



Information for Health Workers

Typhoid

CLINICAL FEATURES

SYMPTOMS

- Typhoid fever may vary from a mild illness with low fever and feeling bad, to a severe illness with continuous fever, diarrhoea or constipation, anorexia, severe headache
- Typhoid fever is very difficult to diagnose. The most constant symptom is the long-lasting high fever

TRANSMISSION

- Food and water polluted by the faeces of patients and carriers
- Contaminated shellfish, raw vegetables or fruit, and milk have all caused outbreaks

INCUBATION PERIOD

- Symptoms develop from 3-60 days, usually 8-14 days

INFECTIOUS PERIOD

- Stool is infectious while the person has symptoms
- Up to 5% of infected people become long-term asymptomatic carriers

TREATMENT

- Typhoid can lead to death in up to 20% of patients if left untreated. Therefore it is important that the following treatments are carried out as soon as a patient is clinically diagnosed with the disease
 - All suspected cases should be hospitalised
 - Paracetamol should be used to manage fever
 - Oral or intravenous fluid replacement if dehydrated
 - Antibiotics are required for all patients; Ciprofloxacin is a good choice

TESTING

- Collect blood or stool sample for testing

SURVEILLANCE AND CONTROL MEASURES

CASE DEFINITION

- A suspected case is any person with a fever lasting 3 or more days plus one or more of the following:
 - Feeling bad
 - Severe headache
 - Dry cough
 - Loss of appetite
 - Abdominal pain
 - Constipation
 - Diarrhoea
 - Rose spots on the trunk
- A confirmed case is isolation of *Salmonella Typhi* bacteria from blood, stool, or other clinical specimen. Serologic evidence (antibodies) is not enough to confirm the diagnosis

NOTIFICATION TO SURVEILLANCE UNIT

- Report all suspected and confirmed cases to provincial surveillance officer ASAP
- Make a notification using the Electronic Notification (eNotification) Form
- If you have issues using the eNotification Form, contact the provincial surveillance officer ASAP
- Priority: **Urgent**. All confirmed cases should be investigated within 24 hours

CONTACT MANAGEMENT

- Close contacts should be told about the symptoms of typhoid fever and be advised to go to the health centre if they develop symptoms
- Antibiotic prophylaxis is not recommended

PREVENTION

- Promote in the community:
 - Providing safe water
 - Hand washing
 - Safe disposal of stool
 - Clean latrines/toilets





Information for Health Workers

Cholera

CLINICAL FEATURES

SYMPTOMS

- Most cases have no symptoms or mild diarrhoea
- In severe cases, there is quick onset of large amount of painless diarrhoea (rice water" stools), occasional vomiting, rapid dehydration and shock.
- The death rate is high (20% - 30%) without correct treatment.

TRANSMISSION

- Drinking contaminated water OR
- Eating food from unsafe water or contaminated by a person with cholera.

INCUBATION PERIOD

- Usually 2-3 days (occasionally from hours to 5 days)

INFECTIOUS PERIOD

- Usually only while diarrhoea lasts and for a few days after symptoms stops, but occasionally for a couple of months.

TREATMENT

- Immediate rehydration with oral rehydration solution (6 level teaspoons of sugar and 1/2 teaspoon of salt in 1 litre of safe water) or 1 packet of oral rehydration solution (ORS) mixed in 1 litre of safe water
- If dehydration is severe, intravenous fluids (Ringer's lactate/Hartmann's solution/normal saline) should be administered (seek expert advice regarding volume, rate and need for potassium in intravenous fluids)
- Antibiotics should be given to cases with severe dehydration only.

TESTING

- A stool sample (5-10g of fresh stool in a plastic screw-top container) should be collected and immediately sent to the laboratory for stool culture of vibrio cholerae

SURVEILLANCE AND CONTROL MEASURES

CASE DEFINITION

- A **suspected case** is any person with severe dehydration or death from acute water diarrhoea in a patient aged 5 years or more.
- A **confirmed case** is any person with isolation of toxigenic Vibrio Cholerae O1 or O139 from stool or vomitus. Serologic evidence of recent infection is also highly suggestive.

NOTIFICATION TO SURVEILLANCE UNIT

- Report all suspected and confirmed cases to provincial surveillance officer ASAP
- Make a notification using the Electronic Notification (eNotification) Form
- If you have issues using the eNotification Form, contact the provincial surveillance officer ASAP
- Priority: **Urgent**. All confirmed cases should be investigated within 24 hours

CONTACT MANAGEMENT

- Inform contacts of risk infection and tell them to watch for signs or symptoms of cholera for 5 days after contact with the sick person or exposure to contaminated source.
- Contacts should be told to seek medical care if symptoms develop.
- Contact should be contacted every day for 5 days to identify new cases early and to reduce spread.

PREVENTION

- Key prevention messages on the following:
 - Providing safe water
 - Hand washing
 - Safe disposal of stool
 - Clean latrines/toilets
- Separate raw and cooked food
- Cook food thoroughly
- Keep food at safe temperatures
- Use safe water





Information for Health Workers

Leptospirosis

CLINICAL FEATURES

SYMPTOMS

- Highly variable clinical presentation, but cases usually present with fever, headache, severe muscle aches and red eyes. Refer to the case definition below

TRANSMISSION

- Food Leptospirosis occurs in wild and domestic animals, mainly rats, dogs and pigs
- Infections may occur in people exposed to flood water/puddles/waterfalls
- Humans are infected mainly through contact of broken skin with water or soil contaminated with the urine of infected animals

INCUBATION PERIOD

- Symptoms develop from 4 to 19 days (most commonly 10 days) after exposure

INFECTIOUS PERIOD

- Leptospirosis is very rarely transmitted from human to human

TREATMENT

- Management of fever with paracetamol and fluid replacement (oral or intravenous) are recommended for any patient with fever
- Antibiotics are recommended for all patients. Refer to national treatment protocols. Doxycycline or benzyl penicillin are usually good options

TESTING

- Test anyone that meets the suspected case definition (see below)
- A blood specimen should be collected in a red-top blood tube for testing for antibodies
- This specimen should be refrigerated and standard packing and shipping procedure should be followed
- Specimens should be sent to the closest provincial hospital for testing (or via rapid test, if available)

SURVEILLANCE AND CONTROL MEASURES

CASE DEFINITION

- A **suspected case** is any person with acute fever illness with headache AND muscle aches (often leg muscle), associated with ANY of the following symptoms/signs:
 - Swelling or blood in the whites of the eyes
 - No urine or very little urine production
 - Jaundice
 - Cough, coughing up blood and breathlessness
 - Bleeding (from the intestines or lungs)
 - Meningeal irritation (severe headache, not liking bright lights, neck stiffness)
 - Irregular heart beat or heart failure
 - Skin rash
- A confirmed case is a person from which: Leptospira bacteria is isolated from clinical specimen; OR demonstration of Leptospira bacteria in a clinical specimen by immunofluorescence OR confirmatory testing showing seroconversion or a four-fold increase in the titre of paired sera specimens from a reference laboratory

NOTIFICATION TO SURVEILLANCE UNIT

- Report all suspected and confirmed cases to provincial surveillance officer ASAP
- Make a notification using the Electronic Notification (eNotification) Form
- If you have issues using the eNotification Form, contact the provincial surveillance officer ASAP
- Priority: **High**. All confirmed cases should be investigated within two days

CONTACT MANAGEMENT

- None required

PREVENTION

- In outbreak areas, advise the community to:
 - Do not walk barefoot and always wear protective clothing when in contact with possible urine-contaminated water or soil
 - Avoid direct contact with potentially infected animals
 - Cover and disinfect wounds
 - After floods or heavy rain avoid swimming or bathing in water that may contain animal urine
 - Ensure your homes are free of rats and mice
 - Cover food to protect it from rats and mice
 - Children should avoid playing in muddy water





Information for Health Workers

Syphilis

CLINICAL FEATURES

SYMPTOMS

- Primary syphilis: A round painless, usually hard sore (chancre) on the genitals, anus or elsewhere, usually lasts around 21 days
- Secondary syphilis: Non-itchy rash (palms and soles of feet usually), white or grey lesions on the genitals
- Latent syphilis: often asymptomatic but can lead to brain and cardiovascular disease
- Babies born with syphilis can experience rashes, organ inflammation, anaemia, bone and joint problems, neurological conditions (blindness, deafness, meningitis), developmental delays, seizures

TRANSMISSION

- The main transmission route is via direct contact with a syphilis sore during sex
- Syphilis can spread from a mother with syphilis to her unborn baby

INCUBATION PERIOD

- The incubation period is from 10 days to 3 months and is usually 3 weeks.

INFECTIOUS PERIOD

- Syphilis is most infectious during primary and second stages of disease
- Syphilis can be infectious for up to 2 years, if untreated

TREATMENT

- The early stage of syphilis is treated with a benzathine penicillin injection
- As second line treatment, doctors may also use doxycycline, ceftriaxone or azithromycin
- All pregnant women diagnosed with syphilis should be treated with penicillin

TESTING

- Collect 5-10 ml of blood from patient into an anticoagulant free tube or serum separator tube
- Plasma (purple top tube) may be used up to 48 hours from collection
- Point-of-care rapid diagnostic tests are available

SURVEILLANCE AND CONTROL MEASURES

CASE DEFINITION

- A **suspected case** is any person with a stage infection characterised by one or more ulcerative lesions (e.g. chancre)
- A **confirmed case** is any person with identification of *T.pallidum* from a chancre or regional lymph node.

NOTIFICATION TO SURVEILLANCE UNIT

- Report all suspected and confirmed cases to provincial surveillance officer ASAP
- Make a notification using the Electronic Notification (eNotification) Form
- If you have issues using the eNotification Form, contact the provincial surveillance officer ASAP
- Priority: **Routine**. All confirmed cases should be investigated within 3 working days

CONTACT MANAGEMENT

- Sexual contacts should be identified. The extent of contact tracing depends on the clinical stage of infection
- For primary syphilis, all people having sexual contact with the index case during the 3 months preceding onset should be evaluated. Such contacts should be treated as for the case, even if their serology is negative
- For secondary syphilis, this period should be extended to 6 months and, for early latent syphilis, to 12 months
- For late latent syphilis, any sexual partners and children of infected women should be evaluated
- For congenital syphilis, all members of the immediate family should be evaluated
- Contact tracing assistance can be provided by the department's notification officers
- All newborns of mothers with syphilis should be investigated and treated in consultation with a specialist

PREVENTION

- Using condoms consistently and correctly is the best way to prevent syphilis and many other STIs
- All pregnant women should be tested for syphilis at their first antenatal appointment, and treated if positive





Information for Health Workers

Human immunodeficiency virus

CLINICAL FEATURES

SYMPTOMS

- The symptoms of HIV vary depending on the stage of infection.
- First few weeks: Influenza like symptoms (Fever, headache, rash, sore throat)
- Progressively weakens the immune system (Swollen lymph nodes, weight loss, fever, diarrhea, cough)

TRANSMISSION

- Main transmission route is via sexual contact, contact with abraded skin or mucosa with body secretions such as blood, semen, use of HIV contaminated needles or syringes
- Can also transmitted from mother to child during pregnancy and delivery
- People cannot become infected through ordinary day-to-day contact such as kissing, hugging, shaking hands or sharing personal objects, food or water

INCUBATION PERIOD

- The period from infection to the primary seroconversion illness is usually 1 to 4 weeks
- The period from infection to development of anti-HIV antibodies is usually less than 1 month but may be up to 3 months; newer tests have a shorter window period, where a false negative result may be obtained early in infection

INFECTIOUS PERIOD

- Not known precisely; begins early after onset of HIV infections and presumably extends throughout life
- Infectivity during the first months is considered to be high

TREATMENT

- Current antiretroviral therapy stops the virus from replicating in the body
- Antiretroviral therapy (ART) does not cure HIV infection but allows a person's immune system to get stronger
- Currently, ART must be taken every day for the rest of a person's life
- People living with HIV who are taking ART and who have no evidence of virus in the blood will not spread the virus to their sexual partners

TESTING

- Collect blood (serum, plasma, DBS)
- Point-of-care rapid diagnostic tests are available

SURVEILLANCE AND CONTROL MEASURES

CASE DEFINITION

- A **suspected case** is any person with a self-limiting glandular fever-like illness lasting for a week or two (seroconversion illness)
- A **confirmed case** is any person with identification of reactive HIV antigen/antibody

NOTIFICATION TO SURVEILLANCE UNIT

- Report all suspected and confirmed cases to provincial surveillance officer ASAP
- Make a notification using the Electronic Notification (eNotification) Form
- If you have issues using the eNotification Form, contact the provincial surveillance officer ASAP
- Priority: **Routine**. All confirmed cases should be investigated within 3 working days

CONTACT MANAGEMENT

- All sexual partners and other people exposed should be tested and offered post-exposure prophylaxis if appropriate (see below)

PREVENTION

- Reduce risk of HIV infection by using condom
- HIV-infected pregnant women should be offered antiretroviral drugs to prevent mother-to-child transmission
- Post-Exposure Prophylaxis (PEP) is the short-term use of ARTs to reduce the probability of contracting HIV after potential exposure. PEP should be offered ASAP, and ideally within 72 hours
- Pre-Exposure Prophylaxis (PrEP) is the use of an ARTs by HIV-negative people to reduce the risk of HIV acquisition
- Access to testing an ART is an IMPORTANT part of preventing HIV





Information for Health Workers

Hepatitis B virus

CLINICAL FEATURES

SYMPTOMS

- Most people have no symptoms when they are first infected with hepatitis B
- Acute hepatitis B symptoms include: loss of appetite, nausea and/or vomiting, abdominal pain, fatigue, dark urine, pale stools, a yellowing of the skin and eyes (jaundice)
- Chronic infection (persistent infection for more than 6 months) is commonly asymptomatic until signs of liver disease present (often 30-40 years after infection)

TRANSMISSION

- Transmitted when infected by body fluids (blood, semen, saliva or vaginal fluid) come in contact with the blood stream of another person. This occur:
- From mother to child around the time of birth
 - Unprotected sex
 - Sharing contaminated items

INCUBATION PERIOD

- Between 45 to 180 days, and rarely from as early as 2 weeks to as late as 9 months

INFECTIOUS PERIOD

- People that naturally clear the virus are infections for up to 3 months before symptoms develop until the infected person eliminates the virus from their body
- People with chronically infection remain infectious for life although the risk of transmitting the infection to others varies considerably from person-to-person

TREATMENT

- There is no specific treatment for acute hepatitis B; treatment is supportive and is based on the person's symptoms and signs of illness
- Antiviral treatment is available and is of benefit to some people with chronic hepatitis B infection
- Antiviral prophylaxis can prevent mother-to-child transmission and should be offered from the second trimester until completion of the

TESTING

- Collect whole blood for serology testing Point-of-care rapid diagnostic tests are available

SURVEILLANCE AND CONTROL MEASURES

CASE DEFINITION

- A **suspected case** is any person presenting with anorexia, abdominal discomfort, nausea, vomiting, lethargy, occasional rash and arthralgia, dark urine, light stools and jaundice.
- A **confirmed case** is any person that has a lab specimen with positive detection of hep B surface antigen (HBsAg) or Hep B virus by nucleic acid testing

NOTIFICATION TO SURVEILLANCE UNIT

- Report all suspected and confirmed cases to provincial surveillance officer ASAP
- Make a notification using the Electronic Notification (eNotification) Form
- If you have issues using the eNotification Form, contact the provincial surveillance officer ASAP
- Priority: **Routine**. All confirmed cases should be investigated within 3 working days

CONTACT MANAGEMENT

- Household contacts should be tested for HBsAg and offered vaccination if available
- Infants born to HBsAg-positive mothers should be given the hepatitis B vaccine within 24 hours of birth

PREVENTION

- The best protection from hepatitis B is vaccination
- Infants should complete the hepatitis B vaccination series
- If possible, health care workers should be vaccinated
- Antiviral prophylaxis can prevent mother-to-child transmission and should be offered from the second trimester until completion of the
- Practice safer sex – use condoms consistently and correctly
- Injecting drug users should never share injecting equipment



Information for Health Workers

Tuberculosis (TB)



CLINICAL FEATURES

SYMPTOMS

- Only a small proportion of people who get infected with tuberculosis (TB) will get TB disease and symptoms
- Babies and children are at higher risk of severe symptoms
- Common symptoms of TB: prolonged cough (sometimes with blood), chest pain, weakness, fatigue, weight loss, fever, night sweats
- People with latent TB infection don't feel sick and aren't contagious

TRANSMISSION

- Transmission is by AIRBORNE spread via droplets, usually spread through coughing, singing or sneezing by a patient with lung or throat disease
- Patients with smear-positive are the most contagious

INCUBATION PERIOD

- As short as 2 weeks, but TB usually becomes latent and can emerge at any time later in life (5% chance in first 2 years, 5% lifetime chance thereafter)

INFECTIOUS PERIOD

- The period of infectiousness is ongoing in the absence of treatment
- Infectious period for outbreak investigations is usually considered to begin 3 months prior to first symptoms, a positive sputum ORchest x-ray evidence of TB. If the patient has no symptoms and has a negative sputum smear and normal chest x-ray, the infectious period begins 1 month prior to diagnosis
- The infectious period usually ends after 2 weeks of correct treatment AND the patients symptoms have started to resolve. However, infectious period can extend to slightly longer than 2 weeks, depending on the bacterial load when first diagnosed

TREATMENT

- Tuberculosis disease is treated with antibiotics. Treatment is recommended for both TB infection and disease
- The most common antibiotics used are: isoniazid, rifampin, pyrazinamide, ethambutol, streptomycin.
- To be effective, these medications need to be taken daily for 4–6 months

TESTING

- Take a sputum sample; instruct patient to breathe in deeply 2-3 times, cough deeply from the chest and spit sputum into the sputum container Children <5 yrs often cannot produce enough sputum so a bronchial aspirate is needed

SURVEILLANCE AND CONTROL MEASURES

CASE DEFINITION

- A suspected case is any person with a cough lasting >2 weeks; OR more of the following symptoms, without another diagnosis:
 - Coughing up with blood; difficulty breathing; chest pain; fever/chills; night sweats; extreme tiredness or weakness; loss of appetite; unexplained weightloss
- A **confirmed case** is any person with isolation/detection of *mycobacterium tuberculosis*

NOTIFICATION TO SURVEILLANCE UNIT

- Report all suspected and confirmed cases to provincial surveillance officer ASAP
- Make a notification using the Electronic Notification (eNotification) Form
- If you have issues using the eNotification Form, contact the provincial surveillance officer ASAP
- Priority: **High**. All confirmed cases should be investigated within two working days

CASE MANAGEMENT

- Suspected infectious TB case need to be admitted to the hospital, must be isolated in a single room (ideally in a negative pressure room if available)
- Use airborne precautions

CONTACT MANAGEMENT

- All close contacts should be screened for TB
- Contacts with symptoms should have sputum smear microscopy, chest and physical examination and chest x-ray

PREVENTION

- People with infectious TB are isolated until they are no longer infectious
- People diagnosed with TB infection may be offered a course of preventive treatment.
- BCG vaccination gives protection against life-threatening forms of TB





Information for Health Workers

Meningitis, bacterial or viral

CLINICAL FEATURES

SYMPTOMS

- Symptoms of invasive meningococcal disease can include: fever, headache, neck stiffness, photophobia, nausea or vomiting, diarrhoea, petechial or purpuric rash, fatigue or malaise, arthralgia or myalgia, pale or mottled skin, cold extremities, confusion, altered consciousness
- Infants and young children may have non-specific symptoms which can include: irritability, reduced feeding, high-pitched crying, grunting or moaning, drowsiness, difficulty waking, convulsions
- The disease can be caused by many different pathogens including bacteria, fungi or viruses, but the highest global burden is seen with bacterial meningitis

TRANSMISSION

- Transmitted from person-to-person through respiratory droplets shed from the nose and throat. Transmission can occur from close, prolonged or intimate contact.

INCUBATION PERIOD

- The incubation period is usually 1 to 7 days and rarely up to 10 days

INFECTIOUS PERIOD

- Considered infectious from the onset of acute illness until they have received 24 hours of appropriate antibiotic treatment.

TREATMENT

- Meningitis is a medical emergency. Meningitis is potentially fatal within 24 hours and requires urgent medical attention. It usually cannot be safely cared for at home.
- Antibiotic treatment should be given immediately for people with suspected or confirmed meningococcal disease and never be delayed by the need to get laboratory specimens.

TESTING

- Collection of whole blood OR
- Cerebrospinal fluid (CSF)

SURVEILLANCE AND CONTROL MEASURES

CASE DEFINITION

- A suspected case is any person present with neck stiffness, fever, confusion or altered mental status, headaches, nausea and vomiting.
- A **confirmed case** is any person with isolation/detection of *Neisseria meningitidis*

NOTIFICATION TO SURVEILLANCE UNIT

- Report all suspected and confirmed cases to provincial surveillance officer ASAP
- Make a notification using the Electronic Notification (eNotification) Form
- If you have issues using the eNotification Form, contact the provincial surveillance officer ASAP
- Priority: **High**. All confirmed cases should be investigated within two working days

CASE MANAGEMENT

- Early diagnosis and treatment are very important.
- Treatment is the responsibility of the treating doctor.
- Antibiotic treatment should be commenced as soon as possible once a clinical diagnosis is made and should never be delayed by the need to get laboratory samples or confirmation of the diagnosis.

CONTACT MANAGEMENT

- Cases are likely to have acquired meningococcal bacteria from an asymptomatic carrier who either lives in the same household (or similar setting) or is an intimate partner of the case
- Children tend to acquire meningococcal bacteria from adults in the same household, whereas teenagers and adults are more likely to acquire it from their close social network

PREVENTION

- Vaccines offer the best protection against common types of bacterial meningitis
- Vaccines can prevent meningitis caused by meningococcus, pneumococcus, haemophilus influenzae type b (Hib)
- Bacterial and viral meningitis can spread from person to person. If you live with someone who has either type of meningitis, you should:
 - Talk to your doctor or nurse about taking antibiotics (in case of bacterial meningitis)
 - Wash hands frequently, especially before eating
 - Avoid close contact and sharing cups, utensils or toothbrushes





Information for Health Workers

Measles and Rubella through Acute Fever & Rash

CLINICAL FEATURES

SYMPTOMS

- For measles, symptoms start with a high fever, cough, red eyes and runny nose
- On day 3-7, a whole-body non-blistering maculopapular rash appears, starting on the head
- For rubella, symptoms include a low-grade fever, mild rash and enlarged lymph nodes behind the neck and ears (that appear before the rash) and mild conjunctivitis

TRANSMISSION

- For measles, transmission is airborne through sneezing, coughing or talking/singing, or by contact with secretions
- Measles is a highly contagious diseases
- For rubella, transmission is through close respiratory contact or contact with infectious material

INCUBATION PERIOD

- For measles, the time from exposure to rash onset averages 14 days, with a range of 7 to 21 days
- For rubella, the usual incubation period for rubella is 14 days, with a range of 12 to 23 days

INFECTIOUS PERIOD

- Measles may be spread from just before symptom onset until 4 days after appearance of rash
- Rubella may be transmitted from seven days before to seven days after the rash appears

TREATMENT

- There is no specific medicine to treat measles
- Paracetamol rather than aspirin should be used for fever in patients under 18 years of age
- Give vitamin A supplement to reduce the risk of death
- There is no specific medicine to treat rubella
- Mild symptoms can be managed with bed rest and medicines for fever, such as paracetamol or ibuprofen

TESTING

WHO TO TEST

- In consultation with the provincial surveillance officer, test anyone that meets the AFR case definition:
- Any person with acute fever and rash or when a doctor suspects measles or rubella
- The rash should be acute non-vesicular/non-blistering

HOW TO TEST

- Blood must be collected for all suspected cases and tested for measles antibodies
- Collect either whole blood (5 ml) or dried blood spot (for DBS, fill all 3 circles) at first contact with the patient or within 28 days of rash onset
- Immediately store samples in 4°C to 8°C temperature (specimen fridge) and ship to Vila Central Hospital

SURVEILLANCE AND CONTROL MEASURES

NOTIFICATION TO SURVEILLANCE UNIT

- Report all suspected and confirmed cases to provincial surveillance officer ASAP
- Make a notification using the Electronic Notification (eNotification) Form
- If you have issues using the eNotification Form, contact the provincial surveillance officer ASAP
- Priority: **Urgent**. All confirmed cases should be investigation within 24 hours.

CASE MANAGEMENT

- Isolate/quarantine patients to prevent hospital-acquired infection for 4 days from beginning of rash
- Cases should not participate in group activities (including school/preschool/child care/work) from beginning of symptoms until 4 days after beginning of rash and should stay home (unless isolated in hospital)
- Cases should avoid contact with people who are not immune, in particular pregnant women

CONTACT MANAGEMENT

- Contacts are considered to be anyone who shared a room with the case
- Contacts should quarantine until 21 days after exposure
- Non-immunised contacts should be vaccinated
- Keep non-immunised contacts out of school for 18 days after their last contact with the infectious case
- Ask contacts to be alert for signs and symptoms of acute fever and rash and advise those who develop symptoms to call ahead, if possible, before seeking medical advice
- Particular attention should be paid to the detection of rubella in pregnant contacts

PREVENTION

- The best way to prevent measles is through vaccination
- Measles containing vaccines are included in the childhood vaccination schedule but adults can get vaccinated if they are unsure if they have had the vaccine before



Information for Health Workers

Pertussis (Whooping cough)

CLINICAL FEATURES

SYMPTOMS

- First coughing stage has a low beginning, with an irritating cough gradually becomes coughing fits usually within 1 - 2 weeks and can last for 1 -2 months or longer
- Coughing fits are characterised by repeated violent cough; each fit has many coughs without breathing in
- Cough fits are often followed by vomiting

TRANSMISSION

- Transmitted by respiratory droplets of an infected person

INCUBATION PERIOD

- Average 9 - 10 days ; range is 6 - 20 days

INFECTIOUS PERIOD

- People with pertussis are most contagious up to about 3 weeks after the cough begins, and many children who contract the infection have coughing spells that last 4 to 8 weeks.
- When treated with the right antibiotics, patients are no longer infectious after 5 days of treatment

TREATMENT

- A macrolide antibiotic for 5 - 7 days will shorten the time the case is infectious, and may reduce the severity of symptoms if given very early Clarithromycin and azithromycin are better tolerated, if available, than erythromycin

TESTING

- Laboratory confirmation is not necessary for diagnosis, but may be helpful for infection control
- Test anyone that meets the suspected case definition (see below)
- A swab from the back of the nose or throat (nasopharynx) should be collected during the coughing and early coughing fits stages
- This specimen should be placed on Cary-Blair medium for shipment to a reference laboratory for culture or PCR testing
- Two blood samples may be obtained for serologic diagnosis - one when the patient is sick and one when they are better - but they are not as good as respiratory specimens

SURVEILLANCE AND CONTROL MEASURES

CASE DEFINITION

- A suspected case is any person with cough illness lasting >2 weeks, with at least one of the following symptoms; Fits for coughing, OR; 'whoop' when breathing, OR; vomiting after coughing fits
- A confirmed case is a person from which: Culture of *Bordetella pertussis* bacteris from a clinical specimen; OR; PCR positive for pertussis; OR; A coughing illness in a person with a link by time, person, place to a lab-confirmed cases

NOTIFICATION TO SURVEILLANCE UNIT

- Report all suspected and confirmed cases to provincial surveillance officer ASAP
- Make a notification using the Electronic Notification (eNotification) Form
- If you have issues using the eNotification Form, contact the provincial surveillance officer ASAP
- Priority: **High**. All confirmed cases should be investigated within two working days

CONTACT MANAGEMENT

- Administer post-exposure prophylaxis within 21 days of cough onset in the index patient to asymptomatic household contacts
- Consider a 5-7 day course of erythromycin, clarithromycin, or azithromycin for asymptomatic close contacts to prevent potential infection
- Exclude non-fully immunized children from schools, day care centers, and public gatherings for 21 days after exposure
- Review and update the immunization status of all contacts (note that this will not prevent them from getting sick in the current outbreak)

PREVENTION

- Immunization is the basis of pertusis control
- In an outbreak setting, a faster immunization schedule may be considered for people who are not fully immunized who have not yet been exposed
- For advice, consult WHO , SPC or CDC

Information for Health Workers

Malaria

CLINICAL FEATURES

SYMPTOMS

Falciparum malaria

- May present in many ways, including one or more of the following: fever, chills, sweats, loss of appetite, nausea, fatigue, headache, muscle and joint pain, cough and diarrhoea
- If not treated, falciparum malaria may lead to severe malaria which may cause permanent injury or death

Vivax malaria

- May begin with vague symptoms and a slowly rising fever lasting several days, followed by a shaking chill and rapidly rising temperature, usually accompanied by headache and nausea and ending in a great deal of sweating
- Not usually life threatening

TRANSMISSION

- By the bite of infected Anopheles mosquitoes
- Most Anopheles mosquitoes feed at night (* see below about caring for people with malaria under a mosquito net to avoid infection to others)

INCUBATION PERIOD

- Depends on the parasite: 9–14 days for *P. falciparum* and 12–18 days for *P. vivax*

INFECTIOUS PERIOD

- Not directly transmitted person to person
- Humans may infect mosquitoes as long as infectious parasites are in the blood and this varies and depends on response to treatment.

TREATMENT

- Once a diagnosis is made, treat immediately with a safe and effective antimalarial medicine.
- To avoid severe malaria, which is often fatal, effective treatment should be started within 24 hours after onset of symptoms.
- Refer to WHO Guidelines for the Treatment of Malaria

TESTING

- All patients with suspected malaria should be tested before they are given treatment Blood should be collected from the patient for a blood smear and microscopy Rapid tests are also available

SURVEILLANCE AND CONTROL MEASURES

CASE DEFINITION

Suspected case definition:

- Fever for 3 or more days in a patient living in, or returning within 12 months from, an area where malaria is endemic

Confirmed case definition:

- Detection of malaria parasites in thick or thin blood smears; OR detection of parasite DNA in a blood sample using polymerase chain reaction (PCR)

NOTIFICATION TO SURVEILLANCE UNIT

- Report all suspected and confirmed cases to provincial surveillance officer ASAP
- Make a notification using the Electronic Notification (eNotification) Form
- If you have issues using the eNotification Form, contact the provincial surveillance officer ASAP
- Priority: **High**. All confirmed cases should be investigated within two working days

CASE MANAGEMENT

- People with malaria should be cared for under mosquito nets so that a mosquito cannot bite them and then carry the infection to another person
- Cases should be interviewed to identify possible places of exposure so that control measures can be carried out and to identify further cases (the Vector Borne Disease officer will conduct this)

CONTACT MANAGEMENT

Persons living in the area where a patient is thought to have been infected should be informed of the risk of being bitten by an infected mosquitoes and recommended to:

- Clean-up potential mosquito breeding sites (things that collect water, such as coconut shells, tyres, cans)
- Use measures for personal protection, such as mosquito repellent sprays and bed nets

PREVENTION

Preventing mosquito bites is the best way to prevent infection. This includes:

- Wear clothing that covers body well
- Keep mosquitoes of the house by placing insect screens over doors and windows
- Apply insect repellents according to the manufacturers label instructions
- Sleep under a net, even during the day.

Information for Health Workers

Dengue Virus

CLINICAL FEATURES

SYMPTOMS

- Most people with dengue have mild or no symptoms and will get better in 1–2 weeks
- If symptoms occur, they usually begin 4–10 days after infection and last for 2–7 days
- Symptoms may include:
 - High fever (40°C/104°F)
 - Severe headache
 - Pain behind the eyes
 - Muscle and joint pains
 - Nausea
 - Vomiting
 - Swollen glands
 - Rash
- Individuals who are infected for the second time are at greater risk of severe dengue
- Severe dengue symptoms often come after the fever has gone away
- Severe dengue is characterised by low blood pressure, rapid or weak pulse, slow capillary refill, cold, clammy skin, no urine output and signs of bleeding

TRANSMISSION

- Dengue is transmitted by the bite of infected mosquitoes
- These bite during the day, but mostly during the early morning and the evening.

INCUBATION PERIOD

- From 3 to 14 days, usually 10 days

INFECTIOUS PERIOD

- Not directly transmitted person to person, but a person can infect a mosquito while they have a fever, usually 3-5 days
- Mosquitoes remain infectious for life and are able to infect many other humans

TREATMENT

- No specific treatment for Dengue. Clinical management includes managing fever with paracetamol (not aspirin/NSAIDs) and enough fluid replacement
- Refer to WHO Dengue guidelines for diagnosis, treatment, prevention and control

TESTING

- A blood specimen should be collected in a red-top blood tube for testing for dengue antibodies or testing for dengue NS-1 antigen by rapid diagnostic test (RDT) for the first 5 days
- If a patient has a negative RDT, in the first 5 days following onset of symptoms, they should repeat test after 5 days of illness
- Filter paper method (dried blood spot) should be done for remote locations. Please check a senior lab officer about logistics and protocol for this method

SURVEILLANCE AND CONTROL MEASURES

CASE DEFINITION

Suspected case definition:

- Any person with acute fever illness that lasts >2 days, with two or more of the following: Anorexia and Nausea; Aches and Pains; Rash; Low white blood cell count; Tourniquet test positive; Warning signs

Confirmed case definition:

- A person from which: Isolation of dengue virus or detection of dengue-specific antigen or antibodies in tissue, blood, CSF or other body fluid by an advanced laboratory test.

NOTIFICATION TO SURVEILLANCE UNIT

- Report all suspected and confirmed cases to provincial surveillance officer ASAP
- Make a notification using the Electronic Notification (eNotification) Form
- If you have issues using the eNotification Form, contact the provincial surveillance officer ASAP
- Priority: **High**. All confirmed cases should be investigated within two days
- Priority: **Urgent** if a new serotype is suspected or cases of severe dengue are identified

CONTACT MANAGEMENT

- Persons living in the area where a patient is thought to have been infected should be informed of the risk of being bitten by an infected mosquitoes and recommended to:
 - Clean-up potential mosquito breeding sites (things that collect water, such as coconut shells, tyres, cans)
 - Use measures for personal protection, such as mosquito repellent sprays and bed nets

PREVENTION

- Preventing mosquito bites is the best way to prevent infection. This includes:
 - Wear clothing that covers body well
 - Keep mosquitoes of the house by placing insect screens over doors and windows
 - Apply insect repellents according to the manufacturers label instructions
 - Sleep under a net, even during the day

Information for Health Workers

Zika Virus

CLINICAL FEATURES

SYMPTOMS

- Most people infected with Zika virus do not develop symptoms
- If symptoms are present, symptoms typically start 3-14 days after infection, are generally mild and usually last for 2-7 days. Symptoms may include:
 - Rash
 - Fever
 - Conjunctivitis
 - Muscle and joint pain
 - Malaise
 - Headache
- These symptoms are common to other arboviral and non-arboviral diseases; thus, the diagnosis of Zika virus infection requires laboratory confirmation.

TRANSMISSION

- Zika virus is primarily transmitted by infected mosquitoes of the Aedes (Stegomyia) genus, mainly Aedes aegypti, in tropical and subtropical regions
- Aedes mosquitoes usually bite during the day
- These mosquitoes also transmit dengue, chikungunya and urban yellow fever

INCUBATION PERIOD

- Similar to other flaviruses such dengue (2-14 days)

INFECTIOUS PERIOD

- No established infectious period, but it is belief to be short
- It is likely that humans are infectious to mosquitoes for up to 5 days after onset of illness

TREATMENT

- There is no specific treatment available for Zika virus infection or disease
- People with symptoms such as rash, fever or joint pain should get plenty of rest, drink fluids, and treat symptoms with antipyretics and/or analgesics
- Nonsteroidal anti-inflammatory drugs should be avoided until dengue virus infections are ruled out because of bleeding risk
- Pregnant women living in areas with Zika transmission or who develop symptoms of Zika virus infection should seek medical attention

TESTING

- The current diagnostic tool for confirmation is RT-PCR to detect Zika virus RNA in body fluids, specifically serum, saliva, and urine. Serum is the standard biological sample used in most reference laboratories for detection of Zika virus RNA
- Not all reference laboratories will test all biological sample types, so verify with your specific laboratory before collection and shipment

SURVEILLANCE AND CONTROL MEASURES

CASE DEFINITION

- A **suspected case** is any person presenting with rash and/or fever and at least one of the following signs or symptoms: arthralgia, or arthritis, or conjunctivitis (non-purulent/hyperaemic)
- A **confirmed case** is a person with laboratory confirmation of recent Zika virus infection:
 - Presence of Zika virus RNA or antigen in serum or other samples
 - IgM antibody against ZIKV positive and PRNT90 for ZIKV with titre >20 and ZIKV PRNT90 titre ratio >4 compared to other flaviviruses: and exclusion of other flaviviruses

NOTIFICATION TO SURVEILLANCE UNIT

- Report all suspected and confirmed cases to provincial surveillance officer ASAP
- Make a notification using the Electronic Notification (eNotification) Form
- If you have issues using the eNotification Form, contact the provincial surveillance officer ASAP
- Priority: **High**. All confirmed cases should be investigated within two days

CONTACT MANAGEMENT

- Persons living in the area where a patient is thought to have been infected should be informed of the risk of being bitten by an infected mosquitoes and recommended to:
 - Clean-up potential mosquito breeding sites (things that collect water, such as coconut shells, tyres, cans)
 - Use measures for personal protection, such as mosquito repellent sprays and bed nets

PREVENTION

- Preventing mosquito bites is the best way to prevent infection. This includes:
 - Wear clothing that covers body well
 - Keep mosquitoes of the house by placing insect screens over doors and windows
 - Apply insect repellents according to the manufacturers label instructions
 - Sleep under a net, even during the day

Information for Health Workers

Chikungunya Virus

CLINICAL FEATURES

SYMPTOMS

- Chikungunya is characterized by an abrupt onset of fever, frequently accompanied by severe joint pain. The joint pain is often debilitating and usually lasts for a few days but may be prolonged, lasting for weeks, months or even years.
- Other common signs and symptoms include joint swelling, muscle pain, headache, nausea, fatigue and rash
- Since these symptoms overlap with other infections, including those with dengue and Zika viruses, cases can be misdiagnosed
- In the absence of significant joint pain, symptoms in infected individuals are usually mild and the infection may go unrecognized

TRANSMISSION

- Chikungunya virus is transmitted by mosquitoes, most commonly *Aedes (Stegomyia) aegypti* and *Aedes (Stegomyia) albopictus*, which can also transmit dengue and Zika viruses
- These mosquitoes bite primarily during daylight hours
- They lay eggs in containers with standing water. Both species feed outdoors, and *Ae. aegypti* also feeds indoors

INCUBATION PERIOD

- From 2-12 days, usually 4-8 days

INFECTIOUS PERIOD

- No evidence of direct person-to-person transmission. Humans are infectious to mosquitoes for about five days after onset of illness.

TREATMENT

- There is no specific treatment for Chikungunya.
- The clinical management includes addressing fever and joint pain with anti-pyretics and optimal analgesics, drinking plenty of fluids and general rest
- Refer to WHO Chikungunya guidelines for diagnosis, treatment, prevention and control

TESTING

- Blood specimen should be collected in a red-top tube for antibody testing. Specimen should be refrigerated and standard packing and shipping procedures should be followed
- Filter paper method is becoming increasingly available to test for chikungunya in remote locations. Please check with a LabNet contact person about logistics and protocols for this method

SURVEILLANCE AND CONTROL MEASURES

CASE DEFINITION

- A **suspected case** is any person with acute onset of fever >38.5 degree celsius AND severe arthralgia/arthritis not explained by other medical conditions AND residing in or having visited epidemic areas, having reported transmission within 15 days prior to the onset of symptoms
- A **confirmed case** is a person with isolation of the virus or detection of chikungunya-specific antigen or antibodies in blood by an advanced laboratory test.

NOTIFICATION TO SURVEILLANCE UNIT

- Report all suspected and confirmed cases to provincial surveillance officer ASAP
- Make a notification using the Electronic Notification (eNotification) Form
- If you have issues using the eNotification Form, contact the provincial surveillance officer ASAP
- Priority: **High**. All confirmed cases should be investigated within two days

CONTACT MANAGEMENT

- Persons living in the area where a patient is thought to have been infected should be informed of the risk of being bitten by an infected mosquitoes and recommended to:
 - Clean-up potential mosquito breeding sites (things that collect water, such as coconut shells, tyres, cans)
 - Use measures for personal protection, such as mosquito repellent sprays and bed nets

PREVENTION

- Preventing mosquito bites is the best way to prevent infection. This includes:
 - Wear clothing that covers body well
 - Keep mosquitoes of the house by placing insect screens over doors and windows
 - Apply insect repellents according to the manufacturers label instructions
 - Sleep under a net, even during the day

Information for Health Workers

Yaws

CLINICAL FEATURES

SYMPTOMS

- Yaws is an infectious disease that affects the skin and bones and most commonly infects children aged <15 years
- There are two stages of yaws infection:
- The early stage is characterised by a papule (a noncancerous, outward-growing lump) develops at the site of infection, commonly on the legs or buttocks. Without treatment, this is followed by disseminated skin lesions over the body. Bone pain and bone lesions may also occur
- Secondary yaws occurs weeks to months after the primary infection and typically presents with multiple raised yellow lesions or pain and swelling of long bones and fingers (dactylitis)

TRANSMISSION

- Transmission is through person-to-person direct contact of infectious ulcers. Poverty, low socio-economic conditions, and poor personal hygiene facilitate the spread of yaws

INCUBATION PERIOD

- The incubation period is 9–90 days, with an average of 21 days.

INFECTIOUS PERIOD

- The early stage of yaws is the most infectious

TREATMENT

- Either of two antibiotics – azithromycin or benzathine penicillin – may be used to treat yaws:
- Azithromycin (single oral dose) at 30 mg/kg (maximum 2 g) is the preferred treatment.
- Benzathine penicillin (single intramuscular dose) at 0.6 million units (children aged under 10 years) and 1.2 million units (people aged over 10 years) can be used for patients with suspected clinical treatment failure after azithromycin, or patients who cannot be treated with azithromycin.
- Patients should be reexamined 4 weeks after antibiotic treatment

TESTING

- Dual Path Platform Syphilis Screen and Confirm assay (Chembio Diagnostics, USA) can detect both past and present infection
- Because of the high cost of the DPP test, initial screening of suspected yaws cases can be done by the treponemal tests and positives confirmed by the DPP

SURVEILLANCE AND CONTROL MEASURES

CASE DEFINITION

- A **suspected case** is any person presents with a papilloma (a wart-like tumour) teemed with bacteria.
- A **confirmed case** is a person with detection of *treponema pallidum* subspecies *pertenue*

NOTIFICATION TO SURVEILLANCE UNIT

- Report all suspected and confirmed cases to provincial surveillance officer ASAP
- Make a notification using the Electronic Notification (eNotification) Form
- If you have issues using the eNotification Form, contact the provincial surveillance officer ASAP
- Priority: **Routine**. All confirmed cases should be investigated within three days

CONTACT MANAGEMENT

- Contacts of patients with yaws should receive empiric treatment.

PREVENTION

- Health education and improvement in personal hygiene are essential components to reduce transmission
- Mass drug administration is being conducted in targeted areas in Vanuatu in which oral azithromycin (30 mg/kg, maximum 2 g) is administered to the entire population (minimum 90% coverage)

Information for Health Workers

Mpox

CLINICAL FEATURES

SYMPTOMS

- Common symptoms of mpox include a rash which may last for 2–4 weeks
- This may start with, or be followed by, fever, headache, muscle aches, back pain, low energy and swollen glands (lymph nodes)
- The rash looks like blisters or sores, and can affect the face, palms of the hands, soles of the feet, groin, genital and/or anal regions
- These lesions may also be found in the mouth, throat, anus, rectum or vagina, or on the eyes
- The number of sores can range from one to several thousand
- In most cases, the symptoms of mpox go away on their own within a few weeks with supportive care, such as medication for pain or fever. However, in some people, the illness can be severe or lead to complications and even death.

TRANSMISSION

- Mpox spreads from person-to-person mainly through close contact with someone infected
- Close contact includes skin-to-skin (such as touching, or sex) and mouth-to-mouth, or mouth-to-skin contact (such as kissing), and can also include being face-to-face with someone who has mpox (such as talking or breathing close to one another, which can generate infectious respiratory particles)
- Animal to human transmission is also possible

INCUBATION PERIOD

- The incubation period of mpox can range from 5 to 21 days

INFECTIOUS PERIOD

- People with mpox are considered infectious until all their lesions have crusted over, the scabs have fallen off and a new layer of skin has formed underneath, and all the lesions on the eyes and in the body (in the mouth, throat, eyes, vagina and anus) have healed too, which usually takes from 2 to 4 weeks

TREATMENT

- Currently there is no treatment approved specifically for monkeypox virus
- Supportive care may be needed, such as medication for pain or fever

TESTING

- Samples will be sent overseas for testing
- Skin lesion material, including swabs of lesion surface, exudate, or lesion crusts are the recommended specimen types

SURVEILLANCE AND CONTROL MEASURES

CASE DEFINITION

A **suspected case** is:

- A person who is a contact of a probable or confirmed mpox case in the 21 days before the onset of signs or symptoms, and who presents with any of the following: acute onset of fever (>38.5°C), headache, myalgia (muscle pain/body aches), back pain, profound weakness, or fatigue OR
- A person presenting with an unexplained acute skin rash, mucosal lesions or lymphadenopathy (swollen lymph nodes). The skin rash may include single or multiple lesions in the ano-genital region or elsewhere on the body. Mucosal lesions may include single or multiple oral, conjunctival, urethral, penile, vaginal, or anorectal lesions. Ano-rectal lesions can also manifest as ano-rectal inflammation (proctitis), pain and/or bleeding AND for which the following common causes of acute rash or skin lesions do not fully explain the clinical picture: varicella zoster, herpes zoster, measles, herpes simplex, bacterial skin infections, disseminated gonococcus infection, primary or secondary syphilis, chancroid, lymphogranuloma venereum, granuloma inguinale, molluscum contagiosum, allergic reaction (e.g., to plants); and any other locally relevant common causes of papular or vesicular rash
- A **confirmed case** is a person with laboratory confirmed MPXV infection by detection of unique sequences of viral DNA by real-time polymerase chain reaction (PCR)c and/or sequencing

NOTIFICATION TO SURVEILLANCE UNIT

- Report all suspected and confirmed cases to provincial surveillance officer ASAP
- Make a notification using the Electronic Notification (eNotification) Form
- If you have issues using the eNotification Form, contact the provincial surveillance officer ASAP
- Priority: **High**. All confirmed cases should be investigated within two days

PREVENTION

There are measures people can take to help prevent infection:

- People who have mpox should isolate from others until the sores fully clear.
- Household members should avoid physical contact with the infected person. This includes any objects such as linen or towels that have been in contact with an infected person.
- Careful hand and respiratory hygiene are recommended for the infected person and everyone in the household. Wash hands with soap and water or use an alcohol-based hand sanitiser.
- If an infected person cannot isolate alone, they should wear a face mask when around other people. This includes when receiving medical care