11.0 VACCINE PREVENTABLE DISEASES

Acute Flaccid Paralysis
Diphtheria
Haemophilus influenzae type b (Hib) Invasive Disease
Measles
Mumps
Pertussis
Poliomyelitis
Rubella (Non-Congenital, Congenital Rubella Syndrome)
Smallpox
Tetanus

TABLE 11.1: Surveillance Case Definitions – Vaccine Preventable Diseases

Disease Name	Case Definitions	Clinical Evidence	Reporting Requirements	Forms
Acute Flaccid Paralysis	**Confirmed Case:** Clinical Case: Acute onset of focal weakness or paralysis characterized as flaccid (reduced tone) without other obvious cause (e.g. trauma) in children <15 years old, including Guillain-Barre syndrome (GBS). Transient weakness (e.g. post-ictal weakness) should not be reported. Note: Other conditions present symptoms similar to paralytic poliomyelitis. A record is kept of all definitive diagnoses for all reported cases of AFP meeting the clinical case definition. GBS is the most common cause of AFP in childhood, but other differential diagnoses include, but are not limited to, transverse myelitis, peripheral neuropathy, enteroviruses, acute non-bacterial meningitis, brain abscess, China Syndrome and postpolio sequelae. Poliomyelitis must be distinguished from other paralytic conditions by isolation of polio virus from stool.	See conditions referred to in clinical case definition	Report confirmed cases **immediately** to PHAS Surveillance Team Enter into ANDS Submit case report forms as soon as completed	*Nova Scotia Notifiable Disease Surveillance Case Report Form* *Vaccine Preventable Disease Form*
Diphtheria	**Confirmed Case:** Clinical illness or systemic manifestations compatible with diphtheria in a person with an upper respiratory tract infection or infection at another site (e.g. wound, cutaneous) PLUS at least one of the following: Laboratory confirmation of infection: - Isolation of *Corynebacterium diphtheriae* with confirmation of toxin from an appropriate clinical specimen, including the exudative membrane OR - Isolation of other toxigenic *Corynebacterium* species (*C. ulcerans* or *C. pseudotuberculosis*) from an appropriate clinical specimen, including the exudative membrane OR - Histopathologic diagnosis of diphtheria OR Epidemiologic link (contact within 2 weeks prior to onset of symptoms) to a laboratory-confirmed case	Characterized as an upper respiratory tract infection (nasopharyngitis, laryngitis or tonsillitis) with or without an adherent nasal, tonsillar, pharyngeal and/or laryngeal membrane plus at least one of the following: - Gradually increasing stridor - Cardiac (myocarditis) and/or neurologic involvement (motor and/or sensory palsies) 1-6 weeks after onset - Death, with no known cause	Report confirmed cases **immediately** to PHAS Surveillance Team Enter into ANDS Submit case report forms as soon as completed	*Nova Scotia Notifiable Disease Surveillance Case Report Form* *Vaccine Preventable Disease Form*

Disease Name	Case Definitions	Clinical Evidence	Reporting Requirements	Forms
***Haemophilus influenzae* type b (Hib) Invasive Disease**	**Confirmed Case:** Clinical evidence of invasive disease with laboratory confirmation of infection: - Isolation of *H. influenzae* (serotype b) (Hib) from a normally sterile site OR - Isolation of *H. influenzae* (serotype b) from the epiglottis in a person with epiglottitis **Probable Case:** Clinical evidence of invasive disease with laboratory evidence of infection: - Demonstration of *H. influenzae* type b antigen in CSF OR - Demonstration of *H. influenzae* DNA in a normally sterile site OR - Buccal cellulitis or epiglottitis in a child <5 years of age with no other causative organisms isolated	Invasive disease includes meningitis, bacteremia, epiglottitis, pneumonia, pericarditis, septic arthritis and empyema	Report confirmed or probable cases to PHAS Surveillance Team via ANDS	*Nova Scotia Notifiable Disease Surveillance Case Report Form* *Vaccine Preventable Disease Form*
Measles	**Confirmed Case:** Laboratory confirmation of infection in the absence of recent immunization with measles-containing vaccine: - Isolation of measles virus from an appropriate clinical specimen OR - Detection of measles virus RNA OR - Seroconversion or a significant (e.g. fourfold or greater) rise in measles IgG titre by any standard serologic assay between acute and convalescent sera OR - Positive serologic test for measles IgM antibody using a recommended assay in a person who is either epidemiologically linked to a laboratory-confirmed case or has recently traveled to an area of known measles activity OR Clinical illness in a person with an epidemiologic link to a laboratory-confirmed case	Characterized by all of the following: - Fever 38.3°C or greater - Cough, coryza or conjunctivitis - Generalized maculopapular rash for at least 3 days The most frequent reaction to MMR vaccine is malaise and fever (with or without rash) occurring 7-12 days after immunization. However, this should be determined for each case, as these reactions and the time frame can vary	Report confirmed cases **immediately** to PHAS Surveillance Team Enter into ANDS Submit case report forms as soon as completed	*Nova Scotia Notifiable Disease Surveillance Case Report Form* *Public Health Agency of Canada Measles, Rubella, and Congenital Rubella Report Form*

Disease Name	Case Definitions	Clinical Evidence	Reporting Requirements	Forms
Mumps	**Confirmed Case:** Clinical illness and laboratory confirmation of infection in the absence of recent immunization with mumps-containing vaccine: - Isolation of mumps virus or mumps virus RNA OR - Seroconversion or a significant rise (e.g. fourfold or greater) in mumps IgG titre by any standard serologic assay between acute and convalescent sera OR - Positive serologic test for mumps IgM antibody in a person who is either epidemiologically linked to a laboratory-confirmed case or has recently traveled to an area of known mumps activity OR Clinical illness in a person with an epidemiologic link to a laboratory-confirmed case **Probable Case:** Clinical illness: - in the absence of appropriate laboratory tests OR- in the absence of an epidemiologic link to a laboratory-confirmed case.	Characterized by acute onset of unilateral or bilateral tender, self-limited swelling of the parotid or other salivary gland, lasting 2 or more days and without other apparent cause The most frequent reaction to MMR vaccine is malaise and fever (with or without rash) occurring 7-12 days after immunization. Parotitis has occasionally occurred after immunization. However, this should be determined for each case, as these reactions and the time frame can vary	Report confirmed or probable cases to PHAS Surveillance Team via ANDS	*Nova Scotia Notifiable Disease Surveillance Case Report Form* *Vaccine Preventable Disease Form*

Disease Name	Case Definitions	Clinical Evidence	Reporting Requirements	Forms
Pertussis	**Confirmed Case:** Laboratory confirmation of infection: - Isolation of *Bordetella pertussis* from an appropriate clinical specimen OR - Detection of *B. pertussis* DNA from an appropriate clinical specimen AND one or more of the following: - Cough lasting 2 weeks or longer - Paroxysmal cough of any duration - Cough with inspiratory 'whoop' - Cough ending in vomiting or gagging, or associated with apnea OR Epidemiologic link to a laboratory-confirmed case AND one or more of the following for which there is no other known cause: - Paroxysmal cough of any duration - Cough with inspiratory 'whoop' - Cough ending in vomiting or gagging or associated with apnea **Probable Case:** Cough lasting 2 weeks or longer in the absence of appropriate laboratory tests and not epidemiologically linked to a laboratory-confirmed case **AND** one or more of the following, with no other known cause: - Paroxysmal cough of any duration - Cough with inspiratory 'whoop' - Cough ending in vomiting or gagging or associated with apnea **Possible Case:** One or more of the following, with no other known cause: - Paroxysmal cough of any duration - Cough with inspiratory 'whoop' - Cough ending in vomiting or gagging or associated with apnea	See conditions referred to in case definitions	Report confirmed, probable, or possible cases to PHAS Surveillance Team via ANDS	*Nova Scotia Notifiable Disease Surveillance Case Report Form* *Vaccine Preventable Disease Form*

Disease Name	Case Definitions	Clinical Evidence	Reporting Requirements	Forms
Poliomyelitis	**Confirmed Case:** Clinical illness with laboratory-confirmation of infection: - Isolation of polio virus (vaccine or wild type) from an appropriate clinical specimen OR - Detection of polio virus RNA OR - Clinical illness in a person who is epidemiologically linked to a laboratory-confirmed case Confirmed cases can be further divided into 2 categories, for those definitions please see: http://www.phac-aspc.gc.ca/publicat/ccdr-rmtc/09vol35/35s2/Polio-eng.php **Probable Case:** Clinical illness without detection of polio virus from an appropriate clinical specimen and without evidence of infection with other neurotropic viruses but with one of the following laboratory-confirmations of infection: - Significant rise (e.g. fourfold or greater) in polio IgG titre by any standard serologic assay between acute and convalescent sera OR - Positive serologic test for polio IgM antibody in the absence of recent immunization with polio virus-containing vaccine	Characterized by all of the following: - Acute flaccid paralysis of one or more limbs - Decreased or absent deep tendon reflexes in the affected limbs - No sensory or cognitive loss - No other apparent cause (including laboratory investigation to rule out other causes of a similar syndrome) neurologic deficit present 60 days after onset of initial symptoms, unless the patient has died	Report confirmed or probable cases **immediately** to PHAS Surveillance Team Enter into ANDS Submit case report forms as soon as completed	*Nova Scotia Notifiable Disease Surveillance Case Report Form* *Vaccine Preventable Disease Form*

Disease Name		Case Definitions	Clinical Evidence	Reporting Requirements	Forms
Rubella	**Rubella (Non-Congenital)**	**Confirmed Case:** Laboratory confirmation of infection in the absence of recent immunization with rubella-containing vaccine: - Isolation of rubella virus from an appropriate clinical specimen OR - Detection of rubella virus RNA OR - Seroconversion or a significant (e.g. fourfold or greater) rise in rubella IgG titre by any standard serologic assay between acute and convalescent sera OR - Positive serologic test for rubella IgM antibody using a recommended assay in a person with an epidemiologic link to a laboratory-confirmed case or who has recently traveled to an area of known rubella activity OR Clinical illness in a person with an epidemiologic link to a laboratory-confirmed case	Characterized by fever and rash, and at least one of the following: - Arthralgia/arthritis - Lymphadenopathy - Conjunctivitis	Report confirmed cases **immediately** to PHAS Surveillance Team Enter into ANDS Submit case report forms as soon as completed	*Nova Scotia Notifiable Disease Surveillance Case Report Form* *Public Health Agency of Canada Measles, Rubella, and Congenital Rubella Report Form*
	Congenital Rubella Syndrome **Or** **Congenital Rubella Infection** *(continued on next page)*	**Confirmed Case:** **Congenital Rubella Syndrome (CRS)** <u>Live Birth</u>: Two clinically compatible manifestations (any combination from lists A and B (see Clinical Evidence) with laboratory confirmation of infection: - Isolation of rubella virus from an appropriate clinical specimen OR - Detection of rubella virus RNA OR - Positive serologic test for IgM antibody in the absence of recent immunization with rubella-containing vaccine OR - Rubella IgG persisting for longer than would be expected (approximately 6 months after birth) from passive transfer of maternal antibody, or in the absence of recent immunization <u>Still Birth</u>:	<u>List A</u> - Cataracts or congenital glaucoma (either one or both count as one) - Congenital heart defect - Sensorineural hearing loss - Pigmentary retinopathy <u>List B</u> - Purpura - Hepatosplenomegaly - Microcephaly - Micro ophthalmia - Mental retardation - Meningoencephalitis - Radiolucent bone disease - Developmental or late onset conditions such as diabetes and progressive panencephalitis and any	Report confirmed or probable cases **immediately** to PHAS Surveillance Team Enter into ANDS. **Enter the type** (Congenital Rubella Syndrome, Congenital Rubella Infection) as the first words in the Comments field Submit case report forms as soon as completed	*Nova Scotia Notifiable Disease Surveillance Case Report Form* *Public Health Agency of Canada Measles, Rubella, and Congenital Rubella Report Form*

Disease Name		Case Definitions	Clinical Evidence	Reporting Requirements	Forms
	(continued from previous page)	Two clinically compatible manifestations with isolation of rubella virus from an appropriate clinical specimen	other conditions possibly caused by rubella virus		
	Congenital Rubella Syndrome **Or** **Congenital Rubella Infection**	**Congenital Rubella Infection** Laboratory confirmation of infection but with no clinically compatible manifestations: - Isolation of rubella virus from an appropriate clinical specimen OR - Detection of rubella virus RNA OR - Positive serologic test for IgM antibody in the absence of recent immunization with rubella-containing vaccine OR - Rubella IgG persisting for longer than would be expected (approximately 6 months after birth) from passive transfer of maternal antibody, or in the absence of recent immunization **Probable Case:** **Congenital Rubella Syndrome (CRS)** In the absence of appropriate laboratory tests, a case that has at least - Any two compatible manifestations listed in lists A and B (see Clinical Evidence) OR - One manifestation in list A, plus one in list B NOTE: the following **cannot** be classified as a case of CRS: - Rubella antibody titre absent in the infant OR - Rubella antibody titre absent in the mother OR - Rubella antibody titre declining in the infant consistent with the normal decline after birth of passively transferred maternal antibody			

Disease Name	Case Definitions	Clinical Evidence	Reporting Requirements	Forms
Smallpox	**Confirmed Case:** Laboratory confirmation of infection: - Isolation of variola virus from an appropriate clinical specimen OR - Detection of variola virus nucleic acid **Probable Case:** Clinical evidence of illness in a person who is epidemiologically linked to a laboratory-confirmed case or to a probable case OR Laboratory evidence of infection: - Negative stain electron microscopic identification of variola virus in an appropriate clinical specimen **Possible Case:** Clinical evidence of illness in a person who is not epidemiologically linked to a laboratory-confirmed case or to a probable case of smallpox OR Atypical lesion known to be associated with the variola virus on a person who is epidemiologically linked to a laboratory-confirmed or probable case	Characterized by a febrile prodrome consisting of fever > 38.3^{0}C and systemic symptoms (prostration, headache, back pain, abdominal pain and/or vomiting), which generally lasts one to four days and is followed by the development of a characteristic rash. The rash consists of deep, firm, well-circumscribed pustules that are mostly all in the same stage of development. The lesions are characteristically umbilicated. The lesions initially appear as macules, evolving into papules, vesicles and then pustules in a matter of days. Finally, crusted scabs form: they then fall off several weeks after the initial appearance of the rash. Lesions initially appear in the oral mucosa/palate and then progress in a centrifugal pattern to involve the face, arms, legs, palms and soles. Atypical presentations include flat velvety lesions that do not evolve into pustules and more sever forms with confluent or hemorrhagic lesions.	Report confirmed, probable, or possible cases **immediately** to PHAS Surveillance Team Enter into ANDS Submit case report forms as soon as completed	*Nova Scotia Notifiable Disease Surveillance Case Report Form*

Disease Name	Case Definitions	Clinical Evidence	Reporting Requirements	Forms
Tetanus	**Confirmed Case:** Clinical illness without other apparent medical cause with or without isolation of *Clostridium tetani* and with or without history of injury	Characterized by acute onset of hypertonia and/or painful muscular contractions (usually of the muscles of the jaw and neck), and generalized muscle spasms without other apparent medical cause	Report confirmed cases to PHAS Surveillance Team via ANDS	*Nova Scotia Notifiable Disease Surveillance Case Report Form*

TABLE 11.2: ANDS Quick Reference – Vaccine Preventable Diseases (VPD)

Includes Acute Flaccid Paralysis, Diphtheria, *Haemophilus influenzae* type b, Measles, Mumps, Pertussis, Poliomyelitis, Rubella (non-congenital and Congenital Rubella Syndrome), Smallpox, and Tetanus.

NOTE: Adverse Events Following Immunizations (AEFIs) has a separate ANDS Quick Reference sheet.

ANDS Variable	Definition and Use
Case Status*	The classification of the VPD case at time of entry according to provincial case definitions in the NS Surveillance Guidelines: • **Confirmed** • Confirmed – Laboratory confirmed – **Do Not Use** • Confirmed – Epidemiologically linked – **Do Not Use** • **Probable** – Use only for *Haemophilus influenzae* type b, Mumps, Pertussis, Poliomyelitis, Congenital Rubella Syndrome, Smallpox • **Possible** – Use only for Pertussis and Smallpox
Investigation Status*	Left to discretion of DHA to use as applicable to case management; however**, once complete, all investigations should be *closed* in ANDS**.
Investigation Closed Date	The date the investigation was completed.
Date Reported*	The earliest date that Public Health was notified of the case.
DHA*	The DHA responsible for case management. This is the DHA that reports the case via case entry into ANDS.
Disease Name*	Choose appropriate disease name according to case definition.
Agent Sub/Serotype	**Do Not Use**
Other lab Info	Free text field. **Please enter Accession Number from lab report, if available**
Episode Date*	The date the subject became a case. This field is linked with the Episode Date Type described below. Note that the Episode Date must be the same or earlier than the Date Reported.
Episode Date Type*	Episode date type should be used in the following order of preference: 1. **Onset date of symptoms** – Use as preferred Episode Date 2. **Clinical diagnosis date** – Use if onset date not available 3. **Specimen collection date** – Use if onset date & clinical diagnosis date not available 4. **Lab test result date** – Use if onset date, clinical diagnosis date & specimen collection date not available
Clinical Presentation	**Do Not Use**
Outcome	The outcome of the case. Note that if "deceased" is selected, a date of death must be entered. (For further information, see Section 5.6 of the ANDS Business Procedures Document.)
Risk Factors for STIs Only	**Do Not Use**
Where was case's illness most likely acquired?	This field refers to the geographic location of acquisition. If it is learned through case follow up that acquisition likely occurred outside of Nova Scotia, ensure this field is used to capture the information. Remember: • If acquired in another province in Canada, enter name of province • If acquired outside Canada, enter name of country (For further information, see Section 5.8 of the ANDS Business Procedures Document.)
Associated with an outbreak?	Use if Applicable
Outbreak Number	Use if Applicable
Received Vaccine	**Do Not Use**
Vaccine Date 1 (& 2)	**Do Not Use**
Vaccine Name	**Do Not Use**
Comments	Free text. Use as appropriate for case management. For congenital rubella, enter the type (Congenital Rubella Syndrome, Congenital Rubella Infection) as the first words in this field.

* Indicates a mandatory field in the ANDS application.