



Improving Health System Efficiency in Canada

Perspectives of Decision-Makers



Canadian Institute
for Health Information

Institut canadien
d'information sur la santé

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For permission or information, please contact CIHI:

Canadian Institute for Health Information
495 Richmond Road, Suite 600
Ottawa, Ontario K2A 4H6

Phone: 613-241-7860

Fax: 613-241-8120

www.cihi.ca

copyright@cihi.ca

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- Mark Dobrow, Associate Professor, Institute of Health Policy, Management and Evaluation, Dalla Lana School of Public Health, University of Toronto
- Michel Grignon, Professor, Department of Health, Aging & Society and Department of Economics, McMaster University; Director, Centre for Health Economics and Policy Analysis, McMaster University
- Christine Grimm, Senior Executive Director, Investment and Decision Support, Nova Scotia Department of Health and Wellness
- Sara Guilcher, Assistant Professor, Leslie Dan Faculty of Pharmacy, University of Toronto

The following individuals participated in a peer review of this report:

- John G. Abbott, Management Consultant, The Institute for the Advancement of Public Policy, Inc.
- Julia Abelson, Professor, Department of Clinical Epidemiology and Biostatistics, Centre for Health Economics and Policy Analysis, McMaster University
- Catherine Gaulton, Vice President, Quality and System Performance, and Chief Legal Officer, Nova Scotia Health Authority
- Niek Klazinga, Professor, Department of Social Medicine, Academic Medical Centre, University of Amsterdam, and Head of the Health Care Quality Indicators Project, Organisation for Economic Co-operation and Development Health Division
- Gregory P. Marchildon, Professor and Ontario Research Chair in Health Policy and System Design, Institute of Health Policy, Management and Evaluation, University of Toronto

Please note that the analyses and conclusions in this document do not necessarily reflect those of the individuals or organizations mentioned above.

Introduction

In Canada, promoting an efficient health system is recognized as an important policy objective. In 2015, the Advisory Panel on Healthcare Innovation provided recommendations to the federal government on improving value in health care.¹ At the same time, efficiency, sustainability and value for money were among stated health policy objectives in 12 of 13 provinces/territories.

Measuring the efficiency of a health system is one of many approaches to assessing health system performance. Health systems can improve efficiency by optimizing performance given the resources available within the confines of a fixed budget.

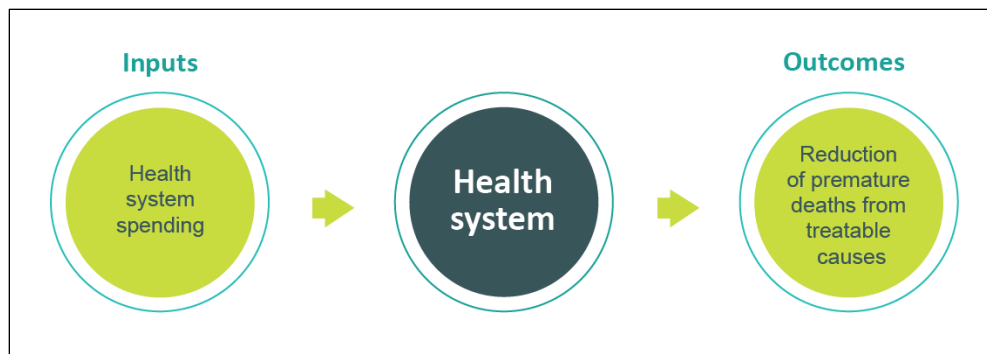
Many countries in the Organisation for Economic Co-operation and Development (OECD) also strive to attain greater efficiency. The United Kingdom and the Netherlands have developed tools to promote more cost-effective use of health resources,² and the Productivity Commission in Australia recently identified reforms with good prospects for efficiency gains.³ Efficiency improvement initiatives are well documented in the United States,⁴⁻⁶ where the health system is relatively low-performing.⁷ In contrast, the empirical literature examining health system efficiency in the Canadian context is less developed.ⁱ

Background

This report is Phase 3 of a multi-phased project undertaken by the Canadian Institute for Health Information (CIHI) that aims to understand health system efficiency in Canada. In Phase 1, [Developing a Model for Measuring the Efficiency of the Health System in Canada](#) (2012), we consulted with decision-makers and other stakeholders⁸ to define health system efficiency. The agreed upon definition of health system efficiency is the ability of a health system to use fixed resources (inputs) to improve access to timely and effective health care, measured by reduced premature deaths from treatable causes (outcomes).

i. A comprehensive review of the academic and grey literature yielded 60 empirical studies (of which 38 were from, or featured systems in, the United States, and 8 featured systems in Canada), with an additional 40 international and Canadian sources that were reports, reviews or commentaries on the topic of health system efficiency. Please see *Improving Health System Efficiency: Description of Methods*, the companion product to this report, for more details on the literature review.

Figure 1 Defining health system efficiency



Phase 2 — [*Measuring the Level and Determinants of Health System Efficiency in Canada*](#) (2014) — applied this definition to existing data. Significant variations were found in the ability of health regions to use health system dollars to reduce premature deaths from treatable causes, even after adjusting for socio-economic and demographic differences in the regional populations.⁹ Key indicators associated with variations in efficiency included population health factors (e.g., smoking rates), equitable use of services and managerial factors (e.g., hospital readmission rates). However, about half of the variation in efficiency scores was left unexplained with available data.

Purpose

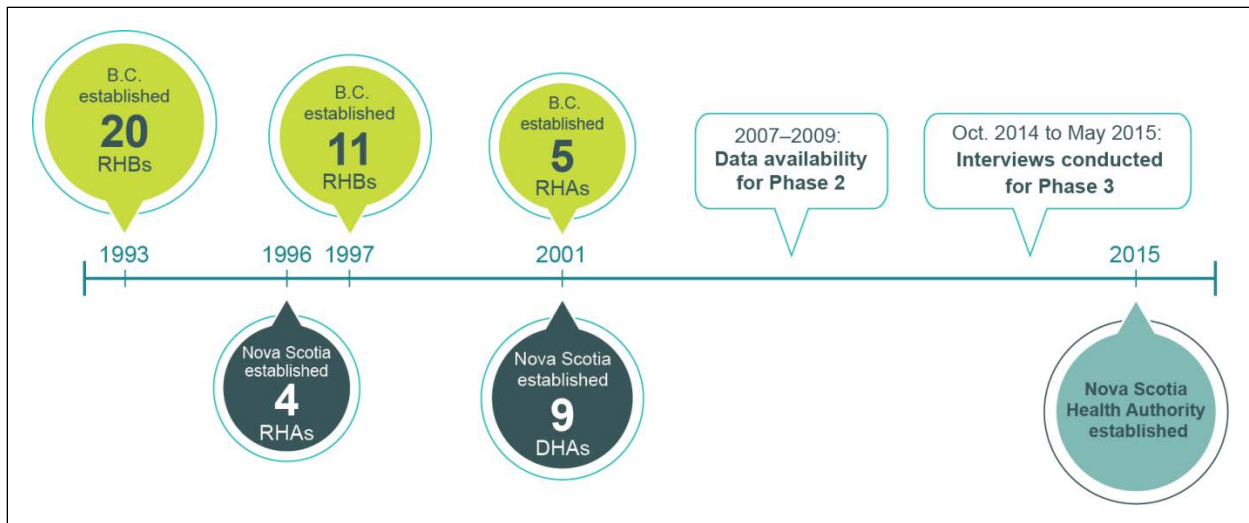
This study builds on the findings from the Phase 2 report. The purpose of this study is to learn from provinces that had relatively higher efficiency (British Columbia) and those with relatively lower results (Nova Scotia).^{9, 10} In this study, decision-makers from these 2 provinces reflected on the main actions they have taken and the main challenges they face in improving efficiency.

Methods

This is a descriptive multiple case study of 2 provinces — British Columbia and Nova Scotia — and 2 regional case studies within each province. For B.C., we selected Interior Health (which had higher efficiency than the average for Canada) and Northern Health (average efficiency). For Nova Scotia, we combined South Shore District Health Authority with South West Nova District Health Authority (higher-than-average efficiency) and Pictou County Health Authority with Guysborough Antigonish Strait Health Authority (lower-than-average efficiency). We selected cases within each province that were roughly comparable (e.g., a large rural population and a comparable average household income).

Interviews were conducted with 42 senior health system decision-makers at the provincial and regional levels between October 2014 and May 2015. At that time, Nova Scotia was in the process of consolidating its health authorities from 9 to 1 (see Figure 2). As a result, we interviewed more people from the ministry of health in Nova Scotia than from the regions. For a detailed description of our methodological approach, see [Improving Health System Efficiency: Description of Methods](#).

Figure 2 A timeline of regionalization in B.C. and Nova Scotia



Notes

RHB: Regional health board; RHA: Regional health authority; DHA: District health authority. These regional structures are comparable in terms of their level of responsibility for managing health services for their geographically defined populations. This figure excludes the Provincial Health Services Authority and First Nations Health Authority in B.C. and IWK Health Centre in Nova Scotia.

Sources

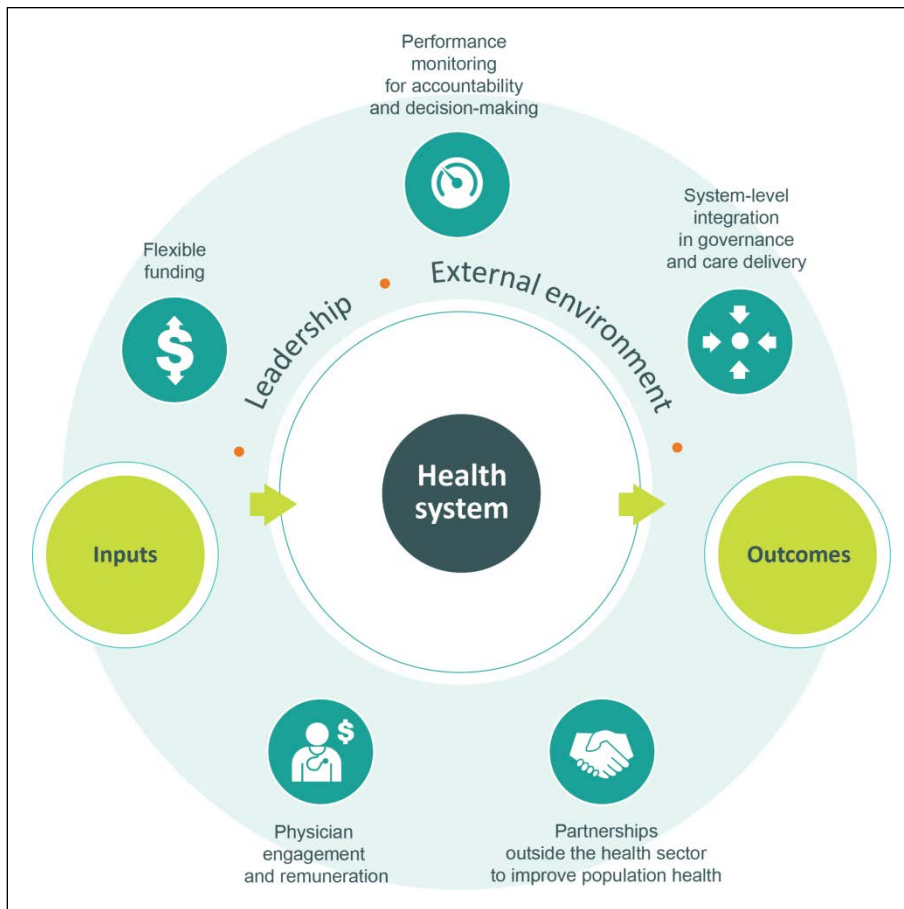
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Results

Our analysis allowed us to expand the definition of health system efficiency developed in phases 1 and 2. Figure 3 depicts our new conceptual framework for improving health system efficiency. This framework illustrates that in the context of strong leadership and challenges in the external environment, actions to improve health system efficiency can occur along the following dimensions:

- Performance monitoring for accountability and decision-making;
- System-level integration in governance and care delivery;
- Partnerships outside the health sector to improve population health;
- Physician engagement and remuneration; and
- Flexible funding.

Figure 3 Conceptual framework for improving health system efficiency



Interview participants highlighted the importance of leadership in improving efficiency using language related to vision, accountability and “champions within the system” (Ministry of Health, B.C.).

“It’s in our strategic plan . . . it’s an expectation . . . it’s not something off the side of your desk. It’s just the way we do business and so I think that that has been a huge facilitator of improving the health system efficiencies in Northern Health.”

— Northern Health, B.C.

The remainder of this report compares the perspectives of decision-makers on the actions taken, and the challenges they faced in making improvements within the 5 dimensions. Specific examples of the role of leadership are interspersed throughout. Key challenges related to the external environment are described at the end of the Results section.



Performance monitoring for accountability and decision-making

- Since 2001, the B.C. Ministry of Health has held health authorities accountable for health system efficiency objectives.
- Key informants in B.C. value existing performance-monitoring mechanisms that are regularly reviewed at the provincial, regional and clinical levels to drive efficiency.
- In Nova Scotia, there is an identified need to build analytical and infrastructure capacity for performance monitoring.

Formalized accountability agreements

Key informants in B.C. and Nova Scotia cited the importance of formalized accountability agreements between the ministry of health and the health authorities to set expectations and standards for funding and service delivery. These agreements include efficiency as a priority in B.C. Accountability agreements are coupled with a performance-monitoring framework, which includes a set of key indicators that are regularly reported on and reviewed:

- In B.C., performance agreements and government letters of expectation were established when the new health authority structure was created in 2001.
- In Nova Scotia, an accountability framework was introduced during the 2015 reorganization. One of the explicit goals of reorganization was to improve accountability and transparency in decision-making between the province and health authority.

Performance-monitoring mechanisms

Key informants described a number of mechanisms through which performance monitoring is used to increase efficiency:

- The B.C. Ministry of Health uses financial incentives to drive change in priority areas. Examples provided include pay for performance for reducing surgical wait times (in 2014–2015) and incentives for improving data quality in acute care.
- Operational dashboards with real-time data support management and clinician-level efficiency improvements:
 - In Northern Health, daily dashboards are monitored by senior management and unit managers, and facilitate dialogue between managers to support performance improvements.
 - In Nova Scotia, data from bed utilization software in acute care, and medication management tools in community care, are used to support efficient resource use.

Capacity for performance monitoring

In B.C., key informants described strong analytical capacity for performance monitoring. Nonetheless, some key informants from B.C. expressed frustration with the inability to act on the volume of data due to competing analytical priorities and human resource constraints. Others identified data gaps in B.C., including limited data at the community level and legislative barriers to information sharing.

Key informants from Nova Scotia recognized the need to build capacity to implement performance monitoring across the province. They identified limited analytical capacity and limited data to support evidence-based decision-making. They also cited the lack of data in the continuing care sector, where access to data and metrics is not integrated within the province; and mental health care, where some patient information is still paper-based. Information sharing along the continuum of care was also identified as a challenge that leads to inefficiencies such as duplicate testing.

“How well we measure it at the provincial level is really big, and we don’t have strong data.”

— Department of Health and Wellness, Nova Scotia



System-level integration in governance and care delivery

- B.C. key informants cited the integrated governance structure of the health authorities as a facilitator for efficiency.
- Strong integration between acute and community care was identified as a priority by key informants in B.C.
- Nova Scotia key informants identified a lack of integration at the provincial and regional levels.

Integrated governance

Key informants across both provinces cited the importance of a governance structure that facilitates coordination of care and planning between sectors and across geographical regions. Respondents from B.C. cited the reorganization of the health authorities in 2001 as a catalyst for successes in their integration efforts to find efficiencies:

- The organizational structures of both Northern Health and Interior Health facilitate integration of services and standards across the whole health authority, but in different ways: the focus at Northern Health is on integrating all types of services locally, while the goal at Interior Health is to integrate each service across the health authority.

“[W]ith the re-org, it’s consolidated and there’s 1 set of standards, and so 1 VP for acute care across the health authority . . . I think that’s been a big change in this health authority and it’s made it a lot more efficient.”

— Interior Health, B.C.

- Both Northern Health and Interior Health prioritize cross-sectoral planning and breaking down silos along the continuum of care.
- Health authorities work together to find efficiencies through shared service practices, such as combining functions like payroll and IT or creating single entities to source health technologies.

The formation of the First Nations Health Authority was an important development in improving health system efficiency in British Columbia. Since 2013, the First Nations Health Authority has been responsible for funding, managing and delivering health services and programs — responsibilities that were previously dispersed among Health Canada, the province, regional health authorities and individual First Nations communities.

In spite of the progress that has been made in B.C., there have been challenges. For example, some interviewees identified the struggle to prioritize ministry mandates and local initiatives. Others noted the challenge of being able to adapt quickly to changes in government priorities.

“[A]s government policy changes, it takes time for large health regions, health authorities, to shift to meet government direction . . . I believe that it creates the inefficiency.”

— Interior Health, B.C.

Interviewees described the challenges with the previous structure of district health authorities in Nova Scotia, including

- Lack of integration among strategic and funding priorities and few accountability and decision-making frameworks;
- Sector-specific objectives that conflict or are inconsistent, leading to system-level inefficiencies;
- Uncoordinated action in 9 health authorities leading to inefficient resource use and differences in patient experience between regions; and
- Inconsistent application of mechanisms for scaling up local successes.

Key informants from Nova Scotia were hopeful that amalgamation would improve integration and result in improved care delivery and efficiency.

“Instead of having these initial borders in the way, they’ve now come down and we can focus more on system approaches rather than just on geographical approaches to delivering care.”

— Department of Health and Wellness, Nova Scotia

Integrated care delivery

Greater integration of providers and services along the continuum of care was acknowledged in both provinces as important for improving efficiency and the patient experience. For example, key informants from Nova Scotia discussed the challenges of providing adequate primary health care when physicians' coverage isn't coordinated and few physicians provide after-hours care.

“We’ll have succeeded when people don’t have to tell their story 20 times.”

— Northern Health, B.C.

Primary health care

Key informants in both provinces described initiatives to improve the integration of services in the community. They reflected on similar goals of breaking down traditional barriers between services, for example, by

- “Engaging family physicians, nurse practitioners and family practice nurses and other allied health professionals, like mental health and addictions” (South Shore–South West Nova, N.S.); and
- “Provid[ing] care to the patients in 1 spot as opposed to having them have to travel from point to point to point” (Northern Health, B.C.).

Taking action: Integrated care delivery in primary health care

In B.C., the Primary Care Home (PCH) provides comprehensive community services (home care, public health, primary health care, and mental health and addictions services) in 1 setting. The shared electronic medical record is a key component of the efficiency of the PCH in Northern Health. Several key informants described how the PCH has reduced emergency and acute admissions and alternate level of care days by more effectively managing patients' needs in the community.

Nova Scotia employs a collaborative care model through primary health care centres that link physicians and other health professionals to ease communication and transitions of care and to allow for more after-hours coverage. In some communities, [Collaborative Emergency Care Centres](#) are in place where advanced care paramedics and nurse practitioners (instead of physicians) provide after-hours emergency care.

Respondents in B.C. recognized strong integration between acute and community care as key to a smooth patient journey. However, there is awareness that it is still a challenge to change the culture of medical leadership to put primary health care at the centre — rather than the periphery — of planning.

Acute care

Key informants from both provinces described a number of initiatives for improving coordination across acute and community care to reduce length of stay and readmissions:

- In B.C., the 48/6 model of care for hospitalized seniors helps improve discharge planning by identifying 6 tasks that must be completed within 48 hours of an acute admission. The 48/6 model coordinates various service providers to conduct screening and in-depth assessments, and to ensure that appropriate community-based supports are in place for patients' transition to home.
- Both provinces have policies in place that encourage acute care and community service providers to identify supports (e.g., housing, home care) to minimize alternate level of care days and improve discharge planning.
- In Nova Scotia, flow initiatives use multiple strategies and cross-sector collaboration to improve patient throughput in acute care.

“ . . . So, if we have overcrowding in our emergency department, that is not an emergency department–only issue, it’s a systems issue. It’s about getting people home first. It’s about getting people into long-term care. It’s about community services . . . It’s about all kinds of things across our system that might show itself in our emergency room being overcrowded, but really is a broader system issue.”

— South Shore–South West Nova, Nova Scotia



Partnerships outside the health sector to improve population health

- Key informants in both provinces recognized that improving health system efficiency requires partnerships across sectors to address the social determinants of health.
- They described a range of partnerships between health authorities and local non-profit organizations and communities to improve population health.

Respondents in Nova Scotia and B.C. recognized that addressing the social determinants of health, including housing and employment, could improve health system efficiency. They noted that strong partnerships are needed across sectors, as many of the levers for action on the determinants of health fall outside of the direct control of the health system.

In both provinces, key informants noted examples of strong and effective partnerships between health authorities and local non-profit organizations and communities. Health authorities can empower community organizations by sharing information. They also work collaboratively on joint initiatives and bring disparate groups together around a common issue.

Key informants acknowledged that a lack of intersectoral action can lead to health system inefficiencies. In Nova Scotia, several respondents highlighted how inadequate social housing and supports in the community can lead patients with mental illness and addictions to receive treatment in an acute care setting, which is more costly and creates backlogs in other parts of the system.

Taking action: Partnerships and collaboration

In Northern Health, community engagement is a function of the health authority. The chief operating officers and health service administrators are responsible for informing and partnering with mayors and city councils around health initiatives. In addition, board of directors meetings are held in communities throughout the region where leaders are invited to discuss local needs.

In South Shore–South West Nova, emergency department staff work with probation and corrections officers and the provincial housing authority to train superintendents, staff and officers on mental health issues. This training aims to improve care in the community by helping people outside of health care recognize the signs of mental illness and respond appropriately.

“[T]he relationships with the police, with emergency, with community services . . . those relationships are so important to getting through those silos, and from where I sit, it has a huge impact on efficiency.”

— Department of Health and Wellness, Nova Scotia



Physician engagement and remuneration

- Physician buy-in was acknowledged as key to making system changes to improve efficiency: B.C.'s Divisions of Family Practice is a promising initiative that engages family physicians in health care planning and decision-making.
- Key informants from both provinces suggested that reforming physician payment models could foster greater physician engagement and better align physician services with efficiency objectives.

Key informants in both provinces suggested that reforms to improve efficiency depend on strong physician leadership and engagement. Many cited action taken to support collaboration among physicians and health authorities as an example.

Taking action: Physician engagement

In 2008, [Divisions of Family Practice](#) were created by Doctors of BC to provide a common voice for primary health care physicians. They promote health authority–physician collaboration and partnership in decision-making. This supports better alignment of priorities and action between acute and primary health care. Key informants suggested that Divisions of Family Practice helped increase electronic medical record uptake and promote a greater sense of ownership for the entire health care system.

“It’s not an established habit of physicians to work closely with health authorities in that manner. So, it’s taken time to develop the trust and confidence that allows us to do this and there’s still a long way to go.”

— Northern Health, B.C.

Physician payment

Key informants from both provinces identified physician payment as a potential lever to foster engagement and align incentives to improve efficiency. In particular, fee-for-service payment models were viewed as a barrier to health system efficiency. Key informants noted that fee-for-service payments incentivize short and frequent visits, which can be particularly challenging for those with chronic diseases. Moreover, it can foster a provider-centred — rather than patient-centred — approach to service delivery, reinforcing the perception of traditionally autonomous physicians.

Others suggested that changes to fee codes could incentivize inter-professional collaboration and virtual or remote consultations for efficiency gains. Key informants also spoke favourably about how alternative mechanisms to fee-for-service payments can support quality improvements.

“[T]hey’ve actually started using the fee-for-service model here . . . to drive incentives to provide high-quality care . . . they’ve also included fees now that recognize the amount of time and effort it takes to properly manage someone with a number of chronic complex conditions.”

— Pictou County–Guysborough Antigonish Strait, Nova Scotia

Alternative payments can also help attract physicians to rural areas. For example, one respondent noted that Northern Health has contracted directly with physicians in Fort St. John and pays them on a salary basis.

Key informants recognized the importance of optimizing the entire health workforce to support more flexible and efficient health care. Recruitment and retention of health professionals is a particular challenge in rural and remote communities, including First Nations. Interviewees from both Northern Health and Nova Scotia described staffing shortages in allied health professions that are often demanding occupations with relatively low pay. They also pointed to interprovincial migration of nurses and allied health professionals (particularly recent graduates) as a barrier to achieving optimal staff mix and level. Some also noted that union regulations can impede the ability of health authorities to make changes to professional scopes of practice.

Flexible funding

- Key informants acknowledged that flexible funding has the potential to yield efficiency gains.
- In both provinces, it remains challenging to make the case to shift health care investments upstream.
- Investments in partnerships with other sectors are effective strategies in both provinces.

Key informants from Northern Health identified the flexibility of the health authority funding structure as key to improving efficiency. For example, Northern Health was able to leverage funds allocated for Integrated Primary and Community Care in order to implement Primary Care Homes in more communities.

Interviewees from both provinces emphasized the importance of investments in primary and preventive care to help reduce the need for more costly acute care. While some were able to identify successes, challenges were also identified. For example, some argued that it can be difficult to justify funding community partnerships because of a lack of data to support funding decisions. Others acknowledged that while investment in prevention is desirable, funding is still required to manage patients already in acute care.

“ . . . It’s going to take a huge leap of faith to invest more in . . . primary [health care] and prevention and . . . education and still maintain the funding for the acute care and the people who are sick in the system.”

— South Shore–South West Nova, Nova Scotia

In Nova Scotia, investments have been made in programs that address the social determinants of health, including Thrive, Home First and Health Promoting Schools. Small grants have also been issued by health authorities to help engage municipalities in discussions around health promotion.

Challenges in the external environment

Population health characteristics

Nova Scotia key informants cited an aging population with a high prevalence of chronic disease as a challenge to improving efficiency. They recognized that investments are required to improve prevention and chronic disease management for patients with complex needs. Northern Health also faces unique population health challenges, including a remote population with a high proportion of Aboriginal peoples with greater health care needs.

In both provinces, interviewees expressed that they had limited control over the personal health behaviours that have a negative effect on health. In B.C., they noted that there is cultural resistance to immunizations in some communities, while in Nova Scotia, they reflected on poor health behaviours that are ingrained, such as smoking and drinking.

Key informants reflected on inefficiencies in providing services in the rural environment. These include challenges with transportation, limited technological resources, staff retention, and expectations about the kinds of care that can and should be provided locally. They also suggested, however, that the unique characteristics of rural settings create opportunities for finding efficiencies in different ways. Examples include using telehealth or expanding the scopes of practice for paramedics and nurse practitioners. Key informants also described how strong informal ties in a rural setting can help facilitate intersectoral collaboration.

Cultural resistance to change

In both provinces, interviewees highlighted that public expectations for health care can conflict with the goals of efficiency. These expectations include receiving certain diagnostic tests that may not be necessary, going to hospital instead of receiving home care, going to long-term care facilities to age, and using “the emergency rooms like their family doctor’s office” (Pictou County–Guysborough Antigonish Strait, Nova Scotia). The introduction of system changes to improve efficiency, therefore, will require public engagement and support.

“[S]ometimes, efficiency is hindered because it’s not a politically easy thing to do and I think the way you make it politically more palatable is that you engage the citizens in the discussion and together we plan for what needs to happen.”

— Department of Health and Wellness, Nova Scotia

Key informants also cited resistance to change among health care service providers as a barrier to improving efficiency. In Nova Scotia, this resistance was described in terms of both limited uptake of more efficient tools and technologies and untapped opportunities for continuing education and skills upgrades. Some also noted a reluctance among decision-makers to consider cost as a priority:

“[W]hen I joined the public sector coming from the private sector, I was astounded by the lack of attention paid to the investment to get a unit of output . . . it’s almost like there’s a bit of a ‘Oh, we don’t want to talk about cost’ — it’s somehow not good manners in Canada or something.”

— Department of Health and Wellness, Nova Scotia

Comparison with the broader literature

The conceptual framework for improving health system efficiency that emerged from our analysis (see Figure 3) is consistent with concepts in much of the grey and academic literature.ⁱⁱ Performance monitoring was most prominent in the literature as being vital to efficiency improvement. Other components of the framework were present in the empirical literature but to a lesser extent. These include leadership, system-level integration, partnerships and collaboration, and physician engagement. The importance of integrated and coordinated service delivery as a means to improve system efficiency was also acknowledged in recent high-profile national and international reports.^{1, 11}

In part, the emphasis of performance monitoring in the literature can be attributed to the predominance of American studies in the literature. It could also relate to the broader understanding of efficiency in our study as the ability of health systems to reduce premature deaths from treatable causes, and not solely to provide services.

Additional actions to improve efficiency that were described in the empirical studies we reviewed but were less pronounced in our analysis include

- Fostering a strong commitment to continuous quality improvement among staff;
- Building capacity for continuing professional development and training (e.g., to build better understanding of costs), education and knowledge exchange; and
- Improving clinical and administrative processes (notably, Lean-guided).

ii. This synthesis is based on a review of 60 empirical studies listed in *Improving Health System Efficiency: Description of Methods*.

Conclusions

This Phase 3 study of CIHI's efficiency project enhances our understanding of the actions taken and the challenges facing decision-makers in their efforts toward improving health system efficiency. The qualitative approach taken here allowed us to gain some insights into why some regions were able to achieve relatively higher efficiency than others, as described in Phase 2.

The mechanisms for improving health system efficiency identified by study participants can be understood as taking place along 5 key dimensions (see Figure 3):

- Performance monitoring for accountability and decision-making;
- System-level integration in governance and care delivery;
- Partnerships outside the health sector to improve population health;
- Physician engagement and remuneration; and
- Flexible funding.

The interviewees emphasized the importance of strong leadership that enables progress to be made in these 5 dimensions. They also recognized that many challenges to improving health system efficiency relate to the characteristics of the environment they work in.

Several B.C. key informants credited the current health authority structure with facilitating efficiency by strengthening integration across sectors and regions under each health authority. In addition, since establishing regional health authorities in 2001, B.C. has made efforts to align the priorities of the province and the health authorities. Owing to a strong performance-monitoring framework and a focus on efficiency throughout the province, B.C.'s interviewees seemed well versed in the concept of efficiency and how it applies to their work.

In contrast, many Nova Scotia key informants reflected that the previous structure of 9 health authorities was fragmented and siloed, leading to inefficiencies in governance and service delivery. They expressed hope and optimism that the amalgamation of the health authorities and the accompanying reforms would improve efficiency overall by improving integration and performance monitoring.

The experiences of system leaders in 2 provinces at different stages of health system transformation provide a rich source of information on the actions and challenges to improving health system efficiency in Canada. Future work can apply the framework developed here to assess and compare progress toward health system efficiency in other jurisdictions. We can also consider approaches for quantitatively measuring the important concepts that emerged in this study and refine existing estimates of health system efficiency.

Appendix 1: Text alternative for Figure 2

B.C. established 20 regional health boards in 1993. Nova Scotia established 4 regional health boards in 1996. B.C. established 11 regional health boards in 1997. Nova Scotia established 9 district health authorities in 2001. B.C. established 5 regional health authorities in 2001. Data was available for Phase 2 between 2007 and 2009. Phase 3 interviews were conducted between October 2014 and May 2015. Nova Scotia established the Nova Scotia Health Authority in 2015.

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Talk to us

CIHI Ottawa

495 Richmond Road
Suite 600
Ottawa, Ont.
K2A 4H6
613-241-7860

CIHI Toronto

4110 Yonge Street
Suite 300
Toronto, Ont.
M2P 2B7
416-481-2002

CIHI Victoria

880 Douglas Street
Suite 600
Victoria, B.C.
V8W 2B7
250-220-4100

CIHI Montréal

1010 Sherbrooke Street West
Suite 602
Montréal, Que.
H3A 2R7
514-842-2226

CIHI St. John's

140 Water Street
Suite 701
St. John's, N.L.
A1C 6H6
709-576-7006