Policy & Procedure Manual

INFECTIOUS DISEASE AND MODE OF TRANSMISSION R-X-2

POLICY

OPTIONS NORTHWEST shall ensure employees are provided and familiar with information related the mode and routes of transmission for infectious diseases.

PURPOSE

1. To minimize the transmission of infectious diseases.

2. To maximize protection for all persons who are involved with our agency.

PROCEDURE

A) MODE OF TRANSMISSION

Transmission of infectious agents within a supported/shared living situation requires three elements: a source of infectious agents, a susceptible host with a portal of entry, and a mode of transmission for the agent.

Infectious agents transmitted within this environment are primarily from human sources but nonliving environmental sources are also involved in transmission. The source person may have an active infection, may be in the incubation period of the infection or may be chronically colonized with the infectious agent.

There is a range of possible outcomes following exposure to an infectious agent. Some people never develop symptomatic disease, some are prone to becoming colonized but remain asymptomatic (without symptoms) and others become severely ill and depending on the infectious agent, even die. The person's immune state at the time of exposure and the virulence factors of the infectious agent are important predictors of an individual's outcome.

Several different pathogens can cause infection, including bacteria, viruses, fungi, parasites, and prions. The modes of their transmission vary by type of organism and may be transmitted by more than one route: some are transmitted by direct or indirect contact, others by droplet, and others are airborne. Not all infectious agents are transmitted from person to person.

B) THREE PRINCIPAL ROUTES OF TRANSMISSION:

Contact transmission is the most common mode of transmission. It is divided into two subgroups: direct contact and indirect. **Direct transmission** occurs when microorganisms are transferred from one infected person to another person without a contaminated intermediate object or person. **Indirect transmission** involves the transfer of an infectious agent through a contaminated intermediate object or person.

Droplet transmission is, technically, a form of contact transmission and may also be transmitted by the direct and indirect contact routes.

Airborne transmission occurs by either airborne droplet nuclei or small particles in the respirable size range containing infectious agents that remain infective over time and distance.

RECOMMENDED BY: Director, Community Services **APPENDICES:** 9

OPERATIONAL ACCOUNTABILITY: Administration, Human Resources, Community Services Administration, Community Services (all)

ORIGINAL POLICY DATE: April 2015

AUTHORIZED BY: Executive Director

SIGNATURE: 

Disease information

Disease/organism	Transmission	Incubation	Infectious period and exclusion period*	Diagnosis and notification	Prevention
Australian bat lyssavirus (ABL)					
Vaccine preventable *Refer to flowchart on page 2.*	• Inoculation of infected saliva by bite or scratch from a bat or flying fox, or mucosal exposure to saliva. • Infected animals may not appear sick. All bats and flying foxes should be considered potentially infected.	• Uncertain. • There have been 2 fatal human cases in Australia: one with an incubation of 3 weeks and the other of over 2 years.	• Person-to-person transmission theoretically possible but extremely unlikely. • Period of infectivity for bats unknown. Bat should be retained for laboratory testing providing further injury can be avoided. Time out: Nil.	• Detection of virus in brain tissue by direct immunofluorescence, PCR or viral culture. Urgently notify PHU by phone of all bat bites or scratches. • Notifiable by laboratory on request for antibody testing.	• Avoid contact with bats. Bat handlers should receive pre-exposure rabies immunisation and use protective gear. Promptly clean bites and scratches gently with soap and water for 5 minutes and apply a virucidal antiseptic such as povidone-iodine. • If bat is available, PHU will arrange retrieval and testing. • PHU will advise on post exposure immunisation for each case. Aim to begin immunisation within 48 hours following injury.
Avian influenza (AI)					
Avian influenza viruses; influenza A virus from avian reservoir hosts. **Currently H5N1 influenza A virus is causing outbreaks in birds overseas with sporadic human infections.** *Refer to flowchart on page 3.*	• Usually close contact with dead or sick birds or environments contaminated by their faeces. Inhalation of infectious droplets; direct and indirect contact. Person-to-person transmission very rare.	• May be longer than for seasonal human influenza viruses: for H5N1 usually 2–4 days but may be up to 8 days.	• 1 day before to 7 days after onset of symptoms in adults; and for up to 3 weeks after onset of symptoms in < 12 year olds. Time out: Isolate from time diagnosis suspected until end of infectious period or until alternative diagnosis established.	• H5 AI virus detection on PCR of respiratory secretions. • H5 AI culture from respiratory tract specimen. • Urgently notify PHU by phone on provisional clinical diagnosis.	• Avoid contact with birds, especially dead/sick birds or environments contaminated with their faeces in countries where H5N1 is circulating. • Contacts may require antiviral prophylaxis. • Latest WHO tracking information on human cases: www.who.int/csr/disease/avian_influenza/en/index.html • Current list of countries with animal cases: www.oie.int/eng/info_ev/en_AI_avianinfluenza.htm
Brucellosis					
Mainly *Brucella suis*, usually from feral pigs.	• Contact with blood, urine, products of conception, etc, especially of feral pigs via breaks in skin. Also unpasteurised dairy products; airborne in animal enclosures, abattoirs and laboratories; needle stick injuries.	• Highly variable: usually 5–60 days; occasionally several months.	• Person-to-person transmission rare. Time out: Nil.	• Isolation from blood. • PCR from blood. • Serology: 4 fold rise in antibody titre in paired sera. • Routine laboratory notification.	• Educate pig shooters and other animal workers to exercise caution in handling possibly infective material. • Avoid unpasteurised milk. • Use standard infection control precautions for human cases.

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Disease information

Disease/organism	Transmission	Incubation	Infectious period and exclusion period*	Diagnosis and notification	Prevention
Campylobacter enteritis					
Campylobacter jejuni *Campylobacter coli*	• Ingestion of undercooked chicken and offal, unpasteurised milk and untreated water. • Contact with infected pets (especially puppies and kittens), poultry and birds. • Reservoir: cattle, sheep, pigs and wild and domestic birds.	• 1–10 days; usually 2–5 days.	• Usually between several days and several weeks. Time out: Until 24 hours after last loose stool, or 48 hours if case is a food handler or carer.	• Isolation from faeces. • Routine laboratory notification. • Notify PHU by phone or fax if 2 or more related cases or if case is a food handler.	• Hand washing and good personal hygiene. • Avoid cross contamination during storage and preparation of food. • Thoroughly cook all animal foodstuffs and avoid unpasteurised milk. • Recognise pets as sources of infection.
Chickenpox/shingles					
Varicella-zoster virus Up to 2% risk of malformations with infection before 20 weeks gestation. Up to 30% severe disease in neonates whose mothers develop disease 5 days before to 2 days after delivery. Routine childhood vaccination.	• Direct contact; droplet, airborne spread or from articles contaminated with respiratory tract secretions or fluid from vesicles. • Airborne spread probably not important for shingles. • 80–90% risk of infection after household exposure in non-immune people.	• 10–21 days; commonly 14–16 days.	• From 5 days prior to rash to until all vesicles are crusted (usually about 5 days). • Consider susceptible contacts to be infectious 10–21 days following exposure. Time out: Until all blisters have dried.	• Predominantly clinical. • Routine laboratory notification.	• Where possible, non-immunes (people without definite history of chickenpox or serological evidence of immunity) should avoid contact with cases. • Vaccine is effective in preventing or modifying illness if given to non-immunes within 3 days of exposure. • Zoster immune globulin (ZIG) indicated for high risk contacts – immunosuppressed, non-immune pregnant women, and neonates exposed in first 4 weeks of life if mother non-immune – within 96 hours of significant exposure, as per current edition of *The Australian Immunisation Handbook*. If over 96 hours, acyclovir may be indicated – discuss with treating specialist or infectious diseases physician.

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Disease/organism	Transmission	Incubation	Infectious period and exclusion period*	Diagnosis and notification	Prevention
Chlamydia					
Chlamydia trachomatis Infection often asymptomatic when transmitted. The *Public Health Act 2005* (sections 191 and 192) identifies that it is mandatory in Queensland for doctors and registered nurses to report reasonable suspicions of child abuse and neglect directly to the Child Safety Services, Department of Communities.	• Sexual contact main route of transmission for anogenital infection. • Vertical transmission during childbirth with eye infection and/or pneumonia in the neonate. • Trachoma results from recurrent eye infections with particular strains via direct contact with secretions or indirect contact with contaminated fomites (towels, clothes etc).	• Not well defined; probably 7–14 days or longer.	• Unknown, reinfection common. Time out: Nil unless conjunctivitis and then exclude until discharge from eyes has ceased.	• PCR. • Routine laboratory notification. • Trachoma is a clinical diagnosis.	• Anogenital: Prompt treatment with azithromycin 1g (single oral dose) and further testing for other STIs. Avoid unprotected sex for a minimum of 3 days following treatment. • A test for reinfection at 3–6 months is recommended. • More information available at: www.health.qld.gov.au/sexhealth/documents/cm_guidelines.asp Sexual health clinics can also provide treatment/clinical advice. • NB. Anogenital infection increases risk of acquiring and transmitting HIV infection. • Contact tracing and treatment. • General STI prevention measures, especially condom use. • Opportunistic screening important for those who are sexually active particularly those aged 15–24 years where there is the highest prevalence. • Trachoma: Hygiene education.

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Disease information

Disease/organism	Transmission	Incubation	Infectious period and exclusion period*	Diagnosis and notification	Prevention
Cytomegalovirus (CMV) infections					
Congenital cytomegalovirus disease Cytomegalovirus In utero infection occurs in 0.3–1% of all births. 5–10% of these infants develop symptomatic disease; of these, 15–25% develop neurosensory disability.	• Mucosal contact with secretions. • Blood transfusion. • Vertical transmission before and during birth. • CMV is commonly transmitted through urine and respiratory secretions and rarely through breast milk and sexual secretions.	• Unknown for horizontal transmitted infection in households. • 3–12 weeks for infections acquired during delivery. • 3–8 weeks for illness following transplant or blood transfusion.	• Often prolonged (months). • After neonatal infection may be shed in urine and saliva up to 6 years of age. • Asymptomatic infection with excretion of virus is common. Time out: Nil.	• Serology: 4 fold rise in antibody titre in paired sera. • Virus isolation from infected target organ. PCR. • Not notifiable.	• Good hygiene measures; hand washing after changing nappies; standard precautions in daycare centres and pre-schools. • Pregnant women should be especially careful; it may be advisable for them to avoid unnecessary contact with infants.
Cryptosporidiosis					
Cryptosporidium parvum	• Faecal-oral, person-to-person (easily transmitted in places such as childcare centres), animal to person (eg. from farms or petting zoos), or from water (inadequate or untreated drinking or recreational supplies: oocysts resistant to usual chemical disinfectants) and food borne (uncommon). Most widespread outbreaks associated with contaminated water (particularly swimming pools).	• 1–12 days (average 7 days). Not precisely known	• From onset of symptoms (via excreted oocytes) to several weeks after symptoms have resolved. Oocytes may survive for 6 months or more outside body in moist environments. Time out: Until 24 hours after last loose stool, or 48 hours if case is a food handler or carer. Avoid swimming pools for 2 weeks after diarrhoea ceased.	• Identification of oocytes in faeces. • Routine laboratory notification.	• Good hygiene measures, sanitary disposal of faeces.

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Disease/organism	Transmission	Incubation	Infectious period and exclusion period*	Diagnosis and notification	Prevention
Dengue fever					
Dengue virus (a flavivirus) Types 1 – 4	• Bite from day-biting mosquito: *Aedes aegypti* (which is mostly overseas and in north Queensland, but also parts of central and south west Queensland).	• 3–14 days, commonly 4–7 days.	• No direct person-to-person transmission; infected human is infectious to mosquito from shortly before to up to 12 days from onset of symptoms. Time out: Nil.	• PCR or NS1 antigen in first week of illness. • Serology. • Notify PHU by phone or fax on clinical suspicion.	• Avoid mosquito bites; environmental mosquito control measures (fresh water container breeder, also likes indoors).
Diphtheria					
Corynebacterium diphtheriae Routine vaccination	• Respiratory droplet; direct spread from nose/throat secretions, skin lesions, contaminated articles; unpasteurised milk.	• 2–5 days, occasionally longer.	• Up to 4 weeks but usually less than 2 weeks; ceases promptly with antibiotics (rare carrier to 6 months). Time out: Exclude cases and contacts until cleared by PHU.	• Clinical. • Isolation of organism (culture). • Urgently notify PHU by phone or fax on clinical suspicion.	• All contacts should have throat and nasal swabs and antimicrobial prophylaxis. Check immunisation status of all contacts. • Discuss with your PHU.
Erythema infectiosum					
(Human parvovirus, fifth disease, slapped cheek syndrome) Parvovirus B19 Can cause chronic anaemia in immune suppressed and aplastic crisis in sickle cell disease. Risk to foetus from intrauterine infection.	• Primarily through contact with infected respiratory secretions; mother to foetus possible. • By transfusion (rare).	• 4–20 days to development of rash.	• Usually only before onset of rash. • People with aplastic crisis infectious for a further week. • Immunosuppressed may become chronic carriers (months to years). Time out: Nil.	• Serology. • Not notifiable.	• Severe complications uncommon. • Advise hand washing.

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Disease information

Disease/organism	Transmission	Incubation	Infectious period and exclusion period*	Diagnosis and notification	Prevention
Escherichia coli					
Shiga toxin producing *E. coli* (STEC); **Entero-haemorrhagic *E. coli* (EHEC); Vero toxin producing *E. coli* (VTEC).** **NB. Consider if bloody diarrhoea in child under 5 years of age: up to 10% risk of haemolytic uraemic syndrome (HUS) following STEC infection.**	• **Faecal-oral, person/animal to person.** • **Also from contaminated food (especially undercooked beef), unpasteurised milk and water.** • **Reservoir in cattle.**	• **2–10 days (median 3–4 days).**	• **7 days in adults; 3 weeks in a third of children.** **Time out: Until 24 hours after last loose stool. Food handlers, carers and childcare attendees need to be discussed with PHU.**	• **Isolation of STEC from faeces.** • **Isolation of Shiga toxin from isolate of *E. coli*.** • **PCR of gene producing Shiga toxin from *E. coli* or faeces.** • **Urgently notify PHU by phone or fax on clinical suspicion of HUS.**	• **Early identification of source with avoidance of undercooked contaminated foods, unpasteurised milk and contaminated water.** • **Hygiene measures important around animal reservoirs and their environments.** • **Prevention of person-to-person transmission by education re: hygiene and exclusion as appropriate.** • **Discuss with your PHU.**
Giardiasis					
Giardia lamblia	• **Faecal–oral, usually directly person-to-person. Spread via contaminated water and food occurs, but is not common.**	• **3–25 days, average 7–10 days.**	• **Entire period of infection.** **Time out: Until 24 hours after last loose stool, or 48 hours if case is a food handler or carer.**	• **Positive stool microscopy.** • **Not notifiable.**	• **Education in personal hygiene, hand washing.**

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Gonorrhoea					
Neisseria gonorrhoeae The *Public Health Act 2005* (sections 191 and 192) identifies that it is mandatory in Queensland for doctors and registered nurses to report reasonable suspicions of child abuse and neglect directly to Child Safety Services, Department of Communities.	• Sexual contact main route of transmission for ano-genital, pharyngeal and conjunctival infection. • Vertical transmission during childbirth with conjunctival or anogenital infection in the neonate.	• 1–14 days; may be longer.	• Untreated: may remain infectious for months. Non-infectious after appropriate antibiotic treatment. Time out: Nil unless conjunctivitis and then exclude until discharge from eyes has ceased.	• Bacterial swab of urethral, ocular, pharyngeal or endocervical discharge for culture and sensitivity (important due to increasing resistance): also air-dried slide. • PCR urine and sites listed above. • Often clinically indistinguishable from other causes of urethral infection. Co-infection with chlamydia common. • Routine laboratory notification.	• Prompt empirical treatment for both chlamydia (azithromycin 1g single oral dose) and gonorrhoea (ceftriaxone 250mg IM single dose) and further testing for other STIs. • More information available at: www.health.qld.gov.au/sexhealth/documents/cm_guidelines.asp Sexual health clinics can also provide treatment/clinical advice. • NB. Anogenital infection increases risk of acquiring and transmitting HIV infection. • Contact tracing and treatment. General STI prevention measures especially condom use. • Conjunctival: hygiene education.
Haemophilus influenzae type b (Hib) disease					
***Haemophilus influenzae* type b** Routine childhood vaccination	• Respiratory droplet/direct spread from nose/throat secretions.	• Unknown, probably 2–4 days.	• While Hib present in nose and throat; eradicated within 24–48 hours of starting rifampicin. Time out: Until 4 days of rifampicin therapy completed for childcare attendees/workers.	• Isolation from blood, urine or CSF. • Detection of Hib antigen in CSF with clinical meningitis. • Urgently notify PHU by phone or fax on clinical suspicion.	• Manage case in respiratory isolation for 24 hours after commencing antibiotics. • Rifampicin prophylaxis to some contacts. • Discuss with your PHU.

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Disease information

Disease/organism	Transmission	Incubation	Infectious period and exclusion period	Diagnosis and notification	Prevention
Hand, foot and mouth disease					
Enteroviruses predominantly of the Coxsackie virus type. Enterovirus 71 (EV71) is a cause of hand foot and mouth disease, and can also uncommonly cause meningitis, encephalitis and acute flaccid paralysis.	• Direct contact with nose and throat discharges, fluid from blisters and faeces of infected persons (faecal-oral route).	• 3–5 days.	• During acute illness; virus may also persist in faeces for several weeks. Time out: Until all blisters have dried. • Exclude children with EV71 neurological disease until virus no longer excreted and a medical certificate provided stating this. If >2 cases of neurological disease, school or childcare may be closed.	• HFMD: clinical. • EV71 neurological disease: PCR of CSF, vesicle fluid, faeces. • Urgently notify PHU by phone or fax for all clinical diagnoses of acute flaccid paralysis. Reporting to PHU by clinicians encouraged if EV71 neurological disease suspected.	• Reduce person-to-person contact; promote hand washing and hygiene. • Cleaning of household surfaces with warm soapy water.
Hendra virus infection					
Hendra virus (HeV) Clinical features in humans have included • self-limiting influenza-like illness • pneumonic illness • encephalitis at seroconversion • aseptic meningitis with apparent recovery, then encephalitis 13 months later. 4 of the 7 known human cases have died as a result of the disease.	• All known human cases acquired disease from a HeV-infected horse (whilst alive or at autopsy) by direct, close, unprotected contact with body fluids. • Flying foxes are the natural host of HeV but no current evidence of bat-to-human transmission. • No current evidence of human-to-human transmission. • Bat to horse transmission thought to be by ingestion of infected bat urine or reproductive products.	• Current limited evidence suggests 5–16 days, but could be up to 21 days in humans.	• Unknown. • Horses should be considered potentially infectious from 72 hours prior to onset of symptoms until safe disposal of the carcass of the animal has been completed (after death from disease or euthanasia).	• Isolation or PCR of nasopharyngeal/bronchial secretions, CSF, urine or blood. • Detection of HeV antibodies in blood. • Notifiable by laboratories on request for testing.	• Stress the importance of hygiene when humans interact with horses and the use of appropriate personal protective equipment when there is any human contact with sick horses or their carcasses. See: www.dpi.qld.gov.au/4790_2900.htm • Contacts of HeV-infected horses require assessment by PHU. • Any concerns should be discussed with your PHU.

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Hepatitis A					
Hepatitis A virus (HAV) **Vaccine preventable**	• Person-to-person by faecal-oral route. • Outbreaks occur in child care centres, travellers, and men who have sex with men. Associated with contaminated produce, water and shellfish.	• 15–50 days, average 28–30 days.	• Last half of incubation period, (usually taken as 15 days before onset of symptoms) to 1 week after onset of jaundice. Time out: Until 7 days after onset of jaundice. Medical certificate of recovery required.	• Positive IgM. • Urgently notify PHU by phone or fax on clinical suspicion of acute viral hepatitis. • Prompt notification may allow effective public health intervention.	• Give hepatitis A vaccine or immunoglobulin to specific contacts. Special measures in child care settings and pre-schools. • Discuss with your PHU. • Promote hand hygiene and other hygiene measures. • Promote vaccination for travellers including those planning short holidays in resorts in Asia and the Pacific.
Hepatitis B					
Hepatitis B virus (HBV) **Routine vaccination**	• Percutaneous or permucosal exposure to blood or secretions via abrasions, sharing needles/syringes, needle stick injury. • Sexual contact. • Perinatal transmission.	• 45–180 days, average 60–90 days. • HBsAg may appear within 2 weeks, or take up to 9 months.	• Many weeks prior to illness and for whole of clinical illness or until the disappearance of HBsAg – may persist for life in chronic carriers. • HBeAg or high titre HBV DNA – highly infectious. Time out: Nil.	• Positive serology (HBsAg). • Urgently notify PHU by phone or fax on clinical suspicion of acute viral hepatitis. • Prompt notification may allow effective public health intervention.	• Assess immune status of household and sexual contacts and those with percutaneous or permucosal exposure to infective body secretions. Hepatitis B vaccine and immunoglobulin as per current edition of *The Australian Immunisation Handbook*. • NB. HBV stable outside body for 7 days, transmission through objects such as razors and toothbrushes possible – advise against sharing. • Screen people born in high and intermediate prevalence countries. • Contact Hepatitis Queensland 1300 437 222 for appropriate support and referral information. • Discuss management of cases and contacts with local public hospital liver/hepatitis clinic or sexual health clinic.

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Hepatitis C					
Hepatitis C virus (HCV)	• Percutaneous exposure to blood or blood products. • Sexual transmission rare, although reports suggest some men who have sex with men may be at risk. • Sharing needles and injecting equipment is greatest risk factor. • Perinatal transmission approximately 5%; occurs at higher rate in women co-infected with HIV.	• 2–26 weeks, commonly 6–9 weeks. • Initial infection may be asymptomatic with around 75% developing chronic infection.	• 1 or more weeks before symptoms to indefinitely (as long as PCR is positive). Time out: Nil.	• Positive serology. • PCR. • Routine laboratory notification.	• Educate re: risk factors particularly injecting practices (eg. use clean injecting equipment, needle and syringe programs) and household risks (eg. avoid sharing razors, toothbrushes). • If not immune to hepatitis A and B, offer immunisation. • Contact Hepatitis Queensland 1300 437 222 for appropriate support and referral information. • Discuss management of cases and contacts with the local public hospital liver/hepatitis clinic.
Hepatitis E					
Hepatitis E virus (HEV) Case fatality rate up to 20% in pregnant women infected in 3rd trimester. Otherwise clinical course similar to hepatitis A with no evidence of chronic form.	• Faecal-oral route, principally from contaminated drinking water. • Person-to-person transmission possible.	• 15–64 days, mean 26–42 days.	• Not known. • Faecal shedding from 4 weeks after exposure, lasting until 14 days from onset of jaundice. Time out: While shedding.	• PCR (detection in stools/blood). • Serology. • Urgently notify PHU by phone or fax on clinical suspicion of acute viral hepatitis.	• Education re: hand washing and other hygiene practices.

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Disease/organism	Transmission	Incubation	Infectious period and exclusion period*	Diagnosis and notification	Prevention
HIV infection/Acquired Immunodeficiency Syndrome (AIDS)					
Human Immunodeficiency virus – types 1 and 2	• Sexual contact – risk increased by presence of other STIs, especially genital ulcerative disease. • Sharing needles and injecting equipment. • Transfusion. • Transplant of HIV infected organs. • Transmission from mother to infant during pregnancy, delivery and breast feeding.	• Variable. Window period (time from initial infection to detectable antibodies) is usually 1–3 months. • Conversion illness may occur 1–6 weeks after infection. • Progression from HIV to AIDS varies from < 1 year to > 15 years without treatment.	• Begins early after onset of HIV infection and extends throughout life. The transmission rate increases with viral load and also during concurrent infection with other STIs. Time out: Nil.	• HIV: Positive serology (other methods largely used in research settings). • AIDS: clinical. • Routine laboratory notification (HIV). • Clinicians to notify AIDS Medical Unit of AIDS diagnoses.	• Education re: risk factors for HIV infection and safe sex and injecting practices. • Discuss management of HIV cases and contacts with AIDS Medical Unit, Ph: 07 38375622. • More information available at: www.health.qld.gov.au/sexhealth/documents/cm_guidelines.asp
Infectious monomucleosis					
Epstein-Barr virus (EBV) Seronegative immunosuppressed individuals may develop fatal immunoproliferative disorders.	• Person-to-person. • oropharyngeal spread via saliva ('kissing disease').	• 4–6 weeks.	• Prolonged – up to 12 months. • Many people can carry and spread the virus intermittently for life. Time out: Nil.	• Positive Monotest or EBV serology. • Not notifiable.	• Minimise contact with saliva; hygiene and hand washing.

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Disease information

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Influenza					
Influenza virus, types A, B and C Vaccine preventable – routine for Indigenous Australians yearly from 15 years old, for all Australians ≥ 65 years and for medically at risk and others as per the current edition of *The Australian Immunisation Handbook*.	• Respiratory droplet or direct contact (can persist for hours in low temps and low humidity). • Potential for airborne transmission is controversial.	• 1–4 days, average 2 days.	• 3–5 days (up to 21 days in children) from clinical onset. Time out: Exclude until well.	• Isolation of virus. • PCR from nasopharyngeal cells or blood. • Serology. • Routine laboratory notification.	• Immunisation of at risk people and carers in autumn. • Good hand hygiene and cough/sneeze etiquette will reduce spread. • Antiviral agents may be used for prophylaxis and treatment of influenza A and B.
Legionellosis					
Legionella pneumophila, *Legionella longbeachae* and other *Legionella* species. 1. Legionnaires disease 2. Pontiac fever	• Airborne transmission. • *L pneumophila*: air conditioning cooling towers, spas, hot water systems, humidifiers, etc. • *L longbeachae*: potting mix. • Other species are also associated with aqueous/soil environments.	• Legionellosis: 2–10 days, usually 5–6 days. • Pontiac fever: 5–72 hours, usually 24–48 hours.	• No person-to-person transmission recorded. Time out: Nil.	• Isolation of organism. • PCR detection of *Legionella* urinary antigen. • Fourfold rise in antibody titre in paired sera. • Urgent laboratory notification.	• Maintain water cooling systems, spa pools etc to avoid the conditions that enhance the growth of *Legionella*. • Use respiratory precautions and wash hands when using potting mix (particularly if elderly or immunosuppressed).

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Disease/organism	Transmission	Incubation	Infectious period and exclusion period*	Diagnosis and notification	Prevention
Leptospirosis					
Leptospira species Different serovars associated with specific animals.	• Contact of broken skin or mucous membranes with urine, contaminated soil, water or vegetation. Inhalation of aerosols. Ingestion of food contaminated by infected urine. • Livestock, dogs and rats are commonest sources.	• 2–30 days, usually 5–14 days.	• Person-to-person transmission very rare. • Leptospires excreted in urine for 1 month after acute illness (but can continue for years). • Animals may excrete for life. Time out: Nil.	• Isolation of pathogenic Leptospires. • PCR. • Serology in convalescence. • Routine laboratory notification.	• Rodent control. • Vaccination of dairy herds is of some value. • Protective gear reduces occupational exposure. Cover open sores, wash exposed body parts (hands, feet etc) thoroughly. • Avoid swimming/wading in potentially contaminated water.
Listeriosis					
Listeria monocytogenes Invasive disease in pregnant women: spontaneous abortion, pre-term delivery and foetal infection. Newborn infants have case fatality rates of 30–50%. Meningoencephalitis is more common in older adults and the immunocompromised. Can also cause gastrointestinal disease.	• Foodborne: unpasteurised dairy products, shellfish, soft cheeses, pâté, raw meat and vegetables. • Reservoirs in soil, water, domestic and wild animals and feed. • Inhalation and direct inoculation of skin rare. • Transplacental to foetus. • Some exposure to these bacteria is unavoidable.	• 3–70 days, median 3 weeks.	• Asymptomatic shedding in stools for several months. • Vaginal shedding and in urine of mothers of infected babies for 7–10 days post partum. Time out: Nil except if cases of gastrointestinal disease then until 24 hours after last loose stool, or 48 hours for food handlers and carers.	• Isolation from site of infection. • Routine laboratory notification.	• Promote hand washing and hygiene. • Pregnant women and the immunocompromised should avoid high risk foods including: pâté, smoked seafood, soft cheeses, cold cooked diced chicken, cold roast and processed meats, stored salads or fruit salad, raw seafood and unpasteurised dairy products and avoid contact with aborted animal foetuses on farms. • Ensure reheated leftovers are steaming hot.

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Disease information

Disease/organism	Transmission	Incubation	Infectious period and exclusion period*	Diagnosis and notification	Prevention
Measles					
Measles virus **Routine vaccination** *Refer to flowchart on page 4.*	• Airborne droplet/direct spread from nose/throat secretions (one of the most contagious infectious diseases).	• 7–18 (average 10) days to initial fever. • Usually 14 days to rash onset (up to 19–21 days).	• Up to 7 days before, to 4 days after rash appears. Time out: Case: Exclude for 4 days after onset of rash. Written medical clearance from doctor or PHU is required to return child to childcare/school. Contacts: Contact PHU for advice regarding partially immunised unimmunised contacts.	• Clinical diagnosis. • Confirmed by nasopharyngeal aspirate, nasopharyngeal/throat swab, blood or urine for PCR. • Serology is useful but a positive IgM may not mean measles in the absence of an epidemic. • Urgently notify PHU by phone on provisional clinical diagnosis.	• Urgent public health response required in special settings, eg. childcare facilities, schools, colleges. • Discuss all suspected cases with your PHU. • MMR vaccination or normal human immunoglobulin may be indicated for contacts. • Consultation room and waiting room if used by suspected case must remain vacant for 2 hours after suspected case has left – people in these rooms with suspected case, or up to and including 2 hours after room vacated must be treated as contacts.
Melioidosis					
Burkholderia pseudomallei	• Direct contact with contaminated soil or water, aspiration/ingestion of contaminated water, or inhalation of soil/dust.	• 2 days to many years.	• Person-to-person transmission can occur rarely via contact with body fluids. Time out: Nil.	• Isolation of organism from any site.	• Pneumonia/septicaemic patients can die rapidly. Discuss with infectious diseases physician.

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Disease/organism	Transmission	Incubation	Infectious period and exclusion period*	Diagnosis and notification	Prevention
Meningococcal disease					
Neisseria meningitidis Routine childhood vaccination for serogroup C *Refer to flowchart on page 5.*	• Direct contact and respiratory droplet spread from nose/throat secretions of an infected person who is likely to be an asymptomatic carrier.	• 2–10 days, average 3–4 days. • Treat suspected cases immediately – prior to hospitalisation – give parenteral (preferably IV) ceftriaxone, cefotaxime or penicillin. If possible, collect blood for PCR/ culture at the same time.	• While meningococcus in nasopharynx; eradicated within 24 hours of starting effective antibiotic therapy. Time out: Exclude until 24 hours of effective antibiotics completed.	• Clinical (presumptive). • Confirmed by PCR or isolation from blood, CSF or other normally sterile site or from conjunctival swab. • Urgently notify PHU by phone on clinical suspicion.	• Rifampicin or other appropriate clearance antibiotics to certain contacts to prevent spread to others (includes contacts of those with conjunctival infection). • Vaccine also recommended for certain contacts when case has a vaccine preventable serogroup. • Discuss with PHU. • Vaccination: – Promote high uptake of meningococcal C conjugate vaccine in all infants at 12 months. – Polysaccharide vaccine covering serogroups A, C, Y, W135 of use in travellers and in certain other situations.
Mumps					
Mumps virus Routine vaccination	• Airborne/droplet spread or direct contact with saliva of an infected person.	• 12–25 days, usually 16–18 days.	• 7 days prior to onset of parotitis to 9 days after onset of illness. Maximum infectiousness from 2 days prior to 4 days after onset. Time out: Exclude for 9 days after onset of swelling	• Isolation of virus. • Serology. • PCR. • Routine laboratory notification. • Reporting by clinician to PHU encouraged on clinical diagnosis if 2 or more linked cases.	• Vaccination and exclusion.

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Disease information

Disease/organism	Transmission	Incubation	Infectious period and exclusion period*	Diagnosis and notification	Prevention
Pertussis					
Bordetella pertussis **Routine vaccination** *Refer to flowchart on page 6.*	• Direct and droplet spread of respiratory secretions. • Outbreaks still occur every 3–4 years in vaccinated populations, but with greatly reduced mortality and morbidity.	• Average 9–10 days; range 6–20 days.	• Very infectious in catarrhal stage; gradual decrease over 3 weeks from onset of cough. Time out: Case: Exclude for first 5 days of a 7 day course of antibiotics. If no antibiotics exclude for 21 days from onset of coughing. Written medical clearance is required from doctor or PHU for child to return to care/school. Contact: Exclude unimmunised contacts from childcare until received 5 days of appropriate antibiotics. If no antibiotics, then exclude for 14 days from last exposure to the case. Discuss with PHU.	• Culture or PCR from nasopharyngeal secretions in catarrhal stage are diagnostic. • Serology can be non-specific. A positive IgA is notifiable. • Routine laboratory notification. • Reporting from clinicians to PHU on clinical suspicion encouraged where case attends high risk setting (childcare centre or maternity/infant ward).	• Vaccination and exclusion of case and certain contacts. • Some contacts will require antibiotic prophylaxis. Discuss management of contacts and pertussis in childcare with your local PHU.

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Disease/organism	Transmission	Incubation	Infectious period and exclusion period*	Diagnosis and notification	Prevention
Pneumococcal disease					
Streptococcus pneumoniae Important cause of death in indigenous people, infants, the elderly and others with risk factors. Clinical manifestations include acute otitis media, pneumonia, septicaemia, meningitis and sinusitis. Routine vaccination	• Respiratory droplet spread. • Person-to-person transmission common but illness in casual contacts infrequent.	• Varies by type of infection; may be as short as 1–3 days. • Pneumococci commonly found in upper respiratory tract of healthy people. Invasive infection uncommon in long term carriers.	• Unknown; presumably until respiratory and oral discharges no longer contain virulent pneumococci. Non-infectious within 24 hours of commencing effective antibiotic therapy. Time out: Nil.	• Isolation of bacteria or PCR from a normally sterile site. • Routine laboratory notification.	• No prophylaxis for contacts. • Routine vaccination for children and special groups as per current edition of *The Australian Immunisation Handbook*.
Q fever					
Coxiella burnetii Vaccination available Increasingly recognised as cause of chronic disability.	• Inhalation of infected aerosols or dust which may travel up to a kilometre. Infected products of conception high risk. Cattle, sheep, and goats are commonest source. Feral pigs, kangaroos and other animals are possibly infectious.	• Commonly 2–3 weeks, depending on size of infectious dose.	• Direct transmission from person-to-person rare. Time out: Nil.	• Serology. • Isolation of organism (but hazardous to lab workers). • PCR. • Routine laboratory notification.	• Vaccine preventable. • NB. Strict pre-vaccination protocol. High occupational risk for meat workers, vets, shearers, wool processors, pig and roo-shooters, graziers and others with animal contact. Rural residence a risk factor.

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Disease information

Disease/organism	Transmission	Incubation	Infectious period and exclusion period*	Diagnosis and notification	Prevention
Roseola infantum					
(Sixth disease) Herpesvirus 6 (HHV-6)	• Unknown. Most likely via contact with saliva or respiratory secretions. • 70% infants acquire infection in 1st year.	• Average 10 days; range 5–15 days. • May occur 2–4 weeks post transplant. • Serological reactivation can occur after primary infection.	• Unknown. Time out: Nil.	• Serology. • Virus can be isolated from saliva and blood of healthy individuals – not helpful as diagnostic test. • Not notifiable.	• None.
Ross River virus (RRV) disease and Barmah Forest virus (BFV) disease					
Arboviruses: of the alphavirus group	• Mosquito bite.	• 3–11 days.	• No person-to-person transmission. Time out: Nil.	• Isolation of virus. • PCR. • Serology. • Routine laboratory notification.	• Avoid mosquito bites. • Environmental control of mosquitoes and breeding sites (difficult for species which breed in puddles in paddocks and have long flight paths).
Rotaviral gastroenteritis					
Rotavirus Routine childhood vaccination	• Probable faecal-oral spread. • May spread by direct contact and respiratory route.	• 24–72 hours.	• While virus shedding occurs, usually non-infectious after 8th day of infection. • Immunocompromised patient can excrete virus for 30 days or more. Time out: Until 24 hours after last loose stool.	• PCR from vomitus or faeces. • Routine laboratory notification. • Reporting to PHU by clinicians encouraged if 2 or more linked cases in a child care centre or nursing home.	• Vaccination. • Good hygiene measures; hand washing after changing nappies. • Virus can survive for long periods on hard surfaces, in contaminated water and on hands. • Chlorine inactivates the virus and should be used for cleaning.

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Disease/organism	Transmission	Incubation	Infectious period and exclusion period*	Diagnosis and notification	Prevention
Rubella					
Rubella virus **Routine vaccination** **Congenital rubella syndrome occurs in up to 90% of infants born to women who acquire rubella in the first trimester of pregnancy. These malformations and foetal death may occur following inapparent maternal rubella.**	• Direct and droplet transmission of respiratory secretions.	• 14–21 days, usually 14–17 days.	• 1 week before to at least 4 days after rash onset. Time out: Exclude until fully recovered or until at least 4 days after onset of rash.	• Confirm clinical diagnosis with serology. • Isolation/PCR for virus • Routine laboratory notification.	• Advise preconception serology. • Offer all seronegative women of reproductive age vaccination if not pregnant. • Check antibody status early in each pregnancy. • Vaccinate non-immune male and female health care workers.
Salmonella infection					
(Excluding typhoid fever) ***Salmonella* (numerous serotypes)**	• Faecal-oral. Usually via contaminated food. • Reservoir in many animals, particularly poultry.	• 6–72 hours, usually 12–36 hours. • Lower infectious doses may be associated with longer incubation periods (up to 16 days).	• Several days to several weeks. 1% of adults and 5% of children under 5 years excrete for > 12 months. Antibiotics may prolong carrier state. Time out: Until 24 hours after last loose stool, or 48 hours if a food handler or carer.	• Isolation from faeces. • Routine laboratory notification. • Clinicians to urgently notify PHU by phone or fax if 2 or more related cases or infection in a food handler.	• Food hygiene, strict personal hygiene and education of food handlers. • Avoid unpasteurised milk.

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Disease information

Disease/organism	Transmission	Incubation	Infectious period and exclusion period*	Diagnosis and notification	Prevention
Shigella infection					
Shigella species (*sonnei, dysenteriae, flexneri* etc)	• Faecal-oral route: either directly person-to-person (including oro-anal sexual contact) or indirectly through food and water. • Infective dose is very small. • Reservoir: humans.	• 12–96 hours, usually 1–3 days, but may be up to 1 week for *S. dysenteriae 1.*	• Usually up to 4 weeks after acute illness though asymptomatic carriers may transmit infection. Carrier state may persist for months, but antibiotics shorten this to days. Time out: Until 24 hours after last loose stool. Food handlers and carers excluded until 2 negative faecal specimens collected 24 hours apart, at least 48 hours after finishing antimicrobial therapy.	• Isolation from faeces. • Routine laboratory notification. • Clinicians to urgently notify PHU by phone or fax if 2 or more related cases or infection in a food handler.	• Food hygiene, strict personal hygiene and education of food handlers. Fly control. • Exclude symptomatic contacts as per cases.
Streptococcal diseases					
Streptococcus pyogenes Group A (beta haemolytic) streptococci Tonsillitis/pharyngitis, scarlet fever, skin infection, erysipelas, toxic shock syndrome, necrotizing fasciitis etc. Post streptococcal: • acute rheumatic fever (ARF) • acute post-streptococcal glomerulonephritis (APSGN)	• Large respiratory droplets or direct contact. Those with acute upper respiratory tract (nasal) infection are most likely to transmit disease. • Food borne – milk, milk products and egg salad has been implicated in outbreaks of streptococcal sore throat. • Fomite transmission rare. • Scabies is associated with skin infection and AGN.	• Usually 1–3 days.	• 10–21 days in untreated uncomplicated cases. • Weeks or months if untreated with purulent discharge. • Less than 24 hours when treated with effective antibiotics. • Nasal, anal, vaginal, skin and pharyngeal carriers occur. Eradication of carrier state often difficult. Time out: Exclude until well and has received antibiotic treatment for at least 24 hours.	• Clinical. • Isolation of organism. • Serology (high titres may persist for months). • Routine laboratory notification. • Clinicians to notify PHU by phone or fax on clinical diagnosis of ARF on the basis of Modified Jones Criteria – including both major and minor criteria.	• Long term antibiotic chemoprophylaxis required for all patients with history of ARF or rheumatic heart disease (RHD) to prevent further ARF episodes, along with regular clinical follow-up and a specialist management plan. • Influenza and pneumococcal vaccination recommended for anyone with RHD. • Education about relationship between streptococcal infection and APSGN. • Skin hygiene programs aiming to reduce prevalence of scabies and skin sores. • PHU may initiate mass antibiotic prophylaxis of children aged 2 to 12 years to control APSGN outbreaks.

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Disease/organism	Transmission	Incubation	Infectious period and exclusion period*	Diagnosis and notification	Prevention
Syphilis					
Treponema pallidum The *Public Health Act 2005* (sections 191 and 192) identifies that it is mandatory in Queensland for doctors and registered nurses to report reasonable suspicions of child abuse and neglect directly to Child Safety Services, Department of Communities.	• Direct contact with infectious exudates and primary or secondary muco-cutaneous lesions of infected persons, usually through sexual contact. • Congenital infection occurs through placental transfer in utero or at delivery.	• 10 days to 3 months. • Usually 3 weeks.	• Mostly during primary and secondary stages when moist muco-cutaneous lesions are present. • Congenital transmission does not occur before the 4th month, and is most probable during early maternal syphilis. Penicillin therapy usually ends infectivity within 7 days. Time out: Nil.	• Serology: specific tests remain positive for life. • Titres in non-specific tests decline with effective therapy. • Microscopy: Demonstration of *T. Pallidum*. • PCR of genital or mucous membrane ulcer swab. • Routine laboratory notification.	• General STI prevention measures. • Contact tracing. • Congenital syphilis – screen all pregnant women at the first antenatal visit in each pregnancy. • Discuss positive serology with a sexual health or infectious disease physician. • Previous serology and previous treatment information may be available from the Queensland Syphilis Surveillance Centre on 1800 032 238.
Tetanus					
Clostridium tetani Routine vaccination	• Primarily via wounds/burns contaminated with soil, dust or manure (apparent and inapparent, minor or major).	• 3–21 days, most within 14 days; range 1 day to several months	• No person-to-person transmission.	• Largely clinical. • Isolation on bacterium not definitive as are non-toxigenic strains. • Notify PHU by phone or fax on clinical diagnosis.	• Tetanus vaccination +/- tetanus immunoglobulin (according to current edition of *The Australian Immunisation Handbook*) at time of presentation with suspect wound. • Vaccinate according to schedule with particular attention to adult boosters. • Appropriate wound management.

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Disease/organism	Transmission	Incubation	Infectious period and exclusion period*	Diagnosis and notification	Prevention
Toxoplasmosis					
Toxoplasma gondii Primary infection in early pregnancy may lead to severe foetal disease. Immunosuppressed persons are susceptible to cerebral toxoplasmosis.	• Faecal-oral from cats to people. • Eating under cooked meat; ingestion of contaminated water or goat/cow's milk. • Transplacental usually during primary infection of mother.	• 10–23 days after eating contaminated meat; 5–20 days from cat contact.	• No person-to-person transmission except in utero. • Oocytes excreted by cats can remain infective for up to 12 months in water or moist soil. Time out: Nil.	• Clinical syndrome. • Serology. • Isolation of organism. • Not notifiable.	• Hand hygiene. • Cover children's sand pits when not in use. • Hygienic disposal of cat faeces. • Pregnant women should avoid cleaning cat litter pans and contact with cats unless they have antibodies to *T. gondii*. • Avoid eating undercooked meat. Wash all utensils after contact with raw meat.
Tuberculosis					
Mycobacterium tuberculosis complex	• Airborne droplet spread is the predominant mode of transmission. • Other modes of transmission such as invasion through mucous membranes or damaged skin are extremely rare. • Historically was transmitted through unpasteurised milk. • Low incidence of tuberculosis in Australia compared to most other countries.	• 2–10 weeks to primary lesions or tuberculin reactivity. • Latent (dormant) infection may exist for a lifetime. • Immune suppression may reactivate disease. • Majority of cases occur within first 1–2 years after infection with risk diminishing significantly after 7 years.	• As long as viable bacilli discharged in sputum until 2–4 weeks after appropriate chemotherapy has begun. • In patients with fully drug susceptible TB who are on supervised treatment and who are clinically responding to treatment, the patient can usually be regarded as non-infectious after 2 weeks treatment, regardless of smear positivity. Time out: Until written clearance given by Queensland Tuberculosis Control Centre (QTBCC) medical officer.	• Direct microscopy – 'smear positive' disease is responsible for most spread. • Culture. • PCR. • Notify QTBCC by phone or fax on clinical suspicion. • Collect sputum before commencing treatment to determine infectiousness, unless both normal chest X-ray and no respiratory symptoms, regardless of primary site of disease. • Telephone or fax notification by laboratory for smear positive disease.	• Prevention is primarily by case finding and treatment. • Subsidiary strategies include: – BCG vaccination restricted to certain high risk populations – Identifying and treating latent TB infection (active disease must be excluded before diagnosing disease as latent – this strategy should only be used by clinicians skilled in the diagnosis of TB). • For management of case and their contacts discuss with: – Queensland TB Control Centre Ph: 07 3986 3963 • or your regional TB control unit: – Toowoomba Chest Clinic Ph: 07 4616 6445 – Rockhampton Chest Clinic Ph: 07 4920 6330 – Townsville Respiratory Unit Ph: 07 4796 2860 – Cairns Thoracic Medicine Ph: 07 4226 6240

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Disease/organism	Transmission	Incubation	Infectious period and exclusion period*	Diagnosis and notification	Prevention
Typhoid and paratyphoid fever					
Salmonella Typhi *Salmonella* Paratyphi A, B, or C **Typhoid vaccine available for travel to high risk areas.**	• Faecal-oral route. • Contaminated water or food. • Flies may contribute. • Rarely by direct contact. • Humans are principal reservoir (Paratyphi also found in domestic animals).	• Depends on inoculum dose and host factors. • Typhoid: 3–60 days, usually 8–14 days. • Paratyphoid: 1–10 days.	• Infectious from onset until stool clearance. • Untreated typhoid: 10% carry for > 3 months, 2–5% become permanent carriers. Time out: Exclude from child care/school/food handling and health care workplaces until written medical clearance from doctor or PHU when stools are clear – culture negative status required.	• Isolation from any clinical specimen. • Telephone or fax notification by laboratory.	• Advice to travellers re: vaccination and food and hand hygiene. • Exclude contacts in sensitive occupations (eg. food handlers and childcare) until 2 stools are clear.
Yersiniosis					
Yersinia enterocolitica *Yersinia pseudotuberculosis*	• Faecal-oral, through consumption of contaminated water and food, especially raw pork and pork products. Can grow when refrigerated. • Nosocomial and blood transfusion (very rare). • Person-to-person spread uncommon.	• Probably 3–7 days, usually less than 10 days.	• While symptomatic, 2–3 weeks. Untreated may shed for 2–3 months. Time out: Until 24 hours after diarrhoea has ceased, or 48 hours for food handlers and carers.	• Isolation of organism from stool and detection of virulence plasmid. • Serology. • PCR. • Routine laboratory notification.	• Hand washing prior to food handling and eating, after handling raw pork, and after animal contact.

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WEST NILE VIRUS

West Nile virus (WNV) is a potentially serious illness. The virus is transmitted by mosquitoes that become infected by feeding on an infected bird. The disease is transmitted to humans by infected mosquitoes. It is a seasonal epidemic in North America that flares up in the summer and continues into fall.

Of those who show symptoms, most will experience mild headache, body ache, nausea, vomiting and rash on chest, stomach or back. About one in 150 people infected will experience serious symptoms including high fever, severe headache, muscle weakness, stiff neck, confusion, tremors, numbness and sudden sensitivity to light.

Symptoms usually develop between two and 15 days after being bitten by an infected mosquito. Serious symptoms may last several weeks, and neurological effects may be permanent.

There is no specific treatment for WNV infection. In cases with mild symptoms, they may pass on their own. In more severe cases, hospitalization for supportive treatment including intravenous fluids, help with breathing and nursing care.

Everyone is at risk from WNV and should make sure they use all of the protection measures to avoid contact with mosquitoes. People who spend a lot of time outdoors are more likely to be bitten by an infected mosquito. People over the age of 50 are more likely to develop serious symptoms if they do get sick.

The easiest and best way to avoid WNV is to prevent mosquito bites. Many mosquitoes are most active at dusk and dawn. Consider staying indoors during these times. Make sure the screens on the windows and doors are in good condition. Get rid of mosquito breeding sites by emptying standing water from flowerpots, buckets and barrels. Replace water in bird bathes weekly. Wear light colored clothing outdoors as this helps to see the mosquitoes that land on you.

When outdoors consider using federally registered personal insect repellents on exposed skin, such as those containing DEET. A light coating will do. DEET-based repellants can be used on top of clothing. Do not use it under clothing. The concentration of DEET should be no greater than 30 per cent for adults and no greater than 10 per cent for children. Always read the label directions for use.

If you find a dead bird, do not handle it with your bare hands. Contact your Supervisor for further direction.

CLOSTRIDIUM DIFFICILE (C. DIFF)

Clostridium Difficile (C. difficile) is just one of the many types of bacteria that can be found in the environment and the bowel. It is the most common cause of infectious diarrhea in hospitals and long-term care facilities.

For most people, C. difficile does not pose a health risk. When it grows in the bowel it produces toxins. These toxins can damage the bowel and cause diarrhea, causing a disease known as Clostridium difficile associated Disease (CDAD). The effects of CDAD are usually mild but sometimes can be more severe. Symptoms can range from mild or severe diarrhea to high fever, abdominal cramping, abdominal pain and dehydration. In severe cases, surgery may be needed, and in extreme cases CDAD may cause death.

C. difficile disease usually occurs during or after the use of antibiotics. Old age, presence of other serious illness and poor overall health may increase the risk of severe disease.

When an individual supported is initially ill with diarrhea, send liquid stools for C&S and Clostridium Difficile. Note any known antibiotic the client has been on in the previous 2 months. If confirmed, do not send further specimens, as the toxin may remain present for a long time after the client is asymptomatic. It is not clinically useful to do stool tests to see if the treatment was successful, as it is the client's symptoms that indicate treatment success.

When a person has C. Difficile disease, the bacteria in the stool can contaminate surfaces such as toilets, handles, and commode chairs. When touching these items, our hands can become contaminated. If we touch our mouth without washing our hands, we can become infected. Our soiled hands can also spread the bacteria to other surfaces.

Always washing your hands with soap and water and practicing good hand hygiene, can greatly reduce your chances of picking up any bacteria. To clean contaminated areas, use one part bleach to 9 parts water, leaving on the surface for two minutes, and ensuring good ventilation.

The Physician will determine the course of treatment. Adequate hydration and balanced electrolytes must be ensured during treatment phase. Antimotility drugs such as Lomotil and Imodium should be avoided. Discontinuation of the offending antibiotic may be all that is necessary. Ten – twenty per cent of individuals will experience reoccurrence following completion of the initial treatment. A second course of the same specific treatment may be necessary, and 92% will not experience further reoccurrence.

ANTIBIOTIC RESISTANT ORGANISM (A.R.O.)

Antibiotic Resistant Organisms (ARO's) are bacteria, viruses and fungi that have become resistant to commonly used treatment drugs. Antibiotic resistance is the ability of a micro organism to withstand the effects of antibiotics. It is a specific type of drug resistance. If a bacterium carries several resistance genes, it is called multi resistant, or informally, a "superbug".

Resistance to antibiotics is not a new concern. Resistance is a natural development, which happens in response to frequent or too much antibiotic use. Bacteria have learned news ways of defeating some antibiotics. Resistance limits choices of antibiotics. Some people may carry these bacteria with no signs of illness and may pass organisms to clients and staff. Antibiotic resistance is a growing problem worldwide.

The most common ARO's current seen in long term care and hospitals are Methicillin Resistant Staphylococcus Auereurs (MRSA) and Vancomycin Resistant Entrococci (VRE).

We can prevent the spread of ARO's by washing our hands well and often. Hand washing is the single most effective way to prevent the spread of infection. When caring for someone with an ARO, hands must be washed before and after each glove use and after contact with body fluids.

VANCOMYCIN RESISTANT ENTROCOCCI (VRE)

Enterococccus is a normal germ that lives in most people's bowels, and is needed to keep people healthy. Vancomycin resistant enterococcus is the same germ, but it is a strain that has developed resistance to many commonly used antibiotics, specifically an antibiotic called Vancomycin. VRE is no more dangerous than other normal bacteria that people carry in their bowels and are exposed to every day.

In hospital if the germs get passed to another part of the body they can cause an infection. When a person has an infection with VRE it can be difficult to treat because the usual antibiotics can't get rid of it. Sometimes this germ just remains in our bowels and does not cause any harm. This is called being a carrier and it does not require any special treatment. Sometimes our body will eventually clear itself of VRE by its natural healing and cleansing action.

VRE is spread by contact with the hands. Caregivers can unknowingly transmit the germ during routine activities and procedures between patients.

Hand washing is the single most effective way to prevent the spread of infection. Hands must be washed before and after glove use and after contact with body fluids. Remind everyone to wash their hands often.

Continue to provide care to the individual in the usual manner.

METHICILLIN RESISTANT STAPHYLOCCOUS AUREUS (MRSA)

Methicillin Resistant Staphyloccus Aureus (MRSA) is a germ found on the skin and in the nares of approximately 30-80% of healthy people and as many as 70% of the chronically ill. It is a common germ that is resistant to many antibiotics. This resistance causes treatment options to be limited and complicated. It is the single most common cause of hospital-acquired infections. It can cause boils, abscesses and impetigo but may cause more severe infections in elderly and ill individuals.

MRSA is transmitted from an infected or colonized person by inadequately washed hands or the misuse of gloves. It spreads by direct contact with infected body fluids (drainage, stool, saliva, nasal secretions), usually on the contaminated hands of clients and staff.

Special antibiotics are necessary. Swabs may be taken to measure how treatment is doing.

SEVERE ACUTE RESPIRATORY SYNDROME (SARS)

Severe acute respiratory syndrome (SARS) is a viral respiratory illness caused by a coronavirus, called SARS-associated coronavirus SARS-CoV). SARS was first reported in Asia in February 2003. Over the next few months, the illness spread to more than two dozen countries in North America, South America, Europe and Asia before the SARS global outbreak of 2003 was contained.

In general, SARS begins with a high *fever* (temperature greater than 100.4°F [>38.0°C]). Other symptoms may include headache, an overall feeling of discomfort, and body aches. Some people also have mild respiratory symptoms at the outset. About 10 percent to 20 percent of people have diarrhea. After 2 to 7 days, people who have SARS may develop a dry cough. Most people develop pneumonia.

The main way that SARS seems to spread is by close person-to-person contact. The virus that causes SARS is thought to be transmitted most readily by respiratory droplets (droplet spread) produced when an infected person coughs or sneezes. Droplet spread can happen when droplets from the cough or sneeze of an infected person are propelled a short distance (generally up to 3 feet) through the air and deposited on the mucous membranes of the mouth, nose, or eyes of persons who are nearby. The virus also can spread when a person touches a surface or object contaminated with infectious droplets and then touches his or her mouth, nose, or eye(s). In addition, it is possible that the SARS virus might spread more broadly through the air (airborne spread) or by other ways that are not now known.

In the context of SARS, close contact means having cared for or lived with someone with SARS or having direct contact with respiratory secretions or body fluids of a person with SARS. Examples of close contact include kissing or hugging, sharing eating or drinking utensils, talking to someone within 3 feet, and touching someone directly. Close contact does not include activities like walking by a person or briefly sitting across a waiting room or office.

H1N1 FLU VIRUS (HUMAN SWINE FLU)

The H1N1 flu virus is a respiratory disease caused by type A Influenza viruses. The viruses have been reported to spread from person-to-person, but in the past, this transmission was limited. You cannot get H1N1 from eating pork products.

The symptoms on H1N1 flu virus in people are similar to the symptoms of regular human flu and include fever, cough, sore throat, body aches, headache, chills and fatigue. Some people have reported diarrhea and vomiting associated with swine flu. In the past, severe illness (pneumonia and respiratory failure) and deaths have been reported with H1N1 flu virus infection in people. Like seasonal flu, swine flu may cause a worsening of underlying chronic medical conditions.

Spread of the H1N1 flu virus is thought to be happening in the same way that seasonal flu spreads. Flu viruses are spread mainly from person to person through coughing or sneezing. Sometimes people become infected by touching contaminated objects/surfaces with flu viruses, and then touching their nose or mouth.

Infected people may be able to infect others beginning day before symptoms develop and up to seven or more days after becoming sick. Children might potentially be contagious for longer periods.

Ontarians should continue to take normal precautions to protect themselves as they would from a regular flu. The general public does not need to wear surgical masks to protect themselves. Evidence shows this is not effective in preventing transmission of influenza in the general public. People often use masks incorrectly, or contaminate the mask when putting them on and taking them off, which could actually increase the risk of infection.

To protect your health you should wash your hands often with soap and water, especially after you sneeze. Alcohol based hand rub (60-90%) is also effective. Sneeze and cough in your sleeve. Avoid touching your eyes, nose or mouth. Germs spread this way. If you get sick with the flu, stay home from work, contact your Physician, and limit contact with others.

HEPATITIS B

Hepatitis B is a potentially life-threatening liver infection caused by the hepatitis B virus. It is a major global health problem and the most serious type of viral hepatitis. It can cause chronic liver disease and puts people at high risk of death from cirrhosis of the liver and liver cancer.

Worldwide, an estimated two billion people have been infected with the hepatitis B virus (HBV), and more than 350 million have chronic (long-term) liver infections.

A vaccine against hepatitis B has been available since 1982. Hepatitis B vaccine is 95% effective in preventing HBV infection and its chronic consequences, and is the first vaccine against a major human cancer.

Symptoms
Hepatitis B virus can cause an acute illness with symptoms that last several weeks, including yellowing of the skin and eyes (jaundice), dark urine, extreme fatigue, nausea, vomiting and abdominal pain. People can take several months to a year to recover from the symptoms. HBV can also cause a chronic liver infection that can later develop into cirrhosis of the liver or liver cancer.

Transmission
Hepatitis B virus is transmitted between people by contact with the blood or other body fluids (semen and vaginal fluid) of an infected person. Modes of transmission are the same for the human immunodeficiency virus (HIV), but HBV is 50 to 100 times more infectious. Unlike HIV, HBV can survive outside the body for at least 7 days. During that time, the virus can still cause infection if it enters the body of a person who is not infected.

Common modes of transmission are: perinatal (from mother to baby at birth), early childhood infections (inapparent infection through close interpersonal contact with infected household contacts), unsafe injections practices, blood transfusions, and sexual contact. HBV is a major infectious occupational hazard of health workers. HBV is not spread by contaminated food or water, and cannot be spread casually in the workplace.
The virus incubation period is 90 days on average, but can vary from about 30 to 180 days. HBV may be detected 30 to 60 days after infection and persist for widely variable periods of time.

Treatment
There is no specific treatment for acute hepatitis B. Care is aimed at maintaining comfort and adequate nutritional balance, including replacement of fluids that are lost from vomiting and diarrhea. Chronic hepatitis B can be treated with drugs, including interferon and anti-viral agents, which can help some patients. Liver cancer is almost always fatal, and often develops in people at an age when they are most productive and have family responsibilities. Surgery and chemotherapy can prolong life for up to a few years in some people. People with cirrhosis are sometimes given liver transplants, with varying success.

Prevention
All infants should receive the hepatitis B vaccine. This is the mainstay of hepatitis B prevention. The vaccine can be given as either three or four separate doses, as part of existing routine immunization schedules. The complete vaccine series induces protective antibody levels in more than 95% of infants, children and young adults. After age 40, protection following the primary vaccination series drops below 90%. At 60 years old, protective antibody levels are achieved in only 65 to 75% of those vaccinated. Protection lasts at least 20 years and should be lifelong. All

children and adolescents younger than 18 years old and not previously vaccinated should receive the vaccine.

People in high risk groups should also be vaccinated, including:

- persons with high-risk sexual behaviour;
- partners and household contacts of HBV infected persons;
- injecting drug users;
- persons who frequently require blood or blood products;
- recipients of solid organ transplantation;
- those at occupational risk of HBV infection, including health care workers; and
- international travellers to countries with high rates of HBV.

The vaccine has an outstanding record of safety and effectiveness. Since 1982, over one billion doses of hepatitis B vaccine have been used worldwide. In many countries where 8% to 15% of children used to become chronically infected with HBV, vaccination has reduced the rate of chronic infection to less than 1% among immunized children.

COVID-19

Those who are infected with COVID-19 may have little to no symptoms. You may not know you have symptoms of COVID-19 because they are similar to a cold or flu.

Symptoms may take up to 14 days to appear after exposure to COVID-19. This is the longest known infectious period for this disease. We are currently investigating if the virus can be transmitted to others if someone is not showing symptoms. While experts believe that it is possible, it is considered less common.

Symptoms have included fever, cough, difficulty breathing, pneumonia in both lungs. In severe cases, infection can lead to death.

If you are showing symptoms of COVID-19, reduce your contact with others:

- isolate yourself at home for 14 days6 to avoid spreading it to others
    - if you live with others, stay in a separate room or keep a 2-metre distance
- visit a health care professional or call your local public health authority
    - call ahead to tell them your symptoms and follow their instructions

If you become sick while travelling back to Canada inform the flight attendant or a Canadian border services officer and advise a Canada border services agent on arrival in Canada if you believe you were exposed to someone who was sick with COVID-19, even if you do not have symptoms. This is required under the *Quarantine Act*. The Canada border services agent will provide instructions for you to follow.

Diagnosing coronavirus

Coronavirus infections are diagnosed by a health care provider based on symptoms and are confirmed through laboratory tests.

Treating coronavirus

Most people with mild coronavirus illness will recover on their own.

If you are concerned about your symptoms, you should self-monitor and consult your health care provider. They may recommend steps you can take to relieve symptoms.