

Respiratory and Enteric Outbreak Management Principles

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Ottawa's health
is in **your hands**

La santé d'Ottawa
est entre **vos mains**

Objectives

- Explain the definition of an outbreak
- Describe initial actions of outbreak investigation
 - Reporting, declaring and terminating outbreaks

What is an Outbreak?

- An incident in which 2 or more people, thought to have a common exposure, experience a similar illness or proven infection (at least one of them being ill) HPA 2004.
- a group of cases in a specific time and place that may or may not be greater than normal



Why investigate outbreaks?

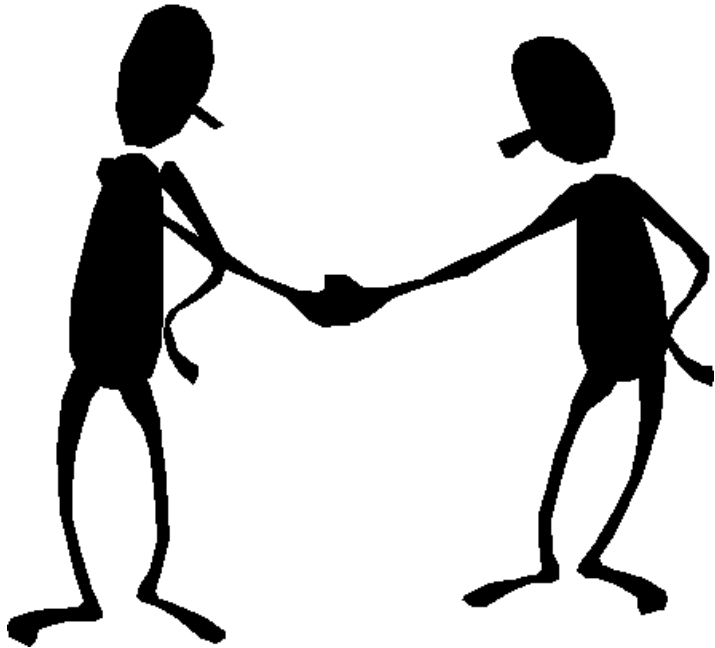
- To find out how disease is being transmitted in order to develop and implement control measures and thus prevent more people from becoming ill.
- *THEREFORE EVIDENCE OF CAUSATION IS REQUIRED*
- *The three most important practical aspects of the management of diarrhea and vomiting outbreaks are:*
 1. *Exclusion*
 2. *Enhanced cleaning of equipment and environment*
 3. *Effective hand washing*



Sources and Spread - Indirect

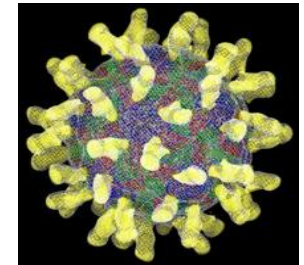
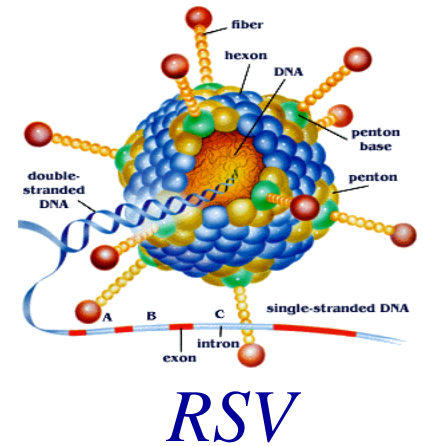


Sources and Spread - Direct



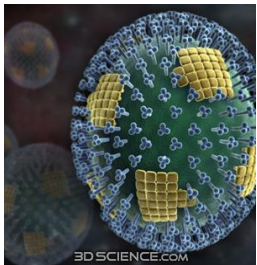
Respiratory Pathogens

- Influenza
- Human Meta-pneumovirus
- RSV – respiratory syncytial virus
- Parainfluenza
- Rhinovirus



*Rhinovirus
(common cold)*

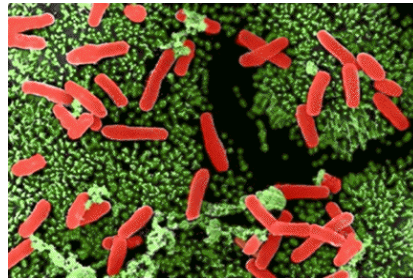
*Cause may never
be determined!*



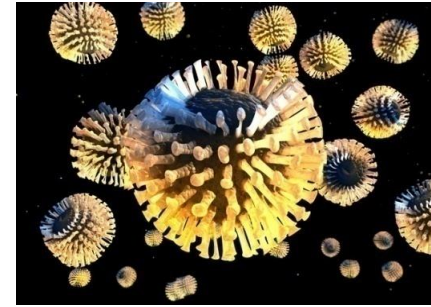
Influenza

Enteric Pathogens

■ Bacteria



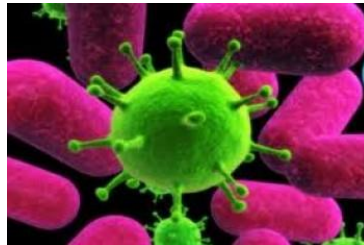
Clostridium Difficile



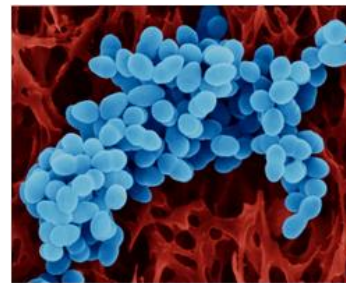
Rotavirus

■ Virus

■ Parasite

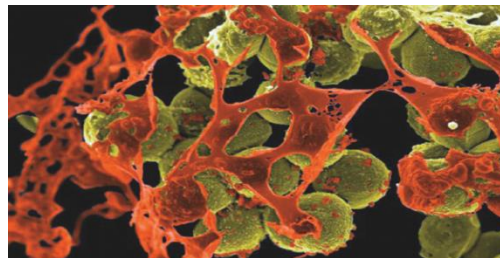


MRSA

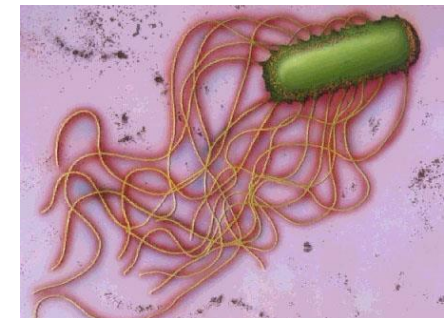


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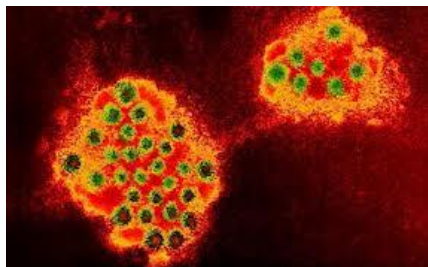
VRE



CRE

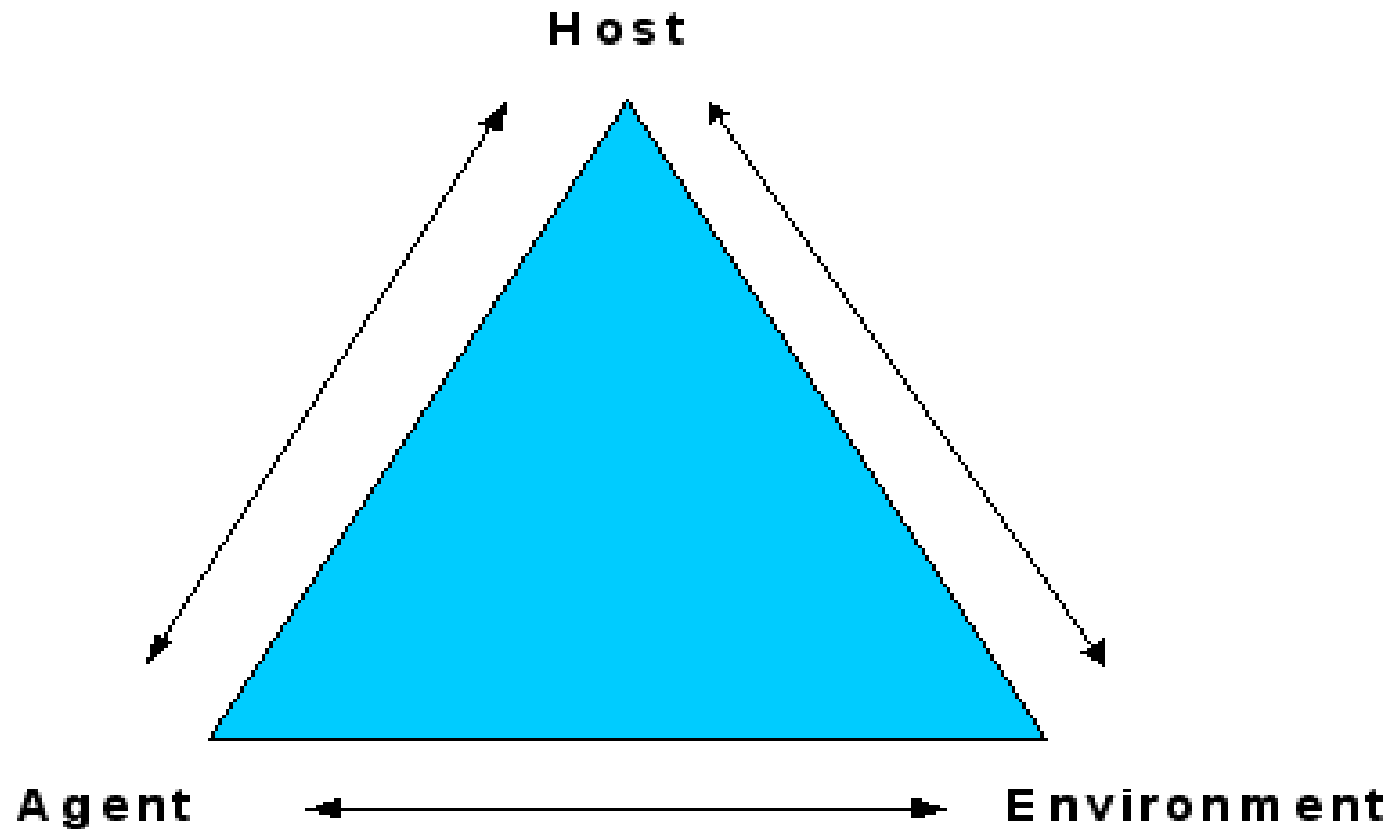


Salmonella



Norovirus

Epidemiological Triangle



Define Epidemic

- An increase in the number of cases of “X” over past experience for a given population time and place
- **Identification precedes Surveillance**

Outbreak Characteristics

- Susceptible population exposed to a common source of pathogen
- Exposure may occur at one time (point source epidemic) or over a period of time

Modes of Transmission

- Contact
 - Direct and indirect
- Droplet
- Airborne

Surveillance

- Why?
 - Early detection
- Active or Passive
- Signs and symptoms
- What is your practice?

What to do first???

- BREATHE
- Preparation is the key
- Investigate



Investigate

- AIM = Answer questions
 - Agent?
 - Characteristics of Agent?
 - Who is affected?
 - By what route?
 - Best controls?
 - Prevention?

Time

- What is the exact period beginning? End? (case finding)
- Describe finding on an epidemic curve (epi curve)
- If agent known, exposure may be pinpointed
- Curve pattern may help establish type outbreak and indicate success of controls

Place

- Define for all cases – service location, bed location, places they have been (OR)
- Consider home address, occupation, vacation, if community acquired
- Develop spot maps, tables etc. To find clusters

Respiratory Case

Case definition:

- a resident or staff presenting with 2 or more respiratory symptoms, with at least one symptom from the Acute Respiratory Symptom Category.

Acute Respiratory Symptoms	Other symptoms
<ul style="list-style-type: none">•Fever/Abnormal Temp•New or worsening cough or SOB•Runny Nose, Congestion or sneezing•Sore throat or difficulty swallowing	<ul style="list-style-type: none">•Malaise•Myalgia•Headache•Prostration•Anorexia



Who meets case definition?

- a) *March 5th – Bob with a temperature of 38.8 and a runny nose*
- b) *March 6th – Billy had one episode of vomiting, malaise, sore throat and temperature of 39.0*
- c) *March 4th – John has a headache and loss of appetite*

Suspect Respiratory Outbreak

By definition is:

- Two cases of acute respiratory illness occurring within 48 hours in a geographic area
- or
- More than one unit having a case of acute respiratory illness within 48 hours

Respiratory Outbreak

- Two cases of acute respiratory illness within 48 hours, at least one of which must be laboratory-confirmed

OR

- Three cases of acute respiratory illness (laboratory confirmation not necessary) occurring within 48 hours in a geographic area (e.g., unit, floor)

OR

- More than two units having a case of acute respiratory illness within 48 hours

Enteric Case

Case Definition:

- a resident or staff presenting with 2 or more episodes of loose/watery bowel movements (conforms to the shape of the container) within a 24-hour period, or 2 or more episodes of vomiting within a 24-hour period;

OR

- One (1) episode of loose/watery bowel movements (conforms to the shape of the container) and one (1) episode of vomiting within a 24-hour period;

Who meets case definition?

- a) March 3rd – Margaret had one episode of vomiting and one episode of diarrhea

- b) March 2nd – Barry with a temperature of 38.8 and one episode of vomiting

- c) March 4th – Irene had 3 episodes of vomiting

Enteric Outbreak

- Three (3) or more cases with signs and symptoms compatible with gastroenteritis occurring within a four (4) day period on a unit or floor;

OR

- Three (3) or more units/floors having a single case of infectious gastroenteritis within 48 hours

What to do with this information you have gathered?



- Suspected or confirmed outbreaks
- What do you need to do to prevent further transmission
- Know what you need to report to the health unit
- http://www.health.gov.on.ca/en/pro/programs/publichealth/oph_standards/docs/infectious_diseases.pdf

Try to determine the- “WHY?”

- Review all data- should you adjust working theory? Controls?
- Evaluate need for further clinical or environmental samples
- Review patient care practice

Do you need formal Epidemiological Studies?

Required Line List Information

- Dates: onset, symptom-free, precautions lifted
- Location within facility (floor, unit)
- Symptoms
- Deaths, hospitalizations, immunization status
- Specimen collection
- Patient line list / staff line list

Call Public Health Unit

■ OPH - Call the Outbreak Reporting Line

- Monday to Friday 8:30am - 4:30pm
- 613-580-6744 ext 26325

- Fax line list
- 613-580-9649



■ AFTER HOURS AND ON WEEKENDS

- 311 and request to speak to inspector on-call

Control Measures

- Isolate cases
- Hand hygiene
- Additional precautions (PPE)
- Collect specimens
- Cleaning & Disinfection
- Signage
- Limit movement of people
- Communication & Education

Collect Specimens

■ Why?

- Treatment may be available
- Control measures may change

■ From who?

- Most recently ill
- Most pronounced symptoms
- Staff

My Sample Was REJECTED – Why?

■ Most common reasons

- Was the correct specimen collector used
- Using the wrong requisition form
- Form is missing information or not filled out correctly
- Vial is not labelled properly (name and date minimum)
- Not enough specimen in vial

My Sample Was REJECTED – Why?

- Most common reasons
 - Delay in sending/receiving specimen
 - Vial media is expired
 - Vial leaked in transit



Isolation- Enteric

- **Isolation of ill residents:** for 48 hours after their LAST episode of diarrhea and/or vomiting
- **Exclusion of ill staff:** for 48 hours after their LAST episode of diarrhea and/or vomiting

Hand Hygiene

- Hand hygiene – make it easy and accessible
 - Increase visibility and access to 70% ABHS and hand sinks



Cleaning & Disinfection

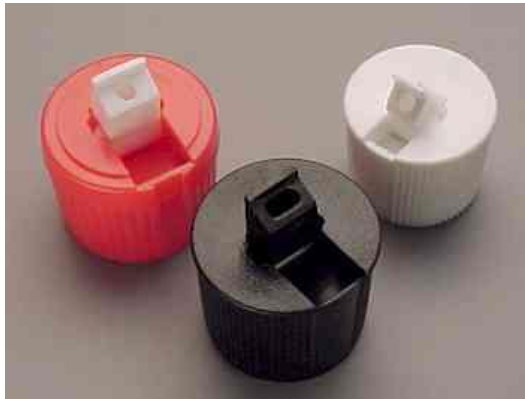
- Environmental cleaning and disinfecting
 - Step up cleaning schedule
- Cleaning must occur before disinfecting



Cleaning & Disinfection

■ When disinfecting

- Choose appropriate disinfectants
- Follow the manufacturers' instructions for **dilution and contact time**
- Use appropriate PPE



Cleaning & Disinfection

- Focus on touchable surfaces
- Work from clean to dirty
- Work from high to low
- Talk to the Environmental staff



Cleaning & Disinfection

- Policies & procedures for disposal of bio-hazardous materials
- To clean up after vomit:
 - Use paper towels, then detergent and water, then disinfectant
 - Use gloves
- Ensure adequate supplies (don't forget the other shifts including weekend staff)



Limit Movement of People

- Limit visitors
- Suspend activities
- Cohort staff & residents
- Admissions & transfers
 - Consult with Ottawa Public Health

Communication

- Report to those that need to know
- Internal
- External (if applicable)
- Media



Termination of Outbreak

- Respiratory outbreak can be declared over when:
 - There have been no new cases in 8 days since the onset of the last resident case
- OR**
- If all residents cases are symptom free, the outbreak can be terminated 3 days after the last case is symptom-free

Termination of Outbreak

- Enteric outbreak can be declared over when:
 - All ill residents have been symptom free for a full 48 hours (and no additional cases during that period)
 - if Norovirus is identified, the outbreak is declared 5 days after the onset of the last case

Debrief

- An opportunity to share...
 - What went well
 - What the challenges were
 - What could be improved for the future
 - Are there “new strategies” that need to be sustained?
 - What are the remediation strategies being planned?
- Include the entire outbreak management team at your facility

Write an Report

- Detail all facts, hypothesis(guess), confirmatory steps, justification for conclusions
- Make recommendations for policy /procedure change
- Circulate widely
- Include cost analysis

Describe problems and solutions

Steps of Outbreak

- Prepare for field work
- Establish existence of outbreak
- Verify diagnosis
- Implement control and prevention measures
- Construct a working case definition
- Find cases systematically and record information
- Descriptive epidemiology
- Evaluate hypotheses epidemiologically
- Reconsider, refine, and re-evaluate hypotheses
- Evaluate lab/environmental findings
- Initiate or maintain surveillance
- Communicate findings

Finally - Celebrate



Questions

