Public Health Ontario | Santé publique Ontario

An Immunization Action Plan for Ontario: Lessons from the Provincial Measles Outbreak

January 2026

OIAC Ontario Immunization Advisory Committee

CCOI Comité consultatif ontarien de l'immunisation

About Public Health Ontario

Public Health Ontario (PHO) is an agency of the Government of Ontario dedicated to protecting and promoting the health of all Ontarians and reducing inequities in health. PHO links public health practitioners, front-line health workers and researchers to the best scientific intelligence and knowledge from around the world. For more information about PHO, visit publichealthontario.ca.

About the Ontario Immunization Advisory Committee

The Ontario Immunization Advisory Committee (OIAC) was established in August 2021 at the request of the Chief Medical Officer of Health. The Committee provides scientific and technical advice to Public Health Ontario on vaccines and immunization matters, including program implementation in Ontario, priority populations, clinical guidance, and vaccine safety and effectiveness.

OIAC's work focuses on publicly funded vaccines and immunization programs in Ontario, and those under consideration for new programming. The OIAC provides advice by applying scientific knowledge and the best available evidence, in addition to feasibility, acceptability and other implementation considerations.

For more information about the OIAC and its members contact secretariat@oahpp.ca.

Disclaimer

This document was prepared by the Ontario Immunization Advisory Committee (OIAC) for Public Health Ontario. The OIAC provides evidence-based advice to Public Health Ontario on vaccines and immunization matters. OIAC work is guided by the evidence available at the time this document was prepared. The application and use of this document is the responsibility of the user. PHO assumes no liability resulting from any such application or use. This document may be reproduced without permission for non-commercial purposes only and provided that appropriate credit is given to PHO. No changes may be made to this document without prior and expressed written permission from PHO.

Citation

Ontario Agency for Health Protection and Promotion (Public Health Ontario), Ontario Immunization Advisory Committee. An immunization action plan for Ontario: lessons from the provincial measles outbreak. Toronto, ON: King's Printer for Ontario; 2026.

ISBN: 978-1-4868-9459-8

Authors and Contributors

OIAC Members

Dr. Jessica Hopkins, co-chair
Vice President and Chief, Communicable Disease Control
Public Health Ontario

Dr. Jeffrey Pernica, co-chair
Associate Professor, Infectious Disease
Department of Pediatrics
McMaster University

Dr. Juthaporn Cowan (from September 1, 2025)
Associate Scientist
Ottawa Hospital Research Institute

Dr. Vinita Dubey
Associate Medical Officer of Health
Toronto Public Health

Dr. Julie Emili
Associate Medical Officer of Health
Region of Waterloo

Dr. Sherilyn Houle
Associate Professor, School of Pharmacy
University of Waterloo

Dr. Ava John-Baptiste
Associate Professor, Schulich School of Medicine and Dentistry
Western University

Dr. Deepali Kumar (until August 31, 2025)
Director, Ajmera Transplant Centre
University Health Network

Dr. Allison McGeer
Professor, Laboratory Medicine and Pathobiology
University of Toronto
Dalla Lana School of Public Health

Dr. Matthew Miller
Director, Michael G. DeGroote Institute for Infectious Disease Research
McMaster University

Dr. Justin Presseau
Senior Scientist
Ottawa Hospital Research Institute

Dr. Maurianne Reade
Family Physician; Associate Professor
Northern Ontario School of Medicine

Dr. Marina Richardson
Associate Director, Health Technology Assessment (HTA) Methods and Health Economics
Institute for Clinical and Economic Review (ICER)

Richard San Cartier
Clinical Team Lead
N'Mninoeyaa Aboriginal Health Access Centre

Fairleigh Seaton
Director, Infectious Disease Prevention and Environmental Health
Southeast Public Health

Acknowledgements

This document was prepared by the OIAC Secretariat on behalf of the OIAC: Catharine Chambers (co-lead), Janice Sarmiento (co-lead), Elizabeth Brown, Tara Harris, Reed Morrison, Christine Navarro, and Sarah Wilson.

The OIAC gratefully acknowledges the Medical Officers of Health and Associate Medical Officers of Health from affected PHUs in southwestern Ontario who attended the OIAC meeting on June 11, 2025, to share their perspectives on the measles outbreak. The OIAC would also like to thank Megan Nguyen-Orlando with the Evaluation and Knowledge Mobilization team at PHO for their help with the PHU engagement survey, along with PHO staff within Stakeholder Relations, Library Services, Communication Services and Product Development and Publishing for their assistance in preparing this document.

Executive Summary

Ontario's largest measles outbreak in more than three decades began in October 2024 following the introduction of measles into an under-immunized community. From October 2024 to October 2025, Ontario reported almost 2,400 measles cases across 26 public health units. The outbreak in Ontario was declared over on October 6, 2025; however, outbreak-associated measles cases continue to be reported in other parts of Canada and across North America. As a result of this multi-jurisdictional outbreak, Canada lost its measles elimination status on November 10, 2025, which it had held since 1998.[1]

In response to the measles outbreak, Ontario undertook a coordinated provincial response. These measles preparedness and outbreak response activities included case and contact management, expanded eligibility for measles vaccination under an outbreak immunization strategy, infection prevention and control guidance, enhanced surveillance and reporting, and communications and community engagement. While these activities were successful at containing the outbreak within affected communities and contributed to preventing spillover into the broader population, the measles outbreak highlighted several challenges and weaknesses with Ontario's public health system.

Based on Ontario's experience with the multi-jurisdictional measles outbreak, the Ontario Immunization Advisory Committee (OIAC) is proposing an **immunization action plan for Ontario** to strengthen the delivery of immunization programs, improve monitoring of immunization coverage, and modernize immunization information systems. Such efforts will be required to improve Ontario's preparedness and response to future outbreaks of vaccine-preventable diseases and support the reverification process for Canada's measles elimination status. To inform an immunization action plan for Ontario, the OIAC secretariat engaged with local public health units (PHUs) through an online survey to gather their perspectives on the main challenges and barriers associated with the measles outbreak, preparedness and response activities, and lessons learned to inform the public health response to future outbreaks.

Key Immunization-related Themes from the PHU Engagement Survey

Close Immunization Coverage and Surveillance Gaps

- Amplify calls for a comprehensive provincial immunization registry
- Uncover pockets of low immunization coverage within geographic regions or priority populations
- Facilitate timely access to immunization records
- Optimize *Immunization of School Pupils Act* (ISPA) / *Child Care and Early Years Act* (CCEYA) implementation and enforcement

Optimize Access to Immunization Services and Resources

- Improve access to immunization services and resources
- Promote engagement with healthcare partners
- Enhance provincial coordination and collaboration
- Develop and share immunization resources

Implement Public Health Initiatives to Promote Immunizations

- Improve acceptability of immunization for priority populations
- Implement targeted immunization promotion strategies to improve immunization coverage
- Offer expanded vaccine eligibility as part of outbreak response
- Engage with community leaders and partners

Enhance Public Perceptions and Communications

- Address vaccine hesitancy and misinformation
- Increase trust in the public health system
- Develop effective public and stakeholder communication strategies

An Immunization Action Plan for Ontario

Based on the PHU engagement survey and discussions with PHU representatives, the OIAC has identified several immunization-related challenges associated with the multi-jurisdictional measles outbreak. It proposes an action plan structured around these identified challenges to strengthen the delivery of Ontario's immunization programs, improve monitoring of immunization coverage, and modernize its immunization information systems. These calls to action aim to improve Ontario's preparedness and response to future outbreaks and support Canada regaining its measles elimination status. They are broadly aligned with the Pan American Health Organization's regional framework for the monitoring and re-verification of measles elimination, as well as recent reports from the Chief Public Health Officer of Canada, Ontario's Chief Medical Officer of Health, and Public Health Ontario on the future of immunizations for public health.

Challenge #1

Ensure access to reliable and comprehensive immunization records for all people in Ontario

Proposed Actions

- The Ministry of Health should urgently implement a comprehensive immunization registry in Ontario to optimize immunization data collection, access and sharing
- The Ministry of Health, in collaboration with public health units, should work with provincial and federal government agencies to develop processes for collecting immunization records from temporary residents, including international students and migrant workers, and First Nations communities

Challenge #2

Ensure equitable and timely access to immunization services, including through primary care, for all people in Ontario

Proposed Actions

- The Ministry of Health, in collaboration with public health units, should work with provincial and federal government agencies to ensure equitable access to immunization services for all people in Ontario, including temporary residents such as international students and migrant workers
- The Ministry of Health should continue to work with healthcare partners towards the articulated goal of having all people in Ontario attached to a primary care provider to facilitate access to routine immunizations
- Public health units should maintain and strengthen collaborations and partnerships with local healthcare partners to facilitate access to routine immunizations and post-exposure prophylaxis

Challenge #3

Identify and address immunity gaps to prevent local transmission

Proposed Actions

- The Ministry of Health, in collaboration with Public Health Ontario and local public health units, should develop a provincial strategy to improve immunization coverage and close immunity gaps within local communities or priority populations
- Public Health Ontario and public health units should expand assessment of childhood immunization coverage to include small-area geographies and/or priority populations to identify local communities or populations where significant immunity gaps exist in Ontario or explore opportunities to collect these data where surveillance gaps exist
- Public health units should leverage and maintain existing relationships and build new relationships with local community partners outside of emergency or outbreak scenarios to optimize acceptance of public health interventions, including vaccination, and improve collection of immunization records

Challenge #4

Optimize implementation of existing policies and programs for routine childhood immunizations across all public health units

Proposed Actions

- The Ministry of Health should develop a provincial strategy to optimize implementation of the *Immunization of School Pupils Act* (ISPA) and *Child Care and Early Years Act* (CCEYA) for children in schools and licensed childcare settings across all public health units
- The Ministry of Health and public health units should engage with the Ministry of Education and other education partners and strive to implement the ISPA across all school settings, including private schools, and facilitate communications to educators and families
- The Ministry of Health and public health units should engage with the Ministry of Education and childcare operators and strive to implement the CCEYA for all licensed childcare settings to facilitate the collection of immunization records for preschool-aged children

Challenge #5

Enhance public health engagement and coordination with primary care and healthcare partners to strengthen preparedness for outbreaks and public health emergencies

Proposed Actions

- The Ministry of Health should further engage with healthcare partners to develop a provincial strategy to optimize collaboration between public health, primary care, and acute care institutions and better define roles and responsibilities during outbreaks

Challenge #6

Establish pathways that streamline sharing of information and resources and reduce duplication of efforts across public health units

Proposed Actions

- The Ministry of Health, in collaboration with Public Health Ontario, should leverage existing networks or establish a new community of practice for public health units to share best practices and locally developed resources and tools related to immunization and implementation of the ISPA and CCEYA
- The Ministry of Health, in collaboration with Public Health Ontario, should develop provincial resources and tools to support immunization activities and programs and minimize duplication of efforts across public health units

Challenge #7

Strengthen public confidence in vaccines and trust in the public health system

Proposed Actions

- Public Health Ontario should synthesize evidence on best practices and culturally relevant strategies to address vaccine hesitancy
- The Ministry of Health, in collaboration with Public Health Ontario, should develop and implement a provincial strategy to increase vaccine confidence and uptake, build trust in the public health system, and address false and misleading information about vaccines

Evidence Gaps and Future Research

Ontario's measles outbreak also revealed several evidence gaps and areas of future research related to measles immunization including an evaluation of the outbreak immunization strategy and potential changes to the provincial publicly funded routine immunization schedule and eligibility for measles vaccination. The OIAC recommends that Public Health Ontario assess the scope, feasibility and capacity of addressing these measles immunization research priorities, including identifying potential topics for OIAC's future workplan.

Table of Contents

About this Report

The Ontario Immunization Advisory Committee (OIAC) has developed an immunization action plan for Ontario informed by lessons learned from the multi-jurisdictional measles outbreak. These calls to action provide concrete steps that Ontario can take to strengthen the delivery of its immunization programs, improve monitoring of immunization coverage, and modernize its immunization information systems. Such actions, if implemented, aim to improve Ontario's preparedness and response to future outbreaks and assist with Canada regaining its measles elimination status. These proposed actions are based on member discussions during OIAC meetings held on June 11 and July 18, 2025, and the results of an engagement survey with local public health units (PHUs). They are also broadly aligned with the Pan American Health Organization's regional framework for re-verification of measles elimination and recent immunization-focused reports from Canada's Chief Public Health Officer, Ontario's Chief Medical Officer of Health, and Public Health Ontario (PHO).[2-5]

Scope

The key themes and identified challenges presented in this report focus on the immunization-related aspects of the PHU engagement survey and are not comprehensive of all survey findings. Notably, aspects of the public health outbreak response unrelated to immunizations, such as testing, infection prevention and control, case and contact management, and surveillance, were considered outside the scope of the OIAC, as were aspects related to primary and acute care or other non-public health sectors. This action plan, while informed by the measles outbreak in Ontario, has applicability beyond measles to other vaccine-preventable diseases, pandemic preparedness, and general public health practice.

Target Audience

The intended primary audiences for this action plan include senior decision-makers within the Office of the Chief Medical Officer of Health at the Ontario Ministry of Health, executive leadership at PHO, and Medical Officers of Health and Associate Medical Officers of Health and other public health practitioners responsible for immunizations or vaccine-preventable diseases within local PHUs. Secondary audiences include other public health associations in Ontario such as the Council of Ontario Medical Officers of Health, Association of Local Public Health Agencies, and Association of Public Health Epidemiologists in Ontario; stakeholders within the broader health system in Ontario including Ontario Health, Ontario Health Teams, Ontario Hospital Association, Ontario College of Family Physicians, Ontario Medical Association, Indigenous Primary Health Care Council, Registered Nurses' Association of Ontario, Nurse Practitioners' Association of Ontario, Ontario College of Pharmacists, and Ontario Pharmacists Association; healthcare providers in Ontario who administer immunizations or provide post-exposure prophylaxis to measles contacts; and public health practitioners in other provinces and territories and at the Public Health Agency of Canada. Given the scale of multi-jurisdictional measles outbreak and resulting loss of measles elimination status, this action plan could also be of interest to elected government officials and the general public.

Background

Measles is a highly contagious viral infection that is characterized by fever, cough, coryza (runny nose), conjunctivitis (red eyes), Koplik spots (blue-white spots in the mouth) and rash.[6] While measles infection is typically self-limiting, some groups including young children, pregnant individuals and those who are immunocompromised are at higher risk of serious complications such as pneumonia, encephalitis, and death and, more rarely, neurological complications such as subacute sclerosing panencephalitis.

Multi-jurisdictional Measles Outbreak

The incidence of measles has been on the rise globally, including in North America, where the long-standing presence of pockets of susceptible groups, declining vaccination rates and rising vaccine hesitancy following the COVID-19 pandemic have contributed to increased population susceptibility. As of October 2025, large-scale measles outbreaks were ongoing across several countries in the Americas, including in Canada, the United States and Mexico that are genomically (i.e., related to the same circulating measles strain) and epidemiologically (i.e., close contacts between measles cases) linked.[7] Canada's multi-jurisdictional outbreak initiated when an unimmunized traveller from a measles endemic region attended a large gathering in New Brunswick in October 2024.[8] As of October 6, 2025, 10 provinces and territories have reported a total of 4,873 cases related to the outbreak, with almost half of these cases reported in Ontario.[9]

Ontario's Measles Outbreak

PHO's measles epidemiological summary from October 9, 2025, reported a total of 2,375 outbreak-related cases in Ontario since it began on October 28, 2024.[8] The outbreak in Ontario was officially declared over on October 6, 2025, following a period of at least 46 days since the rash onset date of the last reported outbreak case, consistent with national guidelines.[10] Travel-related cases unrelated to the multi-jurisdictional outbreak continue to be reported.

The outbreak affected 26 PHUs with the highest cumulative incidence in southwestern Ontario. The outbreak disproportionally affected unimmunized individuals within certain faith-based communities. Among the 2,375 reported outbreak cases, 2,119 (89.2%) were unimmunized, while 97 (4.1%) had unknown vaccination status.[8] Infants, children and adolescents (n=1,734, 73.0%) were most frequently affected. A total of 165 (6.9%) measles cases required hospitalization with 12 (0.5%) requiring admission to care in an intensive care unit (ICU). Of the hospitalized cases, 95.2% (n=157) were unimmunized. There were 51 (2.1%) measles cases among pregnant individuals resulting in nine cases of congenital measles. One death occurred in a congenital case of measles who was born pre-term.

Provincial Outbreak Response

A coordinated measles outbreak response was undertaken to control the spread of measles in Ontario, including case and contact management, vaccination, infection prevention and control, enhanced surveillance and reporting, and communications and community engagement. Measles-affected PHUs undertook these outbreak response activities in parallel with routine immunization activities, placing significant staffing and resource demands on the public health system.

Outbreak response coordination was facilitated through regular touch points with local, provincial and national public health authorities (e.g., outbreak coordination calls with affected PHUs, federal-provincial-territorial meetings chaired by the Public Health Agency of Canada); engagement with the local community (e.g., liaising with community leaders, development of culturally appropriate communications); and collaborations with local and provincial stakeholders (e.g., Ontario Public School Board Association, Ontario Medical Association).

Case and Contact Management

PHUs performed case and contact management to identify cases and susceptible contacts exposed to measles, provided contacts with guidance for isolation or exclusion, and ensured susceptible contacts received appropriate post-exposure prophylaxis (PEP). PEP included offering a measles-containing vaccine or immunoglobulin to susceptible contacts who were exposed to a measles case. PHUs used recent OIAC guidelines on measles PEP for individuals who are immunocompromised due to disease or therapy to support these efforts.[11] Case and contact management activities also included public communications of potential measles exposure sites, travel notifications, as well as the use of online self-assessment tools. To reduce barriers to testing and improve access to molecular diagnostic testing, a pilot program for specimen self-collection was made available to outbreak-impacted PHUs, and measles diagnostic testing was expanded from three to seven PHO laboratories across the province.

Outbreak Immunization Strategy

The vaccination response included the implementation of outbreak immunization strategies in PHUs with the highest case numbers, starting with Southwestern, Grand Erie and Huron Perth PHUs in January 2025 and later expanding to all PHUs located in southwestern Ontario exhibiting increased transmission and community exposures in May 2025.[12] The outbreak immunization strategy extended eligibility for the measles, mumps and rubella (MMR) vaccine and recommended an early dose for infants aged 6 to 11 months of age, an accelerated second dose of measles-containing vaccine for children aged 1 to 4 years of age, and a second MMR dose for all adults born in or after 1970 who had not previously received a two-dose vaccine series. These recommendations applied to all individuals who lived, worked, traveled (e.g., family visit), worshipped, or spent time in affected regions and communities in Ontario with active measles cases and where the risk of exposure in the community was higher. Immunization programs for international agricultural workers were also implemented in select PHUs.

Routine Immunization Coverage Assessments

The Ontario Public Health Standards (OPHS) outline mandatory health programs and services to be delivered by PHUs across Ontario.[13] This includes standards that provide direction on required immunization status assessments of children attending licensed childcare facilities and schools, in accordance with the *Child Care and Early Years Act* (CCEYA) and the *Immunization of School Pupils Act* (ISPA), respectively.[14] The CCEYA requires childcare operators to collect immunization records for preschool-aged children attending licensed childcare centres in Ontario, while the ISPA requires that local Medical Officers of Health maintain a record of immunization for nine designated diseases, including measles, for each student attending school within their jurisdictions.[15,16] Activities regularly undertaken by PHUs to enforce the ISPA include assessing immunization status of cohorts of enrolled students, notifying parents and guardians of overdue status and requesting immunization records, reviewing and entering these records into Ontario's Digital Health Immunization Repository (known as Panorama), and supporting catch-up vaccinations.

During the measles outbreak, PHUs enhanced CCEYA activities and enforcement of the ISPA to identify children attending licenced childcare facilities and schools, respectively, within their jurisdictions who were not up to date with their measles immunizations. These activities facilitated susceptibility assessments in the event of measles exposure at school or childcare facilities. Under the ISPA, students who were non-compliant with immunizations and those with medical or non-medical (i.e., conscience or religious belief) exemptions could be excluded during disease outbreaks or exposures at schools.

Measles Immunization Coverage in Ontario

Maintaining high vaccination coverage against measles is the most effective way to prevent and disrupt measles transmission. Unfortunately, immunization coverage estimates in Ontario remain suboptimal due to several factors, including impacts of the COVID-19 pandemic on Ontario's immunization programs and delayed entry and/or underreporting of administered childhood immunizations into Panorama, which relies on parental reporting of school-aged children's immunization data to public health. Immunization records for preschool-aged children and adults are not routinely captured in Panorama as part of provincial immunization surveillance under existing legislation.

The interim measles immunization coverage estimate among 7-year-olds in Ontario was 73.6% for the 2024–25 school year (data as of May 28, 2025). These estimates are below pre-COVID-19 pandemic coverage estimates, which ranged from 94% in the 2013–14 school year to 86.6% in 2018–19. At the PHU level, 14 PHUs reported interim measles coverage for 7-year-olds between 90.0% and 94.9%, nine reported coverage between 85.0% and 89.9%, and the remaining six reported coverage below 85.0%.[17]

While these estimates provide insights into potential variations in immunization coverage across Ontario, they have their limitations. Overall estimates may mask the presence of localized pockets of low immunization coverage and under-immunized communities within jurisdictions, as well as the variability in ISPA implementation across PHUs, especially in those with large populations. Additionally, inaccuracies may arise due to inconsistencies in ISPA enforcement that precludes comprehensive assessment of immunization status in all settings (e.g., home-schooled students, some private schools).

Canada's Measles Elimination Status

Measles elimination status is defined as the absence of continuous endemic measles transmission for at least 12 months in the presence of a well-performing surveillance system.[18] Canada first achieved measles elimination status in 1998. Unfortunately, the ongoing multi-jurisdictional measles outbreak has resulted in the loss of Canada's measles elimination status, as announced by the Pan American Health Organization on November 10, 2025.[1] To regain its elimination status, Canada must complete a rigorous re-verification process and meet the following essential criteria: evidence of interrupted endemic measles circulation for at least one year, presence of a well-performing surveillance system, high vaccination coverage, efficient outbreak response, and documentation of sustainability of elimination.[2] Achieving reverification will require a concerted effort across Canadian provinces and territories to address existing measles immunity gaps and optimize vaccination coverage and disease surveillance.

Public Health Unit Engagement Survey

To inform the development of this action plan, the OIAC secretariat conducted an online survey of PHUs across Ontario to systematically gather their perspectives on the multi-jurisdictional measles outbreak. The survey questions were informed by feedback from Medical Officers of Health and Associate Medical Officers of Health who attended the OIAC meeting on June 11, 2025, to share their valuable perspectives on the measles outbreak, along with additional feedback received from PHUs at the provincial measles outbreak coordination call on June 18, 2025.

The survey included multi-choice, ranked and open-ended questions organized into three sections:

- Main challenges and barriers associated with the outbreak
- Preparedness and outbreak response activities
- Lessons learned to inform the public health response to future outbreaks

The survey was sent to Medical Officers of Health, Associate Medical Officers of Health and managers of vaccine-preventable disease programs across all of Ontario's 29 PHUs on June 26, 2025. The survey was also sent to the Office of the Chief Medical Officer of Health (OCMOH) to gather their provincial perspective. The survey closed on July 4, 2025.

Twenty-five out of 29 PHUs responded to the survey, representing an 86% response rate. In total, the OIAC secretariat received 28 survey responses, including one response from the OCMOH and two responses from individual legacy PHUs that had recently merged, as these legacy PHUs had not yet amalgamated their outbreak response and preparedness activities.[19] Two responses were considered incomplete and excluded. Thus, a total of 26 responses were included in the analysis. Closed-ended responses were analyzed descriptively using proportions or counts. Open-ended responses underwent an inductive thematic analysis, which involved identifying common patterns of meaning or themes across the dataset based on the corresponding survey questions, without a pre-existing coding framework.[20] Representative quotes were selected for certain themes and anonymized. The key immunization-related themes that emerged from the PHU engagement survey are highlighted in the executive summary.

OIAC members reviewed the results of the PHU engagement survey at the OIAC meeting held on July 18, 2025, to inform the development of a draft action plan. Members had the opportunity to provide initial feedback on the OIAC statement through an electronic survey that was launched on August 11, 2025, and closed on August 22, 2025. The draft statement was subsequently revised according to feedback received from the electronic survey, as well as comments made by members at the OIAC meeting held on September 10, 2025, and written feedback on the draft statement provided by email.

Summary of Relevant Survey Findings

Immunization Coverage and Surveillance

In the PHU engagement survey, respondents identified several challenges related to immunization coverage and surveillance. When asked to rank their top five challenges or barriers, more than two-thirds (69%) of survey respondents selected the lack of a comprehensive immunization registry, with almost one-quarter (23%) indicating that it was their top-ranked challenge or barrier. Other immunization-related challenges or barriers ranked in the top five included immunization coverage below herd immunity thresholds, including pockets of low coverage in certain communities (39%); timely access to immunization records for case and contact management (15%); limited ability for ISPA activities in private schools (15%); limited ability to implement CCEYA or no implementation of CCEYA (7%); and other challenges with ISPA assessment and/or enforcement (7%).

Lack of a Comprehensive Immunization Registry

The lack of a comprehensive immunization registry was identified as the main challenge or barrier related to the multi-jurisdictional measles outbreak. In the open-ended questions, respondents described how the lack of an immunization registry contributed to inefficient outbreak responses. These included the inability to assess immunization coverage to predict disease spread in the population or target immunization promotion activities to under-immunized communities; inability to conduct timely and effective case and contact and outbreak management; and resource demands on PHUs and healthcare providers to find immunization records and provide immunizations where records were unavailable. Respondents also described how the lack of immunization records contributed to inappropriate or unnecessary PEP use and caused unnecessary fear and anxiety in measles close contacts who had insufficient documentation of measles immunization. They indicated that an immunization registry would overcome many of the challenges with Ontario's current immunization information system, such as providing easily accessible vaccination records for younger children and adults and facilitating immunization reminders and recall. However, others noted that an immunization registry may be less helpful in the current context, given that the measles outbreak was largely concentrated within communities that have historically declined immunizations and/or immunization record collection.

"[A] comprehensive immunization registry is sorely needed in the province. Having a registry would significantly cut down on follow-up time in assessing exclusions [for susceptible contacts following a measles exposure], would have a more accurate and complete picture of vaccine coverage."

Timely Access to Immunization Records

Related to the lack of an immunization registry, respondents described multiple challenges in collecting immunization records for case and contact management, including timely assessment of immunization history and being able to offer PEP within the recommended period. This was identified as a particular issue for exposures in public settings such as schools and healthcare facilities, with many PHUs having to rely on public media releases to identify contacts. A few PHUs mentioned that they had to close schools temporarily because they were not able to access immunization records for staff following exposures. Within the affected communities, PHUs also described a reluctance to provide case and contact or immunization information; this was perceived as being related to a historical mistrust of government and a lack of pre-existing relationships with the community. Even in communities that were more engaged with public health, collecting immunization data or providing PEP was challenging as many of these communities do not have access to phones, vehicles or the internet and do not have a primary care provider and/or Ontario Health Insurance Plan (OHIP) coverage.

ISPA/CCEYA Implementation and Enforcement

In the absence of an immunization registry, PHUs rely on existing public health standards through the CCEYA and ISPA legislations to collect immunization records for children attending licensed childcare and for school-aged children, respectively.[13-16] However, the degree to which these standards are enforced varies across PHUs, depending on capacity and resources, among other factors. While some PHUs routinely enforce ISPA for all students and have implemented CCEYA, others only enforce ISPA for select grades or cohorts and do not have capacity to fully implement CCEYA. Many respondents described how their PHUs are still catching up on ISPA activities following the COVID-19 pandemic. Specifically, in relation to the measles outbreak, many PHUs do not enforce ISPA for students attending private schools, limiting the accurate assessment of immunization coverage within the communities affected by the outbreak where many children attend private, religious schools. PHUs that were able to fully enforce ISPA for all cohorts, including in private schools for some PHUs, perceived this as an effective strategy to improve population immunization coverage in their jurisdiction. Over 40% of respondents selected ISPA enforcement or expanded ISPA activities as among their most impactful preparedness or outbreak activities for mitigating, controlling or containing the measles outbreak, with over 20% selecting implementing or expanding CCEYA activities as an impactful strategy.

"[Our] approach to annually enforce ISPA across all grades has increased measles vaccine coverage in our school-aged population and wider community to a threshold that mitigated community spread, even when there were sporadic cases in the general population."

Immunization Access and Resources

In the engagement survey, PHUs were asked to rank which activities has been the most impactful to mitigate, control or contain the measles outbreak in their jurisdiction, with several immunization-related activities ranked among the top five. In the open-ended questions, access to and accessibility of immunizations, engagement with primary care providers and acute care hospitals, provincial coordination and collaboration, and having sufficient resources for immunization services as part of outbreak response and for routine programming were identified as key themes.

Access to and Acceptability of Immunizations

Many respondents spoke about barriers to accessing immunizations in certain communities, such as faith-based communities and northern PHUs and other geographically isolated regions. These perceived barriers included geographic distance from healthcare, lack of primary care attachment or OHIP coverage, communication and transportation challenges (including no phones or vehicles), and limited primary care or hospital capacity to supply or administer immunoglobulin or MMR vaccine as PEP. In the ranking question, 8% selected access to immunoglobulin for PEP as among their top five challenges or barriers. Of note, measles PEP was provided free of charge during the outbreak regardless of OHIP coverage, but healthcare partners and clients may not have been aware of its availability in the early stages of the outbreak. In some affected communities, respondents also noted a reluctance to accept government intervention or engage with public health, depending on the health unit's pre-existing relationships with these communities (see Community Engagement). To address these barriers, some PHUs actively reached out to primary care providers to improve access to immunizations in the community. Many PHUs described how some community-based primary care providers within their regions may have been unable or unwilling to provide testing, PEP or immunizations due to concerns around infection prevention and control and impacts on their practice. In some PHUs, contacts were referred to local hospitals for such services, which occasionally resulted in public exposures if appropriate screening or notifications were not performed in advance.

"Measles can only be controlled through immunization. The fact that our community is largely immunization accepting is likely the greatest reason we have no outbreak related cases yet and spread is relatively contained."

Provincial Coordination and Collaboration

In the open-ended questions, many PHUs indicated that they appreciated efforts to coordinate a provincial response to the measles outbreak. They mentioned the PHO-led weekly outbreak coordination calls with affected PHUs, PHO's enhanced epidemiological summaries, and support with interprovincial and international notifications as being particularly helpful. However, several respondents noted the opposite, stating that lack of coordination and collaboration across different health sectors (e.g., public health, primary care) or levels of government (e.g., PHUs, MOH, PHO, PHAC) was a key challenge or barrier, with 8% of respondents selecting this option in their top five. For

example, PHUs that had not reported outbreak-related cases, including some of the most populous regions in Ontario, felt that they could have benefited more from provincial coordination and resource sharing, although they noted that their needs and priorities likely differed from the affected PHUs. Many PHUs called for more standardized approaches to case and contact management and communications to ensure consistent messaging across PHUs and reduce duplication of efforts. Others requested a provide-wide strategy to address false vaccine information and improve vaccine confidence that would augment local-level interventions and align with any national or international efforts (see Public Perceptions and Communications).

Outbreak Resources and Capacity

Workload demands and competing priorities (39%) and insufficient surge capacity or funding (31%) were identified among the top-five challenges or barriers. The absence of a streamlined approach to collect immunization data for case and contact management, notably the lack of an immunization registry, was thought to contribute to these workload inefficiencies. A few PHUs commented that mass immunization or PEP clinics following public exposures were time consuming to set up and required significant human resources, even for PHUs that reported relatively few outbreak cases. Sustained funding and resources were also viewed as critical for bringing ISPA assessments up to date and engaging with affected communities to build trust and promote vaccine confidence.

"Adequate resourcing of case and contact management was crucial for timely identification and management of contacts and exposure sites. This resourcing included standing up technology-based solutions to streamline work and increase efficiency."

Immunization Promotion

When asked to indicate their measles preparedness or response activities, all PHUs had undertaken at least one strategy to improve immunization coverage in their jurisdictions. These activities included targeted immunization promotion activities to specific groups or communities known to be under-immunized (85%); additional immunization clinics offering measles-containing vaccine (85%); PEP of contacts (81%); coordinating immunization services with primary care providers (73%); enhancing ISPA activities (e.g., additional grades or cohorts or specific to measles-containing vaccine) (65%); implementing or expanding CCEYA activities (50%); and implementing the outbreak immunization strategy (50%). In the open-ended questions, respondents commented on the importance of local expertise and "boots on the ground" for effectively managing the outbreak. Engagement with key stakeholders including community leaders, hospitals and primary care, and schools and school boards to promote immunizations was identified as a key theme. Many PHUs talked about the importance of these pre-existing relationships and emphasized that this type of engagement needs to be done proactively before an outbreak or public health emergency occurs.

Targeted Immunization Promotion Activities

Almost 40% of respondents perceived that immunization coverage below herd immunity thresholds, including pockets of low coverage in certain communities, was a top-five challenge or barrier to the measles outbreak. In the open-ended questions, many PHUs commented that their immunization coverage was generally high in the general population and believed that this high coverage prevented broader population spread from spillover events. PHU's local experiences indicated that the outbreak was mostly contained within under-vaccinated communities. For this reason, many PHUs undertook immunization promotion activities within these communities, including targeted outreach and education, community clinics, and home visits. When asked about preparedness and response activities, 85% of respondents held additional immunization clinics offering measles-containing vaccine and 85% targeted their immunization promotion to specific groups or communities known to be under-immunized. In the ranking question, 29% of PHUs indicated that these targeted immunization promotion activities were among their top-five most impactful strategies. In particular, PHUs described the importance of culturally appropriate and tailored strategies to educate under-immunized communities about the benefits of immunization (see Community Engagement).

Expanded Vaccine Eligibility

At the time of the survey (June–July 2025), 12 out of 25 PHUs indicated that they had implemented the outbreak immunization strategy, which expanded MMR vaccine eligibility to infants 6 to 11 months of age, accelerated the timing of the second dose for children 1 to 4 years of age, and offered a second dose for adults 18 years and older born in or after 1970. Of the PHUs that implemented this strategy and completed the ranking question, 40% indicated that it was among their top-five most impactful activities. In the open-ended questions, several PHUs indicated that there was good uptake of MMR vaccine under the outbreak immunization strategy. They perceived this strategy to be impactful at increasing immunization coverage to prevent broader spread. However, other respondents indicated that it was difficult to monitor uptake of this strategy in the absence of a comprehensive immunization registry and questioned whether this strategy was effective at reaching those most in need of early or accelerated immunizations due to ongoing transmission and exposure risk within their communities.

"We do not have any idea whether there was much uptake of [the outbreak immunization strategy]… Our sense from speaking to [healthcare providers], though, was that the people who would most benefit from an accelerated vaccine were not the ones who were interested in it. Instead, it was the people at lowest risk who were asking for it."

Community Engagement

In the ranking question, 8% of respondents identified the lack of pre-existing relationship with communities, including faith-based leaders, as among their top-five challenges or barriers. Respondents described how the lack of trust and pre-existing relationships with the affected communities impeded their ability to respond to the outbreak. Conversely, PHUs that perceived having stronger ties to their community thought that they were better able to leverage those relationships to efficiently and effectively conduct case and contact management, disseminate public health messages, and promote immunizations. These types of pre-existing relationships were viewed as critical to building trust and promoting cooperation within the community. They also discussed the importance of modifying case and contact management approaches to meet the community's needs and respect cultural practices, such as offering home visits, as well as having culturally appropriate, co-developed, and tailored strategies to improve vaccine confidence (see Vaccine Hesitancy) and accept public health interventions.

"The proactive identification of the [community] as a priority population within our region proved to be a significant asset… The organization's foresight in laying this groundwork in advance clearly demonstrated its value during the recent outbreak."

Public Perceptions and Communications

PHUs identified public perceptions around vaccines, including false information and vaccine hesitancy, as a key theme. Communication strategies to increase public awareness and promote immunizations were commonly cited as preparedness and response activities. While issues surrounding vaccine hesitancy have increased in the public discourse in recent years, many of the challenges related to the measles outbreak in Ontario pre-date the COVID-19 pandemic. Importantly, many PHUs emphasized heterogeneity in public perceptions and engagement within the affected communities with regards to public health measures and vaccine uptake.

Vaccine Hesitancy

Many PHUs commented on difficulties in disseminating information about vaccinations, given widespread vaccine hesitancy in some, but not all, of the affected communities. Despite these concerns, only 15% of respondents selected mis/disinformation about measles or vaccines as among their top-five challenges or barriers, while 8% selected public trust in government or public health and less than 5% selected vaccine hesitancy and/or vaccine fatigue. Some PHUs commented that the drivers of vaccine hesitancy are not well understood in these communities. They suggested that sustained funding and resources would be required to study factors associated with vaccine hesitancy and develop a coordinated provincial or national approach to re-build trust in vaccines and public health. Others noted unique challenges and public perceptions within each community, arguing that local knowledge will be needed to address vaccine hesitancy using culturally appropriate, co-developed, and tailored strategies. Engagement and relationship building within communities, including with faith-based leaders and others with social leverage, were seen as effective strategies to rebuild trust and promote immunization (see Community Engagement).

"There is a deep-rooted mistrust of government institutions within the community, shaped by historical experiences. While some progress can be made at the local level, a broader, more coordinated approach is needed to rebuild trust and foster meaningful relationships."

Communications

When asked to indicate their measles preparedness activities, PHUs most frequently selected communications, with 100% of respondents engaging in this type of strategy. This included communications sent to hospitals or community healthcare facilities, schools and school boards or childcare facilities, and parents or families. PHUs also employed public messaging and education strategies, such as posting information about measles or measles immunization on their websites or through social media as well as issuing media releases and responding to interview requests. Some PHUs even developed pre-approved communication plans. All but one PHU who responded to the survey publicly released exposure locations in the community on their website or through media releases, often relying on this approach to collect immunization information following public exposures. These communication activities were viewed as critical to increasing public awareness about the outbreak and promoting vaccination. However, some PHUs commented that these commonly used forms of communication may not be appropriate for certain communities that have no phones or internet, instead preferring targeted community engagement and immunization efforts. Many PHUs translated these resources into other languages to facilitate information sharing with the affected communities (see Community Engagement).

A Provincial Call to Action

Challenge #1

Ensure access to reliable and comprehensive immunization records for all people in Ontario

Proposed Actions

- The Ministry of Health should urgently implement a comprehensive immunization registry in Ontario to optimize immunization data collection, access and sharing
- The Ministry of Health, in collaboration with public health units, should work with provincial and federal government agencies to develop processes for collecting immunization records from temporary residents, including international students and migrant workers, and First Nations communities

Considerations

The OIAC previously issued a position statement strongly urging the Ministry of Health to develop and implement "a comprehensive electronic immunization registry that captures all immunizations administered across the lifespan by all immunization providers in all settings."[21] The Chief Medical Officer of Health in Ontario recently echoed this call for a "comprehensive, accessible provincial immunization system" in their report on the future of immunization in Ontario.[4] The OIAC reiterates its call for a comprehensive, provincial immunization registry to improve the public health response to future outbreaks. In the context of the measles outbreak, such a registry would have addressed many of the challenges and barriers that PHUs identified, including timely access to immunization records for case and contact management, monitoring population immunization coverage and identifying pockets of under-immunization for targeted immunization promotion activities, and minimizing inappropriate measles PEP use and resource demands on public health and primary care. It would also enable more efficient ISPA and CCEYA implementation of the ISPA and CCEYA (see Challenge #3). This registry would ideally comprise immunization records for all residents of Ontario, including vaccines received out of province, as well as for any individual who receives vaccines from an Ontario service provider, including temporary residents and those without OHIP coverage.

In its prior position statement, the OIAC recommended that an immunization registry should support interoperability within and between organizational and jurisdictional boundaries and allow for timely, equitable and secure access to and exchange of immunization data for users across Ontario's health system. For example, an immunization registry would permit information sharing at a local level between healthcare providers, their clients and local public health; at the provincial level between individual PHUs or between PHUs and the Ministry of Health and Public Health Ontario; and at the federal level through interprovincial data sharing with other provinces and territories or the Public Health Agency of Canada. The OIAC encourages the Ministry of Health to follow the First Nations OCAP® Principles to guide the collection of immunization data from First Nations communities that are not

covered under ISPA. The First Nations Information Governance Centre collaborated with First Nations leaders, subject matter experts, and education professionals to establish The First Nations Principles of OCAP® of ownership, control, access, and possession. The OCAP® Principles can act as a tool to establish how First Nations' data and information will be collected, protected, used, or shared in alignment with a Nation's respective worldview, traditional knowledge and protocols.

The OIAC also recommended that provincial legislation and policy supports should be developed to enable the real-time collection, use and confidential sharing of immunization data across the health system. Importantly, additional mechanisms may be required to link immunization records to other data sources (such as school registration data) once a registry is in place and PHUs no longer need to request records from school boards to enforce ISPA. Such linkages will ensure that PHUs remain able to assess immunization status for school staff and students to facilitate efficient case and contact management, including exclusions, in the event of school outbreaks.

Challenge #2

Ensure equitable and timely access to immunization services, including through primary care, for all people in Ontario

Proposed Actions

- The Ministry of Health, in collaboration with public health units, should work with provincial and federal government agencies to ensure equitable access to immunization services for all people in Ontario, including temporary residents such as international students and migrant workers
- The Ministry of Health should continue to work with healthcare partners towards the articulated goal of having all people in Ontario attached to a primary care provider to facilitate access to routine immunizations
- Public health units should maintain and strengthen collaborations and partnerships with local healthcare partners to facilitate access to routine immunizations and post-exposure prophylaxis

Considerations

This outbreak has highlighted several challenges around working with communities or patients that may not have a primary care provider or OHIP coverage or experience unique barriers to accessing healthcare (e.g., geographic isolation, no phones or vehicles). Streamlining connections to primary care and immunization services will be particularly important for populations that have limited engagement with public health and/or do not routinely access healthcare, such as international students, migrant workers, and individuals belonging to certain faith-based communities. Engagement with these groups will require coordination across all levels of government (i.e., local, provincial, and national) and relationship building with local community partners and healthcare and education stakeholders. These communities may also be less likely to accept healthcare services or government intervention due to past experiences or mistrust. As such, a more holistic approach that considers the community's broader healthcare needs, not just immunizations, and addresses the psychological and emotional impacts of the outbreak on the community may be required.

The OIAC encourages the Ministry of Health to continue working with healthcare partners towards Ontario's Primary Care Action Plan to improve primary care attachment and facilitate timely and equitable access to routine immunizations for all people in Ontario.[22] These healthcare partners include, but are not limited to Ontario Health, the Ontario Medical Association and the Ontario Hospital Association. The OIAC also encourages PHUs to establish or maintain ongoing collaboration and partnerships with community primary care providers, acute care hospitals, and other health professionals such as pharmacists, dentists, and midwives. These partnerships with healthcare providers are required to ensure timely and equitable access to and acceptance of immunizations, including for PEP. PHUs should also work with community liaisons to promote immunizations and address the individual, social, structural, and systemic factors that may prevent access to or acceptance of immunizations for priority populations.

Challenge #3

Identify and address immunity gaps to prevent local transmission

Proposed Actions

- The Ministry of Health, in collaboration with PHO and local public health units, should develop a provincial strategy to improve immunization coverage and close immunity gaps within local communities or priority populations
- PHO and public health units should expand assessment of childhood immunization coverage to include small-area geographies and/or priority populations to identify local communities or populations where significant immunity gaps exist in Ontario or explore opportunities to collect these data where surveillance gaps exist
- Public health units should leverage and maintain existing relationships and build new relationships with local community partners outside of emergency or outbreak scenarios to optimize acceptance of public health interventions, including vaccination, and improve collection of immunization records

Considerations

Despite the limitations of existing surveillance systems, the measles outbreak is known to have primarily affected unimmunized individuals and was largely contained within communities that have historically had low uptake of recommended vaccines. These pockets of low coverage were believed to drive measles transmission within local communities. Immunization coverage of 95% or greater is generally accepted as the herd immunity threshold needed to prevent transmission of measles.[23,24] As described in the PHU engagement survey, many of the affected communities had immunization coverage below this threshold, driving measles transmission in these communities, particularly within close contacts such as households. To support re-verification of Canada's measles elimination status, enhanced surveillance efforts will be needed to identify small pockets of susceptible individuals, estimate immunization coverage at a local level, and achieve uniformly high coverage across all regions in Ontario.[2] For example, these efforts could include expansion of routine childhood immunization coverage assessments using existing surveillance systems (e.g., incorporating socio-demographic indicators from the Ontario Marginalization Index) and/or special projects that leverage linkages to other data sources (e.g., administrative data held at ICES). However, until Ontario has a comprehensive immunization registry for all people in the province (see Challenge #1), these information gaps will likely remain.

According to the OPHS, boards of health, and by extension PHUs, are responsible for engaging community partners and priority populations.[25] In that standard, priority populations are defined as "those that are experiencing and/or at increased risk of poor health outcomes due to the burden of disease and/or factors for disease, the determinants of health including the social determinants of health, and/or the intersection between them." The measles outbreak, along with the COVID-19 pandemic, provided several examples of successful engagement and relationship building with priority populations, including faith-based, ethno-racial, and minoritized communities, that could be leveraged in response to future outbreaks.[26-28] Importantly, these relationships should be established outside of outbreak scenarios or public health emergencies. While this challenge was identified through the multi-jurisdictional measles outbreak, these proposed actions would apply to other vaccine-preventable diseases, not just measles, where population-level coverage is suboptimal.

As described in the PHU survey, engagement with local community partners, priority populations and various stakeholder groups such as schools, primary care, and hospitals, along with interprovincial collaboration and coordination, were essential to an effective outbreak response. As it relates to immunizations, partnerships with schools and childcare providers are necessary for implementing and enforcing ISPA, coordinating immunization clinics for routine or school-based immunizations, and conducting case and contact management in the event of outbreaks in these settings. The OIAC encourages PHUs to continue to leverage their existing relationships and build new relationships with trusted community leaders, including faith-based leaders, within priority populations. This public health engagement should be co-developed with community partners and tailored to meet the needs of individual affected communities.

Challenge #4

Optimize implementation of existing policies and programs for routine childhood immunizations across all public health units

Proposed Actions

- The Ministry of Health should develop a provincial strategy to optimize efficient implementation of the ISPA and CCEYA for children in schools and licensed childcare settings across all public health units
- The Ministry of Health and public health units should engage with the Ministry of Education and other education partners and strive to implement the ISPA across all school settings, including private schools, and facilitate communications to educators and families
- The Ministry of Health and public health units should engage with the Ministry of Education and childcare operators and strive to implement the CCEYA for all licensed childcare settings to facilitate the collection of immunization records for preschool-aged children

Considerations

According to existing public health standards, PHUs are required to assess, maintain records, and report on the immunization status of all children enrolled in licensed childcare settings and attending schools in Ontario under provincial legislation.[14] However, as described in the PHU survey, this standard is not being consistently or efficiently implemented across the province. Some PHUs reported insufficient capacity to fully implement and enforce ISPA for all grades or cohorts or implement the CCEYA, resulting in inaccessible immunization records and unreliable immunization coverage in certain regions (see Challenge #1). The COVID-19 pandemic further exacerbated these intra-provincial differences, with many PHUs still trying to get their ISPA and CCEYA programs fully operational or back on track following the COVID-19 pandemic. As a result, reported immunization coverage estimates for measles vaccine under existing surveillance systems likely do not reflect true coverage in the population.

To improve immunization coverage surveillance in the absence of a provincial immunization registry, the OIAC proposes that implementation of the ISPA and CCEYA should be optimized for all children across the province. The Ministry of Health, in collaboration with PHUs, should develop multi-year plans that would allow PHUs to strive to implement ISPA and CCEYA across all school and licenced childcare settings, respectively. Recognizing the resource constraints and competing priorities within PHUs, a phased approach to full ISPA implementation and enforcement, including engagement with private schools, may be needed over multiple years. It should also recognize the heterogeneity across the province in terms of population demographics, geography, service delivery models, and program allocation, and allow for local flexibility and tailored approaches, as required. To support these efforts, the Ministry of Health and PHUs should engage with education partners, including the Ministry of Education and local schools and school boards, to facilitate optimal implementation of the ISPA and CCEYA and facilitate sharing communications with educators, childcare providers and families.

Challenge #5

Enhance public health engagement and coordination with primary care and healthcare partners to strengthen preparedness for outbreaks and public health emergencies

Proposed Actions

- The Ministry of Health should further engage with healthcare partners to develop a provincial strategy to optimize collaboration between public health, primary care, and acute care institutions and better define roles and responsibilities during outbreaks

Considerations

The OIAC encourages the Ministry of Health to engage with healthcare partners to develop a provincial strategy to optimize public health and primary care collaboration and define roles and responsibilities during outbreaks. As described in the PHU engagement survey, lack of coordination and collaboration across public health and primary care sectors was identified as a key challenge or barrier. Several PHUs commented that some primary care providers in their regions were reluctant to perform testing or provide PEP due to lack of appropriate infection prevention and control or anticipated impacts on their

practice. In those affected communities, public health nurses offered measles vaccine, provided counselling to vaccine hesitant parents, and got children up to date with their immunizations. Conversely, in other PHUs, we heard about successful partnerships between public health and primary care where primary care teams delivered measles vaccines to patients without regular healthcare providers or OHIP coverage, such as international agricultural workers. These types of community-based initiatives may also help build trust in the healthcare system and facilitate connections to primary care (see Challenge #2).

Challenge #6

Establish pathways that streamline sharing of information and resources and reduce duplication of efforts across public health units

Proposed Actions

- The Ministry of Health, in collaboration with PHO, should leverage existing networks or establish a new community of practice for public health units to share best practices and locally developed resources and tools related to immunization and implementation of the ISPA and CCEYA
- The Ministry of Health, in collaboration with PHO, should develop provincial resources and tools to support immunization activities and programs and minimize duplication of efforts across public health units

Considerations

During the outbreak, PHO established a provincial outbreak coordination call with PHUs affected by the multi-jurisdictional outbreak. This weekly meeting series served as a forum for affected PHUs to share best practices, information and resources and could be used as a model for continued and ongoing intra-provincial collaboration and coordination now that the outbreak has been declared over in Ontario. The OIAC recommends that the Ministry of Health, in collaboration with PHO, establish a provincial immunization community of practice to enable efficient immunization surveillance and public health responses to outbreaks. This initiative could build off other provincial immunization-focused working groups or standing meetings that would be inclusive of all PHUs in Ontario. It would ideally be co-chaired by a provincial and local PHU representative and would serve as a forum for PHUs to share knowledge, best practices, and lessons learned about their immunization programs, including but not limited to ISPA/CCEYA and school-based programs. It could also provide infrastructure for sharing technology-enabled tools and immunization resources. To minimize duplication of efforts, the OIAC further encourages the Ministry of Health, in collaboration with PHO, to develop provincial resources and tools to support local immunization activities and programs and/or coordinate the sharing and implementation of locally developed initiatives across PHUs.

Challenge #7

Strengthen public confidence in vaccines and trust in the public health system

Proposed Actions

- PHO should synthesize evidence on best practices and culturally relevant strategies to address vaccine hesitancy
- The Ministry of Health, in collaboration with PHO, should develop and implement a provincial strategy to increase vaccine confidence and uptake, build trust in the public health system, and address false and misleading information about vaccines

Considerations

Vaccine hesitancy, defined as "the delay in acceptance or refusal of vaccination despite availability of vaccination services," is a complex and context-specific issue.[29] It is an ongoing challenge for public health, primary care, and other immunization providers not just in Ontario but also globally. As described in the PHU engagement survey, false information about vaccines, mistrust in government and public health, and vaccine hesitancy and/or vaccine fatigue were factors that contributed to some, but not all, affected communities' reluctance to cooperate with case and contact management and accept public health interventions, including immunizations. Many of these factors are due to historical experiences that pre-date the multi-jurisdictional outbreak and speak to larger health system issues. They are also situated within a broader public discourse about vaccines outside of the affected communities that has been exposed and exacerbated by the COVID-19 pandemic. To address vaccine hesitancy, many PHUs spoke to the need for culturally relevant and translated immunization resources for priority populations that considered their worldview and were ideally co-developed with community members. While these types of approaches benefit from local knowledge and expertise, PHUs also described how these systemic issues were not limited to Ontario and often too big for a single PHU to tackle on their own with available resources. Instead, they suggested provincial or national strategies to address false information about vaccines and build trust in the public health system.

The OIAC encourages the Ministry of Health to develop and implement such a strategy to increase vaccine confidence and uptake, build trust in the public health system, and address false information about vaccines. In a recent report on the future of immunizations in Ontario, the Chief Medical Officer of Health proposes several strategies for reversing declining vaccine confidence, including but not limited to a centralized resource centre, community health promotion, and public communication campaigns. The Ministry of Health should engage with regional, provincial, and national partners, including local PHUs, PHO, OIAC, and the Public Health Agency of Canada, to ensure this strategy is evidence informed, culturally relevant, and aligned with broader efforts to tackle declining vaccine confidence following the COVID-19 pandemic.

Evidence Gaps and Future Research

In addition to the challenges identified above, OIAC members emphasized the need for ongoing research to inform the public health response to future outbreaks of vaccine-preventable diseases. During their discussions, OIAC members identified key evidence gaps in our understanding of measles disease characteristics and epidemiology, as well as the effectiveness and impact of measles immunization, including the outbreak immunization strategies employed. Several of these evidence gaps were also identified by PHUs in the engagement survey.

The OIAC recommends that PHO assess the scope, feasibility and capacity of addressing evidence gaps and areas for future research as identified through the PHU engagement survey and report its assessment back to the Ministry of Health. The Ministry of Health will then prioritize identified measles immunization topics and engage with provincial or national partners, including PHO or OIAC where appropriate within their mandates, to conduct evidence reviews and/or provide advice to inform Ontario's immunization programs.

The OIAC has identified the following topics for PHO to prioritize for future scoping and research:

- Acceptance, uptake, effectiveness, and impact of Ontario's measles outbreak immunization strategy
- Optimal timing of the second measles-containing vaccine dose and potential changes to Ontario's publicly funded routine immunization schedule
- Eligibility for two doses of measles-containing vaccine under Ontario's publicly funded routine immunization schedule for all adults born in or after 1970 (i.e., not just those who meet high-risk eligibility criteria) outside of outbreak settings
- Transmissibility of measles virus in immunized or partially immunized individuals to inform provincial guidance on case and contact management
- Effectiveness of measles-containing vaccine or immunoglobulin as post-exposure prophylaxis by time since exposure
- Evidence-based approaches to assess vaccine knowledge, attitudes and beliefs and address vaccine hesitancy in priority populations

Conclusions

As a result of the multi-jurisdictional measles outbreak that affected Ontario and several other provinces and territories, Canada has lost its measles elimination status – a public health achievement it had held for more than 25 years. In response to this measles outbreak, Ontario undertook several preparedness and response activities to mitigate, control or contain the outbreak within affected communities and minimize spillover events into the broader Ontario population. Despite these activities, this outbreak highlighted several challenges related to the delivery of Ontario's immunization programs and outbreak response, monitoring of immunization coverage, and outdated immunization information systems.

Ontario's 2024–2025 outbreak draws several parallels with other outbreaks occurring after measles elimination in Canada including in Quebec (2011) and British Columbia (2014).[30,31] These similarities include serendipitous introduction of measles resulting in superspreading events and long chains of transmission, pockets of susceptible individuals within communities that have historically been under-immunized, and limited spillover into the surrounding community due to high measles immunization coverage and/or public health measures to reduce exposure opportunities. Both the Ontario and British Columbia outbreaks also highlighted the importance of ongoing engagement and relationship building with affected communities outside of public health emergencies or outbreaks.

Outbreaks of measles and other vaccine-preventable diseases are increasing globally due in part to the slow recovery of immunization programs and rising vaccine hesitancy following the COVID-19 pandemic.[32] Ontario, along with the rest of Canada, should continue to expect travel-associated measles cases and introduction of measles into susceptible populations. To improve Ontario's preparedness and response to future outbreaks and support Canada regaining its measles elimination status, the OIAC is proposing an immunization action plan. These proposed actions are directed toward immunization interest holders in Ontario, including local public health units, the Ministry of Health, and PHO, along with partner organizations in the healthcare and education sectors. While focused on Ontario given OIAC's mandate, these actions have implications beyond provincial borders for other jurisdictions that may face similar challenges, along with vaccine-preventable diseases besides measles.

This action plan outlines several strategies for Ontario to modernize its immunization information systems, optimize its existing policies and programs for immunization service delivery and coverage monitoring, and strengthen its outbreak preparedness and response activities. It focuses on achieving homogeneous and sustained vaccination coverage above herd immunity thresholds and closing immunity and surveillance gaps within priority populations, aligned with the Pan American Health Organization's regional framework for the monitoring and re-verification of measles elimination.[2] It also acknowledges the rising vaccine hesitancy in certain communities and proposes strategies to strengthen public confidence in vaccines and improve trust in the public health system. It builds on and amplifies recent recommendations from the Chief Public Health Officer of Canada, Ontario's Chief Medical Officer of Health, and Public Health Ontario, which similarly focus on strengthening our national and provincial immunization systems.[3-5] Collectively, these reports provide a roadmap for Ontario to prevent future outbreaks of vaccine-preventable diseases and support Canada regaining its measles elimination status.

References

1. Pan American Health Organization (PAHO). PAHO calls for regional action as the Americas lose measles elimination status [Internet]. Washington, DC: PAHO; 2025 [cited 2025 Dec 1]. Available from: https://www.paho.org/en/news/10-11-2025-paho-calls-regional-action-americas-lose-measles-elimination-status
2. Pan-American Health Organization (PAHO). Regional framework for the monitoring and re-verification of measles, rubella, and congenital rubella syndrome elimination in the Americas. 1st ed. Washington, DC: PAHO; 2021. Available from: https://iris.paho.org/bitstream/handle/10665.2/55074/9789275124062_eng.pdf
3. Public Health Agency of Canada. Chief public health officer of Canada's report on the state of public health in Canada 2024: realizing the future of vaccination for public health. Ottawa, ON: Public Health Agency of Canada; 2024. Available from: https://www.canada.ca/content/dam/phac-aspc/documents/corporate/publications/chief-public-health-officer-reports-state-public-health-canada/state-public-health-canada-2024/report/report.pdf
4. Moore K. CMOH annual report: protecting tomorrow: the future of immunization in Ontario. Toronto, ON: King's Printer for Ontario; 2025. Available from: https://www.ontario.ca/files/2025-09/moh-2024-cmoh-annual-report-en-2025-09-03.pdf
5. Ontario Agency for Health Protection and Promotion (Public Health Ontario). Increasing routine immunization coverage following the COVID-19 pandemic: Perspectives from Ontario's public health units. Toronto, ON: King's Printer for Ontario; 2025. Available from: https://www.publichealthontario.ca/-/media/Documents/C/25/covid-19-pandemic-increasing-routine-immunization-coverage.pdf
6. de St. Maurice A. Merck manual: measles [Internet]. Rahway, NJ: Merck & Co., Inc.; 2025 [cited 2025 Oct 30]. Available from: https://www.merckmanuals.com/professional/pediatrics/common-viral-infections-in-infants-and-children/measles
7. Pan American Health Organization (PAHO). Ten countries in the Americas report measles outbreaks in 2025. Country Life Science News [Internet], 2025 Aug 15 [cited 2025 Oct 30]; Immunization. Available from: https://www.paho.org/en/news/15-8-2025-ten-countries-americas-report-measles-outbreaks-2025
8. Ontario Agency for Health Protection and Promotion (Public Health Ontario). Enhanced epidemiological summary: measles in Ontario [Internet]. Toronto, ON: King's Printer for Ontario; 2025 [cited 2025 Oct 30]. Available from: https://www.publichealthontario.ca/-/media/Documents/Surveillance-Reports/Measles/25/measles-ontario-epi-2025-10-09.pdf
9. Health Infobase. Measles and rubella weekly monitoring report: week 42 (October 12 to 18, 2025) [Internet]. Ottawa, ON: Government of Canada; 2025 [cited 2025 Oct 30]. Available from: https://health-infobase.canada.ca/measles-rubella/
10. Moore K (Chief Medical Officer of Health, Ministry of Health, Toronto, ON). Re: measles update. Toronto, ON: King's Printer for Ontario; 2025. Unpublished.
11. Ontario Agency for Health Protection and Promotion (Public Health Ontario), Ontario Immunization Advisory Committee. Recommendations: measles post-exposure prophylaxis for individuals who are immunocompromised due to disease or therapy. Toronto, ON: King's Printer for Ontario; 2025. Available from: https://www.publichealthontario.ca/-/media/Documents/M/25/measles-post-exposure-prophylaxis-immunocompromised.pdf

12. Moore K (Chief Medical Officer of Health, Ministry of Health, Toronto, ON). Re: update: measles outbreak preparedness and response. Toronto, ON: King's Printer for Ontario; 2025. Unpublished.

13. Ontario. Ministry of Health. Ontario public health standards: requirements for programs, services, and accountability. Toronto, ON: King's Printer for Ontario; 2021. Available from: https://files.ontario.ca/moh-ontario-public-health-standards-en-2021.pdf

14. Ontario. Ministry of Health and Long-term Care. Immunization for children in schools and licensed child care settings protocol, 2018. Toronto, ON: Queen's Printer for Ontario; 2018. Available from: https://files.ontario.ca/moh-immunization-schools-child-care-protocol-en-2018.pdf

15. *Immunization of School Pupils Act*. RSO 1990, c I.1. Available from: https://www.ontario.ca/laws/statute/90i01

16. *Child Care and Early Years Act*. SO 2014, c 11, Sched 1. Available from: https://www.ontario.ca/laws/statute/14c11

17. Ontario Agency for Health Protection and Promotion (Public Health Ontario). Immunization coverage report for school pupils in Ontario: 2019-20 to 2022-23 school years [Internet]. Toronto, ON: King's Printer for Ontario; 2024 [cited 2025 Oct 30]. Available from: https://www.publichealthontario.ca/-/media/Documents/I/24/immunization-coverage-2019-2023.pdf

18. Public Health Agency of Canada. Guidance for the public health management of measles cases, contacts and outbreaks in Canada [Internet]. Ottawa, ON: Government of Canada; 2025 [cited 2025 Oct 30]. Available from: https://www.canada.ca/en/public-health/services/diseases/measles/health-professionals-measles/guidance-management-measles-cases-contacts-outbreaks-canada.html

19. Ontario Agency for Health Protection and Promotion (Public Health Ontario). Public health unit mergers [Internet]. Toronto, ON: King's Printer for Ontario; 2025 [cited 2025 Aug 27]. Available from: https://www.publichealthontario.ca/en/About/News/2025/01/Public-Health-Unit-Mergers

20. Vaismoradi M, Turunen H, Bondas T. Content analysis and thematic analysis: implications for conducting a qualitative descriptive study. Nurs Health Sci. 2013;15(3):398-405. Available from: https://doi.org/10.1111/nhs.12048

21. Ontario Agency for Health Protection and Promotion (Public Health Ontario), Ontario Immunization Advisory Committee. Position statement: a provincial immunization registry for Ontario. Toronto, ON: King's Printer for Ontario; 2024. Available from: https://www.publichealthontario.ca/-/media/Documents/O/24/oiac-position-statement-provincial-immunization-registry.pdf

22. Ontario. Ministry of Health. Ontario's primary care action plan: connecting every person in Ontario to primary care [Internet]. Toronto, ON: King's Printer for Ontario; 2025 [cited 2025 Dec 5]. Available from: https://www.ontario.ca/files/2025-01/moh-ontario-primary-care-action-plan-overview-2025-01-27.pdf

23. Plans-Rubió P. Are the objectives proposed by the WHO for routine measles vaccination coverage and population measles immunity sufficient to achieve measles elimination from Europe? Vaccines (Basel). 2020;8(2):218. Available from: https://doi.org/10.3390/vaccines8020218

24. Funk S, Knapp JK, Lebo E, Reef SE, Dabbagh AJ, Kretsinger K, et al. Combining serological and contact data to derive target immunity levels for achieving and maintaining measles elimination. BMC Med. 2019;17(1):180-12. Available from: https://doi.org/10.1186/s12916-019-1413-7

25. Ontario. Ministry of Health and Long-Term Care. Population health assessment and surveillance protocol, 2018. Toronto, ON: Queen's Printer for Ontario; 2018. Available from: https://files.ontario.ca/moh-population-health-assessment-surveillance-protocol-2018-en.pdf

26. Blake-Hepburn D, Kadio K, Rahman S, Khan MH, Abdi S, Fadel SA, et al. The role of trust in engaging community-based task forces and agencies among minoritized communities during a public health emergency. Can J Public Health. 2025 Jun 30 [Epub ahead of print]. Available from: https://doi.org/10.17269/s41997-025-01074-w

27. Kadio K, Song MY, Karbasi A, Blake-Hepburn D, Fadel SA, Allin S, et al. How have Ontario public health units engaged with faith-based organizations to build confidence in COVID-19 vaccines among ethno-racial communities. PLOS Glob Public Health. 2024;4(12):e0003924. Available from: https://doi.org/10.1371/journal.pgph.0003924

28. Song MY, Blake-Hepburn D, Varia M, Estey Noad E, Peer N, Pakes B, et al. Perceived effectiveness of public health unit partnerships with faith-based and other community-based organizations to promote COVID-19 vaccination among ethnoracial communities. Int J Public Health. 2024;69:1607200. Available from: https://doi.org/10.3389/ijph.2024.1607200

29. MacDonald NE. Vaccine hesitancy: definition, scope and determinants. Vaccine. 2015;33(34):4161-64. Available from: https://doi.org/10.1016/j.vaccine.2015.04.036

30. Naus M, Puddicombe D, Murti M, Fung C, Stam R, Loadman S, et al. Outbreak of measles in an unvaccinated population, British Columbia, 2014. Can Commun Dis Rep. 2015;41(7):169-74. Available from: https://doi.org/10.14745/ccdr.v41i07a02

31. De Serres G, Markowski F, Toth E, Landry M, Auger D, Mercier M, et al. Largest measles epidemic in North America in a decade—Quebec, Canada, 2011: contribution of susceptibility, serendipity, and superspreading events. J Infect Dis. 2013;207(6):990-8. Available from: https://doi.org/10.1093/infdis/jis923

32. World Health Organization (WHO). Increases in vaccine-preventable disease outbreaks threaten years of progress, warn WHO, UNICEF, Gavi [Internet]. Geneva: WHO; 2025 [cited 2025 Oct 27]. Available from: https://www.who.int/news/item/24-04-2025-increases-in-vaccine-preventable-disease-outbreaks-threaten-years-of-progress--warn-who--unicef--gavi

Public Health Ontario
661 University Avenue, Suite 1701
Toronto, Ontario
M5G 1M1
416-235-6556
secretariat@oahpp.ca
publichealthontario.ca

Ontario