

IC2: Outbreak, Enhanced Monitoring and Cluster Management

1.0 PURPOSE and SCOPE

This document provides guidelines for managing an outbreak, enhanced monitoring (EM) or cluster of an infectious pathogen within a Fraser Health (FH) Long-term Care (LTC) Communities.

The purpose of declaring an outbreak, EM or cluster is to:

- Identify possible sources of transmission to implement immediate control measures
- Gain knowledge of transmission to better implement infection prevention and control (IPC) and Public Health (PH) measures
- Identify gaps in policies, procedures and processes that may have contributed to the outbreak, EM or cluster and to implement measures to prevent reoccurrence of these scenarios
- Communicate outbreak/EM related information to various partners

2.0 DEFINITION

An Outbreak, EM or cluster is generally defined as the occurrence of more cases of disease than expected in a given unit/area over a particular time period. A specific definition depends on the pathogen involved.

Commonly declared outbreaks, EM and clusters in FH LTC are:

- Viral Respiratory infections e.g., Influenza, COVID-19, RSV
- Gastrointestinal pathogens e.g., Norovirus
- Scabies

Outbreak, EM or cluster management is a part of the overall risk management strategy, which involves developing a contingency plan to be implemented in the event of these situations.

3.0 INVESTIGATION

FH has pre-set case and outbreak, EM and cluster definitions for organisms that commonly cause outbreaks, EM and clusters.

The table below outlines the general process of outbreak, EM and cluster. In practice, many steps listed below may occur simultaneously. Some steps below are already pre-determined for commonly encountered organisms. (e.g., Norovirus, Influenza, COVID-19, RSV).

Steps	Suggested approach	Responsible Parties
Step 1. Investigate a potential outbreak/cluster/EM: FH has pre-set case and outbreak/cluster/EM definitions for organisms that commonly cause outbreaks/clusters/EM (e.g., GI, RI). In such situations, Step 1 can be bypassed.		
Determine the presence of cases	<ul style="list-style-type: none"> ▪ Establish background rate of disease ▪ Consider if observed number of cases is in excess of the usual number of cases ▪ Examine surveillance data 	<ul style="list-style-type: none"> ▪ IPC Practitioner ▪ IPC Executive Medical Director (EMD) or Medical Health Officer (MHO) ▪ IPC Epidemiologist
Initiate control measures based on suspected organism	<ul style="list-style-type: none"> ▪ Reinforce Routine Practices ▪ Apply appropriate Additional Precautions based on known or suspected organism – as soon as outbreak/cluster/EM is suspected 	<ul style="list-style-type: none"> ▪ Healthcare providers (HCPs) ▪ IPC Practitioner ▪ IPC EMD or MHO
Notify and communicate	<ul style="list-style-type: none"> ▪ Connect with unit and site leadership to notify about the observed number of cases 	<ul style="list-style-type: none"> ▪ CD PHN ▪ IPC Practitioner
Step 2. Verify the diagnosis and confirm that an outbreak/cluster/EM exists		
Verify clinical and laboratory data	<ul style="list-style-type: none"> ▪ Confirm clinical diagnoses (symptoms and features of illness) ▪ Review laboratory data and request additional laboratory tests if necessary, e.g., molecular typing of organisms to confirm clonality 	<ul style="list-style-type: none"> ▪ IPC Practitioner ▪ CD PHN ▪ IPC EMD or MHO ▪ IPC Epidemiologist
Consider outbreak/cluster/EM definition and whether criteria are met	<ul style="list-style-type: none"> ▪ Are there more cases than expected compared to previous weeks / months? ▪ Review scientific literature ▪ Consider epidemiology of cases - are there two or more linked cases of the same illness? 	<ul style="list-style-type: none"> ▪ IPC Practitioner ▪ CD PHN ▪ IPC Epidemiologist ▪ IPC EMD or MHO
Notify and communicate	<ul style="list-style-type: none"> ▪ Connect with unit and site leadership to notify about the impending outbreak/cluster/EM 	<ul style="list-style-type: none"> ▪ CD PHN ▪ IPC Practitioner
Declare the outbreak/cluster/EM	<ul style="list-style-type: none"> ▪ Use appropriate communication media 	<ul style="list-style-type: none"> ▪ CD PHN ▪ IPC Practitioner
Commence outbreak/cluster T-cons	<ul style="list-style-type: none"> ▪ LTC Community to send initial T-con invite to stakeholders and set up daily T-cons ▪ Daily T-con to be held as outbreak/cluster unfolds ▪ Outbreak/cluster committee to decide on necessity of subsequent daily T-cons and to vary frequency if indicated 	<ul style="list-style-type: none"> ▪ Site director or designate
Step 3. Establish case definition and find cases		
FH has standard case definitions for organisms that commonly cause outbreaks/clusters/EM (e.g., GI, RI, Scabies).		
Establish a set of standard criteria, if not already available, to decide whether or not a person has the condition or organism	<ul style="list-style-type: none"> ▪ Case definition must be confirmed by IPC Practitioner and should be based on: <ul style="list-style-type: none"> ➤ Clinical information about the disease ➤ Characteristics of the people who are affected 	<ul style="list-style-type: none"> ▪ CD PHN ▪ IPC Practitioner ▪ IPC Epidemiologist ▪ IPC EMD or MHO

	<ul style="list-style-type: none"> ➤ Information about the location ➤ Specification of time period for the outbreak/cluster ▪ Case definition can be refined later after collection of primary data ▪ Cases can be classified as <ul style="list-style-type: none"> ➤ 'Confirmed' (usually laboratory verification); ➤ 'Presumptive' (usually has typical clinical features and preliminary lab results); ➤ 'Suspect' (usually has typical clinical features but no specimen or lab confirmation) 	
Identify and count cases	Collect the following types of information <ul style="list-style-type: none"> ▪ Identifying information ▪ Demographic information ▪ Clinical information ▪ Risk factor information (including environmental tests) 	<ul style="list-style-type: none"> ▪ IPC Practitioner ▪ CD PHN ▪ HCPs
Create a line list, that is updated as new cases appear	<ul style="list-style-type: none"> ▪ Time – date of onset of illness ▪ Person – age, sex ▪ Place – room number ▪ Symptoms ▪ Mitigation measures ▪ Other relevant information 	<ul style="list-style-type: none"> ▪ IPC Practitioner ▪ HCPs
Step 4. Characterize outbreak/cluster/EM by person, place, and time		
Review descriptive epidemiology of all cases	<ul style="list-style-type: none"> ▪ Person: sex, age, occupation, residence ▪ Place: information that provides information on possible source of agent and nature of exposure ▪ Time: date and time of onset; record relevant events in a timeline 	<ul style="list-style-type: none"> ▪ IPC Practitioner ▪ IPC Epidemiologist ▪ CD PHN
Identify groups at risk	<ul style="list-style-type: none"> ▪ Number of people colonized or infected ▪ Time and place of onset ▪ Personal characteristics 	<ul style="list-style-type: none"> ▪ IPC Practitioner ▪ CD PHN ▪ HCPs
Create epidemic curve to determine hypotheses	<ul style="list-style-type: none"> ▪ Plot number of cases on y-axis and time on x-axis 	<ul style="list-style-type: none"> ▪ IPC Practitioner ▪ IPC Epidemiologist ▪ PH Epidemiologist
Step 5. Additional control measures		
Provide recommendations for additional control measures	<ul style="list-style-type: none"> ▪ Provide recommendations on appropriate additional control measures based on a confirmed organism ▪ Provide education to staff including physicians, nurses, housekeeping, and other HCP on relevant IPC topics as needed ▪ Monitor implementation of control measures, and escalate if they are not followed 	<ul style="list-style-type: none"> ▪ IPC Practitioner ▪ IPC Specialists ▪ IPC Director
Initiate precautionary measures	<ul style="list-style-type: none"> ▪ Use of Routine Practices and 	<ul style="list-style-type: none"> ▪ HCPs ▪ Physicians

	<p>appropriate Additional Precautions based on a confirmed organism</p> <ul style="list-style-type: none"> ▪ Increase frequency and efficiency of environmental cleaning using appropriate products ▪ Increase frequency of routine audits like Hand Hygiene Audits, PPE Audits, Declutter Audits, and consider instituting less common audits, like ATP audits ▪ Prophylactic treatment/immunization ▪ Antibiotic restrictions ▪ Exclusion of cases from high-risk activities ▪ Isolation and/or cohorting of residents ▪ Restrict movement of residents, staff and visitors ▪ Screen all residents if ordered by IPC EMD, (e.g. point prevalence) with isolation of those found positive ▪ Disseminate resident education materials as applicable ▪ Collect screening specimens as directed by IPC and PH 	<ul style="list-style-type: none"> ▪ Housekeeping ▪ Unit and site leadership
Contact tracing	<ul style="list-style-type: none"> ▪ Identify contacts if applicable ▪ Cohort contacts as directed by Infection Prevention and Control 	<ul style="list-style-type: none"> ▪ IPC Practitioner ▪ HCP
Step 6. Investigate the outbreak/cluster/EM – the ‘how’ and ‘why’		
Develop hypotheses from the factual information gathered to date on potential source, vector, pathogen, route of transmission	<ul style="list-style-type: none"> ▪ Root-Cause Analysis ▪ Common links ▪ Plausible exposures ▪ Environmental testing as directed by Infection Prevention and Control ▪ Review literature 	<ul style="list-style-type: none"> ▪ Outbreak/cluster/EM Management Team (OMT/CMT)
Step 7. Data analysis		
Analyze the data	<ul style="list-style-type: none"> ▪ Compare risk factors among ill (cases) vs. not ill (controls) ▪ Attack rates ▪ Relative risk 	<ul style="list-style-type: none"> ▪ IPC Practitioner ▪ IPC Epidemiologist
Step 8. Implement ongoing control / prevention measures (This can be done at any time during the outbreak/cluster as deemed necessary).		
Review effectiveness of control measures initiated (Step 1 and Step 5) and consider additional measures. Is transmission continuing?	<p>Additional measures may include:</p> <ul style="list-style-type: none"> ▪ Cohort staff ▪ Implement full LTC Community clean ▪ Reinforcement of IPC precautions with security ▪ Bring external expertise if needed ▪ Assessment of policy, regulations, standards 	<ul style="list-style-type: none"> ▪ OMT/CMT ▪ HCPs ▪ IPC LTC Partnership
Communicate and coordinate with stakeholders	<ul style="list-style-type: none"> ▪ Daily outbreak/cluster/EM summary with line list to be sent prior to outbreak/cluster/EM T-cons 	<ul style="list-style-type: none"> ▪ IPC Practitioner
Make plans to re-evaluate their effectiveness	<ul style="list-style-type: none"> ▪ Document type and time of implementation of infection control 	<ul style="list-style-type: none"> ▪ OMT/CMT ▪ IPC Practitioner

	<ul style="list-style-type: none"> measures ▪ Monitor factors contributing or affected by outbreak/cluster and any associated changes ▪ Submit Patient Safety Learning System (PSLS) report for infection related harm (patient specific or hazard report) if applicable ▪ Conduct patient safety reviews as needed 	<ul style="list-style-type: none"> ▪ Unit Manager
Step 10. Declaring outbreak/cluster over and outbreak/cluster summary and debrief		
Declare outbreak/cluster over	<ul style="list-style-type: none"> ▪ Communicate that the outbreak/cluster is over when the pathogen-specific parameters are met 	<ul style="list-style-type: none"> ▪ IPC Practitioner ▪ CD PHN
Prepare written report that evaluates methods used for the control of the outbreak/cluster	<ul style="list-style-type: none"> ▪ Include discussion of factors leading to outbreak/cluster/EM, timelines, summary of investigation and documented actions ▪ Short- and long-term recommendations for prevention of similar outbreak/cluster ▪ Disseminate to appropriate stakeholders using appropriate template 	<ul style="list-style-type: none"> ▪ IPC Practitioner ▪ IPC EMD or MHO ▪ IPC Epidemiologist ▪ PH Epidemiologist ▪ OMT/CMT
Schedule and facilitate outbreak/cluster/EM debrief meeting	<ul style="list-style-type: none"> ▪ LTCC will schedule outbreak/cluster/EM debrief meeting with partners ▪ LTCC will communicate debrief recommendations to relevant partners using the outbreak/cluster/EM debrief template 	<ul style="list-style-type: none"> ▪ Site director or designate
Follow up on recommendations from Outbreak/cluster/EM debrief	<ul style="list-style-type: none"> ▪ Develop an action plan and track progress of recommendations. Review this regularly at site LIPCC 	<ul style="list-style-type: none"> ▪ Site director or designate ▪ IPC Practitioner

4.0 PROTOCOLS AND TOOLKITS

[Respiratory Outbreak Protocol and Toolkit](#)

[Gastrointestinal outbreak Protocol and Toolkit](#)

[Management of Scabies](#)

5.0 DEBRIEF TEMPLATES

[RI OB and EM Debrief template](#)

[GI Outbreak debrief template](#)