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Telephone Triage Services in Canada

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Table of Contents

Key Messages	4
Context	4
Objectives	5
Research Questions	5
Study Design	6
Findings	6
Objective 1: Characteristics and Features	7
Objective 2: Equity Considerations.....	17
Objective 3: Costs.....	18
Objective 4: Future Considerations	21
Limitations	26
Conclusions and Implications for Decision-Making or Policy-Making	26
References	29
Appendix 1: Methods	36
Appendix 2: Survey Questions	40
Appendix 3: Information on Survey Respondents	46
Appendix 4: Detailed Descriptions	47

List of Tables

Table 1: Forms of Intake Used by Telephone Triage Programs in Canada by Jurisdiction ^a	8
Table 2: Administrative Structures of Telephone Triage Programs in Canada ^a	9
Table 3: Staffing of Telephone Triage Programs in Canada ^a	13
Table 4: Use of Telephone Triage Programs in Canada ^a	15
Table 5: Costs Associated With Telephone Triage Programs in Canada ^a	19
Table 6: Components for Literature Screening and Information Gathering	36
Table 7: Information on Survey Respondents	46
Table 8: Characteristics, Staffing, and Use of Telephone Triage Programs in Canada ^a	47
Table 9: Summary of Services Offered by Telephone Triage Programs in Canada ^a	50

Key Messages

- Telephone triage programs (e.g., provincial and territorial 811 programs) provide timely access to trained health care professionals who perform virtual assessments of patients' health status and symptoms and offer self-care advice and referrals to health care services and resources.
- This Environmental Scan aimed to describe telephone triage programs in Canada, including what services they provide, their number and types of staff, who administers the programs, and how much they cost. It also aimed to provide a summary of some important considerations related to health equity, as well as insights into the future of telephone triage programs, including how they may incorporate emerging technologies like artificial intelligence and wearable health devices into their operations. This scan was informed through a limited literature search and a survey completed by targeted jurisdictional contacts across Canada.
- All 13 provinces and territories in Canada provide residents with access to jurisdiction-wide telephone triage programs. While most of these programs have been in operation for many years, the programs in the Northwest Territories and Nunavut were established within the past 2 years.
- Our findings suggest that telephone triage programs in Canada vary in the types of services they offer, as well as their characteristics and features, administrative structures, and associated costs. While all programs offer telephone triage and advice services, certain programs offer additional services, such as mental health crisis lines, assistance for quitting smoking or tobacco use, and consultation with a variety of health care professionals like pharmacists, dieticians, and physicians. Most programs are primarily staffed by registered nurses, but some telephone triage teams also include nonclinical intake agents, administrative personnel, physicians, nurse practitioners, and other health and social care providers.

Context

Telephone triage programs provide individuals with health concerns access to nonurgent health information, advice, and referrals to appropriate health care services over the phone. Typically, callers are connected with trained health care professionals, such as registered nurses, who conduct virtual assessments of the patients' health status and symptoms. Based on the provided information, intake agents use standardized protocols and clinical judgment to:

- offer self-care recommendations
- refer individuals to urgent care facilities or emergency departments
- advise on scheduling appointments with primary care providers
- suggest other care resources.¹⁻³

Often available 24 hours a day, 365 days a year, to anyone residing in the jurisdiction, telephone triage programs aim to increase access to care, reduce unnecessary visits to emergency departments, and improve patient outcomes.³⁻⁶

Provinces and territories in Canada have implemented jurisdiction-wide telephone triage programs to offer residents a reliable and convenient way of accessing health care services.⁷ Originally, many of these programs served as basic health advisory services accessible solely by telephone that guided callers on appropriate options for seeking medical care.⁸ However, with the growing demand for virtual care options over the last decade,⁹ which has been further amplified by the COVID-19 pandemic,¹⁰ telephone triage programs have expanded the range of services they provide as these programs have become increasingly important to Canadian health care systems.¹¹ To improve accessibility and convenience, some programs have made it possible for clients to connect with services through additional communication technologies, such as smartphone apps, email, and online chat.¹¹ Although these programs are designed with similar core components, there is variability in their structure and the services they offer.¹²

In 2004, CADTH conducted an assessment of telephone triage services, which included a clinical and economic review, along with a survey of call centre programs across Canada.¹³ Since then, substantial changes have occurred in the landscape of telephone triage programs in Canada.⁷ The purpose of this report is to provide an overview of telephone triage programs operating in Canada to inform policy-makers, health care administrators, and program managers, particularly those considering modifications to their services in response to the increasing demand for virtual care in Canada.

Objectives

The key objectives of this Environmental Scan are to:

1. describe the characteristics and features of the telephone triage programs currently operating across Canada (e.g., provincial and territorial 811 programs), including any modifications programs made due to the COVID-19 pandemic
2. identify and describe equity-related considerations relevant to the delivery of telephone triage services in Canada and discuss potential strategies to mitigate health inequities
3. determine the costs of providing telephone triage programs across Canada and describe the impacts of the COVID-19 pandemic on program costs
4. provide insight into future considerations for telephone triage programs by describing information related to the potential adaptations and innovations to their services that programs may consider in the near future.

This Environmental Scan does not include an assessment of the clinical or cost-effectiveness of telephone triage programs. Thus, conclusions or recommendations about the value of telephone triage programs is outside of the scope of this report.

Research Questions

To address the objectives, we asked and answered the following research questions:

1. What are the characteristics and features of telephone triage programs (e.g., provincial and territorial 811 programs) currently operating in Canada?
 - a) What forms of intake, other than telephone, can be used to access telephone triage programs?
 - b) Are telephone triage programs administered by the jurisdictions or through third-party providers?
 - c) What services are provided by telephone triage programs?
 - d) What are the number and types of staff involved in the administration of telephone triage programs?
 - e) How many calls are serviced annually by telephone triage programs?
2. What types of people may experience health inequities related to telephone triage services and what strategies or services may reduce these inequities in Canada?
3. What are the costs associated with the provision of telephone triage programs in Canada?
4. How has the COVID-19 pandemic impacted telephone triage programs in Canada, including the types of services offered, the types of staff or the total number of staff, the volume of calls serviced annually, and the costs associated with providing telephone triage services?
5. What potential adaptations or emerging technologies may change how services are provided through telephone (or other forms of intake) triage programs in the near future, and what are the key considerations related to the implementation of these innovations in Canada and internationally?

Study Design

We conducted an Environmental Scan to capture a variety of information related to the administration of telephone triage programs across Canadian jurisdictions. Using a staged and iterative approach, we first collected information through a limited search and review of grey and published literature. After determining the types and volume of relevant information retrieved through the literature review, we distributed a survey to key stakeholders involved in the administration of telephone triage programs in Canadian jurisdictions to obtain additional information. A detailed description of the methods is provided in [Appendix 1](#). Survey questions are presented in [Appendix 2](#).

Findings

The findings presented in this Environmental Scan are based on a limited search and review of grey and published literature and on survey responses received by June 23, 2023.

A total of 512 citations were identified in the electronic literature searches. Following screening of titles and abstracts, 384 citations were excluded, and 128 potentially relevant reports from the electronic search were retrieved for full-text review. Two additional records were retrieved from the search alerts. Of these 130 potentially relevant articles, 72 publications met the inclusion criteria and were included in this report. In addition to the articles identified in the electronic searches, we included information from grey literature,

policy papers, news articles, websites, and other sources of information that addressed the research questions.

We received survey responses from contacts involved in the administration of telephone triage programs in 6 of 13 Canadian jurisdictions (i.e., Alberta, New Brunswick, Newfoundland and Labrador, the Northwest Territories, Nunavut, and Quebec). We sent invitations to participate in the survey to a total of 29 individuals – 7 of them agreed to participate and were sent the survey, and the survey yielded responses from 6 of these 7 individuals. We did not receive any further replies from the individual who initially agreed to participate but did not submit the survey. A list of participating organizations is provided in [Appendix 3, Table 7](#).

The findings presented here address the research questions and are presented by the objectives of the report.

Objective 1: Characteristics and Features

A narrative overview of the findings related to objective 1 on the characteristics and features of telephone triage programs operating in Canada is presented in the following. Detailed descriptions by jurisdiction are available in [Appendix 4, Table 8](#) and [Table 9](#).

Telephone Triage Programs in Canada

Telephone triage services are available in all provinces and territories in Canada. The programs are known as:

- Health Link 811 in Alberta
- HealthLink BC in British Columbia
- Health Links in Manitoba
- Tele-Care 811 in New Brunswick
- 811 HealthLine in Newfoundland and Labrador
- 811 Health Advice Line in the Northwest Territories
- 811 Service in Nova Scotia
- Virtual Triage Program in Nunavut
- Health811 (formerly known as Health Connect Ontario and, before that, as Telehealth Ontario) in Ontario
- 811 Telehealth in Prince Edward Island
- Quebec 811 in Quebec
- HealthLine in Saskatchewan.

Although Yukon does not provide its own services directly, it has an agreement in place to grant access to services through British Columbia's telephone triage program (i.e., HealthLink BC).^{12,14-17} Nova Scotia and Prince Edward Island are both signatories on a tripartite agreement with their third-party telephone triage service provider.¹⁸ Hereafter, we will describe the programs available in Nova Scotia and Prince Edward Island together. This approach is taken because telephone triage services offered in both provinces are

provided by the same third-party company; as a result, the programs share many of the same characteristics and features. Any differences between the 2 programs are described, where appropriate.

Forms of Intake

In 11 out of 13 jurisdictions (i.e., Alberta, British Columbia, New Brunswick, Newfoundland and Labrador, the Northwest Territories, Nova Scotia, Ontario, Prince Edward Island, Quebec, Saskatchewan, and Yukon), individuals can access telephone triage services by calling the phone number “811,” which was designated for nonurgent health tele-triage services in 2005 by the Canadian Radio-television and Telecommunications Commission.¹⁹ In Manitoba and Nunavut, the services are available using different phone numbers.^{20,21}

Some jurisdictions have implemented additional forms of intake to expand the accessibility of telephone triage services. The forms of intake used by telephone triage programs in Canada are summarized in [Table 1](#).

Table 1: Forms of Intake Used by Telephone Triage Programs in Canada by Jurisdiction^a

Forms of intake	AB	BC and YK	MB	NB	NL	NWT	NS and PEI	NU	ON	QC	SK
Telephone	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Email	Yes	No	No	No	No	No	No	No	No	No	No
Text message	Yes	No	No	No	Yes ^b	No	No	No	No	No ^c	No
Videoconference technology	Yes	No	No	No	No	No	No	No	No	No	No
Online chat	No	No	No	No	No	No	No	No	Yes	No ^c	No
App (e.g., smartphone, tablet, or computer)	No	No	No	No	Yes	No	No	No	No	No	No

AB = Alberta; BC = British Columbia; MB = Manitoba; NB = New Brunswick; NL = Newfoundland and Labrador; NS = Nova Scotia; NU = Nunavut; NWT = Northwest Territories; ON = Ontario; PEI = Prince Edward Island; QC = Quebec; SK = Saskatchewan; YK = Yukon.

^aAll data reported in this table correspond to information retrieved from publicly available sources^{22,23} or responses to the survey at the time of its administration (June 2023).

^bAvailable to users with communication difficulties.

^cSurvey responses indicated that Quebec 811 is deploying text messaging as an intake method and is also exploring the possibility of using a web page to initiate information requests and request call-backs.

Administrative Structures

Five provinces (i.e., Alberta, British Columbia, Manitoba, Quebec, and Saskatchewan) and 1 territory (i.e., Nunavut) directly oversee the administration of telephone triage programs within their jurisdiction.^{6,8}

Yukon does not directly or independently administer its own services; rather, it grants its residents access to HealthLink BC. In contrast, 6 jurisdictions have opted to outsource service delivery to various private companies (i.e., Ontario, New Brunswick, Newfoundland and Labrador, the Northwest Territories, Nova Scotia, and Prince Edward Island).^{6,8,18,24,25} A summary of the administrative structures of telephone triage programs in Canada is provided in [Table 2](#).

Table 2: Administrative Structures of Telephone Triage Programs in Canada^a

Jurisdiction(s) (program name)	Mode of administration	Third-party provider
Alberta (Health Link 811)	Insourced	NA
British Columbia and Yukon ^b (HealthLink BC)	Insourced ^{6,8}	NA
Manitoba (Health Links)	Insourced ^{6,8}	NA
New Brunswick (Tele-Care 811)	Outsourced	Medavie Health Services ²⁶
Newfoundland and Labrador (811 HealthLine)	Outsourced	Fonemed
Northwest Territories (811 Health Advice Line)	Outsourced	Fonemed
Nova Scotia (811 Service) and Prince Edward Island ^c (811 Telehealth)	Outsourced ¹⁸	Emergency Medical Care Inc. (a subsidiary of Medavie Health Services based in Dartmouth, Nova Scotia) ^{18,27}
Nunavut (Virtual Triage Program)	Insourced	NA
Ontario (Health811)	Outsourced ^{6,8}	In 2011, the program was administered by Sykes Assistance Services. ²⁵ We did not identify any information on changes to its administrative structure since 2011, but Better Access Alliance, led by Orion Health, was awarded a contract for approximately \$5.2 million for the period between 2021 and 2026 to help develop Health811 by creating a digitally enabled navigation tool. ^{23,28,29}
Quebec (Quebec 811)	Insourced	NA
Saskatchewan (HealthLine)	Insourced ^{6,8}	NA

NA = not applicable.

^aAll data reported in this table correspond to information retrieved from publicly available sources or responses to the survey at the time of its administration (June 2023).

^bBritish Columbia and Yukon have an agreement in place to grant residents of Yukon access to HealthLink BC services.

^cNova Scotia and Prince Edward Island share a tripartite agreement with a third-party provider.¹⁸

Services Provided

A summary of services offered by telephone triage programs in Canada is available in [Appendix 4, Table 9](#).

Triage and Advice Services and Health Information

Telephone triage programs in Canada offer a wide range of services to address the health care needs of individuals within their jurisdictions. While some jurisdictions have expanded the scope of their telephone triage programs to provide more comprehensive services, the fundamental function shared by all programs throughout Canada is the provision of triage and advice services.

Triage and advice services allow people to connect with professionals and receive assessments and health care advice, including recommendations on appropriate options for seeking medical care. In some jurisdictions, such as Manitoba and Nunavut, callers are directly connected to registered nurses or nurse practitioners who provide triage and advice services. Callers to Quebec 811 services are provided with 3

options: Info-Santé (option 1), Info-Social (option 2), and the Primary Care Access Point (option 3).^{30,31} Those who select option 1 or option 3 (reserved for people who do not have a family doctor) are connected to a nurse for consultation, while those who select option 2 are connected to a psychosocial worker.³⁰ In other jurisdictions, such as New Brunswick, Newfoundland and Labrador, the Northwest Territories, and Ontario, nonclinical intake agents (e.g., health care navigators, health services specialists, or customer service agents) are initially used to assess individuals, but registered nurses are available depending on the nature of the medical concerns.

Telephone triage programs in 9 jurisdictions provide health information on their respective websites (i.e., Alberta, British Columbia, New Brunswick, Newfoundland and Labrador, Nova Scotia, Ontario, Prince Edward Island, Saskatchewan, and Yukon).^{12,16,18,23,32,33} The amount and types of information available vary among the programs but commonly include symptom checkers, directories of local health care providers and services, and resources for common medical conditions and symptoms.

Consultation Services

Some telephone triage programs directly offer consultation with other health professionals, catering to clients whose inquiries may require specific expertise. These additional health professionals include:

- **Nurse practitioners:** The telephone triage programs in Alberta, Newfoundland and Labrador, and Nunavut offer consultations with nurse practitioners who can provide specialized medical advice and guidance. In Nunavut, nurse practitioner consultations are available only when community health centres have suspended health services (e.g., due to staff shortages). Nurse practitioner virtual care consultations were added to Newfoundland and Labrador's 811 HealthLine in response to the COVID-19 pandemic. According to survey responses, this service will remain available beyond the pandemic.
- **Pharmacists:** Three jurisdictions, namely British Columbia, Ontario, and Yukon, provide access to pharmacists who can offer advice and information for medication-related inquiries. In response to the COVID-19 pandemic, Quebec's Info-Santé service piloted a direct-to-consumer online pharmacy consultation service in 3 of its 811 call centres from September 2020 to April 2021.³⁴ However, we did not identify any information that described the development of the pharmacy consultation service beyond the pilot stage.
- **Dietitians:** Users of the telephone triage programs in Alberta, British Columbia, Manitoba, Newfoundland and Labrador, Ontario, and Yukon can be connected to dietitians. These professionals are available to provide individuals advice on healthy eating and address questions related to nutritional health.
- **Physicians:** Alberta's Health Link 811 and British Columbia's HealthLink BC offer direct consultations with physicians. These services were implemented in response to the COVID-19 pandemic.^{11,35} The survey responses indicated that the virtual physician program in Alberta is a permanent addition to their program and will be continued after the pandemic. Similarly, on April 6, 2020, HealthLink BC introduced a virtual physician service to strengthen the program's capacity, making 40 family and emergency physicians available to evaluate callers via phone or videoconference following triage by a

nurse.^{11,35} An assessment of the virtual physician service revealed that most callers were triaged and advised to seek less urgent care options than those initially suggested by nurses, and that fewer than 3% of patients advised to undertake home treatment were admitted to hospital within the following week.³⁵ Due to the positive results of this assessment, HealthLink BC plans to continue providing this service beyond the COVID-19 pandemic.³⁵

- **Social workers:** Telephone triage programs in Alberta, Quebec, and Saskatchewan offer consultations with social workers who can provide support, guidance, and resources for various psychosocial problems. In Quebec, access to social workers is provided through Info-Social (option 2 of Quebec 811 services).³⁰
- **Other health professionals:** Alberta's Health Link 811 provides consultations with several additional health care providers, including psychologists, mental health therapists, registered psychiatric nurses, and tobacco counsellors. In response to the COVID-19 pandemic, Alberta's Health Link 811 implemented a rehabilitation advice line where clients can receive guidance and support from occupational therapists and physiotherapists, including advice about pediatric developmental milestones.^{32,36} Alberta's Health Link 811 also offers an Indigenous Support Line that connects Indigenous callers to Indigenous listeners who can answer health-related questions and help individuals get culturally appropriate care; it also offers a law enforcement consultation line and a dementia advice line.^{32,37} In British Columbia, callers to HealthLink BC can speak to exercise professionals who can provide information and guidance to support healthier lifestyles.

Mental Health and Addictions Intake and Referral Services and Crisis Support

Telephone triage programs in 7 jurisdictions offer mental health and addictions intake services (i.e., Alberta, New Brunswick, Newfoundland and Labrador, Nova Scotia, Prince Edward Island, Ontario, and Saskatchewan). These services provide an initial assessment to individuals who are dealing with conditions such as depression, anxiety, problem gambling, substance dependence, or other mental health concerns. They serve as an entry point for individuals to access appropriate mental health and addiction treatment resources that are tailored to their needs. Dedicated mental health crisis lines are available through Health Link 811 in Alberta, Newfoundland and Labrador's 811 HealthLine, and Saskatchewan's HealthLine. These crisis lines are designed to provide immediate support and assistance to individuals experiencing severe mental health problems, such as suicidal thoughts, severe anxiety or panic attacks, or other mental health crises.

Services that provide smoking or tobacco cessation support are available from telephone triage programs in Alberta, New Brunswick, Nova Scotia, and Ontario.^{23,32,38} In Nova Scotia, users can register for Tobacco Free Nova Scotia through the 811 service. This program offers access to trained counsellors, a stop smoking motivational text messaging program, online peer-support forums, and various website resources.³⁸ The AlbertaQuits Helpline is available to residents of Alberta through Health Link 811.³² The helpline helps people cut back or quit using tobacco products through phone counselling, text messaging, and online resources.³²

Primary Care Registration Services

Telephone triage programs in 5 jurisdictions (i.e., Alberta, New Brunswick, Nova Scotia, Prince Edward Island, and Ontario) provide services to register individuals for local primary care providers. For example, Nova Scotia's 811 program serves as a resource to register patients on the Need a Family Practice Registry, which assists people who are looking for a family doctor or nurse practitioner.¹⁸ In New Brunswick, Tele-Care 811 manages the Patient Connect NB registry, a resource that matches patients with primary health care providers who are able to take them into their practice.³⁹ Similarly, Ontario's Health811 supports Health Connect Ontario, which helps individuals find a family physician in their area.²⁵

Health Care Appointment Scheduling and Service Registration

Another service offered by many telephone triage programs is the ability to schedule health care appointments or register for various services. Users of telephone triage programs in some jurisdictions (indicated in brackets) can schedule appointments with:

- registered nurses or nurse practitioners (Alberta, Newfoundland and Labrador, Nunavut, and Quebec)
- registered psychiatric nurses and public health nurses (Nunavut)
- physicians (Alberta, Nunavut, and Quebec)
- dieticians (Alberta and Quebec).

In most jurisdictions, appointment scheduling with these care providers is a standard service offering. However, in Nunavut, virtual telehealth appointments with nurse practitioners and physicians are only available when community health centres have suspended services (e.g., due to staff shortages). In Newfoundland and Labrador, nurse practitioner appointments are arranged with staff of the 811 HealthLine team, rather than nurse practitioners from the provincial health authority, and can be conducted over the phone or through videoconferencing.

Furthermore, Quebec 811 provides the opportunity to schedule appointments with a wide range of additional health care providers, including pharmacists, social workers, psychologists, occupational therapists, physiotherapists, and specialist care providers. However, the availability of these health care providers may vary depending on the administrative region where callers reside.

As for service registration, telephone triage programs in Alberta and Quebec allow individuals to register for chronic disease management classes. Moreover, users of Alberta's Health Link 811 can register for health and wellness classes, as well as schedule appointments for routine childhood and adult immunizations, COVID-19 immunizations, and influenza immunizations. Users of Ontario's Health811 are able to access information about colorectal cancer and request fecal immunochemical testing kits through the phone.²³ Additionally, Health811 offers the Refugee HealthLine, where refugees can connect with health care providers who deliver transitional health care and services, including primary care, specialist care, and mental health support.²³

Services Related to COVID-19

During the COVID-19 pandemic, many jurisdictions recognized the potential of telephone triage programs to provide valuable support to health care systems. These programs expanded their services to offer access

to COVID-19 resources, such as information on outbreaks, public health measures, COVID-19 screening, and self-assessment tools.⁴⁰ A few specific developments related to the pandemic include:

- Saskatchewan’s HealthLine extended its services to include COVID-19 symptom and testing information, screening and referrals for COVID-19 testing, contact tracing, case monitoring, and the release of individuals from isolation.⁴¹ Quebec 811 also expanded its services to provide the public with COVID-19 information and assistance in booking appointments for COVID-19 screenings and vaccinations. Similarly, Alberta’s Health Link 811 introduced several new services, including appointment scheduling for COVID-19 molecular testing, outpatient therapeutics, and immunizations; outbreak reporting services; general COVID-19 advice; support for isolation hotels and congregate care settings; as well as contact tracing.
- While many of these services have been scaled back or discontinued as the pandemic situation improves, Alberta’s Health Link 811 plans to permanently retain outbreak reporting and support services, as well as text messaging services (accessible through the 88111 line) for relaying important event information to the public, such as wildfires and influenza outbreaks.
- Prior to the pandemic, neither Nunavut nor the Northwest Territories had telephone triage programs. However, due to the surge in demand for health care services, particularly those that can be provided virtually without in-person contact, both jurisdictions introduced programs. Currently, the 811 Health Advice Line in the Northwest Territories is operating on a temporary basis, pending a determination of core funding options.

Staffing

Telephone triage programs are operated by teams of professionals who provide round-the-clock services throughout the year. Typically, teams are primarily staffed by registered nurses, although other clinical and nonclinical professionals also play a role. The number and types of staff members in these programs are influenced by factors such as the size of the population served, the volume of incoming calls, and the range of services offered.

[Table 3](#) summarizes the information from survey responses and the literature review that provided insights into the number and types of staff involved in the administration of telephone triage programs in Canada, as well as the impact of the COVID-19 pandemic on staffing arrangements.

Table 3: Staffing of Telephone Triage Programs in Canada^a

Jurisdiction(s) (program name)	Number and types of staff	Changes due to the COVID-19 pandemic
Alberta (Health Link 811)	The team includes registered nurses, nurse practitioners, dietitians, social workers, psychologists, physicians, occupational therapists, physiotherapists, tobacco counsellors, and licensed practical nurses. We did not identify any information on the total number of staff.	Health Link 811 adjusted the composition of its team by transitioning from a general triage advice service to specialized teams offering telephone-based support. Additionally, several new types of health care providers were added, including physicians, nurse practitioners, physiotherapists, occupational therapists, and licensed practical nurses. Overall staffing

Jurisdiction(s) (program name)	Number and types of staff	Changes due to the COVID-19 pandemic
		numbers in 2023 remained higher than before the pandemic.
British Columbia and Yukon^b (HealthLink BC)	A publication ¹⁵ from 2012 stated that approximately 145 registered nurses were involved in the administration of telephone triage services. Limited recent information was found on the number and types of staff.	A 2021 study ¹¹ noted the recruitment of 40 family and emergency physicians to support registered nurses in handling the increased call volumes.
Manitoba (Health Links)	According to an article published in 2014, ⁴² there were 58 nurses at that time. Up-to-date information on the exact number and types of staff was not identified.	A news article ⁴⁰ from May 2020 indicated that Health Links quickly ramped up staffing with additional nursing students and registered nurses to increase call capacity and handle the increased demand for services, suggesting the number of nurses likely increased since 2014.
New Brunswick (Tele-Care 811)	During the fiscal year of 2022 to 2023, the team consisted of 62 nurses, 30 customer service agents, 2 leads in information technology and information services, 1 clinical lead, 1 trainer, and 2 administrators.	Tele-Care 811 added remote nursing staff from across the province and repurposed staff from health care sectors that were less active due to pandemic-related changes in the system. The exact number of staff members added was not indicated, but these adjustments were temporary.
Newfoundland and Labrador (811 HealthLine)	During the 2022-2023 fiscal year, the team included registered nurses, nurse practitioners, dietitians, nonclinical intake agents (trained to answer health information queries), information technology personnel, human resources staff, clinical leadership, and management. The total number of staff was not indicated due to proprietary reasons.	Nurse practitioners were permanently added to the telephone triage team, and the number of registered nurses and nonclinical intake agents was increased to meet the rising service demand.
Northwest Territories (811 Health Advice Line)	In the 2022-2023 fiscal year, telephone triage services were provided by a team comprising 17 nurses and 20 health care navigators.	NA (the program did not exist before the pandemic).
Nova Scotia (811 Service) and Prince Edward Island^c (811 Telehealth)	As of September 2020, the 811 program in Nova Scotia had 167 staff. ⁴³ The 811 Service team included both nurses and telehealth associates, but the specific ratio of these professionals and the types of other professionals involved was not reported. Although Nova Scotia and PEI have a joint agreement with their third-party provider, it is unclear if they share a team of care providers or if each program has a distinct team.	Several news articles ⁴³⁻⁴⁶ indicated that there were significant increases in staffing within Nova Scotia's program, with the total staff count reaching as high as 167 in September 2020. According to a news article ⁴³ from 2020, Nova Scotia's 811 Service had 55 staff members before the pandemic. It is unclear if these changes also apply to staff who administer the Prince Edward Island program or if those calls are serviced by a separate team.

Jurisdiction(s) (program name)	Number and types of staff	Changes due to the COVID-19 pandemic
Nunavut (Virtual Triage Program)	In 2023, the program consisted of 4 administrators, 20 community health nurses, and 6 nurse practitioners.	NA (the program did not exist before the pandemic).
Ontario (Health811)	Reports from 2009 suggest that the program employed almost 300 registered nurses at that time. ^{19,25} Up-to-date information on the exact number and types of staff was not identified.	No information was identified.
Quebec (Quebec 811)	In the 2022-2023 fiscal, Info-Santé had a total staff of about 800 full- and part-time nurses, with about 240 nurses available to answer calls at any given time. Survey responses indicated that around 35% of positions within the team were vacant, and at least 500 nurses would be required daily to meet the demand for services.	Info-Santé hired retired nurses and transferred staff from other health care sectors that were experiencing decreased activity levels. The number of additional staff hired was not indicated.
Saskatchewan (HealthLine)	In March 2020, HealthLine had 30 staff, ⁴⁷ but reports ^{48,49} indicate that the number of staff may have since increased. Although nurses play an essential role in the HealthLine team, we did not identify a comprehensive list of the professionals who are involved in delivering HealthLine's services.	No information was identified.

NA = not applicable.

^aAll data reported in this table correspond to information retrieved from publicly available sources or responses to the survey at the time of its administration (June 2023).

^bBritish Columbia and Yukon have an agreement in place to grant residents of Yukon access to HealthLink BC services.

^cNova Scotia and Prince Edward Island share a tripartite agreement with a third-party provider.¹⁸

Service Use

Survey respondents and information retrieved from the literature review provided data and insights into call volumes and the impacts of the COVID-19 pandemic on all telephone triage programs in Canada. These findings are presented in [Table 4](#). Overall, our findings suggest that the COVID-19 pandemic had a considerable impact on nearly all telephone triage programs across Canada, most notably with increases in call volumes.

Table 4: Use of Telephone Triage Programs in Canada^a

Jurisdiction(s) (program name)	Volume of calls or other inquiries ^{b,c}	Changes due to the COVID-19 pandemic
Alberta (Health Link 811)	Approximately 1,750,000 calls were serviced in the 2022–2023 fiscal year.	Prior to the pandemic, about 900,000 calls were serviced per year. ³ At the peak of the pandemic, annual call volumes were about 4,200,000, representing an increase of more than 350% compared to pre-pandemic volumes.

Jurisdiction(s) (program name)	Volume of calls or other inquiries ^{b,c}	Changes due to the COVID-19 pandemic
British Columbia and Yukon^d (HealthLink BC)	A study ¹¹ published in 2021 mentioned that HealthLink BC manages about 450,000 calls annually. More recently, a 2022 study ³⁵ indicated that it serviced 948,793 calls in 2021.	In March 2020, there was an immediate 700% increase in calls to HealthLink BC. ¹¹
Manitoba (Health Links)	According to a news article ⁴⁰ from 2020, Health Links serviced more than 117,000 calls in 2019. Annual call volumes to Manitoba's telephone triage program since the COVID-19 pandemic were not available.	Daily call volumes increased from about 350 before the pandemic to more than 2,000 in May 2020. ⁴⁰
New Brunswick (Tele-Care 811)	Approximately 120,000 calls were serviced in the 2021–2022 fiscal year.	Based on actual call volume data, the volume of calls serviced by the program increased by about 200%.
Newfoundland and Labrador (811 HealthLine)	Approximately 182,000 calls were serviced in the 2022–2023 fiscal year.	Based on actual call volume data, the volume of calls serviced by the program increased by 350%.
Northwest Territories (811 Health Advice Line)	Annual call volumes were not identified, but the program serviced 1,582 calls within a 7-month period between November 1, 2022, and June 6, 2023.	NA (the program did not exist before the pandemic).
Nova Scotia (811 Service) and Prince Edward Island^e (811 Telehealth)	An evaluation report ¹⁸ indicated that 87,595 calls were serviced by the Nova Scotia program in 2016. More recently, a news article ⁵⁰ reported that Nova Scotia's 811 line was averaging about 2,100 serviced calls per day in January 2022. We did not identify information on annual call volumes to Nova Scotia's service for a year more recent than 2016 or any information specific to the call volumes of users in Prince Edward Island, who use the same third-party service provider.	No information was identified.
Nunavut (Virtual Triage Program)	No information was identified.	NA (the program did not exist before the pandemic).
Ontario (Health811)	The Office of the Auditor General of Ontario's annual reports ^{25,51} provided data on the call volumes in the 2008–2009 and 2010–2011 fiscal years, which were 905,000 and 896,000, respectively. Information on more recent annualized call volumes was not found.	No information was identified.

Jurisdiction(s) (program name)	Volume of calls or other inquiries ^{b,c}	Changes due to the COVID-19 pandemic
Quebec (Quebec 811)	In total, 1,172,183 calls were serviced in the 2022–2023 fiscal year.	Based on actual call volume data, the volume of calls received by Info-Santé within Quebec 811 increased by about 4% (in the 2022–2023 fiscal year compared to the 2018–2019 fiscal year).
Saskatchewan (HealthLine)	In total, 79,393 calls were serviced in the 2018–2019 fiscal year. ⁵² More recent annualized numbers were not identified.	Several sources ^{41,49,53-55} indicated that there were large increases in call volumes. A news article ⁵⁵ suggested that average daily call volumes rose from 200 in January 2020 to more than 2,500 in late 2020. According to another report, ⁴¹ daily call volumes for core HealthLine services (i.e., services not specific to COVID-19 information and testing) in the 2021–2022 fiscal year were approximately double that of pre-COVID-19.

NA = not applicable.

^aAll data reported in this table correspond to information retrieved from publicly available sources or responses to the survey at the time of its administration (June 2023).

^bA call is considered serviced if the caller successfully connected with the telephone triage program and a service was provided (e.g., the provision of triage or health information). Serviced calls do not include wrong number calls, hang-ups, or other calls that were not answered by service agents. Some sources of literature were unclear about what was included when reporting the volume of calls managed by telephone triage programs. Instances where literature described the number of calls “managed” were assumed to meet our criteria for a serviced call.

^c“Other inquiries” refers to instances where clients accessed the telephone triage program through alternative methods of intake (e.g., online chat, email, text message).

^dBritish Columbia and Yukon have an agreement in place to grant residents of Yukon with access to HealthLink BC services.

^eNova Scotia and Prince Edward Island share a tripartite agreement with a third-party provider.¹⁸

Objective 2: Equity Considerations

This section describes the findings related to objective 2 on the equity-related considerations relevant to the delivery of telephone triage services in Canada.

Equity in health care is when every person has a fair opportunity to reach their optimal health, regardless of factors such as sex, gender, income, race, geographic location, ability, or other sociodemographic characteristics.⁵⁶ Achieving equity is contingent on reducing and eliminating unnecessary and avoidable disparities in health and its determinants, such as systemic and structural factors that can significantly impact an individual’s health and well-being.⁵⁷⁻⁵⁹

To address existing disparities and barriers, several telephone triage programs support tailored services designed to increase accessibility, including:

- **Interpreter and translation services:** Telephone triage programs in Alberta,³² British Columbia,⁶⁰ Manitoba,²⁰ Newfoundland and Labrador, the Northwest Territories,⁶¹ Nova Scotia,⁶² and Ontario²³ provide users with interpreter and translation services. Often available in more than 100 languages, these services aim to help overcome language barriers, which promotes effective communication and access to health care services. Other programs, such as those in Quebec and New Brunswick, provide services in both French and English.^{63,64}
- **Teletypewriters, video relay services, and text-based communication:** Many telephone triage programs promote the use of teletypewriters or the Canada Video Relay Service to facilitate access to their services.^{32,60} Free and available 24 hours a day, 365 days a year, the Canada Video Relay Service enables people who have deafness, hearing impairment, or speech impairment to make

phone calls using internet-based videoconferencing technology.⁶⁵ Users of the Video Relay Service are connected to interpreters who use sign language to relay conversations between the 2 parties.⁶⁵ Some jurisdictions, such as Alberta, Ontario, and Newfoundland and Labrador, have also implemented text-based methods of accessing telephone triage services (e.g., email, online chat, smartphone app, or text messaging). The availability of these technologies helps to increase the accessibility of telephone triage services, regardless of the user's ability.

Geographic location plays a significant role in health care accessibility, particularly in rural or remote areas where health care resources and providers may be limited.^{66,67} However, a common feature of telephone triage programs across Canada is that they can be accessed by anyone within the jurisdiction, irrespective of their geographic location. While the effectiveness of telephone triage services may depend on the availability of local health care providers for the individual to be referred to, the ability to seek advice from health care professionals in a timely manner, regardless of where 1 is located, might help mitigate some health inequities.^{7,68}

Survey respondents provided insights into what types of people are likely to experience inequitable access to or benefit from telephone triage services. Users such as parents (especially those with young children), individuals without a primary care provider or with limited access to primary care services, individuals living in remote areas, and newcomers to Canada or the jurisdiction were identified as those more likely to access or benefit from telephone triage services. Conversely, survey respondents suggested that certain user groups may be less likely to access or benefit as much from telephone triage services, such as younger individuals with fewer medical concerns, individuals with complex medical conditions who are under specialized care, and those with chronic diseases who are regularly in contact with health care providers.

Objective 3: Costs

A narrative overview of the findings related to objective 3 on the payment models and total costs associated with telephone triage programs in Canada is presented in the following.

Payment Models

For jurisdictions that have opted to outsource the provision of telephone triage services, we sought to explore the payment models used to compensate the third-party providers (i.e., Ontario, New Brunswick, Newfoundland and Labrador, the Northwest Territories, Nova Scotia, and Prince Edward Island). Survey responses described the payment models used in 3 of the 6 jurisdictions that have telephone triage programs operated by third-party providers: New Brunswick, Newfoundland and Labrador, and the Northwest Territories. Additionally, literature sources provided information on the payment model in Ontario. All 4 jurisdictions use a payment model that includes a base cost up to a set number of calls plus an additional cost when calls exceed that threshold. We did not identify any information on the payment models used in Nova Scotia and Prince Edward Island. Descriptions of the payment models used by telephone triage programs are presented in [Table 5](#).

Total Costs

The total costs associated with providing telephone triage services vary among jurisdictions and depend on factors such as the population size, the number and types of professionals involved, and the scope of the services provided. Our information sources yielded estimates of total costs in 6 jurisdictions, ranging from approximately \$600,000 to about \$45 million per year. When data were available, it was evident that the COVID-19 pandemic had an impact on the costs of managing telephone triage programs. No information was found regarding the total costs of providing telephone triage services and the impact of the COVID-19 pandemic in British Columbia, Manitoba, Nunavut, Prince Edward Island, Saskatchewan, and Yukon. Our findings on the total costs of administering telephone triage programs and the impact of the COVID-19 pandemic on costs are provided in [Table 5](#).

Table 5: Costs Associated With Telephone Triage Programs in Canada^a

Jurisdiction(s) (program name)	Population size (in Q1 of 2023) ^b	Payment model ^c	Costs and impact of the COVID-19 pandemic
Alberta (Health Link 811)	4,647,178	NA (insourced)	No information was identified on the total cost of the program. However, survey responses indicated that the COVID-19 pandemic led to increased annual costs, although the magnitude of this increase is unclear.
British Columbia and Yukon ^d (HealthLink BC)	British Columbia = 5,399,118 Yukon = 44,238	NA (insourced)	No information was identified.
Manitoba (Health Links)	1,431,792	NA (insourced)	No information was identified.
New Brunswick (Tele-Care 811)	825,474	For a fixed-base cost each year, the third-party provider will service up to 100,000 calls annually. Additional calls beyond the 100,000 threshold incur additional fees.	According to a news article, ⁶⁹ the estimated cost of the first year of the 10-year contract that initiated in 2018 was \$4.4 million. Although we did not identify information on more recent years, survey responses mentioned that the COVID-19 pandemic caused an estimated 65% increase in costs due to surges in annual call volumes compared to prepandemic levels. Additional payments were made by the province as the call volume exceeded the base cost coverage of 100,000 calls.
Newfoundland and Labrador (811 HealthLine)	531,948	Each year a base cost is paid to the third-party provider to service up to 72,000 calls. ⁷⁰ In years where the number of serviced calls exceeds 72,000, additional payments are made depending on the number of additional calls serviced, using a tiered system.	Survey responses revealed that the base cost for the period between March 1, 2022, and February 28, 2023, was \$5,907,276. Additional charges were also incurred for exceeding the base call total, but the cost of overages was not reported. The value of the 5-year (2022 to 2027) contract between the provincial government and the third-party provider is \$31 million. ⁷⁰ Survey responses indicated that the COVID-19

Jurisdiction(s) (program name)	Population size (in Q1 of 2023) ^b	Payment model ^c	Costs and impact of the COVID-19 pandemic
			pandemic impacted the costs associated with providing services, but the extent of the impact is unclear.
Northwest Territories (811 Health Advice Line)	45,493	There is a fixed rate to service up to 1,200 calls per month. Although the monthly threshold has not been surpassed thus far, survey responses noted that as calls increase, there may be additional charges for exceeding 1,200 calls per month.	Survey responses indicated that the value of the contract for services in the 2022–2023 fiscal year was \$592,000. This amount only covered payments to the third-party provider and did not include the costs associated with Government of Northwest Territories staff involved in procuring and managing the contract and completing the Privacy Impact agreement. As there was no triage program before the pandemic, it is not possible to assess the impact of COVID-19 on the costs of providing telephone triage services.
Nova Scotia (811 Service) and Prince Edward Island^e (811 Telehealth)	NS = 1,037,782 PEI = 173,954	No information was identified.	Several sources ^{52,71} reported that the budget for Nova Scotia's 811 Service for the 2019–2020 fiscal year was \$5.45 million. We did not identify any more recent estimates of annualized costs. In response to the COVID-19 pandemic, Nova Scotia's 811 Service made adjustments such as hiring additional staff, expanding office space, and increasing the number of phone lines. ^{43,45,46} The impact of these adjustments on costs is unclear. We did not identify any information on the cost of the services to Prince Edward Island.
Nunavut (Virtual Triage Program)	40,692	NA (insourced)	No information was identified.
Ontario (Health811)	15,386,407	In the 2008–2009 fiscal year, the contract between the provincial government and the third-party provider included a flat fee for the first 900,000 calls serviced. ¹⁹ Any calls serviced in excess of 900,000 incurred additional costs. ¹⁹ Payments were also made directly to the Ontario Pharmacists' Association for calls to its Medication Information Service, depending on the volume of calls they serviced. ¹⁹ We did not identify any information that described the payment	According to an annual report from The Office of the Auditor General of Ontario, ¹⁹ in 2008–2009 fiscal year, payments to Ontario's third-party provider totalled \$35.1 million, including a flat fee of \$35 million for the first 900,000 registered calls and about \$27 per registered call after that. Additionally, the provincial government paid \$900,000 directly to the Ontario Pharmacists' Association for calls to its Medication Information Service in the same 2008–2009 fiscal year. ¹⁹ In the 2010–2011 fiscal year, payments to the third-party service provider totalled \$39 million. ⁵¹ We did not identify any information that described the costs associated with Ontario's program in recent years (including information on the impact of the COVID-19 pandemic).

Jurisdiction(s) (program name)	Population size (in Q1 of 2023) ^b	Payment model ^c	Costs and impact of the COVID-19 pandemic
		model used by Health811 in more recent years.	
Quebec (Quebec 811)	8,787,554	NA (insourced)	Survey responses indicated that the total budget for the Info-Santé service within Quebec 811 was \$45 million in the 2022–2023 fiscal year; however, the budget would have been higher if the large number of vacant positions (about 35% of all positions) had been filled. The costs associated with the other components of the Quebec 811 program (i.e., Info-Social and Primary Care Access Point) were not identified. Regarding the impact of the COVID-19 pandemic, additional staff were added to the telephone triage service, which resulted in additional supervision and training-related costs. The impact of these modifications on the program's overall cost is unclear.
Saskatchewan (HealthLine)	1,214,618	NA (insourced)	No information was identified.

NA = not applicable; Q1 = first quarter.

^aAll data reported in this table correspond to information retrieved from publicly available sources or responses to the survey at the time of its administration (June 2023).

^bPopulation sizes are from Statistics Canada's quarterly population estimates.⁷² These are provided to contextualize the costs reported for each jurisdiction.

^cWe sought information on the payment models used in jurisdictions that outsource the delivery of telephone triage services to explore the fee structures included in contracts between provincial and territorial governments and third-party providers. When telephone triage programs are administered internally, the costs and payment arrangements may follow unique structures or funding mechanisms that have limited comparability across jurisdictions.

^dBritish Columbia and Yukon have an agreement in place to grant residents of Yukon with access to HealthLink BC services.

^eNova Scotia and Prince Edward Island share a tripartite agreement with a third-party provider.¹⁸

Objective 4: Future Considerations

This section presents the findings relevant to objective 4. It explores potential adaptations and emerging technologies that could impact how telephone (or other forms of intake) triage programs deliver services in the near future. Additionally, it describes some key considerations related to the implementation of these innovations in Canada and internationally. The information summarized here is from peer-reviewed articles, grey literature, policy documents, news articles, websites, and other sources of information that discuss potential adaptations or emerging technologies used for telephone triage and other forms of triage (e.g., primary care and emergency triage). Some survey respondents expressed an interest in emerging technologies that may have applicability in telephone triage programs, such as artificial intelligence and wearable health devices; however, they provided limited insight into the key considerations for implementing these innovations.

Emerging Technologies and Adaptations in Canada and Internationally

Advancements in technology have the potential to impact the delivery of services provided by telephone triage programs; for example, by introducing new tools to provide users with health information and advice and to connect with health care providers. Three emerging technologies that could be used in remote triage

services are videoconferencing technology, artificial intelligence, and wearable health devices for remote assessment and monitoring.

Videoconferencing

Videoconferencing is a technology-enabled communication method that allows 2 or more participants to see and hear each other in real-time over the internet.^{73,74} Videoconferencing technology has been incorporated into a variety of health care services across Canada to facilitate remote consultations, virtual appointments, and telemedicine initiatives.^{75,76} However, apart from Alberta's Health Link 811, provincial and territorial telephone triage programs have not yet adopted videoconferencing as a form of intake.⁷

Based on the findings of international studies that have examined the effects of incorporating videoconferencing software in various triage processes,⁷⁷⁻⁸¹ the implementation of videoconferencing technology into telephone triage programs could enable visual examination, facilitate nonverbal communication, and foster greater patient engagement between users and health care professionals, allowing for more comprehensive and accurate assessments. In some situations, videoconferencing technology has the potential to improve the efficiency of services by reducing the time required for patient assessments.⁷⁷ For example, nurses conducting virtual assessments of patients' health status and symptoms may be able to quickly identify signs of distress or emergent conditions through visual cues that would not be available in audio-only conversations.⁷⁹ In 2020, the Yorkshire Ambulance Service in the UK piloted the use of videoconference technology for "hear and treat" consultations, which is similar to the health information and advice services offered through telephone triage programs in Canada.⁸¹ Their 2021 study⁸¹ concluded that video triage for low-acuity calls had high levels of patient satisfaction compared to standard telephone triage. Furthermore, clinical staff reported that video triage improved clinical assessment and decision-making compared to telephone alone.⁸¹

While videoconferencing technology has the potential to improve telephone triage programs, its implementation should be accompanied by consideration for technology infrastructures, broadband availability, and the costs associated with videoconference capable devices. These factors can influence the ability of service users to connect using videoconferencing technology, which may potentially exacerbate existing health care inequities.

Artificial Intelligence

Artificial intelligence is a branch of computer science, statistics, and engineering that uses algorithms or models to perform tasks and exhibit behaviours that would usually require human intelligence, such as learning, making decisions, and making predictions.^{82,83} Artificial intelligence-based applications, such as chatbots, symptom checkers, virtual assistants, and clinical decision support tools, have significant potential to increase the efficiency of telephone triage programs and improve patient experiences and outcomes.⁸⁴⁻⁸⁶ Currently, the number of calls that can be serviced by a telephone triage program is highly dependent on the availability of staff at any given time. Fluctuations in call volumes can lead to variability in the time it takes for callers to be connected with health care professionals, potentially resulting in adverse patient outcomes if triage advice is delayed. Artificial intelligence-based software has the capacity to handle many calls simultaneously, which reduces call wait times, relieves human resource pressures, and improves overall

service accessibility.^{87,88} Furthermore, artificial intelligence software can analyze vast amounts of data, including symptoms, medical history, and patient risk factors, in a short amount of time, which enables the timely provision of highly individualized advice and recommendations.

Artificial intelligence–based triage tools have been tested, piloted, or implemented in numerous health care settings, including for:

- telephone and digital triage^{85,89}
- primary care triage⁹⁰
- emergency department triage⁹¹⁻⁹⁵
- screening patients with suspected COVID-19⁹⁶⁻⁹⁸
- tele-dermatology case prioritization.⁹⁹

Although artificial intelligence–based technologies have significant potential for enhancing triage processes, several key considerations need to be examined before these applications are adopted into routine clinical practice. These considerations include the accuracy and reliability of triage recommendations, the need for human touch and patient-clinician relationships in medical interactions, and ethical considerations.^{100,101}

Accuracy and Reliability

Several studies have examined the accuracy of artificial intelligence–based applications for medical triage. One study conducted in the US compared triage decisions for 50 clinical vignettes between 7 emergency medicine providers (i.e., emergency physicians and emergency physician assistants), 5 internal medicine physicians, and MayaMD, an artificial intelligence–based application that uses Bayesian statistics and pattern recognition to provide users who have health concerns with recommendations on where they should seek care.¹⁰² The authors of this study concluded that the artificial intelligence–based application performed equally or better than individual human clinicians.¹⁰² Similarly, Baker and colleagues performed a prospective validation study of the accuracy and safety of triage recommendations provided by an artificial intelligence system (i.e., The Babylon Triage and Diagnostic System) versus human physicians across realistic clinical vignettes.¹⁰³ The findings indicated that the artificial intelligence system was able to provide patients with triage and diagnostic information that had clinical accuracy and safety comparable to that of human physicians.¹⁰³ However, findings from 2 systematic reviews^{104,105} have suggested there is limited evidence on the efficacy and diagnostic performance of patient-operated triage tools with artificial intelligence components and have described challenges related to their assessment and implementation. Another study⁹⁰ found limited interrater reliability (as measured by Cohen kappa) between an artificial intelligence–based triage software and human physicians in determining which patients needed urgent physical examination based on information collected by automated patient interviewing software.

Findings from studies examining artificial intelligence–based triage systems have suggested that bias in decision-making algorithms may cause models to perform differently across subpopulations.¹⁰⁶ For example, people with various demographic characteristics, such as race, ethnicity, or gender, may be more likely to be overtriaged or undertriaged, leading to adverse health outcomes and inefficient use of health care resources.^{106,107} To increase accuracy and reliability and to minimize bias, artificial intelligence–based

technologies applied by telephone triage programs would need to be trained using data that accurately represent the clinical scenarios to which they are being applied.¹⁰⁸ This training should encompass a broad range of clinical conditions and diseases, diverse populations, and various settings as the available health care resources may vary (e.g., rural, remote, and urban settings).^{109,110} Once trained, robust validation of the technologies would be essential to ensure that the advice and recommendations are accurate and comparable to those provided by health care professionals.^{100,111}

Patient–Clinician Relationships

Like many emerging technologies in the digital age of medicine, care provided exclusively through artificial intelligence–based triage tools may lack interpersonal interactions that build patient-clinician relationships and promote shared decision-making, mutual trust, respect, genuineness, acceptance, and warmth.^{112–114}

The authors of a 2014 systematic review¹¹³ concluded that the patient-clinician relationship has a small, but statistically significant effect on health care outcomes. While not specific to remote triage decisions, these findings highlight the potential importance of striking a balance between the use of AI and maintaining the human touch in patient interactions when incorporating AI-based technologies into telephone triage programs or other clinical scenarios.^{113,115} According to the included literature, empathy, compassion, understanding, and other interpersonal interactions established through patient-clinician relationships are vital aspects of effective health care communication and delivery.^{116,117}

Ethical Considerations

Finally, telephone triage programs that implement AI-based technologies may wish to reflect on the many ethical considerations that arise, such as transparency and privacy. While many AI algorithms are seen as “black boxes” that are often not fully understood or explained, scientific literature has emphasized the importance of transparency in how AI technologies are designed, piloted, and trained, as well as how they will be monitored after deployment, especially when the functionality of AI technologies can directly impact patient outcomes.^{118,119} Specifically, transparency in the processes used in the development and maintenance of AI can help to ensure the technologies are safe, accurate, and respect fundamental rights.¹¹⁹

The Health Law Institute, Faculty of Law, University of Alberta, received funding from the Office of the Privacy Commissioner of Canada to conduct research into the Canadian legal and policy framework with a focus on privacy concerns related to the use of artificial intelligence for in health care.¹²⁰ In their report,¹²⁰ the authors presented key findings and recommendations related to the implementation of commercial health care artificial intelligence, including the following:

- The scope of data made accessible to private artificial intelligence companies should be based on respect for patients’ informed consent and should be proportional to the potential benefits the artificial intelligence technology can provide.
- Patients have a right of withdrawal from participation in health care artificial intelligence, and companies need to implement mechanisms for data removal in cases where patients withdraw consent.

- Where possible, patient data must be protected using highly advanced forms of data security and anonymization. Data security measures should minimize risk during data transfer, storage, and deletion processes.¹²⁰

Other sources of information have emphasized the importance of patient agency and consent, maintaining the confidentiality of medical records, and complying with the laws and regulations relevant to the privacy of personal information (e.g., the *Privacy Act*, the *Personal Information Protection and Electronic Documents Act*, and the *Freedom of Information and Protection of Privacy Act*) when artificial intelligence technologies are used in health care settings.¹²¹⁻¹²³

Wearable Health Devices

Wearable health devices, also known as wearable health technology or wearables, are electronic devices that can record, analyze, and transmit personal health-related data. Designed to be worn on the body, these devices include sensors that are capable of measuring various physiologic parameters or activities, such as blood pressure, heart rate, oxygen saturation, activity level, body temperature, breathing rate, and blood glucose level.^{124,125} Common types of wearable health devices in Canada and internationally include fitness trackers, smart watches, heart rate monitors, continuous glucose monitors, sleep trackers, and posture correctors.¹²⁵⁻¹²⁷

The data recorded by wearable health devices could provide valuable information to health care professionals during virtual assessments of patients' health status and symptoms, which could enable better informed advice and referrals to appropriate health care services.^{128,129}

Wearable health devices used for remote patient assessment and monitoring have not been integrated into provincial or territorial telephone triage programs in Canada, but they have shown promising results for assessment, triage, and monitoring of patients in emergency departments internationally.¹²⁸⁻¹³⁰ The potential benefit of wearable health devices when used by telephone triage programs to provide clinicians with patients' real-time health data is likely highest in high-risk populations, such as people with cardiovascular diseases, brain and spinal cord injuries, respiratory diseases, cancer, or mental health conditions, as well as for those who are pregnant.^{125,131-133}

However, there are several key considerations and issues that must be addressed to ensure the appropriateness of integrating wearable health devices for remote patient monitoring into telephone triage programs. It is crucial that the accuracy and reliability of specific wearable health devices undergo robust validation before being incorporated into routine practice.¹³³ To provide a reliable assessment of a patient's status that contributes effectively to triage decisions, these devices need to accurately record physiologic parameters with minimal noise and missing data.¹²⁸ Similar to artificial intelligence-based triage software, patient confidentiality and data security are important considerations when collecting health information from wearable health devices, and the data should only be used for purposes relevant to the patient's care. Additionally, user acceptability and the interoperability of these devices should be considered if they are integrated into telephone triage programs.¹³³

Limitations

The findings of this Environmental Scan are limited to publicly available sources and survey responses from participating jurisdictions. Although we distributed survey invitations to contacts in each province and territory, we had no survey participants from British Columbia, Manitoba, Nova Scotia, Ontario, Prince Edward Island, Saskatchewan, and Yukon. The information summarized on the telephone triage programs operating in these jurisdictions is from websites, papers, program evaluations or audits, news articles, or other sources of information that may not reflect the current situation.

This report is not a systematic review and does not involve an evaluation of the clinical or cost-effectiveness of telephone triage programs. Additionally, we did not perform a critical appraisal of the studies and other sources of information included in this Environmental Scan.

The information from the survey results is based on the experiences, expertise, and perspectives of the respondents. Some of the survey respondents may not have access to or be able to share all the information sought out in the survey; therefore, there are some gaps in the summarized information. Furthermore, the information collected at the time of this Environmental Scan may not be representative of the future landscape of telephone triage programs, particularly as many programs have rapidly adapted and reorganized their structure and service offerings in response to the COVID-19 pandemic and the growing demand for convenient virtual care options. These changes to the programs might be temporary or permanent.

The scope of this report is specific to telephone triage programs in Canada. It is unclear how the characteristics, features, and associated costs of telephone triage programs in Canada compare to those operating in other countries, such as the National Health Service 111 in England and Healthdirect in Australia.

Due to time limitations for this Environmental Scan, our findings do not offer exhaustive descriptions of all telephone triage programs in Canada. With a more extended timeline, we could have used additional methods to identify information sources, including alternative literature search strategies and more extensive efforts to recruit survey participants from each jurisdiction. As a result, this report might be missing some relevant information that could be available elsewhere.

For programs that offer multiple forms of intake, our survey did not investigate whether there was variability in the types of services available depending on how users accessed the telephone triage program. Therefore, it is unclear if people connecting to telephone triage programs using online chat, email, or smartphone apps have access to the same services as those connecting using telephone lines.

Conclusions and Implications for Decision-Making or Policy-Making

This Environmental Scan provides an overview of telephone triage programs in Canada, including descriptions of their key characteristics, associated costs, and the impact of the COVID-19 pandemic. Furthermore, this report provides insights into future considerations and equity-related aspects that are relevant to these programs. The information gathered for this report was obtained through a survey and a

review of both published and grey literature. We reached out to key jurisdictional contacts involved in the administration of telephone triage programs across Canada, and several of them completed our survey and shared their insights and experiences.

Our findings indicate that all 13 provinces and territories in Canada currently have telephone triage programs in place. While many of these programs have been operational for decades, Nunavut and the Northwest Territories implemented their programs within the past 2 years.^{12,13,134} Programs in Alberta, British Columbia, Nunavut, Manitoba, Quebec, Saskatchewan, and Yukon are administered directly by the provincial or territorial government (i.e., insourced), while those in New Brunswick, Newfoundland and Labrador, the Northwest Territories, Nova Scotia, Ontario, and Prince Edward Island have outsourced the delivery of their telephone triage services to private companies.

Although all programs offer access to nonurgent health information, advice, and referrals to appropriate health care services, some programs have expanded their capabilities to provide a wide range of additional services. These services include consultations with specialized health care providers like pharmacists and dietitians, mental health and addictions services, and assistance with appointment scheduling or service registration. Telephone triage services are primarily accessed using telephones across all jurisdictions, but some have introduced additional communication channels such as online chat services, smartphone apps, email, and text messaging. Programs operating across the 13 provinces and territories in Canada have variability in their number and types of staff, their service use, and the costs associated with the provision of services. Factors such as the availability of resources within a jurisdiction, the structure of health care systems, and local contextual considerations potentially influence the observed variability.

Telephone triage programs play a critical role in modern health care systems in Canada by providing timely medical advice and guidance to individuals seeking health care assistance. However, the success of these programs relies on their capacity to promptly assess and answer callers' medical concerns.^{135,136} Insufficient staffing levels or surges in call volumes can result in longer wait times for callers, potentially leading to frustration and delays in receiving necessary medical attention.¹³⁵⁻¹³⁷

Furthermore, the availability and accessibility of appropriate care destinations is crucial to ensuring the effectiveness of telephone triage programs. Callers with low-acuity or nonemergent conditions may be advised to schedule appointments with primary care providers or attend urgent care clinics. However, if these resources are not available or easily accessible, individuals may seek care in emergency departments or even forego seeking care altogether.²⁴ These gaps in the continuum of care can lead to delayed or inadequate care for individuals, potentially resulting in complications and poorer patient outcomes. Additionally, the unavailability of appropriate care destinations can contribute to emergency department overcrowding.^{138,139} The increased use of emergency departments for nonemergent conditions can strain capacity, which results in longer wait times, increased health care costs, and the potential misallocation of resources.^{139,140} By implementing strategies to manage call volumes and ensuring seamless care coordination across different care destinations, health systems can enhance the effectiveness of telephone triage programs.

The survey responses revealed a desire to establish an official pan-Canadian working group, knowledgebase, or other information-sharing strategies among administrators of telephone triage programs. These initiatives could serve as platforms for administrators to regularly exchange information on the evolution of the types of services offered by their programs, financial considerations, and the emerging technologies being developed and deployed in their program and to share insights and experiences regarding the successes and challenges within their respective jurisdictions. By facilitating collaboration and knowledge sharing, these initiatives have the potential to foster the development of best practices and empower administrators to engage in meaningful discussions, learn from each other's experiences, and continuously improve their telephone triage programs, ultimately benefiting both administrators and the users of these services.

The findings from this Environmental Scan can help guide decision-makers across Canada as they evaluate the feasibility of modifying or adapting their telephone triage programs. They provide program administrators an opportunity to compare telephone triage programs within their jurisdiction with those in other parts of the country. The information provided in this report is based on publicly available information (some of which may be outdated) and responses to a survey collected in June 2023 and only provides a snapshot of an evolving landscape.

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Appendix 1: Methods

Note that this appendix has not been copy-edited.

Literature Review

Literature Search Strategy

An information specialist conducted a literature search on key resources including MEDLINE, the Cumulative Index to Nursing and Allied Health Literature (CINAHL), and the websites of Canadian health technology agencies, as well as a focused internet search. The search approach was customized to retrieve a limited set of results, balancing comprehensiveness with relevancy. The search strategy comprised both controlled vocabulary, such as the National Library of Medicine’s MeSH (Medical Subject Headings), and keywords. Search concepts were developed based on the elements of the research questions and selection criteria. The main search concept was telephone triage. [CADTH-developed search filters](#) were applied to limit retrieval to Canadian studies. The search was completed on March 30, 2023, and was limited to English- or French-language documents but was not limited by publication date. Regular alerts updated the MEDLINE search until the publication of the final report.

An additional focused search on future trends in tele-triage was also conducted in MEDLINE, the Cochrane Database of Systematic Reviews, the International HTA Database, the websites of Canadian and major international health technology agencies, as well as a focused internet search. The search concepts were telephone triage; future developments or trends (including artificial intelligence [AI] and/or fitness trackers); and organizational models. This search was completed on April 6, 2023 and limited to English-language documents published since January 1, 2018.

Screening and Study Selection

One reviewer screened and selected from all sources of information retrieved in the literature searches. Literature that provided information related to the research questions was screened for selection, and those that met the inclusion criteria ([Table 6](#)) were summarized within the report.

All publication types were eligible if they were published in English or French.

Table 6: Components for Literature Screening and Information Gathering

Criteria	Description
Population	Anyone seeking out health care through a telephone triage program in Canada
Intervention	Telephone triage programs ^a
Settings	Any setting in Canada
Types of Information	Characteristics, services, and staffing of current programs and future considerations, including: <ul style="list-style-type: none"> • The methods that can be used to access triage programs (e.g., telephone, online live chat, email, videoconference) • Information on how telephone triage programs are administered (i.e., directly by the jurisdiction or

Criteria	Description
	<p>through a third-party provider). In scenarios where telephone triage programs are provided in part by the jurisdiction and in part by a third-party provider, information on what services are provided by whom</p> <ul style="list-style-type: none"> • The types of health care services that can be accessed directly through telephone triage programs (e.g., referral to emergency department or other care service, mental health and addictions crisis services, appointment scheduling, consultation with a nurse, dietician, pharmacist, or other professional) • Type and number of staff involved in administering programs • Volume of calls serviced (e.g., per day, month, or year) • Information on how the COVID-19 pandemic impacted the types of services offered, the types of staff or the total number of staff, and the volume of calls serviced annually by telephone triage programs • Descriptions of potential adaptations or emerging technologies that may change how services are provided through telephone (or other forms of intake) triage programs in the near future. Additionally, insights into considerations related to the potential implementation of these innovations <p>Equity-related considerations, including:</p> <ul style="list-style-type: none"> • Information on the types of users who may experience inequitable access or benefit from telephone triage services, and why • Program features, services, or adaptations that aim to reduce care inequities related to telephone triage programs <p>Costs associated with the provision of programs and cost details, including:</p> <ul style="list-style-type: none"> • Descriptions of payment models used by jurisdictions • Cost of administering programs, including breakdowns of how funds are allocated • Information on how the COVID-19 pandemic impacted the costs associated with providing telephone triage services.

“Telephone triage programs” refers to centralized, province- or territory-wide initiatives that provide referral services and health information and advice to residents of the jurisdiction (e.g., HealthLink BC, Health811, Health Links, 811 HealthLine, Quebec 811).

Data Extraction

One reviewer performed data extraction directly into tables created in Microsoft Word. The information extracted included the bibliographic details (e.g., authors, year of publication, and country or Canadian jurisdiction of origin) of included papers, websites, or other sources of information and a description of the information or findings that were relevant for addressing the research questions.

Survey

Due to limited availability of recent information found in published literature, we conducted a survey to complement the findings of our literature review. A 30-question survey was developed and revised following internal review and pilot testing by the project team members. The survey included open-ended and close-ended questions designed to capture the information outlined in [Table 6](#). Survey questions are presented in [Appendix 2](#). To accommodate participants, we prepared survey versions in both English and French.

We identified key jurisdictional contacts involved in the administration of telephone triage programs across Canada through professional networks, targeted searches on professional networking or government websites, and referrals from other survey participants. We aimed to include 1 survey respondent from each

of the 13 Canadian provinces and territories, and as such we sent survey invitations to potential participants from all Canadian jurisdictions.

To maximize our reach and engage individuals with in-depth knowledge of telephone triage programs, we used a purposive and snowball sampling approach to recruit participants. The survey invitation included a detailed description of the survey contents and sought confirmation if the contacted person was the most suitable respondent within their jurisdiction. In cases where they were not the most appropriate respondent, the invitation encouraged the contact to suggest an alternative individual within their jurisdiction who would be better suited to respond. Once contacts agreed to participate, we invited them to nominate individuals from other jurisdictions who might also be available to respond to the survey.

The English version of the survey was distributed using SurveyMonkey on June 2, 2023, to key jurisdictional contacts involved in the administration of telephone triage programs across Canada. Initially, the survey response deadline was set for June 16, but it was later extended to June 23 to allow additional respondents to complete the survey. The French version of the survey was distributed to those who requested it on June 7, and responses were collected until June 21.

One email reminder was sent out to non-responders 1 week after the survey was distributed. A follow-up email was sent after the initial 2-week survey response deadline to inform participants the deadline had been extended by 5 business days. All respondents provided explicit permission to use the information that they provided in this report. Some respondents identified being involved in the telephone triage program in their jurisdiction as a conflict of interest, which was deemed unavoidable for the survey that aimed to collect information from program experts. We provided survey respondents an opportunity to review and submit feedback on a draft of this Environmental Scan and subsequently incorporated their comments and suggestions into the final report.

Synthesis Approach

One reviewer analyzed the data collected from each of the data sources (i.e., literature search, survey). A descriptive analysis was conducted to address the research questions which in turn informed the 4 objectives of this report. This report incorporated findings from both the literature review and the survey to comprehensively summarize findings for all jurisdictions where possible. Any information coming solely from the literature review or survey responses was identified as such. Both full and partial survey responses were considered in the analysis.

Based on the descriptive analysis, the reviewer produced a narrative summary that reflected the included data and was organized by objective. Objective 1 (i.e., the characteristics of telephone triage programs and the impacts of the COVID-19 pandemic) was addressed by summarizing information answering research questions 1 and 4. Objective 2 (i.e., equity considerations) was addressed by summarizing information answering research question 2. Objective 3 (i.e., payment models, total costs, and impacts of the COVID-19 pandemic on cost-related aspects) was addressed by answering research questions 3 and 4. Objective 4

(i.e., insights into potential future innovations) was addressed by answering research question 5. Findings related to objectives 1 and 3 were reported by jurisdiction.

Appendix 2: Survey Questions

Note that this appendix has not been copy-edited.

CADTH Survey on Telephone Triage Services in Canada

Section 1: Characteristics, Services, and Staffing of Telephone Triage Programs

Question 1. Which telephone triage program (e.g., provincial or territorial 811 services) are you providing information on? Please include the name of the program and the province or territory.

Question 2. What forms of intake, other than telephone, are currently used to access the telephone triage program in your jurisdiction? Select all those that apply.

- Online live chat
- Email
- App (e.g., smartphone, tablet, or computer)
- Text message (i.e., Short Message Service)
- Videoconference technology (e.g., Zoom, Microsoft Teams)
- Other (please specify)
- None (i.e., telephone only)

Question 3. What services are currently provided through the telephone triage program in your jurisdiction? Select all those that apply.

- Triage (i.e., referral to appropriate levels of care)
- Health information and advice
- Consultation with a health care provider. Select all those that apply.
- Mental health and addictions intake and referral services (e.g., gambling support)
- Mental health crisis line
- Registration for primary care providers (e.g., referral to a family health care provider who may be accepting new patients)
- Smoking or tobacco cessation support
- Appointment scheduling or service registration. Select all those that apply.
- Other (please specify)

Question 4. Expanding on your response to the previous question, which types of health care providers provide consultations through the telephone triage program in your jurisdiction? Select all that apply.

- Registered nurse
- Nurse practitioner

- Dietician
- Pharmacist
- Social worker
- Psychologist
- Physician
- Physician assistant
- Occupational therapist
- Physiotherapist
- Other (please specify)

Question 5. Expanding on your response to a previous question, appointment scheduling or service registration is available for which types of health care providers through the telephone triage system in your jurisdiction? Select all those that apply.

- Registered nurse
- Nurse practitioner
- Dietician
- Pharmacist
- Social worker
- Psychologist
- Physician
- Physician assistant
- Occupational therapist
- Physiotherapist
- Specialist care provider
- Health and wellness classes
- Chronic disease management classes
- Other (please specify)

Question 6. Did the COVID-19 pandemic impact the types of services provided through the telephone triage program in your jurisdiction (e.g., 2020 to present versus 2019 and earlier)?

- Yes
- No
- Unsure (i.e., there are no data available to determine an answer)

Question 7. If you responded “Yes” to the previous question, what modifications were made to the types of services provided through the telephone triage program in your jurisdiction (e.g., were additional types of services added to meet increased demand)?

Question 8. Were the service modifications identified in the previous question temporary or permanent? Specify which modifications fit within each category below, where applicable.

Question 9. Within the last fiscal year (or the most recent year with available data), what are the number and types of staff involved in the administration^a of the telephone triage program in your jurisdiction (e.g., registered nurses, nonclinical staff)? Please indicate the type of staff, the total number per staff category, and the year.

^aStaff involved in the administration of the telephone triage program include staff who conduct patient triage or referral, staff who provide health information and advice, staff involved in services offered directly through the program (e.g., dietitians who are available for direct consultation), and any support staff (e.g., nonclinical intake agents, IT staff, human resources, clinical leadership, management).

Question 10. Did the COVID-19 pandemic impact the types of staff or the total number of staff involved in the administration of the telephone triage program in your jurisdiction (e.g., 2020 to present versus 2019 and earlier)?

- Yes
- No
- Unsure (i.e., there are no data available to determine an answer)

Question 11. If you responded “Yes” to the previous question, what modifications were made to the types of staff or the total number of staff involved in the administration of the telephone triage program in your jurisdiction?

Question 12. Were the modifications to staffing temporary or permanent? Please specify which modifications fit within each category below, where applicable.

Question 13. Within the last fiscal year (or the most recent year with available data), what was the volume of calls serviced^b (and other inquiries^c serviced) by the telephone triage program in your jurisdiction? Please indicate the total number of calls and the year.

^bFor the purposes of this survey, a call is considered serviced if the caller successfully connected with the telephone triage program and a service was provided (e.g., the provision of triage or health information). Serviced calls do not include wrong number calls, hang-ups, or other calls that were not answered by service agents.

^c“Other inquiries” refers to instances where clients accessed the telephone triage program through alternative methods of intake (e.g., online chat, email, text message).

Question 14. Did the COVID-19 pandemic impact the volume of calls (and other inquiries) serviced by the telephone triage program in your jurisdiction (e.g., 2020 to present versus 2019 and earlier)?

- Yes
- No
- Unsure (i.e., there are no data available to determine an answer)

Question 15. If you responded “Yes” to the previous question, by what percentage did the volume of calls (and other inquiries) increase or decrease, and when did this increase or decrease take place? If no specific data are available, please offer an estimated increase or decrease, if possible (e.g., “Annual call volumes increased by about 27%”).

Question 16. If you provided a percentage change in your response to the previous question, was the value provided an estimate or an actual value? What data were used to make this calculation?

Section 2: Administration and Costs Associated With Telephone Triage Programs

Question 17. Are the telephone triage services in your jurisdiction administered directly by the province or territory (i.e., in-house), or are they contracted out to a third-party provider?

- In-house
- Third-party provider
- Both

Question 18. What is the name of the third-party service provider used by your jurisdiction?

Question 19. If the telephone triage services are administered in part by the jurisdiction and in part by a third-party provider, what services are provided by whom?

Question 20. If the telephone triage program in your jurisdiction is administered by a third-party provider, what is your payment model (e.g., cost per call serviced, fixed annual rate that does not fluctuate based on the number of calls serviced)? Please describe what is included in the service agreement (e.g., number of calls, services provided) and if there are any additional charges to the jurisdiction based on utilization or other considerations.

Question 21. What was the total cost of the telephone triage program in your jurisdiction for the previous fiscal year (or the most recent year with available data)? Please indicate the total costs (including, for example, overhead, infrastructure and technology costs, human resources expenditures, and staff education and training expenses, or the value of contracts between the jurisdiction and third-party providers) and the year.

Question 22. If the telephone triage program in your jurisdiction offers multiple services, such as consultation with a pharmacist or direct access to mental health and addictions services, what is the actual or estimated cost of each of these service streams? If possible, please provide the absolute cost and the proportion of

overall costs attributable to each service stream (e.g., “Consultation with a pharmacist costs an estimated \$800,000 per year [6% of the overall cost of the program]”).

Question 23. Did the COVID-19 pandemic impact the costs associated with providing telephone triage services in your jurisdiction (e.g., 2020 to present versus 2019 and earlier)?

- Yes
- No
- Unsure (i.e., there are no data available to determine an answer)

Question 24. If you responded “Yes” to the previous question, by what percentage did the costs associated with providing telephone triage services in your jurisdiction increase or decrease, and when did this increase or decrease take place? If no specific data are available, please offer an estimated increase or decrease (e.g., “The annual costs of providing services increased by about 12%”).

Question 25. If you provided a percentage change in your response to the previous question, was the value provided an estimate or an actual value? What data were used to make this calculation?

Section 3: Equity Considerations

Question 26. Are there specific types of users that are more likely to access telephone triage services or that benefit the most from telephone triage services? If yes, please indicate what type(s) of user(s) access services more frequently or benefit more from them, and why.

- No
- Yes (please specify)

Question 27. Are there specific types of users that are less likely to access telephone triage services or that benefit less from telephone triage services? If yes, please indicate what type(s) of user(s) access services less frequently or benefit less from them, and why.

- No
- Yes (please specify)

Question 28. If you identified specific types of users in the previous question that are less likely to access telephone triage services or who benefit less from them, does your jurisdiction offer or plan to offer dedicated services to help these users access telephone triage services? If yes, what services are currently being provided or will be provided in the future, and for whom?

- No
- Yes (please specify)

Section 4: Future Directions

Question 29. What potential adaptations or emerging technologies (e.g., artificial intelligence (AI)-based triage software, wearable technologies for at-risk populations) may change how services are provided

through telephone triage programs in the near future, and what are the key considerations related to the implementation of these innovations (e.g., accuracy of AI-based software across a broad range of conditions, infrastructure to monitor health data)?

Section 5: Additional Feedback

Question 30. Is there any additional information you would like to share about telephone triage services to help us better understand the current and future Canadian landscape of these services?

Appendix 3: Information on Survey Respondents

Note that this appendix has not been copy-edited.

Table 7: Information on Survey Respondents

Jurisdiction	Organization represented by the survey respondent
Alberta	Alberta Health Services
New Brunswick	Department of Health, Government of New Brunswick
Newfoundland and Labrador	Department Health and Community Services, Government of Newfoundland and Labrador
Northwest Territories	Office of the Chief Public Health Officer, Government of Northwest Territories
Nunavut	Government of Nunavut
Quebec	Ministry of Health and Social Service (Ministère de la Santé et des Services sociaux)

Appendix 4: Detailed Descriptions

Table 8: Characteristics, Staffing, and Use of Telephone Triage Programs in Canada^a

Jurisdiction(s) (program name)	Forms of intake	Mode of administration	Third-party provider	Number and types of staffing	Volume of calls or other inquiries ^{b,c}
Alberta (Health Link 811)	<ul style="list-style-type: none"> • Telephone • Email • Text message • Videoconference technology • website (health information only)³² 	Insourced	NA	We did not identify any information on the total number of staff who are part of the team at Health Link 811, but the team includes registered nurses, nurse practitioners, dietitians, social workers, psychologists, physicians, occupational therapists, physiotherapists, tobacco counsellors, and licensed practical nurses.	1,750,000 calls were serviced in fiscal year 2022 to 2023. Prior to the COVID-19 pandemic, approximately 900,000 calls were serviced per year. ³
British Columbia and Yukon^d (HealthLink BC)	<ul style="list-style-type: none"> • Telephone¹⁴¹ • website and app (health information only)^{16,142} 	Insourced ^{6,8}	NA	A 2012 study ¹⁵ reported that there were approximately 145 registered nurses at the time.	In 2020, the HealthLink BC serviced about 450,000 calls annually. ¹¹ The number of calls received in 2021 was reported as 948,793. ³⁵
Manitoba (Health Links)	<ul style="list-style-type: none"> • Telephone²⁰ 	Insourced ^{6,8}	NA	According to an article published in 2014, there were 58 nurses who worked at Health Links. ⁴² More recent information is not available.	More than 117,000 calls were serviced in 2019. ⁴⁰ In early 2020, the COVID-19 pandemic increased average daily call volumes from 350 to more than 2,000. ⁴⁰
New Brunswick (Tele-Care 811)	<ul style="list-style-type: none"> • Telephone • website (health information only)³³ 	Outsourced	Medavie Health Services ²⁶	Based on our 2023 survey results, 62 nurses, 30 customer service agents, 2 information technology and information services leads, 1 clinical lead, 1 trainer, and 2 administrators.	120,000 calls were serviced in fiscal year 2021 to 2022.

Jurisdiction(s) (program name)	Forms of intake	Mode of administration	Third-party provider	Number and types of staffing	Volume of calls or other inquiries ^{b,c}
Newfoundland and Labrador (811 HealthLine)	<ul style="list-style-type: none"> • Telephone • Text message • App (e.g., smartphone, tablet, or computer)⁷⁰ 	Outsourced	Fonemed	Based on our 2023 survey results, the number of staff working for the program is propriety but includes registered nurses, nurse practitioners, dieticians, non-clinical intake agents (who are trained to answer health information questions), information technology staff, human resources staff, clinical leadership, and management.	182,000 calls were serviced in fiscal year 2022 to 2023.
Northwest Territories (811 Health Advice Line)	<ul style="list-style-type: none"> • Telephone 	Outsourced	Fonemed	Based on our 2023 survey results, 17 nurses and 20 health care navigators.	Annual call volumes are not available, but from November 1, 2022 to June 6, 2023 (about 7 months) the program serviced 1,582 calls.
Nova Scotia (811 Service) and PEI^e (811 Telehealth)	<ul style="list-style-type: none"> • Telephone¹⁸ • website (health information only)¹⁸ 	Outsourced ¹⁸	Emergency Medical Care Inc. ¹⁸	Prior to the COVID-19 pandemic, the 811 program had 55 staff members. As of September 2020, there were 167 staff. ⁴³	The program serviced 87,595 calls in Nova Scotia in 2016. ¹⁸ More recently, it was reported that Nova Scotia's 811 line was averaging about 2,100 serviced calls per day in January 2022. ⁵⁰ We did not identify any information on the total number of calls serviced for clients in PEI.
Nunavut (Virtual Triage Program)	<ul style="list-style-type: none"> • Telephone 	Insourced	NA	Based on our 2023 survey results, the program staffed 4 administrators, 20 virtual community health nurses, and 6 nurse practitioners.	No identified information.
Ontario (Health811)	<ul style="list-style-type: none"> • Telephone²³ • Online chat²³ 	Outsourced ^{6,8}	In 2011, Sykes Assistance Services. ²⁵ More	Reports from 2009 suggest that the program employed almost 300 nurses at that time. ^{19,25}	The volume of serviced calls in fiscal years 2008 to 2009 and 2010 to 2011 were 905,000 and

Jurisdiction(s) (program name)	Forms of intake	Mode of administration	Third-party provider	Number and types of staffing	Volume of calls or other inquiries ^{b,c}
	<ul style="list-style-type: none"> website (health information)²³ 		recent information is not available.	More recent information is not available.	896,000, respectively ^{25,51} More recent information is not available.
Quebec (Quebec 811)	<ul style="list-style-type: none"> Telephone 	Inourced	NA	Based on our 2023 survey results, the Info-Santé service within Quebec 811 has a total staffing of about 800 full- and part-time nurses, with about 240 nurses available to answer calls each day.	1,172,183 calls were serviced in fiscal year 2022 to 2023.
Saskatchewan (HealthLine)	<ul style="list-style-type: none"> Telephone website (health information only)^{12,143} 	Inourced ^{6,8}	NA	In 2020, HealthLine had 30 staff, ⁴⁷ but reports ^{48,49} indicate the number of staff may have since increased.	79,393 calls were serviced in 2018 to 2019. ⁵² More recent annualized numbers were not identified, but several sources ^{41,49,53,54} indicated the volume of calls has increased significantly due to the COVID-19 pandemic.

BC = British Columbia; NA = not applicable; PEI = Prince Edward Island.

Note: This table has not been copy-edited.

^aAll data reported in this table correspond to information retrieved from publicly available sources or responses to the survey at the time of its administration (June 2023).

^bA call is considered serviced if the caller successfully connected with the telephone triage program and a service was provided (e.g., the provision of triage or health information). Serviced calls do not include wrong number calls, hang-ups, or other calls that were not answered by service agents. Some sources of literature were unclear in what was included when reporting the volume of calls managed by telephone triage programs. Instances where literature described the number of calls “managed” were assumed to meet our criteria for a serviced call.

^c“other inquiries” refers to instances where clients accessed the telephone triage program through alternative methods of intake (e.g., online chat, email, text message).

^dBritish Columbia and Yukon have an agreement in place to grant residents of Yukon with access to HealthLink BC services.

^eNova Scotia and Prince Edward Island share a tripartite agreement with a third-party provider.¹⁸

Table 9: Summary of Services Offered by Telephone Triage Programs in Canada^a

Services	Jurisdiction										
	AB	BC and YK	MB	NB	NL	NWT	NS and PEI	NU	ON	QC	SK
Triage (i.e., referral to appropriate levels of care)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Health information and advice	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Consultation with a health care provider											
Registered nurse	Yes	Yes	Yes	Yes	Yes ^b	Yes	Yes	Yes	Yes	Yes	Yes
Nurse practitioner	Yes	No	No	No	Yes	No	No	Yes ^c	No	No	No
Registered psychiatric nurse ^d	Yes	No	No	No	No	No	No	No	No	No	No
Dietician	Yes	Yes	Yes	No	Yes	No	No	No	Yes	No	No
Pharmacist	No	Yes	No	No	No	No	No	No	Yes	No	No
Social worker	Yes	No	No	No	No	No	No	No	No	Yes	Yes
Psychologist	Yes	No	No	No	No	No	No	No	No	No	No
Mental health therapist	Yes	No	No	No	No	No	No	No	No	No	No
Physician	Yes	Yes	No	No	No	No	No	No	No	No	No
Physician assistant	No	No	No	No	No	No	No	No	No	No	No
Occupational therapist	Yes	No	No	No	No	No	No	No	No	No	No
Physiotherapist	Yes	No	No	No	No	No	No	No	No	No	No
Tobacco counsellor	Yes	No	No	No	No	No	No	No	No	No	No
Mental health and addictions intake and referral services	Yes	No	No	Yes	Yes	No	Yes	No	Yes	No	Yes
Mental health crisis line	Yes	No	No	No	Yes	No	No	No	No	No	Yes
Registration for primary care providers	Yes	No	No	Yes	No	No	Yes	No	Yes	No	No
Smoking or tobacco cessation support	Yes	No	No	Yes	No	No	Yes ^e	No	Yes	No	No
Appointment scheduling or service registration											
Registered nurse	Yes	No	No	No	Yes	No	No	Yes	No	Yes	No
Nurse practitioner	No	No	No	No	Yes	No	No	Yes ^c	No	Yes	No
Registered psychiatric nurse ^d	No	No	No	No	No	No	No	Yes	No	No	No
Public health nurse	No	No	No	No	No	No	No	Yes	No	No	No
Dietician	Yes	No	No	No	No	No	No	No	No	Yes	No
Pharmacist	No	No	No	No	No	No	No	No	No	Yes	No
Social worker	No	No	No	No	No	No	No	No	No	Yes	No
Psychologist	No	No	No	No	No	No	No	No	No	Yes	No

Services	Jurisdiction										
	AB	BC and YK	MB	NB	NL	NWT	NS and PEI	NU	ON	QC	SK
Physician	Yes	No	No	No	No	No	No	Yes ^c	No	Yes	No
Physician assistant	No	No	No	No	No	No	No	No	No	No	No
Occupational therapist	No	No	No	No	No	No	No	No	No	Yes	No
Physiotherapist	No	No	No	No	No	No	No	No	No	No	No
Specialist care provider	No	No	No	No	No	No	No	No	No	Yes	No
Health and wellness classes	Yes	No	No	No	No	No	No	No	No	No	No
Chronic disease management classes	Yes	No	No	No	No	No	No	No	No	Yes	No
Routine, COVID-19, and influenza immunization	Yes	No	No	No	No	No	No	No	No	No	No

AB = Alberta; BC = British Columbia; MB = Manitoba; NB = New Brunswick; NL = Newfoundland and Labrador; NS = Nova Scotia; NU = Nunavut; NWT = Northwest Territories; ON = Ontario; PEI = Prince Edward Island; QC = Quebec; SK = Saskatchewan; YK = Yukon.

Note: This table has not been copy-edited.

^aAll data reported in this table correspond to information retrieved from publicly available sources or responses to the survey at the time of its administration (June 2023).

^bRegistered nurses with Newfoundland and Labrador's 811 HealthLine are trained to provide mental health and addictions support and crisis intervention.

^cIn Nunavut, consultations with nurse practitioners and appointment scheduling with nurse practitioners and physicians are only available when community health centre services are suspended (e.g., due to staff shortages).

^dRegistered psychiatric nurses are recognized and regulated as a distinct nursing profession in some jurisdictions.¹⁴⁴

^eSmoking or tobacco cessation support is available through the 811 program's Tobacco Free Nova Scotia, which is not available to residents of Prince Edward Island.³⁸

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