



A vision for public health surveillance in Canada by 2030:



Technical discussion guide

About public health surveillance

Within public health, many professionals commonly use the term 'public health surveillance' to describe the ongoing collection, analysis, interpretation, and dissemination of health data for the purpose of planning, implementing, and evaluating interventions to protect and improve the health of populations.

However, for many people the word 'surveillance' means something different. In this context, we propose to use the term 'assessment' interchangeably with surveillance, which is also a core pillar of public health systems, aimed at protecting and improving population health. Assessment includes monitoring environmental and health status and response to identified problems and hazards.

Why strengthen surveillance

The Public Health Agency of Canada is leading Vision 2030, an initiative to envision what public health surveillance in Canada could look like by 2030.

Public health surveillance is the critical function of generating the data and information needed to detect and understand health threats with the goal of promoting and protecting the health of people. Surveillance is 1 of 6 core public health functions and an important





source of information for many fundamental public health actions. These include allocating resources to programs and developing and evaluating policies.

The context for public health surveillance has changed rapidly over the past 2 decades, including:

- ⇨ new diseases and health threats
- ⇨ changes in data governance norms
- ⇨ the increase of and availability of new data and technologies

As such, the science and practice of public health surveillance have advanced to address changing demands and adopt new approaches. For example:

- ⇨ dynamic modelling of opioid-related deaths
- ⇨ expanding reporting to include data on stimulant-related:
 - > harms
 - > hospitalizations
 - > emergency medical service responses
- ⇨ funding to research the impact of the opioid crisis on Indigenous health
- ⇨ new approaches to access and use equity-based and disaggregated data

Despite these advances in public health surveillance, the context for surveillance continues to evolve, and surveillance systems must continue to adapt. For example, adjusting to the effects of climate change or using technologies like genomics and artificial intelligence to inform public health action.

Barriers to effective public health surveillance practice must also be addressed to strengthen surveillance. Examples of barriers limiting our ability to conduct surveillance include:

- ⇨ outdated technology
- ⇨ fragmented data systems
- ⇨ challenges in recruiting and retaining a skilled workforce
- ⇨ lack of standardized approaches for data collection and sharing

These challenges can contribute to a delay in decision-making, particularly during health emergencies. There have been multiple calls to address these and other challenges to conducting surveillance, such as the 2021 Office of the Auditor General Report (Report 8 – Pandemic Preparedness, Surveillance, and Border Control Measures).



What to strengthen

There is currently no single, coordinated public health surveillance system in Canada. Instead, surveillance is performed through a collection of independent data systems under the stewardship of multiple organizations. These organizations can be at different levels of geography and within different sectors of society. This collection of organizations and systems reflects the separation of accountabilities within the country and establishes a foundation for developing a vision.

Public health surveillance systems are at the core of surveillance practice (Figure 1). These systems are centered around public health professionals who collaborate with partners across different settings and organizations to:

1. systematically collect, manage, analyze and interpret data
2. communicate the resulting information to guide decisions and inform public health action, including for a range of audiences

The processes within a surveillance system are enabled by multiple components (Figure 1). The close interaction of human expertise and the specific technologies used to accomplish surveillance processes creates a sociotechnical system. Improving such systems requires consideration of:

- ⇒ people
- ⇒ technology
- ⇒ their context

The role of surveillance system evaluation, in turn, is integral to understanding the attributes of the system and if the surveillance system is meeting its stated objectives.

Surveillance programs provide an organizational structure for operating surveillance systems within a public health agency, authority or other organization. This is often in collaboration with external partners and other stakeholders. Activities such as planning and evaluating surveillance systems are often conducted in the context of a surveillance program. It's possible for:

- ⇒ a given surveillance system to serve multiple surveillance programs
- ⇒ a given surveillance program to include multiple surveillance systems

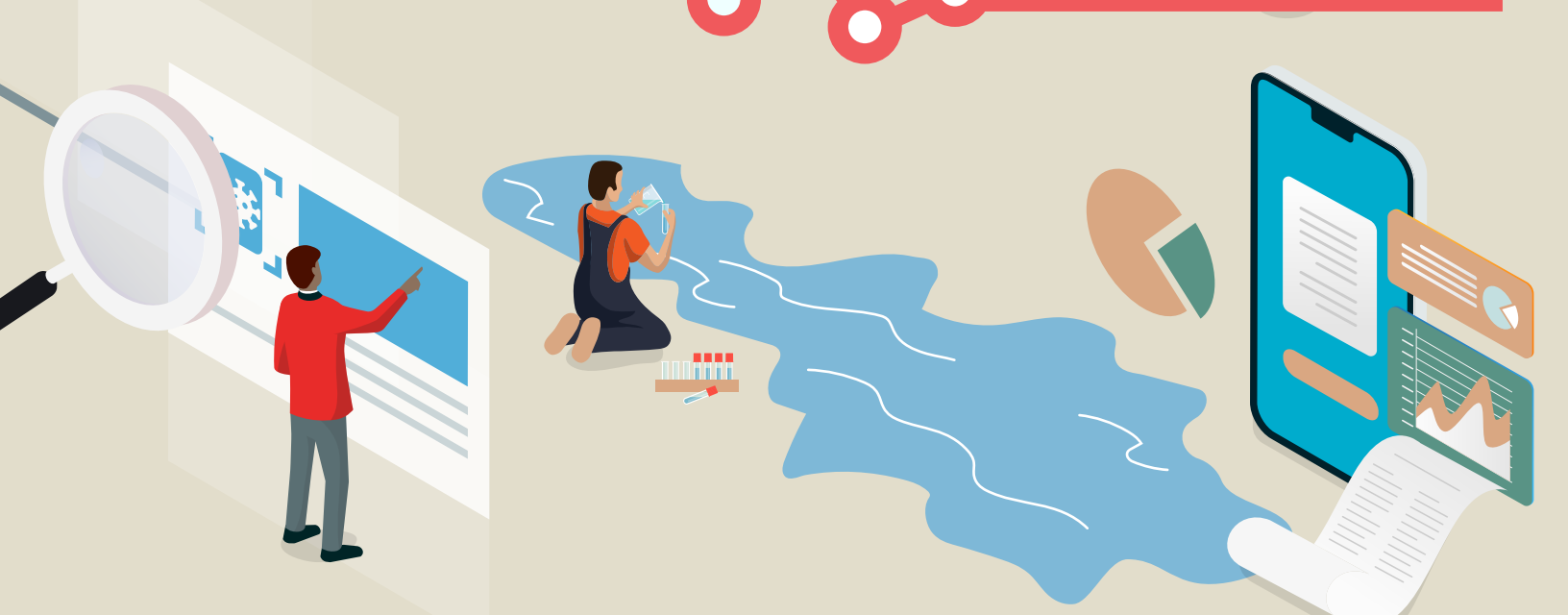
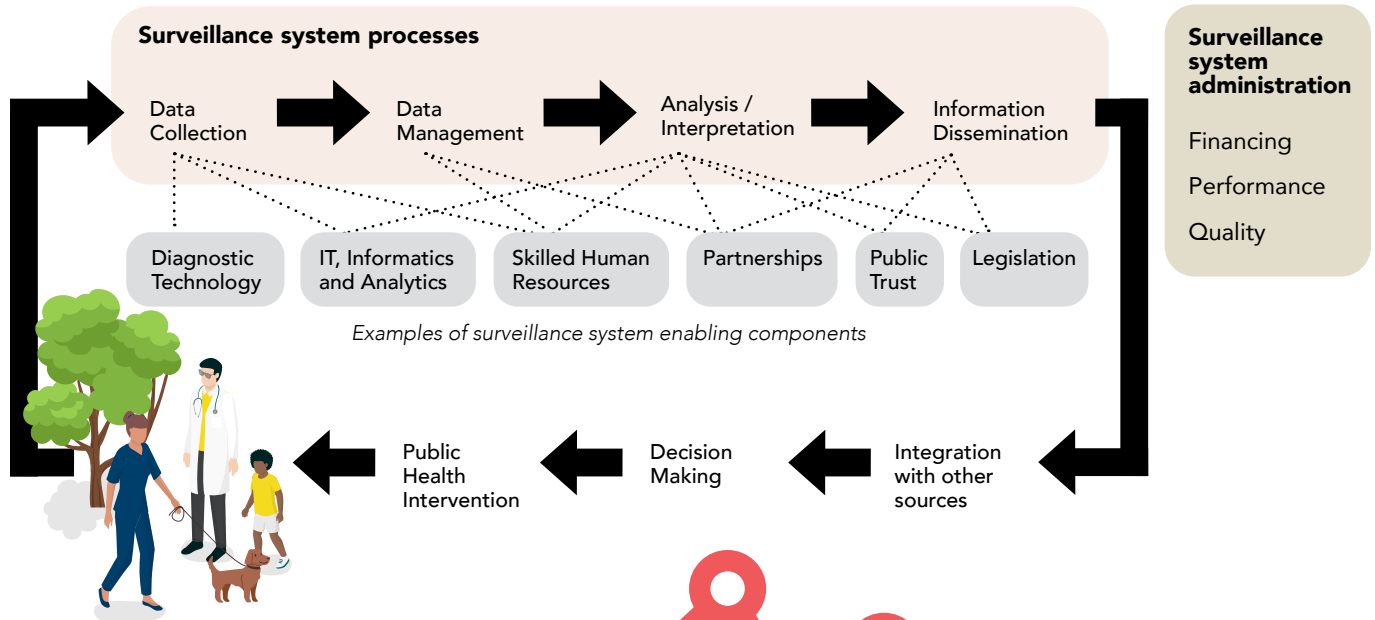
A surveillance ecosystem is a collection of surveillance systems and programs that provide information about the same population. Coordinating activities within an surveillance ecosystem can generate value for all stakeholders in the ecosystem. One example includes establishing governance to enable data sharing.

All surveillance systems in Canada can be considered as part of a pan-Canadian surveillance ecosystem. Examples include those operated by federal agencies, provinces and territories, and First Nations, Inuit and Métis communities, as well as data collected by other sectors, countries or community groups. While technology and infrastructure are important for enabling surveillance to inform timely action, surveillance must be supported by a wide range of components to be successful. For example, expertise and processes that can advance equity, diversity and inclusion in public health surveillance.

Figure 1: Surveillance processes, systems, and programs

Surveillance program = processes + components + administration

Surveillance system = processes + components





Why a vision

A vision articulates a possible future state to guide and coordinate the efforts for improvement by all public health surveillance stakeholders. The vision must adapt to meet the evolving needs of the public health system as the context for surveillance changes. This way, information we gather can continue to improve the health of all people living in Canada. As our experience with COVID-19 has demonstrated, a clear vision and sense of direction are even more valuable in guiding change during a public health emergency. Stakeholders across the public health ecosystem have a generational opportunity to share the lessons learned, strengthen public health surveillance practice, and advance population health for future generations.

Recognizing the interdependent and interconnected nature of public health surveillance, as well as the potential for greater value through collaboration, the vision will be developed with broad input from stakeholders, including:

- ↗ academics
- ↗ members of the general public
- ↗ domestic and international public health professionals
- ↗ people working in non-governmental organizations and government organizations across jurisdictions

By working together, stakeholders can clarify the value they see in a high-functioning surveillance ecosystem in Canada and align their individual value propositions.



How to develop a vision

The approach to developing the vision must be encompassing and flexible, as the surveillance ecosystem covers a range of:

- ↻ needs
- ↻ interests
- ↻ priorities
- ↻ expertise
- ↻ processes

The vision can help guide public health policy and program development across levels of government and other sectors. It will support the exchange and use of surveillance information across jurisdictions to identify, analyze and respond more effectively. While the Public Health Agency of Canada (PHAC) is leading this initiative, the approach recognizes our reliance on our partners for sharing surveillance data needed to inform public health action. These innate interconnections within the surveillance ecosystem necessitate an approach to building the vision that is:

- ↻ inclusive
- ↻ intersectoral
- ↻ interjurisdictional
- ↻ intergovernmental

The process to develop the vision is grounded in the history and current reality of public health surveillance in Canada. It builds on previous work, including the Chief

Public Health Officer's 2021 report, which considered how to strengthen public health systems. The vision's development is also aligned with related initiatives, such as the Working Together Agreement.

In the coming months, PHAC will engage in a collaborative internal and external process to gather input from public health stakeholders and the general public. This will inform the development of the vision. The 6 National Collaborating Centres for Public Health (NCCs) will support external engagement. It will include online and in-person regional consultations with the public health community, and Indigenous people and communities.

The vision will also be informed in other ways, including:

- ↻ a thought paper from the perspectives of the NCCs
- ↻ a rapid scoping review of recent innovations in public health surveillance
- ↻ input from an expert table comprised of public health surveillance experts in Canada
- ↻ a Best Brains Exchange with international surveillance experts hosted with the Canadian Institutes of Health Research

What the vision will include

The vision will:

- ⇨ describe the characteristics of a high-functioning surveillance ecosystem in Canada in 2030
- ⇨ establish values that underpin public health surveillance
- ⇨ identify existing strengths that should be built upon
- ⇨ describe the changes needed to achieve the desired state
- ⇨ propose a guiding philosophy for action to realize the vision

The characteristics of a high-functioning surveillance ecosystem include how surveillance systems and programs ideally function on their own and in an integrated manner to form an effective public health surveillance ecosystem in Canada. As such, the vision will also look to articulate:

- ⇨ the impact that should be produced by surveillance
- ⇨ how surveillance priorities should be identified and coordinated
- ⇨ how core surveillance processes should function within systems
- ⇨ the components that are critical for enabling surveillance and their necessary characteristics, such as:
 - > partnerships
 - > data governance
 - > human resources,
 - > IT and informatics
 - > diagnostic capacity

- > inclusivity and equity
- > competencies and capacity building
- ⇨ the information needed by the ecosystem to drive timely and effective public health action at various levels

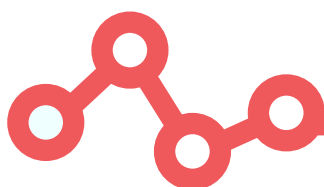
For example, surveillance in 2030 should:

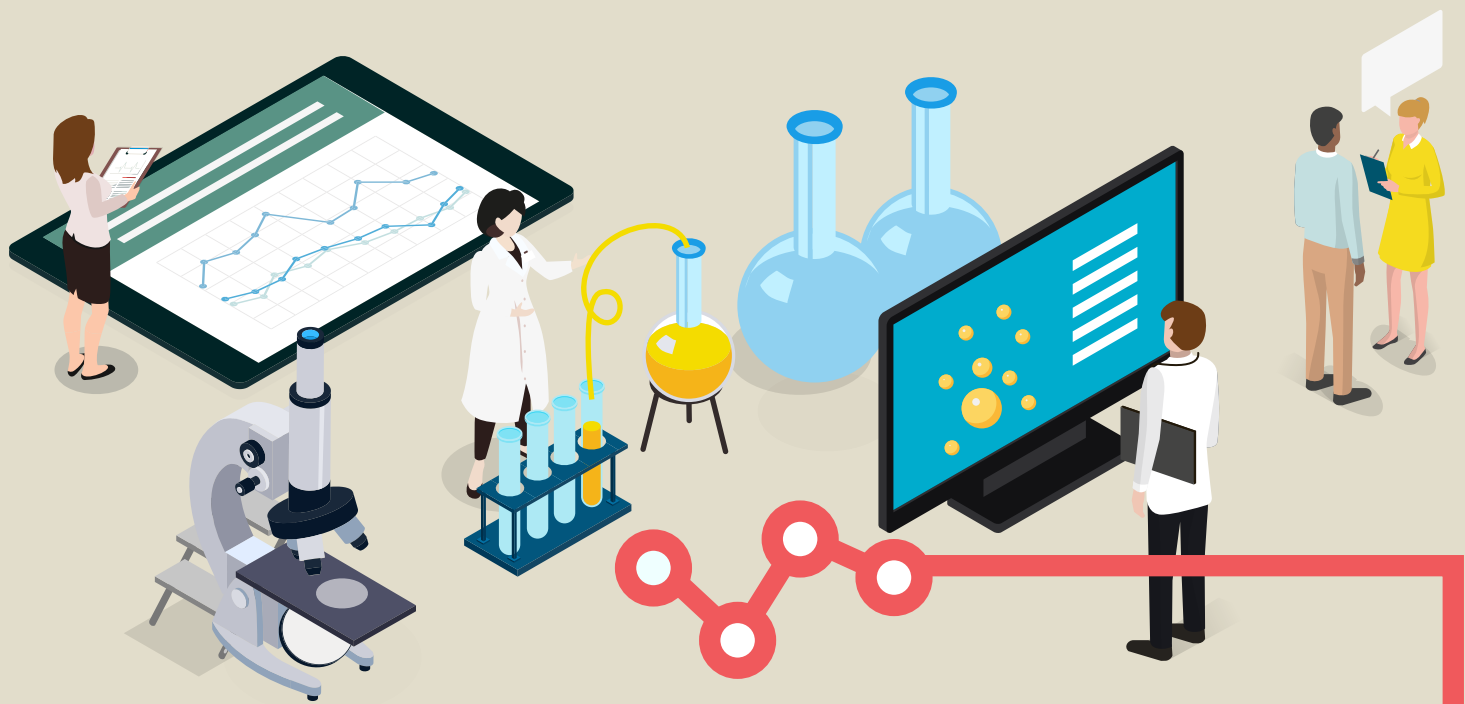
- ⇨ advance our understanding of health issues and inequities impacting the public
- ⇨ strengthen our ability to respond to new and emerging threats, including:
 - > infectious diseases
 - > injuries and chronic diseases
 - > climate-related health impacts

Finally, the vision will be based on science, evidence and rooted in real-world examples. It will be transparent about evidence gaps, particularly where research and development can clarify the path forward. Themes that will be explored in developing the vision include those related to:

- ⇨ the practice of public health surveillance
- ⇨ the pan-Canadian surveillance ecosystem (see examples of thematic questions)

Upon completion of the initiative, the vision for public health surveillance in Canada in 2030 will be openly published and shared widely.





Examples of thematic questions

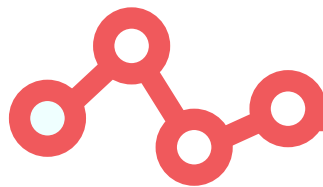
These questions were developed to guide preliminary discussions on key aspects of surveillance and the articulation of a vision. They recognize the importance of public health surveillance and the breadth of current challenges and opportunities. This is by no means a comprehensive list.

The practice of public health surveillance in 2030

- ⌘ What new or persistent high-priority issues will require surveillance in 2030?
- ⌘ What do the characteristics of these issues imply for surveillance system processes and enabling components?
- ⌘ What are important 'pain points' in surveillance processes that if addressed, could improve the efficiency or effectiveness of surveillance systems?
- ⌘ How can the private sector, academia, and other public health partners support innovation in public health surveillance?
- ⌘ What new technologies could disrupt or transform surveillance processes or their enabling components?
- ⌘ What are innovative strategies for transforming surveillance or 'closing the gap' between surveillance data and policy and program decision-making?
- ⌘ Are there innovative ways to ensure that surveillance information is disseminated to the wide variety of partners who require it for action?

The pan-Canadian surveillance ecosystem in 2030

- ⇒ What governance and organizational structures would enable access to surveillance data across stakeholders in the Canadian surveillance ecosystem?
- ⇒ What partnerships are needed to ensure a comprehensive and pan-Canadian engagement and consultation for the development of this vision and surveillance ecosystem?
- ⇒ What are the skills and competencies needed in the workforce across the surveillance ecosystem by 2030? How can we ensure our public health systems have access to those skills and competencies?
- ⇒ How do we ensure that First Nations, Inuit and Métis principles of data sovereignty and ownership are honoured across Canada's surveillance ecosystem?
- ⇒ How can we improve on the incorporation of equity in surveillance systems?
- ⇒ What process and data standards are needed for surveillance?
- ⇒ What 'value propositions' motivate stakeholders to work towards a vision of surveillance?
- ⇒ What are the governance and organizational structures that would enable access to and exchange of surveillance data across stakeholders in the Canadian surveillance ecosystem?
- ⇒ What socio-technological elements are crucial to ensuring that the vision resonates with all stakeholders in the Canadian surveillance ecosystem in the long-term?





Glossary

Enabling component of public health surveillance: An entity that supports a surveillance process. While different systems may require different components, many systems rely on enabling components such as trust, partnerships, laboratory testing, information technology and informatics.

Public health surveillance ecosystem: An interacting set of surveillance programs with, ideally, interoperable surveillance systems.

Public health surveillance platform: An enabling component implemented to support multiple surveillance systems.

Public health surveillance program: An administrative structure that brings together system processes and components, typically around a topic or disease. A program may operate multiple systems.

Public health surveillance system: A set of processes and enabling components for:

- ⇒ producing and sharing information to guide public health actions
- ⇒ systematically collecting, managing and analyzing data to monitor public health events over time

A system may incorporate data from multiple surveillance data sources.

Related links

- ⇒ [Visioning the Future: First Nations, Inuit, & Métis Population and Public Health \(PDF, 8.4 MB\)](#)
- ⇒ [Working together to improve health care for Canadians](#)
- ⇒ [2021 Independent Review of the Global Health Intelligence Network](#)
- ⇒ [Report Summary: A Vision to Transform Canada's Public Health System](#)
- ⇒ [Health Portfolio Sex- and Gender-Based Analysis Plus Policy: Advancing Equity, Diversity and Inclusion](#)
- ⇒ [An Evidence-Informed Vision for a Public Health Data System in Canada \(PDF, 857 KB\)](#)
- ⇒ [2021 Office of the Auditor General Report \(Report 8 – Pandemic Preparedness, Surveillance, and Border Control Measures\) \(Office of the Auditor General\)](#)

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