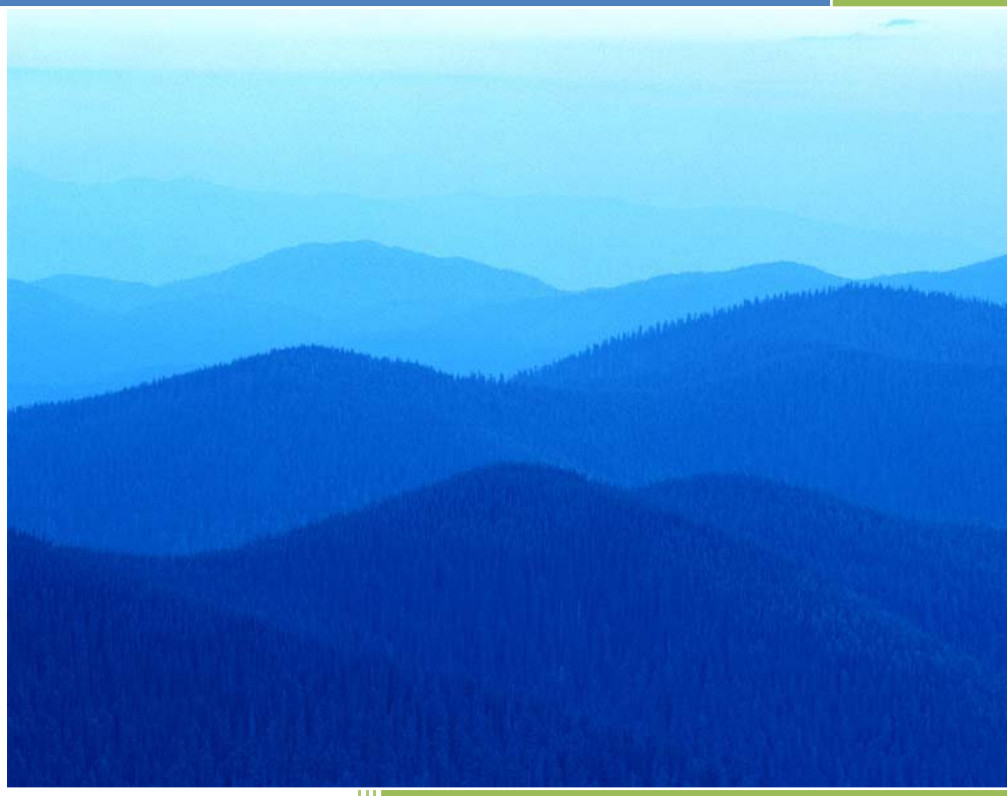
Orientation Program for Infection Control Professionals



Module 6: Outbreak Management

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Module 6: Outbreak Management

Objectives

At the completion of this module the ICP will:

Demonstrate a basic knowledge of outbreak management by completing the exercises associated with the case study provided, specifically to be able to:

- define an outbreak
- identify ways in which an outbreak might be identified
- explain how to confirm the existence of an outbreak
- identify the purpose of a case definition and how to find/create a case definition
- identify strategies for finding additional cases
- identify stakeholders who will need information and the type of information they need
- outline the steps in outbreak investigation and management, illustrating each step with an example
- outline the key points to include in an outbreak report

Number of hours

- Key Concepts – 4 hours
- Methods – 4 hours

Required reading

- Appendix A – Outbreak Management Notes (this module)
- APIC Text: 3rd Edition, Chapter 4 (4-1, to 4-10)
- PICNet BC
  GI Outbreak Management Guidelines (2010) and Respiratory Illness Outbreak Management Guidelines (2011) at http://www.picnet.ca/practice-guidelines

Other readings

- Bennett and Brachman (2007) Chapter 7 - Investigating Endemic and Epidemic Healthcare-Associated Infections (p 91-107)
- CHICA Canada Audit Tool http://www.chica.org/AuditToolkit/Tools/tools_Enteric_Outbreak.pdf
- Public Health Agency of Canada. National Notifiable Diseases List. Retrieved Feb 3, 2012 from http://dsol-smed.phac-aspc.gc.ca/dsol-smed/ndis/list-eng.php

Find your own facilities policy and procedure and becoming familiar with it. Also explore what preventative measures are in place and what educational tools, signs etc. are available.

Overview

Outbreaks are defined as an increase over the expected occurrence of an event. The terms "outbreak" and "epidemic" are frequently used interchangeably. A small rise in events may be referred to as a "cluster" and both "clusters" and "outbreaks" require prompt investigation and management. To identify an outbreak, baseline endemic rates must be available for comparison. This is the reason for conducting surveillance. Outbreaks may occur for a number of reasons including: introduction of and transmission of an infectious disease within the healthcare site, lapses in infection control practices, contaminated or defective products or devices and establishment of a reservoir for a pathogen somewhere in the healthcare site. While outbreaks will continue to occur, many can be prevented or have their impact reduced through intentional, knowledgeable and rapid management.

Key Concepts

Instructions

Read the material and do the practice exercises. Write out your answers to the questions and discuss them with your mentor.

Define these key terms

Term	Definition
Outbreak	
Epidemic	
Endemic	
Pandemic	
Cluster	
Sporadic	
Outbreak	
Pseudo-outbreak	
Line list	
Epidemic curve	
Common Source	
Propagated Outbreak	

Term	Definition
Attack rate	

Reasons for investigating a presumed outbreak

List three reasons for investigating an outbreak	
1.	
2.	
3.	

Recognizing an outbreak

Surveillance information

Potential outbreaks may be suspected when healthcare-associated infections occur above the background rate or when an unusual microorganism is recognized. There are several avenues for identifying outbreaks. Complete the table below:

Avenue	Information that may identify an outbreak
Laboratory	
Patient Care Unit	
Admissions form	
Media	
Where else?	

Clinical information

Although it is often not initially clear what the source of the outbreak may be it is important to think about this from the beginning. The type of specimens to collect and send may depend upon the source suspected (e.g. food borne versus viral pathogen).

To determine this one must understand the possible common sources, potential modes of transmission, usual reservoirs, incubation periods and the microbiological traits of the pathogen of concern. This information will enable one to formulate a hypothesis, initiate the appropriate observation strategy and ensure the correct specimens are collected and sent. The ability to identify the source will provide information that will be helpful in bringing the outbreak under control.

Complete the table below:

Clinical symptoms	Possible sources
Fever, cough, dyspnea in several patients	
Vomiting, diarrhea in several patients	
Infected surgical wounds in several patients (same surgery) in the same week	
Variety of non-incisional post-op infections caused by the same organism	
Several patients with itchy skin rashes	

Steps in outbreak management

The steps for outbreak management have been described in many text books and guidelines (see Appendix A). Although they follow many of the same steps they differ in the progression of the steps. As an ICP please reflect on the actions that you would consider if you were called to investigate an increase in the number of cases of an infectious nature.

Using Appendix A as a guide or referring to the Outbreak Management policy of your facility, list at least 10 steps for outbreak management.
1.
2.
3.
4.
5.
6.
7.
8.
9.
10.

Methods

In this section you will have an opportunity to apply the knowledge you have learned in the key concepts sections to scenarios which you may encounter in your job as an ICP. Reflect on your readings and discuss difficult situations with your mentor so that you will be better prepared for real life situations.

Case Study

On September 1, 2011 Nurse Marion noted that Mr. Jones in Ward A on Unit B had 3 loose stools during the 12 hour night shift. It was a very busy surgical unit working at full capacity of 20 beds. Marion noted the following information about Mr. Jones:

- 60 year old married male
- History of cancer of the bowel
- Abdominal surgery 5 days earlier
- Nasogastric tube removed on August 31
- Started on clear fluids today
- Poor hygienic practices
- Mrs. Jones providing help with his care

On September 2, 2009 Mrs. Jones helped her husband with his care including helping him to the bathroom several times during the day and evening. She forgot to mention this to his nurse as it was normal for him to have several stools per day prior to his surgery.

On September 3, 2009 Nurse Marion was on day duty and was assigned to Ward A. On entering the Unit she remembered that she had forgotten to report that Mr. Jones had had 3 loose stools when she did the night shift. When she asked Mr. Jones how he was doing he told her of his continuing problem with loose stools which he thought the surgery was going to remedy. He told her of having to go to the bathroom 5 times since midnight. A stool from Mr. Jones was sent to the laboratory for C& S. Three other patients from September 1 had been discharged and three new patients were in the unit; 2 admitted on September 2 and one during the night. During the day (Sept. 3) two of the patients admitted on September 1 complained of nausea.

On September 4, the two patients with nausea were now having diarrhea, the ICP (you) was notified.

Work through this study with your mentor, answering the following questions and using them to stimulate conversation around control methods, communication to patients, staff and public, education to patient's staff and public and the roles and responsibilities of the various people at your site.

You are the ICP that is notified of this situation. Let's assume that your office is at this facility. Given what you have just learned:

Step 1 - Determine if an outbreak exists	
What is the first thing you should do?	
Who would be sources of information about the cases?	
How would you rule out alternative causes?	
Consider the possible diagnosis and think of the possible causes, the incubation periods and the typical signs and symptoms.	
Can you use the chain of infection to help identify the cause of this event?	
What specimens would you send (if any)?	
If this event occurred during the week-end or holidays, how would you arrange for specimens transfer to the laboratory?	
What information would you collect on the line list?	
What would you tell staff about monitoring their own health?	
What would you advise the staff regarding working on other units/facilities?	
Any other things you would suggest?	
Look at your surveillance data and see if this is normal trend for this unit? Would you expect this number of cases on this Unit?	

Step 2 - Implement immediate control measures	
What infection control measures would you recommend?	
Is there signage available?	
Is there a fact sheet about gastrointestinal infections?	
Where would you get extra gowns and gloves for this situation?	
Who will notify the patient, family and others of this event?	
Who will notify the Medical Health Officer (MHO)?	
When should they notify the MHO?	
How will you determine if there is a need for education sessions relating to this outbreak?	
Who gives this educational session?	

Step 3 - Confirm the existence of an outbreak/establish a case definition	
What would you consider the case definition?	
How long does it take to get the results of the tests that you requested?	

Step 4 - Assemble the team	
Does your facility have an outbreak management team?	
Who should be on this team?	
What would be the responsibility of the communications expert?	
Who needs to know about this outbreak?	
When will you close the ward/facility to visitors/admissions?	
How often should you meet?	

Step 4 - Assemble the team	
Is there a sample agenda ready for outbreak meetings?	
Explore with your mentor the process for assembling a team if an outbreak occurs on a weekend.	

Step 5 - Ongoing monitoring Communication	
Who is at risk of becoming ill on the Unit?	
Are you responsible for analyzing and interpreting the data?	
Evaluate the overall investigation and response; is there anything else you should do now?	
Whom else might you communicate with as the outbreak continues? (external & internal)	
How do you communicate to other employees, the community and family members re this outbreak?	
Is there legislation in your province regarding the reporting of outbreaks?	

Step 6 - Declaring the outbreak over	
What criteria could be used to indicate that the outbreak is over?	
Who can declare the outbreak over in your facility?	

Type of Outbreak	**Person Responsible**	**Criteria needed**
Gastrointestinal Outbreak		
Respiratory Outbreak		

Type of Outbreak	Person Responsible	Criteria needed
Exposure to a piece of equipment or instrument		
MRSA Outbreak		

Step 7 - Debriefing the staff	
Who is responsible for doing this at your facility?	
How will you do this?	
Do you have an outline of activities to discuss?	

Step 8 - Writing the report and recommendations	
Why write a report?	
What are the key elements of a report?	
Why is it important to include a recommendations sections?	
Who should get the report?	

If you would like to do another case study focusing on respiratory illness, it is available in Appendix B.

Documentation and Reporting

Determine the roles and responsibilities for outbreak management in your facility. Is there a reporting requirement to the Regional Medical Health Officer? In British Columbia, there is a

Notifiable Disease List (Appendix D). Are you required to report through an electronic system to the province?

Other

Audits

CHICA-Canada has an outbreak audit tool available for the management of enteric outbreaks. You can access this tool at the following website:
http://www.chica.org/AuditToolkit/toolkithome.php

Appendix A: Pre-Outbreak Prevention and Preparedness

Organizational leadership is critical in all healthcare settings to ensure effective outbreak prevention and control. Ideally, all facilities should have a designated Outbreak Prevention and Management Team (OPMT). This group is responsible for ensuring that measures for preventing outbreaks are in place and for directing and overseeing the management of all aspects of any outbreak. OPMT members should have decision making authority for their discipline within the facility or unit. A lead person from this group should be appointed to coordinate daily meeting(s) during an outbreak. The membership of an OPMT will depend upon the facilities location, size and contractual status.

Membership may include:

- A medical advisor (if available)
- Infection control physician (if available)
- Medical Health Officer or delegate
- An administrator
- A Director of Care
- An ICP or person responsible for infection control of that site
- An Occupational Health Nurse or person responsible for occupational health
- An Environmental Health Officer or alternate (e.g. Community Care Facility Licensing Officer)
- A laboratory manager or representative
- A person responsible for support services such as housekeeping and laundry
- A foods services supervisor
- Communications coordinator
- Front line HCP representative (e.g. charge nurse)

A written process for Outbreak Management which includes current membership of the OPMT with contact information should be available to all healthcare professionals. All care providers should have a basic understanding and be alert to the possibility of an outbreak. They should also be able to locate outbreak control information so that they can initiate control steps at any time of the night or day or day of week (e.g. long weekend).

Steps in Outbreak Management

The steps for outbreak management vary slightly depending on the source of your document. The table below gives an overview of the different steps from different organizations. Although they are not exactly alike they are pointing out the importance of the need to have an organized approach to outbreak management. The steps do not happen in a completely linear fashion; often one or more steps are occurring simultaneously. Review the required reading to establish the actions which occur at each step.

Describing the Outbreak

An outbreak can often be described in a way that includes the person, place and time:

- Who got sick
- Where are they (ward, unit, floor etc) and
- When did they get sick

Person: patient/resident/client exhibiting illness

- Do they have common characteristics (e.g. age, sex, underlying condition)
- Are they connected in some way (exposure to same staff/physician)
- Have they undergone similar procedures

Place: population at risk (service, ward, unit etc.)

- Is the illness confined to one specific area or is spread throughout the facility
- Are there patients who may be at higher risk (e.g., unimmunized for influenza)

Time: period of the outbreak

- Date of onset for the first case
- Time since exposure

A "**common source**" outbreak occurs from exposure to a pathogen in a source such as a food item, water, or a piece of equipment. This can result from a single exposure to the agent or from repeated exposures. They are usually characterized by explosiveness of onset and limitation or localization in time, place and people. A typical example of this is a single source of exposure such as a pathogen from a food item. If a large number of people get ill within a very short time period one should consider a "common source" such as food, water or a piece of equipment.

A "**propagated outbreak**" occurs when there is serial transfer from person-to-person. These situations may begin as a few cases and each day a few more cases occur as the first cases recover. This is usually caused by someone's bringing the infectious agent into the facility making one or two people ill, who in turn infect others, and so on.

Questions that should be considered are:

- Who were the first individuals to become ill?
- Was there an activity or an outing that they have in common?
- Are they or where they located in the same place (could be unit, site, area)?
- Was there any object that they shared (food, equipment)?

Case Definition

It is important to have a clear definition of what collection of symptoms constitutes a case and how many cases constitute an outbreak. For some illnesses such as gastrointestinal infections (GI) and respiratory infections there will be a pre-determined case and outbreak definition that has been developed by provincial Public Health.

For example, in British Columbia the case definition for an infectious GI illness is:

A case of probable GI infection is defined as any one of the flowing conditions that cannot be attributed to another cause (e.g.: laxative use, medication side effect, diet, prior medical condition):

- Two or more episodes of diarrhea in a 24 hour period – above what is considered normal for that individual OR
- Two or more episodes of vomiting in a 24 hours period OR
- One episode each of vomiting and diarrhea in a 24 hours period OR
- Positive culture for a known enteric pathogen with a symptom of GI infection (e.g. vomiting, abdominal pain, diarrhea) OR
- One episode of bloody diarrhea.

And the accepted definition of a GI Outbreak is:

- Three or more cases of GI infection (as defined above), potentially related, occurring within a four day period, within a specific geographic area (i.e. unit, ward).

Regardless of whether it is a pre-determined case definition or one you are creating one in the moment, a case definition should be narrow enough to focus any investigations but broad enough to ensure all potential cases are included.

Do you have pre-determined case and outbreak definitions? Where can you find this information? Case Definitions for Communicable Diseases under National Surveillance are available at:
http://www.phac-aspc.gc.ca/publicat/ccdr-rmtc/09pdf/35s2-eng.pdf

Line List

A simple line listing (example in Appendix C) can help you organize all your information so that it will be easier to try to formulate a theory on what has caused this. Once you have all the information collected consult with your Medical Health Officer, Infection Control Officer, or a senior Infection Prevention and Control Professional to help you formulate your theory or hypotheses.

- Does your site have a template line listing form?
- Where would you find it?
- Who would you consult with to assist you in determining a case definition and if an outbreak exists?

Problem Solving When Control Measures Appear to be Failing

It is expected that after a few days of outbreak control measures, the number of new cases should diminish. If new cases continue to appear four to five days after outbreak control measures have been implemented the following factors should be explored and reviewed with the MHO and Outbreak Management Team:

- Are there any lapses in hand-washing/hand sanitizing?
- Are all hand hygiene stations well stocked with soap or alcohol-based hand sanitizer, and are new refills of products easily to locate by all staff, volunteers and visitors?
- Is the appropriate personal protective equipment available and being appropriately worn by staff members
- Is personal protective equipment being changed between providing care to sick residents/residents and those that are well?
- Is any equipment being used for sick and well residents/residents without being cleaned and disinfected between uses?
- If respiratory in nature: has anyone with a cough been moving around the facility without a mask, and/or without performing appropriate hand hygiene?
- If influenza is involved in the outbreak and the above do not explain ongoing illness:
  - Are all residents immunized against influenza and taking antiviral medication, if appropriate?
  - Are all staff members, including physicians and volunteers, either immunized against influenza or have they taken an antiviral medication?
  - Have residents/staff taking antiviral medication been appropriately screened for symptoms to ensure the proper treatment versus prophylactic dose of antiviral is being used; under-dosing may lead to the emergence of antiviral resistant strains
  - Have more recent outbreak specimens been screened for the possible emergence of antiviral resistance mutations in the virus?

Declaring the Outbreak Over

Who is responsible for declaring an outbreak over? Are there defined criteria for declaring an outbreak over? In British Columbia the Medical Health Officer or their delegate has the authority to declare an outbreak over. Usually in the case of a GI outbreak an EHO is involved. In some residential care facilities this responsibility is sometimes delegated to the site administrator. When in doubt consult your local Medical Health Officer.

Debriefing the Team

As the ICP on the outbreak team, identify your role in the debriefing of the team. The aim of the debriefing process is to answer the following three questions:

- How well prepared were we?
- How well did we do?
- What worked and what didn't?
- What can we do better in future?

Debriefings are about improving performance and should not be used as a method of apportioning blame for any failings identified.

Formal debriefs should look to identify both strengths and weaknesses in order to turn these into recommendations for enhancing performance. Examples of opportunities for improvement are:

- Communication within OPMT and to media
- Timeliness in recognizing and reporting outbreak
- Timeliness in implementing control measures
- Effectiveness of control measures in limiting the outbreak

Goals of the discussion

- Reviewing all that happened in the event to create a complete and coherent picture, including all of the treatments given to the casualties by the team.
- Analysis of the team's functioning in the event, concluding whether there are necessary changes to be made and the method of their implementation.

Stages of the debriefing

1. Opening: 5 to 10 minutes (less, if this is not the first discussion, but one must never skip this stage).
2. Discussion phase: 20 to 30 minutes, depending on the number of participants, the complexity of the event, and the previous relationships of the team members.
3. Gathering of strength and summing-up stage: 20 to 25 minutes.

Outbreak Summary Report

(For a sample, refer to Appendix C.)

The purpose of an outbreak summary report may be to

- Summarize facts of outbreak
- Substantiate recommendations
- Share new insights
- Prevent future outbreaks
- Assist in investigation and control of similar incidents
- Provide a document for potential legal issues

The time immediately following an outbreak may be the best time to communicate the findings of your investigation. At this time, the outbreak experience will be fresh in the minds of the key stakeholders, making it more likely they will become engaged in actions based on your recommendations. There are steps associated with this report and they must include:

- Introduction and Background
- Purpose and objective
- Methods of Investigation
- Results or Key Findings
- Discussion (the interpretation of the findings)
- Recommendations based on the evidence your report and on rationale or support from the literature

The reports does not have to be lengthy, usually about 2-6 pages in length. Recommendations reflect what you/the team think(s) should be done to prevent the occurrence of other outbreaks.

Additionally, in some provinces there is an external database, usually on a Public Health website for the entry of data. There will also be a report needed for internal communication. Does your province have a Public Health database? Do you have a template for outbreak summary at your facility?

Develop Long-term Control and Prevention Measures

Use the information from the outbreak report and debrief session to develop long term control and prevention measures for outbreaks at your facility. It might be a simple as having pre-packaged specimen collection kits for each unit (includes requisitions).

Appendix B

If you would like to have further practice on outbreak management, **work through this case study with your mentor**, answering the following questions and using them to stimulate conversation around control methods, communication to patients, staff and public, education to patients, staff and public and the roles and responsibilities of the various people at your site.

Case Study – Respiratory Illness

You are an ICP whose office is within an acute care site but who also provides support to the nearby LTC facility. This morning (November 10th) you receive a call from the Director of Care from the LTC site:

She tells you that on November 7th they had 3 residents with varying degrees of fever and productive cough and on November 8th they had 4 more residents with similar symptoms. Two of the residents had fever of 38.9 C and one of them was hospitalized this morning with pneumonia. The hospitalized patient also has a history COPD. No ill residents are in the assisted living unit. In the past week she has had 2 staff members call in sick with respiratory symptoms.

You are the ICP that is notified of this situation. Let's assume that your office is at this facility. Given what you have just learned:

Step 1 - Determine if an outbreak exists
• What is the first thing you should do? • Who would be sources of information about the cases? • How would you rule out alternative causes? • Consider the possible diagnosis and think of the possible causes, the incubation periods and the typical signs and symptoms. • Can you use the chain of infection to help identify the cause of this event? • What specimens would you send (if any)? • What information would you collect on the line list? • What would you tell staff about monitoring their own health? • What would you advise staff regarding working on other units/facilities? • Any other things you would suggest? • Look at your surveillance data and see if this is a normal trend for this unit? Would you expect this number of cases on this unit? • How would you determine if the client was vaccinated? • How would you determine if the staff were vaccinated? • If this is influenza, is there a recommendation for staff who have not been vaccinated? Can they work?

Step 2 - Implement immediate control measures

- What infection control measures would you recommend?
- Is there signage available?
- Is there a fact sheet about respiratory infections?
- Where would you get extra facial protection materials, gowns and gloves for this situation?
- Who will notify the patient, family and others of the event?
- Who will notify the Medical Health Officer (MHO)? When will you notify the MHO?
- How will you determine if there is a need for education sessions relating to this outbreak?

Step 3 - Establish a working diagnosis

- What would you consider the case definition?
- How long does it take to get the results of the tests that you requested?

Step 4 - Assemble the team

- Does your facility have an outbreak management team?
- Who should be on this team?
- What would be the responsibility of the communications expert?
- Who needs to know about this outbreak?
- When will you close the ward/facility to visitors/admissions?
- How often should you meet?
- Is there a sample agenda ready for outbreaks?
- Explore with your mentor the process for assembling a team if the outbreak occurs on a week-end.

Step 5 - Ongoing monitoring communication

- Who is at risk of becoming ill on the unit?
- Are you responsible for analyzing and interpreting the data?
- Evaluate the overall investigation and response; is there anything else you should do now?
- Who else might you be communicating with as the outbreak continues? (external & internal)
- How do you communicate to other employees, the community and family members re this outbreak?
- Is there legislation in your province regarding the reporting of outbreaks?

Step 6 - Declaring the outbreak over

- What criteria could be used to indicate that the outbreak is over?
- Who can declare the outbreak over in your facility?

Step 7 -Debriefing the staff

- Who is responsible for doing this at your facility?
- How will you do this?

- Do you have an outline of activities to discuss?

Step 8 - Writing the report and recommendations

- Why write a report?
- What are the key elements of a report?
- Why is important to include a recommendations sections?
- Who should get the report?

Appendix C

Sample of line listing:

Patient/Resident/Client Information					Clinical Presentation			Specimen(s) sent	
Name	DOB y/m/d	Unit	Room #	Room type	Date of onset of symptoms	Symptoms	Duration of symptoms	Collection Date/ Date Submitted	Result

SYMPTOMS:
V=Vomiting
D=Diarrhea
C=Cramps
N=Nausea
F=Fever
H=Headache
A=Abdominal Pain
M=Myalgia
Co =Cough
ST=Sore Throat

ROOM TYPE:
P=Private
S=Semi-private
M=Multi-bed

Outbreak Summary Report (example)

Date of onset of breakout		Date outbreak declared over	
Micro-organism identified		Laboratory Confirmed? Y/N	
Number of positive specimens		Suspected source	
Number of patients exposed		Total number of cases (patients)	
Attach rate for patients (# of exposed divided by # of cases, multiply by 100)			
Number of HCPs exposed		Total number of cases (HCPs)	
Attach rate for HCPs (# of exposed divided by # of cases, multiply by 100)			
Number of cases requiring higher level of care (e.g. transfer to hospital, transfer to ICU)			
Number of deaths			
Unusual situations:			

Appendix D: List of Reportable Communicable Diseases in BC

Schedule A: Reportable by all sources, including Laboratories

Acquired Immune Deficiency Syndrome
Anthrax
Botulism
Brucellosis
Chancroid
Cholera
Congenital Infections:
- Toxoplasmosis
- Rubella
- Cytomegalovirus
- Herpes Simplex
- Varicella-Zoster
- Hepatitis B Virus
- Listeriosis and any other congenital infection

Creutzfeldt-Jacob Disease
Cryptococcal infection
Cryptosporidiosis
Cyclospora infection
Diffuse Lamellar Keratitis
Diphtheria:
- Cases
- Carriers

Encephalitis:
- Post-infectious
- Subacute sclerosing panencephalitis
- Vaccine-related
- Viral

Foodborne illness:
- All causes

Gastroenteritis epidemic:
- Bacterial
- Parasitic
- Viral

Genital Chlamydia Infection
Giardiasis
Gonorrhea – all sites
Group A Streptococcal Disease, Invasive
H5 and H7 strains of the Influenza virus
Haemophilus influenzae Disease,
- All Invasive, by Type

Hantavirus Pulmonary Syndrome
Hemolytic Uremic Syndrome (HUS)
Hemorrhagic Viral Fevers
Hepatitis Viral:
- Hepatitis A
- Hepatitis B
- Hepatitis C
- Hepatitis E

Other Viral Hepatitis
Human Immunodeficiency Virus Infection
Leprosy
Lyme Disease
Measles
Meningitis: All causes
- (i) Bacterial:
  - Haemophilus
  - Pneumococcal
  - Other
- (ii) Viral

Meningococcal Disease, All Invasive
- including "Primary Meningococcal Pneumonia" and "Primary Meningococcal Conjunctivitis"

Mumps
Neonatal Group B Streptococcal Infection
Paralytic Shellfish Poisoning (PSP)
Pertussis (Whooping Cough)
Plague
Poliomyelitis
Rabies
Reye Syndrome
Rubella
Severe Acute Respiratory Syndrome (SARS)
Smallpox
Streptococcus pneumoniae Infection, Invasive
Syphilis
Tetanus
Transfusion Transmitted Infection
Tuberculosis
Tularemia
Typhoid Fever and Paratyphoid Fever
Waterborne Illness
- All causes

West Nile Virus Infection
Yellow Fever

Schedule B: Reportable by Laboratories only

All specific bacterial and viral stool pathogens:
- *(i) Bacterial:*
  - Campylobacter
  - Salmonella
  - Shigella
  - Yersinia
- *(ii) Viral*

Amoebiasis
Borrelia burgdorferi infection
Cerebrospinal Fluid Micro-organisms
Chlamydial Diseases, including Psittacosis
Creutzfeldt-Jacob Disease
Cryptococcal Infection
Herpes Genitalis
Human Immunodeficiency Virus Infection
Influenza virus, including the H5 and H7 strains
Legionellosis
Leptospirosis
Listeriosis
Malaria
Q Fever
Rickettsial Diseases
Severe Acute Respiratory Syndrome (SARS)
Smallpox
Tularemia
West Nile Virus Infection

July 2009
As per Health Act Communicable Disease Regulation B.C. Reg. 4/83 O.C. 6/83
includes amendments up to B.C. Reg. 70/2008, April 10, 2008
http://www.qp.gov.bc.ca/statreg/reg/H/Health/4_83.htm

PICNet
PROVINCIAL INFECTION CONTROL NETWORK OF BRITISH COLUMBIA
A program of the Provincial Health Services Authority

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