MLHU 2022
Infectious Disease Control
Program Description

Table of Contents

Program Summary

The Infectious Disease Control (IDC) Program plays an important role in protecting communities from infectious diseases. The program aims to quickly and effectively respond to disease episodes and help implement prevention and control measures across settings. Interventions conducted by IDC include conducting outbreak investigation and management, case and contact management, clinical support, institutional infection prevention and control, inspections, community infection prevention and control, FoodNet Canada, health promotion and communication, tier 2 intake, and surveillance, monitoring and reporting.

Details regarding program management and structure, program mandate, and intended outcomes are the program can be found in Appendix A on page 13.

To be prepared for 2022, certain operational planning assumptions were required to be prepared for the unpredictability of COVID-19 case and contact management. The assumptions were based on the knowledge of the Alpha and Delta variants' infectivity and death rate and the continued management of all cases including contact tracing and ongoing high ICU and hospital admissions. However, although cases have continued with the Omicron variant, the severity, death and hospitalization rates have stabilized. As well, the provincial case and contact direction has transitioned to focus only on high-risk settings (i.e. long-term care and retirement homes, shelters, and other congregate settings). With the stabilization of cases and prioritization of high-risk settings, case and contact management has evolved to primarily outbreak management. Moving forward, it will be critical to continue to make adjustments to the IDC operational model in order to continue to meet the needs of the community and stay within the fiscal envelope which is unknown at this time.

Planning Assumptions

Planned 2022 Operational Response

The planning assumption for 2022 was for a variant of similar transmissibility and severity to the Alpha and Delta variants of COVID-19, along with stable incidence rates of other Diseases of Public Health Significance (DOPHS). The base case scenario projected that there would be, on average, 10 to 20 cases of COVID-19 per day, five associated contacts would be identified, and the IDC team would provide ongoing case and contact management to these individuals. Additionally, the IDC team would be managing between five and 10 outbreaks concurrent to these disease investigations.

Current Operational Response

Since the emergence of the Omicron variant, the IDC Program has primarily acted as an outbreak investigation and management team. With contacts no longer being identified and quarantined by public health, Contact Tracers have acted as case screeners, identifying individuals who had acquisition or transmission exposures at high-risk outbreak settings (long-term care and retirement homes, acute care, group homes, shelters, detention centres, and First Nation communities and congregate settings). Once high-risk cases are identified, Public Health Nurses or Inspectors conduct a case investigation interview to asses each high-risk exposure and trigger outbreak investigations. If an outbreak is subsequently identified, Public Health Nurses or Inspectors work closely with facility operators to implement outbreak control measures for areas at risk.

Local COVID-19 cases peaked on December 30, 2021 at 715 reported cases. The seven-day incidence rate since that time has been no less than 60 cases per day. This has required the entire team compliment to be engaged in the triaging of cases and outbreaks.

Expected Q3 and Q4 Operational Response

Barring the emergence of a new and more transmissible and immune evasive variant, it is expected that there will be a reduced incidence rate of COVID-19 cases and outbreaks through to September. Where necessary, the IDC Program will look to reduce the scheduled hours of its Contact Tracer compliment to align with operational demands. The winter respiratory season will likely see an increased incidence rate of cases and outbreaks due to waning immunity from vaccination and previous infection. Continued uptake of booster doses will be critical to ensure that a sufficient level of population immunity is maintained to avoid severe pressure on the acute care system.

Operational Response for 2023 and Beyond

There is still considerable uncertainly for what COVID-19 endemicity will look like globally and locally. Until a steady state is reached, the delivery of the IDC Program will be variable, and will require MLHU to be responsive to community need with the resources it has available.

Target and Priority Populations

- Hospitals
- Congregate Living Settings
- International Agricultural Workers
- First Nation, Métis, and Inuit Communities

Key Partners and Stakeholders

- First Nation, Métis, and Inuit Community Leaders
- City of London Shelter Operators
- Southwest Infection Prevention and Control HUB
- Ontario Health West
- London Middlesex Triad
- London Health Sciences Centre
- Regional Testing Advisory Committee
- Community Wide Infection Control Committee

Program Interventions

Outbreak Investigation and Management

Outbreak investigation and management is a key intervention to identify the cause of outbreaks within a setting and to implement infection control measures to reduce the risk of ongoing transmission. An outbreak is an increase from the usual number of cases of disease or infection. In the case of a respiratory outbreak, the outbreak is suspected and reported when there are two cases of acute respiratory illness within 48 hours. An enteric outbreak is suspected and reported when there are two cases of gastrointestinal illness within 48 hours.

Outbreaks are reported by facilities as soon as they are suspected or identified, or alternatively, when the health unit has investigated cases that have exposures linked to a particular location, product, or setting.

When the health unit declares the outbreak, outbreak control measures are implemented to stop any ongoing transmission of disease. In the case of long-term care and retirement homes, this may mean isolating residents to their rooms, limiting communal dining, and enhancing cleaning. In the case of an enteric outbreak, there is an investigation of the source. If the investigation identifies a contaminated food product, this could result in an inspection and recall notice being issued at a scope appropriate to the degree of contamination.

Case and Contact Management

Case and contact management are specialized skills that public health staff use in an investigation of any DOPHS that legislatively must be reported to the health unit. Case investigation is the identification of any person with suspect, confirmed, and probable diagnoses. The management of the case is variable depending on the type of pathogen that is reported.

The investigation typically begins with a thorough interview to determine and identify close contacts (contact tracing) using a series of questions and data collecting methods so that information can be documented in a case and contact management tool. Contact investigation or contact tracing is the identification, monitoring, and support of the individuals or contacts who have been exposed to the case and possibly infected themselves. This process prevents further transmission of disease by separating people who have or may have an infectious disease from people who do not.

Clinical Support

Due to the lack of community physicians' available to provide the health care needs to individuals with suspect or active tuberculosis (TB), the Middlesex-London Health Unit provides services through clinics run by the IDC team in partnership with a local Pediatric Infectious Disease Specialist and Respirologist. Currently, the TB clinic routinely sees the following clients: active TB cases with no specialist involved in care at time of diagnosis, immigrants who have been indicated for surveillance under the TB Immigration Surveillance (IMS) Program, contacts of cases with no family physician that are interested in latent tuberculosis infection (LTBI) treatment, Government Assisted refugees (GARs) with positive TB skin tests, GARs with negative TB skin tests and abnormal chest x-rays, referrals, and LTBI clients with no family physician that are interested in treatment.

Institutional Infection Prevention and Control (IPAC)

The IDC program is responsible for supporting infection prevention and control (IPAC) practices in high-risk congregate settings (i.e. long-term care and retirement homes, shelters and other congregate settings) so as to limit the spread of infectious diseases. Some of the activities associated with this intervention include:

- providing education and training, supporting communities of practice;
- learning and networking among IPAC leaders;
- supporting the development of IPAC programs;
- policy and procedures within sites;
- assessments and audits of IPAC programs and practice;
- recommendations to strengthen IPAC programs and practices;
- mentoring of IPAC service delivery within homes;
- working with public health partners and congregate living settings to develop outbreak management plans and
- supporting the congregate living setting to implement IPAC recommendations.

Inspections

Compliance inspections at institutional food kitchens, personal service settings, and child care centres are completed by Public Health Inspectors using risk assessment as per provincial protocols. Re-inspections are required when non-compliance or violations are found. The IDC team ensures that an updated list of premises is entered into the data system for all public health inspections. All inspection results are posted on the MLHU website.

Community Infection Prevention and Control

As per the Ministry of Health and Long-Term Care, *Infection Prevention and Control Protocol*, public health is expected to follow up on certain IPAC complaints related to high-risk settings (e.g. personal service settings, dental and medical offices). In some circumstances, notification of regulatory body is needed. Depending on the type of complaint or investigation, consultation with Public Health Ontario is needed. Similar to inspections, IPAC lapses are disclosed on the health unit website as needed. Some complaints may also generate a case report and sharing of findings with clients.

FoodNet Canada (FNC)

FNC is a multi-partner, enhanced surveillance program for food- and water-borne illnesses with the purpose of determining what foods and other sources are making Canadians ill. FNC is the Public Health Agency of Canada (PHAC) surveillance program with the ability to examine trends in enteric illness and to assess risk over time to determine public health impact. FNC considers enteric illnesses from a unique perspective which integrates enhanced follow-up of human cases of selected enteric diseases, testing of retail food products of interest for infectious agents that can cause illness, and sampling of manure from local farms and surface water for infectious agents that can cause illnesses.

MLHU is responsible for carrying out two of the FNC program's four components: enhanced follow-up of human cases reported among Middlesex-London residents, and the purchase of retail food items to be tested for infectious pathogens.

Health Promotion / Communications

Proactive efforts are made to prevent the spread of infectious diseases. These efforts include health care provider infectious disease articles for MLHU's health care provider e-newsletter, the development of materials for MLHU's health care provider resources binder, and the review and update of paper and electronic resources on the MLHU website.

The program also identifies the intersection between the social determinants of health and the risks of infectious disease transmission associated with these determinants. As an example, during the COVID-19 pandemic, housing has been a significant factor in determining the amount of transmission of infectious diseases. Public health has been able to provide recommendations to decision makers regarding the need for adequate housing for individuals to isolate when infectious or potentially incubating an infectious disease.

Tier 2 Intake

Tier 2 intake is a service provided to the public calling or emailing about issues pertaining to infectious disease control. The IDC tier 2 intake deals with all pathogens except for COVID-19 and has a Public Health Nurse or Public Health Inspector assigned daily to triage calls from the community. The COVID-19 tier 2 intake responds to all inquiries regarding COVID-19 that can not be resolved by tier 1 Client Service Representatives. The IDC tier 2 line operates Monday to Friday, 8:30am to 4:30pm and the COVID-19 tier 2 lines from 9:00am to 8:00pm.

Surveillance, Monitoring, and Reporting

Daily and monthly surveillance reports summarize the DOPHS in the Middlesex -London region. The surveillance reports inform local program planning, prioritization and interventions. A daily outbreak report is generated and distributed to internal and external stakeholders (e.g., Long-term care institutions and hospitals). During influenza season, from November to May, MLHU distributes a weekly a Community Influenza Surveillance Report to local stakeholders which is also posted on the MLHU website.

The Daily Surveillance Report (DSR) is prepared and distributed to key stakeholders to notify them about the current cases being monitored in the community. A Monthly Surveillance Report is prepared by the Population Health Assessment and Surveillance Team and reviewed by the IDC Manager and Associate Medical Officer of Health.

COVID-19 has additional surveillance tools that support daily reporting on the MLHU Dashboard. Reporting through the dashboard is made possible through detailed case reporting from the case screening and investigations processes.

Tuberculosis medical surveillance is a medical check-up for a person who is newly arrived in Canada to check that their inactive tuberculosis has not progressed to active tuberculosis disease. Medical surveillance is required for anyone who was assessed as having inactive tuberculosis on their immigration medical examination (IME). Medical surveillance ensures that proper treatment can be provided, which in turn helps protect the health and safety of people in Canada. Inactive tuberculosis is the only medical condition for which medical surveillance is currently required.

2021 Performance / Service Level Indicators

Case and Contact Management

In 2021, there were a total of 19,306 episodes reported to MLHU for follow-up. This included 18,638 episodes of COVID-19 requiring follow-up.

Other case counts of interest included:

- The number of Carbapenemase-producing Enterbacteriaceae (CPE) cases (n=15) reported in 2021 exceeded 2 standard deviations (SD) (11.0) of the annual average
- The number of Tuberculosis (active) cases (n=20) reported in 2021 exceeded 2SD (16.2) of the annual average from the previous five years (2016-2020)
- The number of Encephalitis/Meningitis cases (n=24) reported in 2021 exceeded 2SD (23.0) of the annual average
- The number of Legionellosis cases (n=26) reported in 2021 exceeded 2SD (25.6) of the annual average
- The number of Lyme disease cases (n=6) reported in 2021 exceeded the annual average (5.20) but did not exceed 2SD (12.6) of the annual average
- The number of Paratyphoid Fever cases (n=1) reported in 2021 exceeded the annual average (0.4) but did not exceed 2SD (2.2) of the annual average
- The number of Tetanus cases (n=1) reported in 2021 exceeded the annual average (0.2) but did not exceed 2SD (1.1) of the annual average.

Outbreak Investigation and Management

- 325 confirmed COVID-19 outbreaks were investigated

Institutional Infection Prevention and Control

- ~1,600 requests for support from congregate settings (i.e. Long-Term Care and Retirement Homes, Shelters, Detention Centres, Group Homes, Child Care Facilities, Hospitals):
    - 750 requests for assistance implementing guidance documents
    - 469 requests for outbreak preparation and planning
    - 299 requests for general education
    - 42 requests for audits and assessments of IPAC practices
    - 99 requests for assistance with IPAC program planning, implementation and evaluation
    - 261 for other requests

Inspections

- 84 required licensing or ownership change inspections
- Five inspections to follow up on complaints
- Routine personal service setting inspections were deferred due to COVID-19 workload
- Routine institutional food inspections were deferred due to COVID-19 workload
- Routine child care inspections were deferred due to COVID-19 workload

FoodNet Canada

Water Sampling

- Among the surface water samples that were positive for toxin-producing E. coli (STEC) in 2021, one sample was serotyped as O111:H8, and another sample was serotyped as O103:H2. O111 and O103 are both included in the seven prioritized STEC serogroups in Canada as they are known to cause human illness.

Retail Sampling

- Four ground beef samples (11.1%, 4/36) were found to be positive for STEC in 2021 Q3. Serotypes identified were 06:H34, O55:H12, O:H29**t**, and O2:H25.

Farm Sampling

- Of the FNC farm and retail isolates that were sequenced and analyzed, 48.8% (39/80) were found to be related to a human whole genome sequence (WGS) cluster. The most matches were among turkey manure (66.7%, 32/48), followed by swine manure (45.5%, 5/11) and chicken breast (25.0% 2/8).

Highlights / Initiatives Planned

De-escalation of Pandemic Response to Sustained Operations

For most of the pandemic, those working on COVID-19 interventions have primarily worked continental shifts to facilitate seven-days-per-week coverage. An initial transition to regular Monday to Friday coverage occurred in March 2022 with an additional transition to come in July 2022. It is the intention of the program to have as few individuals working evenings and weekends as required by the Ministry of Health. A recent communication expressed that only outbreak investigation and management should be prioritized outside of regular business hours.

Resumption of All Routine Inspections

The pandemic response has significantly impaired the IDC Program's capacity to conduct routine inspections. Starting in June 2022, routine inspections will resume with highest-risk locations (e.g. institutional food) being prioritized for first inspections.

Enhanced Institutional Infection Prevention and Control Support

Since the beginning of the pandemic, case load and staff turnover have limited the IDC Program's ability to provide onsite infection prevent and control support to congregate settings and engage in facility liaison work. On-the-ground presence by public health professionals improves the relationship with facilities, provides a more nuanced understanding of the settings in which outbreak control measures may need to be applied, and increases the uptake of infection prevention and control practices. As the incidence rate and outbreaks are reduced through Q2 and Q3, Public Health Nurses and Public Health Inspectors will be conducting site visits to most congregate settings, except group homes.

Program Challenges and Risks

Workload Variability

Entering the summer months, it is anticipated that there will be a decline in respiratory infectious disease activity. In order to be properly prepared for a Fall / Winter respiratory season, the IDC team will need to provide staff with work opportunities but be diligent to ensure there is work to be performed when individuals are scheduled.

Staffing

The staffing needs of the pandemic have been met with numerous strategies like having medical students from Western University or City of London staff assist with contact tracing, integrating workflows with a provincial workforce to conduct some components of case investigation, deploying and redeploying internal staff, and onboarding significant numbers of new team members.

These staffing changes have each brought challenges and limited the IDC team's ability to develop a workforce with a high degree of experience and expertise.

Change Management

The need to respond to ever-changing infectious diseases epidemiology and corresponding provincial guidance has been difficult for team members. Each subsequent change is more difficult to implement given change fatigue. There continue to be changes required for de-escalation from the peak of the pandemic.

Conclusion

The unpredictability of the pandemic and the potential for additional variants makes it very difficult for public health to plan case and contact management for 2023 and beyond. In addition, future fiscal unknowns add more challenges to planning and forecasting. However, maintaining a baseline of case investigators, contact tracers, program assistants and leaders will support the Middlesex-London community through 2022 and enable the IDC team to appropriately plan for 2023 as more information is made available.

Appendix A

Program Management and Structure

Operational Cadence

The IDC program has a seven-day-per-week, 9:00am to 8:00pm operational response with 24-hour on-call.

Most of the team is scheduled Monday through Friday with supplemental staff scheduled on continental shifts to provide evening and weekend coverage. The IDC Manager and Associate Managers have a rotating on-call during evening and weekend hours and are further supported by the on-call Medical Officer of Health.

Staffing Compliment (FTEs)

Role	Pre-Pandemic 2020 Compliment	Budgeted 2022 Compliment	Current Compliment
Manager	1	1	1
Associate Manager	0	7	7
Supervisor	0	4	3
Program Assistant	1	8	6
Public Health Nurse	7	44	55[1]
Public Health Inspector	7	25	9
Health Promoter	0.5	0.5	0.5
Contact Tracer[2]	0	50	48
TOTAL FTE	16.5	139.5	129.5

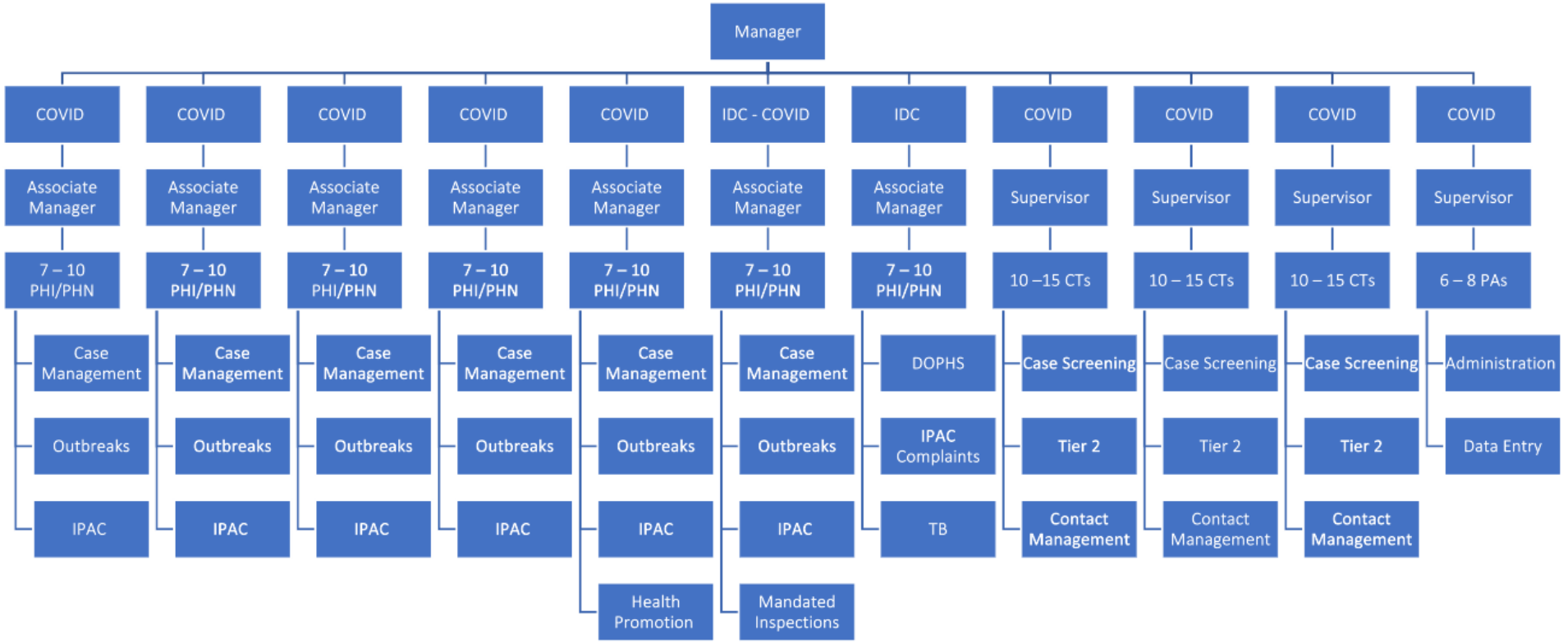
[1] Eleven additional temporary full-time Public Health Nurses have been hired to offset the lack of Public Health Inspectors available from recruitment. Public Health Inspector roles were posted but insufficient candidates were identified to fulfill the 16 temporary contracts.

[2] All Contact Tracers are on temporary casual contracts and are scheduled as workload require.

Roles

Role	Description
Manager	The Manager provides leadership to the IDC Program by setting program strategy, operational goals and objective, monitoring performance, and providing constant oversight of operational objectives. In collaboration with Associate Managers and Supervisors, the Manager will identify and address program issues, challenges, and opportunities. The Manager will also be responsible for ensuring that each intervention is appropriately staffed to reflect changing priorities.
Associate Manager	The Associate Managers are responsible for the delivery of assigned interventions within the IDC Program. The interventions are assigned at the discretion of the Manager and the Associate Manager is responsible for the effective delivery of assigned interventions. This includes regular and robust oversight and reporting on the performance of the intervention and of staff, including performance management. Associate Mangers are responsible for ensuring that program staff are following required documentation and data collection practices through the regular review of case documentation and running reports from case management databases and tools. The Supervisors are also responsible for providing consultative support and guidance to Case Investigators and Contact Tracers who encounter difficult or complex cases and contacts. They will also mentor, coach and provide feedback on performance. The Supervisors are also responsible for the day-to-day scheduling and attendance management of the staff assigned to their interventions.
Supervisor	Supervisors have the same responsibilities as indicated for Associate Managers for the management of program staff but do not supervise individuals performing interventions that require regulated health professionals.
Program Assistant	The Program Assistant supports all administrative needs of the Infectious Disease Control Program which includes, but is not limited to, monitoring lab results being received by fax, reconciling data and preparing lists for team members, and ensuring that reporting to provincial reporting systems are complete.
Public Health Nurse	Public Health Nurses are responsible for outbreak investigation and management, case and contact management, clinical support, institutional infection prevention and control, community infection prevention and control, health promotion, tier 2 intake, and surveillance, monitoring and reporting.
Public Health Inspector	Public Health Inspectors are responsible for outbreak investigation and management, case and contact management, institutional infection prevention and control, inspections, community infection prevention and control, health promotion, tier 2 intake, and surveillance, monitoring and reporting.
Health Promoter	Health Promoters are responsible for developing and implementing health promotion interventions related to infectious disease control.
Contact Tracer	Contact Tracers are responsible for specific components of case and contact management and tier 2 intake.

Organizational Structure



Program Mandate

Legislation

- Health Protection and Promotion Act, R.S.O. 1990 H.7
    - Designation of Diseases O. Reg. 135/18 i) Communicable Diseases – General R.R.O. 1990, Reg. 557
- Mandatory Blood Testing Act, 2006
- Coroners Act, R.S.O. 1990, c. C.37
- Occupational Health and Safety Act, R.S.O. 1990, c.O.1
- Public Hospitals Act, R.S.O. 1990, c. P.40
- Emergency Management and Civil Protection Act, R.S.O. 1990, c. E.9
- Personal Health Information Protection Act, 2004, S.O. 2004, c.3 Sched. A (PHIPA) c) Quarantine Act, S.C. 2005, c. 20

Program Standards

- Ontario Public Health Standards, 2018 or as current
    - Infectious and Communicable Diseases Prevention and Control Standard
    - Infectious Diseases Protocol, 2018 (or as current)
    - Infection Prevention and Control Complaint Protocol, 2018 (or as current)
    - Infection Prevention and Control Disclosure Protocol, 2018 (or as current)
    - Population Health Assessment and Surveillance Protocol, 2018
    - Institutional/Facility Outbreak Management Protocol, 2018 (or as current)
    - Control of Respiratory Infection Outbreaks in Long-Term Care Homes, 2018
    - Tuberculosis Prevention and Control Protocol, 2018 (or as current)
    - Tuberculosis Program Guideline 2018 (or as current)
    - Personal Service Settings Guideline, 2018 (or as current).
    - Healthy Environments and Climate Change Guideline, 2018 (or as current)
    - Ministry Guidance documents and Directives related to COVID-19, as current
    - Emergency Management Guideline, 2018 or as current
- Canadian Tuberculosis Standards
- Planning Guide for Respiratory Pathogen Season, 2018

Intended Program Outcomes

Long-Term / Population Health

- To reduce the burden of respiratory, enteric and other infectious disease of public health significance.

Intermediate

- Analyze and use local data to influence and inform the development of local healthy public policy and its programs and services for the prevention of infectious and communicable disease.
- Design program interventions to address the identified needs of the community, including priority populations, associated with respiratory, enteric and other infectious disease.
- Timely and effective detection, identification, and management of exposures and local cases/outbreaks of respiratory, enteric and other infectious diseases of public health significance, including diseases of public health significance, their associated risk factors, and emerging trends.
- Effective case management results in limited secondary cases.
- Reduced progression from latent tuberculosis infection (LTBI) to active tuberculosis (TB) disease.
- Reduced development of acquired drug-resistance among active TB cases.
- Effective and efficient management and mitigation of public health risks associated with infection prevention and control lapses.
- Increased awareness and use of infection prevention and control practices in settings that are required to be inspected.

Short-Term

- Conduct population health assessment and surveillance regarding respiratory, enteric and other infectious disease and their determinants.
- Communicate, in a timely and comprehensive manner, with all relevant health care providers and other partners about urgent and emerging respiratory, enteric and other infectious diseases.
- Provide timely public health management of cases, contacts, and outbreaks of tuberculosis to minimize the public health risk.
- Provide public education to increase awareness related to infection prevention and control measures, including respiratory etiquette and hand hygiene.
- Notify the public of a lapse according to the Infection Prevention and Control Disclosure Protocol.
- Educate the public about IPAC best practices.
- Raise the awareness of the public of infection control requirements.
- Increase the knowledge of the public about infection prevention and control.
- Work with community partners and service providers to determine and address the need for knowledge translation resources and supports in the area of infection prevention and control.
- Educate stakeholders about IPAC best practices.
- Increase the knowledge of Health Care Providers regarding mandatory reporting requirements and management of infectious diseases.
- Work with appropriate partners to increase awareness among relevant community partners, including correctional facilities, health care, and other service providers, of infection prevention and control practices and reporting requirements for diseases of public health significance.
- Receive reports of complaints regarding infection prevention and control practices and respond to and/or refer to appropriate regulatory bodies.
- Effective and efficient management and mitigation of public health risks associated with infection prevention and control lapses.
- Inspect all required facilities to ensure compliance with the Infectious Disease Protocol, and to educate owner/operators and staff of the inspected facilities on the infection control practices required in each of the specific service settings.