



# **INFECTION PREVENTION & CONTROL**

## **Disease Specific Information**

### **Designated Officers Education Day**

January 17, 2013  
Micheline Ayers RN BN

# Communicable Disease Reporting

Timely reporting of communicable diseases is mandated and essential for their control. If you *suspect* or have confirmation of the following specified Reportable Diseases or their etiologic agents, (as per Ontario Regulation 559/91 and amendments under the *Health Protection and Promotion Act, R.S.O. c.H.7*) please report them to the local Medical Officer of Health.

## REPORTABLE COMMUNICABLE DISEASES

Note: Diseases highlighted (and influenza in institutions) should be reported immediately to the Medical Officer of Health by telephone. Other diseases can be reported by the next working day by fax, phone, or mail.

Acquired Immunodeficiency Syndrome (AIDS)

Amebiasis

**Anthrax**

**Botulism**

**Brucellosis**

Campylobacter enteritis

Chancroid

Chickenpox (Varicella)

Chlamydia trachomatis infections

**Cholera**

**Clostridium difficile associated disease (CDAD) outbreaks in Public Hospitals**

**Cryptosporidiosis**

**Cyclosporiasis**

Cytomegalovirus infection, congenital

**Diphtheria**

**Encephalitis, including:**

1. **Primary, viral**
2. *Post-infectious*
3. *Vaccine-related*
4. *Subacute sclerosing panencephalitis*
5. *Unspecified*

**Food poisoning, all causes**

**Gastroenteritis, institutional outbreaks**

**Giardiasis, except asymptomatic cases**

Gonorrhoea

**Group A Streptococcal disease, invasive**

Group B Streptococcal disease, neonatal

**Haemophilus influenzae b disease, invasive**

**Hantavirus pulmonary syndrome**

**Hemorrhagic fevers, including:**

1. **Ebola virus disease**
2. **Marburg virus disease**
3. **Other viral causes**

**Hepatitis, viral**

1. **Hepatitis A**
2. *Hepatitis B*
3. *Hepatitis C*
4. *Hepatitis D (Delta hepatitis)*

Herpes, neonatal

Influenza

**Lassa Fever**

**Legionellosis**

Leprosy

**Listeriosis**

Lyme disease

Malaria

**Measles**

**Meningitis, acute**

1. **bacterial**
2. *viral*
3. *other*

**Meningococcal disease, invasive**

Mumps

Ophthalmia neonatorum

**Paratyphoid Fever**

Pertussis (Whooping Cough)

**Plague**

Pneumococcal disease, invasive

**Poliomyelitis, acute**

Psittacosis/Ornithosis

**Q Fever**

**Rabies**

**Respiratory infection outbreaks in institutions**

**Rubella**

Rubella, congenital syndrome

Salmonellosis

**Severe Acute Respiratory Syndrome (SARS)**

**Shigellosis**

**Smallpox**

Syphilis

Tetanus

Transmissible Spongiform Encephalopathy, including:

1. *Creutzfeldt-Jakob Disease, all types*
2. *Gerstmann-Sträussler-Scheinker Syndrome*
3. *Fatal Familial Insomnia*
4. *Kuru*

Trichinosis

Tuberculosis

**Tularemia**

**Typhoid Fever**

**Verotoxin-producing E. coli infection indicator conditions including:**

**Haemolytic Uraemic Syndrome (HUS)**

**West Nile Virus Illness**

Yellow fever

Yersiniosis

# Communicable Diseases

## Contact Information

### Communicable Disease Program

705-721-7520 ext 8809

Or

1-877-721-7520 ext 8809

### Regular Public Health Office Hours

(8:30 am – 4:30 pm Monday to Friday)

### After Hours and Weekends/Holidays

1-888-225-7851

# Reportable Diseases

5 reportable diseases that many people worry about:

- ◆ Invasive Meningococcal Disease
- ◆ Tuberculosis
- ◆ Invasive Group A Streptococcal Disease
- ◆ Meningitis
- ◆ Influenza

We will also discuss AROs and Cdifficile.



# MENINGOCOCCAL DISEASE

## *What is invasive meningococcal disease (IMD)?*

- ◆ Meningococcal disease is a serious illness caused by the bacteria *Neisseria Meningitidis*.
- ◆ Roughly 10% of the population have this bacteria at the back of their throat or nose and are healthy.
- ◆ *Neisseria meningitidis* can cause meningitis (an infection of the lining of the brain and spinal cord) or meningococemia (an infection of the blood stream).

When the infection is this serious, we call it  
**invasive Meningococcal disease.**

# How is IMD spread?

- ◆ The bacteria are commonly found in the nose and throat of healthy people (carriers), so it is always in the community.
- ◆ When someone is sick with IMD, they can spread the germ before they are very sick.
- ◆ People are exposed to the bacteria by direct contact with saliva or nasal secretions.

If you have done any activities where you have shared body fluids from the nose or throat with someone who is ill with this infection, such as mouth-to-mouth resuscitation, open mouth kissing, sharing eating utensils, drinking glasses, water bottles, cigarettes or sharing of lipstick then you could be infected.

# What are the symptoms?

The onset of symptoms is often rapid and severe.

Symptoms may include:

- ◆ high fever,
- ◆ headache,
- ◆ Stiff neck (unable to move up and down),
- ◆ nausea and vomiting,
- ◆ eyes may be sensitive to bright lights (photophobia),
- ◆ confusion, drowsiness.



**Sometimes a purplish skin rash will appear that is flat and smooth.**

In young children, you may notice irritability, excessive crying, grunting, moaning or convulsions.

# How do I protect myself?

- ◆ Vaccine is available for some strains
- ◆ Risk assessment, routine practice and additional precautions if warranted
- ◆ HCWs can reduce the risk of infection by wearing facial protection (i.e. surgical mask and eye protection) when within one meter of a patient with known/suspected invasive meningococcal disease or when performing a procedure where contamination with droplets from the oropharynx is possible, e.g. endotracheal intubation, suctioning or close examination of the oropharynx.
- ◆ Unprotected mouth-to-mouth resuscitation should be avoided.
- ◆ Patients with invasive disease are no longer infectious after 24 hours of effective antimicrobial therapy.



# Contact Management

- ◆ A contact is defined as an individual who has had close contact with a case for the period of time in which the case was infectious, that is, 7 days prior to the onset of symptoms to 24 hours after the initiation of appropriate antibiotic therapy.
- ◆ Health care workers who have had intensive unprotected contact (without wearing a mask) with infected person such as in intubation, resuscitation or closely examining the oropharynx are considered as a contact requiring follow up.
- ◆ All close contacts are offered prophylactic antibiotics, which should be given as soon as possible, preferably within 24 hours and up to 10 days after the last contact with the case.
- ◆ Provide counseling and education to contacts about the risk of disease, the signs and symptoms to watch for and information on the prophylactic antibiotic.

# Tuberculosis

## *What is Tuberculosis (TB)?*

- ◆ Tuberculosis is a disease often called TB.
- ◆ It is spread by bacteria (germs) that can float in the air.
- ◆ The TB bacteria or germs may spray into the air if a person with TB **disease** in the lungs coughs, sings or sneezes.
- ◆ The people nearby can breathe TB germs into their lungs and get TB **infection**.



Photo credit: Corbis Benso

# How is TB spread?

- ◆ It is spread by tiny germs that can float in the air. The TB germs may spray into the air if a person with TB disease coughs, sings or sneezes. The people nearby can breathe TB germs into their lungs and get TB infection. People who have TB infection (not TB disease) cannot spread TB to others.
- ◆ TB disease is not particularly contagious, much less so than a cold or the flu. Close, prolonged contact is usually required for the bacteria to spread from one person to another, typically a number of hours each day, for a number of days or weeks. Those most at risk are people who live in the same house.

# What are the symptoms?

If the TB **disease** is in your lungs, you may:

- ◆ cough a lot
- ◆ cough up mucus or phlegm or blood
- ◆ have chest pain when you cough or breathe.

If you have TB **disease** anywhere in your body including the lungs, you may:

- ◆ Fever
- ◆ Night sweats
- ◆ Loss of appetite
- ◆ Weight loss
- ◆ Weakness
- ◆ Pain or swelling in the part of your body with the TB **disease**.



# How do I protect myself?

- ◆ It is recommended that HCW have a 2-step tuberculin skin test (TST)
- ◆ Staff with a positive TST or an exposure to a case are reported to Public Health
- ◆ Staff with TB excluded until cleared by their physician and Public Health for return to work
- ◆ Risk assessment, routine practice and additional precautions if warranted.

# Contact Management

- ◆ The Health unit will be contacted regarding any confirmed or suspected TB.
- ◆ According to the OHA : Any HCW who has had unprotected contact with a patient with active TB, i.e. without a fit-tested, seal-checked N95 respirator, in hospital must be actively investigated by the OHS

# Invasive Group A Streptococcal Disease (IGAS)

## *What is invasive group a streptococcal disease?*

- ◆ Group A Streptococci (GAS) are bacteria often found in the throat and on the skin. People may carry this germ in the throat or on the skin and have no symptoms of illness.
- ◆ Most GAS infections are relatively mild illnesses such as strep throat, impetigo or scarlet fever. On rare occasions it may cause more severe or even life threatening illness.
- ◆ Two of the most severe, but least common, illnesses are necrotizing fasciitis (sometimes described as flesh eating disease) and streptococcal toxic shock syndrome.
- ◆ Necrotizing Fasciitis (NF) is an infection that destroys muscle, fat or skin tissue.
- ◆ Streptococcal Toxic Shock Syndrome (STSS) is an infection that may damage organs such as the kidneys, liver and lungs.
- ◆ When the infection is this serious, it is called ***invasive Group A Streptococcal Disease***.

# How is iGAS spread?

GAS is spread when you come into direct contact with fluids from the nose or throat of an infected person or through contact with an infected wound or on the skin.

Activities such as open mouth kissing (“french kissing”), mouth-to-mouth resuscitation, sexual intercourse and sharing needles may put you at greater risk of becoming infected.

The risk of becoming sick with GAS through casual contact is very small.





# What are the symptoms?

You should watch for:

- Fever
- Rapid breathing
- Aches, pains, chills
- Sore throat
- Severe muscle pain, redness or swelling
- Dizziness or confusion
- Rash
- Abdominal pain

# How do I protect myself?

- ◆ Risk assessment, routine practice and additional precautions if warranted
- ◆ HCWs can reduce the risk of infection by the consistent use of Routine Practices e.g. wearing a surgical mask and eye protection or face shield when performing a procedure where contamination with droplets from the oropharynx is possible.

# Contact Management

- ◆ An occupational exposure of a HCW is defined as secretions from the nose, mouth, wound or skin infection of the infected case coming into contact with the mucous membranes or non-intact skin of the HCW within 7 days of the onset of GAS until 24 hours after the start of effective therapy.
- ◆ If appropriate personal protective equipment (e.g. surgical mask and eye protection or face shield, gloves) has been worn, there is NO exposure.
- ◆ If indicated, antimicrobial prophylaxis should be given as soon as possible, preferably within 24 hours but is still recommended for up to 7 days after the last contact with an infected case.
- ◆ HCWs with exposure to cases of invasive GAS should be advised of the signs and symptoms of GAS disease and to seek medical attention immediately if fever or other signs or symptoms develop and notify their employer.

# Meningitis – Viral vs. Bacterial

## ***What is Meningitis?***

Meningitis is an infection of the fluid of a person's spinal cord and the fluid that surrounds the brain.

Meningitis is caused by a virus, bacteria or in rare circumstances a fungus. It is important to know if meningitis is caused by a virus or bacteria because the severity of the illness and the treatment are different.

**Viral** meningitis is often less severe and resolves without treatment.

**Bacterial** meningitis can be very severe, requires treatment and may result in complications such as brain damage, hearing loss, loss of limb and learning disabilities.



# How is Meningitis spread?

Some forms of meningitis are contagious to others. Some types of bacterial meningitis may be spread through the exchange of respiratory and throat secretions from the infected person though, for example, coughing, kissing and sharing of utensils.

Bacterial meningitis is not as contagious as things like the common cold or the flu, and is not spread by casual contact or by breathing the same air as someone who is infected.

# What are the symptoms of Meningitis?

The symptoms of meningitis are not the same for everyone. Common symptoms for anyone over the age of 2 include:

- ◆ high fever,
- ◆ stiff neck,
- ◆ headache.

These symptoms may develop suddenly or over a couple of days. Other symptoms may include nausea, vomiting, sensitivity to light, confusion and drowsiness.

In newborns and infants under the age of 2 the symptoms of fever, headache and stiff neck may be absent or difficult to detect. The infant may experience irritability, poor feeding and vomiting.

As the infection progresses, people of any age may experience seizures.

# How do I protect myself?

It is recommended that you keep your immunizations current for:

- ◆ MMR: measles, mumps and rubella
  - ◆ Varicella: chicken pox
  - ◆ Meningococcal: serogroup C
  - ◆ Pneumococcal: *Streptococcus pneumoniae*
  - ◆ Hib: *Hemophilus influenzae* type b
- 
- ◆ Risk assessment, routine practice and additional precautions if warranted

# Influenza

- ◆ Influenza, commonly called 'the flu', is a serious respiratory illness caused by a virus.
- ◆ Anyone can get Influenza, but those over 65, young children and people with chronic medical conditions or who are pregnant are more vulnerable and can develop complications such as pneumonia.
- ◆ The usual flu season in Canada is from November to April.

# How is it spread?

- ◆ Influenza is spread mainly from person to person through coughing or sneezing. This can happen when droplets from a cough or sneeze of an infected person are expelled through the air and enter the mouth or nose of people nearby. It can also be spread when a person touches respiratory droplets on another person or an object and then touches their own mouth or nose before washing their hands.
- ◆ Infected people may be able to infect others beginning one day before symptoms develop and up to seven days after becoming sick. That means that you may be able to pass on the flu to someone else before you know you are sick, as well as while you are sick. Children, especially younger children, might be contagious for longer periods.

# What are the symptoms?

Influenza symptoms may include:

- ◆ Fever
- ◆ Cough
- ◆ Headache,
- ◆ Chills
- ◆ Runny eyes
- ◆ Stuffy nose
- ◆ Sore throat
- ◆ Loss of appetite
- ◆ Muscle aches
- ◆ Extreme weakness and fatigue.
- ◆ Children may also experience the croup, ear infections, nausea, vomiting and diarrhea when they have Influenza



# How do I protect myself?

- ◆ Annual influenza vaccination, preferably 2 weeks before the beginning of the active flu season, is currently the most effective measure for reducing the impact of influenza.
- ◆ Risk assessment, routine practice and additional precautions if warranted

# AROS (Antibiotic Resistant Organisms)

- ◆ A microorganism that has developed resistance to the action of several antimicrobial agents and that is of special clinical or epidemiological significance.

List of AROs that we hear about:

- ◆ Methicilin-Resistant Staphylococcus Aureus (MRSA)
- ◆ Vancomycin Resistant Enterococcus (VRE)
- ◆ Extended Spectrum Beta-Lactamase Producing Bacteria (ESBL)
- ◆ Carbapenem-Resistant Enterobacteriaceae (CRE)

# What is MRSA

- ◆ Staphylococcus aureus is a germ that lives on the skin and mucous membranes of healthy people.
- ◆ Occasionally S. aureus can cause an infection.
- ◆ When S. aureus develops resistance to certain antibiotics, it is called methicillin-resistant Staphylococcus aureus, or MRSA.

# How is MRSA Spread

- ◆ MRSA is spread from one person to another by contact, usually on the hands of caregivers.
- ◆ MRSA can be present on the caregiver's hands either from touching contaminated material excreted by the infected person or from touching articles contaminated by the skin of a person with MRSA, such as towels, sheets and wound dressings.
- ◆ MRSA can live on hands and objects in the environment.

# What is VRE

- ◆ Enterococci are germs that live in the gastrointestinal tract (bowels) of most individuals and generally do not cause harm (this is termed “colonization”).
- ◆ Vancomycin-resistant enterococci (VRE) are strains of enterococci that are resistant to the antibiotic vancomycin.
- ◆ If a person has an infection caused by VRE it may be more difficult to treat.

# How is VRE Spread

- ◆ VRE is spread from one person to another by contact, usually on the hands of caregivers.
- ◆ VRE can be present on the caregiver's hands either from touching contaminated material excreted by an infected person or from touching articles soiled by faeces.
- ◆ VRE can survive well on hands and can survive for weeks on inanimate objects such as toilet seats, taps, door handles, bedrails, furniture and bedpans.
- ◆ VRE is easy to kill with the proper use of disinfectants and good hand hygiene.



# What are ESBLs

- ◆ Bacteria that are found in the bowel, urine, blood, skin wounds or sputum. There are several different types of ESBLs, most commonly *Klebsiella pneumonia* and *E. coli*.
- ◆ ESBL-producing bacteria produce enzymes called 'beta-lactamases'.
- ◆ These enzymes break down commonly used antibiotics so that the antibiotics don't work and a different antibiotic may need to be used to treat the infection.
- ◆ Some people carry ESBL-producing bacteria but do not have an infection.

# How are ESBLs Spread

- ◆ ESBL-producing bacteria can be spread to other people directly through touch, if hands are unwashed, or indirectly by contact with soiled equipment and, particularly urine-care equipment such as catheters and urinals.

# What are CREs

- ◆ Enterobacteriaceae are a family of bacteria, many of which live naturally in our bowels.
- ◆ Carbapenem-resistant Enterobacteriaceae (CRE) produce carbapenemase enzymes that can break down many types of antibiotics, making the bacteria very resistant.
- ◆ In Canadian hospitals, there are currently few infections with CRE, but caution is still needed to prevent their increase and spread.

# How are CREs Spread

- ◆ Most people who carry CRE have no symptoms of infection and are said to be colonized.
- ◆ The main site of colonization of CRE is the bowel.
- ◆ CRE is not spread through the air, but may survive on equipment and surfaces, such as bedrails, tables, chairs, countertops and door handles.
- ◆ CRE can be spread from one person to another by unwashed hands or from contact with soiled equipment and surfaces
- ◆ Infection occurs when CRE enters the body at specific sites and causes symptoms of disease. For example, CRE can cause pneumonia and urinary tract infections.
- ◆ Since CRE are resistant to many types of antibiotics, treatment is difficult and may involve antibiotics which have significant side effects.

# What are the precautions for AROs in Health Care Settings

It is important that special precautions are taken to stop AROs from spreading to other patients/residents in health care settings. These precautions include:

- ◆ Single room accommodation whenever possible (the door can remain open)
- ◆ A long-sleeved gown and gloves will be worn by everyone who provides care to the patient/resident
- ◆ A sign may be placed on the door to remind others who enter the room about the special precautions
- ◆ The room and the equipment used in the room will be cleaned and disinfected regularly
- ◆ Everyone who leaves your room must clean their hands well
- ◆ The patient/resident must clean your hands before they leave their room

# What precautions should someone with an ARO take at home and in the community to prevent spreading it?

- ◆ Frequently perform hand hygiene by using an alcohol-based hand rub (60-90% alcohol concentration) or soap and water when hands are visibly soiled.
- ◆ Anyone assisting with personal hygiene of someone with an ARO should also practice hand hygiene after providing care.
- ◆ If someone has an ARO skin infection, they should practice hand hygiene before and after touching their wound. They should keep skin infections and wounds covered with clean, dry bandages. Used bandages should be discarded into a plastic bag and directly into the garbage. If the wound has increased drainage, redness or a foul smell, the person should contact their health care provider.
- ◆ Avoid contact sports until the skin infection has healed.



- ◆ Maintain excellent personal hygiene through regular bathing or showering.
- ◆ Do not share personal items (razors, towels, bar soap, washcloths, sporting gear, etc.) that may have been in contact with wound drainage.
- ◆ Dishes and cutlery can be washed by hand with dish soap and hot water or in a dishwasher.
- ◆ Clothes and linen can be washed in the regular household laundry; dry clothes in the dryer, rather than air-drying as the heat helps to kill bacteria on clothes. If clothes are heavily soiled with body fluids such as pus, wash them separately.
- ◆ Clean surfaces (e.g., counter tops, door handles) with soap and water then use a household disinfectant on a regular basis.
- ◆ Garbage may be disposed with regular household garbage.

# C.difficile

- ◆ Clostridium difficile is a Gram positive, spore-forming, anaerobic bacillus.
- ◆ It is widely distributed in the environment and colonizes up to 3-5% of adults without causing symptoms.
- ◆ Certain strains can produce two toxins: toxin A and toxin B, which are responsible for diarrhea.
- ◆ C. difficile produces spores that are resistant to destruction by many environmental interventions, including a number of chemicals.
- ◆ Spread of C. difficile occurs due to inadequate hand hygiene and environmental cleaning; therefore, consistent hand hygiene and thorough cleaning of the client/patient/resident environment are necessary for control.
- ◆ C. difficile has been a known cause of health care-associated (nosocomial) diarrhea for over 30 years.

# Questions?