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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.

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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EDITORIAL

Confronting Barriers to Improving Healthcare Performance in Canada

Is substantive transformation of healthcare delivery in Canada a fool's paradise? Since this idiom refers to a state of happiness unconnected to underlying truths, it may be an apt descriptor given the many problems with the provinces' and territories' delivery of healthcare. Some of these problems cause harm, such as hospital-acquired infections, while others are simply wasteful, such as unnecessary tests or imaging. Moreover, meaningful transformation of healthcare delivery has been elusive and divisive in provinces and territories for decades (Martin et al. 2018; McIntosh et al. 2010; Ontario Ministry of Finance 2012).

Many healthcare organizations in Canada and other parts of the world frame their health system's performance with the "quadruple aim" (Berwick et al. 2008; Bodenheimer and Sinsky 2014). As many readers will know, the quadruple aim is a standardized framework for improving health system performance; it serves to guide healthcare organizations' policies, activities and behaviours in the direction of improving health system performance. The quadruple aim is used across clinical settings and health systems (Brown-Johnson et al. 2018; D'Alleva et al. 2019; Rathert et al. 2018), most commonly among integrated delivery systems, such as Kaiser Permanente (Gin and Courneya 2020) and the US Department of Veterans Affairs (Shekelle and Begashaw 2021).

The quadruple aim includes four dimensions: patient experience, health outcomes, costs and provider experience. Improvement in these dimensions will, according to the framework, result in better health system performance. Currently, the Province of Ontario (Government of Ontario 2019), Alberta Health Services (2018) and British Columbia (Fraser Health Authority 2020) use the quadruple aim as a guiding principle in official policy documents.

In spite of provinces' and regions' practice of using the quadruple aim framework to guide policy development and their strategies – to my knowledge – there are no Canadian exemplars to follow. None of our provinces and territories consistently collect or act on measures from all four dimensions.

Yet there are clear Canadian examples that emphasize the need for more data and analytics in the domains of the quadruple aim. At a provincial level, the experiences of patients, families and caregivers with healthcare are not measured in a standardized approach, nor is the information regarding their experiences linked or analyzed across patients' sectors of care or with individual provider-based encounters (Kuluski and Guilcher 2019).

Elsewhere, the cost of healthcare is poorly measured by provinces and territories. In some provinces, such as New Brunswick and British Columbia, the costs of expensive hospitalizations are not measured. These provinces make inferences and policy decisions based on cost information from Ontario, where processes of care and drivers of cost may be significantly different. It is even more challenging to measure healthcare costs that are privately paid or employer-insured. Not borne by the government, costs for privately paid health services, such as psychotherapy or occupational therapy, are not factored into decisions regarding the value of healthcare because they are not reported or linked with publicly provided healthcare.

There is years' worth of strong evidence that the effectiveness of Canada's healthcare ranks very poorly in relation to its peers (Davis et al. 2014; Schneider et al. 2021). Provinces' and territories' lack of qualitative and quantitative information in domains of the quadruple aim makes it nearly impossible to judge whether their health systems are improving. This is not a new phenomenon; these gaps have been well understood for over a decade (European Observatory on Health Systems and Policies et al. 2020; Martin et al. 2018). This begs the question of whether Canadians should be happy with the healthcare they have now. Given that we are not deficient in spending, there should be significant gains in access, efficiency and equity to be attained.

What Needs to Happen

There are three key imperatives for improving the performance of Canadian health systems in the context of the quadruple aim. First, there is a need to convince provincial and territorial senior health policy makers of the value of standardizing and collecting measures in all four dimensions of the quadruple aim. For instance, population-based collection of patient- and caregiver-reported experience and outcome information has long been identified as overdue (Gutacker and Street 2018; Kuluski and Guilcher 2019; Wong et al. 2017, 2019).

Second, there is a need for provinces to be "nimbler," and more responsive, in order to match public resources with their residents' health needs identified through the quadruple aim. This may mean allocating more funding to long-term care as compared to hospital-based care. Action on nimbleness will be difficult as provinces and territories have organized healthcare delivery by sectors, the activities of which are not well-integrated. For instance, in Alberta, physician remuneration is not integrated with the single health region tasked with organizing acute and residential care.

Third, provinces and territories need to integrate physician services more closely with other healthcare services and communities' health needs. In many settings, physicians' high level of autonomy is out of sync with integrated models of care and contributes to

fragmentation of services. New models of clinical and financial partnership between the governments with primary and secondary care providers are needed.

The public expects that healthcare delivery will meaningfully improve as we exit the perilous period of the COVID-19 pandemic. To achieve their expectations and improve health systems' performance, drastic action on archaic policies, delivery structures and processes is needed.

A number of things have been tried. National and provincial blue-ribbon panels and expert advice have not been effective at moving the needle and another independent review is unlikely to result in meaningful inroads (Forest and Martin 2018; Ontario Ministry of Finance 2012; Romanow 2002). There are options open to political leaders and senior policy makers. These options range from benign strategies, such as linking funding with data collection consistent with the quadruple aim, to more controversial directions, such as the establishment of an independent council for providing recommendations to improve health system performance that would redirect some of the political risk away from governments.

No matter how one analyzes the problem of provinces' and territories' quite dismal health system performance and proposes solutions, substantial sums of money will have to be spent (hint: federal). The allocation of new funds will be an opportunity to redefine relationships among the sectors, settings, providers and technologies vying for a slice of the money. Strong support by government healthcare leaders and new visions for senior policy makers will be needed to guide provinces and territories from their state of immobility to meaningful healthcare policy reform.

If provinces and territories get serious about improving health system performance, the framework of the quadruple aim will be leaned upon heavily. However, the quadruple aim is a tool and not a promise. Maybe a more accurate idiom would be "A journey of a thousand miles begins with a single step."

In This Issue

Consistent with the need for more comprehensive health system performance measurement, this issue's first research paper features a multi-province study developing regional primary care performance measures. This research by Wong et al. (2021) addresses a significant gap in evaluating primary care performance – a key tenet of provinces' health delivery networks – a sector where provinces conduct very little performance measurement. Drawing on quantitative data from primary care practices and qualitative data from clinicians, this research found that measuring primary care performance is indeed possible and may be imperative to improving health system performance. The study also found significant regional differences in aspects of primary care delivery, meaning that primary care in Ontario is not the same as primary care in British Columbia or Nova Scotia.

An Alberta-based qualitative research paper by Leslie et al. (2021a) focused on the impact of the COVID-19 pandemic on the integration of primary care with other sectors of care. This study found that the pandemic had the effect of more closely integrating primary

care with the provincial government and Alberta Health Services, the province's centralized healthcare system. Key drivers of the integration between sectors included access to personal protective equipment, development of new billing codes and new channels of communication.

The next research paper, also written by Leslie et al. (2021b), used documentation analyses and qualitative methods to explore the resiliency of primary care in Alberta during the COVID-19 pandemic. This paper describes how the structure of primary care delivery management was integrated in the pandemic's response. An important finding was that while there was a provincially focused response to the pandemic, respondents articulated that primary care's presence was under-represented in efforts to maintain continuity of operations and delivery of care to those not able to access virtual-based alternatives.

The next research paper measured the continuity of primary care delivery during the COVID-19 pandemic among Family Health Teams, a model of team-based primary care used in Ontario. Ashcroft et al. (2021) used a cross-sectional design and survey-based methods for collecting data from Family Health Team executives. The research found that there was a very rapid uptake of virtual care among the Family Health Teams, although the policy analysis points out that there are pressing needs for developing clinicians' competencies to lead virtual team-based care and the establishment of best practices for mixed virtual and in-person care.

The research paper by Lee et al. (2021) provides an analysis of the conundrum facing provinces' governments: an increasing number of physicians and continuing struggles for residents to access primary and specialty care. Based on analyses of retrospective administrative datasets, the study found that the number of physicians has been increasing over the past five years even though the volume of services physicians has been providing to their patients has been declining. Emphasizing that the number of hours worked has been eroding over time among primary care and specialist physicians, the authors posit that work–life balance and indirect (unremunerated) patient care activities were, at least partially, responsible for the decline in the number of hours worked. The authors call for policy responses from the government.

In this issue's final research paper, Ethier and Carrier (2021) explore factors associated with the establishment of, and access to, local health and social services. Defined as being local or neighbourhood-based, local health and social services provide primary care and access to community services, social services and home health. One of the key objectives of this delivery model is to provide older adults support to age in place. Based on a scoping study, the authors found regulatory and policy inflexibility by provinces, lack of resources or expertise, conflicts of roles and non-governmental partnerships to be barriers to improving access to local health and social services.

JASON M. SUTHERLAND, PhD
Editor-in-Chief

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ÉDITORIAL

Faire face aux obstacles à l'amélioration du rendement des soins de santé au Canada

La transformation substantielle de la prestation des soins de santé au Canada est-elle un paradis pour les béats? Puisque ce mot fait référence à un état d'heureux bien-être sans égard aux vérités sous-jacentes, il est sans doute approprié étant donné les nombreux problèmes liés à la prestation des services de santé dans les provinces et les territoires. Certains de ces problèmes causent des dommages, tels que les infections nosocomiales, tandis que d'autres constituent tout simplement une perte de temps, tels que les tests ou imageries non nécessaires. De plus, pendant des décennies, toute transformation significative de la prestation des soins de santé a été problématique et conflictuelle dans les provinces et les territoires (Martin et al. 2018; McIntosh et al. 2010; ministère des Finances de l'Ontario 2012).

Bon nombre d'organismes de santé au Canada ou ailleurs dans le monde définissent le rendement du système de santé au moyen de « quatre objectifs » (Berwick et al. 2008; Bodenheimer et Sinsky 2014). Comme plusieurs lecteurs le savent, les quatre objectifs forment un cadre standardisé pour améliorer le rendement du système de santé; ils servent à orienter les politiques, activités et comportements des organisations de santé en vue d'une amélioration du rendement du système de santé. Les quatre objectifs sont utilisés dans les milieux cliniques et dans les systèmes de santé (Brown-Johnson et al. 2018; D'Alleva et al. 2019; Rathert et al. 2018), le plus souvent dans les systèmes de prestation intégrés, tels que le consortium Kaiser Permanente (Gin et Courneya 2020) ou le département américain des Anciens combattants (Shekelle et Begashaw 2021).

Les quatre objectifs portent sur quatre volets : l'expérience du patient, les résultats pour la santé, les coûts et l'expérience des prestataires de soins. L'amélioration de ces aspects se traduira, selon le cadre de travail, par un meilleur rendement du système de santé. Actuellement, la province de l'Ontario (gouvernement de l'Ontario 2019), l'organisme Alberta Health Services (2018) et la Colombie-Britannique (Fraser Health Authority 2020) ont recours aux quatre objectifs comme principe directeur dans la documentation officielle.

Malgré le recours aux quatre objectifs par les provinces et les régions pour guider l'élaboration des politiques et des stratégies, il n'y a pas – à ma connaissance – d'exemple à suivre au Canada. Aucune province ou territoire ne recueille ou n'agit systématiquement sur la mesure des quatre volets.

Pourtant, il existe des exemples canadiens clairs qui soulignent le besoin de plus de données et d'analyses pour les quatre volets. Au niveau provincial, l'expérience des patients, des familles et des aidants en matière de soins de santé n'est pas mesurée selon une méthode standardisée, pas plus que les informations concernant leur expérience ne sont liées (ou analysées) entre les divers secteurs de soins ou dans le contexte des rencontres avec les prestataires de services (Kuluski et Guilcher 2019).

Ailleurs, le coût des soins de santé est mal mesuré par les provinces et les territoires. Dans certaines provinces, comme au Nouveau-Brunswick et en Colombie-Britannique, le coût des hospitalisations onéreuses n'est pas mesuré. Ces provinces font des déductions et prennent des décisions stratégiques en fonction d'informations provenant de l'Ontario, où les processus de soins et les facteurs de coûts peuvent être très différents. Il est encore plus difficile de mesurer les coûts des soins de santé payés par le secteur privé ou assurés par l'employeur. N'étant pas pris en charge par le gouvernement, les coûts des services de santé payés par le secteur privé, tels que la psychothérapie ou l'ergothérapie, ne sont pas considérés dans les décisions concernant la valeur des soins de santé car ils ne sont pas déclarés ou liés aux coûts des services de santé publics.

Il y a un cumul de preuves solides qui démontrent que l'efficacité des soins de santé au Canada se classe très mal par rapport à ses pairs (Davis et al. 2014; Schneider et al. 2021). Le manque d'informations qualitatives et quantitatives concernant les quatre objectifs dans les provinces et territoires rend presque impossible l'appréciation d'une amélioration, ou non, des systèmes de santé. Ce n'est pas un phénomène nouveau; ces lacunes sont bien comprises depuis plus d'une décennie (Observatoire européen des systèmes et des politiques de santé et al. 2020; Martin et al. 2018). Cela soulève la question à savoir si les Canadiens sont satisfaits ou non des soins de santé dont ils bénéficient actuellement. Les dépenses étant là, il devrait y avoir des gains importants en matière d'accès, d'efficacité et d'équité à atteindre.

Voilà ce qu'il faut

Il existe trois impératifs clés pour améliorer le rendement des systèmes de santé canadiens dans le contexte des quatre objectifs. Premièrement, il faut convaincre les principaux décideurs provinciaux et territoriaux de la valeur d'une normalisation et d'une collecte de mesures dans tous les volets des quatre objectifs. Par exemple, la collecte d'informations sur l'expérience et les résultats déclarées par les patients et les soignants dans la population est depuis longtemps considérée comme déficitaire (Gutacker et Street 2018; Kuluski et Guilcher 2019; Wong et al. 2017, 2019).

Deuxièmement, il est nécessaire que les provinces soient plus agiles et plus réactives afin de faire correspondre les ressources publiques aux besoins des résidents identifiés par le biais

des quatre objectifs. Cela peut signifier allouer plus de fonds aux soins de longue durée par rapport aux soins hospitaliers. Il sera difficile d'agir sur l'agilité, car les provinces et les territoires ont organisé la prestation des services selon des secteurs dont les activités ne sont pas bien intégrées entre elles. Par exemple, en Alberta, la rémunération des médecins n'est pas intégrée à la seule région sanitaire chargée d'organiser les soins de courte durée et à domicile.

Troisièmement, les provinces et les territoires doivent intégrer plus étroitement les services des médecins aux autres services de santé et aux besoins des communautés. Dans de nombreux milieux, le niveau élevé d'autonomie des médecins n'est pas en phase avec les modèles de soins intégrés et contribue à la fragmentation des services. De nouveaux modèles de partenariat clinique et financier entre les gouvernements et les prestataires de soins primaires et secondaires sont donc nécessaires.

La population s'attend à ce que la prestation des services de santé s'améliore de manière significative après la pandémie de COVID-19. Pour répondre à leurs attentes et améliorer le rendement du système de santé, il faudra exercer une action rigoureuse sur les politiques, les structures de prestation et les processus archaïques.

On a essayé un certain nombre de choses. Les groupes d'experts nationaux et provinciaux et les conseils d'experts n'ont pas réussi à faire avancer le dossier et il est peu probable qu'un autre examen indépendant aboutisse à des avancées significatives (Forest et Martin 2018; ministère des Finances de l'Ontario 2012; Romanow 2002). Des options s'offrent pourtant aux dirigeants politiques et aux décideurs de haut niveau. Elles vont de stratégies inoffensives, telles que l'association du financement à la collecte de données conformément au quatre objectifs, à des orientations plus controversées, telles que la création d'un conseil indépendant chargé de formuler des recommandations visant à améliorer le rendement du système de santé, lesquelles détourneraient une partie du risque politique loin des gouvernements.

Peu importe comment on analyse le problème du rendement plutôt lamentable des systèmes de santé des provinces et territoires, et en dépit des solutions proposées, des sommes importantes devront être dépensées (un indice ici : fédéral). L'allocation de nouveaux fonds permettra de redéfinir les relations entre les secteurs, les établissements, les fournisseurs et les technologies en lice pour obtenir une part de l'argent. Un soutien solide de la part des dirigeants gouvernementaux et de nouvelles visions pour les principaux décideurs seront nécessaires pour guider les provinces et les territoires de leur état d'inertie vers une réforme significative des politiques de santé.

Si les provinces et les territoires prennent au sérieux l'amélioration du rendement du système de santé, le cadre des quatre objectifs sera fortement appuyé. Cependant, les quatre objectifs sont un outil et non une promesse. Il convient peut-être ici de penser au proverbe « un voyage de mille lieues commence toujours par un premier pas ».

Dans ce numéro

Conformément au besoin d'une mesure plus complète du rendement du système de santé, le premier rapport de recherche de ce numéro présente une étude multiprovinciale qui

développe des mesures régionales du rendement des soins de santé primaires. Cette recherche de Wong et al. (2021) comble une lacune importante dans l'évaluation du rendement des soins primaires – un principe clé des réseaux de prestation de services de santé. Les soins primaires représentent un secteur où les provinces effectuent très peu de mesures du rendement. S'appuyant sur des données quantitatives provenant des cliniques de soins primaires et sur des données qualitatives provenant des cliniciens, cette recherche révèle que la mesure du rendement des soins primaires est effectivement possible et est sans doute nécessaire pour améliorer le rendement du système de santé. L'étude a également révélé des différences régionales importantes dans certains aspects de la prestation des soins primaires, ce qui veut dire que les soins primaires en Ontario ne sont pas les mêmes que ceux en Colombie-Britannique ou en Nouvelle-Écosse.

Un document de recherche qualitative basé en Alberta, et rédigé par Leslie et al. (2021a), porte sur l'impact de la pandémie de COVID-19 sur l'intégration des soins primaires avec d'autres secteurs de soins. Cette étude révèle que la pandémie a eu pour effet d'intégrer plus étroitement les soins primaires avec le gouvernement provincial et Alberta Health Services, le système de santé centralisé de la province. Les principaux moteurs de l'intégration entre les secteurs comprenaient l'accès aux équipements de protection individuelle, le développement de nouveaux codes de facturation et de nouveaux canaux de communication.

L'article suivant, également rédigé par Leslie et al. (2021b), a recours à l'analyse documentaire et à des méthodes qualitatives pour explorer la résilience des soins primaires en Alberta pendant la pandémie de COVID-19. Cet article décrit comment la structure de gestion de la prestation des soins primaires a été intégrée dans la réponse à la pandémie. Une conclusion importante est que, bien qu'il y ait eu une réponse à la pandémie dans la province, les répondants ont indiqué que les soins primaires était sous-représentés dans les efforts visant à maintenir la continuité des activités et la prestation des services à ceux qui n'ont pas accès aux modes virtuelles.

L'article suivant mesure la continuité de la prestation des soins primaires pendant la pandémie de COVID-19 parmi les équipes Santé familiale, un modèle ontarien de soins primaires en équipe. Ashcroft et al. (2021) ont utilisé une conception transversale et des méthodes d'enquête pour recueillir des données auprès des cadres des équipes Santé familiale. La recherche révèle qu'il y a eu une adoption très rapide des soins virtuels dans les équipes Santé familiale, bien que l'analyse des politiques souligne qu'il y a un besoin urgent de développer les compétences des cliniciens pour diriger les soins virtuels en équipe, de même qu'un besoin d'établir des pratiques exemplaires pour les soins virtuels et en personne.

L'article de Lee et al. (2021) fournit une analyse de l'énigme à laquelle sont confrontés les gouvernements provinciaux : un nombre croissant de médecins, certes, mais pourtant les efforts continuent sans cesse pour que les résidents aient accès aux soins primaires et spécialisés. Sur la base d'analyses d'ensembles de données administratives rétrospectives, l'étude révèle que le nombre de médecins a augmenté au cours des cinq dernières années, même si le volume de services fournis par les médecins à leurs patients a diminué. Soulignant que le

nombre d'heures travaillées s'est érodé au fil du temps chez les médecins de première ligne et les médecins spécialistes, les auteurs postulent que l'équilibre travail–vie personnelle et les activités indirectes (non rémunérées) de soins aux patients sont, au moins en partie, responsables de la baisse du nombre d'heures travaillées. Les auteurs demandent des réponses politiques de la part du gouvernement.

Dans le dernier rapport de recherche du numéro, Ethier et Carrier (2021) explorent les facteurs associés à la mise en œuvre et à l'accès aux services de santé et sociaux locaux. Définis comme étant locaux ou de quartier, les services de santé et sociaux locaux fournissent des soins primaires et un accès aux services communautaires, aux services sociaux et aux soins à domicile. L'un des principaux objectifs de ce modèle de prestation est de fournir aux personnes âgées un soutien pour vieillir chez elles. Sur la base d'une étude de la portée, les auteurs constatent que l'inflexibilité des provinces en matière de réglementation et de politique, le manque de ressources ou d'expertise, les conflits de rôles et les partenariats non gouvernementaux sont autant d'obstacles à l'amélioration de l'accès aux services de santé et sociaux locaux.

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RESEARCH PAPER

Comparing the Attainment of the Patient's Medical Home Model across Regions in Three Canadian Provinces: A Cross-Sectional Study

Comparaison de la mise en œuvre du modèle des centres de médecine de famille dans trois provinces canadiennes : une étude transversale

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Abstract

Background: The aim of this work was to show the feasibility of providing a comprehensive portrait of regional primary care performance.

Methods: The TRANSFORMATION study used a mixed-methods concurrent study design where we analyzed survey data and case studies. Data were collected in British Columbia, Ontario and Nova Scotia. Patient's Medical Home (PMH) pillar scores were created by calculating mean clinic-level scores across regions. Scores and qualitative themes were compared.

Results: Participation included 86 practices (n = 1,929 patients; n = 117 clinicians). Regions had differential attainment towards PMH orientation with respect to infrastructure; community adaptiveness and accountability; and patient and family partnered care.
The lowest PMH attainment for all regions were observed in connected care; accessible care; measurement, continuous quality improvement and research; and training, education and continuing professional development.

Conclusions: Comprehensive performance reporting that draws on multiple data sources in primary care is possible. Regional portraits highlighting many of the key pillars of a PMH approach to primary care show that despite differences in policy contexts, achieving a PMH remains elusive.

Résumé

Contexte : L'objectif de ce travail est de montrer la faisabilité de brosser un portrait complet de la performance régionale des soins primaires.

Méthode : L'étude de TRANSFORMATION a eu recours à des méthodes mixtes simultanées pour analyser les données d'enquête et les études de cas. Les données ont été recueillies en Colombie-Britannique, en Ontario et en Nouvelle-Écosse. Les scores du pilier des centres de médecine de famille (CMF) ont été obtenus en calculant les scores moyens cliniques dans toutes les régions. Les scores et les thèmes qualitatifs ont été comparés.

Résultats : L'étude a porté sur 86 cliniques (n = 1 929 patients, n = 117 cliniciens). Les régions ont obtenu des résultats différents en matière d'orientation des CMF en ce qui concerne l'infrastructure, l'adaptabilité et la responsabilité communautaires, ainsi que les soins en partenariat avec le patient et la famille. Les résultats les plus bas des CMF pour toutes les régions ont été observés dans les soins connectés, les soins accessibles, les mesures, l'amélioration continue de la qualité et la recherche, ainsi que la formation, l'éducation et la formation professionnelle continue.

Conclusions : Il est possible de produire un rapport de performance complet qui s'appuie sur plusieurs sources de données en soins primaires. Les portraits régionaux qui mettent en évidence bon nombre des piliers clés d'une approche des CMF en soins primaires montrent que, malgré les différences dans les contextes politiques, la réalisation d'un CMF reste insaisissable.

Introduction

A primary healthcare (PHC)–oriented health system is the most cost-effective and equitable way for health systems to address population health outcomes (WHO 2018). Strong primary care service delivery – a core part of a PHC-oriented system – is the backbone of a high-performing system. Since the early 2000s, primary care reform has been high on the health policy agenda across Canada (Aggarwal and Hutchison 2012). Yet there remains a lack of a coordinated and comprehensive approach to collect, analyze and report data on the performance of primary care at either the individual practice level or the regional/system level (Haj-Ali and Hutchison 2017). Key opportunities at the practice or regional level that can identify areas for improvement or track the effect of improvement initiatives are being missed. For provincial policy makers, whose responsibility is to ensure access to high-quality primary care services for its residents, the paucity of information available on this sector's performance makes it challenging to monitor and evaluate the effectiveness of policy changes and investments (Haj-Ali and Hutchison 2017).

Across most high-income countries, there is consensus that independent, impartial assessment of performance is an essential part of quality improvement (Levesque and Sutherland 2020). Public reporting can be used as a lever for change, although the potential for negative, unintended consequences such as gaming (Campanella et al. 2016) or a preoccupation with a small number of published, often easily measurable, indicators always exists (Levesque and Sutherland 2020). However, public reporting of health system performance can promote accountability, highlight variation, identify areas for improvement and be used to support change. Regional case studies of performance reporting (Smith et al. 2012; Young 2012) and evidence from the hospital sector (Tu et al. 2009) indicate that public reporting can influence decision makers' and clinicians' quality-improvement agendas. Public reporting may improve performance (Faber et al. 2009; Hibbard et al. 2012; Smith et al. 2012; The Commonwealth Fund 2011) because it has the potential to "facilitate public participation and increase accountability in healthcare" (Ellins and McIver 2009: 41), impact societal and professional values and direct attention to issues not currently on the policy agenda (Oxman et al. 2009). It may also facilitate collaboration among stakeholders with a common agenda (van Walraven et al. 2010).

There remains limited comparative data available on primary care performance in Canada. What is available is mostly at a provincial level that uses health administrative data from the International Health Policy Surveys (The Commonwealth Fund 2011) or aggregated data from the Canadian Medical Association (2021). Health administrative data can contribute to performance measurement of primary care in a relatively inexpensive way. But only using these data cannot adequately address core primary care dimensions such as health promotion, interaction with social sectors or communication (Green et al. 2012; Hutchison et al. 2020). Hutchison et al (2020) suggested that data are currently available only for 13% of practice-based measures and 41% of system-level measures as identified by the Primary Care Performance Measurement Framework for Ontario. Another limitation is that health

administrative data usually include only some activities by billing physicians and routinely omit contributions of other healthcare team members.

Clinicians, healthcare quality-improvement organizations and insurers increasingly recognize the need for systematic, ongoing feedback on primary care performance (Roberts et al. 2014). Clinicians prefer to reflect on their own performance data but also have comparative data (at the individual practice and/or the regional/provincial level) available (Robert Wood Johnson Foundation 2013). Reporting needs to be accurately, fairly and meaningfully measured and must be comprehensive, systematic and rigorous (Langton et al. 2016; Levesque and Sutherland 2020), especially given clinicians' particular sensitivity to comparative data and strong debates that can occur in the media about data.

The objective of this study is to measure and report on the science of comprehensive performance measures, taking advantage of multiple sources of data in primary care across regions in three Canadian provinces. This study is timely because Canadian practice-based (Hogg et al. 2008) and system-level (Watson et al. 2009) performance measurement frameworks provide guidance on what is needed to measure primary care performance. It is important to regularly include measures of primary care performance to inform policy development, service planning, management and quality improvement (Hutchison et al. 2020).

Method

Design

The TRANSFORMATION study was a mixed-methods concurrent study design where quantitative analysis was supplemented with qualitative case studies. The multi-method data collection strategy was carried out in three Canadian geographic regions. The research team consisted of researchers, decision makers, clinicians, patients and regional and international advisory committees. We conducted surveys in English and French in primary care practices, collecting organization-, provider- and patient-level data. Case studies and deliberative dialogues (day-long discussions) were conducted in each region. For the purposes of this work, we used the practice-based surveys and case studies. Canadian practice-based and system-level performance measurement frameworks provide guidance on what is needed to measure primary care performance. Together, the surveys and case studies cover many of the dimensions of primary care needed to measure this sector's performance.

Sample

The sample consisted of primary care clinicians responsible for their own patient panel working in Fraser East, BC; Eastern Ontario Health Unit, ON; and Central Zone, NS. Survey and case study data were collected between 2014 and 2016. There were a total of 86 practices (n = 1,929 patients; n = 117 clinicians) that participated (Table 2).

Survey development

Three surveys (patient-, provider- and organization-based) were developed and administered as part of practice-based data collection. All practice staff (e.g., office manager, nurses, nurse practitioners, etc.) also completed the Team Climate Inventory (TCI), a validated tool to measure team functioning (Anderson and West 1998; Beaulieu et al. 2013).

The TRANSFORMATION patient survey was built on the foundation of the Canadian Patient Experiences Survey on Inpatient Care by the Canadian Institute for Health Information (CIHI) (CIHI 2013) and was developed by Wong and Haggerty (Wong and Haggerty 2013). The TRANSFORMATION study used questions from the CIHI patient survey and previously validated and publicly available items and scales (Campbell et al. 2009; Care Quality Commission n.d.; Ford-Gilboe et al. 2020; Fortin et al. 2017; Haggerty and Levesque 2017; Herdman et al. 2011; Hibbard et al. 2004; Lorig et al. 2001; Stewart et al. 2007). We identified key questions from these sources after consulting with Canadian and international primary care experts (Campbell et al. 2009; Kringos et al. 2013) to obtain a fuller picture of patient experience in this sector. The resulting questionnaire (n = 116 questions) captured patient-reported experiences including access, relationship-based care, health promotion, self-management support, coordination orientation, safe healthcare system contribution and equity orientation.

The TRANSFORMATION study's organizational and provider surveys were also built on the foundation of previous work (Levesque et al. 2010) and the team's previous contribution to the development of CIHI PHC surveys (CIHI 2013). The organizational survey had six sections (n = 77 questions): general practice information; organizational vision and values; organizational resources (human, economic and technical resources); organizational structures; service provision; and clinical practice and organizational context. The provider survey had five sections (n = 24 questions): practice demographics; quality and safety; clinical accountability; organization of the practice including its management, governance and organizational adaptiveness; and healthcare service delivery, which included satisfaction with their practice, coordination of care and collaboration with others.

Practice-based survey data collection

As detailed elsewhere (Wong et al. 2018), in consenting practices, one organizational lead completed the organizational survey, up to five clinicians completed a provider survey and all team members completed a TCI. Practice recruitment approaches included regional study advisory stakeholder committees, engagement with local organizations, presence at physician-attended events, peer-to-peer practice recruitment and demonstration of study relevance to physicians. The participation rates of practices were 38%, 41% and 32%, respectively, in Fraser East, Eastern Ontario and Central Zone. The completion rates of the provider and TCI surveys were 100% in both Fraser East and Eastern Ontario and 97% in Central Zone. We recruited a consecutive sample of attending patients (a minimum of 20 per practice) to complete the patient survey. Patients were eligible if they were (1) aged 18 years and over,

(2) had been with their current provider for at least one year; and 3) were able to complete the survey in either English or French.

Case studies

We used a multiple comparative embedded case study design (Yin 2013) as detailed elsewhere (Martin-Misener et al. 2019). Specific jurisdictional information for primary care renewal initiatives were identified using document review, interviews and focus groups. The document review provided information on the implementation of primary care policies and innovations, involvement of stakeholders and results of policy evaluations from 2003 to 2014. Purposively selected key informants (e.g., lead decision makers, heads of regulatory colleges or associations) and clinician participants (e.g., family physicians, registered nurses, pharmacists) were recruited from a list of potential participants created with our regional advisory stakeholders. Patients were recruited from a convenience sample of patient participants who consented to be contacted after completing the patient experience survey. We used case study data to provide additional context for the quantitative results.

In-person or telephonic in-depth interviews were semi-structured and lasted about 60 minutes. In-person focus groups (n = 5–10 patients or clinicians) lasted two hours. Each focus group/interview was audio recorded and transcribed along with any field notes.

All data collection procedures for the practice-based surveys and case studies were approved by the ethics review boards of the University of British Columbia, University of Ottawa and the Ottawa Health Science Network, and the Dalhousie University and the Nova Scotia Health Authority.

Data analysis

To report the data, we had initially used the 2011 Patient's Medical Home (PMH) framework (CFPC 2011). For the final synthesis, we used the updated 2019 College of Family Physicians of Canada's (CFPC's) revised PMH model (CFPC 2019) as an organizing framework because it can provide primary care practices with a common understanding of attributes that should be attained in the context of ongoing jurisdictional primary care reform. The CFPC defines a PMH as "a family practice defined by its patients as the place they feel most comfortable presenting and discussing their personal and family health and medical concerns" (CFPC 2019: 2). Positive impacts associated with PMH delivery models include lower healthcare costs (Strumpf et al. 2017) and improved quality of care (Rosenthal et al. 2016). There are three themes associated with the PMH (CFPC 2019) – *foundations, functions* and *ongoing development* – represented by 10 pillars (Table 1).

Our main outcomes of interest were the creation of PMH pillar scores (Table 2). Analysis took place in two phases: (1) mapping and item reduction and (2) creation of PMH pillar scores. We used the case study data to provide context to guide interpretation of the score.

TABLE 1. PMH pillars and quantitative data sources of the TRANSFORMATION study

PMH pillars	Data sources (and dimensions)
Foundations	
1. Administration and Funding Practices need staff and financial support, advocacy, governance, leadership and management in order to function as part of the community and deliver exceptional care.	Organizational survey (service provision and clinical practices, economic resources, organizational context and organizational structures) Clinician survey (management and practice governance)
2. Appropriate Infrastructure Physical space, staffing, electronic records and other digital supports, equipment and virtual networks facilitate the delivery of timely, accessible and comprehensive care.	Organizational survey (technical resources, organizational structures, organizational context, service provision and clinical practices) Clinician survey (information technology)
3. Connected Care Practice integration with other care settings and services – a process enabled by integrating health information technology.	Patient experience survey (coordination, orientation and uncategorized questions regarding support) Organizational survey (service provision and clinical practices and organizational context) Clinician survey (coordination of care and collaboration)
Functions	
4. Accessible Care By adopting advanced and timely access, virtual access and team-based approaches, accessible care ensures that patients can be seen quickly.	Organizational survey (service provision and clinical practices and organizational context) Patient experience survey (accessibility orientation)
5. Community Adaptiveness and Social Accountability A PMH is accountable to its community and meets their needs through interventions at the patient, practice, community and policy level.	Patient experience survey (uncategorized questions regarding difficulty receiving healthcare due to costs) Organizational survey (organizational context)
6. Comprehensive Team-Based Care with Family Physician Leadership A broad range of services is offered by an interprofessional team. The patient does not always see their family physician but interactions with all team members are communicated efficiently within a PMH. The team might not be co-located but the patient is always seen by a professional with relevant skills who can connect with a physician (ideally the patient's own personal physician) as necessary.	Organizational survey (service provision and clinical practices and organizational context) Patient experience survey (preventive health and uncategorized questions regarding experiences with the healthcare team) Clinician survey (health human resources' roles and responsibilities and organizational adaptiveness)
7. Continuity of Care Patients live healthier, fuller lives when they receive care from a responsible provider who journeys with them and knows how their health changes over time.	Organizational survey (service provision and clinical practices) Clinician survey (coordination of care and collaboration) Patient experience survey (uncategorized questions regarding relationship with healthcare professionals)
8. Patient and Family Partnered Care Family practices respond to the unique needs of patients and their families within the context of their environment.	Organizational survey (service provision and clinical practices) Patient experience survey (relationship-based care, empowerment and confidence, safe healthcare system coordination, self-management support, uncategorized questions regarding trust in healthcare staff)

PMH pillars	Data sources (and dimensions)
Ongoing development	
9. Measurement, Continuous Quality Improvement and Research Family practices strive for progress through performance measurement and continuous quality improvement. Patient safety is always a focus, and new ideas are brought to the fore through patient engagement in quality improvement and research activities.	Organizational survey (organizational vision and values; organizational structures; service provision and clinical practices; organizational context; and uncategorized questions regarding medication safety and diagnostic test results) Patient experience survey (safe healthcare system contribution) Clinician survey (quality and safety processes, accountability and organizational adaptiveness)
10. Education, Training and Continuous Professional Development Emphasis on training and education ensures that the knowledge and expertise of family physicians can be shared with the broader healthcare community and also over time by creating learning organizations where both students and fully practising family physicians can stay at the forefront of the best practices.	Organizational survey (organizational structures and organizational context) Clinician survey (provider satisfaction)

Source: CFPC 2019 (PMH pillars).

TABLE 2. Practice-based surveys undertaken in each region and the number completed

Region	Patient (*n*)		Clinician (*n*)		Organizational (*n*)		TCI (*n*)
	Surveyed	Complete/ partially complete	Surveyed	Complete/ partially complete	Surveyed	Complete/ partially complete	
Fraser East, BC	506	504	35	34	22	22	20
Eastern Ontario, ON	548	547	37	36	26	26	21
Central Zone, NS	878	878	47	47	39	38	22
Total	1,932	1,929	119	117	87	86	63

Here *n* represents whether a TCI score could be calculated at the practice level.

All survey items from the patient, organizational, provider and TCI surveys that could be mapped to the PMH pillars were used to create the most comprehensive representation of each pillar.

PILLAR SCORES

Scale scores (0–100) within each survey were created where a higher score meant more alignment with the underlying construct. We then calculated the clinical averages of all the scores from the patient, provider, organizational and TCI surveys that mapped to a specific PMH pillar. To obtain the final regional-level pillar scores, we calculated the mean of all the clinic-level scores in each region after checking for normally distributed data.

Datasets containing quantitative data were analyzed using descriptive statistics. We used one-way analysis of variance or Kruskal–Wallis tests to examine if there were statistical differences across regional areas. All numerical analyses were carried out using SAS software, Version 9.4 (https://www.sas.com/en_ca/home.html).

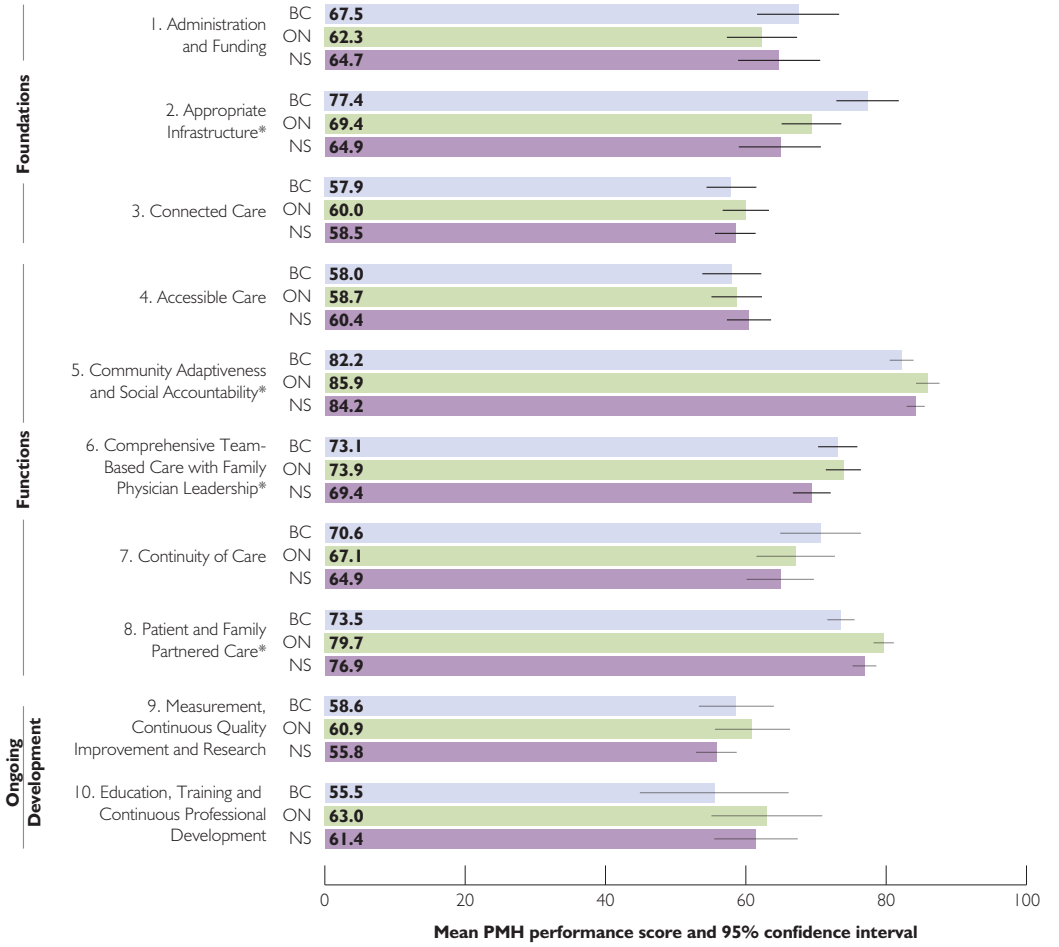
Text data (document review) and transcripts (focus groups and interviews) were organized into codes. Team members from each province developed the coding structure using inductive and deductive processes (Crabtree and Miller 1999). The final coding structure was discussed with and approved by all team members. Two team members per study region coded the data. The research team discussed coding and emerging themes at monthly telephonic and three face-to-face meetings. Data were analyzed within each region and across regions (Yin 2013). All text analyses were carried out using the data management system NVivo 11 (https://www.qsrinternational.com/nvivo-qualitative-data-analysis-software/home).

Results

The PMH unadjusted performance scores are reported on a 0 to 100 scale for each PMH pillar in Figure 1. Despite apparent regional differences in the attainment of PHC pillars, most standard deviations overlap with the exceptions of appropriate infrastructure; community adaptiveness and social accountability; and patient and family partnered care, where testing confirms statistically significant regional difference ($p < 0.05$). Fraser East had the highest scores with respect to appropriate infrastructure but the lowest score for community adaptiveness and social accountability of the regions. Eastern Ontario had the highest scores for patient and family partnered care. Comprehensive team-based care scores were higher in Fraser East and Eastern Ontario compared to Central Zone ($p < 0.05$). The lowest PMH attainment for all the regions were observed in connected care; accessible care; measurement, continuous quality improvement and research; and training, education and continuing professional development.

The overall pillar scores mask underlying differences between regions in performance on sub-dimensions of PMH pillars. We report details for the Comprehensive Team-Based Care with Family Physician Leadership pillar in Figure 2 as an example of how to read each PMH pillar, with the nine other PMH pillars reported in Figure A1 (Appendix 1, available online at longwoods.com/content/26659). In each panel, the grey area indicates statistically significant differences between the scores across the regions. In the Comprehensive Team-Based Care pillar (Figure 2), Eastern Ontario (orange dots) scored significantly higher than the other two regions for four patient-reported experiences (health promotion, efficiency of skills used, managing health concerns and team role clarity). The sub-dimensional analysis further reveals that Fraser East (light green dots) provided a significantly larger number of services compared to the other regions, as measured by one organizational scale (availability of a range of services), providing nuances to the pillar score. Sub-dimensional analysis also revealed statistically significant lower roles for staff comprising registered nurses (reported in the organizational survey) and lower scores that were reported in the patient survey for team role clarity in Fraser East compared to the other regions. More detail on the other pillars can be found in Appendix 1.

FIGURE 1. Overall pillar scores



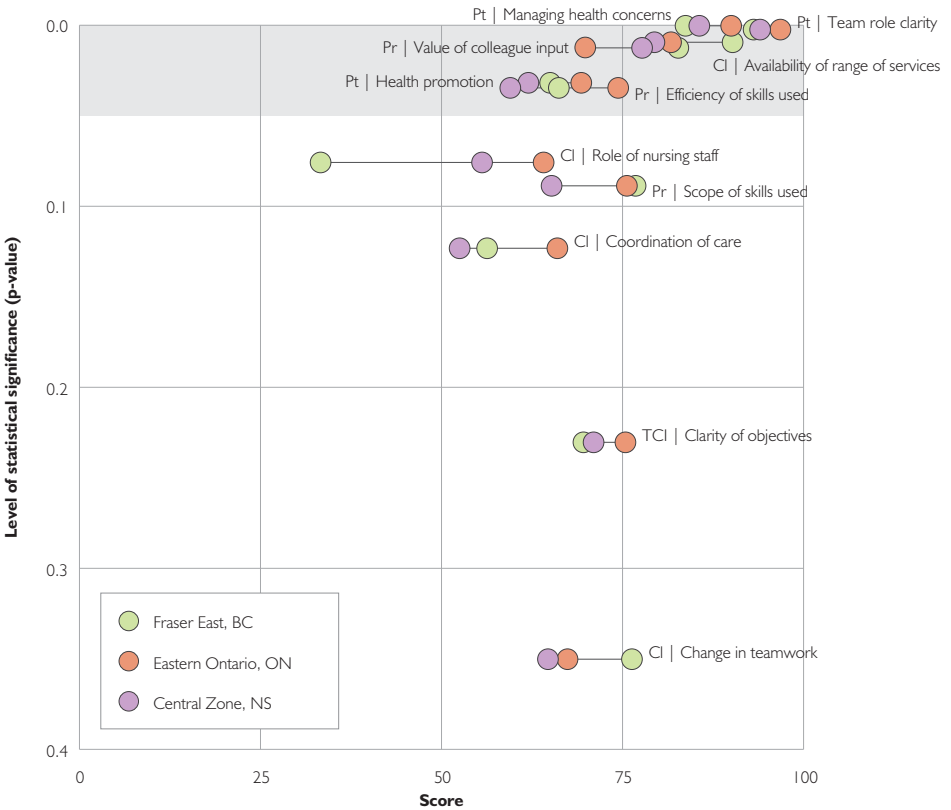
*Score is significantly different across provinces ($p < 0.05$).
BC = Fraser East, British Columbia; ON = Eastern Ontario Health Unit, Ontario; NS = Central Zone, Nova Scotia.

The case study work provided specific information about areas of primary care innovation: interprofessional team-based approaches, provider skill mix with the introduction of new providers or expansion of existing provider roles, physician groups and networks, physician remuneration models and incentives, the use of information technology and beginning performance measurement and having a reporting infrastructure (Martin-Misener et al. 2019). Ontario introduced interprofessional team-based care as well as new or expanded use of existing providers by defining model-specific mandates and governance requirements. There has been much focus on integration of nurse practitioners in primary care, with Ontario investing the greatest effort to do so over the longest period of time. The most extensive work with regard to physician groups and networks occurred in BC, with the implementation of 35 different divisions of family practice. Remuneration to primary care physicians was mainly through fee-for-service, except in Ontario, where there was greater

use of capitation-based and salaried models. All regions had similar use of electronic medical records of between 46% and 52%. Ontario had implemented provincial strategies for performance measurement reporting to all physicians, whereas British Columbia and Nova Scotia's efforts were focused on individuals' practice improvement.

Patient respondents were heterogenous in their demographic characteristics (Table 3). Central Zone patients were more likely to be female, be younger, have higher educational attainment and not be retired compared to patients in Eastern Ontario and Fraser East ($p < 0.05$). There was more ethnic, Indigenous and immigrant diversity among those who participated in Fraser East compared to the other two regions ($p < 0.05$). French was spoken at home by those living in Eastern Ontario more frequently than in the other two regions ($p < 0.05$). Across all sites, about one third reported their financial situation as poor/very tight/tight and reported having either depression, arthritis or hypertension, whereas about 50% reported having three or more chronic conditions. Table 4 shows provider characteristics. Over half (53%) of clinician respondents were female. Clinicians were on average 51 years old, practising for about 21 years and working full time.

FIGURE 2. PMH pillar 6: Comprehensive Team-Based Care with Family Physician Leadership



Five items with *p*-value > 0.4 are not shown.
CI = Clinic survey; Pr = Provider survey; Pt = Patient survey; TCI = Team Climate Index.

TABLE 3. Characteristics of a patient survey sample

Demographics	Fraser East, BC (*n* = 504)	Eastern Ontario Health Unit, ON (*n* = 547)	Central Zone, NS (*n* = 878)	Total (*n* = 1,929)
Percentage of overall sample	26	28	46	100
Gender Percentage female**	66	60	71	66
Age Mean (*SD*)**	56 (18)	55 (16)	52 (16)	54 (17)
Percentage ethnicity** § and percentage Indigenous*				
European descent	76	81	80	79
Asian	9	.	2	3
Indigenous	6	3	4	4
Other	4	2	4	3
Percentage born outside Canada**	24	8	7	12
Years living in Canada§ Mean (*SD*)	35 (18)	37 (19)	32 (23)	35 (20)
Percentage language spoken at home (check all that apply)				
English**	95	67	99	89
French**	1	45	4	15
Other**	13	2	2	5
Percentage marital status**				
Married/co-habitating	70	71	61	66
Percentage education**				
Less than high school	14	12	7	10
High school	28	30	19	25
Some university or college	43	39	40	41
Completed undergraduate degree	11	14	22	17
Graduate degree	4	5	12	8
Percentage employment status**				
Full time	30	42	40	38
Part time	11	8	11	10
Not employed outside the home	16	11	15	14
Long-term sickness or disability	9	9	9	9
Retired	34	30	24	29

Demographics	Fraser East, BC (*n* = 504)	Eastern Ontario Health Unit, ON (*n* = 547)	Central Zone, NS (*n* = 878)	Total (*n* = 1,929)
Percentage yearly household income*§				
<$5,000–$9,999	7	4	7	6
$10,000–$29,999	21	21	18	20
$30,000–$49,999	21	24	21	22
$50,000–$79,999	26	24	23	24
$80,000–$99,999	13	12	10	11
>$100,000	12	16	20	17
Percentage best describing your financial situation				
Poor/very tight	13	12	15	14
Tight	17	16	16	17
Modestly comfortable	36	34	38	36
Comfortable/very comfortable	34	37	31	34
Percentage chronic conditions				
Depression*	33	30	39	35
Arthritis	31	28	31	30
High blood pressure or hypertension	33	34	30	32
Zero chronic conditions	13	16	17	15
One chronic condition	19	18	20	19
Two chronic conditions	18	15	14	16
Three or more chronic conditions	51	51	49	50
Percentage health status*				
Excellent/very good	29	34	31	31
Good	40	39	36	38
Fair/poor	32	27	34	31

* $p < 0.05$. ** $p < 0.001$. § 19% were missing "years in Canada", 12% were missing for "income" and 11% were missing for "ethnicity" variables. The rest were all <7% missing. Use of healthcare measures were calculated for the subset of patients who consented to linkage and were able to be linked: 487 in Fraser East, BC; 533 in Eastern Ontario Health Unit, ON; and 821 in Central Zone, NS. Chi-squared tests were performed to test for differences in categorical variables between the provinces, and one-way analysis of variance tests were used to test for difference in continuous variables. When expected cell counts were less than five, Fisher's exact test of independence was performed in place of a chi-squared test.

Discussion

To our knowledge, this work provides the first comprehensive portrait of regional primary care performance in Canada. Multiple sources of data were used to provide an overview of achievement of PMH orientation and relative strengths and weaknesses across the many pillars of the PMH framework within a region and across regions. Our work is one of the first attempts to provide a portrait on any regional variation and make comparisons across these

TABLE 4. Provider characteristics

Characteristics	Fraser East, BC (*n* = 34)	Eastern Ontario Health Unit, ON (*n* = 36)	Central Zone, NS (*n* = 47)	Total (*n* = 117)
Percentage female	42	53	62	53
Age Mean (*SD*)	50 (10)	50 (9)	51 (10)	51 (10)
Work hours spent seeing patients Mean (*SD*)	29 (12)	30 (8)	30 (10)	30 (10)
Work hours spent not seeing patients Mean (*SD*)	11 (11)	11 (9)	8 (6)	10 (9)
Weeks worked in the last year Mean (*SD*)	46 (2)	46 (4)	46 (5)	46 (4)
Fee-for-service insured**	74 (29)	21 (30)	59 (38)	52 (39)
Salary*	14 (29)	33 (44)	13 (30)	19 (35)
Capitation**	0 (.)	37 (37)	0 (.)	11 (26)
Sessional/per diem/hourly*	4 (6)	0.1 (0.9)	5 (9)	3 (7)
Other^*	8 (10)	8 (13)	21 (30)	14 (22)
Percentage 1+ deliveries	31	25	s	
Percentage only pre/post-natal care	53	75	s	
Percentage no maternity care	16	0	s	

* $p < 0.05$. ** $p < 0.001$; s = suppressed (fewer than five cases). ^ Other income category includes service contracts, fee-for-service uninsured (private pay services), incentives and bonuses and others. Chi-squared tests were performed to test for differences in categorical variables between the provinces, and one-way analysis of variance tests were used to test for difference in continuous variables. When expected cell counts were less than five, Fisher's exact test of independence was performed in place of a chi-squared test.

areas toward the attainment of the PMH pillars. It identifies that multiple data sources are needed to move beyond opportunistic and piecemeal approaches to indicator selection for primary care evaluation. This work highlights the potential for evaluating and reporting on the multidimensionality of primary care simultaneously to show how this complex adaptive system might evolve over time.

The portraits create a picture of *relative* primary care performance at a point in time. We found significant regional differences in policy contexts and variation in regional achievement toward a PMH model in primary care across several pillars. Particularly troubling is the overall low performance on the Connected Care and Accessibility pillars across jurisdictions despite these being considered core attributes of PHC (Haggerty et al. 2007; Starfield 1998). Achievement of pillar goals varies across jurisdictions for community adaptiveness and social accountability, appropriate infrastructure, comprehensive team-based care and patient- and family-centered care. Relative to each other, Central Zone appears to lag behind Fraser East and Eastern Ontario for most pillar scores.

While our work cannot establish the cause of differences, it sets the stage for longitudinal assessments of primary care performance and the impact of different policies across fairly

similar provincial health systems and populations. Importantly, it offers a model for assessment of the relative performance of different PHC performance domains within and across regions. This is needed as progress in PHC seeks to improve all pillars and detect variation, which may be reflective of shifting priorities.

Katz et al. (2017) used the 2013/14 Canadian Quality and Costs of Primary Care data, which also included patient, clinician and organizational data to examine alignment with goals set in reference to the PMH model. This study provides valuable baseline measurement on the standard of primary care across Canada. Our study conducted several years later also found that Ontario practices continue to score significantly higher than their British Columbia or Nova Scotia counterparts in the areas of comprehensive team-based care and patient- and family-partnered care. Albeit the different analytic techniques across the two studies, it seems clear that the policy focus on expansion of team-based care models and increased use of nurses and nurse practitioners has helped Ontario offer more team-based care.

Limitations

This work should be interpreted with caution as no causation can be inferred. There is likely selection bias in clinicians and patient participants; although, this is analogous to previous primary care surveys in Canada (Hogg et al. 2008; Katz et al. 2017). We collected limited patient data per clinician. The patient, provider and organizational surveys draw on previously validated survey instruments. We note that extensive survey validation was not completed for this study. This work was meant to show the feasibility of reporting at a regional level, where we use means of all clinics in the regions to indicate overall performance. Other data sources that could enhance performance measurement include administrative and electronic medical record (EMR) data. The PMH framework has limitations, such as the absence of a pillar addressing healthcare equity.

Despite limitations, we provide compelling evidence about the feasibility of collecting data from multiple sources to inform a more comprehensive portrait of primary care performance. Linking these data to EMR and health administrative data within provinces and territories is feasible and likely to become easier with increased adoption of information technology. These data form the foundation for performance measurement and reporting, a fundamental part of a learning health system (Smith et al. 2010). Developing a primary care information system that could be used as a foundation for a learning health system is within reach. Funding, jurisdictional, political and logistical barriers to implementing the system are, however, formidable.

Comprehensive measurement and reporting of primary care is challenging, given the complexity inherent in primary care and the systems which consist of individuals that have freedom to act in ways that are not always predictable but whose actions are interconnected (Bureau of Health Information 2014; Donabedian 1988). Development of any primary care information system requires engaged stakeholders, funding and leadership to tackle important resource-related questions. Support to practices will be required to maintain data

security and patient privacy while allowing data collection for longitudinal evaluations. The most likely funders of the data collection infrastructure are the federal, provincial and territorial governments because they are the stewards of the healthcare system. Building this system requires trust that data are reliable and valid and not being used for disciplinary purposes or to determine remuneration. Leadership, engagement and reporting on primary care performance could best be done by an arm's length organization whose mandate is to support the accountability of the healthcare system. One example is the Bureau of Health Information in New South Wales (NSW), where they report on the performance of NSW's publicly funded health system (Bureau of Health Information 2018). Similar types of organizations across Canada's provincial/territorial landscape exist, such as Health Quality Councils (Johnston and Hogel 2016).

A primary care information system that collects data from multiple sources can be used for reporting performance toward national PMH priorities. These multi-source data from jurisdictional contexts can transparently highlight differences for the purpose of improvement and learning (Aschengrau and Seage 2009). High-level aggregation, similar to work completed by the CIHI (2021) in addition to more detailed information, can be useful to many, including provincial and health authority health system planners and clinicians for quality improvement. Our work provides a way forward to address what remains a limited primary care performance measurement information system in Canada.

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RESEARCH PAPER

A "Shock Test" to Primary Care Integration: COVID-19 Lessons from Alberta

Un « test de choc » pour l'intégration des soins de santé primaires : leçons relatives à la COVID-19 en Alberta

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Abstract

The COVID-19 pandemic exposed primary care (PC), and policies aimed at integrating it into provincial health systems, to a "shock test." This paper draws on documentary analysis and qualitative interviews with PC and health system stakeholders to examine shifts in Alberta's pre-pandemic PC integration model during the first nine months of the pandemic. We begin with an account of three elements of the province's pre-pandemic model: *finance*, *health authority activity* and *community activity*. We describe these elements as they shifted, focusing on two indicators of change: novel virtual care billing codes and personal protective equipment (PPE) distribution channels. We draw out policy planning lessons for improving PC integration under normal and future pandemic conditions, namely, by facilitating rapid updates of virtual care billing codes, analyses of the impact of care delivery and backstopping of PPE markets and supply chains for PC.

Résumé

La pandémie de COVID-19 a soumis les soins de santé primaires (SSP), de même que les politiques visant à les intégrer dans les systèmes de santé provinciaux, à un « test de choc ». Cet article s'appuie sur une analyse documentaire et des entretiens qualitatifs avec des intervenants des SSP et du système de santé pour examiner les changements dans le modèle d'intégration pré-pandémique des SSP en Alberta au cours des neuf premiers mois de la pandémie. Nous commençons par rendre compte de trois éléments du modèle pré-pandémique de la province : les *finances*, l'*activité des autorités sanitaires* et l'*activité communautaire*. Nous décrivons ces éléments au fur et à mesure de leur évolution, en nous concentrant sur deux indicateurs de changement : les nouveaux codes de facturation des soins virtuels et les canaux de distribution des équipements de protection individuelle (EPI). Nous tirons des leçons de planification politique pour améliorer l'intégration des SSP dans des conditions normales ou de pandémie éventuelles, notamment en facilitant la mise à jour rapide des codes de facturation des soins virtuels, en analysant l'impact de la prestation des soins et en soutenant les marchés et les chaînes d'approvisionnement des EPI pour les SSP.

Introduction

Integrating primary care (PC) into broader health systems has been a major policy objective in Canada, and around the world, over the last 20 years (Marchildon and Hutchinson 2016; Tenbensel and Burau 2017; Wang et al. 2011). With a broad range of definitions available for what integration in the health and social services might entail (Armitage et al. 2009), there have been sustained attempts to draw traditionally independent PC more closely into the governance and operations of provincial systems, which are predominantly focused on the provision of acute care (Bichel et al. 2011; Espinosa-González et al. 2020; Laberge and Gaudreault 2019; Solomon et al. 2013). These efforts have included the deployment

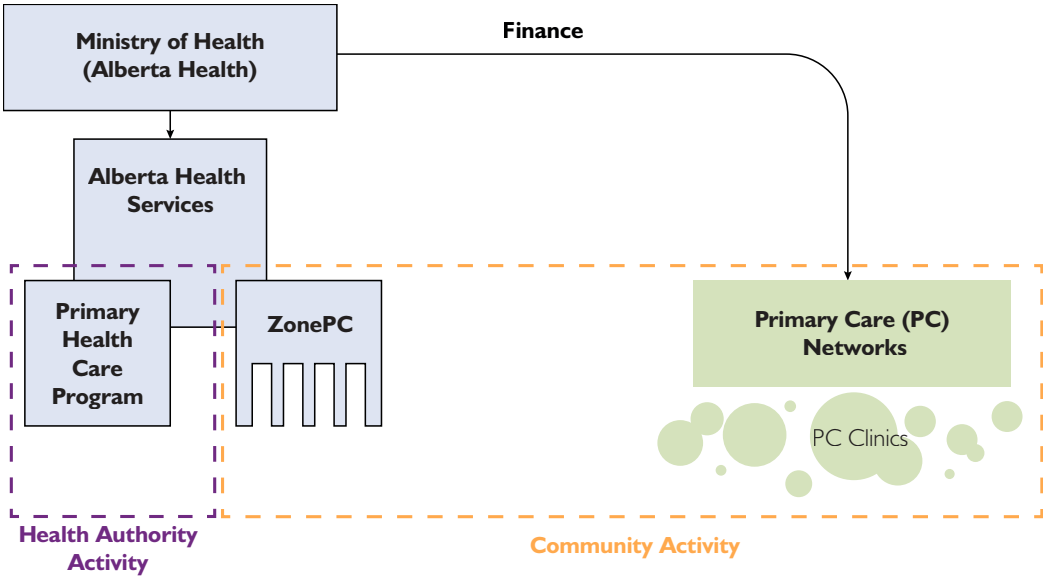
of alternative funding models (Government of Alberta n.d.; HQCA 2019; Laberge and Gaudreault 2019; Lange et al. 2020) and networked service innovations exemplified by the Patient's Medical Home (AHS n.d.; Government of Québec n.d.) (http://www.lhins.on.ca/; https://patientsmedicalhome.ca/). With the intended benefits of PC integration often focused on improving the continuity of care and reducing costs (Galea and Kruk 2019; Marchildon and Di Matteo 2015; Rowan et al. 2007; Valentijn et al. 2013), the SARS-CoV-2 virus has highlighted a rather different policy goal: improved health system resilience. Indeed, service integration in health systems has been identified as amplifying those systems' abilities to absorb and adapt to a shock such as the COVID-19 pandemic (Hanefeld et al. 2018; Legido-Quigley et al. 2020). With healthcare service provision and the PC integration models of all Canadian provinces (Chakraborty et al. 2020) shock-tested by the pandemic, this paper takes Alberta as a policy case study. We examine how the pandemic shifted key elements of the province's pre-pandemic PC integration model using two specific indicators of change to draw out broadly applicable lessons for the present and future pandemics.

We begin by describing the province's broader pre-pandemic integration model, detailing that model's finance, health authority activity and community activity elements. We then shift to an account of the on-the-ground realities of PC integration in the first 10 months of the COVID-19 response. Drawing on documentary evidence and interviews conducted between March and December 2020, we describe significant shifts in the model's elements as Alberta's system generated novel billing codes and personal protective equipment (PPE) distribution channels for PC. As PC billing codes for virtual care and PPE distribution to PC clinics are pandemic-induced challenges that have been encountered across Canada, we use Alberta's experience to shed light on generalizable policy processes and considerations that will improve access to care in future responses. Although other jurisdictions – including Canada's other provinces and territories – will each have their own particular constellation of finance, health authority and community activity in place, what follows highlights the common challenges presented by a precipitous drop in both patient access to PC and the revenue PC physicians were able to generate. Our aim is not to compare and contrast integration models across jurisdictions, but rather to draw out generalizable policy considerations from specific changes to Alberta's integration model as it responded to the pandemic.

Alberta's Pre-Pandemic PC Integration Model

Alberta has the largest centralized healthcare system in Canada, with over 650 facilities across the province managed by a single health authority – Alberta Health Services (AHS) – delivering care in five geographically based "health zones." AHS, as the single authority, formed the zones to provide "decision making at a local level" (AHS 2019) that draws on input from the community, healthcare staff, patients, clients and stakeholders to plan and deliver services. The facilities in these zones deliver acute, long-term, public health and some urgent care, with the province's more than 1,180 PC clinics owned and operated by independent family doctors operating outside AHS control. Built on this foundation, the

FIGURE 1. Alberta's pre-pandemic PC integration model



province's PC integration model (Figure 1) is composed of three key elements: *finance*, *health authority activity* and *community activity*.

As in many other provinces, Alberta's Ministry of Health (MoH) finances PC directly, with the vast majority of PC physicians billing the government on a fee-for-service basis. In an MoH budget of $20.8 billion, these PC services account for 7.17%, or $1.48 billion annually (Government of Alberta 2020a). Most PC practices are small, with services delivered by independent practitioners. Many, but not all, of these physicians opt to affiliate themselves with primary care networks (PCNs). The PCNs are financed through grants from the MoH that are based on the size of their members' patient panels and they provide PC services that would be beyond the capacity of individual clinics (Leslie et al. 2020b), such as access to nutritionists, psychologists or patient panel management expertise. Despite AHS being the province's single health authority, PC physicians do not share a governance or accountability relationship with the organization. Rather, PC fee guides are established through direct negotiations between the MoH and the provincial medical association.

While these circumstances might imply that AHS is uninvolved in PC, this is not the case. PC-focused health authority activity is part of the AHS portfolio of work. As noted, AHS operates several urgent and family care clinics (https://www.albertahealthservices.ca/) and – more significantly – maintains a pair of PC-focused divisions: the Primary Health Care Program (AHS-PHCP) and one operational group in each of the five zones (AHS-ZonePC). Both AHS-PHCP and AHS-ZonePC develop and support unique programming. Highlighting the health authority's acute and long-term care focus, the AHS-PHCP relies on a staff of less than 100 to conduct its work while embedded in an organization that employs more than 110,000. Within these constraints, AHS-PHCP works at a provincial level to provide PC clinics, the PCNs and ZonePC groups with system-wide guidelines and

to act as a bridge between personnel in the MoH and community-based PC (https://www.albertahealthservices.ca/).

In contrast, the AHS-ZonePC groups are focused on zonal issues – not provincial ones – and they work with the PCNs. The zones are arranged in a way that creates a dyad composed of a zonal lead physician from "inside" the health authority (AHS-ZonePC) and a counterpart physician from "outside" the health authority who works in community PC. Zone dyads co-plan activities and service provision priorities with the PCNs, which are formed as joint ventures with AHS. A joint venture, here, is a formal governance partnership between AHS and the PC physicians who are the PCN members. The PCNs have developed into this form and governance structure over the last 18 years (Leslie et al. 2020b), with the MoH receiving accountability on specific performance metrics (Auditor General of Alberta 2017) for its capitation-based grants. There are presently 41 PCNs, each with its own priorities and modes of operating within a set of broader governance principles that emphasize co-planning with AHS, the delivery of the Patient's Medical Home (https://patientsmedicalhome.ca/) and the attachment of patients to PC (Alberta Medical Association Primary Care Alliance Board 2013; Auditor General of Alberta 2017). In this way, the work of the AHS-ZonePC and PCNs represents the PC integration model's community activity element.

Alberta's pre-pandemic PC integration model, then, is one that combines direct financing from the MoH to family physicians, the health authority activities of the AHS-PHCP and the community activities of the AHS-ZonePC working with the PCNs. The following sections track some of the key pandemic-induced shifts and re-combinations of these three elements.

Materials and Method

The data we use here are part of a larger qualitative study examining the communication and implementation of policy in Alberta's COVID-19 response (CIHR 2020). Our research approach focuses on understanding experiences and perspectives across the provincial health system during the pandemic (Leslie et al. 2020a). Myles Leslie (ML), Raad Fadaak (RF) and Nicole Pinto (NP) conducted semi-structured interviews (n = 85) of health system stakeholders across PC and the PCNs (n = 25), and AHS-primary care (n = 12). These key informant stakeholders were identified using a snowball sampling method in which we leveraged our team's existing relationships and research partnerships in Alberta's PC environment (Blaak et al. 2021; Leslie et al. 2020a, 2020b). These relationships span system leaders to front-line providers, and we purposively sought out differences of experience and opinion across health zones and PCNs. An interview guide was developed by ML and iterated in the field over the course of the research. All the interviews were digitally recorded and transcribed for analysis. The digital recordings and transcripts are stored on the University of Calgary's secured servers and will – following standard ethics review board processes – be destroyed as the research project finishes or at the end of 5 years, whichever comes first.

Only ML, RF and NP have access to the recordings or raw transcripts. All other co-authors have only dealt with fully anonymized material. Sampling for this analysis of PC integration was purposive and guided by authorial discussions of relevance based on notes taken during interviews. From these discussions, we selected the subset of interviews (n = 37) focused on PC stakeholders' experiences of the novel billing codes and PPE distribution channels that touched on PC integration.

Supported by MAXQDA 2020 software (https://www.maxqda.com/), RF and NP used an inductive coding approach to render an interpretive description of the three elements of PC integration shock-tested by the COVID-19 pandemic. ML, RF and NP analyzed the data iteratively, expanding, collapsing and merging themes to arrive at the final analysis. We present passages from the verbatim transcripts to support this analysis, attributing the responses to participant numbers 01 to 82.

An interpretive description approach allows for insights not just into areas of commonality but also areas of disagreement among participants, with an eye on providing pragmatic suggestions to improve policies and outcomes (Mejdahl et al. 2018; Thorne et al. 1997, 2016; Yan et al. 2016; Young et al. 2012). We conducted iterative participant checks with stakeholders on the emerging interpretations presented here. This research obtained ethical approval from the Conjoint Health Research Ethics Board at the University of Calgary (REB20-0371). All participants provided written and verbal consent to participate.

Results

Virtual care billing codes

With finance as a foundational element of the province's pre-pandemic PC integration model, the introduction and iteration of virtual care billing codes (VCBC) to support PC operations represented a significant shift. Following Alberta's first reported COVID-19 case on March 5, 2020, PC physicians experienced a massively destabilizing decrease in patient visits and thus billing volume. A family doctor stated:

> I would say from the middle of March to the end of May our revenue dropped by about 70%. Seven-zero percent! And I would say [that in] this month, June, we'll probably pick up [but] [our volume of visits] will have dropped [by just] 50% [compared to the year before] … It's been devastating. (Participant 45)

To provide financial stability as well as continuity of care to patients, supports in the form of VCBC were introduced. The codes first appeared at a time of considerable friction (Braid 2020; Molnar 2020a) between the province's PC physicians and the MoH over the financial viability of fee-for-service family medicine. As a co-initiative of the MoH and the Alberta Medical Association, the codes were initially implemented with no modifications from the 2009 H1N1 pandemic, meaning that they permitted care exclusively for pandemic

disease-related complaints and remunerated at rates that were a decade old (Molnar 2020b). As a PC physician described it, these codes were "paying community doc[tor]s 2009 rates for 2020 work with 2020 overhead" (Participant 31).

Another PC physician stated:

> They had to create a new code that actually carried enough of a fee that you could pay your staff [with] and not have to lay everyone off. [There was also a strict limit on the number] of telephone visits per week you could even charge for. Not even a day's work basically. So, they had to create a new code. (Participant 78)

Significant uptake occurred once adaptations were made to remove limits on the use of codes, expanding their scope beyond complaints directly related to COVID-19 symptoms and bringing their value in line with 2020 costs. As one AHS-PHCP staffer described it:

> [Before March 2020], the use of virtual visits was less than a percent. Once we hit May [and the codes were in place], we saw [it] in the 30% to 40% range. So that's a clear change in practice that had to occur because of COVID … And it's not like virtual visits is a new thing. It's been being kicked around for quite some time; I'm going to say 10–15 years. It just never got any traction. COVID forced a change in practice. (Participant 74)

With compromised access to care for patients, and the financial precariousness of PC clinics motivating a massive change in practice, one physician cautioned that virtual care was not a complete solution. Virtual visits, they noted, were not a panacea for ensuring access to timely patient-centred care that delivered on the promise of the patient's medical home model:

> There's this huge reservoir of in-person visits that have been backlogged out there [since the pandemic started]. [T]he tsunami is arriving. All those people we've been putting off, they have to come in. (Participant 78)

In this way, PC physicians and administrators saw the iterated billing codes – the alterations to the finance element of the province's pre-pandemic integration model – as necessary but not sufficient supports for the integration of PC into the province's pandemic response. Beyond altering finances, our participants identified ensuring PC access to PPE as a further necessity. Without this access, in-person visits that could not be replaced by virtual care delivery were seen as a challenge to mounting an effectively integrated pandemic response.

PPE distribution

To meet this challenge, personnel inside AHS and the MoH made further changes to the finance element of the province's integration model while also adjusting the health authority activity and community activity elements. Specifically, the province initially took on the entire cost – and later a portion – of providing PPE to PC. As part of these financial shifts, health authority activity also changed, with AHS sourcing PPE on the global market for the province's independent PC clinics. The PPE was then distributed through the PCNs, representing a pandemic-induced re-alignment of the model's community activity element.

With PPE supply chains stressed, suppliers worldwide began focusing exclusively on large volume orders from institutional players such as AHS. Thrust briefly into the role of sole purchaser for the province, AHS (Mertz 2020) did not initially include PC in its plans (Lee 2020). By mid-March, AHS had committed to distributing PPE free-of-charge to PC and a range of other community-based healthcare providers, such as compounding pharmacists and midwives (AHS 2020). This decision – resulting from intra- and extra-AHS advocacy work on the part of AHS-PHCP personnel – was taken by the MoH based on a desire to maintain the safety and viability of the broader non-AHS health system. An AHS-Central Procurement and Supply Management (AHS-CPSM) manager noted the following:

> If we're not able to provide [PPE] to primary care – where you're actually going to be seeing most of [the patients] – then you're simply not being responsive. Because the [acute care] system is going to end up getting constrained anyway. (Participant 76)

However, this arrangement would only last until the start of July 2020. Initially provided at no cost to community-based providers, the MoH reversed its position, deciding in late May to pivot to a model in which PC physicians and clinics – described in the policy as "independent businesses" (Government of Alberta 2020b) – would need to source their own PPE from manufacturers and pay market prices. Shortly after the introduction of this policy, AHS took on a supplier's role, providing PPE not free of charge but at its institutional cost to community-based PC and specialist physicians as well as non-AHS clinics (AHS 2020). In this way, the elements of finance and health authority activity shifted to meet the PPE access challenges encountered by PC clinics, drawing PC closer to the central system.

While acting as the sole provincial supplier of PPE, AHS-CPSM's approach was to leverage the 41 PCNs as distribution hubs to reach more than 1,180 PC clinics and 4,000 PC physicians across the province. In this way, an efficiency-driven distribution model to support operations also shifted the health authority activity and community activity elements of the pre-pandemic integration model. Inside health authority, AHS-CPSM, AHS-PHCP and AHS-ZonePC worked together to include the PCNs in the co-development of the ordering

process, the list of items to be made available to PC and the distribution logistics. It was, as one PCN executive director noted, a major step forward from previous integration efforts under pandemic conditions:

> AHS' ability to include the PCNs and consider the unique needs of primary care [has grown by] leaps and bounds ... I remember when SARS happened, and that was just such a messy thing to try to figure out how to manage, and there is just no comparison to the organization this time. (Participant 02)

As much as the process to leverage the PCNs was seen as an integration success, the PCNs' experience of becoming distribution hubs was mixed. As Participant 41 stated:

> [Some PCN executive directors were] happy to play the role. It's been manageable for us. Primary care clinics are extremely grateful and I think that they're well prepared.

A PCN staffer who had been involved in setting up community-based COVID-19 testing centres elaborated on the relative ease of distributing PPE:

> A lot of us [in the PCN] kind of banded together and distributed PPE when needed. And it's not a hard thing to do compared to what we've done." (Participant 56)

Some PCN executive directors, however, were less keen on this warehouse role and the gatekeeper work it required with not only their own PC physician members but also with other community healthcare providers. Indeed, inside the AHS-PHCP, changes to and inconsistencies in central AHS policy saw staff experience the PPE program as "a bit of a disaster" (Participant 74). The problematic changes and inconsistencies here included moments where the AHS-CPSM denied PC orders for PPE that they felt were inappropriate. As an AHS-CPSM manager described it:

> [When PC clinics or PCNs made large orders, we would] actually go back to them and say, "Hey, I don't really think you need 10,000 of this. We can give you 1,000 today, and maybe you place another order in two weeks?" (Participant 76)

For most PCN executive directors, this sort of active gatekeeping of the PPE supply was not something in which they needed to engage. One director described it:

> I'm not getting crazy [requests], so I don't get a sense of any kind of hoarding going on. (Participant 30)

Whether viewed as a success or as a challenge fraught with extra work, the PPE distribution program illustrates all three of the key elements in Alberta's pre-pandemic PC integration model shifting. Finance – previously limited to fee-for-service billing – shifted to include first no-cost and then at-cost supply of PPE to PC clinics. Health authority activity shifted, with AHS procurement working alongside the PHCP and ZonePC divisions to include PC in the broader system. Community activity shifted as the PCNs were made extensions of the central supply system, not just for PC clinics but for other community-based providers as well.

Discussion

With arguments made that COVID-19 is at the centre of PC expertise (Krist et al. 2020), the disease has had a "seismic effect" on the delivery of care by family physicians (Coombes 2020; Schneider and Shah 2020) who are grappling with the uncertainties of their patients' immediate and long-term issues (Greenhalgh et al. 2020). As this ongoing shock test of PC integration models unfolds around the world (Alsnes et al. 2020; Li and Zhu 2020), governments are seeking even greater involvement of family medicine into the next phase of the pandemic response, with PC deployed to deliver mass vaccination programs (Kanani et al. 2020; Mueller 2020; Weintraub et al. 2020) or positioned as a major resource in overcoming vaccine hesitancy (Griggs 2021). In this context, the shock-test evolution of Alberta's pre-pandemic PC integration model provides policy lessons for the present and the future. The province's moves to support PC through finance reforms ranged from the creation of VCBCs to no- or low-cost PPE distribution for PC. We discuss the policy lessons of these in turn below.

In the case of VCBC, these moves were similar to others made across Canada (BC Family Doctors 2020; CIHI 2021; DoctorCare 2021). According to a national survey of PC physicians, the percentage of in-person appointments dropped from 60% pre-pandemic to a mere 10% during the early months of the pandemic (The College of Family Physicians of Canada and Patient's Medical Home 2021). Conversely, virtual care increased from 23% of appointments pre-pandemic to 50% with the rollout of VCBCs (The College of Family Physicians of Canada and Patient's Medical Home 2021). Without the codes in place, this shift in care delivery for fee-for-service PC physicians resulted in devastating income loss, staff layoffs and the very real threat of clinic closures and bankruptcy that would permanently threaten patients' access to care (Boothby 2020; Glauser 2020; Huston et al. 2020). Indeed, this was a trend observed not only in Canada but in other high-income countries as well (Huston et al. 2020; Landon and Landon 2021; PCC 2020; Rubin 2020; Wright et al. 2020). The provision of support, in the form of appropriate and well-adapted billing codes to PC physicians then, is a necessary condition for protecting patients and the viability of fee-for-service PC clinics. As Alberta's experience shows, policy planning here likely needs to include rapid mechanisms for updating existing billing codes and adapting to novel conditions. With legacy policies written to respond to different circumstances and referencing

out-of-date financial conditions, rapid and successful pivoting requires flexibility and channels for feedback. Despite ongoing political friction, Alberta's stakeholders were able to exhibit the former and activate the latter, ultimately creating VCBCs that supported patients and clinicians while improving PC integration into the pandemic response. Relationships that cross the boundaries between central and community-based organizations were important in achieving this resilient, adaptive response.

That response appears to be the fruition of a long-anticipated change in PC practice toward virtual care (CMA 2019; CMA et al. 2020; Kichloo et al. 2020). This was tipped off by the pandemic not just in Alberta, but across Canada (Glazier et al. 2021). As this "new normal" takes hold, however, early evidence from our own work and in other jurisdictions (Abelson 2021) suggests that attention to how VCBCs shape the available quantity and quality of PC will be important. Our ongoing research suggests the possibility that over the course of the switch to virtual care, access to care may have decreased and possibly rebounded for some populations as physicians avoided in-person practice. Similarly, the switch to virtual interactions between patient and physician may have removed key diagnostic opportunities delaying treatment. Subject to further research, the presumptive lesson here is that optimal integration hinges on close attention to access and quality outcomes as novel financing is introduced.

The second shock-test adaptation of the finance element in Alberta's PC integration model saw the province move to provide no or low-cost PPE to PC specifically and community-based clinics generally. Our data suggest that three key policy lessons can be derived from this adaptation: 1) policy attention aimed at anticipating shocks to key PC supply markets will likely support more effective integration; 2) successful finance reform will likely require concurrent adjustments to the health authority and community activity elements of any PC integration model; and 3) PPE, similar to VCBCs, requires policy capacity – forums, working relationships and mutual trust – if responses are to be rapid, appropriate and nimble.

In the first case, Alberta's experience highlights the importance of policy attention in protecting PC-integrated systems from pandemic-induced supply shocks. Future work in this policy space will undoubtedly examine a range of market-based or supply chain-focused solutions to ensuring PC remains a viable and fully integrated part of pandemic responses.

In the second case, our data suggest that meso-level organizations such as the PCNs – that is, organizations that exist in the governance and action space between independent PC physicians and a single health authority (Leslie et al. 2020b) – are important resources requiring engagement not just as extensions of the central system but rather as independent and functional entities in their own right. In this sense, improving PC integration requires both financial reform and attention to the activities of units inside the health authority, which may have had little previous connection to PC. Similarly, our data suggest that long-term coordinated activity with organizations in the community will help ensure responses are extensions of existing relationships, rather than induced by pandemic shocks.

Finally, even with rapid attention to producing VCBCs that are well-adapted to emerging conditions, without adequate supplies and distribution of PPE, access to PC is likely to falter at just the time the system requires it the most. In this way, co-ordinated attention to both VCBCs and PPE will be important to ensuring pandemic-shocked PC remains accessible.

Conclusion

Responding resiliently to the COVID-19 "shock test," Alberta has successfully adjusted all three elements of its PC integration model. Changes in the province's finance elements – VCBC and no- or low-cost PPE supply – were accompanied by and relied on adjustments to health authority and community activity. Indeed, these adjustments to the non-finance elements addressed challenges that went beyond merely providing more or different money. The keys here were the flexibility to pivot and create relationships that could overcome political friction and allowed stakeholders from inside and outside the central system to understand and respond to a bigger, integrated picture. As Alberta and other jurisdictions with similar models move to anticipate shocks to the supply of PPE, policy planning attention can helpfully be focused on building the mechanisms and relationships that will improve PC integration under both pandemic and more normal operating conditions. While the specifics of Alberta's experience – its legacy organizations, relationships and policy structures – are unlikely to be replicated in other provinces or territories, there are still useful high-level lessons to be drawn. Attention paid to building mechanisms that promote mutual understanding, trust and communication between provincial and territorial health authorities and PC will be central to rapidly updating VCBCs, tracking the quality effects of those codes and effectively backstopping PPE supply markets and supply chains.

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RESEARCH PAPER

Achieving Resilience in Primary Care during the COVID-19 Pandemic: Competing Visions and Lessons from Alberta

Atteindre la résilience dans les soins primaires pendant la pandémie de COVID-19 : visions et leçons concurrentes en Alberta

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Abstract

The COVID-19 pandemic has tested the resilience of health systems broadly and primary care (PC) specifically. This paper begins by distinguishing the technical and political aspects of resilience and then draws on a documentary analysis and qualitative interviews with health system and PC stakeholders to examine competing resilience-focused responses to the pandemic in Alberta, Canada. We describe the pre-existing linkages between the province's central service delivery agency and its independent PC clinics. Together, these central and independent elements make up Alberta's broader health system, with the focus of this paper being on PC's particular vision of how resilience ought to be achieved. We describe two specific, pandemic-affected areas of activity by showing how competing visions of resilience emerged in the central service delivery agency and independent PC responses as they met at the system's points of linkage. At the first point of linkage, we describe the centralized activation of an incident management system and the replies made by independent PC stakeholders. At the second point of linkage, we describe central efforts to disseminate infection prevention and control guidance to PC clinics and the improvisational efforts of staff at those independent clinics to operationalize the guidance and ensure continuity of operations. We identify gaps between the resilience visions of the central agency and independent PC, drawing broadly applicable policy lessons for improving responses in present and future public health emergencies. Finding ways to include PC in centralized resilience policy planning is a priority.

Résumé

La pandémie de COVID-19 a mis à l'épreuve la résilience des systèmes de santé en général et celle des soins de santé primaires (SSP) en particulier. Cet article commence par distinguer les aspects techniques et politiques de la résilience, puis s'appuie sur une analyse documentaire et des entretiens qualitatifs avec les intervenants du système de santé et des SSP pour examiner les réponses concurrentes axées sur la résilience en Alberta, au Canada. Nous décrivons les liens préexistants entre l'agence centrale de prestation de services de la province et les cliniques de SSP indépendantes. Ensemble, ces éléments centraux et indépendants constituent le vaste système de santé de l'Alberta; le présent document porte sur la vision particulière des SSP en matière d'atteinte de la résilience. Nous décrivons deux domaines d'activité touchés par la pandémie en montrant comment des visions concurrentes de la résilience ont émergé dans les points de liaison entre l'agence centrale de prestation de services et les SSP indépendants. Pour le premier point de liaison, nous décrivons l'activation centralisée d'un système de gestion des incidents et les réponses apportées par les intervenants en SSP indépendants. Pour le deuxième point de liaison, nous décrivons les efforts centraux visant à diffuser des conseils de prévention et de contrôle des infections aux cliniques de SSP ainsi que les efforts d'improvisation du personnel de ces cliniques indépendantes pour opérationnaliser les conseils et assurer la continuité des activités. Nous identifions l'écart entre la

vision de l'agence centrale et celle des SSP indépendants, et nous tirons des leçons largement applicables pour améliorer la réponse aux urgences en matière de santé publique actuelles et à venir. Il est prioritaire de trouver des moyens d'inclure les SSP dans la planification centralisée des politiques en matière de résilience.

Introduction

The SARS-CoV-2 virus has been a severe and ongoing test of health system resilience worldwide (El Bcheraoui et al. 2020; Legido-Quigley et al. 2020; Yazdizadeh et al. 2020). As resilience has become a topic of interest in the health policy literature (Haldane et al. 2017; Turenne et al. 2019; Wiig et al. 2020), a range of definitions for the concept have been developed (Castleden et al. 2011). The variation in those definitions has led to it being described as a "boundary term" that exists at the crossroads between technical and political understandings (Blanchet et al. 2017). At the technical level, policy aimed at achieving resilience seeks to adapt or transform health system structures to avoid undesired risk (Leach et al. 2010). At the political level, resilience policy is always subject to debates about which risks are desirable and which ones are not. Although resilience is often described in technical terms as a health system's capacity to sustain its operations and continue delivering care in the face of various external events (Hanefeld et al. 2018), the political is never far away. It reveals itself when stakeholders inside systems or organizations debate the risks and in doing so define the external effect that they are experiencing as a disturbance or as an opportunity (Braithwaite et al. 2015).

Differentiating between disturbances and opportunities here is a fraught political exercise – one health system stakeholder's unwelcome disturbance of the status quo is another's long-sought opportunity for change. In this way, the search for resilience frequently stirs up "resistance" (Forest 2019) as the desirability of risk and change are debated and visions of resilience compete. Achieving resilience in healthcare, then, is not merely a matter of pursuing technical continuity in care delivery. It also involves the interplay of competing visions about how resilience ought to be achieved and contention over which elements of existing care delivery ought to be left undisturbed and which ought to be changed. This paper tracks two such competing visions as a provincial health system responded to COVID-19 and the pandemic tested primary care (PC) resilience. We illustrate how one centralized formal vision of resilience focused on treating PC as one of many services to be managed in response to the pandemic competed with a second vision intent on prioritizing PC operations and voice in broader decision making.

Drawing on documentary analysis and qualitative interviews – evidence gathered in Alberta between March and December 2020 – we first describe policy responses from the province's central health agency that targeted resilience in the face of COVID-19. Next we describe policy workarounds enacted by stakeholders from Alberta's independent PC

environment who were similarly seeking to sustain operations and care delivery under pandemic conditions. From the interplay of these two competing visions of resilience, we draw out broadly applicable lessons for jurisdictions seeking to improve action and planning in future public health emergencies. In this sense, and with the resilience of health systems across Canada tested by the pandemic (Lin et al. 2020), we take Alberta's PC experience as an exemplar. Our case study focuses on competing visions of resilience at key points of linkage between the central service delivery system and independent PC.

Independent PC in Alberta's Health System

Alberta has the largest centralized healthcare system in Canada, with over 650 facilities across the province managed by a single health authority – Alberta Health Services (AHS) – delivering care in five geographically based "health zones." Facilities in these zones deliver public health, acute, long-term and some urgent care, with the province's more than 1,180 PC clinics owned and operated by family doctors operating outside AHS control. While PC is a highly independent element of the province's health system, there are also significant links between it and the central health authority. Indeed, provincial policy specifically seeks greater integration and linkages between the central AHS and independent PC elements of the health system (Government of Alberta 2014). We briefly describe the activity at three key linkage points: *finance*, *administrative* and *service provision*. The analysis in our Findings section then focuses on the latter two, showing how the central service delivery agency and independent PC efforts to achieve resilience intertwined and competed at the *administrative* and *service provision* linkage points over the course of the pandemic.

Finance linkages

As in many other provinces, Alberta's Ministry of Health (MoH) finances PC directly, with the vast majority of PC physicians billing the government on a fee-for-service basis. In an MoH budget of $20.8 billion, these PC services account for 7.17% or $1.48 billion annually (Government of Alberta 2020a). Provincial finance of PC, then, is a key element of Alberta's broader health system, as it supports the ongoing operations of independent family doctors. Although AHS is the province's single health authority, PC physicians do not share a governance or accountability relationship with the organization. Rather, PC fee guides are established out of direct negotiations between the MoH and the provincial medical association.

Alberta's approval and adoption of virtual care billing codes (VCBCs) offers a specific example of resilience issues playing out at the *finance point* of linkage between the central agency and independent PC. The formal, pandemic-induced response by the MoH and medical association was to approve VCBCs that would sustain PC operations. However, the VCBCs they approved were unmodified from the time of their creation during the 2009 H1N1 pandemic, with the consequences that they permitted care exclusively for pandemic disease–related complaints and remunerated physicians at rates that were more than a decade

old (Molnar 2020a). As such, the centrally generated codes were seen as unsupportive of resilience by the independent PC community, and a media campaign to have them adjusted emerged (Boothby 2020). Ultimately, and out of these competing central and independent visions of how to achieve resilience, the VCBCs were modified and enjoyed significant uptake with PC operations shifting toward virtual care delivery in Alberta, as elsewhere in Canada (Bhatia et al. 2021; Glazier et al. 2021) and in Europe (Rawaf et al. 2020).

Despite its financial and governance isolation from independent PC, AHS nonetheless undertakes a portfolio of PC-focused work. Along with operating the urgent and family care clinics (https://www.albertahealthservices.ca/), AHS maintains a pair of PC-focused divisions: one operating at an *administrative* linkage point and the other operating at a *service provision* linkage point.

Administrative linkages

The health authority's primary health care program (PHCP) relies on a staff of less than 100 to conduct its work while embedded in an organization that employs more than 110,000 workers and is focused on acute and long-term care. Within these constraints, the PHCP works at a provincial level to provide PC clinics with system-wide guidelines and to act as a bridge between personnel in the MoH and community-based PC (https://www.albertahealthservices.ca/).

Service provision linkages

AHS has created zone primary care (ZonePC) groups in each of the five health zones. As their name implies, the ZonePC groups focus on zonal issues, not provincial ones. Inside each health zone, there is a dyad of a zonal lead physician from "inside" the health authority and a counterpart physician from "outside" the health authority who works in community PC. The ZonePC dyads co-plan activities and service provision priorities with local primary care networks (PCNs), which are composed of independent family physician members and formed as joint ventures with AHS. The PCNs have developed into this form and governance structure over the past 18 years (Leslie et al. 2020b). They are financed through capitation payments made as grants by the MoH, which requires accountability from the PCNs on specific performance metrics (Auditor General of Alberta 2017). There are presently 41 PCNs operating in the five zones, each with its own priorities for service delivery and modes of operating within the broader governance structures.

In what follows, we describe moves by the central health system to ensure resilience by activating an incident management system (IMS) and creating infection prevention and control (IPC) guidance for PC. We also describe competing moves by independent PC stakeholders who were motivated by different visions of how best to achieve resilience. PC stakeholders' at both the administrative and service delivery linkage points between the system's elements worked around the IMS and created alternative paths to operationalize

IPC guidance. Although both central and independent PC stakeholders shared a *technical* resilience goal, each brought a different political understanding of how to achieve that goal.

Materials and Methods

The data we present here are part of a larger qualitative study examining the communication and implementation of policy in Alberta's COVID-19 response (CIHR 2020). Our research approach focuses on understanding experiences and perspectives across the provincial health system during the pandemic (Leslie et al. 2020a). Myles Leslie (ML), Raad Fadaak (RF) and Nicole Pinto (NP) conducted semi-structured interviews (n = 85) of health system stakeholders across PC and the PCNs (n = 25) and AHS-PC (n = 12). An interview guide was developed by ML and iterated in the field over the course of the research. All interviews were digitally recorded and transcribed for analysis. Sampling for the analysis of PC resilience was purposive and guided by authorial discussions of relevance based on notes taken during interviews. From these discussions, we selected the subset of interviews (n = 37) focused on PC stakeholders' experiences of the IMS and rollout of IPC guidance.

Supported by the MAXQDA 2020 software (https://www.maxqda.com/), RF and NP used an inductive coding approach to render an interpretive description of PC resilience in the pandemic. ML, RF and NP analyzed the data iteratively – expanding, collapsing and merging themes to arrive at the final analysis. We present passages from the verbatim transcripts to support this analysis, attributing the responses to participant numbers 01 to 82.

An interpretive description approach allows for insights not just into areas of commonality but areas of disagreement among participants, with an eye on providing pragmatic suggestions to improve policies and outcomes (Mejdahl et al. 2018; Thorne et al. 1997, 2016; Yan et al. 2016; Young et al. 2012). We conducted iterative participant checks with stakeholders on the emerging interpretations presented here. This research obtained ethical approval from the Conjoint Health Research Ethics Board at the University of Calgary (REB20-0371). All participants provided written and verbal consent to participate.

Results

Incident management system

After Alberta identified its first COVID-19 case on March 5, 2020, the MoH and AHS responded by initiating a disaster management plan focused on streamlining communications and decision making to ensure the continued, effective operation of the health system. Part of this resilience response included the activation of an IMS that created a nested hierarchy of command and response on top of the existing administrative and service provisional relationships, roles and responsibilities described earlier (AHS 2019). This is to say, the pandemic-induced resilience policy generated at the centre of the health system saw the creation of new structures alongside and on top of the existing administrative and service provisional links between AHS and independent PC (Figure 1).

Inside AHS, an Emergency Coordination Centre (ECC) (AHS n.d.) was created at the provincial level along with Zone Emergency Operations Centres (ZEOCs) (AHS 2019) that implemented high-level pandemic decisions in the five regional health zones. Specifically, the IMS convened ZEOC meetings where personnel from AHS-ZonePC, but not the PCNs, were to be integrated into the pandemic response. After its activation, the IMS' primary point of contact between the ECC and PC was the ZEOC meetings. These relied on existing working relationships between the ZonePC groups to bridge the central (AHS) and independent (PCNs and PC physicians) components of the broader system. The ZEOC meetings were intended to be information pivot points through which decisions and guidance flowed outward from the ECC and questions and on-the-ground information flowed inward from community PC.

As much as this move to establish a single point of contact between central decision making and independent PC was intended to support health system resilience, it was not received as such by PC personnel. Focused on their own vision for PC resilience, those stakeholders organized three independent bodies outside the IMS. The aim of these bodies was to integrate PC into provincial emergency management efforts generally and, particularly, to improve PC access to IMS' deliberations and decisions. The three bodies were as follows:

1) a COVID-19 PCN Incident Response Task Force (Task Force) (PCNs and AHS 2020);
2) an AHS-PHCP Working Group (Working Group); and
3) Pandemic Community Care Support Group (Support Group).

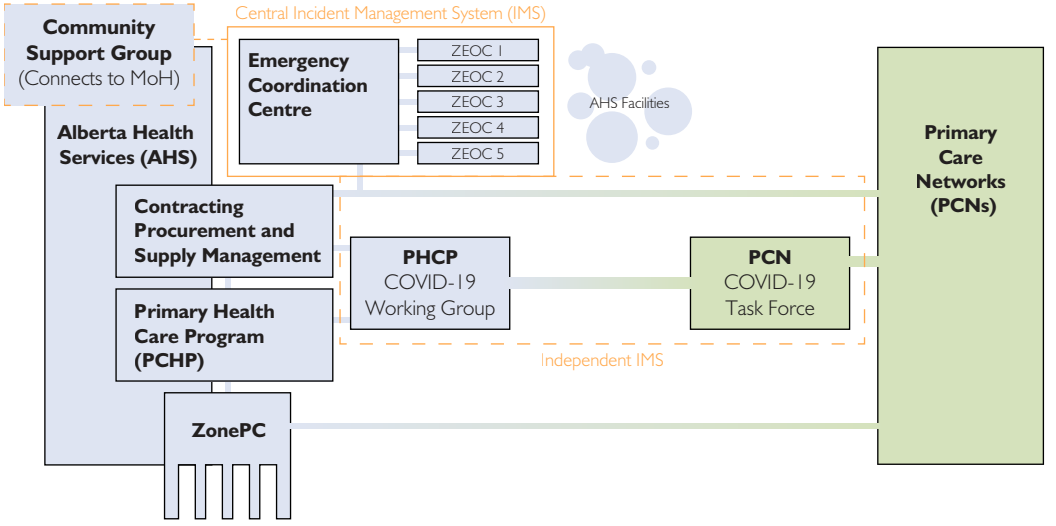
The first two bodies – the Task Force and the Working Group – were organized by a range of PHCP, ZonePC and PCN personnel. They continued to meet as of January 2021. The third body – the Support Group – brought together senior MoH staff with PHCP and PCN personnel to identify and support the needs of PC and specialist physicians working in the community (Molnar 2020a). Although the Support Group provided PC personnel access to the highest echelons of the MoH, by September 2020 questions were being raised by members as to whether the group had duplicated other efforts. Specifically, many of the same AHS-PHCP staff sat both on that group and the Task Force and the Working Group (Participant 82). As such, we focus on the Task Force and the Working Group as the *ad hoc* independent responses to the activation of the IMS and its centralized vision of resilience. We show how the Task Force and the Working Group, operating outside the IMS, were seen by PC stakeholders as ensuring not just a place for PC in the broader response but also resilience in PC operations.

The Task Force was created in March 2020 after personnel in the PHCP realized "We're missing primary care" (Participant 01) in the emergency response system. The Task Force's explicit objective was to align the PCN response with that being rolled out by the MoH and AHS via the IMS (PCNs and AHS 2020). It was thus also an attempt to give

PC stakeholders visibility and access into the ECC's deliberations and decision making. The Task Force was composed of executive directors from some of the PCNs, as well as AHS- and community-based physicians.

The Working Group was established as a complementary body to the Task Force, with its mission being to conduct operational activities arising from the pandemic, generally, and the work of the Task Force, specifically. The Working Group was staffed by AHS-PHCP staff. Both the Task Force and the Working Group included crossover members, with this redundancy aimed at ensuring the "effective and efficient transfer of information and communication in both directions" (Participant 74).

FIGURE 1. The central IMS response and independent PC replies to the COVID-19 pandemic in Alberta



MoH = Ministry of Health; ZEOC = Zone Emergency Operations Centre.

Although the Task Force and the Working Group operated smoothly in their PC-focused contexts, their relationship with the IMS, and thus the central system, was more challenging. The bidirectional communications that the groups' members experienced in the AHS-PC and PCN ecosystem became unidirectional when they interacted with the ECC at the pinnacle of the IMS. As a PCN-based member of the Task Force described it, the ratio of downward to upward information flow was "probably 90–10" in the sense that

> [the meetings were] all about [ECC] planning, and then, once the community started to be hit with [COVID-19, our] questions and [feedback became about] 10% [of the focus]. (Participant 01)

As such, the Task Force predominantly became a point of information outflow from the administrative AHS-ECC to the provision-oriented PCNs. An AHS-PHCP member described how the emphasis on downward communication was not an aberration of the pandemic:

> [AHS] is [a] single healthcare provider on the acute [care] side, and just now starting to think about how to integrate [with community-based PC.] But we still have primary care on the outside looking in. Situations like [COVID-19 reveal] where all the gaps still exist in making it a unified system … there's nothing like a crisis to really tell you where you're at. (Participant 74)

A community-based PC physician echoed this, noting how the pandemic was a lesson about the need "to integrate the way that family physicians and walk-in clinics work with the operations of AHS (Participant 16).

Indeed, the Task Force and the Working Group were formed from competing visions of resilience in which PC was an insider rather than an outsider to the IMS structure, specifically, and to the AHS system more broadly.

In forming the Task Force, members of the PHCP took up an accustomed role of advocacy within their larger organization. PHCP staff in the early days of the pandemic sought out meetings with AHS colleagues:

> [R]attling cages like we always do – that's a pretty standard approach that we have to take, even [during] non-COVID [times]. It's like, "Have you considered primary care? Where does primary care fit in there? We think it [has] got to be an important component. Here's what happened last time with H1N1. We need to get and have membership on ECC." (Participant 74)

Despite this appeal to historical experience and arguments that equated PC involvement with system resilience, a more centralized vision of what was required for resilience prevailed, and the PHCP was ultimately denied a seat at the ECC table.

In response, and following their own vision of resilience, PCHP personnel joined with PCN staff to form the Task Force, which would sit just outside the ECC. Prior to a redesign of the reporting and response structures in November 2020, a single member of the Task Force played a pivotal role and was the personification of an alternative PC-based vision of resilience. This member – who also interacted consistently with the Working Group – happened, also, to sit on the ECC. This was not by accident. Although the member did not sit on the ECC in a PC capacity, they were nonetheless embedded in the *administrative* and *service provision* linkage points between central AHS and independent PC. Their presence at the highest levels of both the central response (ECC) and independent PC response

(Task Force) was intended to provide a "crosswalk" between the elements. Rather than vying for voice in crowded ZEOC meetings that were intended to be the formal mechanism for ensuring PC resilience in the pandemic, this lone member was able to secure access, albeit informal, to a higher rung of the IMS.

If the Task Force relied on a single crossover member to gain access to the ECC for PC, the PCNs – positioned even further from the central IMS and system – felt even less integrated in the central response. Neither the executive directors of the PCNs – some of whom sat directly on the Task Force – nor the majority of senior PCN operational staff had access to the "lower rung" ZEOCs. A Calgary zone PCN staffer described it:

> Our executive director absolutely wasn't integrated into ZEOC calls. I was not part of those [either]. (Participant 56)

This account of the central IMS response to the pandemic, and independent PC stakeholders' replies, has emphasized the adaptive actions of those stakeholders. With their vision of resilience competing with the one embedded in the central response, independent PC developed "work-around" solutions. In the next section, we present evidence that underscores the importance of this ingenuity in ensuring PC resilience during the pandemic. The focus of this section is on the flow of resilience-focused IPC guidance from the central system to independent PC clinics.

Implementation guidance

Even as Alberta's PC physicians began using newly developed VCBCs (CIHI 2021; Government of Alberta 2020b) and shifted to virtual visits for the majority of their patients, some community-managed COVID-19 patients still needed in-person visits. This population – along with a backlog of non-COVID-19 patients who had avoided in-person visits – focused attention on the need for PC-specific guidance on IPC best practices. Without robust IPC measures in place, in-person PC could not be safely carried out. Across Canada, formal responses to this need had seen a range of stakeholders publish guidance on how best to provide IPC in PC and thus ensure resilience in its operations (Pinto et al. 2020).

Specifically, document-based guides were published by the provincial medical association (AMA and ACTT 2020), the provincial regulatory body (CPSA 2021), national public health and IPC agencies (Government of Canada 2021; IPAC 2020), with quality improvement-focused researchers also providing IPC implementation guidance (Blaak et al. 2020). In Alberta, the Task Force and the Working Group – themselves workarounds to the IMS – sought to work with a number of these externally produced recommendations to develop a webpage that would be "the source of truth for community physicians" (Participant 13) as they looked for IPC best practices.

Notwithstanding these efforts, many PC stakeholders described challenges with the IPC guidance that was made available on the website. Specifically, the resources were described as

fragmentary, delayed or out of date, difficult to interpret and inadequately mindful of the PC context as they had been developed originally for acute care (Pinto et al. 2020).

As a PC physician noted:

> There is no specific guidance [for primary care. We're] supposed to be able to go to the increasingly jumbled AHS website and find stuff, and then translate it [for our] world. (Participant 71)

Another PC physician described this "jumbling" as a problem not just for the AHS IPC guidance website:

> Most of the communication [from AHS] is really just a list of websites that we should access. You get 25 different websites … You have to sort through [them] and see what's relevant, [editing out what] is just general information until you hit something that's really pertinent to you. (Participant 16)

The reaction to the jumble and the informational overload of the resilience-seeking website was localized interpretation. An AHS-PHCP staffer described feeling constantly out of sync as independent PC began interpreting centrally supplied guidance to achieve resilience on its own terms. They and their colleagues would

> go scrambling to make a bunch of documents and update the website and all that stuff. And then in the meantime, [the PC physicians have] already interpreted [things] themselves because they have to. They need an answer today. They don't need an answer in four days … So they immediately start translating. (Participant 13)

Faced with IPC guidance that was filled with "some vague wording and 'use your best judgment' type of thing" (Participant 37), many PC physicians felt they were improvising their IPC protocols. Similarly, a PCN staffer described combing the internet for specific guidance on environmental cleaning but finding little:

> There's no real specific guidelines saying, "You must clean the bathroom X number of times a day; you must wipe this [surface] X number of times a day" so we just created processes dependent [on our situation]. (Participant 56)

Taking the intricacies of donning and doffing personal protective equipment (PPE) in PC clinics rather than hospital conditions as an example, one PC physician noted:

> It takes very intense training and supervision and people need to watch [you don and doff] and make sure that you're doing it right. You have [those people] in a hospital setting. But basically [what the guidance was saying to us in PC was]: "Watch this video. This is how you do donning. This is how you do doffing. Here's some stuff." (Participant 16)

Translating and improvising amid this ambiguity, many PC personnel came to "wonder who is driving the ship, if anyone at all" (Participant 31).

While most PC clinics navigated and operationalized guidance documents on their own, some clinics and PCNs (n = 15) also participated in novel "tabletop simulation" exercises created over the course of the pandemic by our applied research team (Blaak and Fadaak 2020a, 2020b; Blaak et al. 2021). The appetite for these PPE and IPC implementation simulations was identified in the interviews that elicited the quotations found in the preceding paragraphs. We leveraged our connections with the AHS' IPC team to draw together PC personnel with questions and IPC professionals with practical answers. The resulting self-declared "community of practice" (Participant 49) continued to meet until May 2021 as a forum for questions on how to use PPE and enact IPC best practices on the front lines of PC. Commenting on the baseline knowledge of PC-based members of the community of practice, one of the AHS-IPC professionals answering the questions noted:

> It's a real gap in knowledge and a gap in access to knowledge. Should [PC] have to pay over and above for [IPC expertise]? The challenge is that [my team inside the AHS is] already stretched so thin covering acute care and long-term care, and supported living sites, that to add PC [would be a real challenge]. (Participant 53)

The search for practical guidance on the use of PPE and implementation of IPC best practices culminated in the following: 1) local PC interpretations of guidance developed remotely for acute care contexts; 2) the creation of tabletop simulations for PC by our university-based research team; and 3) a self-started, IPC-focused community of practice within PC. Across these three replies to the central pandemic response, IPC activity inside AHS remained relatively constant, with a member of the AHS-IPC making themselves available to the community of practice as necessary.

Discussion

The COVID-19 pandemic has had a "seismic effect" on the delivery of care by family physicians (Alsnes et al. 2020; Coombes 2020; Schneider and Shah 2020), who are grappling with the uncertainties of their patients' immediate and long-term issues (Greenhalgh et al. 2020). As this test of PC resilience unfolds, governments have sought even greater inclusion of family medicine into the next phase of the pandemic response, with PC deployed to deliver mass

vaccination programs (Kanani et al. 2020; Mueller 2020; Weintraub et al. 2020) or positioned as a major resource in overcoming vaccine hesitancy (Griggs 2021). In this context, the ways that pandemic-induced disturbances have led to shared resilience goals, but competing visions of what ought to continue and what ought to change, as well as how to attain those outcomes in PC, are worthy of close policy attention.

The IMS and competing visions of resilience

As a response to the pandemic, Alberta's IMS was intended to streamline decision making and information flow. The IMS embedded a resilience vision in which the central system was superordinate to independent PC just as it was to other services. Indeed, the central system's vision was, in important ways, "blind" to PC's potential for action (Newton et al. 2021). Maintaining this hierarchical relationship and the command-and-control capacities it afforded was, for those activating the IMS and sitting on the ECC, central to ensuring resilience in the healthcare system's operations. In contrast, PC stakeholders maintained a sense that even if they were one among many services, their voice and operational concerns deserved prioritization. This is to say that they expressed a competing resilience vision that was grounded in efforts to raise the profile and status of independent PC that predated the pandemic. Where the central system sought to ensure the continuation of not just operations but also PC's outsider status, PC stakeholders sought continuity of operations and to press home a long sought-after change in PC's relationship with the centre.

For both groups, then, resilience was not only a technical exercise in maintaining operational capacity, but a political exercise in asserting that the pandemic was, on the one hand, a disturbance to be mitigated and, on the other, an opportunity to embrace change. These competing visions suggest that policy makers planning for future pandemics will profitably spend time not just in considering the technical challenges of resilience but also in understanding the political efforts and institutional relationship arcs that subtend discussions of what ought to be protected and what ought to be changed as operational capacity is safeguarded. More specifically, the resilience vision expressed by PC stakeholders in Alberta included the "workaround" creation of a range of groups just outside the gravitational pull of the central system. With the Task Force and the Working Group built on the fly and in reaction to the IMS, these *ad hoc* resilience-focused structures relied on specific people – in particular a single physician with the cross-over capacity to access the ECC – to succeed.

While improvisation, trust and mutual respect will inevitably play important roles in any system's resilience successes, the opportunity here is to formally integrate PC into the highest levels of an IMS. Finding solutions that sustainably formalize and integrate PC into resilience-focused emergency management policies is a priority for health systems pursuing massive vaccine delivery programs and other PC integration into future public health responses to pandemics. Rather than relying on workaround ingenuity, IMS plans, in whatever form they currently exist, can profitably be revisited with an eye to preventing PC from remaining "on the outside looking in." Potential benefits to be realized here include improved

co-ordination across PC and acute care facilities, as well as cost savings, as more cases are managed more effectively in the community (Newton et al. 2021).

Implementation guidance

As is always the case, PC clinicians needed to translate high-level policy directives into practical changes to their workflow. In the case of IPC guidance, this translation and implementation work was complicated not just in Alberta, but across Canada, by the fact that the available material was minimally reflective of PC realities and difficult to access (Pinto et al. 2020). Replying to this central response, independent PC personnel and researchers moved resiliently to create a patchwork of solutions that ranged from local interpretations of the available guidance, to participating in tabletop simulations, to forming an IPC-focused community of practice and to building a community-facing website. Each of these replies exposed gaps in knowledge, capacity and reach.

Focused policy attention from government and stakeholders is required to get the right guidance to the right people at the right time. The consistent delivery of expert IPC knowledge in an easily digestible and PC-customized form is a resilience-focused policy challenge that will need to be addressed collaboratively by the government and the regulatory and professional organizations in each province. The patchwork of solutions we have described may well provide starting points for policy conversations and further research, but agreeing on common, scalable ways forward is policy work that remains, in many cases, to be done.

Conclusion

The responses of Alberta's central health system to the COVID-19 pandemic led to replies from independent PC stakeholders, with all parties aiming for technical resilience but expressing competing visions for how that ought to be achieved. On the one hand, the central system sought resilience in the continuation of not just care delivery operations but PC's status as an outsider among other services. On the other, independent PC sought both the advancement of ongoing reforms aimed at better integrating PC into the central system, as well as greater influence in the provincial response to a predominantly community-based disease. Attention to the gaps between resilience visions – what ought to be protected and what ought to be altered to ensure continuity of operations – is a key focus for policy planners moving forward.

In this context, planning aimed at maximizing the benefits and minimizing the downsides of improvisational efforts to meet pandemic challenges is necessary. Focal points here include the (re)design of central IMS and IPC guidance distribution structures to include independent PC as robustly as possible without over-relying on workarounds. As this policy planning and structure design occurs, the goal is to leverage existing linkages between central service delivery systems and independent PC in ways that avoid the inconsistencies and potential burnout of responses that rely too heavily on individuals and improvisation.

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RESEARCH PAPER

The Delivery of Patient Care in Ontario's Family Health Teams during the First Wave of the COVID-19 Pandemic

La prestation des soins aux patients dans les équipes Santé familiale de l'Ontario pendant la première vague de la pandémie de COVID-19

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Abstract

Objective: The objective of this paper was to identify continuations and changes in care delivery methods in primary care teams during the COVID-19 pandemic.
Design: The study used a cross-sectional, web-based survey comprising close-ended and open-ended questions.
Setting: The setting comprised family health teams (FHTs) across Ontario, Canada.
Participants: The participants included executive directors of FHTs or designates of their choosing.
Survey: Descriptive statistics were derived from responses to close-ended questions, and responses to open-ended questions were coded using thematic analysis.
Results: With 93 participants, the response rate was 48%. Participants reported the continuation of in-person care, the implementation of virtual care across FHTs and collaboration within these teams and their communities.

Résumé

Objectif : L'objectif de cet article était d'identifier la continuation et les changements dans les méthodes de prestation de soins au sein des équipes de soins primaires pendant la pandémie de COVID-19.
Conception : L'étude a consisté en une enquête transversale en ligne comprenant des questions fermées et ouvertes.
Milieu : Le milieu concerné comprenait des équipes Santé familiale (ESF) en Ontario, au Canada.
Participants : Les participants comprenaient des directeurs administratifs d'ESF ou les personnes désignées de leur choix.
Enquête : Les statistiques descriptives ont été dérivées à partir des réponses aux questions fermées, et les réponses aux questions ouvertes ont été codées à l'aide d'une analyse thématique.
Résultats : Avec 93 participants, le taux de réponse était de 48 %. Les participants ont fait état de la continuation des soins en personne, de la mise en œuvre des soins virtuels dans les ESF et de la collaboration au sein des équipes et de leurs communautés.

Introduction

Primary care is a first line of defence in a pandemic (Alex et al. 2020; Rawaf et al. 2020). Having long-standing relationships with patients means primary care is optimally positioned to help manage patients at home and identify patients who require hospitalization (Alex et al. 2020; Rawaf et al. 2020). The onset of the COVID-19 pandemic required primary care to quickly transform to adhere to physical distancing requirements while still maintaining connection with patients (Alex et al. 2020; Krelle et al. 2020; Lewnard and Lo 2020).

Healthcare Delivery during the COVID-19 Pandemic

Before the COVID-19 pandemic, few primary care practices routinely used virtual care for direct patient assessments (Krelle et al. 2020). Virtual care refers to "any interaction between patients and/or members of their circle of care, occurring remotely, using any forms of communication or information technologies, with the aim of facilitating or maximizing the quality and effectiveness of patient care" (Jamieson et al. 2015: 4). Many primary care practices have undergone rapid expansion of synchronous virtual care (e.g., telephone and video appointments) with minimal preparation time while maintaining as much continuity as possible for patients (Donnelly et al. 2021; Krelle et al. 2020; Rawaf et al. 2020). The pandemic has accelerated virtual primary care in Canada and worldwide, with limited evidence to guide this full-scale pivot (Krelle et al. 2020; Government of Ontario 2019a). Other challenges include prioritizing which patients require in-person assessments, accessing personal protective equipment (PPE) due to a worldwide shortage and collaborating with other providers who may be facing gaps in care delivery due to limited resources (Alex et al. 2020; Lewnard and Lo 2020; Rawaf et al. 2020).

Team-Based Primary Care in Ontario, Canada

Team-based primary care brings family physicians together to work in tandem with a range of interprofessional healthcare providers (IHPs) – such as nurses, nurse practitioners, social workers, dietitians and pharmacists among others – in the same practice setting (Donnelly et al. 2021). Primary care teams are associated with improved clinical outcomes, positive patient experiences and decreased healthcare utilization (Gocan et al. 2014; Khan et al. 2021; Manns et al. 2012; Morgan et al. 2020; Mulvale et al. 2009; Strumpf et al. 2017).

Different primary care models respond to different types of community needs, patient populations and provider preferences (Glazier et al. 2012; Hutchison and Glazier 2013). In Canada, Ontario has advanced interprofessional primary care particularly with the investment and expansion of several team-based primary care models including family health teams (FHTs), community health centres (CHCs), nurse practitioner–led clinics (NPLCs) and Indigenous interprofessional primary care teams (IIPCTs) (Brown and Ryan 2018; Government of Ontario 2018; Haydt 2018; Heale et al. 2018; Hutchison and Glazier 2013). FHTs are an example of a newer team-based model of primary care that emerged in 2005 from a period of healthcare system reform (Hutchison et al. 2011). There are 184 FHTs providing services to approximately 25% of Ontario's population, with the FHTs being the largest team-based primary care model in Canada (Glazier et al. 2012; Somé et al. 2020). The implementation of FHTs was intended to expand access to comprehensive healthcare services, particularly for the prevention, treatment and management of chronic conditions (Hutchison et al. 2011). FHTs vary in terms of organizational size, composition of types and numbers of providers (Ashcroft et al. 2021b; Rudoler et al. 2019). There is also variation in the types and numbers of services offered by family physicians and other interprofessional providers across FHTs (Hutchison and Glazier 2013). Provincially, the trend is for FHTs to

enroll patients who are healthier and have higher socio-economic status than CHCs (Glazier et al. 2015). This is not necessarily the case, however, for communities that have a broad distribution of FHTs across all neighbourhoods or for FHTs located in neighborhoods with significant socio-economic disparities (Ly et al. 2021).

Originally established in the 1970s, CHCs prioritize care for vulnerable populations and are most likely to serve disadvantaged populations (Collins et al. 2014; Hastings 1972; Haydt 2018). CHCs are driven by a social-determinants-of-health framework and are designed to meet a broad range of patient and local community needs unique to the disadvantaged populations they serve (Collins et al. 2014; Glazier et al. 2012). Additionally, CHCs are a community-involved and community-governed model of primary care and include a broad range of services including community outreach activities (Haydt 2018). NPLCs were created in 2007, and 24 NPLCs are currently operating across Ontario (Haydt 2018). In NPLCs, nurse practitioners are the clinical leaders of an interprofessional team that is inclusive of providers from a broad range of disciplinary backgrounds, including physicians. Physicians in NPLCs mainly act as consultants and provide guidance for issues that fall outside of the nurse practitioners' scope of practice (Haydt 2018). Most recently, IIPCTs were established in 2018 (Government of Ontario 2018). Interprofessional teams comprise a diverse range of healthcare providers, including traditional Indigenous healers (Government of Ontario 2018). IIPCTs are primary care teams located in Indigenous communities, are Indigenous governed and are community driven (Government of Ontario 2018).

Team-based primary care provides access to a wide range of comprehensive physical, behavioural and mental health services (Beaulieu et al. 2013; CFPC 2019; Tadic et al. 2020); thus, primary care teams are well-positioned to address the wide-range of patient needs that have emerged during the COVID-19 pandemic (Donnelly et al. 2021; Holmes et al. 2020). Early reports are beginning to emerge about the role of primary care during the COVID-19 pandemic (Bhatti et al. 2020; Donnelly et al. 2021; Kearon and Risdon 2020). There is little understanding, however, of the continuations and changes in care delivery methods in team-based primary care in Ontario as shaped by the first wave of the COVID-19 pandemic.

Rationale and Objective

We conducted a survey to better understand how team-based primary care practices in Ontario, Canada, delivered care during the first wave of the COVID-19 pandemic. Our study will shed some light on the experiences of primary care in order to better prepare physicians and other primary care providers, leaders and policy makers for the ongoing demands of the COVID-19 and future pandemics. The overarching objective of our study was to determine how Ontario-based primary care teams delivered patient care throughout the first wave of the COVID-19 pandemic. We report the results of that study here, drawing important policy lessons for other jurisdictions on the planning and sustainability issues involved in primary care's pivot to virtual care delivery. To our knowledge, this is the first study to survey leadership in team-based primary care for this purpose.

Method

Study design

We developed and implemented a cross-sectional, web-based survey to answer the following questions: How did team-based primary care practices deliver patient care during the first wave of the COVID-19 pandemic? What is the future of virtual care appointments in team-based primary care? We obtained ethics approval from the University of Toronto Research Ethics Board (REB Protocol #39432).

A previous survey of primary care teams during COVID-19, which focused on the interprofessional healthcare providers' perspectives (Donnelly et al. 2021), inspired the development of this web-based survey. In partnership with The Association of Family Health Teams of Ontario (AFHTO) – a provincial organization that supports and advocates on behalf of primary care teams in Ontario – we developed our survey using Qualtrics software. The final web-based survey included close- and open-ended questions that aligned with the study objectives. Survey questions were related to delivery of care during the pandemic, the use of virtual care during the pandemic and recommendations for virtual care post-pandemic.

Sample

We used a convenience sampling technique to engage a population of executive directors – or designates of their choosing – of team-based primary care organizations. Potential participants were those who were able to complete a web-based survey in English and were employed at the time of survey within one of the 191 primary care teams that are members of AFHTO. Although the composition of providers varies within each of AFHTO's member organizations, teams typically comprise family physicians, nurse practitioners, nurses, social workers, pharmacists, dietitians and/or other IHPs (Hutchison et al. 2011). AFHTO's member organizations include 184 FHTs, 5 NPLCs, 1 CHC and 1 interprofessional care team.

Recruitment

Executive directors of all AFHTO member organizations were sent an invitation to participate in the web-based survey through recruitment e-mails. The web-based survey was open from July 17, 2020, to September 15, 2020. No recruitment incentive was used.

Data analysis

Descriptive statistics were conducted on the 21 close-ended questions using the Qualtrics software. We conducted a thematic analysis on the subset of the responses to the open-ended questions (Braun and Clarke 2006). After importing the qualitative data from the open-ended questions from Qualtrics to Microsoft Excel, two researchers (RA and MD) analyzed the data. First, the two researchers became familiar with the data by reviewing the open text responses. One researcher acting as the primary coder completed the analysis, and the secondary coder reviewed the coding structure in detail. The two researchers regularly met

throughout the duration of the initial coding process to review, discuss and refine codes as needed. The two researchers reviewed the codes for potential themes, following which the entire research team had an opportunity to review the themes and provide input at a virtual team meeting. During this process, we also identified quotes exemplifying key themes. The coding process and the thematic development were inductive.

Results

The response rate was 48%, with participants representing 92 primary care organizations. A total of 93 individual participants completed the survey; however, two participants were from the same FHT. Therefore, only 92 distinct primary care organizations participated in our study. Almost all of the participants identified as being in a leadership position, with 87% (n = 81) of participants being either executive directors, 5% (n = 5) being managers or administrative leads, 4% (n = 4) being in a clinic director role, 1% (n = 1) identifying as a program coordinator, 1% (n = 1) being a nurse practitioner and 1% (n = 1) remaining unknown because the participant did not identify their role. The 93 participants represented the following 92 primary care organizations: 88 FHTs, 3 NPLCs and 1 CHC that spanned all five geographical regions (Government of Ontario 2019b).

Continuing in-person care

Nearly all participants (99%) indicated that some in-person care continued to be offered throughout the first wave (March through August, 2020) of the COVID-19 pandemic. Well-baby (91%) and prenatal visits (88%) were the most frequently provided assessments in-person (see Figure 1).

FIGURE 1. Type of care provided as in-person appointments during the first wave of the COVID-19 pandemic

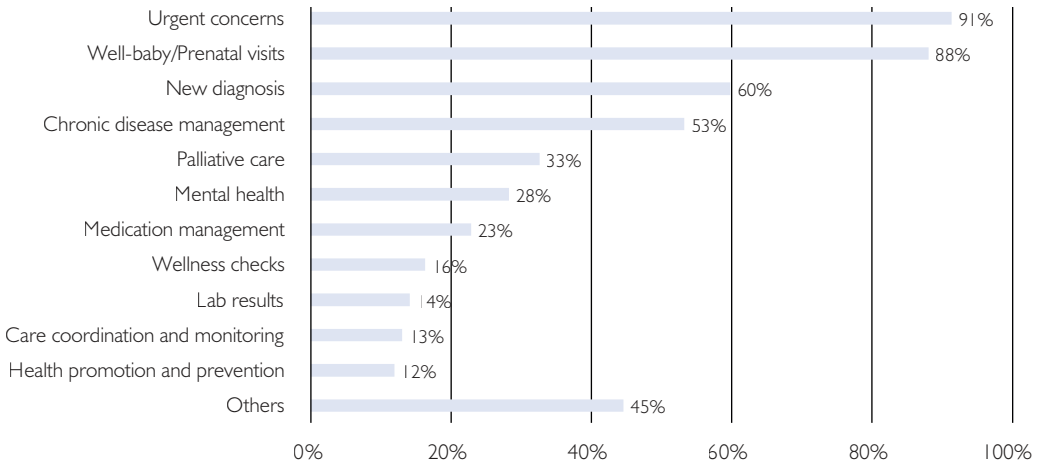
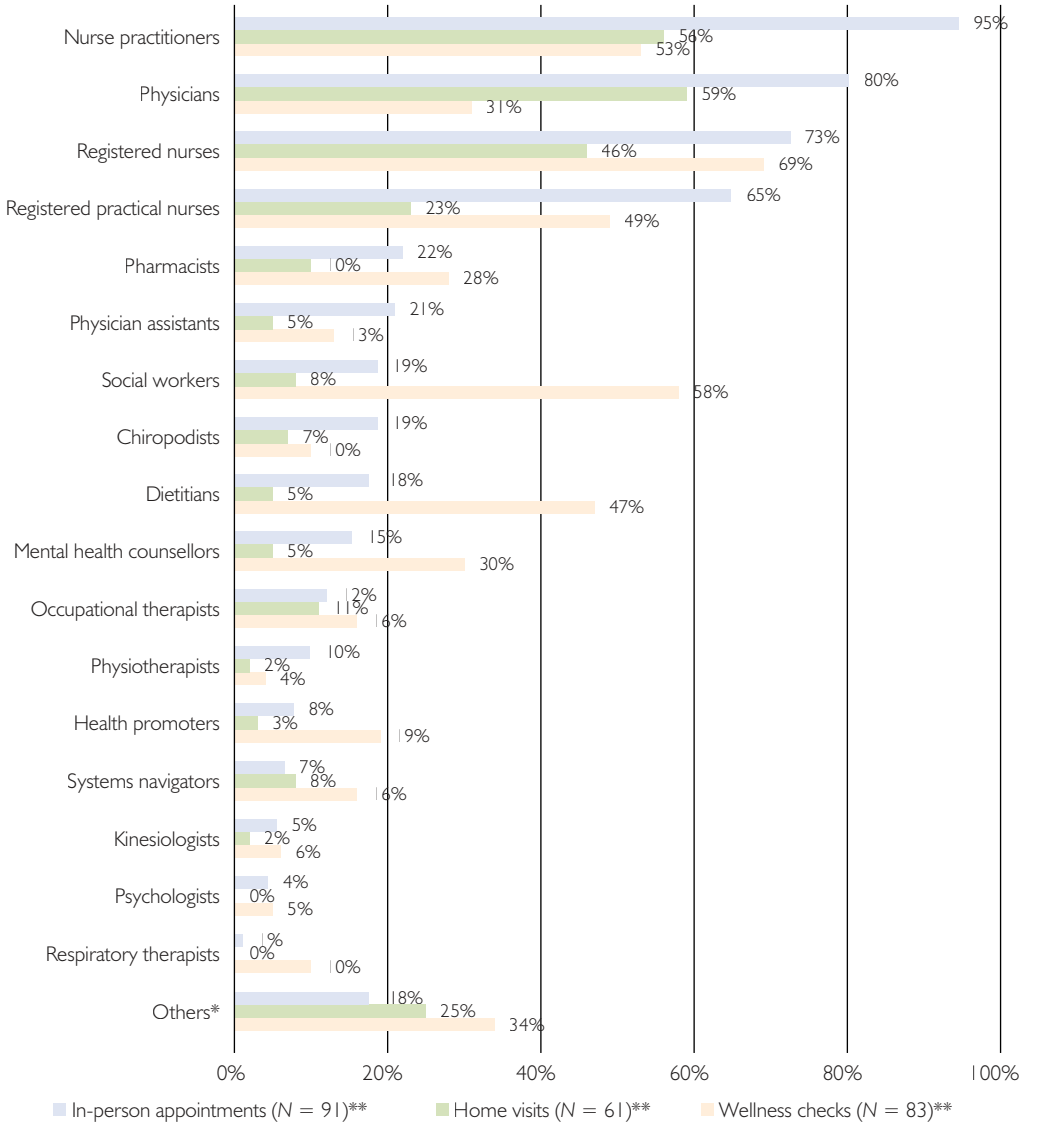


Chart with percentage of all respondents (n = 93).

A wide range of providers continued to offer in-person appointments and home visits (see Figure 2). Despite continuing in-person patient care, some participants (49%) reported difficulties securing access to an adequate supply of PPE for their team. For those respondents indicating difficulties securing PPE, solutions identified by participants included relying on donations (78%), implementing strict protocols including locking up PPE (28%) supplies,

FIGURE 2. Types of providers in primary care who conducted in-person appointments, home visits and wellness checks via telephone during the first wave of the COVID-19 pandemic



* The "Others" category in Figure 2 refers to medical residents, administrative personnel, laboratory personnel, mental health providers and other providers not otherwise indicated.

**Denotes denominator.

self-procuring at big-box stores (28%) and reusing PPE (10%). Organizational changes that accommodated in-person care included the following: modified physical environment, reduced overlaps of in-person patients to promote social distancing, and newly implemented preventative protocols to reduce the risk of transmission of COVID-19 infection according to local public health recommendations (see Table 1).

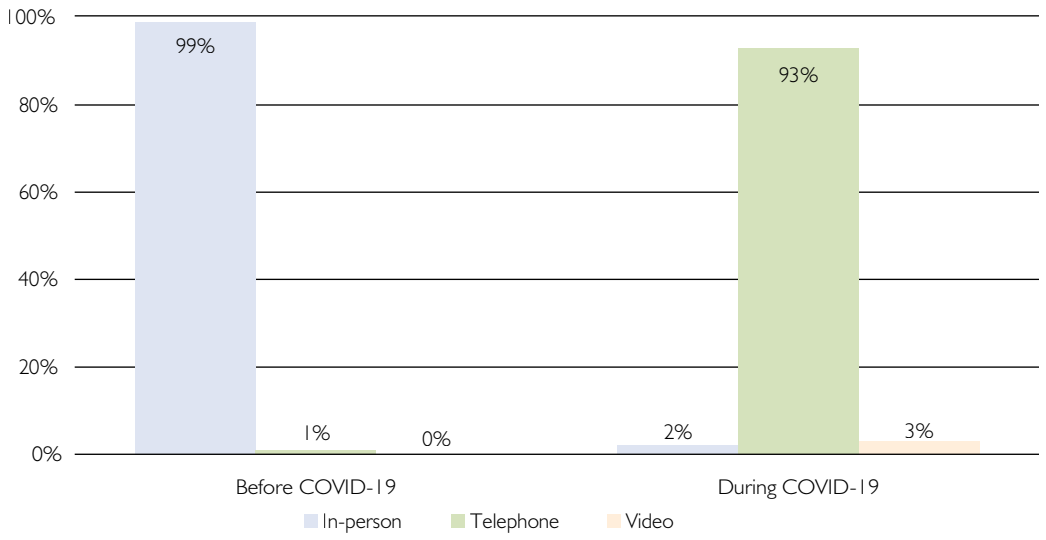
New patient-care activities

During the first wave of the COVID-19 pandemic, some participants (29%) indicated that their clinic site was carrying out COVID-19 testing, while the majority (71%) were not offering direct testing. The vast majority of participants (90%) indicated that a range of healthcare professionals within the team conducted wellness checks by proactively telephoning patients, which was a new activity initiated by FHTs during the first wave of the pandemic (Figure 2). Wellness checks meant that FHTs initiated telephone calls with their patients who were elderly, were postpartum and/or had a history of complex health and/or mental health issues to ensure that they had adequate medication, groceries and/or social supports.

Implementation of virtual care

There was a dramatic change in the modalities used to provide direct patient care immediately following the provincial declaration of emergency on March 17, 2020 (Government of Ontario 2020). Before the COVID-19 pandemic, in-person appointments were the most frequent mechanism for patient care, whereas during the first wave, telephone appointments became the most frequently used modality to provide patient care, followed by video and in-person appointments (Figure 3).

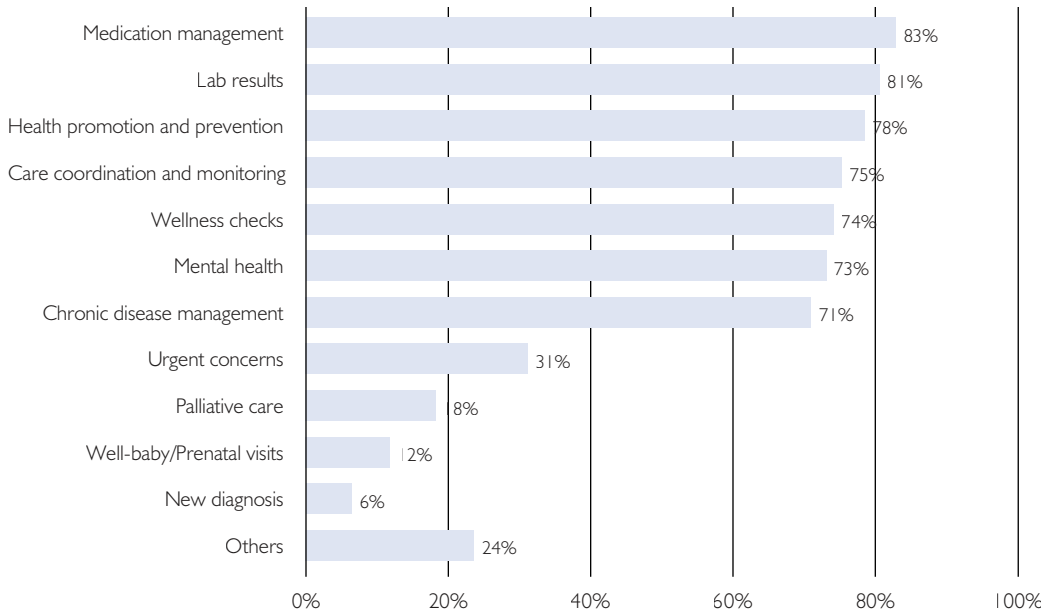
FIGURE 3. The top three modalities of patient care used before the COVID-19 pandemic and during the first wave of the COVID-19 pandemic



Participants described the challenges and facilitators that they encountered during the rapid shift to virtual care during the first wave of the pandemic. Challenges included infrastructure and technology, a rapid transition process and a lack of education and training. Facilitators included providers' preferences, previous experience and exposure to technology, flexibility and openness, a change management process and billing codes for virtual care (Table 1).

For video appointments with patients, Ontario Telemedicine Network (OTN) was the most frequently used platform (72%) followed by Zoom (56%), Telus Practice Solutions (40%) and Doxy (22%), as well as a range of other platforms (28%) (https://doxy.me/en/; https://otn.ca/; https://www.telus.com/en/health/health-professionals/clinics/emr-add-ons/virtual-visit; https://zoom.us/). Most participants (52%) indicated that their practice site offered virtual group sessions to patients for various topics: mental health, diet and nutrition, parenting and infant care, mindfulness, lifestyle and exercise, COVID-19, smoking cessation and caregiver support. Some respondents (10%) indicated that although their primary care clinic did not offer virtual groups during the first wave of the pandemic, they were planning to incorporate them in the near future. The most common video platform used for group programming was Zoom (81%). Participants reported that a combination of in-person, telephone and video appointments would continue following the pandemic (Figure 4).

FIGURE 4. Types of patient encounter-related reasons considered optimal for virtual care beyond the COVID-19 pandemic



We identified four themes in the qualitative data related to the future of virtual care: i) virtual care will continue for some patients and for some types of appointments; ii) virtual care will change practice; iii) virtual care is dependent on provider preferences; and iv) the advancements in virtual care requires continuation of physician billing codes (Table 1).

TABLE 1. Themes and illustrative quotes representative of qualitative data collected from open-text boxes

Themes	Illustrative quotes
1. Organizational changes that accommodated in-person care	
Regular screening	"Clinic includes an initial phone/video consult[ation] before any in-person visit is completed."
Minimizing patient overlap	"We stagger [appointments] and have 10 minutes between each booked in-person appointment to allow time for disinfecting procedures." "If there is a specific appointment time [in the clinic], do not come early … Only [the] patient and, if necessary, a caregiver [should come]. Appointments are spaced one half-hour apart and the room is sanitized after every patient [leaves]."
Desk barriers at reception	"Reception[ists] wear medical-grade masks and sit behind a plexiglass barrier."
Escorting patients	"Patients ring [the] door bell to enter the building and the clinician meets them."
On-site screening	"Patients are screened at the door and brought into an exam room right away."
Disinfection protocols	"[We have] established [a] sign system to confirm [that the] room has been disinfected. [The p]rovider disinfects [the] room after [the] patient leaves." "Longer time [has been allocated] between appointments for cleaning."
Use of PPE	"… every patient wears a mask in the clinic …" "… [Regarding] PPE worn by providers in clinic, [there have been] changes over the [past] 4 months, with [providers] currently wearing face masks and shields …"
Waiting room modifications	"Wait room has been changed and limited seating is available. Because the space is shared, if too many patients arrive, patients are required to wait in their vehicle or outside."
Reducing the number of people in the clinic	"… only the patient attends the appointment unless a support person is required. Only one parent attends [the] well-baby visits or children's appointment."
Staff reallocation for distancing	"[We are] relocating staff to other workstations to maintain distancing."
Signs	"[There are] passive screening signs on the door. Sign require[s] face covering for entry…"
2. Providers' experiences of rapid shift to virtual care during the first wave of COVID-19	
Challenges • Infrastructure and technology • Rapid transition process • Lack of education and training	"[It was] gradual. [It] took time initially to set up parameters that providers/patients were comfortable with, but now [they] are using [them] well." "Initially [it] was a bit rocky with some providers needing more technical support and guidance with regard to how to provide care through a virtual platform. Now it is pretty smooth …" "Initially [it was] difficult because of the change of practice yet two-thirds of the physicians enjoy it …" "…Change came rapidly and it also brought in lots of uncertainty at a heightened time of being scary [of] providing care to anyone ..."
Facilitators • Providers' preferences • Previous experience and exposure to technology • Flexibility and openness • Change management process • Billing codes for virtual care	"We had already completed all the security assessments and requirements for OTN so providers could switch over in 2 days …" "[We] appreciated being able to continue offering care and staying safe during the pandemic; overall, [we] found new ways to deliver care programs and services …" "It is all about the board and management communicating and coordinating change management with the clinical staff. It was important to have transparent, open and candid discussions – sharing ideas about balancing staff safety, patient health, operational effectiveness and government directives …" "At first there was resistance from the physicians due to financial reasons. Once that was confirmed the physicians embraced this new form of care."

Themes	Illustrative quotes
3. Anticipated future of virtual care following the COVID-19 pandemic	
Virtual care that will continue for some patients and some types of appointments	"Virtual care will be beneficial to people who struggle to get into the office." "Patients are loving virtual care. They are able to stop their own work for 15 mins, consult with their provider and then get right back to work. This is opposed what might be [over] 1.5 hrs to get to the clinic, wait for their appointment and commute home." "I foresee virtual care being an integral part of our process for patient care." "I think that some appointments that can be managed virtually should continue." "Our mental health patients also are really enjoying virtual visits. I can see this continuing in the future." "Due to connectivity shortages in our geography and elderly population that don't feel comfortable with technology, a good portion of our contacts will remain [on] phone."
Virtual care that will change practice	"With an expected long-term transition to virtual care for over 70% of our patient appointments, there will be a reduced demand for physical space and consequential large rental costs." "I do not see virtual care impacting in-person visits in the long-run. However, I do see [a] major opportunity for collaborative visits for virtual care."
Virtual care that will be dependent on provider preferences	"I see the use of virtual care being primarily dictated by the MD preferences. FHT staff are interested in virtual care, but some MDs are and some are not. "
Advancements in virtual care that will require a continuation of physician billing codes	"If the billing codes remain then I'm sure the virtual means of providing primary care will continue." "Critical to the continuation of virtual care is the retaining of billing codes for this type of care."

MD = medical doctor; OTN = Ontario Telemedicine Network; PPE = personal protective equipment.

Collaboration and partnerships

During the first wave of the COVID-19 pandemic, most participants (67%) indicated that their primary care team continued team meetings. Telephone (70%) was the most frequently used modality to facilitate team-based conferencing. The next most frequent methods were the video platforms Zoom (54%) and OTN (32%), followed by video platforms embedded in the practices' electronic medical record (EMR; 9%). Asynchronous methods used by primary care teams for case conferencing including secure e-mail (16%) and messaging (10%).

Collaboration and partnerships extended beyond the immediate clinic's practice. Many (55%) indicated that their interprofessional team provided care to patients of physicians in their community who were not directly a member of their clinic's practice. In addition, most participants (65%) reported that someone from their primary care team was directly involved in a regional COVID-19 planning and leadership implementation table. Lastly, some providers in primary care held multiple roles in their community. For example, many participants (49%) reported that at least one member of their team was working in a high-priority area outside of the direct primary care clinic, including COVID-19 assessment centres (73%), long-term care facilities (33%), acute care hospitals (20%), as well as other congregate type settings (i.e., group homes, retirement facilities; 31%).

Discussion

Reports on the rapid transitions occurring in primary care during the first wave of the pandemic have focused on the implementation of virtual care (Alex et al. 2020; Rawaf et al. 2020). Little is known about how primary care teams shifted toward virtual care or how in-person patient care continued during that period (Bhatti et al. 2020). Our study demonstrates that primary care physicians and other members of the team continued providing some in-person preventative, medical and mental healthcare services to their patients. Some in-person patient care continued at all of our participants' primary care organizations except one. To do so, primary care teams redesigned workplaces and implemented new safety measures to comply with physical distancing and for prevention and control of the spread of COVID-19. A problem faced by our participants, similar to challenges faced worldwide, was the availability of PPE (Culpepper 2021; Rawaf et al. 2020). According to Rawaf et al. (2020), "some family physicians have withdrawn their services because of the lack of adequate PPE" (p. 131). In the US, the lack of PPE led to the closure of some primary care offices (Culpepper 2021). As the pandemic continues, ensuring adequate availability of PPE is essential for the safety of patients and providers in primary care.

The COVID-19 pandemic has stimulated innovation within primary care with the implementation of new technologies for the delivery of patient care (Dearing and Cox 2018; Schiavo 2015). Participants in our study described an astoundingly rapid implementation of virtual care following the Ontario declaration of emergency for COVID-19. In the US, there are reports of practice closures because of the many technological and administrative challenges associated with this dramatic shift (Gausvik and Jabbarpour 2021). Although some key foundations for virtual care are now in place, further capacity building is needed for ongoing durability and scale (Dearing and Cox 2018; Schiavo 2015) – for example, determining the optimal roles for future inclusion of synchronous (i.e., telephone and video appointments) and asynchronous (i.e., direct messaging) virtual care in direct patient care activities and team collaborations to complement in-patient care.

Key facilitators identified in our study that helped FHTs transition to virtual care included providers' previous exposure to using technology, providers' flexibility and openness to using virtual technology and organizational change management. Key barriers identified in our study that created challenges to implementing virtual care included the lack of infrastructure and technology in primary care organizations, as well as the lack of provider education and training in using virtual modalities to deliver patient care. The sustainability of virtual care requires educators to integrate virtual competencies and training into healthcare education programs. Team-based practices require appropriate technology, adequate training and structural supports from policy and decision makers.

Our study demonstrated the level of coordination undertaken by primary care teams with the new implementation of wellness checks. Wellness checks meant that primary care teams were able to generate lists of patients they considered vulnerable using their EMR

system and proactively make contact with each of these patients. This level of coordination is possible because of the continuous relationships that primary care has with patients. Wellness checks served as real-time assessments, were a significant source of support for patients during the first wave of the pandemic and are only one example of primary care teams' contribution to population health early in the pandemic (Donnelly et al. 2021). However, it is not clear if primary care teams' rapid ability to coordinate, identify and reach distinct patient populations has been fully harnessed by public health during the pandemic (Crawley 2021; Marchildon 2021). One of the challenges for primary care teams is to find new ways to collaborate with one another in the context of physical distancing during the pandemic (Donnelly et al. 2021). Team collaboration in primary care often relies on frequent and informal in-person encounters in an appropriate physical space (Goldman et al. 2010; Levesque et al. 2017; Morgan et al. 2020). Our study demonstrates that primary care teams were using a range of alternate modalities to stay engaged with one another early in the pandemic. A risk of virtual collaboration is that the frequency of team interactions may decrease while the formality of interactions may increase (Morgan et al. 2020). It is crucial to ensure that primary care teams maintain their ability to interact with one another despite the challenges presented in virtual care, especially given the significant investments made in the recent past to establish primary care teams in Ontario and elsewhere (Hutchison et al. 2011). Collaboration in teams is critical for supporting integrated care (Wagner et al. 2018). As virtual care continues, however, it may bring changes to the organizational structures in ways that can offer new opportunities for greater integration of social and community services in team-based settings. Virtual care modalities may present opportunities for creative collaboration across organizations and sectors, for even more comprehensive patient-centred care (Shaw et al. 2017).

Policy implications

The future of virtual care requires strong system leadership (Shaw et al. 2017). While there has been intense focus on acute care in the early phases of the pandemic, policy makers need to give greater attention to primary care teams because they are uniquely positioned to deliver preventative care, manage chronic diseases and respond to the overwhelming mental healthcare demands that have emerged during the COVID-19 pandemic (Ashcroft et al. 2021a; DeVoe and Bazemore 2021). Before the pandemic, wide differences existed across primary care organizations and models in Ontario (Rudoler et al. 2019). Early in the pandemic, there was a lack of coordinated change management strategies across primary care organizations that quickly adapted workplaces and delivery of care. Our study demonstrated some of the variations that existed early in the pandemic with different types of virtual platforms used to deliver patient care.

The health system context in which primary care operates is impacted by planned and unexpected change (Rudoler et al. 2019). The pandemic is an example of a catalyst resulting in unexpected change as with the implementation of virtual care. There are some early

reports that virtual care has improved access to some types of care provided by primary care physicians and interprofessional teams during the COVID-19 pandemic (Donnelly et al. 2021; Gomez et al. 2021). In some cases, virtual care facilitated more timely access and allowed for innovative partnerships and collaboration by opening up even beyond the roster. Virtual care provides an opportunity for policy makers to consider innovative collaborations across the health and social sectors to best meet patients' care needs.

Patients need to be the focal point of decisions on the future developments of virtual care (Shaw et al. 2017). There are concerns that virtual care may be further disadvantaging vulnerable and complex patients and perpetuating digital inequity (Bhatti et al. 2020; Nouri et al. 2020). When asked about the anticipated future of virtual care, participants in our study expressed concerns that virtual care will continue for some patients, yet connectivity difficulties in certain geographical regions will create access barriers for other patients. Limited access to stable high-speed internet may disadvantage patients residing in rural and remote communities (Baylak et al. 2020; Lints-Martindale et al. 2018). Despite some improvements over the past decade (Jong et al. 2019), commitment by policy makers to ensure equitable access to consistent high-speed internet access in rural and remote geographical regions is needed to sustain virtual care (Baylak et al. 2020; Lints-Martindale et al. 2018). Moreover, protocols and guidelines developed in the primary care team context can help shape the future of virtual care so that the delivery of care aligns with patients' care needs. In addition, establishing competencies and best practices for virtual care can help guide educators in preparing future primary care providers for this new context. For example, providers and leaders in primary care need guidance on privacy and confidentiality concerns unique to virtual care (Bassan 2020; Hall and McGraw 2014).

The sustainability of virtual care is dependent on adequate incentive systems. Participants in our study emphasized the need for physician billing codes as one key facilitator for sustainable virtual care. In Canada, provincial and territorial governments quickly adapted physician fee schedules to support virtual care services during the COVID-19 pandemic (CIHI 2021). Currently, physician billing codes that support virtual care in Ontario have been extended to September 2022 (Government of Ontario 2020). Leveraging incentives to drive long-term use of virtual care in a meaningful way (Shaw et al. 2017) requires policy and decision makers to determine the goals for virtual care for these team settings. For example, as corporate virtual "walk-in" clinics are growing momentum (Hardcastle and Ogbogu 2020), policy and decision makers can use incentives to take a stance supporting comprehensive patient-centred primary care. In addition, Shaw et al. (2017) recommended using outcome-based payment models to drive patient-centred virtual care in teams. The development of incentive systems for virtual care also needs to account for the interprofessional primary care team context. For example, incentives can shape collaborative care activities when provider remuneration is entwined with team funding models and team activities (Wranik et al. 2017). Incentive schemes inappropriately designed for their context – in this case, a collaborative team context – can create disincentives to the provision of certain

types of care, increase costs and affect quality of care (McDonald et al. 2009; Scott et al. 2011; Wranik et al. 2017). In addition, policy makers are encouraged to design incentive schemes that maximize virtual care's potential to harness innovative cross-sector partnerships and promote interprofessional collaboration.

By engaging primary care providers and patients, policy and decision makers can learn valuable information from their experiences since the onset of the pandemic that can inform future decisions for the durability and scaling up of virtual care. Planning for the future of virtual care in a coordinated way is essential and needs to consider the type of virtual care modalities that work best for patients and providers, as well as the type of care best suited for virtual care. Primary care brings the needed systemic understanding to health policy planning activities given the multiple cross-sector roles held by providers. The challenge, however, is that many primary care providers may not have the capacity to engage with policy makers because of lack of resources for such time-intensive consultation work (Rudoler et al. 2019), particularly during such an intensive time as the pandemic.

Limitations

We conducted this study with primary care teams in Ontario, which are not reflective of all primary care models in other jurisdictions. Our survey was conducted in the first wave of the COVID-19 pandemic, and it is anticipated that the experiences and innovations in primary care will continue to evolve. The surveys were completed by one organizational representative and may not reflect the experiences of all of the providers on the team. Ongoing research is needed to examine the total impact of the pandemic on team-based primary care.

Conclusion

Primary care has continued to play an important role during the pandemic. Providers are responding rapidly to the evolving impact of the pandemic to ensure patients are able to access services in various ways. There is no doubt that the delivery of primary care will be changed, and data from these early studies offer critical insights to shape the optimal use of a variety of both virtual and in-person care services throughout this pandemic and beyond.

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RESEARCH PAPER

The Induced Productivity Decline Hypothesis: More Physicians, Higher Compensation and Fewer Services

L'hypothèse du déclin induit de la productivité : plus de médecins, une rémunération plus élevée et moins de services

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Abstract

Public outrage regarding physician shortages during the past two decades have led to policies aimed at significantly increasing physician supply, yet access remains elusive. In this paper, we examine this puzzling trend and the causes underlying it by analyzing physician supply, compensation and productivity and the reasons behind productivity decline. We hypothesize that excess physician compensation beyond a target income induces productivity decline. In contrast to a wage–productivity gap for the average Canadian worker (where productivity

has increased but compensation has not kept pace), physicians are experiencing a "reverse wage–productivity gap" whereby compensation is increasing but productivity is decreasing, resulting in more physicians, higher compensation and fewer services. We conclude by discussing potential policy options to address how best to provide timely access to medical care for Canadians while keeping physician healthcare expenditures at sustainable levels.

Résumé

L'indignation de la population concernant les pénuries de médecins au cours des vingt dernières années a mené à des politiques qui visent à augmenter considérablement l'offre de médecins, mais l'accès reste difficile à atteindre. Dans cet article, nous examinons cette tendance déroutante et les causes qui la sous-tendent en analysant l'offre, la rémunération et la productivité des médecins ainsi que les raisons de la baisse de la productivité. Nous émettons l'hypothèse qu'une rémunération excessive des médecins au-delà d'un revenu cible induit une baisse de la productivité. Contrairement à un écart salaire–productivité pour le travailleur canadien moyen (où la productivité a augmenté mais la rémunération n'a pas suivi le rythme), les médecins connaissent un « écart salaire–productivité inversé » où la rémunération augmente mais la productivité diminue, ce qui entraîne un plus grand nombre de médecins, une rémunération plus élevée et moins de services. Nous concluons en discutant des options politiques permettant de déterminer la meilleure façon de fournir un accès rapide aux soins médicaux pour les Canadiens tout en maintenant les dépenses de santé des médecins à des niveaux durables.

Introduction

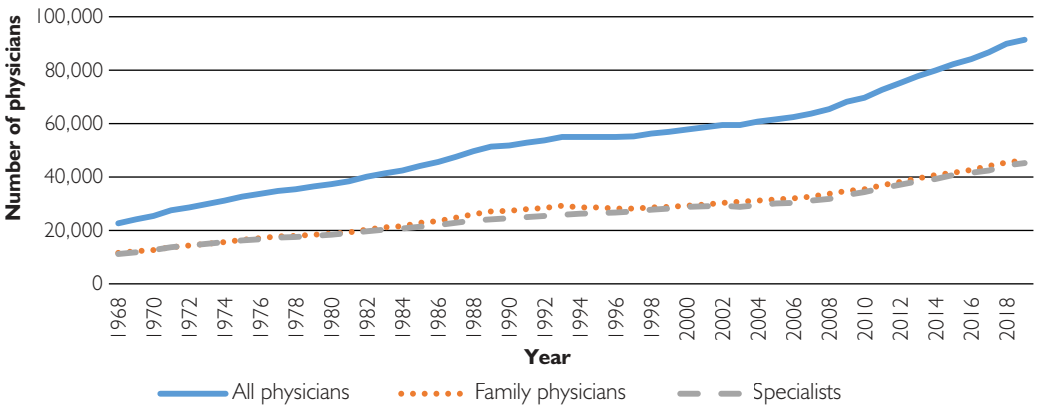
Physicians play an integral role in the Canadian healthcare system; however, consensus about the optimum ratio of physicians to population continues to be debated. During the past two decades, the public has expressed concerns about the availability of physicians, and physician supply has been significantly increased in response (Chan 2002b; CIHI 2020a). Notwithstanding these efforts, access remains a problem for many patients (Brend 2017; Martin et al. 2018). Previous authors have reported reduced physician productivity over short time frames (Ariste 2015), with older data (Chan 2002a) or by examining specific factors impacting productivity, such as sex (Weizblit et al. 2009) or intergenerational differences (Watson et al. 2006). Our objective was to examine recent trends of physician supply, compensation and productivity in Canada, the reasons for these trends and how their relationships may affect physician availability and policies for managing physician supply and demand. We hypothesize that excess physician compensation beyond a target income induces productivity decline (induced productivity decline hypothesis).

Physician supply in Canada

Physician supply in Canada has fluctuated over time. In the 1980s and early 1990s, there was a perceived surplus of physicians (Barer et al. 1991; Chan 2002b), leading to policies to

restrict physician supply in the 1990s (Barer et al. 1991; Malko and Huckfeldt 2017). Within a decade, public outcries regarding poor access to physicians and long wait times led provincial governments to reverse course and significantly boost physician supply through increased medical school enrollment and recruitment and retention strategies for foreign medical graduates (Malko and Huckfeldt 2017), especially in underserved areas. The increase in supply has led to the highest ratio of physicians per capita ever recorded in Canada (2.41 physicians/1,000 population in 2019 [CIHI 2020a]), with a growth rate more than double that of the Canadian population over the last five years (see Figure 1), and especially high in urban settings (CIHI 2020b). Yet Canadians continue to express concerns about obtaining timely medical care, particularly from family physicians (FPs) (Brend 2017; The Canadian Press 2019). In international rankings, Canada and Norway rank the lowest for same- or next-day appointments with a doctor or nurse (Schneider et al. 2017). To address these concerns, it is critical to understand why the increase in physician supply has failed to meet the public's medical care needs.

FIGURE 1. Physician supply (1968–2019)



International comparisons of physician supply

The ideal physician-to-population ratio in developed countries has been difficult to define. For example, physician-to-population ratios in Canada remain low compared with other developed nations. According to Organisation for Economic Co-operation and Development (OECD) data in 2016, Canada ranked 24th of 31 countries (2.6/1,000 population vs. an average of 3.4/1,000) in physician-to-population ratio, including medical interns and residents. Interestingly, however, the FP-to-population ratio in Canada is higher than the OECD average (1.3/1,000 vs. an average of 1.0/1,000, ranking Canada eighth), whereas the specialist ratios are lower (1.4/1,000 vs. an average of 2.2/1,000, ranking Canada 28th) (OECD 2020a). This may derive, at least in part, from Canada's deliberate policy to have FPs act as "gatekeepers" to the healthcare system and to use specialists mainly as consultants rather than primary care providers. Regardless of whether this is an appropriate policy, the

physician-to-population ratio in Canada has never been higher, and the number of FPs per capita is higher than in most OECD nations. Although many health systems in developed countries are similar to Canada's, they may differ in the way they are funded, which may impact health system outcomes differently.

Physician productivity

Productivity is key to the labour market, and physicians are no exception. For the purposes of this paper, physician productivity is defined as the number of patient services provided per physician per annum. In Canada, different fee for service (FFS) models, alternate payment plans (APPs) and salary and blended arrangements exist within and among provinces. Ariste (2015) reported that in the FFS model, the volume of services per physician decreased at an average annual rate of 0.6% from 2004 to 2010, indicating that physician productivity had fallen.

Data and Methods

We used data from the Canadian Institute for Health Information's (CIHI) National Physician Database from 1996 to 2019, which include data sets with both FFS and APP payments. However, the data sets include FFS-based services (defined as billable services under the FFS fee code) but not APP services, which have accounted for 20% to 28% of physician payments since 2004 (CIHI 2020a). Physicians were separated into two groups: FPs and specialists (including surgical and non-surgical). To estimate the average and total number of services per 100,000 population and per physician by year, we used Ariste's (2015) method of "same-fee assumption" to estimate the service volume for physicians receiving APP; this is achieved by deflating APP compensation by average FFS fees for physicians in the same specialty. To examine potential reasons for changing productivity, we examined data from the Canadian Medical Association's (CMA) National Physician Health Survey, which published the weekly working hours of physicians from 1998 to 2019 – grouped by sex, age group and specialty – and categorized the work according to direct and indirect (e.g., health committees, managing practice, indirect patient care, research, administration, teaching, continuing medical education and others) patient care activities. We compared the trends of physician payments (total and average per physician) with inflation and the gross domestic product (GDP) in Canada over time and with the median real hourly earnings growth for the average Canadian worker, as well as international physician expenditures.

Results

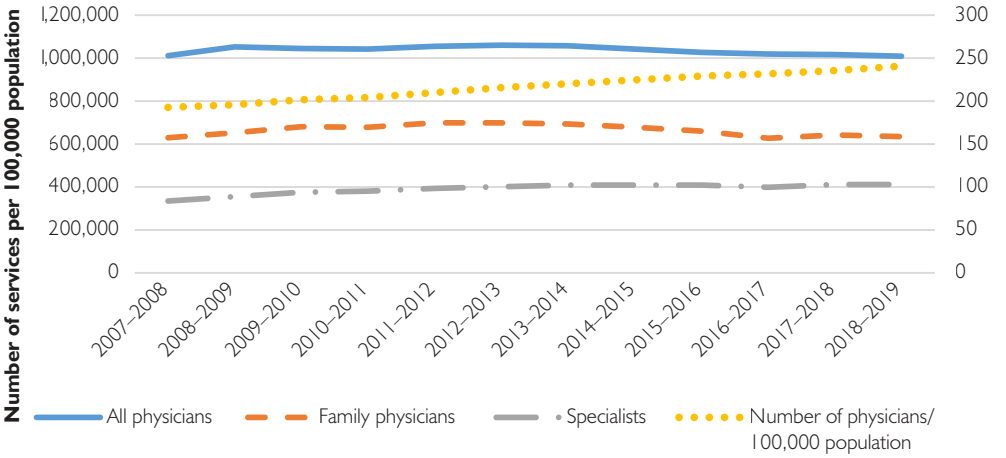
Reduced productivity

PHYSICIAN SERVICES PROVIDED PER CAPITA

Our results show that the number of physician services provided per capita (FFS and APP) has fallen by 5% despite a 7% growth in the number of physicians per capita during the

past five years, from 2014 to 2019 (Figure 2) (CIHI 2020c). The decline in total number of services provided was the greatest among FPs at 9% compared to an increase of 1% for specialists during the same five years. The pattern was similar over a 10-year period from 2008 to 2018, with the number of physician services per capita falling by 4%, while the number of physicians grew by 37%.

FIGURE 2. Number of services versus number of physicians per 100,000 population



PHYSICIAN SERVICES PROVIDED PER PHYSICIAN

Between 2013 and 2018, the number of services provided per physician (FFS and APP) decreased by 13%, with the decrease being greater among FPs (-16%) compared to specialists (-8%). Similarly, over the 10-year period between 2008 and 2018, the number of services provided per physician decreased by 23%, with the decrease greater among FPs (-21%) than among specialists (-4%) (Appendix 1: Figure A1, available online at longwoods.com/content/26655).

Reasons for reduced productivity

WORKING HOURS

Survey data from CMA's National Physician Health Survey from 1998 to 2019 (Figure 3) show that the total weekly working hours for physicians have declined by an average of 9% over the past 21 years (from 51.3 to 46.8 hours/week) (CMA n.d.).

SEX-BASED COMPARISONS

Male physicians report working longer hours than female physicians. Since 1998, there has been an overall decline in the number of weekly hours worked by both male and female physicians; however, the decline has been greater for men (11% vs. 2%) than women (Figure 3).

FIGURE 3. Weekly work hours

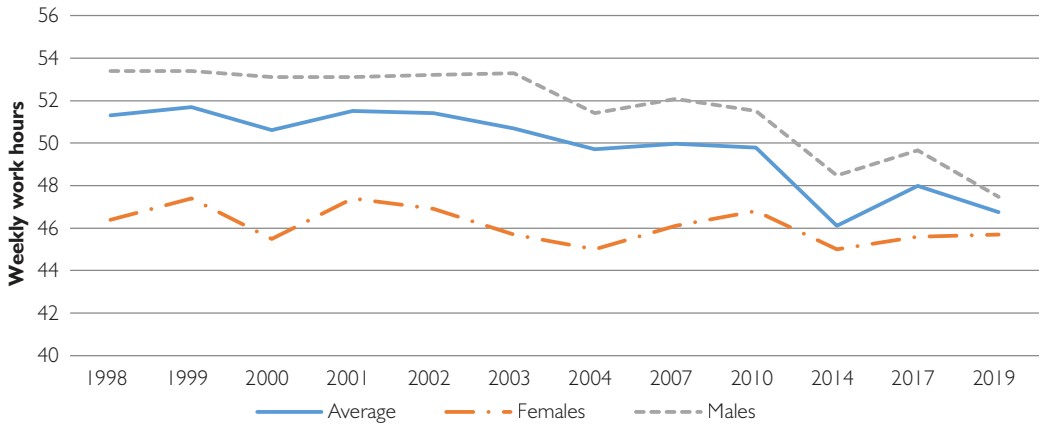


TABLE 1. Growth rate of weekly work hours by category (from 1998 to 2019)

Work activity	Growth rate (%)
Direct patient care	-12
Direct patient care without a teaching component*	-12
Direct patient care with a teaching component*	21
Health committees	-27
Managing your practice	-28
Indirect patient care	61
Research	-21
Administration	-42
Teaching	-10
Continuing medical education	-18
Other	-51

*Data for direct patient care with or without a teaching component are only available from 2004 to 2019.

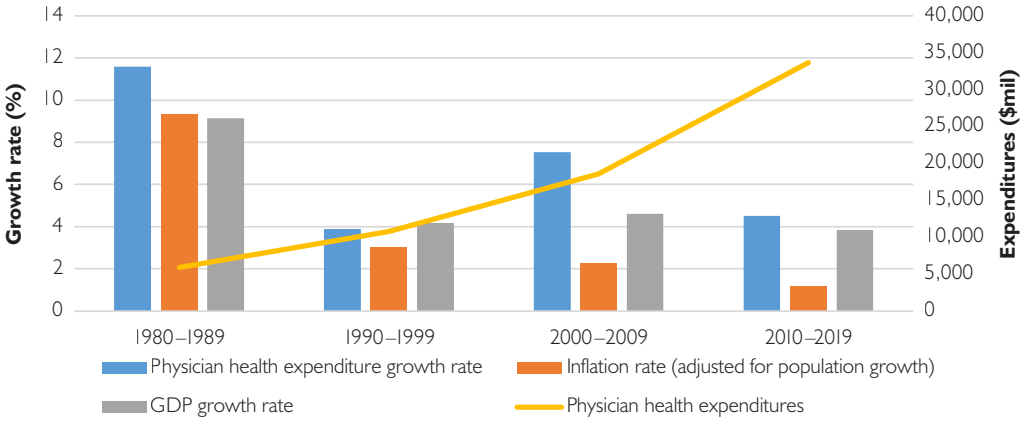
Age

In 1998, the average number of hours worked by physicians increased with age until 65 years, after which it decreased. This pattern has since changed. Physicians of all age groups report reduced working hours (Appendix 1: Figure A2, available online at longwoods.com/content/26655); however, the decline has been greater as age increased until the age of 65 years (in comparison to 1998, the age groups in 2019 reported a decline in working hours of 1% for <35 years, 8% for 35–54 years, 12% for 55–64 years and 5% for 65+ years).

Category of work activity

Table 1 shows categories of physician activity as published by CMA's National Physician Health Survey. Between 1998 and 2019, all categories of physician activity, except indirect

FIGURE 4. Physician health expenditure versus inflation and GDP growth rates



patient care, decreased between 10% and 51%. Most significantly, direct patient care hours decreased by 12%, or 4.5 hours per physician per week, while indirect patient care hours increased by 61%, or 2.8 hours per physician per week.

FPs versus Specialists

Specialists consistently work more hours than FPs; however, both groups have reduced their working hours since 1998 by approximately 8% and 9%, respectively. In 2019, FPs reported working 46 hours/week compared to specialists who reported working 49 hours/week.

Physician compensation: International comparison

In a recent study of healthcare spending in 10 high-income countries, Papanicolas et al. (2018) reported that Canadian physicians are well compensated compared to other countries. Not including the US, FPs in Canada earn more than FPs in any other country except for Germany, while specialists rank only behind those in Australia and the Netherlands (Appendix 1: Figure A3, available online at longwoods.com/content/26655). In addition, among the 31 OECD countries, Canada has some of the highest ratios of physician-to-average-worker income at a ratio of 3.1 for FPs – second only to Germany and on par with the UK – and 4.9 for specialists, on par with France and higher than all other countries apart from Belgium, Chile, Luxembourg and Germany (OECD 2019). The US was not included in the OECD analysis as physician compensation data were unavailable.

Physician compensation growth in Canada

CIHI data from 2019 show that the three largest health expenditure categories since 1975 have been hospitals (27%), physician payments (15%) and drugs (15%) (CIHI 2019). Physician expenditure growth rates have consistently exceeded both inflation (adjusted for population growth) and GDP growth rates, except for a short period in the early 1990s (Figure 4). Between 1999 and 2018, the average gross FFS-based physician income for those earning above

$60,000 increased from $210,812 to $332,233 at an average annual rate of 3.0% compared to the average annual inflation rate of 1.7% (CIHI 2019). Physician expenditure per capita increased by an average of 8% per annum from $408 in 1999 to $1,064 in 2019 (CIHI 2019).

Discussion

Our results show that after a brief slowdown in the early 1990s, physician supply has increased significantly, growing by 63% between 1998 and 2019, and more recently by 37% between 2008 and 2018, resulting in the highest physician–population ratio in Canadian history with 241 physicians/100,000 population by 2019. However, the expected increase in physician service provision has been offset by a dramatic decrease in physician productivity (or services provided) by 23% per physician between 2008 and 2018. The result has been a net increase in total physician services of only 0.2% per annum from 2013 to 2018. With Canada's population growing at just over 1% per annum, this translates into a net decrease of 5% in services per capita between 2013 and 2018. Our results support the "induced productivity decline hypothesis," whereby excess physician compensation beyond a target income induces productivity decline. It is a small wonder that public complaints about long wait times and difficulties with access to physicians have not abated (Brend 2017; Martin et al. 2018).

From the physician survey, we were able to discern the following, albeit an incomplete, picture. The reduction in physician services provided appears to be due to both decreased average physician work hours and changes in the types of work performed. Average physician work hours decreased by 9% or over 4.6 hours/week/physician between 1998 and 2019. The impact on service provision is further compounded by a decrease in direct patient care activities of 12% (or 4.5 hours/week/physician) between 1998 and 2019. In contrast, indirect patient care activities increased by 61% (from 4.5 to 7.3 hours/week/physician). The CMA defines indirect patient care activities as "reports, charting, patient or family phone calls" (CMA 2019b). Several *advances* in medical practice, such as electronic medical records, may improve documentation; however, they almost universally decrease productivity (Howley et al. 2015). Moreover, as the population ages and comorbidities increase, the patients' needs become more complex and require more time (CIHI 2011a; Pereles and Russell 1996).

The significant increase in indirect patient care activities merits further research to better understand why physician activities are changing, what value they provide to patients and how they are being compensated. Crossley et al. (2009) reported that increasing hours of direct patient care by 5% among currently practising physicians would have a greater impact on effective physician supply than large increases in Canadian medical school enrolments. We also observed that between 2008 and 2018, the number of services provided per physician decreased by 21% for FPs and 4% for specialists. It is unclear why the decrease has been especially marked for FPs. It is possible that this may reflect the changing roles and scope of practice of FPs and specialists as medical technologies advance. Chan (2002a) and a CIHI study reported that FP service provision has become less comprehensive (Tepper 2004); that is, FPs are referring more to specialists for services that they would have performed

themselves in the past. Sarma et al. (2018) reported that capitation models (APP) among FPs lead to more specialist referrals. The shift to virtual care in primary care practice during the COVID-19 pandemic on productivity will also need to be monitored once the pandemic is controlled (Glazier et al. 2021).

The reasons for decreased physician productivity are multifactorial and require further research. A major factor underlying decreased work hours may be a shift in attitudes of physicians toward a better work–life balance with reduced working hours and an increased focus on earlier retirement (Malko and Huckfeldt 2017; Weizblit et al. 2009). This is particularly relevant among female physicians, who work fewer hours and take more personal leaves (Weizblit et al. 2009). It is also pertinent in the context of the increasing female enrollment in medical schools, where the male–female ratio has shifted dramatically from 60:40 in the 1980s (Burton and Wong 2004) to 44:56 in 2018 (CMA 2019a). However, male physicians have recently also reduced their working hours to approximate their female colleagues more closely, narrowing the gap from seven hours in 1998 to two hours in 2019. Another important change is the reduction in working hours of older physicians, who traditionally worked more hours than younger physicians. This has since reversed and may be attributable at least in part to the attitudes of a younger generation as they age in the workforce. A greater supply of alternative providers, the development of group practices and the evolution of practice networks have also likely decreased the need for many physicians to work longer hours.

Our finding of rising physician compensation even while physician hours and productivity have decreased is paradoxical. In a comprehensive study of physician compensation, Grant and Hurley (2013) reported that between 2001 and 2010, the average gross income of physicians increased at their fastest rate since the introduction of medicare – rising by 33% from $187,134 to $248,113 (Grant and Hurley 2013). Data from CIHI show that this has since increased to $332,233 in 2018, indicating that gross FFS-based physician income has grown at a faster rate than inflation over the past 19 years (average of 3.0% vs 1.7% per annum) (CIHI 2020c), which is unsustainable when healthcare costs consume an ever-increasing proportion of the GDP. Buys et al. (2019) reported that younger cohorts of physicians received higher annual gross incomes compared to older cohorts at the same age, despite seeing similar or fewer numbers of patients. A study by CIHI (2011b) also reported that growth in physician fees is a major driver that accounts for over half (53%) of physician expenditure increases. At the same time, Ariste (2015) reported that services per physician in Canada decreased by 0.6% annually between 2004 and 2010, and we found that the number of services provided per physician on FFS decreased by 23% between 2008 and 2018, with a greater decrease occurring among FPs (-21%).

Some provinces have tried to reform primary care by trialling variants of the APP model using salaried, capitated or blended capitation variants, in part, to see whether these interventions improved care and cost efficiency compared to the FFS model. In Alberta, primary care networks (PCNs) were established in 2005, with physicians receiving either FFS-based or capitated payments (Peckham et al. 2018), and have been shown to lead to

decreased emergency department visits and hospital stays (McAlister et al. 2018), as well as better management of chronic diseases (Manns et al. 2011). However, several reviews of PCNs found an inconsistency in financial management and accountability (Peckham et al. 2018), and it is unclear whether there is a relationship between outcomes and FFS-based or capitation funding models. In Ontario, FFS-based physicians had higher productivity than APP-based physicians (Sarma et al. 2010), but through longer working hours and more time spent on direct patient care (Laberge et al. 2016), that is, financial incentives increased productivity. Marchildon and Hutchison (2016) reported that team-based capitation models provided better preventive care and chronic care management, although patient-reported outcomes were unchanged. Laberge et al. (2017) reported that enhanced FFS models using physician-based teams had the lowest primary care and total healthcare costs, whereas blended capitation models using multidisciplinary or physician-based teams were associated with higher primary care costs but lower total healthcare costs than FFS models. However, the annual report of the Office of the Auditor General of Ontario (2016) found that the patient enrolment model is more expensive than the FFS model, and the Ontario Ministry of Health and Long-Term Care could not demonstrate whether the new models improved patient access, quality of care or cost-effectiveness. Thus, primary care costs have increased with the reforms, although this may be offset by lower total healthcare costs per patient (Laberge et al. 2017). To date, various attempts to reform primary care have not led to significant changes in total physician expenditures.

In a recent study, Uguccioni (2016) described a "wage–productivity gap" in which median real hourly earnings grew by only 0.09% per annum for the average Canadian worker between 1976 and 2014, while productivity grew by 1.12%. The situation is reversed for physicians in Canada, where average gross FFS-based income increased by 20%, while productivity decreased by 23% between 2008 and 2018; that is, the price per service has increased significantly. This "reverse wage–productivity gap" lies at the heart of the failure to increase physician services through increasing physician supply and compensation. It is possible that the "induced productivity decline hypothesis" is at play, with physicians reducing services when compensation exceeds their income targets. It is also possible that governments are politically ill-equipped to deal with the monopoly power of physicians to set fee increases, and alternate strategies are needed to control physician expenditures. Physicians have a right to work less, but compensation should be based on a combination of productivity, quality of care and outcomes. Rising physician compensation also contributes to the increasing income inequality between the top 1% of earners and the average Canadian worker (Marchildon and Di Matteo 2014) and must be addressed by policy makers to ensure sustainability of the public healthcare system.

Finally, Canadian physicians are well compensated compared to physicians from other developed countries. Canadian physicians are among the best compensated in the OECD countries with reported data, with an average gross FP income of $163,000 (US$, Purchasing Power Parity [PPP]) (versus an OECD average of $127,000) and an average

gross specialist income of $257,000 (US$, PPP) (versus an OECD average of $231,000) for self-employed physicians in 2016 (OECD 2020b). Canadian physicians also have one of the highest ratios of physician-to-average-worker incomes at 3.1 for FPs and 4.9 for specialists, ranking Canada second and fifth highest, respectively, among 31 OECD countries (OECD 2019). In addition, physician expenditure growth rates have consistently exceeded inflation and GDP growth rates, which is financially unsustainable for the publicly funded healthcare system. To improve availability of physician services, it is imperative that governments understand the implications of the "induced productivity decline hypothesis" and address the physician "reverse wage–productivity gap" rather than rely on the current strategy of increasing both physician supply and compensation because it is not yielding the intended benefits and is financially unsustainable.

Policy Options

Having examined physician supply, productivity and physician availability, we now discuss policies for managing physician supply and demand. Our analysis highlights the importance of simultaneously addressing the twin problems of physician compensation increase and productivity decline. As previous research has demonstrated that systems with higher rates of private financing are negatively associated with universality, equity, accessibility and quality of care (Lee et al. 2021), private financing of healthcare is not a solution. Physician expenditure increases should be constrained by principle-based criteria (e.g., no more than either the rate of inflation or GDP growth). Physician compensation should be linked to productivity and important patient-centred outcomes such as evidence-based care and health outcomes. Healthcare processes such as documentation and referrals should be automated and streamlined to improve productivity, and reimbursement for indirect patient care services should be based on value to patients. Physician productivity may be increased by greater use of extenders such as physician assistants. In the case of primary care, alternate care providers, such as nurse practitioners and pharmacists, should be licensed and funded to practise independently. Primary care teams may improve care and reduce total health costs but their relationship with funding models is unclear and should be monitored and adjusted. Primary care fund-holding organizations based on geography could be employed to improve efficiency and distribution of physicians (Price et al. 2015).

Limitations

There are a number of limitations to our study. As APPs comprise 20% to 28% of physician expenditures, using "same fee assumptions" based on FFS service levels may be inaccurate. The data analyzed from the CIHI National Physician Database do not include anaesthesia, laboratory and imaging specialists, and services/capita calculations do not include data from Alberta or the Territories, which may bias the results. Overhead costs of physicians were not available. Physician productivity measures are impacted by the value and mix of

services provided, which change over time. Because the dollar value assigned to each service is determined through a bargaining process between the government funders and the medical associations at the provincial level, it may not reflect the true value that patients place on the services. Patient complexity is not measured in any of these databases, which varies widely by practice and location. Response rates for the CMA National Physician Health Surveys averaged 40% of a random sampling of 8,000 physicians across the country from 1998 to 2004 and 20% of all physicians between 2004 and 2019 and may not be generalizable to all physicians.

Conclusion

Although physician supply in Canada has increased significantly in recent decades, physician productivity has decreased, resulting in a net reduction of physician services per capita. At the same time, physician compensation has increased, resulting in a "reverse wage–productivity gap" of more physicians, higher compensation and fewer services, which supports the "induced productivity decline hypothesis." The current physician supply and compensation strategies do not improve physician availability, are not patient-focused, are not financially sustainable and need to be addressed comprehensively at a policy level.

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RESEARCH PAPER

A Scoping Review of the Implementation of Local Health and Social Services for Older Adults

Examen de la portée de la mise en œuvre des services de santé et sociaux locaux pour les aînés

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Abstract

Background: Implementing elder-dedicated local health and social services (LHSS) is primary for older Canadian adults to age in place. However, there is currently no synthesis of the factors (barriers and facilitators) involved in LHSS implementation.
Objective: This study aimed to synthesize current knowledge about the institutional factors involved in elder-dedicated LHSS implementation by describing them and their influence.
Methods: A scoping review was conducted using eight databases and the grey literature. Data were analyzed thematically.
Results: A total of 23 documents led to the identification of 15 inter-influencing factors (12 barriers and 11 facilitators). Indeed, 20 connections were noted among factors, mostly among barriers.

Discussion and implication: Although some barriers and facilitators also affect the implementation of services dedicated to the general population in Canada, the interplay between agism and power issues needs to be taken into consideration for a successful elder-dedicated LHSS implementation.

Résumé

Contexte : La mise en œuvre de services de santé et sociaux locaux (SSSL) dédiés aux aînés est primordiale pour que les personnes âgées canadiennes puissent vieillir chez elles. Cependant, il n'existe actuellement aucune synthèse des facteurs (obstacles et facilitateurs) impliqués dans la mise en œuvre des SSSL.
Objectif : Cette étude visait à synthétiser les connaissances actuelles sur les facteurs institutionnels impliqués dans la mise en œuvre des SSSL dédiés aux aînés, en décrivant ces facteurs et leur influence.
Méthodes : Un examen de la portée a été mené à l'aide de huit bases de données et de la littérature grise. Les données ont été analysées de façon thématique.
Résultats : Vingt-trois documents ont permis d'identifier 15 facteurs s'inter-influençant (12 obstacles et 11 facilitateurs). En effet, 20 connexions ont été observées parmi les facteurs, principalement parmi les obstacles.
Discussion et répercussion : Bien que certains obstacles et facilitateurs affectent également la mise en œuvre des services dédiés à la population générale au Canada, l'interaction entre l'âgisme et les enjeux de pouvoir doit être prise en compte pour une mise en œuvre réussie de SSSL dédiés aux aînés.

Introduction

Although many older adults want to age in place (Kendig et al. 2017), they encounter challenges such as family problems, lack of financial resources and lack of access to local health and social services (LHSS) (Bosch-Farré et al. 2020; Dupuis-Blanchard et al. 2015). LHSS are primarily community-based and home healthcare services (Dupuis-Blanchard et al. 2015; Morley 2012; Tang and Pickard 2008) provided almost exclusively in specific areas or neighbourhoods (Cambridge Dictionary n.d.). Lack of access to LHSS is associated with unmet healthcare needs (Allin et al. 2010; Sibley and Glazier 2009). Unmet needs impact older adults' well-being (Sands et al. 2006) and can result in higher health and social service utilization (Allin et al. 2010). Implementing elder-dedicated LHSS is thus necessary. As such, barriers such as older adults' limited mobility (Dupuis-Blanchard et al. 2015) and the geographical variations in LHSS (Davenport et al. 2005, 2009) could be overcome.

Research has found that factors (barriers and facilitators) within the institutional context are involved in the implementation of elder-dedicated LHSS. The institutional context is one of the healthcare environment's dimensions, ranging from the micro- to the macro-system and comprising three types of factors: legal and regulatory, administrative and organizational

(Carrier 2021). This context is of the utmost importance, as it is a lever for stakeholders (e.g., ministers, high-level officials and managers) to ensure the implementation of quality LHSS. For example, to implement senior housing services, members of parliament vote for specific legislation to protect older adults' safety (legal and regulatory factor), but these can act as a barrier for the implementation team (Guffens 2006). Higher-level managers also decide on the financial resources that will be available to the implementation team (administrative factor), which when sufficient is a facilitator (Pollender et al. 2012) and when insufficient, a barrier (Bigonnesse et al. 2013). Finally, low-level managers organize the services and the work of healthcare staff within senior housing (organizational factor). As such, they can designate formal leaders for the implementation (AUDIAR 2015) or decide to include older adults in the implementation (CQCH 2013), which usually facilitates the process. However, although the institutional context is a lever for stakeholders, their decisions do not always have the expected consequences. For example, in Quebec, the introduction of a new certification regulation to ensure older adults' safety in retirement homes seems to have led to the closure of rural, small-scale facilities in the private market (Bravo et al. 2014). Thus, as the healthcare system is complex and made of interrelated parts (Foster-Fishman et al. 2007; Kannampallil et al. 2011), detailed and precise attention to the institutional factors involved may be required when implementing elder-dedicated LHSS.

As the institutional context is the ultimate lever for stakeholders, knowing the factors involved in the implementation of LHSS is the first step toward identifying its potential for failure or success. There are strong arguments about the importance of successfully implementing LHSS. Indeed, benefits include older adults' positive health outcomes (e.g., improvements in autonomy, mood and satisfaction), improved caregivers' well-being and delayed institutionalization (Gaugler and Zarit 2001), which all might lead to reduced costs for healthcare systems (Marek et al. 2012). Therefore, for stakeholders and practitioners, a synthesis of the factors involved could help identify potential levers and act as a tool to simplify LHSS implementation. Therefore, we aimed to synthesize current knowledge about the institutional factors (facilitators and barriers) involved in the implementation of elder-dedicated LHSS by describing these factors as well as their influence.

Method

A scoping study of scientific articles and grey literature based on the five stages outlined by Arksey and O'Malley (2005) was undertaken to synthesize and map current knowledge on the involvement of institutional factors in elder-dedicated LHSS. Indeed, scoping reviews are useful to identify factors related to a concept (Munn et al. 2018) and to inform policies (Arksey and O'Malley 2005). Thus, this method was better suited than a systematic review, which tends to address the feasibility, appropriateness, meaningfulness or effectiveness of a certain treatment or practice (Munn et al. 2018).

Stage One: Identifying the research question

Our questions were as follows: What are the institutional facilitators and barriers involved in the implementation of elder-dedicated LHSS? How are these institutional factors involved?

Stage Two: Identifying relevant studies

We searched eight databases (CINAHL, Health Management, Health Star, Medline, PubMed, AgeLine, Érudit and the Social Science Database) and grey literature. Sources were also retrieved from the reference lists of relevant documents. The search strategy was developed iteratively with the help of a librarian experienced in gerontology. Keywords such as "LHSS," "implementation," specific elder-dedicated LHSS ("meals on wheels," "congregate housing," etc.) and MeSH terms such as "Health Services for the Aged" and "Home-Based Care Services" were used.

Stage Three: Selecting studies

We included documents in English or French describing the institutional barriers and facilitators encountered when implementing elder-dedicated LHSS. We determined the selection criteria iteratively and did not set limitations regarding time frame and country of implementation. Based on the conceptual model by the Community Health and Social Services Network (2014), we included five types of elder-dedicated LHSS: primary healthcare, health promotion and prevention, home support and living arrangements, social inclusion and caregiver support. LHSS were considered elder-dedicated when services were specifically designed for older adults, according to the authors. We excluded the implementation of techniques (e.g., surgery procedures), interventions (e.g., therapies), care models (e.g., transitional care model for stroke), roles (e.g., geriatric nurse) or programs (e.g., fall prevention programs). The first author (AE) screened the documents by title and abstract and then by reading the full text. When in doubt, both authors read and discussed which documents to include until reaching consensus.

Stage Four: Charting the data

Iteratively, we charted the data in two ways. First, we created a standardized form in Microsoft Word and Excel in which extracted data from the documents were reported as contextual data, such as information about the document and type of LHSS. Second, we extracted relevant data about implementation initiatives and institutional factors from each document and categorized data according to the type of factor involved (legal and regulatory, administrative and organizational). Within each type of factor, synonyms of barriers and facilitators – both in French and English – guided data classification. Impacts of the factors were also extracted to understand how each factor influenced the implementation. To ensure the appropriateness and consistency of the extracting charts, we co-validated the extraction of 10% of the documents.

Stage Five: Collating, summarizing and reporting the results

We analyzed the data within each type of barrier and facilitator (legal and regulatory, administrative and organizational). We used Braun and Clarke's (2006) six-step thematic analysis: 1) familiarizing with the data; 2) generating initial codes; 3) searching for themes; 4) reviewing themes; 5) defining and naming themes; and 6) producing the report. Based on the impacts extracted in the fourth stage, we identified connections between our final factors. To do so, we reviewed each final factor with particular attention to its impacts, if any, on the implementation process. Impacts that also represented factors lead to the identification of an association between two factors. For example, within the final factor "partnerships," one impact was "access to financial resources." As this impact represented another factor (i.e., resources), a connection was identified between partnership and resources. Finally, we produced a report wherein we described each factor and the connections between them.

Results

The search strategy yielded 182 potentially eligible documents. The full text of 23 documents were reviewed, from which 50 implementation initiatives were considered for the final analysis. Documents ranged from 2006 to 2021 and were peer-reviewed papers (n = 8) or grey literature (n = 15). Initiatives were implemented in Belgium (n = 1), Canada (n = 13), Finland (n = 1), France (n = 1), the Netherlands (n = 2), the US (n = 2) and multiple countries at the same time (n = 3). Table 1 shows the factors identified.

Factors influencing the implementation of elder-dedicated LHSS

LEGAL AND REGULATORY FACTORS

The following three factors were found: governmental stiffness, standardization and governmental support. The first two are solely barriers, whereas governmental support acts as a barrier when insufficient and as a facilitator when sufficient (Table 1).

Governmental stiffness: Governmental structures lack flexibility, which means that the regulations are restrictive or strictly defined and the ministerial responsibilities are rigid. These structures complexify implementations, especially when more than one ministry is involved (Archambault et al. 2011). For example, in intergenerational housing, older adults and younger residents are subject to different laws and regulations. Thus, housing associations must divide residents by age, contradicting the intergenerational model and its benefits (Guffens 2006).

Standardization: When the government decides that the implementation should be done uniformly everywhere regardless of where the elder-dedicated LHSS is implemented, difficulties in implementation will arise. For example, mandatory financial contributions from communities for elder-dedicated, low-income housing might not be possible in lower socio-economic status communities because they lack the monetary means. Consequently, the standardized requirements are incompatible with the community's ability to pay (Bigonnesse et al. 2013).

Governmental support: Having the local government explicitly endorse the implementation of elder-dedicated LHSS acts as a facilitator (Table 1). However, when the support is unsatisfying or insufficient, it constitutes a barrier. Such unsatisfying or insufficient support includes the lack of specific recognition for the organization (e.g., housing associations for older adults) or lack of rules protecting frail older adults and their ability to age in place. Consequently, innovative LHSS implementation tends to be slowed down as they do not have a formal status (AUDIAR 2015).

ADMINISTRATIVE FACTORS

Four factors were found: fit with an existing offer, fit with the mandate, fit with political and financial incentives and resources. A good fit and sufficient resources are facilitators, whereas a lack of fit and insufficient resources are barriers.

Fit with an existing offer: This factor refers to how well an initiative complements the existing elder-dedicated LHSS offered in an area. As a barrier, the initiative is not congruent with existing services in the area, or the market is already saturated with the same service.

TABLE 1. Factors within their type

Factors	Barriers	Facilitators
Legal and regulatory		
Governmental stiffness	1, 2, 7, 13, 16, 18	–
Standardization	3	–
Governmental support	2, 8, 13, 15	6, 17
Administrative		
Fit with an existing offer	15, 16	13, 15, 16
Fit with political and financial incentives	2, 10, 15, 17, 21	2, 17, 20, 22, 23
Fit with the mandate	1, 8	1, 11, 22
Resources	1–3, 8, 9, 11, 14, 15, 17, 18, 21, 22	1, 4, 6, 11, 15–17, 20, 22
Organizational		
Conciliation of roles	5, 8, 9	–
Unforeseen events	5, 9, 11, 14, 18, 19	–
Informal and formal leadership	–	1, 2, 6, 11, 14–19, 22
Organizational sensitivity	–	1, 6, 11–14, 19, 20
Older adults' participation	–	6, 22
Expertise	3, 8–11, 17	1, 3, 5, 11, 15–17, 19
Partnerships	1, 9, 14, 15, 18, 22	1, 11, 14–20, 22, 23
Planning process	1, 9, 14, 16, 22	9, 11, 15, 18

Factors are presented in the following order: first if they represent a barrier only, second if they are facilitators and third when they are both (a barrier and a facilitator). The number indicates which documents reported the factor: (1) Archambault et al. 2011; (2) AUDIAR 2015; (3) Bigonnesse et al. 2013; (4) Bertrand et al. 2012; (5) CQCH 2013; (6) Gallagher and Mallhi 2010; (7) Guffens 2006; (8) Hassink et al. 2019; (9) Henkin et al. 2017; (10) Jeste et al. 2016; (11) L'APPUI 2016; (12) Leblanc and Deshaies 2014; (13) Lundman 2020; (14) Maltais et al. 2016; (15) Mangiaracina et al. 2017; (16) Meiland et al. 2005; (17) Menec and Brown 2018; (18) Morin et al. 2013; (19) Pollender et al. 2012; (20) Le Réseau canadien de DÉC 2006; (21) Scharlach et al. 2011; (22) Sévigny et al. 2015; (23) Transport Canada 2010.

However, when the initiative is congruent with the market or fills gaps in the service offer (Table 1), the implementation is facilitated.

Fit with the mandate: Resistance can arise when the mandate does not align with the initiative. For example, a meeting centre might newly need to include services for older adults as well as caregivers (Meiland et al. 2005), which may compel the organization to change its missions (Archambault et al. 2011). In contrast, an initiative that fits with the organization's mandate or mechanisms sets winning conditions for a successful implementation (Sévigny et al. 2015).

Fit with political and financial incentives: Initiatives face resistance when they do not fit with the current political climate, government funding or economic situation, but they are facilitated when they are in line with policies and funding incentives that act as a lever, such as age-friendly policies (Sévigny et al. 2015).

Resources: Lacking financial means (i.e., grants and investments) and having difficulty recruiting and retaining staff (i.e., stable and quality staff) will hinder the implementation of elder-dedicated LHSS. For example, initiatives reported lacking the financial resources to adapt facilities to elder-specific regulations (Morin et al. 2013). In contrast, sufficient resources will ease the implementation process and its challenges (Bertrand et al. 2012).

ORGANIZATIONAL FACTORS

Two of the eight organizational factors act as barriers (conciliation of roles and unforeseen events) and three act as facilitators (informal and formal leadership, organizational sensitivity and older adults' participation). Three factors (expertise, partnerships and planning processes) can be either a barrier or a facilitator depending on whether the quantity or quality is insufficient or sufficient.

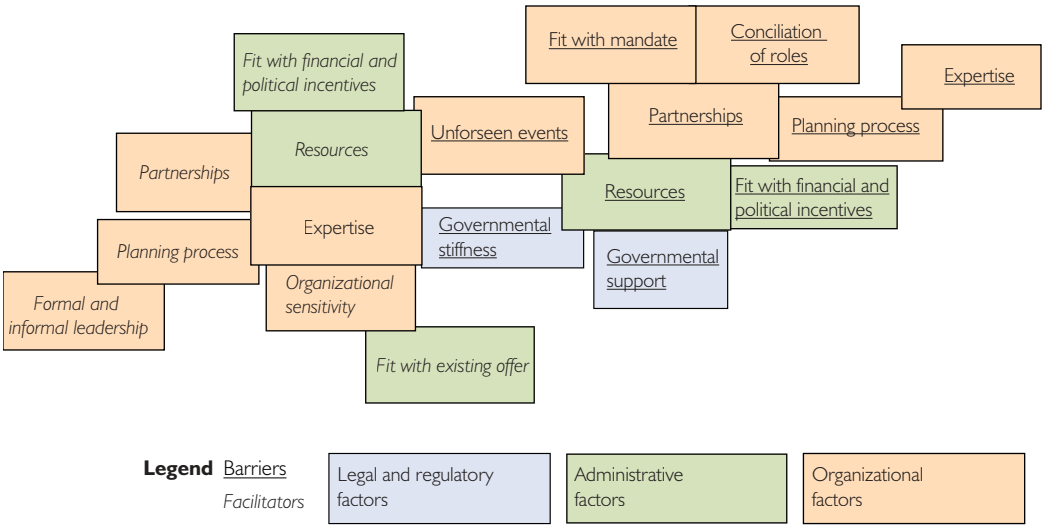
Conciliation of roles: The organization implementing the elder-dedicated LHSS might have difficulty understanding and conciliating the different roles and responsibilities. For example, implementing intergenerational activities in senior housing can be challenging as staff are required to perform supplementary tasks or face a work overload (Table 1). Thus, they feel that they already have enough work and do not see the implementation as a priority (Henkin et al. 2017).

Unforeseen events: These unanticipated events come from the organization's environment and are happening out of its control (e.g., inconsistent student attendance when implementing intergenerational activities; Henkin et al. 2017).

Informal and formal leadership: "Key employees" tend to create a momentum (Gallagher and Mallhi 2010) or lead the implementation (Meiland et al. 2005) by facilitating the process whether officially assigned to the project (formal leadership) or not (informal leadership).

Organizational sensitivity: An organization that listens to the community, adapts and provides support to its staff facilitates elder-dedicated LHSS implementation. Adapting allows the initiative to fit the users' and the community's needs, ensuring that it complements the existing elder-dedicated LHSS offer (L'APPUI 2016).

FIGURE 1. Connections among institutional factors



Factors that overlap in the figure share connections. For example, the facilitator Resources shares connections with the facilitators *Expertise*, *Partnerships*, *Fit with financial and political incentives* and the barrier Unforeseen events.

Older adults' participation: Implementation is facilitated when older adults are included in the processes (e.g., taking an active part in implementation committees). This gives them the opportunity to express their needs and create health and social services accordingly (Sévigny et al. 2015). Although older adults' participation was not identified as a barrier, implementation teams reported that older adults found it difficult to take on roles and responsibilities (CQCH 2013).

Expertise: As a barrier, lack of expertise is insufficient knowledge about the elder-dedicated LHSS being implemented or about ways of implementing it. As a facilitator, expertise is having good knowledge about aging, the implementation context and laws and regulations, as well as having qualified workers. Having expertise allows to adequately respond to the new realities of aging when implementing elder-dedicated LHSS (Bigonnesse et al. 2013).

Partnerships: Partnerships can be formed across government departments and with non-governmental organizations and the private sector (Menec and Brown 2018). Elder-dedicated LHSS implementation is complicated by the challenges inherent to establishing partnerships between involved organizations or by tensions between the partners, which can lead to conflicts (Menec and Brown 2018). However, implementation is facilitated when partners work as a team and their relations are based on mutual collaboration. Such collaboration and team effort allow the sharing of scarce resources (L'APPUI 2016).

Planning process: Implementation of elder-dedicated LHSS will suffer from a lack of dedicated time, but thrive when enough time is afforded to the planning and delivery of the initiative and using a step-by-step method. This type of method means to progressively

implement small components of the elder-dedicated LHSS (L'APPUI 2016). This strengthens the entire process and acts as a lever to implement bigger changes (Gallagher and Mallhi 2010).

Connections between factors

Factors impact each other. In total, 20 (n = 20) connections were identified. Of these, 11 (n = 11) connections were between factors of the same type (e.g., within administrative factors) and nine (n = 9) connections were between different types of factors (e.g., between administrative and organizational factors). Two (n = 2) connections linked a facilitator to a barrier and the rest (n = 18) linked a barrier to another barrier or a facilitator to another facilitator. Most connections happened between organizational factors (n = 9) and between barriers (n = 10). Connections are presented in Figure 1.

Discussion

Our objective was to synthesize current knowledge about the institutional factors affecting elder-dedicated LHSS implementation. Implementations rarely seem to be documented, as we only found 23 documents in this review. In total, we found 15 factors (three legal and regulatory, four administrative and eight organizational), of which we identified 12 as barriers and 11 as facilitators. Factors were facilitators when they fit with the context and when they were sufficient in quantity or quality. Conversely, they were barriers when they did not fit with the context and when they were insufficient in quantity or quality. We also documented connections within and between barriers and facilitators. Connections seem to be supported by the literature on complexity in healthcare systems, which highlights how parts of systems are interrelated (Foster-Fishman et al. 2007; Kannampallil et al. 2011). As such, these relationships must be considered when implementing elder-dedicated LHSS.

Most of the implementation processes reviewed in our study did not directly involve older adults. Initiatives involving older adults reported difficulties in determining how the older adults want to be and should be involved (CQCH 2013) or a potential risk of being used for the benefits of the implementation only (Sévigny et al. 2015). Involving older adults in the implementation could also raise problems such as logistical hurdles (e.g., the need for accommodations for disabilities and transportation), use of jargon and challenges dealing with diseases (Bird et al. 2020). Despite these challenges, involving older adults could ensure appropriate healthcare services (Frankish et al. 2002) and increase their confidence in such services. Considering Canada's underperformance compared to other commonwealth countries regarding patient-centred, safe and timely care (Naylor et al. 2015), increased patient engagement in LHSS implementation should be prioritized. To do so, stakeholders should first consider mobility and accessibility issues such as ensuring that meetings are held at an accessible location or using video conferences. Also, older adults' involvement should not only be clearly defined but also be flexible enough to be tailored to their needs.

Although our study focused on elder-dedicated LHSSs, our findings regarding administrative and organizational factors are similar to those of health service innovations implemented in third-sector organizations. Documented factors include, among others, political and financial incentives, informal and formal leadership, partnerships, planning processes and resources (Barnett et al. 2011). These similarities might reflect the fact that, regardless of the type of LHSS being implemented, some factors are recurrent and might always have to be considered by stakeholders. However, in the context of elder-dedicated LHSS implementation, factors need to be considered differently compared to the general population.

In Canada, despite the increasing aging population (from 15.6% of the Canadian population in 2014 to 23% in 2030; Government of Canada 2014), financing of elder-dedicated healthcare has been insufficient and current financing does not consider inflation or administrative costs (Canadian Health Coalition 2018). Furthermore, there is a lack of workers, formal training and good working conditions within the field of elder-dedicated work. Finally, Canada has yet to develop and implement a national policy for older adults (NIA 2020). Taken together, these elements point toward a potential rampant ageism bias within the Canadian healthcare system (Wyman et al. 2018).

Furthermore, elder-dedicated LHSS tend to be non-specialized health and social services that are geared at prevention. They do not require highly specialized trained experts, whereas the biomedical (Drolet et al. 2020; WHO 2015) hospital-centred model (Drolet et al. 2020) is characterized by a disproportionate emphasis on hospitals and specialized care, and focuses on diagnosing and curing acute health issues (WHO 2008), which is the case in Canada. Indeed, in 2015, hospital expenditure per capita was forecasted to be the biggest of all categories, accounting for 30% of spending in healthcare (CIHI 2015). Furthermore, mechanisms for moving federal funding for healthcare to the provinces are also biased whereby provinces have little incentive to implement health promotional policies (Low and Thériault 2008). Thus, in partnerships between hospital-centred healthcare and local, community or non-profit organizations, ensuring that the realities of the latter are heard might present a challenge because the latter have lesser resources and little recognition (Drolet et al. 2020). This could explain why we documented difficulties with partnerships (Archambault et al. 2011; Menec and Brown 2018) and identified connections between the barrier partnerships: fit with mandate, conciliation of roles and resources. Consequently, partnerships may lead to power struggles, in which one partner is instrumentalized or must change their mandate or roles to bend to the more powerful partner. However, equal relations between partners are of primary importance because older adults now live with diverse and complex long-term health and social needs as opposed to acute care needs (WHO 2015).

As such, a successful LHSS implementation must consider the interplay between ageism and power issues. Thus, greater funding for healthcare outside of hospitals, incentives and better working conditions are needed to recruit workers in healthcare for older adults. Additionally, producing clear guidelines on a local basis detailing the roles of each partner,

what they bring to the implementation (e.g., resources) and the focus of LHSS provision (e.g., social and/or medical) could be the first step toward a smooth process.

Strengths and Limitations

First, despite our wide-inclusion criteria, we located only a few documents about the implementation of LHSS. This could be due to the local aspect of these implementations, excluding French or English documents in many cases. Second, LHSS implementation and its institutional context may not typically be evaluated (or assessed). Third, perhaps, programs and care models now are being implemented in elder-dedicated LHSS as opposed to health and social services. Another limitation is that most of the included documents were grey literature and, as such, not peer reviewed. Considering that no detailed appraisal of the quality of the evidence was done as with other scoping reviews (Arksey and O'Malley 2005), our results must be considered with caution.

Despite these limitations, the use of grey literature uncovered relevant information (Benzies et al. 2006) about elder-dedicated LHSS. As such, to the best of our knowledge, our study is the only one to summarize the institutional factors influencing the implementation of elder-dedicated LHSS, making it a valuable contribution to stakeholders and researchers.

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