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Environmental Scan of Primary Care Needs in the Last Decade (2010-2020)

Ravninder Bahniwal

Purpose

The goal of this environmental scan was to identify clinical and system challenges and needs that exist in primary care (PC). Although primary health care includes a wide spectrum of services beyond the traditional health care system, such as income and housing, this environmental scan focuses on PC and its delivery (Hogg et al., 2008). For this report Barbara Starfield's definition of PC was used, defining PC as the "level of a health service system that provides entry into the system for all new needs and problems, provides person-focused (as opposed to disease oriented) care over time, provides care for all but very uncommon to unusual conditions, and coordinates or integrates care provided elsewhere or by others" (Starfield, 1998). Primary care services in Canada are delivered mainly by family physicians and general practitioners who focus on the diagnosis and treatment of illness and injury; however, a multidisciplinary care model includes providers such as nurse practitioners, social workers and dietitians (Government of Canada, 2012). In this instance, PC will include first-contact services by providers, while excluding any services provided solely by specialist care providers. This report discusses both the needs and challenges in the general Canadian PC context and those associated specifically with the coronavirus disease 2019 (COVID-19) pandemic. The conceptual framework by Hogg et al. (2008) is used to categorize the problems into either the structural or performance domains of PC.

Methodology

Part A. A structured search of published and grey literature was conducted to find articles discussing the key problems and needs in PC. The search was limited to articles published between January 2010 and June 2020, written in English and limited to humans. The search strategy included a combination of words relating to the topic of interest, searched in the titles of studies. An initial screening of publications was based on titles and abstracts, followed by an additional screening of full texts for inclusion. Publications were included if they focused on PC needs in high income countries (based on the World Bank Group classification) and referred to the general practice of PC, rather than specific instances that could not clearly be applied to a Canadian PC setting. Studies were excluded if they referred exclusively to the practice of specialist care providers (i.e. surgeons, radiologist) and if they referred to needs for very specific diseases and disorders. Key information from the included articles were organized into a research matrix prior to further categorization of problems. The detailed search strategy is noted in Appendix A.

Part B. In order to ensure that PC needs driven specifically by COVID-19 in the Canadian and Ontario context were identified by the scan, an additional search was completed. This additional search was focused specifically on a Canadian context, with greater emphasis on the province of Ontario. If articles were from another country yet the needs discussed could be applied to a Canadian context, they were included in the report. First, the research matrix from Part A was reviewed for any publications or websites focused on COVID-19, of which there were two. Second, the COVID-19 Collection from Annals of Family Medicine was reviewed in its entirety for relevant articles, of which there were five. Next, OVID MEDLINE was searched using primary health care (MeSH Terms) and the limits of English language, humans and COVID-19. Of the 40 search results, three were used in the final report. Next, one article was included from a PubMed search that looked for publications with "primary care (MeSH Terms)" and "COVID-19" in the title and/or abstract. Then, the first 200 results on Google Scholar were searched by relevance with the search terms "COVID-19", "primary care" and "Canada", of which five results were used in the report. Lastly, due to Google's immense search results, a combination of search terms focusing on Ontario were used to result in the last seven articles included in the report. Key information from the included articles were organized into a research matrix prior to further categorization. Additional details are noted in Appendix B.

Framework. For both Part A and B, the conceptual framework by Hogg et al. (2008) was used to organize the needs in PC that were identified from the search. This conceptual model was originally developed to guide the performance measurement of PC organizations as part of an evaluation of the four types of PC models in Ontario, Canada (Hogg et al., 2008). It was developed using an iterative

process that combined expert consultations and group meetings, a narrative review of existing frameworks and trends in health management and organizational theory (Hogg et al., 2008). The framework conceptualizes the structure, organization and performance of PC and can be used as a template for a systematic evaluation of PC (Hogg et al., 2008). The conceptual framework is divided into two main areas; structure, which focuses on the organizational and environmental features likely to influence PC delivery and performance, the manner by which healthcare services are delivered. The structural domain is further broken down into three areas: health care system, practice context and organization of the practice, while the performance domain is broken down into two areas: health care service delivery and technical quality of clinical care. The needs in PC from Part A and B were organized into these five areas based on the descriptions provided of each in the Hogg et al. (2008) paper. If a need could potentially fit into multiple areas, a decision was made about the most prominent area based on the descriptions provided in the original Hogg et al. (2008) paper.

Results

Part A: Structural Domain

Health care system

Shortage of Providers. The availability of primary care providers (PCPs) for the entire population is a challenge, particularly in rural and remote areas which are facing acute shortages of family physicians (Brandão, 2019; Ponka et al., 2019). Regular access to PC has many advantages, such as fewer preventable emergency room visits and hospital admissions, improved health outcomes and more complete immunization records, however physician shortage is leading to difficulty in gaining timely access to PC (Kaissi, 2012). From an institutional standpoint, the number of medical school graduates and residency positions has not changed to accommodate the need for more PCPs. At the same time, there is an increase in unmatched residency positions, especially in francophone family medicine programs (Ponka et al., 2019). In addition, the American Academy of Family Physicians has indicated a decreased medical student interest in PC due to a multitude of factors including heavy workloads, insufficient reimbursement, subtle persuasion in medical school away from PC and a lack of strong PC role models (Arvantes, 2013).

Limitations of Primary Care Models. A review of PC models indicated a need to focus on increasing after hours and same-day access for patients as well as equitable access (Petch & Tepper, 2012). For example, the family health team model did not have the intended impact on walk-in and emergency room visits and did not improve same-day or next day access to primary care (Petch & Tepper, 2012; Hutchison & Glazier, 2013). Many providers were not delivering the evening and weekend services required in their contracts and had a tendency to enroll healthier and wealthier patients, indicating a need to monitor contract obligations (Petch & Tepper, 2012; Hutchison & Glazier, 2013). In terms of payment models, fee-for-service is not well geared to encourage and support preventive care, especially when there are multiple providers and disciplines required to address a complex problem such as obesity (Harris, 2016). However, a system better able to address this may be one that provides funding for a package of care for a patient over time (Harris, 2016). Likewise, evidence from Ontario showed blended payment schemes based on capitation are more conducive to interprofessional team-based care than fee-for-service remuneration (Hutchison & Glazier, 2013). However, age and sex-adjusted capitation does not capture the varying needs for PC services in disadvantaged populations and must be risk-adjusted to prevent worsening health inequities (Hutchison & Glazier, 2013).

Improvements in Telemedicine. Canada's current telemedicine efforts prioritize increasing individual access to care with limited focus on resource allocation at a health system level (Agarwal et al., 2020). There is a need for system-wide scaling, monitoring, data-collection and evaluation of telemedicine programs to ensure continued reach for rural and remote populations and to learn from successes and failures (Agarwal et al., 2020). There should also be targeted efforts to improve health system issues like wait times (Agarwal et al., 2020). One barrier to the adoption of telemedicine is the lack of a uniform compensation strategy for providers (Agarwal et al., 2020). Additionally, there are artificial intelligence technologies that promise to transform and challenge medicine, so Canada should consider the use of artificial intelligence to ensure the alignment of priorities between telemedicine and artificial intelligence for health care (Agarwal et al., 2020).

Better Resource Allocation. Tackling wasteful spending in healthcare is a priority for governments worldwide, as one fifth of health expenditures make minimal contributions to health

outcomes (Watson et al., 2017). The challenge is to design new organizational forms and processes that can decrease waste by focusing on what low value activities PC should be doing less of (Watson et al., 2017). Meanwhile, resources should be allocated to meet the current demands and needs in Canada's health care system. For one, healthcare resources should be allocated towards chronic diseases as the number of baby boomers is expected to increase, bringing with it an epidemic of chronic diseases in older patients (Kaissi, 2012). There is also need for: improving home care and long-term care programs, improving mental health services and creating more universal coverage of medications (Ponka et al., 2019; Brandão, 2019).

Need for Ongoing Improvements. Ontario lacks a coherent system for ongoing PC feedback and performance measurement at the community, regional and the provincial level (Hutchison & Glazier, 2013). Thus, there is a need for a performance measurement system that taps into health, clinical and patient experience data to identify strengths and weaknesses and guide system planning (Hutchison & Glazier, 2013). The Ministry of Health and Long-Term Care commissioned evaluations of major policy and health system innovations must also be made publicly available and adequately resourced (Hutchison & Glazier, 2013). Additionally, quality improvement training needs to be implemented in a larger number of PC practices in the province, perhaps through provincially supported local PC organizations (Hutchison & Glazier, 2013). Further, the currently used electronic medical records have limited interoperability and require improvements (Hutchison & Glazier, 2013).

Practice context

Geographical Location. Rural populations often face a higher rate of certain medical issues, such as substance use, obesity, infant mortality, unintentional injuries, tick-borne illnesses and respiratory issues such as farmer's lung than their urban counterparts (Deligiannidis, 2017). Meanwhile, there is less access to quality health care. In Ontario, only 28% of people in the Northwest region and 35% of people in all rural areas can see their PCPs on the same-day or next day, whereas the number increased to 46% for patients in urban settings (Tepper, 2015). There is a need to improve access through home and group visits, retention of rural PCPs and use of technology to improve the health of rural communities (Deligiannidis, 2017). Some challenges of delivering PC to inner-city populations include racism, low literacy, poor access, lack of physician resources and prominent health issues such as obesity, diabetes, HIV and more (Cancino, 2017). In Ontario, 50% of people aged 50-74 living in lowest-income neighbourhoods had not received colorectal cancer screening, while it was 35% for the highest-income neighbourhoods (Tepper, 2015). There is a need for PCPs to use all tools available and form partnerships with government and community-based organizations to facilitate delivery of services to high-risk populations (Cancino, 2017).

Patient Demographics. In Ontario, non-English speakers (68%) are less likely to get a timely response from their PCPs when calling their office compared to English speaking (79%) patients (Tepper, 2015). Compared to 88% of Ontarians born in Canada, only 78% of new immigrants say their PCPs always or often involve them in decisions related to their care (Tepper, 2015).

Organization of the practice

Use of Nurse Practitioners. While nurse practitioners have the skills needed to meet the needs of chronically ill patients, there are many structural barriers that limit their position to do so (Pelletier et al., 2019). Such barriers include clinical settings that are not adapted for the addition of a new professional role and a lack of opportunities to develop expertise and confidence in chronic disease management (Pelletier et al., 2019). Their contributions to chronic disease management are also limited due to the requirement for physician agreement to add a new patient to their case load. As a result, nurse practitioners devote most of their time to acute care rather than chronic care, while having to prove their competence and scope of practice to physicians (Pelletier et al., 2019). Additionally, nurse practitioners are often met with ignorance by other professionals and seen as interchangeable with registered nurses by managers and the real challenge lies in communicating issues about the developing role and expectation of nurse practitioners to all organizations involved in PC (Boström et al., 2012). As a possible solution to the shortage of PCPs, and increase in chronic diseases and the aging population, there is a strong need for nurse practitioners to practice the full scope of their knowledge and skills, while allowing physicians to focus on unstable and complex patients (Riegel et al., 2012). Nurse practitioners require more training in patient education, preventive counselling and other practical topics instead of academic topics (Boström et al., 2012).

Fragmentation. For the majority of communities, PC practices and organizations operate independently and rarely share resources and expertise (Hutchison & Glazier, 2013). Since this fragmented environment makes it difficult to effectively coordinate PC with other specialized health and social services, appropriately resourced local PC organizations are needed to accept collective responsibility for clinical performance and service delivery (Hutchison & Glazier, 2013). By doing so, such organizations can respond to community needs, coordinate the sharing of resources, conduct performance measurement and quality improvement to improve population health (Hutchison & Glazier, 2013).

Part A: Performance Domain

Health care service delivery

Coordination of care. Canada has consistently lacked in health care coordination, and this fragmentation leads to duplicating services, conflicting information from providers and costs incurred from the delays in care (Misra et al., 2020). For example, Toronto has no central regionalization for the management of specialist appointments so family physicians cannot determine how to access specialists with the shortest wait times (Brandão, 2019). Likewise, an estimated 30% of tests and health interventions in Canada are considered unnecessary (Brandão, 2019). Results from the Commonwealth Fund International Health Policy Survey of Primary Care Physicians found less than half of Canadian respondents were routinely alerted by home care providers of important changes in their patients' conditions and less than half of respondents were able to electronically exchange patient information with doctors outside of their practice (Osborn et al., 2015). Although family health teams were designed to assist with coordinated care, many continue to experience a lack of care coordination, thus there is a need to use existing resources and infrastructure to improve coordination efforts in primary care (Misra et al., 2020).

Improving access. Although access to PC should involve changes at the health system level, there are micro-level system changes that are needed to improve access such as adding evening and weekend work hours, using telemedicine and delegating tasks to nonprofessional staff when possible (Bodenheimer & Pham, 2010). Quality of PC in Canada ranks poorly compared to other high-income countries in getting a timely appointment when sick or easily accessing care from a primary care provider on a weekend or holiday (Kiran et al., 2019). Only 48% of PC practices in Canada had after-hours care (Osborn et al., 2015). This is important as half of emergency room patients could have obtained care from a primary care provider had they received an appointment, and the lack of access can lead to other issues such as extra tests, limited follow-up care and increased risk for medical errors due to the lack of continuity of care (Arvantes, 2013).

Continuity of care. There are roughly 16 million Canadians living with one or more chronic diseases, with 80% of PC visits related to chronic disease and more than two-thirds of all medical costs involving chronic disease (Andres et al., 2016). While there is greater disease burden towards chronic disease, there is still need for improved relational continuity in Canada. For many patients, the purpose of PC is to solve their acute medical problems, however patients and their families must understand the value of relational continuity in reaching their health goals and managing their chronic diseases (Andres et al., 2016). Thus, integrated care in PC settings should be strengthened to have significant improvements in the quality of care for chronic diseases (Swerissen et al., 2016).

Information chaos. Primary care providers work in environments with missing, scattered, and conflicting patient information which leads to increased mental workloads and hinders an accurate understanding of patient and clinical scenarios (Harle et al., 2018). This has negative consequences as it can lead to inefficiencies, patient safety risks and poor patient-provider relationships (Harle et al., 2018). To combat the information chaos, decision support research and activities which incorporate users' needs and decision-making processes should be considered (Harle et al., 2018).

Physician Burnout. High levels of burnout are correlated with higher levels of depressive symptoms, lower productivity, reduced work effort and greater intent to leave medical practice (Kung et al., 2019). Compared with other high-income countries, Canada ranks poorly in quality of PC, with increasing levels of burnout and job dissatisfaction, frustrations with electronic medical records, increases in non-clinical clerical work, and difficulties for physicians to engage in personal, caring relationships with patients (Kiran et al., 2019). Primary care providers who treat patients with chronic pain appear to be exhibiting signs of burnout, partly due to the emotional exhaustion in providing care for these patients and feeling unable to help patients overcome their complex challenges (Glauser, 2019). Burn out makes it difficult to advocate for patients and creates feelings of helplessness (Glauser,

2019). In particular, clinicians feel inadequately trained to address the social needs of their patients, and often feel frustration with their treatment plans when the social context of their patients' lives remains unaddressed (Kung et al., 2019). Other symptoms of burnout include the increasing workloads due to documentation and regulatory requirements (Kung et al., 2019). One example is the growing formalization of requirements for patient records which jeopardizes the basic functions of recording patient-physician clinical encounters (Brandão, 2019). Consequently, effective interventions are required to combat burnout. Clinician-led quality improvement and intersectoral collaboration when designing clinical interventions for complex patient needs are two possible solutions (Kiran et al., 2019; Glauser, 2019).

Technical quality of clinical care

Complex Needs. A PC challenge identified while working in urban Ontario and Quebec was the difficulty in applying guidelines for care of patients with multiple comorbidities, particularly for older persons (Brandão, 2019). In addition, results from the 2015 Commonwealth Fund International Health Policy Survey show that a majority (70%) of Canadian practices are well prepared to manage the care of patients with multiple chronic conditions, but not other complex needs (Table B-2).

Table B-2: Canadian Primary Care Physician Responses to Whether Their Practice is Well Prepared to Manage the Care of Patients with Complex Needs (Osborn et al., 2015).

Need	Percentage of Respondents
Multiple chronic conditions	70
Palliative care	42
Dementia	42
Long term care services	40
Social services in the community	28
Severe mental health problems	24
Substance-use related issues	15

Overdiagnosis. Overdiagnosis is an epidemic in high-income countries that leads to undesirable consequences like anxiety due to unnecessary treatments and needless consumption of healthcare resources (Llor, 2017). There are a number of causes such as: uncertainty about which abnormalities may lead to harmful disease, broader disease definitions and lower thresholds including milder forms of disease, screening programs leading to over detection and earlier diagnosis, and commercial interests such as disease mongering leading to the introduction of new drugs by pharmaceutical companies (Llor, 2017). The message of overdiagnosis needs to be delivered to patients, and PCPs are in a position to communicate the risks of overdiagnosis with an ethical duty to reduce it (Llor, 2017). In addition, resources are limited and need to be directed to those in highest need (Van Weel, 2014). Patients with little to gain from costly and risky interventions should be identified, requiring further research into prognostication and risk assessment tools and tests (Van Weel, 2014).

Part B: Structural Domain

Health care system

Lack of Personal Protective Equipment. A survey completed by Canadian family physicians found 55% were highly concerned about the lack of personal protective equipment (Lemire & Slade, 2020). There is concern regarding the lack of personal protective equipment and transferring the virus during work in the community, especially among clinicians who care for patients in vulnerable circumstances (Eggertson, 2020). Thus, PCPs should be supported with a consistent supply of personal protective equipment.

Change Management. With the sudden move to virtual care and adoption of new billing codes, there was a delay in payments to providers, which resulted in a lack of income and subsequent difficulties in paying rent and wages for staff (Canadian Press, 2020). In these situations, not all clinics were equally affected, with the physicians paid by procedure or visit suffering more than those paid according to the number of patients registered with their practices (Canadian Press, 2020). In novel situations like the current pandemic, insurers and policy makers should have easier processes to lift existing bureaucratic protocols and relieve strain on clinicians (Krist et al., 2020). Primary care providers should be supported with the changes necessary to integrate virtual care and maintain

continuity of care (Lemire & Slade, 2020). Likewise, PC should be supported in moving to offering both in-person and virtual care services (Wong, 2020).

Fee-For-Service with Virtual Care. There is a need to change the fee-for-service billing system to either enhance billable services and prevent unnecessary in-person appointments or shift the culture around this model to ensure it is focused on patients (Wong, 2020). This is due to the increasing issues with fee-for-service providers declining to address more than one issue via virtual care due to billing regulations, which can lead to patients with non-urgent conditions placing themselves at risk by visiting urgent care centres (Wong, 2020).

A Failed Virtual Care Experiment. During the stay-at-home orders in the province, Telehealth Ontario, a nurse-run telephone triage service was presented as a resource for health-related concerns. Referrals from Telehealth Ontario were to be used for the Ontario Virtual Care Clinic (OVCC) where patients could have a virtual visit with a physician (Marcus, 2020). Although there were high hopes for these services, there were also many flaws. Telehealth Ontario was unable to handle the large volume of callers, who could be on hold for several hours with no information on queue length or alternative options (Marcus, 2020). When patients were able to get through, many personnel were not referring to OVCC, leading to OVCC hardly seeing any patient volume (Marcus, 2020). Meanwhile, the electronic health record system used with OVCC was limited in function and forced doctors to simultaneously use their own electronic medical records (Marcus, 2020). The resources allocated to OVCC would have been better spent on public communication informing patients to call their regular doctors and to dispel fears about seeing their regular PC team (Marcus, 2020; Wong, 2020). This would be more effective since many primary care doctors offered virtual care; however, patients were not aware they could see their doctor remotely since physicians are not capable of sending bulk e-communications to their patients (Marcus, 2020). With the shift to virtual care, health equity must also be addressed to ensure nobody is left behind and health information and care is accessible to Ontarians who are not yet online (Williams & Tsiligianni, 2020).

Lack of Community Planning. Ontario's health care system must shift its focus away from hospitals and towards community care, as 80% of disease burden is expected in the community while most planning has been around hospital capacity (McQuigg, 2020; Lemire & Slade, 2020). The COVID-19 model of care has been to facilitate first-line care through hospitals, and secondary and tertiary care settings which are not familiar with delivering PC in the community (Gupta, 2020). The province has been too slow in protecting its communities and a report by the Registered Nurses Association is calling for a system level shift where the province relies less on hospitals and focuses on ensuring strong PC is available to all Ontarians (McQuigg, 2020). This includes ensuring people in settings such as the shelter system have access to consistent and strong healthcare outside of hospitals (McQuigg, 2020). The report calls for an expansion of community health care to include mental health and addiction services, stronger home-care options financed through a more flexible funding model and urgent recommendations for long-term and congregate care settings which have suffered greatly during the pandemic (McQuigg, 2020). While most of the established Ontario Health Teams include long-term care as part of their group, this needs to continue with long-term care facilities being included in regional health teams (McQuigg, 2020). For effective planning, PC should lead conversations to new and sustainable models of care, with increased collaboration between public health, hospitals and PC and greater commitment to primary health care by governments (Williams & Tsiligianni, 2020; Gupta, 2020).

Integration with Public Health. Although family physicians are in an optimal position to continue providing care, as 85% of Canadians have a family physician, they were no longer the first point of access to care (Gupta, 2020). The lack of mandate and resources and further lack of integration with public health hinders their ability to address the emerging needs of communities (Gupta, 2020). For one, COVID-19 assessment centres are structured to only offer testing and have limited supports to address other issues facing concerned patients, such as reassurance to distinguish symptoms that mimic or are worsened by COVID-19 (Gupta, 2020). Primary care providers who normally care for individuals in congregate settings such as long-term care homes and homeless shelters need to be provided with the tools necessary to complete testing, while minimizing travel and further exposure for the most vulnerable, and ensure continuity of care, education delivery and risk mitigation (Gupta, 2020). In addition, stronger integration between PC and public health should include training PCPs in infection prevention and control. By doing so, frontline providers can be empowered with the skills needed to implement new protocols and immediately impact infection spread in community settings (Gupta, 2020).

Practice context

Utilizing Ontario Health Teams. There is a need to develop effective communication channels between PCPs, community partners, hospitals and patients and Ontario Health Teams (OHTs) are well positioned to do this (Fleming & Ace., 2020). Designed to organize and empower primary care, Ontario Health Team (OHT) outreach to community partners should be developed and available technology should be leveraged to have a centralized two-way communication system for providers to input information regarding their practice, request resources and directly respond to initiatives of the OHT (Fleming & Ace., 2020). In addition, the needs of patients who are not connected with a primary care provider or have a provider who is unavailable to provide care should be addressed (Fleming & Ace., 2020). Possible solutions to implement in the community include clinics for unattached patients, device drives for patients without access to technology and field tents (Fleming & Ace., 2020)

Shortage of Nurses in Northern Communities. Current health care staffing levels are barely able to keep up with providing care for pre-existing chronic conditions affecting Northern Ontario First Nations and with the potential of the pandemic, there is a need for increased funding for nursing services (Barrera, 2020). A shortage of nurses has already led to a number of children not being immunized, poor tracking of children's growth and development, and missed cancer screenings (Barrera, 2020). If there were already concerns about the lack of resources for PC services prior to COVID-19, there is potential for greater challenges in containing the spread of the virus in northern communities, including immediate treatment, triage and ensuring adequate nursing staff at health centres (Barrera, 2020).

Organization of the practice

Negative Impacts on Individual Practices. In an effort to reduce the spread of the virus, face to face contact between patients and providers must be reduced to situations where a physical exam is urgently needed (Bhattacharyya & Agarwal, 2020). However, these containment measures do not come without costs. A survey completed by primary care physicians found 76% had considerably reduced their hours of practice, 45% believed the shift to virtual care would lead to financial costs and 63% were concerned about the loss of revenue due to fewer patient visits (Lemire & Slade, 2020). Thus, there is a challenge associated with mitigating these negative effects on PC practices.

Early Care in the Community. In order to preserve hospital capacity, early diagnosis and follow-up of high-risk patients' needs should occur in the community (Zimmer, 2020). One way to do this at an organizational level is to create dedicated isolation rooms with experienced staff and doctors in large PC clinics with the capacity to do so (Zimmer, 2020). Compared to the testing of suspected cases that is occurring in pharmacies, often located in large retail spaces where seniors and high-risk groups access necessities, local medical offices and their resources should be considered as more appropriate testing locations (Zimmer, 2020).

Planning for Future Waves. In anticipation of future waves, the PC workforce should be better incorporated into region-wide outbreak management plans for local health facilities (Zimmer, 2020). There should also be strong public health monitoring for early signs from communities that are facing problems. In these instances, PC practices should be ready to provide complete virtual care and proactive population care (Krist et al., 2020). Organizations should also have the appropriate resources and informatics structure for the required changes. If hospitals are at full capacity, PCPs will need to remotely manage severely ill patients who are unable to be hospitalized (Bhattacharyya & Agarwal, 2020). Thus, PC practices and organizations would need to be involved in the rapid scale up of home-based and remote palliative care for patients with severe life-threatening conditions, including COVID-19. This will require collaboration across sectors in developing PC-based initiatives to accelerate the transfer of care from hospitals to the community (Bhattacharyya & Agarwal, 2020).

Part B: Performance Domain

Health care service delivery

Need for Greater Coordination of Care. A survey completed by PC clinicians found that 44% of respondents only sometimes delivered care that was coordinated and integrated across care settings and 54% only sometimes delivered care that was integrated and attentive to social and physical concerns (Wong, 2020). The same survey found that as restrictions eased, practices have been impacted almost all or a majority of the time by their ability to order lab testing (44%), incorporate use of diagnostic imaging (50%) and make specialist referrals (55%) (Wong, 2020). Further, while 60% of respondents have increased the provision of PC services due to virtual care options, 80% are not increasing their use of or referral to community-based services like physiotherapy for those waiting for elective surgeries

and 80% report no connection to community-based resources for patients (Wong, 2020). There is need for greater coordination between PC and community-based services, especially considering the number of post-ICU patients requiring rehabilitation and recovery services over the course of the pandemic (Stam et al., 2020).

Importance for Continuity of Care. A recent survey found 43% of primary care clinicians reported only sometimes care was delivered that was continuous, in terms of seeing their established patients (Wong, 2020). This is a problem as 58% of respondents have seen a decrease in pre COVID-19 patient volume, while 69% have a growing list of patients with delayed care, with 89% of wellness and chronic care being limited by patients (Wong, 2020). Continuity of care is an important element of PC and patients must be encouraged to see their physicians to receive the care that has been delayed due to COVID-19 containment measures. If in the near future evidence shows certain medications can reduce the risk of severe COVID-19 outcomes, family physicians will be well placed to begin therapies and ongoing management in the community (Zimmer, 2020). Likewise, if family physicians follow their patients with COVID-19 over the period of deterioration, they will be well suited to conserve hospital capacity. For example, family physicians can identify patients that are at risk of decompensation in the coming weeks and coordinate transfers to hospital using the appropriate infection control measures (Zimmer, 2020). They can also monitor high-risk groups remaining in home isolation and manage moderately ill cases to preserve hospital capacity (Zimmer, 2020).

Comprehensiveness. A recent survey found 56% of PC clinicians reported only sometimes care was delivered that was comprehensive and addressed the majority of patients' needs (Wong, 2020). In light of the pandemic, PCPs should be able to tailor their care to address additional needs of their patients, often with a little and changing evidence-base (Williams & Tsiligianni, 2020). For example, in the case of a potential economic recession, PC should play its public health role and identify at-risk populations to discuss finances and offer information about available support and resources (Williams & Tsiligianni, 2020).

Access for vulnerable populations. The shift towards virtual care creates challenges in accessing healthcare for people experiencing homelessness. The high rates of tobacco use and chronic conditions, along with structural barriers could create hotspots of COVID-19 infections among people experiencing homelessness (Vijayaraghavan et al., 2020). Along with the need for permanent supportive housing, there is a need to highlight the negative impact of smoking on COVID-19 and counsel against continued tobacco use (Vijayaraghavan et al., 2020). There is also greater coordination required between PC and public health practitioners to facilitate and promote access to treatment (Vijayaraghavan et al., 2020).

Patient-provider relationship. With the shift to virtual care, there is a potential barrier to the human connection that is central to care (Shankar et al., 2020). Some factors that hinder the open communication between patients and providers include physicians talking more than patients, less psychosocial counselling, and greater depersonalization (Shankar et al., 2020). In addition, new platforms create a digital divide that can have disproportionate effects on certain populations, such as older adults, lower socioeconomic backgrounds, and patients with disabilities (Shankar et al., 2020). As a result, there is a need for strategies that can help providers adopt meaningful connections with patients while delivering virtual care (Shankar et al., 2020).

Provider satisfaction. Recent surveys of PC clinicians found they are showing signs of fatigue, with 26% feeling exhausted and 5% feeling burnt out (Wong, 2020; Lemire & Slade, 2020). Nonetheless, a survey of Hamilton family doctors found 87% of respondents would like to continue online appointments after the pandemic (Hristova, 2020). In the case of continued virtual care, provider challenges such as greater time constraints, lack of integration into normal workflow, and technology issues will need to be considered (Hristova, 2020).

Technical quality of clinical care

Chronic Care. A survey completed by Canadian PC physicians found 80% of physicians were highly concerned about their patients' health and 71% are highly concerned about patients' reduced contact for problems unrelated to COVID-19 (Lemire & Slade, 2020). While 79% of survey respondents are currently making provisions to ensure patients with chronic diseases continue to receive care, there is a need for providers to develop approaches to address every major chronic disease in their practice populations (Lemire & Slade, 2020; Bhattacharyya & Agarwal, 2020).

Goals of care. With the current context of COVID-19, patients with severe disease, particularly those who are older and suffer from pre-existing illnesses had a higher percentage of invasive mechanical ventilation and death (Case, 2020). These aggressive treatments with slim chances of

survival could be avoided by having goals of care and prognosis conversations earlier in medical care (Case, 2020). Despite guidelines recommending these conversations occur when the patient is stable, 55% of first-time discussions occur in the inpatient setting during a time of crisis. While physicians may be reluctant to have goals of care conversations when patients are feeling well, there is a strong need to have these conversations sooner in patients with advanced illness (Case, 2020).

Preventive care. While there is a need to care for patients that are recovering from life threatening illness, there is also a need to implement evidence-based strategies to address unhealthy behaviours, mental health challenges and social risks (Krist et al., 2020). Additionally, the COVID-19 pandemic can hinder the continuation of HIV care and reduce routine HIV testing, creating delays in initiating antiretroviral therapies (Jiang et al. 2020). Thus, there is a need for PC and public health organizations to maintain the HIV care continuum during the pandemic (Jiang et al. 2020).

Cancer care management. With the shift to telemedicine and delays in preventive care, symptom-based diagnosis of cancer will become more important than early diagnosis from screening (Jones et al., 2020). However, a reduction in physical examination findings, missed cues from telephone and video consultations and a loss of the clinician's gut feeling are a few of the challenges with symptom-based diagnosis via virtual care (Jones et al., 2020). Additionally, vague cancer symptoms such as fatigue, changes in bowel habits and weight loss may be dismissed as trivial by patients, while respiratory symptoms may be attributed to COVID-19 (Jones et al., 2020). As a result, there needs to be planning for the backlog of patients with cancer symptoms requiring urgent assessments (Jones et al., 2020).

Conclusion

This report aimed to a) present PC needs that have been discussed in published and grey literature over the last decade and b) present COVID-19 specific needs in the Canadian PC context. A conceptual framework was used to guide the categorization of needs into two domains: the structural environment and performance of PC. Although this report presents several challenges in PC, it is by no means a comprehensive list. Many of the needs in PC discussed in Part A were found in peer-reviewed journal articles, however none of the articles discussing COVID-19 were in the form of peer-reviewed publications. Rather, they consisted of publications such as survey results, commentaries, and blog posts. To further examine the current challenges in PC, key PC stakeholders should be interviewed about their concerns. Moreover, the current context of COVID-19 and lack of peer-reviewed publications emphasizes the importance to consult front line clinicians to gain a deeper understanding of PC delivery and system functioning during the COVID-19 pandemic and recovery periods.

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Appendix A: Search Strategy Part A

The search consists of OVID MEDLINE, key journals, and magazines for anything missed on OVID MEDLINE, key primary care organizations, google scholar and a final web-based search for recent news articles and websites discussing the topic of interest.

Search Terms:

1. primary health care, primary care, family medicine, community medicine
2. challenge, issue, problem, need

*Combinations of Search Terms: Refers to an individual search of each combination from 1 and 2 (i.e., primary care AND Needs, family medicine AND challenges)

Source	Search Details	Initial Number of Results Included ¹	Final Number of Results Included ²
OVID MEDLINE	Searched as Title: ["Primary Care" OR "Primary Health Care" OR "Family Medicine" OR "Community Medicine"] AND ["Need" OR "Challenge" OR "Problem" OR "Issue"]	30	14
Family Practice	Searched each term separately as Title: Need, Challenge, Problem, Issue	1	0
Health Affairs	Searched as Title: Combinations of Search Terms	1	1
Primary Health Care	Combinations of Search Terms	1	0
Annals of Family Medicine	Searched each term separately as Title: Need, Challenge, Problem, Issue	4	2
Canadian Family Physician	Searched each term separately as Title: Need, Challenge, Problem, Issue	9	4
Nurse Practitioners' Association of Ontario	Searched each term separately: Need, Challenge, Problem, Issue	1	0
Canadian Nurses Association	Searched: "Primary care" AND ("needs" OR "issues" OR "challenges" OR "problems")	1	0
Ontario College of Family Physicians	Searched each term separately: Need, Challenge, Problem, Issue	0	0
Association of Family Health Teams of Ontario	Searched: "Primary care" AND ("needs" OR "issues" OR "challenges" OR "problems")	2	1
Google Scholar	Combinations of Search Terms Scanned first 100 results organized by relevance	5	2
Google Search	Combinations of Search Terms Scanned first 100 results organized by relevance	9	7

¹results included based on relevance of title and abstract

²results included based on inclusion and exclusion criteria

Appendix B: Search Strategy Part B

Source	Search Details
Research Matrix Part A	<p>Scan research matrix from Part A to determine which articles pertain to COVID-19</p> <p>Included: 2</p>
Annals of Family Medicine COVID-19 Collection	<p>Scan Titles and Abstracts of all articles</p> <p>Included: 5</p>
OVID MEDLINE	<p>Search query: Primary health care [MeSH Terms] with limits: English language, humans, COVID-19</p> <p>Total results: 40 Included: 3</p>
PubMed	<p>Search query: (COVID-19[Title/Abstract]) AND (Primary Care [MeSH Terms]) with filters: English language, humans</p> <p>Total results: 127 Included: 1</p>
Google Scholar	<p>Scanned titles of first 200 results, sorted by relevance for search query: “Canada” AND “COVID-19” AND “primary care”</p> <p>Total results: 1280 Included: 5</p>
Google	<p>Scanned titles of first 100 results, sorted by relevance for search queries:</p> <ul style="list-style-type: none"> • “COVID-19” AND “primary care” AND “Ontario” AND “problems” [total results= 7] • “COVID-19” AND “primary care” AND “Ontario” AND “challenges” [total results= 2] • “COVID-19” AND “primary care” AND “Ontario” AND “issues” [total results= 1] • “COVID-19” AND “primary care” AND “Ontario” AND “needs” [total results= 5] <p>Included: 7</p>