cost of screening were lowest in the traditional FFS model and highest in the FHOs.

#### Résumé

*Objectifs :* Le premier objectif de cet article est de comparer les taux de dépistage du cancer du col de l'utérus par les médecins de famille dans les deux principaux modèles de prestation de services en Ontario, les groupes de santé familiale (GSF) et les organismes de santé familiale (OSF), et selon le modèle traditionnel du paiement à l'acte (PA). Ces modèles réformés enrôlent officiellement les patientes et offrent de généreux incitatifs pour le rendement; cependant, ils diffèrent pour ce qui est de la rémunération des services de base (les GSF fonctionnent selon le PA et les OSF fonctionnent selon le paiement par capitation). Le deuxième objectif est d'évaluer les coûts moyen et marginal du dépistage dans chacun des modèles.

*Méthode* : À l'aide des données administratives de 7 298 médecins de famille et leurs 2 083 633 patientes âgées de 35 à 69 ans admissibles pour le dépistage du cancer du col de l'utérus en 2011, nous avons estimé les taux de dépistage après ajustement en fonction des caractéristiques des patientes et des médecins. Le calcul des taux de dépistage, des coûts et des primes s'est fait en estimant les coûts moyen et marginal du dépistage du cancer du col de l'utérus.

*Résultats* : Les taux de dépistage ajustés étaient plus élevés dans les GSF (81,9 %), suivi des OSF (79,6 %) et du modèle traditionnel du PA (74,2 %). Le coût d'un dépistage du cancer du col de l'utérus s'élevait à 18,30 \$ dans le modèle du PA. Les coûts moyens estimés du dépistage dans les GSF et les OSF s'élevaient, respectivement, à 29,71 \$ et à 35,02 \$, alors que les coûts moyens correspondants étaient de 33,05 \$ et 39,06 \$.

*Discussion* : Nous avons observé des différences notables dans les taux de dépistage du cancer du col de l'utérus parmi les modèles de prestations de soins primaires en Ontario. Les taux de dépistage du cancer du col de l'utérus étaient significativement plus élevés dans les modèles de prestation de services admissibles aux incitatifs (GSF et OSF) que dans le modèle traditionnel du PA. Cependant, les coûts moyen et marginal du dépistage étaient plus bas dans le modèle traditionnel du PA et plus élevé dans les OSF.

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