Early Cancer Diagnosis Initiatives in Canada: An Environmental Scan

Interim Report

Prepared for the Canadian Partnership Against Cancer (CPAC)

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Table of Contents

Executive Summary

Cancer care is the primary cause of death in Canada. Early detection (reducing the time from first symptoms to cancer diagnosis) could improve effectiveness of available treatment options, patients' prognosis, and quality of life during the diagnostic stage. In 2019, the Canadian Partnership Against Cancer refreshed the 2019-2029 Canadian Strategy for Cancer Control to combat a lack of sustainable efforts with regards to early cancer diagnosis across Canada.

This report shares information from an environmental scan completed by the Knowledge Translation Program. This report is one of a three-part project aimed to optimize early cancer diagnosis, or the interval between suspected cancer and diagnosis.

This environmental scan was comprised of two parts, first, key informant interviews with stakeholders currently working in early cancer diagnosis initiatives, and second, a document review. Stakeholders were identified and recruited via email and if interested, participated in an interview to share information about their work and initiative. Additionally, each participant was asked to share documentation about their initiative. After completing the key informant interviews and document review, data was analyzed to identify cross-cutting themes, notable trends, and promising initiatives and strengths across the initiatives.

A total of 21 stakeholders from 8 provinces and across 16 initiatives participated in an interview. Data from the interviews and document review identified four overarching themes with 14 subthemes, three promising initiatives, and 11 identified strengths. Additionally, trends were established by geographical location, initiative size, and population served.

The information from this report will be combined with the results of a rapid review conducted by the SPOR Evidence Alliance to provide a summary of recommendations on early diagnosis strategies that may be effective, cost effective, sustainable, and feasible in the Canadian context.

1.0 Background and purpose of report

Cancer is the primary cause of death in Canada and accounts for 30% of all deaths (1). Approximately one in two Canadians will develop cancer in their lifetime, and one in four will die from the disease (1). **Early detection**, or reducing the time period between first symptoms and a cancer diagnosis (pre-diagnosis interval) could lead to diagnosis at earlier stages of illness and improve effectiveness of available treatment options, which can improve patients' prognoses, key outcomes, and quality of life and reduce distress during the diagnostic stage (1).

The pre-diagnosis interval is a critical part of the care continuum, however this complex case phase is often fragmented, characterized by long waits and lack of provider coordination (1,2). Such problems are often exacerbated for underserviced (e.g., individuals living in remote or rural areas) and Indigenous groups (1). Optimization of the pre-diagnosis to diagnosis interval can result in improved patient experiences and faster time to cancer treatment (1-3).

To better understand the scope of this problem, the Canadian Partnership Against Cancer (CPAC) completed an environmental scan in 2018 (4). This environmental scan consisted of a review of grey and academic literature and key informant interviews to identify practices and interventions that could be used to enhance or create coordinated care in the pre-diagnosis to diagnosis phase. Through this work, the report identified potentially effective strategies, key priority areas, and current challenges within the Canadian system.

Unfortunately, early diagnosis interventions initiated in Canada have not been sustained and many implemented diagnostic pathways have relied on existing clinical structures and processes for rapid referral and access to multidisciplinary teams, which are not always common across Canadian jurisdictions (1,3). Further, Indigenous and underserviced communities continue to receive inequitable access to high quality diagnostic cancer care (1). To combat these gaps and to inform development of a strategic plan, CPAC has refreshed the 2019-2029 Canadian Strategy for Cancer Control (hereafter referred to as 'Strategy') (5).

The Strategy defines the need to quickly and accurately diagnose cancer at an earlier stage as one of five top priorities. In order to achieve this priority, CPAC will aim to a) prioritize rapid access to appropriate diagnosis for those suspected of having cancer; b) strengthen existing screening efforts and implement lung cancer screening programs across Canada and c) accelerate early cancer diagnosis for people in remote and rural communities and identify appropriate strategies to accelerate early cancer diagnosis for Indigenous groups.

1.1 Purpose and Objectives

CPAC commissioned the SPOR Evidence Alliance to support the development of an environmental scan to identify strategies to optimize the interval between suspected cancer and diagnosis.

Specifically the project objectives were to:

1) Update the 2018 environmental scan by conducting a rapid review to include contemporary, national, and international leading interventions for improving cancer diagnostic timelines and summarize efficacy, impact, and sustainability of identified interventions.
   Of note, this rapid review will be led by Dr. Ahmed Abou-Setta's knowledge synthesis team at the Centre for Healthcare Innovation.
2) Conduct an environmental scan, composed of key informant interviews and a document review. Informed by the 2018 scan, we will summarize processes, challenges, barriers, and lessons learned of early cancer diagnostic programs.
   Of note, this environmental scan will be completed by Dr. Sharon Straus and Dr. Christine Fahim's implementation team at the Knowledge Translation Program (hereafter referred to as the KT Program), Li Ka Shing Knowledge Institute, St. Michael's Hospital, Unity Health Toronto.
3) Once the rapid review and environmental scan are complete, the KT Program will synthesize findings and provide a summary of recommendations on early diagnosis strategies that may be effective, cost-effective, sustainable and feasible in the Canadian context.

In this interim report, we present the findings of **Objective 2**.

2.0 Methods

This environmental scan was composed of two parts. The first component was key informant interviews conducted with stakeholders participating in early cancer diagnosis efforts in Canada. The second component was a document review.

Eligible stakeholders were identified by the CPAC team. CPAC and the KT Program staff recruited participants via email to participate in the evaluation. Interviews were 45-60 minutes long, semi-structured in nature, and were conducted by two experienced KT Program staff. The interview guide was developed collaboratively with CPAC and the KT Program (see Appendix A). The guide covered a range of topics related to the participants' work in early cancer diagnosis such as description of the initiative (e.g., characteristics, funding); barriers and facilitators to implementing the initiative; and reported sustainability of the initiative. Following participant consent, interviews were recorded and transcribed verbatim. KT Program researchers completed analyses on each interview to extract relevant themes and generated a summary table on identified initiatives.

Stakeholders who participated in the key informant interviews were also asked to share documentation about their initiatives. Examples of shared documents included initiative documentation/standard operating procedure forms (e.g., triage forms, diagnostic algorithms, internal reports), published reports (e.g., environmental scan, literature review), and grey literature sources (e.g., websites).

3.0 Findings

The KT Program interviewed 21 participants from September 28th – October 24th, 2020. Participant roles varied and included family physicians, surgeons, oncologists, and administrators. Participants from 8 provinces were interviewed; no key informants were interviewed from the territories. For a breakdown of participants by province, please see Table 1.

Table 1: Breakdown of participants by province.

Province	Number (n=21)
British Colombia	1
Saskatchewan	1
Alberta	3
Manitoba	1
Ontario	7
Quebec	3
Nova Scotia	3
Newfoundland	2

The following sections present the findings, structured to first describe cross-cutting themes including barriers and facilitators to initiative implementation and sustainability (Section 3.1), and then to summarize the current early diagnosis initiatives identified by interview participants (Section 3.2).

3.1 Cross-cutting Themes

A) Patient access to early diagnostic care

Barrier: Lack of patient access to primary care to facilitate early cancer diagnosis initiative enrollment

Several participants highlighted how patients lack accessible primary care, noting how some patients may not have a regular family doctor or access to one. These patients typically enter the system through the emergency room or walk-in clinic, and as such do not receive routine preventive or primary care. This lack of access to primary care physicians was perceived to contribute to a lengthy process for patients to receive a cancer diagnosis.

Barrier: Delays in time to diagnosis

Participants noted that without proper management of the diagnostic process, there can be inappropriate or unnecessary testing completed. Additionally, significant wait times may lead to

late-stage diagnosis. Delays in testing and diagnosis also lead to perceived increases of patient anxieties, fears, and distress.

B) Common barriers to <u>implementing</u> an early diagnostic initiative

Barrier: Lack of supports for patients to access early diagnostic initiatives
Participants described a lack of support for patients to access these initiatives. Specifically, participants highlighted the lack of support for patients in rural communities; for instance, patients may need to travel for several hours outside of their communities (often to urban care settings) to access early diagnostic initiatives and/or to receive a cancer diagnosis. Additional patient-level barriers include limited health literacy, which impacts patients' ability to understand the risks, treatments, options and supports available to them.

Barrier: Lack of cooperation from colleagues and/or organizations
Both at the provider and system level, lack of cooperation from colleagues to implement or sustain diagnostic initiatives was a reported barrier. Participants perceived some colleagues as reluctant to change (i.e., willingness to use/refer to/implement the early diagnostic initiatives) or lacking buy-in for the anticipated value added with the new initiative. Participants highlighted it was difficult to obtain buy-in for diagnostic initiatives that impacted perceptions of existing hierarchies/roles. Additional barriers included lack of buy-in at the administrative level, or challenges with cooperation or coordination between multiple organizations. In one case, this lack of cooperation resulted in an initiative being implemented and failing three separate times.

Barrier: Limited staff capacity
Participants explained how the initiatives require significant administrative effort to schedule and coordinate. Often, these tasks are compiled to providers' usual tasks, which added significant burden.

Barrier: Information gap and lack of knowledge about new initiatives
Among providers, there was reported frustration with navigating new early diagnostic initiatives or understanding new diagnostic criteria. For instance, guidelines sometimes present different thresholds regarding when a test should be ordered, which can lead to inconsistencies for diagnostic testing. Additionally, there was no streamlined process to educate providers on new early diagnostic initiatives/processes. The responsibility to be updated with this information falls on the primary practitioner, which is a barrier, given their limited time capacity. Stakeholders highlighted the need for a central referral system or process that providers can access for support to coordinate referrals to early diagnostic initiatives (e.g., Community Oncology Program provides a central "helpline" for primary care providers to contact ask a cancer care "expert" questions).

C) Common barriers to <u>sustaining</u> an early diagnostic initiative
Of note, many described initiatives were quite early in implementation (Table 2). Participants highlighted themes that they perceive as potential barriers to the sustainability of these initiatives in the future.

Barrier: Limited/Lack of Funding to Implement and Sustain the Early Diagnostic Initiative
Several participants emphasized how funding is a limiting factor to both the expansion and sustainability of their initiatives. Many participants held concerns about the sustainability of initiatives currently funded at the hospital or government level. Government budget reductions may result in the termination of some early diagnostic initiatives. Additionally, there are funding challenges that limit initiative leads to obtain the resources required to implement/sustain initiatives (e.g., hiring a navigator to coordinate services for patients). Additionally, due to COVID-19, some participants noted that their work is either paused or at risk of losing funding due to government expenditures.

Barrier: Limited resources required to successfully implement the initiative
Participants reported a lack of necessary equipment (e.g., CT scan or MRI) required to support the early diagnostic initiative. This was particularly a challenge in many rural regions, where participants reported not being able to complete diagnostic workups because they lacked access to the necessary imaging equipment.

Barrier: Technological Challenges Cause Delays in Care Coordination
Some participants mentioned that technological gaps (e.g., fax machine delays, lack of EMR accessibility, or image retrieval software) impacted the efficiency of the initiatives.

D) Common facilitators to implementing and sustaining an early diagnostic initiative

Facilitator: Leveraging Networks to maintain ongoing Communications
Several participants mentioned the importance of having a 'network' of colleagues working towards a shared goal. Participants recommended a network to communicate regularly in order to expedite the diagnostic process (e.g., making direct referrals or completing tasks in a timely manner). Participants used this network to collaborate across several clinical departments or specialties and maintained regular communications with these stakeholders (e.g., via monthly meetings). Further, some initiatives also employed a multidisciplinary approach reaching stakeholders beyond cancer care providers and into the community. These collaborations facilitated immediate feedback from those community providers.

Facilitator: Stakeholder buy-in (individual provider level)
Since many of the initiatives focused on practice changes that impact healthcare providers' processes, participants emphasized the need to acquire early stakeholder buy-in. Many participants aimed to build relationships with providers to determine their needs and identify strategies to communicate the value of new early diagnostic initiatives. Participants also worked with providers to co-create tools to make information on and/or processes of using early diagnostic initiatives more accessible. Stakeholders aimed to engage providers early in the process, including in the initiative design/planning phase. This approach facilitated trust-building and improved stakeholder buy-in.

Facilitator: Organizational buy-in
Stakeholders highlighted the importance of engaging organizational leadership (e.g., department chairs, CEOs, Ministries of Health). Such supports and endorsements allowed diagnostic initiative leads to advance their work with a "seal of approval". Additionally, this support facilitated collaboration among other sites, increased awareness of the initiative, and resource allocation. Buy-in from leadership and from other organizational stakeholders allowed the initiatives to be prioritized across multiple departments. This was particularly highlighted as a facilitator to implementing provincial initiatives where multi-level organizational buy-in is required.

Facilitator: Available resources/funding to ensure initiative sustainability
Resources required for sustainability include personnel, data, knowledge, and/or funding. Required resources varied across the country and across initiatives. For example, some participants require funding to implement a navigator, implementation science team, or to hire additional support personnel. Others require funding to support data collection and plan for initiative impact evaluations. Finally, there is a need for virtual support resources (e.g., adding triage forms to online database and making this accessible to all healthcare providers), which were reported to expedite the diagnostic process.

3.2 Current initiatives across Canada
Table 2 summarizes the current initiatives across Canada.

The data demonstrated common elements across the 16 initiatives. Nearly all (15/16) initiatives were in a planning or early implementation phase of project roll out and half (8/16) have some plans for sustainability or scale/spread. Most (14/16) initiatives have connections with primary care providers and half (8/16) use some form of digital or virtual elements (e.g., online standardized referral form) to support their efforts. Of the 16 initiatives, 8 provide some form of specific care to underserviced and/or Indigenous populations.

Table 2: Summary of early cancer diagnosis initiatives across Canada from key informant interviews.

Initiative Characteristics	Initiatives across Canada															
Location	British Columbia	Saskatchewan	Alberta	Newfoundland and Labrador	Nova Scotia	Quebec	Newfoundland and Labrador	Manitoba	Ontario	Ontario	Nova Scotia	Nova Scotia	Quebec	Ontario	Ontario	Ontario
Initiative Description[1]	Primary Care Provider Intervention This initiative provides clinical direction (e.g., guidelines) and education for primary care providers involved in cancer care and cancer care management.	Standardized Care Pathway Multidisciplinary Teams Primary Care Provider Interventions This initiative works to achieve a streamlined process from symptom to diagnosis and treatment across the province.	Centralized and coordinated diagnostic services Multidisciplinary Teams This initiative is working to achieve a centralized and coordinated diagnostic service across the province for different cancer streams.	Rapid Referral Pathway Nurse Navigator Diagnostic Services This initiative facilitates the diagnosis of thoracic cancers at the institutional level by running tumor boards and a coordinate system within their institution.	Standardized Care Pathway Diagnostic Services This initiative is developing a system of how to refer; treat; and education about how to identify symptoms of pancreatic cancer.	Multidisciplinary Team Nurse Navigator Diagnostic Services This initiative facilitates and organizes care for the members of a rural community in northern Quebec	Diagnostic Services, Multidisciplinary Teams This initiative was established for individuals who completed their cancer care. They do a lot of collaborative work in cancer journey transitioning and flagging potential remission cases.	Primary Care Provider Interventions Diagnostic Services This initiative provides education and diagnostic algorithms to primary care providers across the province.	Rapid referral pathways Multidisciplinary Teams Nurse Navigator This initiative is a multifaceted center. Overarching goals related to female cancer include, improving clinical care, education, and innovation with regards to cancer care.	Rapid referral pathways Centralized and coordinated diagnostic services This initiative provides diagnostic support to melanoma and breast cancer within the hospital.	Coordinated Care Pathway Diagnostic services This initiative is working to coordinate the diagnosis and triaging of cancer diagnosis across different surgical teams.	Diagnostic services This initiative was developed to support in the diagnosis process of lung cancer.	Centralized and Coordinated diagnostic services Rapid Referral Pathway This initiative is a third party that accepts patients from primary care to support in diagnostic services.	Diagnostic Services, Rapid Referral Pathway, Diagnostic Assessment Program This initiative supports the diagnostic pathways of those presenting with suspicious symptoms or a positive screening test.	Diagnostic services, coordinated and centralized Care pathways This initiative is planning a central system across Ontario to "group" diagnostic services together across the province.	Diagnostic Service, Standardized Care Pathway This initiative focused on advising cancer organizations about diagnostic imaging.
Stage of Implementation (i.e., planning, implementing, evaluating, sustaining or delayed/unsuccessful)[2]	Implementation	Implementation	Implementation and Planning	Implementation	Planning/Implementation	Implementation, Evaluation	Implementation	Implementation, Evaluation	Implementation, Evaluation	Implementation	Planning	Delayed/unsuccessful	Implementation	Implementation	Planning	Planning/Implementation
Patient point of entry	Primary care provider	Primary care provider, cancer agency physician	Primary care provider, emergency room, care provider, cancer center	Emergency Room, Primary care provider, radiologist (specialist)	Primary care providers, Emergency room, specialists	Primary care provider, Emergency room	Primary care provider, specialists	Primary care provider	Primary care provider	Primary care provider, specialists	Referral from care provider	Primary care providers, Emergency room	Primary care provider referral	Screening, Primary care provider	Primary care provider, screening	Screening , primary care providers, specialists within diagnostic pathways
Links with Primary care (Yes/No)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	No	Yes
Location or Range	Provincial	Provincial	Provincial	Regional	Local	Local	Local	Provincial	National	Local	Regional	Local	Regional with provincial support	Regional	Provincial	Provincial
Patient Population	Across the province presenting to care providers with suspicious symptoms	Across the province presenting both symptomatic and asymptomatic	Across the province both symptomatic and asymptomatic	Across the region symptomatic (usually severe)	Patient with symptoms presenting or referred to this group	Rural, remote area	Patients who completed cancer treatments, may be presenting symptoms again	All patients presenting to primary care provider with undifferentiated symptoms	Female patient	Patients with minimal or no symptoms	Patients referred to surgeons with symptoms	Symptomatic patients who presented to care provider with symptoms	Individuals across the province with suspicious symptoms	Patients who presented to screening or primary care provider with suspicious symptoms	Symptomatic patients from a screening pool or care provider	Individuals referred to the system with symptoms

Stakeholder Engagement (Yes/No)	Yes Leadership engagement, university engagement	Yes Engaged members of the regional health unit, experts in diagnosing (surgical oncologists)	Yes Dependent on the cancer stream but may include, imaging and radiologists, lab and pathology, primary care providers, oncologists, operations, staff managers, regional health authorities, and/or data analytics	Yes Oncologists, surgeons, quality care manager	Yes Oncologists, gastroenterologists	Yes Community members, healthcare centers in urban areas, provincial government, public health team	Yes Colleagues, University leadership	Yes Government leadership, oncologists primary care providers, regional health authorities	Yes Experts in the different cancer fields, donors, governing bodies, institution, Canadian Cancer Society	Yes Surgeons, specialists, colleagues	Yes Colleagues, provincial government, health authorities	Yes Provincial government	Yes Institution leadership, provincial leadership	Yes Primary care providers, screening programs, endoscopy, Cancer Care Ontario	Yes Clinical specialists, regional and provincial government directors, administrators from the sites, working groups	Yes Cancer organizations, local health organizations, provincial government
Underserviced Population Efforts (Yes/No)	Yes Developed partnership with First Nation Health Authority. Shifting education materials to match the identified needs of this population.	None stated	None stated	None stated	None stated	Yes Facilitates the travel and coordination of care for individuals demonstrating symptoms Nurse navigator and personal care for the individuals needing to travel to major urban city for care Cultural competency training for all employees of the health center.	None stated	Yes Staff member role straddles both Community Oncology Program and Underservices population. Work collaboratively to update education material for PCP to match underserviced needs	Yes Hired staff to represent the populations being served (e.g., black, South Asian Indigenous) Cultural sensitivity training for marginalized populations and experiences of trauma for staff Specific outreach days for Indigenous populations Connection and relationships with Indigenous elders	None stated	None stated	Yes. The providers communicate with rural individuals via phone or telehealth. Efforts made in the booking to increase equity of surgery time slots to accommodate rural patients	Yes Imitative works hard to book appointments together to decrease travel for rural patients	Yes. Partner with the Indigenous Navigator for the region to join the process if an Indigenous patient presents Established partnership with Indigenous Cancer Population to create opportunities for group testing	None stated	Yes Established partnerships with Aboriginal population and Aboriginal leadership looking at the overarching programs. Yet to be incorporated into specific program
Digital and/or Virtual Elements (Yes/No)	Yes Conduct virtual education sessions. Guidelines are published online	Yes Analytic and epidemiological data is tracked electronically. It is then shared with stakeholders via this platform. Providing virtual care during COVID	None specifically stated	Yes Electronic data base for each patient. All members of the care/review team have access	None stated	None stated	None stated	Yes They publish all algorithms and education materials online. Host a "hotline" where primacy care providers can call and ask an expert's opinion regarding a symptomatic patient	Yes The initiative was built to incorporate virtual component in all facets of care, research, education, innovation.	None stated	Yes Initiative works closely with data analytics on a program called Tableau to track multiple data sources	None stated	Yes Telemedicine	None stated	Yes Electronic communication between the future sites	None stated
Sustainability and/or Scale Plans (Yes/No)	None stated	None stated	Yes Discussing funding sources, scale up to the rest of the province	Yes Plans and meetings in lace to expand the program to reach a	Yes Hiring more staff to implement the program in more areas	Yes Recent change in the program has shifted to be more sustainable	Yes Plans to introduce "after care" clinics in six other locations	None stated	Yes Initiative is designed to be applied across Canada. Partnerships	None stated	Yes The initiative is addressing changes one service line at a time. This will eventually	None stated The program has been discontinued	Yes This initiative model has been used in other locations in	None stated Work closely with Cancer Care Ontario and will follow	None stated Currently in the planning phase of this initiative	None stated The initiative is in early stages

	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16
				and other cancer streams	larger population (provincially). Plan is to bring more diagnostic professionals (e.g., imaging) on to the teams.		for the community.			with Canadian Cancer Society. Have an innovation incubator on site to support new ideas and scalability of the program.		bring it across the province.		Quebec and they plan to share it in other places	any plans they have	
Program Evaluation (Yes/No)	None stated	None stated	None stated	Yes Impact: it was not cost saving or efficient to expedite the patient into thoracic surgery. Therefore, surgery was delated until diagnosis information (e.g. PET scan) was completed.	None stated	None stated	None stated	None stated	Yes Ongoing, smaller evaluations of components provided.	None stated	None stated	None stated	Yes Completed patient satisfaction questionnaire regarding language accessibility Collected data is used proactively to allow faster response for within care pathways	None stated	None stated	Yes. Shared with stakeholders to demonstrate impact of work. Measure the effectiveness of the screening program
Performance Measures (Yes/No)	None stated	Yes Department data analytics track wait times both in and out of the hospital	Yes Specific metrics developed and tracked across all programs and within specific cancer streams	Yes Wait times	None stated	None stated	None stated	Yes Each education session and tool has an evaluation completed by the learners	Yes Evaluated educational programs (e.g., how many viewers, how many connections); wait times (e.g., specific to cancers and stages of cancer diagnosis and treatment); outcomes; needs assessments. Number of women cancer was prevented for with the BRCA mutation carriers	None stated	None stated	None stated	Yes Bottleneck and wait times (to diagnosis, surgical, radiation therapy)	Yes Wait times throughout the cancer journey	Yes Time interval from suspicion to diagnosis; diagnosis to start of treatment	Yes. Access to CT guided biopsies, reversal of stage of the disease at diagnosis, wait times, surgical beds.
Program Funding Type	Provincial	Provincial	Provincial, grant	None stated	None stated	None stated	None stated	Provincial	Institutional, donor	Within the overall institution budget for this care provider	Provincial	During program rollout, provincial funding. No longer supported	Institution and provincial	Multiple sources stated. Hospital for procedure, provincial for initiative director role	Provincial	Provincial
Identified Strengths	Keen, committed individuals involved Good culture of information sharing Public awareness	Once a diagnosis is made, there are treatment pathways in place	Multidisciplinary team Network and communication across the province Stakeholder buy-in Provincial metrics, specific	Nurse navigators Data collected Small size of the program, easier to communicate and have colleagues on board Multidisciplinary teams	Working on a cancer with high mortality rate Focus on education Decrease in excessive testing and better patient communication Multidisciplinary teams	Nurse navigator Multidisciplinary team to coordinate the travel, treatment, information exchange with patient Underserviced focused	Multidisciplinary team Shifting the perspective around cancer care Advocate for patients	Education focused Multidisciplinary High accessibility for support for primary care providers	Director holds many roles (care provider, administrator, researcher) Multidisciplinary teams Adapting to virtual	Networks and communication between colleagues Standardized form and criteria for referrals Smaller patient load	Multidisciplinary teams Stakeholder buy-in at government level Relationships building and trust	Strong initial data to encourage buy-in	Buy-in from all levels of the system Specific, detailed data tracking Educating conferences across the province.	Integrated into the current health system	Multidisciplinary teams Amalgamating the cancer diagnosis process to one location/facility Using the current	Using clinical champions Initiative driven by evidence Supported by provincial or other recognized organizations (e.g., Cancer Care Ontario) Stakeholders embedded

			outcomes per cancer Collaboration within the current healthcare system; implemented into current structures in place	Incorporating the work into system as it was previously (no increase in workload)						Comprehensive evaluation measures Networks and communications	Care coordinator					infrastructure to expand Evidence backed and supported with clinical guidelines and standards	throughout the entire process Focused on the patient value and improvements Networking and leveraging
Identified Challenges	Resource allocation, access to resources, and distance Limited funding Limited patient access to certain tests	Under resourced in staff and funding Still developing the diagnostic pathway	Limited resources for sustainability Resources for data Staff capacity Provider behaviour change	Limited resources Severe cases presenting (instead of earlier in the disease process) Staff capacity and sustainability	Geographical barriers Siloed care Difficulty changing colleague behaviour/organizational culture	Resources (infrastructure, equipment, funding) No data shared or collected Language and geographical barriers	Not specifically with early cancer diagnosis Lack of cooperation from system or fellow colleagues	Removed from direct care provision Incorporating system changes into current jurisdictions	Specific cancers Urban setting Culture change	Limited evaluation data	Culture shift Not a designated role Newly established role and government shifting/reallocation of money	Attempted program three separate times. Unable to shift culture of colleagues Change management Under resourced and poor infrastructure	Difficulty establishing the database/IT support Unsure how to share the information to other institutions and professionals	Data collection Stakeholder buy-in Forms are not standardized across the streams entering the initiative	In planning phase, not implemented Clear hand off across multiple treatment processes Limited oversight of the diagnostic phase for cancer Budget freeze	Inconsistency in the testing threshold or referral Communication across the system both at the patient and provider level Granular data

1.The initiative descriptors were applied to programs based on the definitions included in the CPAC 2018 Environmental Scan (4). These terms were not used explicitly by the key informants to describe their work.

2.These terms may not have been explicitly stated by participants and may have been applied based on interview data.

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Notable trends across Canada

Ontario: Stakeholder buy-in as a facilitator for implementing early cancer diagnosis work
Participants in Ontario highlighted that engaging key stakeholders likely facilitated success of their initiatives. Early buy-in was critical as it facilitated collaboration and it typically included individuals in leadership roles, which helped to facilitate a culture and climate that encouraged the implementation of the initiatives.

Eastern Canada (i.e., Nova Scotia and Newfoundland): Access to primary care is a barrier to patient engagement in early cancer diagnosis initiatives
Many stakeholders representing Eastern Canada reiterated that lack of primary care access (e.g., people without family doctors) to patients was a barrier to success of early cancer diagnostic initiatives. For example, without primary care referrals, patients enter the cancer diagnosis process through the emergency room with late-stage symptoms. This barrier was compounded by a lack of rapid access to testing results, challenges of travel for rural communities, and burnout among primary care providers.

Western Canada (British Columbia, Alberta, Saskatchewan): Focused efforts to engage primary care providers
Initiatives based in Western Canada focused on engaging primary care physicians and finding ways to support them. This was completed through educational programming, with a continuing professional development approach to introducing new processes or by having a dedicated helpline to answer questions around diagnostic procedures. Another method was including primary care representatives in the development of early diagnostic initiatives.

Notable trends by district

Provincial: Support from leadership and networks
Participants working with initiatives at the provincial level noted there was significant support from either executive leadership or from a respected organization (e.g., Cancer Care Ontario). For initiatives in Ontario and Alberta, strong networks across institutions streamlined efforts by various organizations and led to successful implementation of the initiatives. This helped participants move forward with their work and have a better understanding of which priorities should be focused on.

Notable trends by those who served underserviced populations

Education through cultural competency training and partnerships
Participants who aimed to target underserviced populations provided cultural competency training to staff and developed educational materials to support underserviced communities.

Partnerships with community representatives/leadership
Initiatives that aimed to support Indigenous communities often were partnered with Indigenous members or representatives. For instance, the Ontario diagnostic imaging group has Aboriginal leadership involved in the planning and decision-making processes. Participants also reported consultations with elders and Indigenous navigators to ensure the initiatives meet the needs of Indigenous populations.

4.0 Promising Initiatives – Case Studies

In this section, we share promising initiatives to inform recommendations to guide early cancer diagnostic initiatives in Canada. "Promising initiatives" could be initiatives that have shown promise in terms of potential for future scale and spread in Canada. For example, initiatives that could be adapted and implemented on a broader scale, either regionally and/or jurisdictionally to impact broader, or different, patient populations. This would include initiatives that have successfully addressed the needs of underserved populations (in a broad sense) within local contexts and those living in rural and remote communities. Presented below are case examples of such initiatives along with factors that led to their success.

Case Example 1: Peter Gilgan Center for Women's Cancer
note to CPAC – we can move this to the Appendix if you think it doesn't fit with what you're looking for

Description

The Peter Gilligan Center for Women's Cancer has an overarching goal to improve clinical care, improve education, putting innovative approaches to care, providing information, and advance research in this field. They have hereditary breast and ovarian cancer clinical pathways with coordinated services for patients. The Center also develops and provides education across multiple levels, including clinicians, staff, patients, and parents.

Population served

- Patients at the Women's College Hospital (WCH) – will vary as this Center collaborates with multiple departments across WCH

Factors leading to success

- Lead program director has experience as family physician, research in oncology, and senior administrative level role (i.e., provided diverse perspectives on what multiple groups were experiencing)
- Multiple resources available to provide support for the initiative: implementation science team, ability to pilot test new initiatives at the clinical setting, spread and scale lead
- Built partnerships with multiple groups who play a role in this work and had everyone understanding the shared common goal of this initiative
- Includes patient advisors at all clinical programs and at the board level to provide guidance and insights
- Ability to spread and scale initiative with the help of their lead in this work, which includes a prescriptive approach to how they implemented

Key takeaway/Lessons Learned

- Focus on health equity by having diverse leadership who provides vision and specific work/initiatives focused on supporting marginalized women

- Several measurements tracked to ensure strong evaluations and value of initiative: wait times to diagnosis, wait times to surgery, impact of early diagnosis, number of patients supported, etc.
- Lesson learned: the initiative would like to do more work to educate providers on what symptoms need further evaluation

Case Example 2: Early cancer diagnosis in Alberta within the Strategic Clinical Network (SCN)
Description

The purpose of early cancer diagnosis in Alberta is to expedite appropriate diagnostics through a standardized approach and support patients through that process. This aims to identify the gaps for patients in the diagnostic process in Alberta as well as the challenges faced by the primary care provider perspective.

Population served

- Albertans

Factors leading to success

- Multidisciplinary team and a significant network or stakeholders established across the province
- Involved representatives from primary care in the development of their clinical pathway design work
- Worked to incorporate new cancer initiatives into the existing health system
- Includes patient advisors with lived experience with specific cancer types who help develop key deliverables such as education materials
- Strong data support, including developing and presenting the background data to secure the funding for the project
- Collaboration with the data analytics team to create the dashboards focused on elements to collect, create, analyze and report on
- Part of a strategic clinical network nested within the provincial health sector of government, permitting them to leverage that out for support needed on the work they are doing

Key takeaway/Lessons Learned

- Looking to build common metrics across all cancer pathways and within each specific pathway that include outcome measures (e.g., wait times), patient and provider satisfaction, and cancer outcomes (e.g., what stage cancer was diagnosed, and proportion treated)
- Before developing the initiative, the team connected with groups across the world who had done similar work and collected their lessons learned to ensure that they did not reinvent the wheel

Description

A liaison and linkage service to ensure that the health and social services offered to northern Quebec Nunavik patients is appropriate to the psychosocial, cultural, and biopsychosocial needs.

Population served

- Northern rural Nunavik populations in Quebec. Communities include Aboriginal, First Nations, and Inuit peoples.

Factors leading to success

- A dedicated patient navigator who can provide translations and coordinate the care when patients travel to urban settings for their diagnostic workup
- Close partnerships with the community they work with where direct feedback on any components can be provided
- Translations also include adaptions to the delivery of the message in a format readily available for patients (e.g., information is typically shared via storytelling rather than a text format)
- Cultural competency training for all staff – adding this training for any physicians who travel up north as well as providing information to urban clinical centres

Key takeaway/Lessons Learned

- Developing communication and information tools to help improve health literacy is a key component – especially with concerns of an information gap and an aging population who will likely need to seek more help with symptoms arising

5.0 Common Identified Strengths

In this section we highlight common identified strengths across the initiatives. Table 3 provides a list of identified strengths, compiled via an analysis across the included initiatives.

Table 3. Identified strengths and examples of each from 16 initiatives across Canada. See Table 2 for more detail.

Identified Strength	Example
Multidisciplinary teams	Working with multiple departments, such as diagnostic imaging, pathology, medical oncology, and research
Stakeholder buy-in	Early engagement with identified key stakeholders by providing the space to collaborate, explain the "why" of the initiative, and building a tailored, trusted relationship with each one

Patient navigator	A dedicated role to help facilitate the navigation for patients across the cancer journey – helps the patient through testing, appointments, health literacy, etc.
Patient advisor(s)	Having specific patient advisors with lived experience preferably in the areas of cancer the initiative focuses on – these advisors are involved at multiple levels of the initiative and engaged from the beginning
Nurse navigator/coordinator	An employee who coordinates and the point-person where clinicians can reach out to easily for any questions or concerns – meets the needs of clinicians and staff
Education	Providing consistent education for primary care providers on cancer care and how to navigate through the new initiative, while having education resources available at any time (e.g., pu
Tailored support for underserviced and/or Indigenous populations	Adapting the cancer information to be accessible to the community being served, such as providing storytelling methods for cancer information to Inuit peoples
Leadership engagement	A CEO/Director/Chair role provides approval and encouragement for the advancement of the program and helping to facilitate the buy-in across departments
Collaborative development	Building a standardized referral form with primary care providers so that it is easy for them to use and accessible
Data collection and reporting	Collecting data on the current barriers to early cancer diagnosis to share with leadership and identifying key metrics to collect throughout the initiative development
Health system integration	Using current Electronic Patient Record systems (or a similar electronic database) to record data on patients or using the referral system currently available within the system

6.0 Summary/Conclusion

This environmental scan consisted of interviews with 21 participants across Canada as well as a document review. This provided information and insights into 16 initiatives focused on early cancer diagnosis across Canada. Across the 16 initiatives, half are participating in at least some form of specific work to address the needs of underserved or Indigenous populations. A detailed summary of all 16 initiatives is provided in Table 2. Information from the key informant interviews demonstrate cross cutting themes identifying common barriers and facilitators faced when implementing these initiatives. Furthermore, three programs were highlighted as "Promising Initiatives" (see Section 4.0), which can potentially be used to model future diagnostic initiatives. Finally, the identified strengths reported in Table 3 should be considered by diagnostic initiative leads to further improve changes of initiative success.

The information from this environmental scan will be merged with the findings from the rapid review completed by SPOR Evidence Alliance to make final recommendations regarding early cancer diagnosis initiatives across Canada.

7.0 Limitations

- Interviews were limited to n=21 stakeholders. It is possible that there are other pertinent early diagnostic initiatives that were not captured in this scan.
- Not all participants shared documents on their initiative to inform the document review. Therefore, important details may not have been available for analysis
- To facilitate a streamlined analysis, the research team redefined the initiatives to align with the CPAC 2018 report. Of note, the initiative descriptions presented in this report are not always aligned with the terminology used by the stakeholders (e.g., initiative versus program, promising practices).

8.0 Next Steps

- CPAC to review interim report and provide feedback on future directions for final deliverables.
- The SPOR Evidence Alliance will complete the rapid review and present findings on best practices based on the review of literature available
- The KT Program will work with the SPOR Evidence Alliance to merge findings from both the environmental scan and the rapid review into a final report with recommendations to CPAC regarding promising initiatives
- KT Program to meet with CPAC regarding KT tools and resources as part of the final deliverables

9.0 References

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10.0   Appendices

Appendix A: Key Informant Interview Guide
Project: Early Cancer Diagnosis for Symptomatic Patients

Interview/ Discussion Guide

When conducting the interview, tailor the questions based on the information gathered about the participant(s) and program from the pre-interview questions and document review.

Overview (~5 minutes)

Welcome and Introductions:

Hello, --------. Thank you for agreeing to speak with me today. My name is ------ and I am from the Knowledge Translation Program at St. Michael's Hospital, Unity Health Toronto. I will be conducting the interview with you today.

Before we get started, I would like to briefly explain an overview of early cancer diagnosis and the purpose of the project and talk about some of the questions you answered prior to this interview.

Explain the Objective of the Project

The purpose of this project is to identify strategies to optimize the interval between suspected cancer and diagnosis. We are conducting an interview with you to hear about your perspectives and experiences on early cancer diagnosis programs along with the documents you've shared. This will be synthesized along with a rapid review to inform a summary of recommendations on early diagnosis strategies that may be effective, cost-effective, sustainable and feasible in the Canadian context.

Prior to the interview, we had asked you to confirm and provide some additional background information such as documents on the program to help prepare for this interview. We'd like to go over some of these areas before we start the interview (**confirm the list of pre-interview questions**):

Verbal Consent Script: Review Terms of Consent and Confidentiality:

Before I begin with any questions, I would like to go over the terms of consent with you.

Participation in this interview is completely voluntary. If at any point you wish to stop participating, even after we have started, you are free to do so.

- We take the issue of confidentiality seriously. No personal information about you will be shared with anyone outside the study team.
- Your real name will not appear anywhere in the written transcripts or reports concerning today's session.

- We will be audio taping this interview so that we do not lose any details of our discussion.

Do I have your permission to audio tape this interview?

Do you consent to participate in this interview?

I will now turn of the audio recorder *[Turn recorder on]*

Today is (Day, Month, Year) and I'm here with participant [*insert study* ID] to conduct the CPAC: Early Cancer Diagnosis for Symptomatic Patients key informant interview.

For the purpose of recording your consent to participate I will ask you again, do you consent to being interviewed and audio recorded?

Section 1: PROGRAM ORGANIZATION AND DEVELOPMENT (~20 minutes)

We'll start off with some questions regarding the program that you work on and some of the beginning stages of this program development.

(Internal note: *You will not need to go through every probe.*)

- Can you describe the purpose, structure and functionality of the program?

- How are patients with varying degrees of symptoms (alarm symptoms, serious non-specific symptoms, vague or low-risk symptoms) managed and referred for diagnostic testing?
    - *Probe:* How does this process look?
    - *Probe:* What is the transition process like for patients after they've gone through your program?

- Was a Readiness Assessment done before implementing the program?
    - *Probe:* For example, assessment of the alignment and applicability, evidence, training and HR needs, health system resource requirements, program quality and standards, and awareness.
    - If yes, how were the results used or not used when developing the program?

- Who were the key stakeholders that supported the development and implementation of this program?
    - *Probe:* Does the program have an executive sponsor?
    - Probe: Were any existing partnerships leveraged and/or created with other local/regional programs/jurisdictions to meet project goals? If so, how?
    - *Probe:* Were patients involved in the development of the initiative?

- *Probe:* How was program modelled on any other relevant initiatives (e.g. Denmark's Three-legged strategy)?

- What factors were the main barriers in implementing the initiative to support early cancer diagnosis?
- What factors helped support the implementation of the initiative to support early cancer diagnosis?
- What are some of the key lessons learned from working with this program?
- How does your program align with the province's existing screening programs, care pathways, etc.?
  - *Probe*: How do patients get referred in and how are they referred out of the program?
- Are there any technological solutions and/or resources adopted to successfully implement the program? Ex. Staffing, data, guidance/governance, education, etc.
  - *Probe:* Can you explain this process and how you feel it is going?

Section 2: UNDERSERVICED POPULATIONS (~15 minutes)

We want to talk more about how your program serves underserviced populations. Within this interview, the term underserviced refers to the higher likelihood that individuals belonging to a certain population may find it more difficult to obtain needed care, receive less or a lower standard of care, experience different treatment by health-care providers, receive treatment that does not meet their needs, or be less satisfied with health-care services than the general population (Canadian Strategy for Cancer Control, 2019-2029).

Questions below will be modified depending on answers in pre-interview questions

If participant did not answer 'Specific pathways/care for underserviced/Indigenous populations?' in pre-interview questions then ask the following question:

- Does your program have a specific focus on serving underserviced populations and or Indigenous groups?

If participant answers 'Yes' to 'Specific pathways/care for underserviced populations?' in pre-interview questions, then ask the following questions

- How does your program consider or approach care for underserviced populations?
- How has the program been successful in addressing the early diagnosis needs of underserviced populations?
  - *Probe*: Do you have any preliminary evaluation data (e.g. patient perspectives, data collection etc.)?
  - Probe: What more could/should be done in the context of this program to support underserviced communities?

- Has virtual care played a role in enhancing access to care, specifically for underserviced populations and/or people living in rural and remote communities and their early diagnosis?

If participant answers 'Yes' to 'Specific pathways/care for Indigenous populations?' in pre-interview questions, then ask the following questions

- Does your organization feel they have the capacity to design and implement programs for First Nations, Inuit and Métis?
    o Please explain:
- What kinds of cultural competency training exist within your program?
- What are the ways your program is incorporating Indigenous programming?
- How does your program address the needs of the First Nations, Inuit and/or Metis communities?
    o *Probe:* Who did you engage with to define this approach?

Section 3: OUTCOMES (~15 minutes)

The next section focuses more on the outcomes of the program. This can be various factors such as wait times, coordination of care, cost efficiency measures. Please reflect on this aspect of the program for the next set of questions.

- Have you been able to measure and show impact in terms of promoting **early cancer diagnosis**?
    o *Probe*: What were the intended short and long term outcomes (e.g. decreased wait times)?
    o *Probe*: Are there any unintended outcomes (positive or adverse) of the program?
    o *Probe:* How were these outcomes decided?

- How do you think the **system**, **staff**, and **patients** have benefitted from this program (e.g., improved wait times, better coordination of care, improved survival, convenience, less travel, feeling more supported, etc.)?

Section 4: SUSTAINABILITY AND SCALE (~5 minutes)

We want to now talk about the outlook of this program and some of the discussions around the sustainability and scale of this program.

    o Do you have plans to scale or spread your program? If so, can you please explain these plans.
        o *Probe*: Do you forsee any challenges to scale/spread?

o Do you have resources/ plans to support sustainability of the program?
  o If yes, what do you see as potential barriers and facilitators to sustainability?

o What kind of information does your funder require to justify continued funding?
  o *Probe:* How do you demonstrate value of the program?
  o *Probe:* Could this information be leveraged/shared to support scale and spread elsewhere?

CONCLUSION

Is there anything else you would like to tell us about the program and how it relates to early cancer diagnosis that I haven't asked you about in today's discussion?

Thank you again for sharing your thoughts with us today. I have no more questions for you. I will be turning the audio recorder off now.

Appendix B: List of Key Informants

Adam Elwi	Jonathan Greenland
Andrea Eisen	Julian Dobranowski
Barbara O-Neil	Justine Grenier
Cathy Clelland	Mark Kristjanson
Cathy Rouleau	Mark Walsh
Daniel French	Melanie Morneau
Deanna Langer	Ruth Heisey
Douglas Stewart	Sharmilaa Kandasamy
Frances Wright	Sunil Yadav
Gerard Farrell	Susan Blacker
Gregory Hirsch	