

# Alberta Case Definitions Manual

*Trichinella spiralis*



*Plasmodium falciparum*



*Bacillus anthracis*



*Escherichia coli*



*Giardia lamblia*



*Entamoeba histolytica*

Alberta

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# TABLE OF CONTENTS

ACKNOWLEDGMENTS .....	1
BACKGROUND .....	3
INTRODUCTION .....	4
USE OF CASE DEFINITIONS AND THE NOTIFIABLE DISEASE REPORTING PROCESS.....	5
DEFINITIONS OF TERMS USED IN CASE CLASSIFICATION.....	7
GLOSSARY OF ABBREVIATIONS .....	10
NATIONAL CASE DEFINITION GROUPINGS.....	12
CASE DEFINITIONS .....	14
ACQUIRED IMMUNODEFICIENCY SYNDROME (AIDS)	
ACUTE FLACCID PARALYSIS (AFP)	
AMOEBIASIS	
*ANTHRAX	
*BOTULISM	
BRUCELLOSIS	
CALICIVIRUS INFECTION	
CAMPYLOBACTERIOSIS	
CHANCROID	
CHLAMYDIAL INFECTIONS	
CHOLERA (O1 & O39)	
CONGENITAL CYTOMEGALOVIRUS (CMV)	
CONGENITAL RUBELLA INFECTION	
CONGENITAL RUBELLA SYNDROME (CRS)	
CONGENITAL TOXOPLASMOSIS	
CREUTZFELDT-JAKOB DISEASE – CLASSIC (CJD)	
CREUTZFELDT-JAKOB DISEASE – VARIANT (vCJD)	
CRIMEAN CONGO HAEMORRHAGIC FEVER	
CRYPTOSPORIDIOSIS	
CYCLOSPORIASIS	
DENGUE FEVER	
DIPHTHERIA	
EASTERN EQUINE ENCEPHALITIS (EEE)	
*EBOLA HAEMORRHAGIC FEVER	
ENTEROVIRUS INFECTIONS	
ESCHERICHIA COLI (E-COLI) O157: H7	
GIARDIASIS	
GONOCOCCAL INFECTIONS	
GROUP A STREPTOCOCCAL DISEASE, INVASIVE (IGAS)	
HAEMOLYTIC UREMIC SYNDROME (HUS)	
HAEMOPHILUS INFLUENZAE, INVASIVE (NON- TYPE B)	
HAEMOPHILUS INFLUENZAE, INVASIVE – TYPE B (HIB)	
HANTAVIRUS PULMONARY SYNDROME (HPS)	
HEPATITIS A (HAV)	

\*Denotes potential bioterrorism agent

All red text denotes Fastest Means Possible Diseases (FMP)

HEPATITIS B (HBV) - ACUTE CASE  
HEPATITIS B (HBV) – CHRONIC CARRIER  
HEPATITIS C (HCV)  
HEPATITIS E (HEV)  
HIV INFECTION  
INFLUENZAE A/B  
**\*LASSA FEVER**  
LEGIONELLOSIS  
LEPROSY  
LEPTOSPIROSIS  
LISTERIOSIS  
LYME DISEASE  
LYMPHOGRANULOMA VENEREUM (LGV)  
MALARIA  
**\*MARBURG HAEMORRHAGIC FEVER**  
**MEASLES/RUBEOLA**  
MENINGITIS, VIRAL  
**MENINGOCOCCAL DISEASE, INVASIVE (IMD)**  
MUCOPURULENT CERVICITIS (MPC)  
MUMPS  
NEONATAL HERPES SIMPLEX INFECTION  
NON-GONOCOCCAL URETHRITIS (NGU)  
**PARATYPHOID FEVER**  
PARVOVIRUS  
PERTUSSIS  
**\*PLAGUE**  
PNEUMOCOCCAL DISEASE, INVASIVE (IPD)  
**POLIOMYELITIS**  
**POWASSAN ENCEPHALITIS**  
PSITTACOSIS  
Q FEVER  
**RABIES**  
RESPIRATORY SYNCYTIAL VIRUS (RSV)  
ROCKY MOUNTAIN SPOTTED FEVER  
ROTAVIRUS  
RUBELLA  
SALMONELLOSIS  
**SEVERE ACUTE RESPIRATORY SYNDROME (SARS)**  
SHIGELLOSIS  
SHINGLES (HERPES ZOSTER)  
**\*SMALLPOX**  
**ST. LOUIS ENCEPHALITIS**  
STAPHYLOCOCCAL INTOXICATION  
SUBACUTE SCLEROSING PANENCEPHALITIS (SSPE)  
SYPHILIS  
TETANUS  
TOXIC SHOCK SYNDROME (TSS) - NON-GROUP A STREPTOCOCCUS  
TRICHINOSIS  
**TUBERCULOSIS (TB)**  
**\*TULAREMIA**  
**TYPHOID FEVER**  
TYPHUS - LOUSEBORNE

\*Denotes potential bioterrorism agent

All red text denotes Fastest Means Possible Diseases (FMP)

TYPHUS - MURINE  
 TYPHUS - SCRUB  
 VARICELLA (CHICKENPOX)  
 VIBRIO CHOLERAЕ, NON-O1, NON-O139  
 VIBRIO PARAHAEMOLYTICUS  
 WEST NILE VIRUS ASYMPTOMATIC INFECTION (WNAI)\*\*  
 WEST NILE VIRUS NEUROLOGICAL SYNDROME (WNNS)  
 WEST NILE VIRUS NON-NEUROLOGICAL SYNDROME (WN NON-NS)  
 WESTERN EQUINE ENCEPHALITIS (WEE)  
 YELLOW FEVER  
 YERSINIOSIS

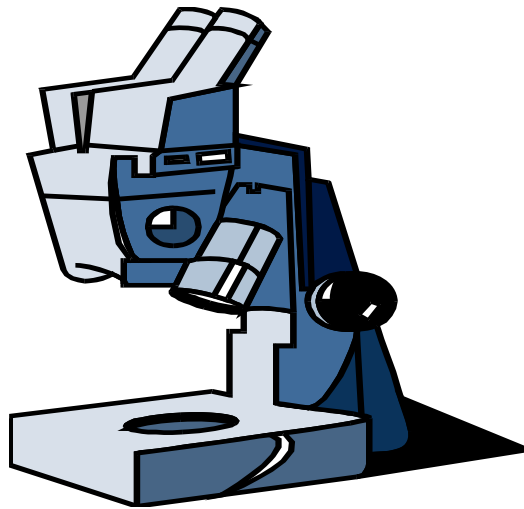
APPENDIX A: CASE DEFINITION WORKING GROUP MEMBERSHIP AND THEIR REPRESENTATIONS..... 124  
 APPENDIX B: ALBERTA NOTIFIABLE DISEASE LIST ..... 125  
 APPENDIX C: GLOSSARY OF TERMS ..... 126  
 REFERENCES ..... 131

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**“ Good surveillance does not necessarily ensure the making of right decisions, but it reduces the chances of wrong ones.”<sup>1</sup>**



<sup>1</sup>Source: Dr. John Snow's quote as found in: Langmuir, A.C. (1963). The surveillance of communicable diseases of national importance. New England Journal of Medicine, 268,182-192.

## Background

Alberta Health and Wellness (AHW) and regional public health officials rely on physicians, other health-care workers and laboratories to report the occurrence of notifiable diseases to provincial and regional health authorities. Without such data, trends cannot be accurately monitored, unusual occurrences of diseases might not be detected, and the effectiveness of intervention activities, including various immunization programs, cannot be easily evaluated.

In Alberta, requirements for reporting diseases are mandated by provincial law, and regulated by the *Communicable Diseases Regulation* under the *Public Health Act*. In May 2000, in collaboration with provincial epidemiologists in each province and territory, the Health Canada Laboratory Centre for Disease Control, published *Case Definitions for Diseases under National Surveillance* (CCDR May 2000; 26S3). For the first time in Canada, uniform criteria were provided for reporting cases.

Beginning in January 2002, AHW established and led a Case Definition Working Group consisting of various public health professionals from across the province (see list of contributors in Appendix A). This working group was charged with the drafting of case definitions for those notifiable infectious diseases and syndromes under surveillance by the Public Health Officer (PHO). This includes uniform laboratory and clinical criteria for the regional health authorities for reporting purposes. Case definitions for diseases with definitions already published by Health Canada were either adopted fully or adapted for Alberta's use following extensive internal and external consultation with communicable disease specialists.

This document, *The Alberta Case Definitions Manual*, is the product of this extensive and collaborative process. This work would not have been possible without the ongoing contributions and case definition reviews by Dr. Uma Chandran, Medical Microbiology Resident while completing a clinical placement with Disease Control and Prevention, AHW in 2002.

## Introduction

Data for provincially notifiable diseases reported by the various health authorities are collated and generated weekly by the Disease Control and Prevention Branch of AHW. Monthly notifiable disease reports are prepared and distributed to the Medical Officers of Health (MOHs) of each health authority. Cases reported by regional health authorities may be provisional because of ongoing revision of information and delayed reporting; thus, these numbers may change. Updated final reports are prepared and disseminated annually for Alberta's Notifiable Diseases.

Data sharing agreements for surveillance purposes with Health Canada and the provinces and territories permit non-nominal reporting of notifiable diseases by AHW to federal health authorities. Those diseases under national surveillance are indicated in the case definition as appropriate.

Appendices B (Alberta Notifiable Disease List) and C (Alberta Notifiable Disease List – Labs) represent a current list of provincially notifiable diseases. Diseases may be added to the list as new pathogens emerge (e.g. West Nile virus) or may be deleted as their incidence declines or new knowledge redefines their public health significance. Public health officials at provincial, territorial and federal levels collaborate in determining which diseases should be reported nationally and make recommendations as appropriate for additions and deletions to the list.

As knowledge increases and diagnostic technology advances, some case definitions will change to reflect these trends. Thus, future revisions to this manual are to be expected. Since molecular diagnostic techniques are anticipated in the not so distant future, confirmation by standardized methods (when available) are included as one of the laboratory-confirmed criteria for specified diseases.

As newly generated case definitions become available or existing definitions revised by AHW and/or Health Canada, they will be made available electronically on the designated AHW Public Health Website: <http://www.health.alberta.ca/>

The Alberta surveillance case definitions included in this manual differ in their use of clinical, laboratory, and epidemiological criteria to define cases. Some clinical syndromes do not have confirmatory laboratory tests; however, laboratory evidence may be one component of a clinical definition (e.g., Haemolytic Uremic Syndrome). Some case definitions include a brief clinical description, however, unless this description is explicitly cited in the case classification section, it is included only as background information.

Most diseases require laboratory confirmation for diagnosis regardless of clinical symptoms, whereas occasionally others are diagnosed based on epidemiological data. Many case definitions for the childhood vaccine-preventable diseases and food borne diseases include epidemiological criteria (e.g., exposure to probable or confirmed cases of disease or to a point source of infection, which is a single source of infection, such as an event resulting in a food borne-disease outbreak, to which all confirmed cases were exposed).

## Use of Case Definitions and the Notifiable Disease Reporting Process

Regional health authorities are encouraged to report promptly all provisional and suspect cases for those diseases, which require reporting by fastest means possible (FMP) to AHW. Reports should be updated with the appropriate classification status when additional surveillance information becomes available. Cases should be categorized as laboratory confirmed (a subset of all confirmed cases) only if they meet the laboratory criteria specified.

A notifiable disease report (NDR) form is to be completed by the regional health authority where each specific disease event occurs based on the reporting requirements for that disease. A complete list of notifiable diseases and their specific reporting requirements are found in Appendix B (Alberta Notifiable Disease List).

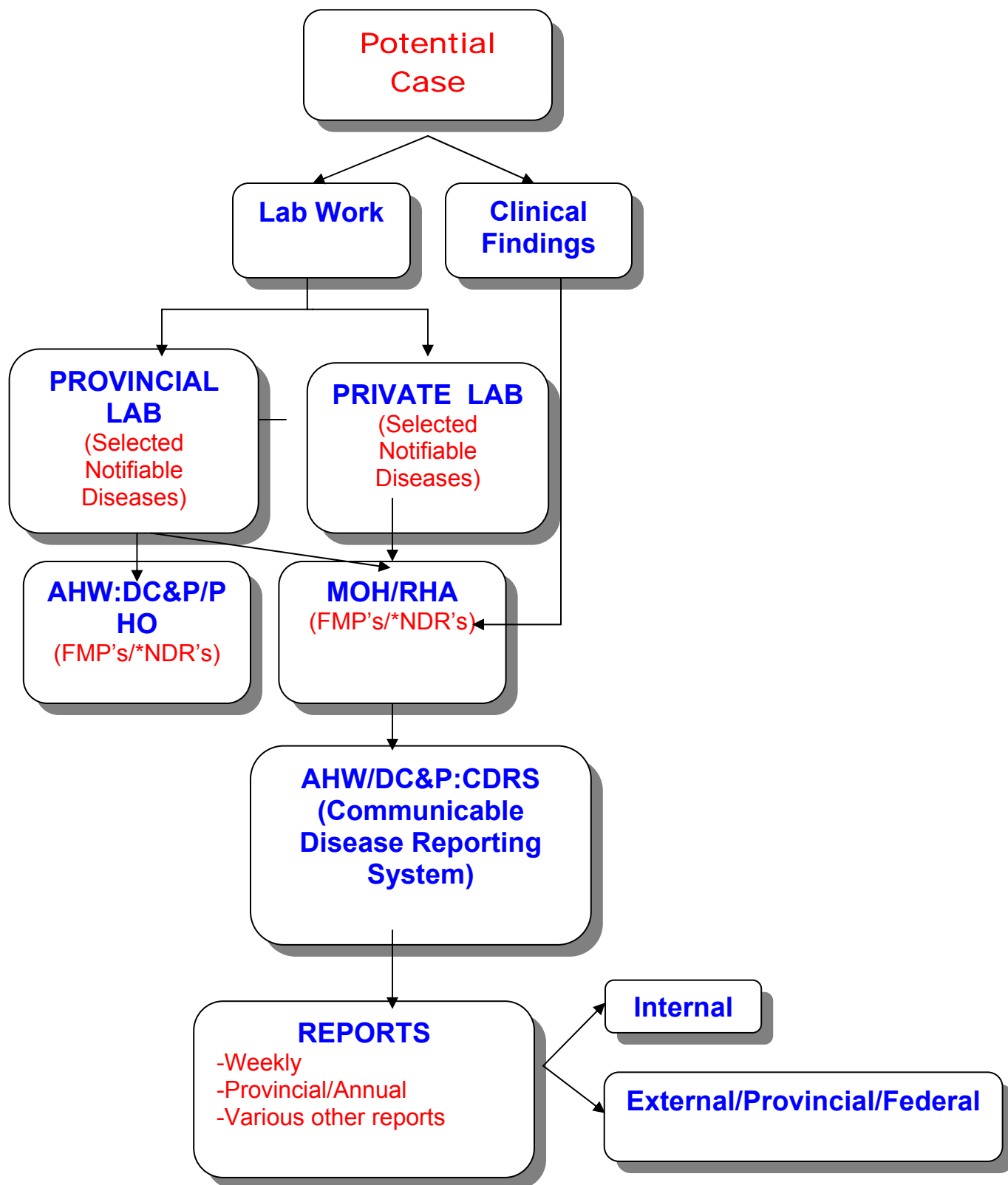
A flow chart depicting the flow of surveillance information for the notifiable disease reporting structure in Alberta appears on the following page. This flow chart graphically demonstrates the laboratory component and clinical findings of an individual believed to have been exposed to a notifiable disease. Additionally, the flow of laboratory reports and NDRs from the regional to provincial levels are shown. For additional information about procedures for reporting diseases to AHW and the amendment process, see the Notifiable Disease Reporting Manual, 2007.

The case definitions are to be used for identifying and classifying cases, both of which are often done retrospectively, for purposes of reporting provincially notifiable diseases. The exception to this are the FMP diseases, which are denoted in red text throughout this manual, and by virtue of definition must be reported verbally and directly to the Public Health Officer (PHO) as soon as possible. This also applies to those diseases with an asterisk, which in addition to being an FMP denotes potential and deliberate use as a bioterrorism agent.

Case definitions are not to be used as criteria for public health action. For many conditions of public health importance, action to contain disease should be initiated as soon as a problem is identified. In many circumstances, appropriate public health action should be undertaken even though insufficient information is available to determine whether cases meet the case definition.

Abbreviations are defined the first time they appear in each case definition and following that are abbreviated throughout the rest of the manual. As a quick reference a list of abbreviations is included on page 10: "Glossary of Abbreviations".

# Notifiable Disease Reporting Structure: Surveillance Information Flow



\* NDR = Lab Report and Clinical Findings

## Definitions of Terms Used In Case Classification

*There is an array of disease classifications used in public health practice which are outlined ranging from confirmed to suspect cases. It is important to note that each classification is disease-specific.*

### **Aggregate reporting:**

A form of non-nominal reporting which includes absolute numbers of persons with a notifiable disease (often but not always in an outbreak situation), and other non-identifiable demographic data (e.g. age, sex, region). Examples include reporting Respiratory Syncytial Virus and Influenzae A/B.

### **Case**

A case is a person who has a particular disease. Varied clinical and laboratory criteria are used to define persons affected by a notifiable disease.

### **Case-by-case surveillance:**

Surveillance where the public health reporting authority submits a NDR or its equivalent case report. (e.g., AIDS/HIV, TB) to the provincial authorities.

### **Clinically compatible case:**

A clinical syndrome generally compatible with the disease, as described in the clinical description.

### **Confirmed case:**

A case that is classified as confirmed for reporting purposes.

### **Epidemiologically-linked case:**

A case in which;

- a) the client has had contact with one or more persons who either have/had the disease or have been exposed to a point source of infection (i.e., a single source of infection, such as an event leading to a food borne-disease outbreak, to which all confirmed case-patients were exposed);
- or**
- b) transmission of the agent by the usual modes of transmission is plausible. A case may be considered epidemiologically linked to a laboratory-confirmed case if at least one case in the chain of transmission is laboratory confirmed.

### **Fastest Means Possible (FMP):**

Specified diseases as indicated in the *Communicable Diseases Regulation* under the *Alberta Public Health Act* need to be brought to the attention of the Provincial Health Officer (PHO) as soon as possible. This is intended to be reported verbally and directly to the PHO by real time notification upon suspicion or confirmation of the specified diseases denoted in red text in this manual. Voice mail, facsimile or e-mail notifications are not considered acceptable alternatives to direct telephone notifications. FMP diseases are to be reported in the appropriate written format to AHW within 7 days.

### **Laboratory-confirmed case:**

A case that is confirmed by one or more of the laboratory methods listed in the case definition under laboratory component of the confirmed case definition.

Note: Although other laboratory methods may be used in clinical diagnosis, only those listed are accepted as laboratory confirmation for provincial reporting purposes.

### **Laboratory Surveillance:**

A type of surveillance where a laboratory report meeting the laboratory confirmed component of the case definition is submitted centrally to the provincial health authorities (AHW). No case report (NDR) accompanies or follows laboratory surveillance. The laboratory report includes identifiable, nominal data.

**Outbreak:**

As defined in the *Communicable Diseases Regulation*, under the *Alberta Public Health Act*: “a distribution of cases of communicable disease that is unusual in terms of time, place or persons affected”

**Enteric Outbreak:**

As defined in the *Outbreak Roles and Responsibilities, AHW, September 2002*: “two or more individuals who are epidemiologically and/or laboratory linked and who do not live in a common household, exclusive of an institutional event.”<sup>1</sup>

**Outbreak Surveillance:**

A type of surveillance where the public health reporting authority generates non-nominal/non-identifiable outbreak data, including, but not limited to, site, number of persons exposed, number of persons affected and suspect or confirmed causative organism. These data are generally submitted on an enteric/non-enteric outbreak reporting form.

**Sentinel Surveillance:**

A type of surveillance activity in which specific facilities such as offices of certain health care providers, hospitals or clinics across a geographic region are designated to collect data about a disease (e.g., FluWatch program for influenza surveillance).

**Possible case:**

A case that is classified as possible for reporting purposes.

**Presumptive case:**

A case that is classified as presumptive for reporting purposes.

**Probable case:**

A case that is classified as probable for reporting purposes.

**Supportive or presumptive laboratory results:**

Specified laboratory results that are consistent with the diagnosis yet do not meet the criteria for laboratory confirmation.

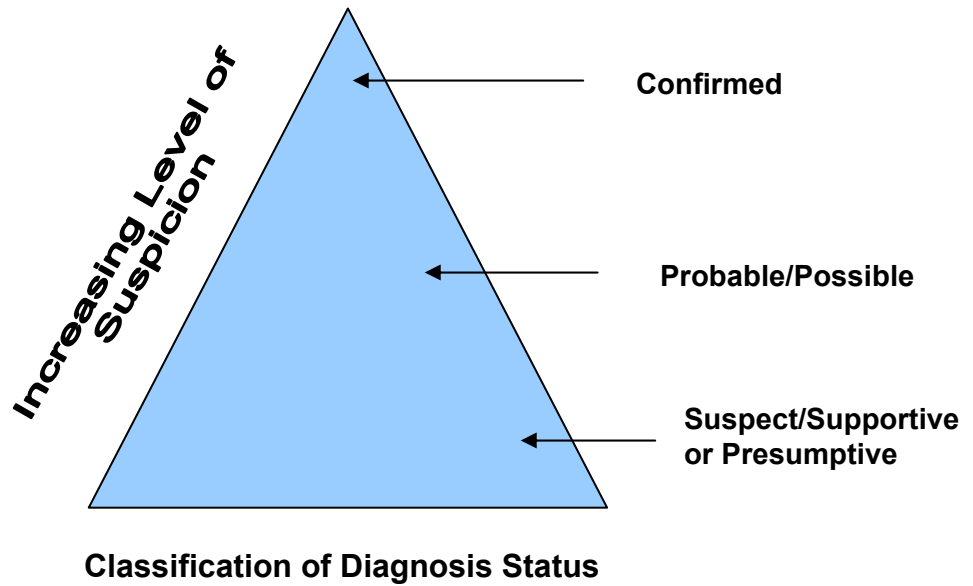
**Suspect case:**

A case that is classified as suspect for reporting purposes.

<sup>1</sup> In the case of botulism, one case of disease constitutes an outbreak.

Figure 1: Conceptual Model of Reporting directly below is a model which depicts a general hierarchy of classification of disease which assigns a status based on laboratory and clinical criteria utilized in disease investigation and reporting which may assist in the use of this manual. The closer a disease fits the defined set of clinical and laboratory criteria, the closer it comes to meeting a confirmed case definition. This is a general concept only and does not necessarily apply to each and every communicable disease and their respective reporting requirement found in this manual.

**Figure 1: Conceptual Model of Reporting Levels**



## Glossary of Abbreviations

Terms and Abbreviations used in this manual are listed below alphabetically.

Abs	Antibodies
AHW	Alberta Health and Wellness
AIDS	Acquired Immunodeficiency Syndrome
BBP	Blood-borne pathogens
CBS	Canadian Blood Services
CD4	“T-cell” count
CJD	Creutzfeldt-Jakob Disease - Classic
CJD-SS	CJD Surveillance System
CMV	Congenital Cytomegalovirus
CPSP	Canadian Pediatric Surveillance Program
CSF	Cerebrospinal Fluid
DFA	Direct Fluorescent Antibody
EBV	Epstein-Barr Virus
EEG	Electroencephalogram
EIA	Enzyme immunoassay
ELISA	Enzyme-linked immunosorbent assay
EM	Electron Microscopy
EM <sup>1</sup>	Erythema Migrans
FA	Fluorescent Antibody
FFI	Familial Fatal Insomnia
FMP	Fastest Means Possible
iGAS	Group A Streptococcal Disease, Invasive
GSS	Gerstmann-Straussler-Scheinker
H & E	Hematoxylin & eosin (stains)
HAI	Haem-agglutination Inhibition
HI	Also abbreviated for Haemagglutination Inhibition
HCV	Hepatitis C Virus
HIV	Human Immunodeficiency Virus
HSV	Herpes Simplex Virus
HUD +	Haemolytic uremic (syndrome) – with diarrhea
HUD -	Haemolytic uremic (syndrome) – without diarrhea
IFA	Immunofluorescence antibody
IgA	Immunoglobulin A
IgG	Immunoglobulin G
IgM	Immunoglobulin M
ILI	Influenza-like illness
ISP	Invasive <i>Streptococcus pneumoniae</i> (infections)
JE	Japanese encephalitis
LCDC	Laboratory Centre for Disease Control
MRI	Magnetic resonance imaging
MOH	Medical Officer of Health
NDR	Notifiable Disease Report
NAAT	Nucleic Acid Amplification Test
NTM	Nontuberculous mycobacteria
PAS	Periodic acid-Schiff (stains)
PCR	Polymerase chain reaction
PFGE	Pulse Field Gel Electrophoresis
PHO	Provincial Health Officer
PLNT	Plaque reduction neutralizing test

<sup>1</sup> Note: Two identical abbreviations with two different meanings. See also Appendix C: Glossary of Terms.

PRNT	Plague Reduction Neutralization Test
PrP	Prion protein
P/ N Ratio	Positive to negative ratio
RHOF-ISP	Renal-hematological organ failures associated with invasive <i>Streptococcus pneumoniae</i> infections
RIA	Radio-immuno-assay
RIBA	Recombinant immunoblot assay
RNA	Ribonucleic Acid
RSV	Respiratory Syncytial Virus
RT-PCR	Reverse transcription- Polymerase chain reaction
SAF	Scrapie associated fibrils
SRSVS	Small Round Structured Viruses
SPAH	<i>Streptococcus pneumoniae</i> associated HUS
STD	Sexually Transmitted Disease
STI	Sexually Transmitted Infection
TB	Tuberculosis
TTP	Thrombotic Thrombocytopenic Purpura
vCJD	Variant Creutzfeld-Jakob Disease
VHF	Viral Haemorrhagic Fever
WNAI	West Nile virus Asymptomatic Infection
WNNS	West Nile virus Neurological Syndromes
WN Non-NS	West Nile virus Non-Neurological Syndrome
WNV	West Nile virus

## National Case Definition Groupings

### BLOOD-BORNE PATHOGENS

Acquired Immunodeficiency Syndrome (AIDS)  
Hepatitis C  
HIV Infection

### DIRECT CONTACT AND RESPIRATORY DISEASE

#### \*Anthrax

Congenital Cytomegalovirus (CMV)  
Congenital Toxoplasmosis  
Creutzfeldt-jakob Disease – Classic (CJD)  
Creutzfeldt-jakob Disease – Variant (vCJD)

#### \*Ebola Haemorrhagic Fever

Group A Streptococcal Disease, Invasive (iGAS)  
Haemophilus Influenzae, Invasive (non- type b)  
Influenzae A/B  
Legionellosis  
Leprosy

#### \*Marburg Haemorrhagic Fever

Meningitis, viral  
Neonatal herpes simplex infection  
Parvovirus  
Respiratory Syncytial Virus (RSV)  
Shingles (Herpes Zoster)

#### \*Smallpox

Tuberculosis

### ENTERIC DISEASES

Amoebiasis

#### \*Botulism

Calicivirus Infection  
Campylobacteriosis

#### Cholera

Cryptosporidiosis  
Cyclosporiasis  
Enterovirus Infections  
Enterohaemorrhagic Escherichia Coli (EHEC)  
O157: H7

Giardiasis

Hepatitis A (HAV)

Hepatitis E (HEV)

Listeriosis

#### Paratyphoid fever

Rotavirus

Salmonellosis

Shigellosis

Staphylococcal intoxication

Trichinosis

#### Typhoid fever

Vibrio Cholerae, non-O1, non-O139

Vibrio Parahaemolyticus

Yersiniosis

### SEXUALLY TRANSMITTED DISEASES

Chancroid

Chlamydial Infections

Gonorrheal Infections

Lymphogranuloma Venereum (LGV)

Mucopurulent Cervicitis (MPC)

Non-gonococcal Urethritis (NGU)

Syphilis

### VACCINE PREVENTABLE DISEASES

Acute Flaccid Paralysis (AFP)

Congenital Rubella Infection

Congenital Rubella Syndrome (CRS)

#### Diphtheria

Haemophilus Influenzae, Invasive – type b (Hib)

Hepatitis B - Acute Case

Hepatitis B – Chronic Carrier

#### Measles/Rubeola

Meningococcal Disease, Invasive (IMD)

Mumps

Pertussis

Pneumococcal Disease, Invasive (IPD)

#### Poliomyelitis

Rubella

Subacute Sclerosing Panencephalitis (SSPE)

Tetanus

Varicella (Chickenpox)

\*Denotes potential bioterrorism agent

All red text denotes Fastest Means Possible Diseases (FMP)

## VECTORBORNE AND OTHER ZOOONOTIC DISEASES

Brucellosis  
Crimean Congo Haemorrhagic Fever  
Dengue Fever  
Eastern Equine Encephalomyelitis *Arboviral Encephaliditides*  
Hantavirus Pulmonary Syndrome (HPS)  
\*Lassa Fever  
Leptospirosis  
Lyme Disease  
Malaria  
\*Plague  
Powassan *Arboviral Encephaliditides*  
Psittacosis  
Q fever  
Rabies  
Rocky Mountain Spotted Fever  
St. Louis Encephalitis *Arboviral Encephaliditides*  
\*Tularemia  
Typhus - Louseborne  
Typhus - Murine  
Typhus - Scrub  
Western Equine Encephalomyelitis *Arboviral Encephaliditides*  
West Nile Virus Asymptomatic infections (WNAI)  
West Nile Virus Non-neurologic Syndrome (WN-Non NS)  
West Nile Virus Neurological Syndrome (WNNS)  
Yellow Fever

## OTHER

Haemolytic Uremic Syndrome (HUS)  
Toxic Shock Syndrome (TSS) – Non-Group A Streptococcus

\*Denotes potential bioterrorism agent  
All red text denotes Fastest Means Possible Diseases (FMP)

# CASE DEFINITIONS

# Acquired Immunodeficiency Syndrome (AIDS)

<b>Disease Case Classification</b>	
Confirmed Case	<ul style="list-style-type: none"> <li>▪ Laboratory confirmation of HIV infection</li> </ul> <p><b>AND</b></p> <ul style="list-style-type: none"> <li>▪ One or more of the specified indicator diseases<sup>1</sup> definitively diagnosed</li> </ul>
Probable Case	
National Surveillance	Confirmed Cases
Provincial Surveillance	Confirmed Cases
Type of Surveillance	Case-by-Case
Comments	<p>Alberta has adopted Health Canada's Case Definition.</p> <p>At time of printing, discussion with Health Canada's Chief of HIV Division (Dr. C. Archibald) indicated CD4 criteria in the case definition were not included for the following reasons:</p> <ul style="list-style-type: none"> <li>▪ CD4 criteria have been excluded from Canadian national criteria as most countries (including Europe and Australia) do not include it in their case definitions. The USA remains the only country using CD4 criteria for surveillance purposes. Note that the USA apparently included this in their original definitions, as funding for persons diagnosed with AIDS was different to those diagnosed with HIV.</li> <li>▪ Continuing to exclude CD4 criteria will allow comparisons of trends over time in Alberta, Canada and internationally</li> <li>▪ Concern regarding the natural fluctuation of CD4 count, differences within and between laboratories and change (usually rise) with treatment</li> <li>▪ Current case definition is based on clinical criteria and therefore since such persons are likely to be "sick" and therefore more likely to present for medical attention. This may, therefore, be more representative of cases.</li> </ul> <p>Further discussion needs to occur about gathering CD4 criteria for surveillance and case management purposes (next National HIV Surveillance meeting expected to occur in Spring 2003).</p> <p><b>NOTE:</b> Additional information on diagnostic criteria (sufficient for surveillance purposes) for the indicator diseases are provided on the back of the HIV/AIDS Case Report Form.</p>
Date of Development	June 2003

<sup>1</sup>Indicator Diseases for Adults and Adolescents > 15 years of Age

Bacterial pneumonia (recurrent)\*  
Candidiasis (bronchi, trachea or lungs)  
Candidiasis (esophageal)<sup>†</sup>  
Cervical cancer (invasive)\*  
Coccidioidomycosis (disseminated or extrapulmonary)\*  
Cryptococcosis (extrapulmonary)  
Cryptosporidiosis chronic intestinal(> 1 month duration)  
Cytomegalovirus diseases (other than in liver, spleen or nodes)  
Cytomegalovirus retinitis (with loss of vision)\*,<sup>†</sup>  
Encephalopathy, HIV-related (dementia)\*  
Herpes simplex: chronic ulcer(s) (> 1 month duration) or bronchitis, pneumonitis or esophagitis  
Histoplasmosis (disseminated or extrapulmonary)\*  
Isosporiasis, chronic intestinal (> 1 month duration)\*  
Kaposi's sarcoma<sup>†</sup>  
Lymphoma, Burkitt's (or equivalent term)\*  
Lymphoma, immunoblastic (or equivalent term)\*  
Lymphoma (primary in brain)  
Mycobacterium avium complex or M. kansasii (disseminated or extrapulmonary)\*  
Mycobacterium of other species or unidentified species\*<sup>†</sup>  
M. tuberculosis (disseminated or extrapulmonary)\*  
M. tuberculosis (pulmonary)\*  
Pneumocystis carinii pneumonia<sup>†</sup>  
Progressive multifocal leukoencephalopathy  
Salmonella septicemia (recurrent)\*  
Toxoplasmosis of brain<sup>†</sup>  
Wasting syndrome due to HIV\*

**For pediatric cases only (< 15 years old)**

Bacterial infections (multiple or recurrent, excluding recurrent bacterial pneumonia)\*  
Lymphoid interstitial pneumonia and/or pulmonary lymphoid hyperplasia<sup>†</sup>

\* must have laboratory evidence of HIV infection

<sup>†</sup> may be diagnosed presumptively if laboratory evidence of HIV infections is present

## Acute Flaccid Paralysis (AFP)

Disease Case Classification	
Confirmed 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 Barré Syndrome. Transient weakness (e.g. post-ictal weakness) should not be reported.
Probable Case	
National Surveillance	Clinical Cases
Provincial Surveillance	Clinical Cases
Type of Surveillance	Case-by-Case
Comments	The Expert Working Group on Polio Eradication has recommended that surveillance of AFP remain with the Canadian Pediatric Surveillance Program (CPSP). CPSP is undertaken by the Canadian Pediatric Society under contract with LCDC (name changed to PPHB, Population and Public Health Branch).
Date of Development	June 2003

# Amoebiasis

Disease Case Classification	
Confirmed Case	<p>Laboratory confirmation of infection with or without symptoms<sup>1</sup>:</p> <ul style="list-style-type: none"> <li>▪ Microscopic demonstration of trophozoites or cysts in fecal specimens, smears of aspirates or scrapings obtained by proctoscopy, or aspirates of abscesses or sections of tissue</li> <li>▪ Positive stool antigen detection test</li> <li>▪ Positive serology<sup>2</sup></li> </ul>
Probable Case	
National Surveillance	
Provincial Surveillance	Confirmed Cases
Type of Surveillance	Case-by-Case
Comments	<p>Clinical illness encompasses a wide spectrum of disease. However, “asymptomatic shedders” are the most important group from a public health point of view. This causes the utility of serology to be questionable as this group usually does not produce an antibody response.</p> <p>Amoebiasis, although rare, is of significant epidemiological concern, as it is transmitted by the fecal-oral route and has the potential to cause severe illness and, possibly death.</p> <p>Although the presence of amoebae may be misinterpreted as the cause of diarrhea in a person whose primary enteric illness is the result of another condition, the presence of the organism implies a break in water sanitation and/or other public health control mechanisms.</p>
Date of Development	June 2003

<sup>1</sup> Clinical disease varies from mild abdominal discomfort with diarrhea (with or without blood, mucus) alternating with periods of constipation and/or remission to amoebic dysentery (fevers, chills, bloody/mucoid diarrhea). Disseminated disease may occur, causing liver (most common), lung or brain abscess.

<sup>2</sup> Antibody response in amoebiasis is only seen when tissue invasion has occurred, and may represent past or present disease. Serology is almost always negative in asymptomatic carriers.

## \*Anthrax

Disease Case Classification	
Confirmed Case	Clinical illness <sup>1</sup> with laboratory confirmation of infection: <ul style="list-style-type: none"> <li>▪ Isolation of <i>Bacillus anthracis</i> from an appropriate clinical specimen</li> </ul> <p><b>OR</b></p> <ul style="list-style-type: none"> <li>▪ Demonstration of <i>B. anthracis</i> in a clinical specimen by immunofluorescence</li> </ul>
Probable Case	Suspected case that has <ul style="list-style-type: none"> <li>▪ A positive reaction to allergic skin test (in non-vaccinated individuals)</li> </ul> <p><b>OR</b></p> <ul style="list-style-type: none"> <li>▪ Positive PCR for <i>B. anthracis</i><sup>2</sup></li> </ul>
Suspect Case	Clinical illness <sup>1</sup> in a person who is epidemiologically linked to a confirmed or suspected animal case or contaminated animal product
Suspected Deliberate Release	Two or more suspect cases that are linked in time and place, especially geographically related groups of illness following a wind direction pattern
National Surveillance	Confirmed, Probable and Suspect Cases
Provincial Surveillance	Confirmed, Probable and Suspect Cases
Type of Surveillance	Case-by-Case
Comments	
Date of Development	June 2003

<sup>1</sup> Clinical illness: acute onset of symptoms characterized by several distinct clinical forms, including the following:

**Cutaneous:** a skin lesions evolving during a period of 2-6 days from a papule, through a vesicular stage, to a depressed black eschar;

**Inhalation:** a brief prodrome resembling a viral illness, followed by development of hypoxia and dyspnea, with radiographic evidence of mediastinal widening;

**Intestinal:** severe abdominal distress characterized by nausea, vomiting, anorexia and followed by fever and signs of septicemia;

**Oropharyngeal:** mucosal lesion in the oral cavity or oropharynx, cervical adenopathy, edema and fever

<sup>2</sup> PCR will be used to confirm cases as it becomes available  
Alberta Case Definition Manual 2003

## \*Botulism

Disease Case Classification	
<b>Foodborne Botulism</b> Confirmed Case	Laboratory confirmation of infection with or without symptoms: <ul style="list-style-type: none"> <li>▪ Detection of <i>Clostridium botulinum</i> toxin in serum, stool, gastric aspirate, or food</li> </ul> <b>OR</b> <ul style="list-style-type: none"> <li>▪ Isolation of <i>C. botulinum</i> from stool or gastric aspirate</li> </ul>
Probable Case	Clinical illness <sup>1</sup> in a person: <ul style="list-style-type: none"> <li>▪ Who is epidemiologically linked to a confirmed case of food borne botulism</li> </ul> <b>OR</b> <ul style="list-style-type: none"> <li>▪ In whom there is epidemiological evidence of exposure to a probable food source</li> </ul>
<b>Wound Botulism</b> Confirmed Case	Laboratory confirmation of infection: <ul style="list-style-type: none"> <li>▪ Detection of <i>C. botulinum</i> in serum</li> </ul> <b>AND</b> <ul style="list-style-type: none"> <li>▪ Presence of wound infected with <i>C. botulinum</i></li> </ul> <b>OR</b> <ul style="list-style-type: none"> <li>▪ Presence of a freshly infected wound in the two weeks before symptoms and no evidence of consumption of food contaminated with <i>C. botulinum</i></li> </ul>
<b>Infant (Intestinal) Botulism<sup>2</sup></b> Confirmed Case	Laboratory confirmation with symptoms compatible with botulism in a person less than one year of age <sup>3</sup> OR greater than one year of age with altered gastrointestinal anatomy or microflora: <ul style="list-style-type: none"> <li>▪ Detection of botulinum toxin in stool or serum</li> </ul> <b>OR</b> <ul style="list-style-type: none"> <li>▪ Isolation of <i>C. botulinum</i> from the patient's stool, or at autopsy</li> </ul>
Suspect Case ( <b>All types</b> )	Clinical illness <sup>1</sup> in a person without laboratory confirmed infection or an epidemiological link.
National Surveillance	Confirmed, Probable (foodborne) and Suspect Cases
Provincial Surveillance	Confirmed, Probable (foodborne) and Suspect Cases
Type of Surveillance	Case-by-Case
Comments	<u>Food borne</u> – identification of organisms in a suspected food is helpful but not diagnostic because botulinum spores are ubiquitous. Therefore, the presence of toxin in a suspected contaminated food source is more significant.
Date of Development	June 2003

<sup>1</sup> Clinical illness is characterized by diplopia, blurred vision, and bulbar weakness. Symmetric paralysis may progress rapidly.

<sup>2</sup> Intestinal botulism is the proposed new designation for what had been called infant botulism.

<sup>3</sup> Clinical illness in infants is characterized by constipation, poor feeding, and failure to thrive (may be followed by progressive weakness, impaired respiration, and death).

# Brucellosis

Disease Case Classification	
Confirmed Case	<p>Clinical illness<sup>1</sup> with laboratory confirmation of infection:</p> <ul style="list-style-type: none"> <li>▪ Isolation of <i>Brucella</i> sp from an appropriate clinical specimen</li> </ul> <p><b>OR</b></p> <ul style="list-style-type: none"> <li>▪ 4-fold or greater rise in <i>Brucella</i> agglutination titre between acute- and convalescent-phase serum specimens obtained 2 or more weeks apart and studied at the same laboratory</li> </ul> <p><b>OR</b></p> <ul style="list-style-type: none"> <li>▪ Demonstration by immunofluorescence of <i>Brucella</i> sp in an appropriate clinical specimen</li> </ul>
Probable Case	<ul style="list-style-type: none"> <li>▪ Clinical illness<sup>1</sup> in a person who is epidemiologically linked to a confirmed case</li> </ul> <p><b>OR</b></p> <ul style="list-style-type: none"> <li>▪ Clinical illness<sup>1</sup> with supportive serology (<i>Brucella</i> agglutination titre of 160 or higher in one or more serum specimens obtained after onset of symptoms)</li> </ul>
National Surveillance	Confirmed Cases
Provincial Surveillance	Confirmed Cases
Type of Surveillance	Case-by-Case
Comments	
Date of Development	June 2003

<sup>1</sup> Clinical illness is characterized by acute or insidious onset of fever, night sweats, undue fatigue, anorexia, weight loss, headache, and arthralgia.

## Calicivirus Infection

Disease Case Classification	<b>Including:</b> Norwalk, Norwalk-like viruses and other small round structured viruses (SRSVs).
Confirmed Case	Clinical illness <sup>1</sup> with laboratory confirmation of infection: <ul style="list-style-type: none"> <li>▪ Detection of virus in stool by EM, RIA or molecular methods, when available</li> </ul> <p><b>OR</b></p> <ul style="list-style-type: none"> <li>▪ Greater than fourfold rise in antibody titre to Norwalk virus or Norwalk-like virus in acute and convalescent sera</li> </ul>
Probable Case	Clinical illness in a person who is epidemiologically linked to a confirmed case
National Surveillance	
Provincial Surveillance	Laboratory
Type of Surveillance	Laboratory
Comments	
Date of Development	June 2003

<sup>1</sup> Clinical illness is characterized by nausea, vomiting, diarrhea, and abdominal pain. Myalgia, headache, malaise, and low-grade fever occur less often.

# Campylobacteriosis

Disease Case Classification	
Confirmed Case	Laboratory confirmation of infection with or without symptoms: <ul style="list-style-type: none"> <li>▪ Isolation of <i>Campylobacter</i> sp. from an appropriate clinical specimen</li> </ul>
Probable Case	<ul style="list-style-type: none"> <li>▪ Clinical illness<sup>1</sup> in a person who is epidemiologically linked to a confirmed case</li> <li>▪ Clinical illness<sup>1</sup> in a person from whom <i>Campylobacter</i> sp. is not isolated upon culture of a clinical specimen, but characteristic bacterial forms are visualized upon microscopic exam</li> </ul>
National Surveillance	Confirmed Cases
Provincial Surveillance	Confirmed Cases
Type of Surveillance	Case-by-Case
Comments	
Date of Development	June 2003

<sup>1</sup> Clinical illness is characterized by an infection that may result in diarrheal illness of variable severity.

# Chancroid

Disease Case Classification	
Confirmed Case	Isolation of <i>H. ducreyi</i> by standardised, validated and approved laboratory techniques (e.g., culture and PCR) from a clinical specimen
Probable Case	
National Surveillance	
Provincial Surveillance	Confirmed Cases
Type of Surveillance	Case-by-Case
Comments	Cases rare, therefore there is no value in collecting information on probable cases.
Date of Development	June 2003

# Chlamydial Infections

Disease Case Classification	
<b>Genital Infections</b> Confirmed Case	Laboratory confirmation of infection: <ul style="list-style-type: none"> <li>▪ Detection of <i>Chlamydia trachomatis</i> by standardized, validated and approved laboratory techniques (culture, molecular diagnostic tests, antigen detection and fluorescent antibody tests) in genitourinary specimens</li> </ul>
<b>Extra-genital Infections</b> Confirmed Case	Laboratory confirmation of infection: <ul style="list-style-type: none"> <li>▪ Detection of <i>C. trachomatis</i> by standardized, validated and approved laboratory techniques (culture, molecular diagnostic tests, antigen detection and fluorescent antibody tests) from rectum, conjunctiva, and other extra-genital sites</li> </ul>
<b>Perinatally Acquired Infections</b> Confirmed Case	Laboratory confirmation of infection: <ul style="list-style-type: none"> <li>▪ Detection of <i>C. trachomatis</i> by standardized, validated and approved laboratory techniques (culture, molecular diagnostic tests, antigen detection and fluorescent antibody tests) in nasopharyngeal</li> </ul> <b>OR</b> <ul style="list-style-type: none"> <li>▪ Other respiratory tract specimens from an infant who developed pneumonia in the first 6 months of life</li> </ul> <b>OR</b> <ul style="list-style-type: none"> <li>▪ Detection of <i>C. trachomatis</i> by standardized, validated and approved laboratory techniques (culture, molecular diagnostic tests, antigen detection and fluorescent antibody tests) in conjunctival specimens from an infant who developed conjunctivitis in the first month of life</li> </ul>
Probable Case	
National Surveillance	Confirmed Cases
Provincial Surveillance	Confirmed Cases
Type of Surveillance	Case-by-Case
Comments	Health Canada's definition was adapted to include currently available laboratory techniques to be consistent with other provincial case definitions.
Date of Development	June 2003

## Cholera (O1 & O39)

Disease Case Classification	
Confirmed Case	Clinical illness <sup>1</sup> with laboratory confirmation of infection: <ul style="list-style-type: none"><li>▪ Isolation of cholera toxin-producing <i>Vibrio</i> serovar O1 or O139 from vomitus or stool</li><li>▪ Serologic evidence of recent infection</li></ul>
Probable Case	Clinical illness <sup>1</sup> in a person who is epidemiologically linked to a confirmed case
National Surveillance	Confirmed Cases
Provincial Surveillance	Confirmed and Probable Cases
Type of Surveillance	Case-by-Case
Comments	
Date of Development	June 2003

<sup>1</sup> Clinical illness is characterized by diarrhea and/or vomiting. The severity of illness may vary.

## Congenital Cytomegalovirus (CMV)

Disease Case Classification	
Confirmed Case	Laboratory confirmation of infection with or without symptoms: <ul style="list-style-type: none"> <li>▪ Virus isolation from urine within the first two weeks of life</li> <li>▪ Detection of virus from an appropriate specimen within the first two weeks of life by molecular diagnostic techniques, when available</li> <li>▪ Histopathological evidence of CMV inclusion disease from appropriate clinical specimens</li> </ul>
Probable Case	Clinical illness <sup>1</sup> in a neonate <sup>2</sup> born to a female with serologically confirmed primary CMV infection during pregnancy
National Surveillance	
Provincial Surveillance	Confirmed and Probable Cases
Type of Surveillance	Case-by-Case
Comments	
Date of Development	June 2003

<sup>1</sup> Clinical illness includes stillbirth, intrauterine growth retardation, fulminate cytomegalic inclusion disease (jaundice, hepatosplenomegaly, petechial rash, multiple organ involvement) and/or central nervous system findings (microcephaly, motor disability, chorioretinitis, cerebral calcifications). There may be onset of lethargy, respiratory distress or seizures soon after birth.

<sup>2</sup> For the purpose of this manual, a neonate is defined as a newborn up to and including 28 days of age.

# Congenital Rubella Infection

Disease Case Classification	
Confirmed Case	<p>A case with laboratory confirmation of infection but with no clinically compatible manifestations:</p> <ul style="list-style-type: none"> <li>▪ Isolation of rubella virus from an appropriate clinical specimen</li> </ul> <p><b>OR</b></p> <ul style="list-style-type: none"> <li>▪ Detection of rubella-specific IgM in the absence of recent immunization with rubella-containing vaccine</li> </ul> <p><b>OR</b></p> <ul style="list-style-type: none"> <li>▪ Persistence of rubella-specific IgG at elevated levels for longer than would be expected from passive transfer of maternal antibody, or in the absence of recent immunization</li> </ul>
Probable Case	
National Surveillance	Confirmed Cases
Provincial Surveillance	Confirmed Cases
Type of Surveillance	Case-by-Case
Comments	
Date of Development	June 2003

# Congenital Rubella Syndrome (CRS)

Disease Case Classification	
Confirmed Case	<p><i>Live birth:</i> <u>two</u> clinically compatible manifestations (any combination from Table 1, Columns A and B) with laboratory confirmation of infection:</p> <ul style="list-style-type: none"> <li>▪ Isolation of rubella virus from an appropriate clinical specimen</li> </ul> <p><b>OR</b></p> <ul style="list-style-type: none"> <li>▪ Detection of rubella-specific IgM in the absence of recent immunization with rubella-containing vaccine</li> </ul> <p><b>OR</b></p> <ul style="list-style-type: none"> <li>▪ Rubella-specific IgG persisting at elevated levels for longer than would be expected from passive transfer of maternal antibody, or in the absence of recent immunization</li> </ul> <p><i>Still birth:</i> <u>two</u> clinically compatible manifestations with isolation of rubella virus from an appropriate clinical specimen</p>
Probable Case	<p>A case that has at least</p> <ul style="list-style-type: none"> <li>▪ any <u>two</u> clinically compatible manifestations listed in Table 1, column A</li> </ul> <p><b>OR</b></p> <ul style="list-style-type: none"> <li>▪ <u>one</u> manifestation listed in Table 1, column A, plus <u>one</u> listed in Table 1, column B, in the absence of appropriate laboratory tests</li> </ul> <p><b>NOTE:</b> The following cannot be classified as a CRS case:</p> <ul style="list-style-type: none"> <li>▪ Rubella antibody titre absent in the infant</li> </ul> <p><b>OR</b></p> <ul style="list-style-type: none"> <li>▪ Rubella antibody titre absent in the mother</li> </ul> <p><b>OR</b></p> <ul style="list-style-type: none"> <li>▪ Rubella antibody titre declining in the infant consistent with the normal decline after birth of passively transferred maternal antibody</li> </ul>
National Surveillance	Confirmed Cases
Provincial Surveillance	Confirmed and Probable Cases
Type of Surveillance	Case-by-Case
Comments	
Date of Development	June 2003

**Table 1: Congenital Rubella Syndrome - Clinically Compatible Manifestations**

<b>Column A</b>	<b>Column B</b>
<ol style="list-style-type: none"> <li>1. Cataracts or congenital glaucoma (either one or both count as one)</li> <li>2. Congenital heart defect</li> <li>3. Sensorineural hearing loss</li> <li>4. Pigmentary retinopathy</li> </ol>	<ol style="list-style-type: none"> <li>1. Purpura</li> <li>2. Hepatosplenomegaly</li> <li>3. Microcephaly</li> <li>4. Microphthalmia</li> <li>5. Mental retardation</li> <li>6. Meningoencephalitis</li> <li>7. Radiolucent bone disease</li> <li>8. Developmental or late onset conditions such as diabetes &amp; progressive panencephalitis &amp; any other conditions possibly caused by rubella virus.</li> </ol>

# Congenital Toxoplasmosis

Disease Case Classification	
Confirmed Case	<p>Laboratory confirmation of infection with or without symptoms:</p> <ul style="list-style-type: none"> <li>▪ Detection of IgA and/or IgM antibodies to <i>Toxoplasma gondii</i> from a single peripheral blood specimen</li> <li>▪ Detection of rising IgG titres in sequential sera</li> <li>▪ Isolation of <i>T.gondii</i> from placental tissue or body fluid in mice or cell culture</li> <li>▪ Microscopic demonstration of organism in body tissues or fluids on biopsy or autopsy</li> <li>▪ Detection of organism in CSF, blood, urine, or amniotic fluid by PCR (when available)</li> </ul>
Probable Case	<ul style="list-style-type: none"> <li>▪ Clinical illness<sup>1</sup> in a neonate<sup>2</sup> born to a female with primary toxoplasma infection during pregnancy</li> </ul> <p><b>OR</b></p> <ul style="list-style-type: none"> <li>▪ Clinical illness<sup>1</sup> in a neonate born to a female with reactivated toxoplasma infection (rare)</li> </ul> <p><b>OR</b></p> <ul style="list-style-type: none"> <li>▪ The presence of IgM antibodies against toxoplasma in cord serum</li> </ul>
National Surveillance	
Provincial Surveillance	Confirmed Cases
Type of Surveillance	Case-by-Case
Comments	
Date of Development	June 2003

<sup>1</sup> Fetal infection early in pregnancy may manifest as fetal death, chorioretinitis, brain damage with intracerebral calcifications, hydrocephaly, microcephaly, fever, jaundice, rash, hepatosplenomegaly, or convulsions. Fetal infection later in pregnancy results in mild or sub clinical disease with delayed manifestations (recurrent or chronic chorioretinitis, developmental delay, hearing loss, or blindness).

<sup>2</sup> For the purpose of this manual, a neonate is defined as a newborn up to and including 28 days of age.

# Creutzfeldt-Jakob Disease – Classic (CJD)

Disease Case Classification	
<p><b>Sporadic case</b> Confirmed CJD</p>	<ul style="list-style-type: none"> <li>▪ Spongiform encephalopathy in cerebral and/or cerebellar cortex and/or subcortical grey matter</li> </ul> <p><b>AND/OR</b></p> <ul style="list-style-type: none"> <li>▪ Encephalopathy with prion protein (PrP) immunoreactivity (plaque and/or diffuse synaptic and/or patchy/perivacuolar types)</li> </ul> <p><b>AND/OR</b></p> <ul style="list-style-type: none"> <li>▪ Scrapie associated fibrils (SAF)</li> </ul>
<p>Probable case</p>	<ul style="list-style-type: none"> <li>▪ Rapidly progressive dementia</li> </ul> <p><b>AND</b></p> <ul style="list-style-type: none"> <li>▪ Typical electroencephalogram (EEG)</li> </ul> <p><b>AND</b></p> <ul style="list-style-type: none"> <li>▪ At least two out of the following four clinical features: myoclonus; visual or cerebellar disturbances (ataxia); pyramidal/extrapyramidal dysfunction; akinetic mutism</li> </ul> <p><b>OR</b></p> <ul style="list-style-type: none"> <li>▪ Rapidly progressive dementia</li> </ul> <p><b>AND</b></p> <ul style="list-style-type: none"> <li>▪ Two out of four clinical features listed above</li> </ul> <p><b>AND</b></p> <ul style="list-style-type: none"> <li>▪ Duration of illness &lt; 2 years</li> </ul> <p><b>AND</b></p> <ul style="list-style-type: none"> <li>▪ 14-3-3 positivity (in CSF)<sup>1</sup></li> </ul>
<p>Possible CJD</p>	<ul style="list-style-type: none"> <li>▪ Rapidly progressive dementia</li> </ul> <p><b>AND</b><sup>1</sup></p> <ul style="list-style-type: none"> <li>▪ Two out of four clinical features listed above</li> </ul> <p><b>AND</b></p> <ul style="list-style-type: none"> <li>▪ Duration of illness &lt; 2 years</li> </ul>
<p><b>Iatrogenic CJD</b></p>	<ul style="list-style-type: none"> <li>▪ Progressive cerebellar syndrome in a pituitary hormone recipient</li> <li>▪ Sporadic CJD with a recognized exposure risk (e.g. dura mater transplant)</li> </ul>
<p><b>Familial CJD</b></p>	<ul style="list-style-type: none"> <li>▪ Confirmed or probable sporadic CJD <i>plus</i> confirmed or probable CJD in a first degree relative</li> </ul> <p><b>AND/OR</b></p> <ul style="list-style-type: none"> <li>▪ Neuropsychiatric disorder <i>plus</i> disease-specific PrP mutation</li> </ul>
<ul style="list-style-type: none"> <li>▪ GSS in a family with dominantly inherited progressive ataxia</li> </ul> <p><b>AND/OR</b></p> <ul style="list-style-type: none"> <li>▪ Dementia and one of a variety of PrP gene mutations:</li> <li>▪ Encephalo(myelo)pathy with multicentric PrP plaques</li> </ul>	
<p><b>Familial Fatal Insomnia (FFI)</b></p>	<ul style="list-style-type: none"> <li>▪ FFI in a member of a family with PrP178 mutation:</li> <li>▪ Thalamic degeneration, variable spongiform change</li> </ul>

<sup>1</sup> 14-3-3 protein positivity must be present with other criteria AND only for probable case definition because of limited usefulness due to poor specificity.

	in cerebrum
<b>Kuru</b>	<ul style="list-style-type: none"> <li>▪ Kuru in the Fore population of Papua New Guinea:</li> </ul> <p>While most neurological features correspond to those of CJD with plaques, Kuru should be diagnosed only in members of the Fore population in Papua New Guinea</p>
National Surveillance	Confirmed, Probable and Possible Cases
Provincial Surveillance	Confirmed, Probable and Possible Cases
Type of Surveillance	Case-by-Case Creutzfeld-Jakob Disease Surveillance System (CJD-SS)
Comments	
Date of Development	June 2003

# Creutzfeldt-Jakob Disease - Variant (vCJD)

Disease Case Classification	
Confirmed Case <sup>1</sup>	<p>Progressive neuropsychiatric disorder with neuropathologic confirmation of infection:</p> <ul style="list-style-type: none"> <li>▪ Abundant Kuru-type amyloid plaques surrounded by vacuoles (clearly visible in hematoxylin and eosin [H &amp; E] and periodic acid-Schiff [PAS] stains)</li> </ul> <p><b>AND</b></p> <ul style="list-style-type: none"> <li>▪ Spongiform change most prominent in the basal ganglia</li> </ul> <p><b>AND</b></p> <ul style="list-style-type: none"> <li>▪ Marked thalamic astrocytosis</li> </ul> <p><b>AND</b></p> <ul style="list-style-type: none"> <li>▪ Abundant PrP deposits on immunocytochemistry, including prominent “pericellular” deposition in cerebral and cerebellar cortex (especially in the molecular layer)</li> </ul>
Probable Case <sup>2</sup>	<ul style="list-style-type: none"> <li>▪ Progressive neuropsychiatric disorder</li> </ul> <p><b>AND</b></p> <ul style="list-style-type: none"> <li>▪ Duration of illness &gt; 6 months</li> </ul> <p><b>AND</b></p> <ul style="list-style-type: none"> <li>▪ Routine investigations do not suggest an alternative diagnosis</li> </ul> <p><b>AND</b></p> <ul style="list-style-type: none"> <li>▪ No history of potential iatrogenic exposure</li> </ul> <p><b>AND</b></p> <ul style="list-style-type: none"> <li>▪ Four out of five clinical features<sup>3</sup></li> </ul> <p><b>AND</b></p> <ul style="list-style-type: none"> <li>▪ Does not have the “typical” EEG appearance of classical CJD (or no EEG performed)</li> </ul> <p><b>AND</b></p> <p>Posterior thalamic high signal on magnetic resonance imaging (MRI) scan (after review by CJD surveillance staff)</p>
Possible Case	Progressive neuropsychiatric disorder

<sup>1</sup> In confirmed cases, the diagnosis will have been pathologically confirmed; in most cases by post-mortem examination of brain tissue (rarely it may be possible to establish a confirmed diagnosis by brain biopsy while the patient is still alive).

<sup>2</sup> Are those cases who fulfil the “probable” criteria set out and are either still alive, or have died and await post-mortem pathology confirmation

<sup>3</sup> Clinical features include:

- early psychiatric symptoms
- persistent painful sensory symptoms
- ataxia
- myoclonus, chorea or dystonia
- dementia

	<p><b>AND</b></p> <ul style="list-style-type: none"> <li>▪ Duration of illness &gt; 6 months</li> </ul> <p><b>AND</b></p> <ul style="list-style-type: none"> <li>▪ Routine investigations do not suggest an alternative diagnosis</li> </ul> <p><b>AND</b></p> <ul style="list-style-type: none"> <li>▪ No history of potential iatrogenic exposure</li> </ul> <p><b>AND</b></p> <ul style="list-style-type: none"> <li>▪ Four out of five clinical features<sup>3</sup></li> </ul> <p><b>AND</b></p> <ul style="list-style-type: none"> <li>▪ Does not have the “typical” EEG appearance of classical CJD (or no EEG performed)</li> </ul>
National Surveillance	Confirmed, Probable and Possible Cases
Provincial Surveillance	Confirmed, Probable and Possible Cases
Type of Surveillance	Case-by-Case Creutzfeld-Jakob Disease Surveillance System (CJD-SS) Canadian Pediatric Surveillance System (CPSP)
Comments	<p><b>NOTE:</b> Genetic analysis is required in every suspected case to exclude familial CJD; patients should have no history of exposure to human pituitary-derived products or any other source of iatrogenic CJD.</p> <ul style="list-style-type: none"> <li>▪ 14-3-3 protein positivity of CSF is not useful in the investigations in variant CJD</li> </ul>
Date of Development	June 2003

# Crimean Congo Haemorrhagic Fever

Disease Case Classification	
Confirmed Case	<p>Clinical illness<sup>1</sup> with laboratory confirmation of infection or a probable case with laboratory confirmation of infection:</p> <ul style="list-style-type: none"> <li>▪ Isolation of virus from serum or urine specimens, or throat secretions</li> </ul> <p><b>OR</b></p> <ul style="list-style-type: none"> <li>▪ Demonstration of virus antigen in autopsy tissue (liver, spleen) by immunohistochemical techniques or in serum samples by enzyme-linked immunosorbent assay (ELISA)</li> </ul> <p><b>OR</b></p> <ul style="list-style-type: none"> <li>▪ Demonstration of a fourfold rise in IgG antibody</li> </ul> <p><b>OR</b></p> <ul style="list-style-type: none"> <li>▪ Demonstration of specific IgM antibody by ELISA, Immunofluorescent assay (IFA) or Western Blot</li> </ul>
Probable Case	<p>A case with symptoms compatible with the clinical illness<sup>1</sup> and a history within the three weeks before onset of fever of the following:</p> <ul style="list-style-type: none"> <li>▪ Travel in a specific area of a country where an outbreak of viral haemorrhagic fever (VHF) has recently occurred</li> </ul> <p><b>OR</b></p> <ul style="list-style-type: none"> <li>▪ Direct contact with blood or other body fluid secretions or excretions of a person or animal with a confirmed or probable case of VHF</li> </ul> <p><b>OR</b></p> <ul style="list-style-type: none"> <li>▪ Work in a laboratory or animal facility that handles haemorrhagic fever viruses</li> </ul> <p><b>OR</b></p> <ul style="list-style-type: none"> <li>▪ Detection of viral genomic sequences in serum or autopsy tissue by PCR</li> </ul>
Suspected Case	A case that is compatible with the clinical description
National Surveillance	Confirmed, Probable and Suspect Cases
Provincial Surveillance	Confirmed, Probable and Suspect Cases
Type of Surveillance	Case-by-Case
Comments	
Date of Development	June 2003

<sup>1</sup> Clinical illness: sudden onset of fever, myalgia (aching muscles), dizziness, neck pain and stiffness, backache, headache, sore eyes and photophobia (sensitivity to light). There may be nausea, vomiting and sore throat early on, which may be accompanied by diarrhea and generalised abdominal pain. Over the next few days, the patient may experience sharp mood swings, and may become confused and aggressive. After two to four days, the agitation may be replaced by sleepiness, depression and lassitude, and the abdominal pain may localize to the right upper quadrant, with detectable hepatomegaly (liver enlargement). Other clinical signs which emerge include tachycardia (fast heart rate), lymphadenopathy (enlarged lymph nodes), and a petechial rash (a rash caused by bleeding into the skin), both on internal mucosal surfaces, such as in the mouth and throat, and on the skin. The petechiae may give way to ecchymoses (like a petechial rash, but covering larger areas) and other haemorrhagic phenomena such as melaena (bleeding from the upper bowel, passed as altered blood in the faeces), haematuria (blood in the urine), epistaxis (nosebleeds) and bleeding from the gums. There is usually evidence of hepatitis. The severely ill may develop hepatorenal (i.e., liver and kidney) and pulmonary failure after the fifth day of onset of symptoms.

# Cryptosporidiosis

Disease Case Classification	
Confirmed Case	<p>Laboratory confirmation of infection with or without symptoms:</p> <ul style="list-style-type: none"> <li>▪ Demonstration of <i>Cryptosporidium</i> oocysts in stool</li> </ul> <p><b>OR</b></p> <ul style="list-style-type: none"> <li>▪ Demonstration of <i>Cryptosporidium</i> in intestinal fluid or small bowel biopsy specimens</li> </ul> <p><b>OR</b></p> <ul style="list-style-type: none"> <li>▪ Demonstration of <i>Cryptosporidium</i> antigen in stool by a specific immunodiagnostic test (e.g. ELISA)</li> </ul> <p><b>OR</b></p> <ul style="list-style-type: none"> <li>▪ Demonstration of <i>Cryptosporidium</i> DNA in stool, intestinal fluid, or small bowel biopsy specimens by molecular methods when available</li> </ul>
Probable Case	Clinical illness <sup>1</sup> in a person who is epidemiologically linked to a confirmed case
National Surveillance	
Provincial Surveillance	Confirmed Cases
Type of Surveillance	Case-by-Case
Comments	
Date of Development	June 2003. Revised July 2007.

<sup>1</sup>Clinical illness is characterized by diarrhea, abdominal cramps, loss of appetite, low-grade fever, nausea, and vomiting. The illness may be prolonged in severely immunocompromised persons.

# Cyclosporiasis

Disease Case Classification	
Confirmed Case	<p>Laboratory confirmation of infection with or without symptoms:</p> <ul style="list-style-type: none"> <li>▪ Demonstration of <i>Cyclospora</i> sp. in stool, duodenal/jejunal aspirate, or small bowel biopsy specimen</li> </ul> <p><b>OR</b></p> <ul style="list-style-type: none"> <li>▪ Demonstration of <i>Cyclospora</i> DNA by molecular methods in stool when available, duodenal/jejunal aspirate, or small bowel biopsy specimen</li> </ul>
Probable Case	Clinical illness <sup>1</sup> in a person who is epidemiologically linked to a confirmed case
National Surveillance	Confirmed Cases
Provincial Surveillance	Confirmed Cases
Type of Surveillance	Case-by-Case
Comments	
Date of Development	June 2003. Revised July 2007.

<sup>1</sup>Clinical illness is characterized by watery diarrhea, loss of appetite, abdominal bloating and cramping, increased flatus, nausea, fatigue, and low-grade fever.

## Dengue Fever

Disease Case Classification	
Confirmed Case	<p>Clinical illness<sup>1</sup> with laboratory confirmation of infection:</p> <ul style="list-style-type: none"> <li>▪ Isolation of dengue virus from serum, plasma, leukocytes or autopsy tissue samples</li> </ul> <p><b>OR</b></p> <ul style="list-style-type: none"> <li>▪ Demonstration of a fourfold or greater rise or fall in reciprocal Immunoglobulin G (IgG) or Immunoglobulin M (IgM) antibody titres to one or more dengue virus antigens in paired serum samples</li> </ul> <p><b>OR</b></p> <ul style="list-style-type: none"> <li>▪ Demonstration of dengue virus antigen in autopsy tissue by immunohistochemistry or immunofluorescence or in serum samples by EIA</li> </ul> <p><b>OR</b></p> <ul style="list-style-type: none"> <li>▪ Detection of viral genomic sequences in autopsy tissue, serum or CSF samples by PCR</li> </ul>
Probable Case	<p>Clinical illness<sup>1</sup> with one or more of the following:</p> <ul style="list-style-type: none"> <li>▪ Supportive serologic findings (a reciprocal IgG antibody titre of greater than or equal to 1280 or a positive IgM antibody test on a single acute (late) - or convalescent-phase serum specimen to one or more dengue virus antigens)</li> </ul> <p><b>OR</b></p> <ul style="list-style-type: none"> <li>▪ Occurrence at the same location and time as other confirmed cases of dengue fever</li> </ul>
National Surveillance	Confirmed, Probable and Suspect Cases
Provincial Surveillance	Confirmed, Probable and Suspect Cases
Type of Surveillance	Case-by-Case
Comments	
Date of Development	June 2003

<sup>1</sup>. Clinical illness: a mosquito-borne acute febrile viral illness of 2-7 days duration with 2 or more of the following: headache, retro-ocular pain, muscle and joint pain, rash, hemorrhagic manifestations, leucopenia. Severe manifestations include dengue hemorrhagic fever, and dengue shock syndrome. Dengue hemorrhagic fever is defined as an acute febrile illness with minor or major bleeding phenomena, thrombocytopenia (less than or equal to 100,000/mm<sup>3</sup>), and evidence of plasma leakage documented by hemoconcentration (hematocrit increased by greater than or equal to 20%) or other objective evidence of increased capillary permeability. The definition of dengue shock syndrome follows all of the above criteria for dengue hemorrhagic fever and also includes hypotension or narrow pulse pressure (less than or equal to 20 mm Hg).

# Diphtheria

Disease Case Classification	
Confirmed Case	<p>Laboratory confirmation of infection:</p> <ul style="list-style-type: none"> <li>▪ Isolation of <i>Corynebacterium diphtheriae</i> from an appropriate clinical specimen</li> </ul> <p><b>OR</b></p> <ul style="list-style-type: none"> <li>▪ Histopathologic diagnosis of diphtheria</li> </ul> <p><b>OR</b></p> <ul style="list-style-type: none"> <li>▪ Epidemiological link (contact within 2 weeks prior to onset of symptoms) to a laboratory-confirmed case</li> </ul> <p><b>PLUS</b> at least one of the following:</p> <ul style="list-style-type: none"> <li>▪ 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: <ul style="list-style-type: none"> <li>▪ Gradually increasing stridor</li> <li>▪ Cardiac (myocarditis) and/or neurologic involvement (motor and/or sensory palsies) 1 to 6 weeks after onset</li> <li>▪ Death, with no known cause</li> </ul> </li> <li>▪ Systemic manifestations compatible with diphtheria in a person with an upper respiratory tract infection or infection at another site</li> </ul>
Probable Case	<p>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:</p> <ul style="list-style-type: none"> <li>▪ Gradually increasing stridor</li> <li>▪ Cardiac (myocarditis) and/or neurological involvement (motor and/or sensory palsies) 1 to 6 weeks after onset</li> <li>▪ Death, with no known cause</li> </ul>
Suspect Case	<p>Upper respiratory tract infection (nasopharyngitis, laryngitis, or tonsillitis) with a nasal, tonsillar, pharyngeal and/or laryngeal membrane  <b>(NOTE: the membrane <u>must</u> be present)</b></p>
National Surveillance	Confirmed Cases
Provincial Surveillance	Confirmed, Probable and Suspect Cases
Type of Surveillance	Case-by-Case
Comments	
Date of Development	June 2003

## Eastern Equine Encephalitis (EEE) Arboviral Encephaliditides

Disease Case Classification	<b>Includes:</b> Eastern Equine Encephalitis (EEE); Powassan Encephalitis; St. Louis Encephalitis; Western Equine Encephalitis (WEE).
Confirmed Case	Clinical illness <sup>1</sup> with laboratory confirmation of infection: <ul style="list-style-type: none"> <li>▪ Fourfold or greater increase in serum antibody titre between acute- and convalescent-phase serum specimens ideally taken at least 2 weeks apart and run in parallel at the same laboratory</li> <li>▪ Isolation of virus from or demonstration of viral antigen or genomic sequences in tissue, blood, cerebrospinal fluid (CSF), or other body fluid</li> <li>▪ Specific immunoglobulin M (IgM) antibody by enzyme immunoassay (EIA) antibody captured in CSF or serum<sup>2</sup></li> </ul>
Probable Case	Clinical illness <sup>1</sup> occurring during a period when arboviral transmission is likely, and with a stable (less than or equal to twofold change) elevated antibody titre to an arbovirus <sup>3</sup>
National Surveillance	
Provincial Surveillance	Confirmed Cases (WEE confirmed and Probable)
Type of Surveillance	Case-by-Case
Comments	Reporting should be etiology-specific, that is i.e. Eastern Equine Encephalitis (EEE), St. Louis Encephalitis, Western Equine Encephalitis (WEE)
Date of Development	June 2003

<sup>1</sup> Clinical illness is characterized by a febrile illness of variable severity associated with neurological symptoms ranging from headache to aseptic meningitis or encephalitis. Arboviral encephalitis cannot be distinguished clinically from other central nervous system (CNS) infections. Symptoms can include headache, confusion or other alteration in sensorium, nausea, and vomiting. Signs may include fever, meningismus, cranial nerve palsies, paresis or paralysis, sensory deficits, altered reflexes, convulsions, abnormal movements, and coma of varying degree.

<sup>2</sup> Serum IgM antibodies alone should be confirmed by demonstration of immunoglobulin G antibodies by another serologic assay (e.g., neutralization or hemagglutination inhibition).

<sup>3</sup> e.g. greater than or equal to 320 by hemagglutination inhibition, greater than or equal to 128 by complement fixation, greater than or equal to 256 by immunofluorescence, and greater than or equal to 160 by neutralization, or greater than or equal to 400 by enzyme immunoassay IgM).

## \*Ebola Haemorrhagic Fever

Disease Case Classification	
Confirmed Case	<p>Clinical illness<sup>1</sup> with laboratory confirmation of infection or a probable case with laboratory confirmation of infection:</p> <ul style="list-style-type: none"> <li>▪ Isolation of virus from serum or urine specimens, or throat secretions</li> </ul> <p><b>OR</b></p> <ul style="list-style-type: none"> <li>▪ Demonstration of virus antigen in autopsy tissue (liver, spleen) by immunohistochemical techniques or in serum samples by enzyme-linked immunosorbent assay (ELISA)</li> </ul> <p><b>OR</b></p> <ul style="list-style-type: none"> <li>▪ Demonstration of a fourfold rise in IgG antibody</li> </ul> <p><b>OR</b></p> <ul style="list-style-type: none"> <li>▪ Demonstration of specific IgM antibody by ELISA, Immunofluorescent assay (IFA) or Western Blot</li> </ul>
Probable Case	<p>A case with symptoms compatible with the clinical illness<sup>1</sup> and a history within the three weeks before onset of fever of the following:</p> <ul style="list-style-type: none"> <li>▪ Travel in a specific area of a country where an outbreak of viral haemorrhagic fever (VHF) has recently occurred</li> </ul> <p><b>OR</b></p> <ul style="list-style-type: none"> <li>▪ Direct contact with blood or other body fluid secretions or excretions of a person or animal with a confirmed or probable case of VHF</li> </ul> <p><b>OR</b></p> <ul style="list-style-type: none"> <li>▪ Work in a laboratory or animal facility that handles haemorrhagic fever viruses</li> </ul> <p><b>OR</b></p> <ul style="list-style-type: none"> <li>▪ Detection of viral genomic sequences in serum or autopsy tissue by PCR</li> </ul>
Suspect Case	A case that is compatible with the clinical description
National Surveillance	Confirmed, Probable and Suspected Cases
Provincial Surveillance	Confirmed, Probable and Suspected Cases
Type of Surveillance	Case-by-Case
Comments	
Date of Development	June 2003

<sup>1</sup> Ebola and Marburg VHF illness: Sudden onset of fever, malaise, and headache followed by pharyngitis, vomiting, diarrhea, and shock. The accompanying haemorrhagic diathesis is often accompanied by hepatic damage, renal failure, involvement of the central nervous system, and terminal shock with multi-organ dysfunction.

## Enterovirus Infections

Disease Case Classification	<b>Includes:</b> Coxsackie A & B, Echovirus (formerly known as Picornaviruses)
Confirmed Case	Clinical illness <sup>1</sup> with laboratory confirmation of infection: <ul style="list-style-type: none"> <li>▪ Detection of virus in stool, rectal swab, throat swab or cerebrospinal fluid by viral isolation</li> <li>▪ Detection of virus in appropriate clinical specimen by molecular methods, when available</li> </ul>
Probable Case	Clinical illness in a person who is epidemiologically linked to a confirmed case
National Surveillance	
Provincial Surveillance	Laboratory
Type of Surveillance	Laboratory
Comments	Serology available but not practical
Date of Development	June 2003

<sup>1</sup> Enteroviruses are responsible for a wide array of clinical diseases affecting many organ systems, including neurological (meningitis, encephalitis, poliomyelitis), respiratory (common cold, conjunctivitis, stomatitis–herpangina–hand-foot-mouth syndrome, pharyngitis, tonsillitis, rhinitis, pleurodynia).

## Escherichia coli (E-coli) O157: H7

Disease Case Classification	
Confirmed Case	Laboratory confirmation of infection with or without symptoms: <ul style="list-style-type: none"> <li>▪ Isolation of verotoxin-producing <i>Escherichia coli</i> O157:H7 from an appropriate clinical specimen</li> </ul> <b>OR</b> <ul style="list-style-type: none"> <li>▪ Detection of the gene(s) associated with verotoxin production from an <i>E. coli</i> isolate by molecular diagnostic techniques</li> </ul>
Probable Case	Clinical illness <sup>1</sup> in a person who is epidemiologically linked to a confirmed case
National Surveillance	Confirmed Cases
Provincial Surveillance	Confirmed and Probable Cases
Type of Surveillance	Case-by-Case
Comments	EHEC cases must be considered separately from HUS as not all cases of HUS are due to EHEC
Date of Development	June 2003. Revised July 2007.

<sup>1</sup> Clinical illness is characterized by diarrhea (often bloody) and abdominal cramps, although asymptomatic infections do occur. Illness may be complicated by haemolytic uremic syndrome (HUS), thrombocytopenia purpura (TTP), or pulmonary edema with no other identifiable cause.

# Giardiasis

Disease Case Classification	
Confirmed Case	Laboratory confirmation of infection with or without symptoms: <ul style="list-style-type: none"> <li>▪ Demonstration of <i>Giardia lamblia</i> in stool, duodenal fluid or small bowel biopsy specimen</li> </ul> <b>OR</b> <ul style="list-style-type: none"> <li>▪ Demonstration of <i>G. lamblia</i> antigen in stool by a specific immunodiagnostic test (e.g. EIA)</li> </ul>
Probable Case	Clinical illness <sup>1</sup> in a person who is epidemiologically linked to a confirmed case
National Surveillance	Confirmed Cases
Provincial Surveillance	Confirmed and Probable Cases
Type of Surveillance	Case-by-Case
Comments	
Date of Development	June 2003. Revised July 2007.

<sup>1</sup> Clinical illness is characterized by diarrhea, abdominal cramps, bloating, weight loss, or malabsorption

# Gonococcal Infections

Disease Case Classification	
<b>Genital Infections</b> Confirmed Case	Laboratory confirmation of infection: Detection of <i>Neisseria gonorrhoeae</i> by standardized, validated and approved laboratory techniques (gram stain or urethral smears [males only], culture, molecular diagnostic and antigen detection tests) in genitourinary specimens
<b>Extra-genital Infections</b> Confirmed Case	Laboratory confirmation of infection: <ul style="list-style-type: none"> <li>▪ Detection of <i>N. gonorrhoeae</i> by standardized, validated and approved laboratory techniques (culture, molecular diagnostic and antigen detection tests) in specimens from pharynx, rectum, joint, conjunctiva, blood, and other extra-genital sites</li> </ul>
<b>Perinatally Acquired Infections</b> Confirmed Case	Laboratory confirmation of infection: <ul style="list-style-type: none"> <li>▪ Detection of <i>N. gonorrhoeae</i> by standardized, validated and approved laboratory techniques (culture, molecular diagnostic and antigen detection tests) in a neonate<sup>1</sup> leading to the diagnosis of gonococcal conjunctivitis (gonococcal ophthalmia neonatorum), scalp abscess, vaginitis, bacteremia, arthritis, meningitis or endocarditis.</li> </ul>
Probable Case	
National Surveillance	Confirmed Cases
Provincial Surveillance	Confirmed Cases
Type of Surveillance	Case-by-case
Comments	Health Canada's definition adapted to include currently available laboratory techniques to be consistent with other provincial case definitions.
Date of Development	June 2003

<sup>1</sup> For the purpose of this document, a neonate is defined as a newborn up to and including 28 days old.

# Group A Streptococcal Disease, Invasive (iGAS)

Disease Case Classification	
Confirmed Case	Laboratory confirmation of infection with or without clinical evidence of invasive disease <sup>1</sup> : <ul style="list-style-type: none"> <li>▪ Isolation of group A <i>Streptococcus</i> (<i>Streptococcus pyogenes</i>) from a normally sterile site<sup>2</sup></li> </ul>
Probable Case	Invasive disease <sup>1</sup> in the absence of another identified etiology and with isolation of group A <i>Streptococcus</i> from a nonsterile site
National Surveillance	Confirmed Cases
Provincial Surveillance	Confirmed and Probable Cases
Type of Surveillance	Case-by-Case
Comments	
Date of Development	June 2003. Revised December 2006.

The following manifestations of iGAS are to be reported **FMP**:

- Necrotizing Fasciitis
- Toxic Shock Syndrome, and
- Death.

<sup>1</sup> Clinical evidence of invasive disease may be manifest as several conditions. These include:

- a) Streptococcal toxic shock syndrome, which is characterized by hypotension (systolic blood pressure  $\leq 90$  mm Hg pressure in an adult and  $< 5$  percentile for age for children) and at least two of the following signs:
  - renal impairment (creatinine level  $\geq 177$   $\mu\text{mol/L}$  for adults)
  - coagulopathy (platelet count  $\leq 100,000/\text{mm}^3$  or disseminated intravascular coagulation)
  - liver function abnormality (SGOT, SGPT, or total bilirubin  $\geq 2$ x upper limit of normal)
  - adult respiratory distress syndrome
  - generalized erythematous macular rash that may desquamate
- b) Soft-tissue necrosis, including necrotizing fasciitis, myositis, or gangrene
- c) Meningitis
- d) Combination of the above.

<sup>2</sup> A normally sterile site is defined as:

blood, cerebrospinal fluid (CSF), pleural fluid, peritoneal fluid, pericardial fluid, deep tissue specimen taken during surgery (e.g., muscle collected during debridement for necrotizing fasciitis, abscess fluid), bone, or joint fluid.

This includes Pneumonia with isolation of GAS from a sterile site or bronchoalveolar lavage (BAL) when no other cause has been identified. This does not include middle ear or superficial wound aspirates

# Haemolytic Uremic Syndrome (HUS)

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## Disease Case Classification

### Confirmed Case<sup>1</sup>

#### **HUS D+: Diarrhea associated with HUS**

A prodrome of enteric symptoms (usually within previous 3 weeks) in a child under 16 years of age with the following features:

1. Acute renal impairment with serum creatinine:<sup>2</sup>
  - >50 µmol/L if <5 years
  - >60 µmol/L if 5-9 years
  - >90 µmol/L if 10-13 years
  - >110 µmol/L if >13 years
2. Microangiopathic haemolytic anemia (Hb<100g/L with fragmented red cells)<sup>2</sup>
3. Thrombocytopenia (<150 000 x 10<sup>9</sup>/L) in the absence of septicaemia, malignant hypertension, chronic uremia, collagen or vascular disorders.<sup>2</sup>

\*\*The above criteria may not all be present simultaneously.

\*\*Neurological impairment and/or fever may be present in TTP.

#### **PROBABLE CASE**

##### **HUS D+:**

An acute illness diagnosed as HUS or TTP that meets the laboratory criteria in a patient who does not have a clear history of acute or bloody diarrhea in preceding 3 weeks, and has no evidence of invasive *streptococcus pneumoniae* infection

##### **OR**

An acute illness diagnosed as HUS or TTP, that a) has onset within 3 weeks after onset of an acute or bloody diarrhea and b) meets the laboratory criteria except that microangiopathic changes are not confirmed.

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#### **HUS D-: *Streptococcus pneumoniae* associated**

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<sup>1</sup> Haemolytic uremic syndrome (HUS) is characterized by the acute onset of microangiopathic hemolytic anemia, renal injury, and low platelet count. Thrombotic thrombocytopenic purpura (TTP) also is characterized by these features but can include central nervous system (CNS) involvement and fever and may have a more gradual onset. Most cases of HUS (but few cases of TTP) occur after an acute gastrointestinal illness (usually diarrheal).

Anemia and renal injury, both of acute onset, are present at some time during the illness. A low platelet count can usually, but not always, be detected early in the illness, but it may then become normal or even high.

- Anemia with microangiopathic changes (i.e., schistocytes, burr cells, or helmet cells) on peripheral blood smear
- Renal injury (acute onset) evidenced by either hematuria, proteinuria, or elevated creatinine level (i.e., greater than or equal to 1.0 mg/dL in a child aged less than 13 years or greater than or equal to 1.5 mg/dL in a person aged greater than or equal to 13 years, or greater than or equal to 50% increase over baseline).

<sup>2</sup> Laboratory parameters as per Canadian Pediatric Society

**HUS (SPAH)/ Renal-hematological organ failures associated with invasive *Streptococcus pneumoniae* infections (RHOF-ISP)**

A child under 16 years of age with:

1. Evidence of invasive *Streptococcus pneumoniae* infection (blood or another normally sterile biological fluid, such as cerebrospinal, pericardial, articular, peritoneal, pleural) **excluding** middle ear, sinus, tracheal aspirates.
2. Both renal and haematological organ failures defined as above for **HUS D+**. These should occur in the absence of chronic underlying conditions that may have accounted for renal and haematological dysfunctions.

\*\* The above criteria may or may not be present simultaneously.

\*\* Other organ failures may also occur.

**SPAH:** Distinction between pneumococcal sepsis with secondary organ failures (RHOF-ISP) and SPAH will be determined through a Delphi process.

\*\* If possible, freeze at -80°C, 0.03 mL/kg of serum (max. 5 mL) obtained on initial presentation for later determination of serum neuraminidase activity. Thomsen-Friedenreich cryptantigen and lectins agglutination will be determined by the blood bank of each hospital.

**Definite case of SPAH:** Evidence of thrombotic microangiopathy on renal biopsy or autopsy.

National Surveillance	Confirmed Case
Provincial Surveillance	Confirmed Case
Type of Surveillance	Case-by-Case
Comments	<ul style="list-style-type: none"> <li>▪ The distinction must be made between D+ and D- HUS.</li> <li>▪ HUS is a distinct clinical syndrome that has many triggers, both infectious and non-infectious in nature.</li> <li>▪ With respect to infectious agents, there are many bacteria which can cause HUS, though verotoxigenic <i>E. coli</i> and <i>Shigella</i> sp. are most common.</li> </ul>
Date of Development	June 2003

## Haemophilus Influenzae, Invasive (non- type b)

Disease Case Classification	
Confirmed Case	Invasive disease <sup>1</sup> with laboratory confirmation of infection: <ul style="list-style-type: none"><li>Isolation of non-type B <i>Haemophilus Influenzae</i> from a normally sterile site (not including the middle ear)</li></ul>
Probable Case	
National Surveillance	
Provincial Surveillance	Laboratory
Type of Surveillance	Case-by-Case
Comments	<p>The most common clinical manifestations of non-type B <i>Haemophilus influenzae</i> are otitis media and non-bacteremic respiratory tract infections in adults, but these organisms can occasionally cause invasive infections.</p> <ul style="list-style-type: none"><li>This group includes <i>Haemophilus influenzae</i> types a, c, d, e, and f, as well as non-typable strains</li></ul>
Date of Development	June 2003

<sup>1</sup> Invasive disease manifests mainly as bacteremia (with or without a known site of infection), meningitis, and septic arthritis.

## Haemophilus Influenzae, Invasive – type b (Hib)

Disease Case Classification	
Confirmed Case	<p>Invasive disease<sup>1</sup> with laboratory confirmation of infection in the absence of recent immunization with Hib-containing vaccine:</p> <ul style="list-style-type: none"> <li>▪ Isolation<sup>2</sup> of <i>H. influenzae</i> type b from a normally sterile site</li> </ul> <p><b>OR</b></p> <ul style="list-style-type: none"> <li>▪ Isolation of <i>H. influenzae</i> type b from the epiglottis in a person with epiglottitis</li> </ul> <p><b>OR</b></p> <ul style="list-style-type: none"> <li>▪ Demonstration of <i>H. influenzae</i> type b antigen in cerebrospinal fluid</li> </ul>
Probable Case	Buccal cellulites or epiglottitis in a child $\leq 5$ years of age with no other causative organisms isolated
National Surveillance	Confirmed Cases
Provincial Surveillance	Confirmed Cases
Type of Surveillance	Case-by-Case
Comments	
Date of Development	June 2003

<sup>1</sup> Invasive disease due to *H. influenzae* includes meningitis, bacteremia, epiglottitis, pneumonia, pericarditis, septic arthritis, or empyema.

<sup>2</sup> Use isolation when there is no PCR test.

## Hantavirus Pulmonary Syndrome (HPS)

Disease Case Classification	
Confirmed Case	Clinical illness <sup>1</sup> with laboratory confirmation of infection: <ul style="list-style-type: none"> <li>▪ Detection of hantavirus-specific IgM antibodies or a 4-fold or greater increase in hantavirus-specific IgG antibody titres</li> </ul> <b>OR</b> <ul style="list-style-type: none"> <li>▪ Detection of hantavirus-specific ribonucleic acid sequence by PCR in an appropriate clinical specimen</li> </ul> <b>OR</b> <ul style="list-style-type: none"> <li>▪ Detection of hantavirus antigen by immunohistochemistry</li> </ul>
Probable Case	
National Surveillance	Confirmed Cases
Provincial Surveillance	Confirmed Cases
Type of Surveillance	Case-by-Case
Comments	Note: Health Canada Hantavirus Pulmonary Syndrome Surveillance Case Report form to be completed. Contact PHO on call.
Date of Development	June 2003

<sup>1</sup> Clinical illness case definition:

- a febrile illness (Temperature > 38.3° C [101° F] oral) requiring supplemental oxygen

**PLUS**

- bilateral diffuse infiltrates (may resemble acute respiratory distress syndrome [ARDS])

**PLUS**

- develops within 72 hours of hospitalization in a previously healthy person

**OR**

- unexplained illness resulting in death plus an autopsy examination demonstrating non-cardiogenic pulmonary edema without an identifiable specific cause of death

## Hepatitis A (HAV)

Disease Case Classification	
Confirmed Case	<p>Laboratory confirmation of infection in the absence of recent immunization<sup>[1]</sup> with Hepatitis A vaccine:</p> <ul style="list-style-type: none"> <li>▪ Immunoglobulin M (IgM) antibody to hepatitis A virus (anti-HAV) positive with clinical illness<sup>[2]</sup></li> </ul> <p>OR</p> <ul style="list-style-type: none"> <li>▪ Anti-HAV IgM positive and epidemiologically linked to a confirmed case who is IgM positive with clinical illness<sup>[2]</sup></li> <li>▪</li> </ul>
Probable Case	Acute clinical illness <sup>[2]</sup> in a person who is epidemiologically linked to a confirmed case
National Surveillance	Confirmed Cases
Provincial Surveillance	Confirmed and Probable Cases
Type of Surveillance	Case-by-Case
Comments	
Date of Development	June 2003. Revised May 2008.

<sup>[1]</sup> Anti-HAV IgM has been detected up to 2 to 3 weeks after one dose of hepatitis A vaccine.

<sup>[2]</sup> Acute illness is characterized by discrete onset of symptoms with jaundice and/or elevated serum aminotransferase levels (ALT).

## Hepatitis B (HBV) - Acute Case

Disease Case Classification	
Confirmed Acute Case	Laboratory confirmation of infection: <ul style="list-style-type: none"> <li>▪ HBsAg positive and anti-HBc IgM positive in the context of a compatible clinical history or probable exposure</li> </ul> <b>OR</b> <ul style="list-style-type: none"> <li>▪ Loss of HBsAg over 6 months in the context of a compatible clinical history or probable exposure</li> </ul>
Probable Acute Case	Acute clinical illness <sup>1</sup> in a person who is epidemiologically linked to a confirmed case
National Surveillance	Confirmed Cases
Provincial Surveillance	Confirmed and Probable Cases
Type of Surveillance	Case-by-Case
Comments	
Date of Development	June 2003. Revised December 2007.

Anti-HBs	Antibody to Hepatitis B Surface Antigen
Anti-HBc total	Total antibody to Hepatitis B core antigen
Anti-HBc IgM	Imunoglobulin M (IgM) antibody to hepatitis B core antigen
HBsAg	Hepatitis B surface antigen
HBV DNA	Hepatitis B virus DNA

<sup>1</sup> Acute clinical illness is characterized by a discrete onset of symptoms and jaundice or elevated serum aminotransferase levels.

## Hepatitis B (HBV) – Chronic Carrier

Disease Case Classification	
Confirmed Chronic Carrier	Laboratory confirmation of infection: <ul style="list-style-type: none"> <li>▪ Persistence of HBsAg positivity for more than 6 months in the context of a compatible clinical history or probable exposure</li> </ul> <b>OR</b> <ul style="list-style-type: none"> <li>▪ HBsAg positive and anti-HBc IgM negative</li> </ul> <b>OR</b> <ul style="list-style-type: none"> <li>▪ Anti-HBc total positive and HBV DNA positive AND HBsAg negative and anti-HBs negative</li> </ul>
Probable Chronic Carrier	Laboratory confirmation of infection: <ul style="list-style-type: none"> <li>▪ HBsAg positive in the context of compatible clinical history and/or appropriate epidemiologic exposure, e.g., self reported past history of Hepatitis B, born in Hepatitis B endemic country.</li> </ul>
National Surveillance	Confirmed Cases
Provincial Surveillance	Confirmed and Probable Cases
Type of Surveillance	Case-by-Case
Comments	
Date of Development	December 2007

Anti-HBs	Antibody to Hepatitis B Surface Antigen
Anti-HBc total	Total antibody to Hepatitis B core antigen
Anti-HBc IgM	Imunoglobulin M (IgM) antibody to hepatitis B core antigen
HBsAg	Hepatitis B surface antigen
HBV DNA	Hepatitis B virus DNA

# Hepatitis C (HCV)

Disease Case Classification	
Confirmed Case	<p>Laboratory confirmation of infection:</p> <ul style="list-style-type: none"> <li>▪ Antibody to hepatitis C virus (HCV) as confirmed by at least two enzyme immunoassays and/or RIBA<sup>1</sup></li> </ul> <p><b>OR</b></p> <ul style="list-style-type: none"> <li>▪ 2 positive tests for Hepatitis C RNA by polymerase chain reaction (PCR) in the following situations only:               <ul style="list-style-type: none"> <li>(1) Patients with immunosuppression due to advanced HIV co-infection; or</li> <li>(2) Transplant recipients who may be unable to mount an antibody response</li> </ul> </li> </ul>
Probable Case	Hepatitis C RNA positive by PCR <sup>2,3</sup>
National Surveillance	Confirmed Cases
Provincial Surveillance	Confirmed Cases
Type of Surveillance	Case-by-Case
Comments	<p>No definition included for acute infections because of variability in definitions and unreliability of criteria used to accurately identify acute cases.</p> <p>PCR Criteria included for reasons and under conditions outlined. Because of the small chance of a false positive result, only <i>two</i> positive PCR may be acceptable as a confirmed case under the listed circumstances. Note that this differs from Health Canada's definition in that it allows for a single positive PCR.</p> <p>Exact CD4 criteria in patients with HIV co-infection requires further discussion.</p> <p>NB: the Roche® PCR test is not presently licensed for diagnosis of HCV.</p> <p>However, note that Health Canada held a Consensus Conference in 1998 following which the recommendation was made to include a <i>single</i> positive RNA test for HCV as a confirmed case under similar criteria – consensus statement available at the following website:  <a href="http://www.phac-aspc.gc.ca/publicat/ccdr-rmtc/99vol25/25s2/index.html">http://www.phac-aspc.gc.ca/publicat/ccdr-rmtc/99vol25/25s2/index.html</a>            Some references regarding HCV RNA PCR in infants born to mothers who are HCV positive include:</p>

<sup>1</sup> This is the preferred test.

<sup>2</sup> if this occurs during acute seroconversion, infection should be confirmed with HCV antibody testing within the next 6 months.

<sup>3</sup> Children < 1 year of age born to mothers known to be HCV positive: The preferred test is HCV antibody testing at ≥ 18 months to confirm the infection, as testing prior to this age may be unreliable due to passive transfer of maternal antibody. To make an earlier presumptive diagnosis, HCV RNA PCR may be performed at 2-3 months of age.

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- Gibb, D.M. *et al*, (2000). *Mother-to-child transmission of hepatitis C virus: evidence for preventable peripartum transmission. [electronic version]. The Lancet*, 356,904-7.

“The estimated specificity of PCR for HCV RNA was 97% (95% CI 96-99) and was unrelated to age; sensitivity was only 22% (7-46) in the first month but rose sharply to 97% (85-100) thereafter”.

“First, there is little value in undertaking RNA PCR tests in the first month of life because of low sensitivity. Second, a negative RNA PCR result after 1 month of age almost certainly rules out infection; with an assumed transmission risk of 6.7%... Third, after a positive PCR result...a repeat test is advisable....”

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Date of Development

June 2003

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# Hepatitis E (HEV)

Disease Case Classification	
Confirmed Case	Laboratory confirmation of infection with or without symptoms: <ul style="list-style-type: none"> <li>Immunoglobulin M (IgM) antibody to hepatitis E virus (anti-HEV) positive OR a four-fold or greater increase in anti-HEV IgG antibody titres</li> </ul>
Probable Case	<ul style="list-style-type: none"> <li>Acute clinical illness<sup>1</sup> in a person who is epidemiologically linked to a confirmed case</li> </ul> <b>OR</b> <ul style="list-style-type: none"> <li>A hepatitis-like illness in the absence of other etiologies of hepatitis and only one specimen positive for anti-HEV IgG antibody</li> </ul>
National Surveillance	
Provincial Surveillance	Confirmed Cases
Type of Surveillance	Case-by-Case
Comments	HEV is transmitted primarily by the fecal-oral route, with fecally contaminated drinking water being the most common. Also transmission probably occurs from person- to- person by the fecal-oral route, though secondary household cases are not common during outbreaks.
Date of Development	June 2003

<sup>1</sup> Acute clinical illness is characterized by discrete onset of symptoms and jaundice or elevated serum aminotransferase levels.

# HIV Infection

Disease Case Classification	
Confirmed Case	<p>Laboratory confirmation of infection:</p> <ul style="list-style-type: none"> <li>Positive result on a screening test for HIV antibody (e.g., repeatedly reactive enzyme immunoassay) followed by a positive test result on a confirmatory test for HIV antibody (e.g., Western blot or immunofluorescence antibody test)</li> </ul>
Probable Case	<ul style="list-style-type: none"> <li>Single positive result for HIV RNA by PCR<sup>1, 2</sup></li> </ul> <p>OR</p> <ul style="list-style-type: none"> <li>Indeterminate confirmatory test for HIV antibody<sup>1</sup></li> </ul>
National Surveillance	Confirmed Cases
Provincial Surveillance	Confirmed Cases Probable (to MOH only)
Type of Surveillance	Case-by-Case
Comments	<p>PCR criteria included as early medical intervention of benefit during acute seroconversion and to potentially infected infants. Also allows early public health intervention.</p> <p>Note: The Roche® PCR test is presently not licensed for diagnosis of HIV.</p>
Date of Development	June 2003

<sup>1</sup> If this occurs during acute seroconversion, diagnosis of HIV infection should be confirmed by performing confirmatory HIV antibody test within the next 6 months.

<sup>2</sup> Infants ≤ 18 months of age born to mothers known to be HIV positive: HIV RNA PCR is recommended at birth and at intervals as recommended by a pediatric HIV expert depending on the individual case history. HIV antibody testing is unreliable in infants ≤ 18 months because of passive transfer of maternal IgG. HIV antibody testing in the potentially infected infant should be performed at ≥ 18 months to confirm infection.

## Influenzae A/B

Disease Case Classification	
Confirmed Case	Clinical illness <sup>1</sup> with laboratory confirmation of infection: <ul style="list-style-type: none"> <li>▪ Isolation of influenza virus from an appropriate clinical specimen</li> </ul> <b>OR</b> <ul style="list-style-type: none"> <li>▪ Demonstration of influenza virus antigen in an appropriate clinical specimen</li> </ul>
Probable Case	None
National Surveillance	Yes - FluWatch
Provincial Surveillance	Aggregate reporting to Alberta Health by provincial laboratory Case-by-Case (Lab to MOH only)
Type of Surveillance	Laboratory
Comments	
Date of Development	June 2003

<sup>1</sup> Influenza-like illness (ILI) is characterized as follows:

- A. Adult (general population) ILI: Acute onset of respiratory illness with fever and cough and one or more of sore throat, arthralgia, myalgia or prostration — which could be due to the influenza virus.
- B. Long-term care (elderly) ILI: Acute onset of respiratory illness with cough and one or more of sore throat, arthralgia, myalgia, prostration. Affected persons often experience fever or feverishness with chills, but these symptoms may not be prominent in the elderly.
- C. Pediatric ILI: Acute onset of respiratory illness with cough and fever and one or more of sore throat, arthralgia, myalgia, or prostration. In pediatric age groups, nausea, vomiting or diarrhea may accompany ILI. In the very young, fever may not be prominent.

## \*Lassa Fever

Disease Case Classification	
Confirmed Case	<p>Clinical illness<sup>1</sup> with laboratory confirmation of infection or a probable case with laboratory confirmation of infection:</p> <ul style="list-style-type: none"> <li>▪ Isolation of virus from serum or urine specimens, or throat secretions</li> </ul> <p><b>OR</b></p> <ul style="list-style-type: none"> <li>▪ Demonstration of virus antigen in autopsy tissue (liver, spleen) by immunohistochemical techniques or in serum samples by enzyme-linked immunosorbent assay (ELISA)</li> </ul> <p><b>OR</b></p> <ul style="list-style-type: none"> <li>▪ Demonstration of a fourfold rise in IgG antibody</li> </ul> <p><b>OR</b></p> <ul style="list-style-type: none"> <li>▪ Demonstration of specific IgM antibody by ELISA, Immunofluorescent assay (IFA) or Western Blot</li> </ul>
Probable Case	<p>A case with symptoms compatible with the clinical illness<sup>1</sup> and a history within the three weeks before onset of fever of the following:</p> <ul style="list-style-type: none"> <li>▪ Travel in a specific area of a country where an outbreak of viral haemorrhagic fever (VHF) has recently occurred</li> </ul> <p><b>OR</b></p> <ul style="list-style-type: none"> <li>▪ Direct contact with blood or other body fluid secretions or excretions of a person or animal with a confirmed or probable case of VHF</li> </ul> <p><b>OR</b></p> <ul style="list-style-type: none"> <li>▪ Work in a laboratory or animal facility that handles haemorrhagic fever viruses</li> </ul> <p><b>OR</b></p> <ul style="list-style-type: none"> <li>▪ Detection of viral genomic sequences in serum or autopsy tissue by PCR</li> </ul>
Suspected Case	A case compatible with the clinical description
National Surveillance	Confirmed, Probable and Suspect Cases
Provincial Surveillance	Confirmed, Probable and Suspect Cases
Type of Surveillance	Case-by-Case
Comments	
Date of Development	June 2003

<sup>1</sup> Lassa FHV Illness: Gradual onset with malaise, fever, headache, sore throat, cough, nausea, vomiting, diarrhea, myalgia, and chest and abdominal pain. Fever is persistent or spikes intermittently. Inflammation and exudation of the pharynx and conjunctivae are commonly observed followed by hypotension, shock, pleural effusion, hemorrhage, seizures, encephalopathy, and edema of the face and neck.

# Legionellosis

Disease Case Classification	
Confirmed Case	<p>Clinical illness<sup>1</sup> with laboratory confirmation of infection:</p> <ul style="list-style-type: none"> <li>▪ Isolation of <i>Legionella</i> organisms or detection of the antigen from respiratory secretions, lung tissue, pleural fluid, or other normally sterile fluids</li> </ul> <p><b>OR</b></p> <ul style="list-style-type: none"> <li>▪ A 4-fold or greater rise in antibody titre to &gt; 1:128 against <i>Legionella pneumophila</i></li> </ul> <p><b>OR</b></p> <ul style="list-style-type: none"> <li>▪ Detection of <i>L. pneumophila</i> serogroup 1 in respiratory secretions, lung tissue, or pleural fluid by direct fluorescent antibody testing</li> </ul> <p><b>OR</b></p> <ul style="list-style-type: none"> <li>▪ Demonstration of <i>L. pneumophila</i> serogroup 1 antigen in urine by radioimmunoassay or EIA<sup>2</sup></li> </ul> <p><b>OR</b></p> <ul style="list-style-type: none"> <li>▪ Detection of <i>Legionella pneumophila</i> serogroup 1 from an appropriate clinical specimen by molecular methods when available</li> </ul>
Probable Case	Clinical illness <sup>1</sup> in a person who is epidemiologically linked to a confirmed case.
National Surveillance	Confirmed Cases
Provincial Surveillance	Confirmed and Probable Cases
Type of Surveillance	Case-by-Case
Comments	
Date of Development	June 2003

<sup>1</sup> Legionellosis comprises two distinct illnesses: legionnaires' disease characterized by fever, myalgia, cough, and pneumonia; and Pontiac fever, a milder illness without pneumonia.

<sup>2</sup> Cross-reactions have been demonstrated between urinary antigens of several *L. pneumophila* groups. Antigen may be excreted for months after acute infection.

# Leprosy

Disease Case Classification	
Confirmed Case	Clinical illness <sup>1</sup> with laboratory confirmation of infection: <ul style="list-style-type: none"> <li>▪ Demonstration of acid-fast bacilli, antigen or genome in skin, mucus membrane or peripheral/dermal nerve biopsy</li> </ul>
Probable Case	Clinical illness <sup>1</sup> with histopathologic evidence (chronic granulomatous infiltrates within or impinging upon peripheral or dermal nerves) in a biopsy specimen
National Surveillance	Confirmed Cases
Provincial Surveillance	Confirmed and Probable Cases
Type of Surveillance	Case-by-Case
Comments	AHW maintains a Leprosy Registry for purposes of monitoring treatment for which the province funds for this life long infectious disease.
Date of Development	June 2003

<sup>1</sup> Clinical illness is characterized by the involvement primarily of skin as well peripheral nerves and the mucosa of the upper airway. Clinical forms of Hansen's disease represent a spectrum reflecting the cellular immune response to *Mycobacterium leprae*. The following characteristics are typical of the major forms of the disease:

**Tuberculoid:** one or a few well-demarcated, hypo-pigmented, and anesthetic skin lesions, frequently with active, spreading edges and a clearing center; peripheral nerve swelling or thickening also may occur.

**Lepromatous:** a number of erythematous papules and nodules or an infiltration of the face, hands, and feet with lesions in a bilateral and symmetrical distribution that progress to thickening of the skin.

**Borderline (dimorphous):** skin lesions characteristic of both the tuberculoid and lepromatous forms.

**Indeterminate:** early lesions, usually hypopigmented macules, without developed tuberculoid or lepromatous features.

# Leptospirosis

Disease Case Classification	
Confirmed Case	<p>Clinical illness<sup>1</sup> with laboratory confirmation of infection:</p> <ul style="list-style-type: none"> <li>▪ Isolation of <i>Leptospira</i> species from a clinical specimen (blood, CSF, or urine)</li> <li>▪ A four-fold or greater change in <i>Leptospira</i> agglutination titres or complement-fixation titres between acute and convalescent-phase serum samples at least 2 weeks apart and preferably tested in parallel at the same laboratory</li> <li>▪ Demonstration of leptospiral antigen in a clinical specimen by immunofluorescence</li> </ul>
Probable Case	<p>Clinical illness<sup>1</sup> with a single raised <i>Leptospira</i> agglutination titre  <b>OR</b>            Clinical illness<sup>1</sup> in a person epidemiologically linked to a confirmed case</p>
National Surveillance	
Provincial Surveillance	Confirmed and Probable Cases
Type of Surveillance	Case-by-Case
Comments	
Date of Development	June 2003

<sup>1</sup> Clinical features include fever, headache, chills, myalgia, conjunctival suffusion, and less frequently by meningitis, rash, jaundice, hepatic or renal insufficiency, coagulation abnormalities, haemolytic anemia, mental confusion, myocarditis or pulmonary involvement. Symptoms may be biphasic.

# Listeriosis

Disease Case Classification	
Confirmed Case	<p>Symptomatic individuals with laboratory confirmation of infection:</p> <ul style="list-style-type: none"> <li>▪ Isolation of <i>L. monocytogenes</i> from a normally sterile site (e.g., blood or cerebrospinal fluid [CSF] or, less commonly, joint, pleural, or pericardial fluid)</li> </ul> <p><b>OR</b></p> <ul style="list-style-type: none"> <li>▪ In the setting of miscarriage or stillbirth, isolation of <i>L. monocytogenes</i> from placental or fetal tissue (including amniotic fluid and meconium)</li> </ul>
Probable Case	
National Surveillance	
Provincial Surveillance	Confirmed Cases
Type of Surveillance	Case-by-Case
Comments	
Date of Development	June 2003

<sup>1</sup> Invasive clinical disease usually manifests as meningitis or bacteremia. Infection during pregnancy may result in fetal miscarriage or stillbirth, or neonatal meningitis or bacteremia. Other manifestations can also be observed, especially in immunosuppressed individuals and the elderly.

# Lyme Disease

Disease Case Classification	
Confirmed Case	<p>Erythema migrans (EM)<sup>1</sup> or at least one late manifestation<sup>2</sup> with laboratory confirmation of infection:</p> <ul style="list-style-type: none"> <li>▪ Isolation of <i>Borrelia burgdorferi</i> from an appropriate clinical specimen</li> </ul> <p><b>OR</b></p> <ul style="list-style-type: none"> <li>▪ Detection of diagnostic immunoglobulin M or immunoglobulin G antibodies to <i>B. burgdorferi</i> in serum or cerebrospinal fluid. A two-test approach is recommended using a sensitive enzyme immunoassay or immunofluorescence antibody test followed by Western blot.</li> </ul>
Probable Case	
National Surveillance	Confirmed Cases
Provincial Surveillance	Confirmed Cases
Type of Surveillance	Case-by-Case
Comments	<p>Detection of spirochetal DNA in clinical samples by PCR has better sensitivity, but PCR for <i>B. burgdorferi</i> has not yet been standardized for more routine diagnostic testing. Bunikis J, Barbour AG. Laboratory testing for suspected Lyme disease.</p>
Date of Development	June 2003

<sup>1</sup> For purposes of surveillance, EM is defined as a skin lesion that typically begins as a red macule or papule and expands over a period of days to weeks to form a large round lesion, often with partial central clearing. A single primary lesion must reach greater than or equal to 5 cm in size. Secondary lesions also may occur. Annular erythematous lesions occurring within several hours of a tick bite represent hypersensitivity reactions and do not qualify as EM. For most patients, the expanding EM lesion is accompanied by other acute symptoms, particularly fatigue, fever, headache, mildly stiff neck, arthralgia, or myalgia. These symptoms are typically intermittent. The diagnosis of EM must be made by a physician. Laboratory confirmation is recommended for persons with no known exposure.

<sup>2</sup> Late manifestations include any of the following when an alternative explanation is not found: Musculoskeletal system: Recurrent, brief attacks (weeks or months) of objective joint swelling in one or a few joints, sometimes followed by chronic arthritis in one or a few joints. Manifestations not considered diagnostic criteria include chronic progressive arthritis not preceded by brief attacks, and chronic symmetrical polyarthritis. Additionally, arthralgia, myalgia, or fibromyalgia syndromes alone are not criteria for musculoskeletal involvement.

Nervous system: Any of the following, alone or in combination: lymphocytic meningitis; cranial neuritis, particularly facial palsy (may be bilateral); radiculoneuropathy; or (rarely) encephalomyelitis. Encephalomyelitis must be confirmed by demonstration of antibody production against *B. burgdorferi* in the CSF, evidenced by a higher titre of antibody in CSF than in serum. Headache, fatigue, paresthesia, or mildly stiff neck alone are not criteria for neurologic involvement.

Cardiovascular system: Acute onset of high-grade (2nd-degree or 3rd-degree) atrioventricular conduction defects that resolve in days to weeks and are sometimes associated with myocarditis. Palpitations, bradycardia, bundle branch block, or myocarditis alone are not criteria for cardiovascular involvement.

# Lymphogranuloma Venereum (LGV)

Disease Case Classification	
Confirmed Case	<p><b>Laboratory confirmation of infection:</b></p> <ul style="list-style-type: none"> <li>▪ Isolation of <i>C. trachomatis</i>, serovar L<sub>1</sub>, L<sub>2</sub>, or L<sub>3</sub>, from clinical specimen</li> </ul> <p><b>OR</b></p> <ul style="list-style-type: none"> <li>▪ Demonstration of inclusion bodies by immunofluorescence in leukocytes of an inguinal lymph node (bubo) aspirate</li> </ul> <p><b>OR</b></p> <ul style="list-style-type: none"> <li>▪ Positive microimmunofluorescent serologic test for a lymphogranuloma venereum strain of <i>C. trachomatis</i> (in a clinically compatible case)</li> </ul> <p><b>Clinical description</b> Infection with L<sub>1</sub>, L<sub>2</sub>, or L<sub>3</sub> serovars of <i>Chlamydia trachomatis</i> may result in a disease characterized by genital lesions, suppurative regional lymphadenopathy, or haemorrhagic proctitis. The infection is usually sexually transmitted.</p>
Probable Case	
National Surveillance	
Provincial Surveillance	Confirmed Cases
Type of Surveillance	Case-by-Case
Comments	As it is presently listed as notifiable, CDC's case definition for confirmed cases has been adapted. This is however an extremely rare disease in Alberta and the rest of Canada.
Date of Development	June 2003

# Malaria

Disease Case Classification	
Confirmed Case	<p>Laboratory confirmation of infection:</p> <ul style="list-style-type: none"> <li>▪ Demonstration of the parasite in a blood smear/film (thick and thin)</li> </ul> <p><b>OR</b></p> <ul style="list-style-type: none"> <li>▪ Some other accepted laboratory test, such as antigen or genome (PCR) detection. Malaria cases are subdivided into the following categories:</li> </ul> <p>a) <b>Induced:</b> a confirmed case of malaria acquired through a blood transfusion from a donor in whom the parasite has been confirmed.</p> <p>b) <b>Autochthonous:</b> a confirmed case of malaria acquired by mosquito transmission within Canada.</p> <p>c) <b>Imported:</b> a confirmed case of malaria acquired outside Canada.</p> <p>d) <b>Congenital, confirmed:</b> a confirmed case of malaria in an infant &lt; 3 months old, who has not left Canada since birth, with confirmation of the presence of the parasite in the mother.</p> <p><b>Congenital, probable:</b> a confirmed case of malaria in an infant &lt; 3 months old who has not left Canada since birth, but without demonstration of the presence of the parasite in the mother.</p>
Probable Case	
National Surveillance	Confirmed Cases
Provincial Surveillance	Confirmed Cases
Type of Surveillance	Case-by-Case
Comments	Clinical illness: signs and symptoms are variable; however, most patients experience fever. In addition to fever, common associated symptoms include headache, back pain, chills, sweats, myalgia, nausea, vomiting, diarrhea, and cough. Untreated <i>Plasmodium falciparum</i> infection can lead to coma, renal failure, pulmonary edema, and death.
Date of Development	June 2003

## NOTES:

1. A case is counted if it is the individual's first attack of malaria in Canada, regardless of whether or not she/he has experienced previous attacks of malaria outside the country.
2. A subsequent attack in the same person caused by a different *Plasmodium* species is counted as an additional case.
3. A repeat attack by the same species is not counted as a new case unless the person has traveled to a malaria-endemic area since the previous attack.

## \*Marburg Haemorrhagic Fever

Disease Case Classification	
Confirmed Case	<p>Clinical illness<sup>1</sup> with laboratory confirmation of infection or a probable case with laboratory confirmation of infection:</p> <ul style="list-style-type: none"> <li>▪ Isolation of virus from serum or urine specimens, or throat secretions</li> </ul> <p><b>OR</b></p> <ul style="list-style-type: none"> <li>▪ Demonstration of virus antigen in autopsy tissue (liver, spleen) by immunohistochemical techniques or in serum samples by enzyme-linked immunosorbent assay (ELISA)</li> </ul> <p><b>OR</b></p> <ul style="list-style-type: none"> <li>▪ Demonstration of a fourfold rise in IgG antibody</li> </ul> <p><b>OR</b></p> <ul style="list-style-type: none"> <li>▪ Demonstration of specific IgM antibody by ELISA, Immunofluorescent assay (IFA) or Western Blot</li> </ul>
Probable Case	<p>A case with symptoms compatible with the clinical illness<sup>1</sup> and a history within the three weeks before onset of fever of the following:</p> <ul style="list-style-type: none"> <li>▪ Travel in a specific area of a country where an outbreak of viral haemorrhagic fever (VHF) has recently occurred</li> </ul> <p><b>OR</b></p> <ul style="list-style-type: none"> <li>▪ Direct contact with blood or other body fluid secretions or excretions of a person or animal with a confirmed or probable case of VHF</li> </ul> <p><b>OR</b></p> <ul style="list-style-type: none"> <li>▪ Work in a laboratory or animal facility that handles haemorrhagic fever viruses</li> </ul> <p><b>OR</b></p> <ul style="list-style-type: none"> <li>▪ Detection of viral genomic sequences in serum or autopsy tissue by PCR</li> </ul>
Suspect Case	A case that is compatible with the clinical description
National Surveillance	Confirmed, Probable and Suspected Cases
Provincial Surveillance	Confirmed, Probable and Suspected Cases
Type of Surveillance	Case-by-Case
Comments	
Date of Development	June 2003

<sup>1</sup> Ebola and Marburg VHF illness: Sudden onset of fever, malaise, and headache followed by pharyngitis, vomiting, diarrhea, and shock. The accompanying haemorrhagic diathesis is often accompanied by hepatic damage, renal failure, involvement of the central nervous system, and terminal shock with multi-organ dysfunction.

## Measles/Rubeola

Disease Case Classification	
Confirmed Case	<p>Laboratory confirmation of infection in the absence of recent immunization<sup>[1]</sup> with measles-containing vaccine:</p> <ul style="list-style-type: none"> <li>▪ Isolation of measles virus from an appropriate clinical specimen</li> </ul> <p><b>OR</b></p> <ul style="list-style-type: none"> <li>▪ Seroconversion or a significant (e.g. fourfold or greater) rise in measles IgG titre by an standard serological assay between acute and convalescent sera</li> </ul> <p><b>OR</b></p> <ul style="list-style-type: none"> <li>▪ 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 travelled to an area of known measles activity. If the clinical and epidemiological presentations are inconsistent with a diagnosis of measles, IgM results must be confirmed by additional testing (e.g. 1 or 2 above)</li> </ul> <p><b>OR</b></p> <ul style="list-style-type: none"> <li>▪ Clinical illness<sup>[2]</sup> in a person who is epidemiologically linked to a laboratory confirmed case</li> </ul>
Probable Case	Clinical illness <sup>[2]</sup> in the absence of appropriate laboratory tests and not epidemiologically linked to a laboratory-confirmed case
National Surveillance	Confirmed Cases
Provincial Surveillance	Confirmed and Probable Cases
Type of Surveillance	Case-by-Case
Comments	
Date of Development	June 2003. Revised May 2008.

<sup>1</sup> Measles IgM can be detected for 2 to 6 weeks (peaking at 3 weeks) following primary measles immunization and disappears soon thereafter.

<sup>2</sup> Clinical illness is characterized by all of the following features:

- fever 38.3o C or greater
- cough, coryza, or conjunctivitis
- generalized maculopapular rash for at least 3 days

# Meningitis, viral

Disease Case Classification	
Confirmed Case	Clinical illness <sup>1</sup> with no laboratory evidence of bacterial or fungal meningitis.
Probable Case	
National Surveillance	
Provincial Surveillance	Laboratory
Type of Surveillance	Case-by-Case
Comments	
Date of Development	June 2003

<sup>1</sup> A syndrome characterized by acute onset of meningeal symptoms, fever, and cerebrospinal fluid pleocytosis, with bacteriologically sterile cultures.

<sup>2</sup> Although there are also fungal etiologies of aseptic meningitis, this would generally occur in a chronic setting.

## Meningococcal Disease, Invasive (IMD)

Disease Case Classification	
Confirmed Case	<p>Invasive disease<sup>1</sup> with laboratory confirmation of infection:</p> <ul style="list-style-type: none"> <li>▪ Isolation of <i>Neisseria meningitidis</i> from a normally sterile site (blood, cerebrospinal fluid, joint, pleural or pericardial fluid)</li> </ul> <p><b>OR</b></p> <ul style="list-style-type: none"> <li>▪ Demonstration of <i>N. meningitidis</i> DNA by Nucleic Acid Amplification Test (NAAT)* from a normally sterile site</li> </ul>
Probable Case	<p>Invasive disease<sup>1</sup> with purpura fulminans or petechiae in the absence of a positive blood culture and no other apparent cause:</p> <ul style="list-style-type: none"> <li>• With demonstration of <i>N. meningitidis</i> antigen in cerebrospinal fluid</li> </ul> <p><b>OR</b></p> <ul style="list-style-type: none"> <li>• In the absence of isolation of <i>Neisseria meningitidis</i> from a normally sterile site or in the absence of demonstration of DNA by NAAT* from a normally sterile site</li> </ul>
National Surveillance	Confirmed and Probable Cases
Provincial Surveillance	Confirmed and Probable Cases
Type of Surveillance	Case-by-Case
Comments	
Date of Development	June 2003. Revised December 2006.

\*Provincial Laboratory for Public Health validated NAAT assay for the detection of *N. meningitidis* is PCR.

<sup>1</sup> Invasive meningococcal disease usually manifests itself as meningitis and/or septicemia, although other manifestations may be observed (e.g. orbital cellulitis, septic arthritis). Invasive disease may progress rapidly to purpura fulminans, shock, and death.

## Mucopurulent Cervicitis (MPC)

Disease Case Classification	
Confirmed Case	Clinical illness <sup>1</sup> <b>AND</b> negative tests from genitourinary specimens for chlamydia and gonorrhea.
Probable Case	
National Surveillance	
Provincial Surveillance	Confirmed Cases
Type of Surveillance	Case-by-Case
Comments	Definitions for MPC in the clinical literature are variable. Gram stain criteria not included since they are not standardized and have low positive predictive value.
Date of Development	June 2003

<sup>1</sup> Inflammation of the cervix with a mucopurulent or purulent cervical discharge or cervical bleeding on insertion of a swab.

# Mumps

Disease Case Classification	
Confirmed Case	<p>Laboratory confirmation of infection in the absence of recent immunization with mumps-containing vaccine:</p> <ul style="list-style-type: none"> <li>▪ Isolation of mumps virus or detection of viral RNA from an appropriate clinical specimen<sup>1</sup></li> </ul> <p><b>OR</b></p> <ul style="list-style-type: none"> <li>▪ Significant rise or seroconversion of mumps IgG titre in serum by any standard serologic assay</li> </ul> <p><b>OR</b></p> <ul style="list-style-type: none"> <li>▪ Positive serologic test for mumps IgM antibody in a person who has mumps compatible clinical illness<sup>2</sup></li> </ul> <p><b>OR</b></p> <ul style="list-style-type: none"> <li>▪ Clinical illness<sup>2</sup> in a person who is epidemiologically linked to a laboratory confirmed case</li> </ul>
Probable Case	Clinical illness <sup>2</sup> in the absence of appropriate laboratory tests and not epidemiologically linked to a laboratory-confirmed case
National Surveillance	Confirmed Cases
Provincial Surveillance	Confirmed Cases
Type of Surveillance	Case-by-Case
Comments	
Date of Development	June 2003. Revised October 2007.

<sup>1</sup> Appropriate clinical specimens include: swab of saliva or oral fluid collected from the buccal cavity with a Dacron or cotton tip swab OR urine sample (5 ml or more) preferably the first morning sample.

<sup>2</sup> Clinical illness is characterized by acute onset of unilateral or bilateral tender, self-limited swelling of the parotid or other salivary gland, lasting > 2 days, and without other apparent cause.

# Neonatal Herpes Simplex Infection

Disease Case Classification	
Confirmed Case	<p>Laboratory confirmation of infection with or without symptoms in a neonate:</p> <ul style="list-style-type: none"> <li>▪ Virus isolation from an appropriate clinical specimen (CSF, skin or other tissue)</li> </ul> <p><b>OR</b></p> <ul style="list-style-type: none"> <li>▪ Detection of viral nuclei acids in CSF using molecular diagnostic techniques, when available</li> </ul>
Probable Case	<p>Clinical illness<sup>1</sup> in a neonate<sup>2</sup> born to a female with primary or active HSV infection during pregnancy:</p> <ul style="list-style-type: none"> <li>▪ Presence of anti-HSV IgM antibodies in mother's serum</li> <li>▪ Evidence of seroconversion in mother (i.e. four-fold or greater increase in anti-HSV IgG titre) by any standard serologic assay</li> <li>▪ Isolation of virus by culture or detection of viral antigen by DFA from active lesions</li> </ul>
National Surveillance	
Provincial Surveillance	Confirmed Cases
Type of Surveillance	Case-by-Case
Comments	
Date of Development	June 2003

<sup>1</sup> Clinical illness can be of three different syndromes: skin, visceral, and central nervous system infections. Dermatological manifestations are often a late manifestation, or might not occur at all.

<sup>2</sup> For purposes of this manual, a neonate is defined as a newborn up to and including 28 days of age.

## Non-gonococcal Urethritis (NGU)

Disease Case Classification	male patients only
Confirmed Case	<ul style="list-style-type: none"> <li>▪ Inflammation of the urethra with or without a mucoid, mucopurulent or purulent urethral discharge</li> </ul> <p><b>AND/OR</b></p> <ul style="list-style-type: none"> <li>▪ Inflammation of the urethra with or without a mucoid, mucopurulent or purulent urethral discharge</li> <li>▪ <math>\geq 4</math> polymorphonuclear leukocytes per oil immersion field (x1000) in 5 fields in a smear of urethral secretions</li> </ul> <p><b>AND</b></p> <ul style="list-style-type: none"> <li>▪ Absent gram negative intracellular diplococci on gram stain of urethral secretions</li> </ul> <p><b>AND</b></p> <ul style="list-style-type: none"> <li>▪ Negative tests from genitourinary specimens for gonorrhoea and chlamydia</li> </ul>
Probable Case	
National Surveillance	
Provincial Surveillance	Confirmed Cases
Type of Surveillance	Case-by-Case
Comments	
Date of Development	June 2003

## Paratyphoid Fever

Disease Case Classification	
Confirmed Case	Laboratory confirmation of infection with or without symptoms: <ul style="list-style-type: none"> <li>▪ Isolation of <i>Salmonella</i> Paratyphi A, B, or C from an appropriate clinical specimen</li> </ul>
Probable Case	Clinical illness <sup>1</sup> in a person who is epidemiologically linked to a confirmed case
National Surveillance	Confirmed Cases
Provincial Surveillance	Confirmed and Probable Cases
Type of Surveillance	Case-by-Case
Comments	AHW maintains a Paratyphoid Registry for purposes of monitoring carriers as they potentially pose a long term health risk for transmission of disease (e.g. if engaged in occupations involving food handling, childcare or care of the elderly.)
Date of Development	June 2003. Revised July 2007.

<sup>1</sup> Clinical illness is characterized by insidious onset of sustained fever, headache, malaise, anorexia, relative bradycardia, constipation, or diarrhea.

# Parvovirus

Disease Case Classification	
Confirmed Case	<p>Laboratory confirmation of infection with or without symptoms:</p> <ul style="list-style-type: none"> <li>▪ Presence of IgM antibody to human parvovirus B19</li> </ul> <p><b>OR</b></p> <ul style="list-style-type: none"> <li>▪ Significant rise or seroconversion in serum Parvovirus IgG titre by any standard serologic assay</li> </ul> <p><b>OR</b></p> <ul style="list-style-type: none"> <li>▪ Detection of the Parvovirus by *molecular diagnostic techniques from appropriate clinical specimens</li> </ul>
Probable Case	Clinical illness <sup>1</sup> in a person who is epidemiologically linked to a confirmed case
National Surveillance	
Provincial Surveillance	Laboratory
Type of Surveillance	Laboratory
Comments	<p>Other reported manifestations of infection include aseptic meningitis, encephalitis, hepatitis, myocarditis, and vasculitis. However, these are mainly case reports or limited PCR-based studies with invalidated controls.</p> <p>There is no method of viral isolation from clinical specimens.</p> <p>* The molecular diagnostic techniques employed have to be licensed and approved assays or clinically validated by the performing laboratory. The laboratory must be participating in proficiency testing for the molecular diagnostic tests for the above pathogen.</p>
Date of Development	June 2003

<sup>1</sup> Disease manifestations vary widely depending on the immunologic and hematological status of the host. This spectrum includes childhood exanthematous illness, arthropathy, bone marrow aplasia, fetal infection, and hemophagocytic syndrome.

# Pertussis

Disease Case Classification	
Confirmed Case	<p>Laboratory confirmation of infection:</p> <ul style="list-style-type: none"> <li>▪ Isolation of <i>Bordetella pertussis</i> from an appropriate clinical specimen</li> </ul> <p><b>OR</b></p> <ul style="list-style-type: none"> <li>▪ Positive PCR assay for <i>B. pertussis</i></li> </ul> <p><b>OR</b></p> <ul style="list-style-type: none"> <li>▪ A person who is epidemiologically linked to a laboratory-confirmed case with one or more of the following for which there is no other known cause:               <ul style="list-style-type: none"> <li>▪ Paroxysmal cough of any duration</li> <li>▪ Cough ending in vomiting, or associated with apnea</li> <li>▪ Cough with inspiratory “whoop”</li> </ul> </li> </ul>
Probable Case	<p>Cough lasting 2 weeks or longer in the absence of appropriate laboratory tests and not epidemiologically linked to a laboratory-confirmed case <b>and one or both</b> of the following with no other known cause:</p> <ul style="list-style-type: none"> <li>▪ Paroxysmal cough</li> <li>▪ Inspiratory “whoop”</li> </ul>
Suspect Case	<p>See the following: National Advisory Committee on Immunization, the Advisory Committee on Epidemiology, and the Canadian Pediatric Society. <i>Statement on management of persons exposed to pertussis and pertussis outbreak control</i>. Can Dis Wkly Rep 1994;20:193-99.</p>
National Surveillance	Confirmed Cases
Provincial Surveillance	Confirmed Cases
Type of Surveillance	Case-by-Case
Comments	
Date of Development	June 2003

## \*Plague

Disease Case Classification	
Confirmed Case	<p>Clinical illness<sup>1</sup> and laboratory confirmation of infection:</p> <ul style="list-style-type: none"> <li>▪ Isolation of <i>Yersinia pestis</i> from body fluids</li> </ul> <p><b>OR</b></p> <ul style="list-style-type: none"> <li>▪ A 4-fold or greater rise in serum antibody titre to <i>Y. pestis</i> fraction 1 (F1) antigen</li> </ul> <p><b>OR</b></p> <ul style="list-style-type: none"> <li>▪ Demonstration of antigen or genome by other accepted laboratory tests</li> </ul> <p><b>Clinical Case</b></p> <p>Clinical illness<sup>1</sup> with one of the following laboratory confirmations of infection:</p> <ul style="list-style-type: none"> <li>▪ Demonstration of elevated serum antibody titre(s) to <i>Y. pestis</i> F1 antigen (without documented 4-fold or greater change) in a patient with no history of plague immunization</li> </ul> <p><b>OR</b></p> <ul style="list-style-type: none"> <li>▪ Demonstration of F1 antigen in a clinical specimen by fluorescent assay</li> </ul>
Probable Case	
National Surveillance	Confirmed, Probable, Suspect and Clinical Cases
Provincial Surveillance	Confirmed, Probable, Suspect and Clinical Cases
Type of Surveillance	Case-by-Case
Comments	
Date of Development	June 2003

<sup>1</sup> Clinical illness: the disease is characterized by fever, chills, headache, malaise, prostration, and leukocytosis that is manifest in one or more of the following principal clinical forms:

- Regional lymphadenitis (bubonic plague)
- Septicemia without an evident bubo (septicemic plague)
- Plague pneumonia, resulting from hematogenous spread in bubonic or septicemic cases (secondary pneumonic plague) or inhalation of infectious droplets (primary pneumonic plague)
- Pharyngitis and cervical lymphadenitis resulting from exposure to larger infectious droplets or ingestion of infected tissues (pharyngeal plague)

## Pneumococcal Disease, Invasive (IPD)

Disease Case Classification	
Confirmed Case	Invasive disease <sup>1</sup> with laboratory confirmation of infection: <ul style="list-style-type: none"> <li>▪ Isolation of <i>Streptococcus pneumoniae</i> from a normally sterile site (not including the middle ear)</li> </ul> <b>OR</b> <ul style="list-style-type: none"> <li>▪ Demonstration of <i>S. pneumoniae</i> antigen in cerebrospinal fluid<sup>2</sup></li> </ul>
Probable Case	
National Surveillance	Confirmed Cases
Provincial Surveillance	Confirmed Cases
Type of Surveillance	Case-by-Case
Comments	
Date of Development	June 2003

<sup>1</sup> Invasive disease manifests itself mainly as pneumonia with bacteremia, bacteremia without a known site of infection, and meningitis.

<sup>2</sup> The role of Directigen test results is questionable due to lack of specificity.

# Poliomyelitis

Disease Case Classification	
Confirmed Case	<p>Clinical illness<sup>1</sup> with laboratory confirmation of infection:</p> <ul style="list-style-type: none"> <li>▪ Isolation of polio virus (vaccine or wild type) from an appropriate clinical specimen</li> </ul> <p><b>OR</b></p> <ul style="list-style-type: none"> <li>▪ Positive PCR assay for polio virus</li> </ul> <p><b>OR</b></p> <p>Clinical illness<sup>1</sup> in a person who is epidemiologically linked to a laboratory confirmed case</p>
Probable Case	<p>Clinical illness<sup>1</sup> 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:</p> <ul style="list-style-type: none"> <li>▪ Significant rise in polio virus antibody titre in paired sera</li> </ul> <p><b>OR</b></p> <ul style="list-style-type: none"> <li>▪ The presence of polio-specific IgM antibody in the absence of recent immunization with polio virus-containing vaccine</li> </ul>
Suspect Case	<p>Clinical illness<sup>1</sup> and no laboratory confirmation of infection (no polio virus detection or serologic evidence), including negative test results, and inadequate or no investigation</p>
<p><b>Paralytic polio can be subdivided into the following categories:</b></p>	
<b>(1) Wild virus</b>	<p>Laboratory investigation implicates wild type virus. This group is further subdivided as follows:</p> <ul style="list-style-type: none"> <li>▪ Imported: travel or residence in a polio-endemic area 30 days or less before onset of symptoms</li> <li>▪ Import-related: epidemiologically linked to someone who has traveled or resided in a polio-endemic area within 30 days of onset of symptoms</li> <li>▪ Indigenous: no travel or contact as described above</li> </ul>
<b>(2) Vaccine-associated</b>	<p>Laboratory investigation implicates vaccine-type virus. This group is further subdivided as follows:</p> <ul style="list-style-type: none"> <li>▪ Recipient: the illness began 7-30 days after the patient received oral polio vaccine (OPV)</li> <li>▪ Contact: the patient was shown to have been in contact with an OPV-recipient and became ill 7-60 days after the contact was vaccinated</li> <li>▪ Possible contact: the patient had no known direct contact with an OPV-recipient and no history of receiving OPV, but the paralysis occurred in an area in which a mass vaccination campaign had been in progress 7-60 days before the onset of paralysis</li> <li>▪ No known contact: the patient had no known contact with an OPV-recipient and no history of</li> </ul>

	receiving OPV, and the paralysis occurred in an area where no routine or intensive OPV vaccination had been in progress. In Canada, this would include all provinces and territories.
National Surveillance	Confirmed Cases
Provincial Surveillance	Confirmed, Probable and Suspect Cases
Type of Surveillance	Case-by-Case (further categorization into wild type vs. vaccine-associated)
Comments	Important <b>NOTE</b> : all cases will be reviewed by the Working Group on Polio Eradication to determine their classification
Date of Development	June 2003

<sup>1</sup> Clinical illness is 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)
- neurological deficit present 60 days after onset of initial symptoms unless the patient has died

## Powassan Encephalitis Arboviral Encephaliditides

Disease Case Classification	<b>Includes:</b> Eastern Equine Encephalitis (EEE); Powassan Encephalitis; St. Louis Encephalitis; Western Equine Encephalitis (WEE).
Confirmed Case	Clinical illness <sup>1</sup> with laboratory confirmation of infection: <ul style="list-style-type: none"> <li>▪ Fourfold or greater increase in serum antibody titre between acute- and convalescent-phase serum specimens ideally taken at least 2 weeks apart and run in parallel at the same laboratory</li> <li>▪ Isolation of virus from or demonstration of viral antigen or genomic sequences in tissue, blood, cerebrospinal fluid (CSF), or other body fluid</li> <li>▪ Specific immunoglobulin M (IgM) antibody by enzyme immunoassay (EIA) antibody captured in CSF or serum<sup>2</sup></li> </ul>
Probable Case	Clinical illness <sup>1</sup> occurring during a period when arboviral transmission is likely, and with a stable (less than or equal to twofold change) elevated antibody titre to an arbovirus <sup>3</sup>
National Surveillance	
Provincial Surveillance	Confirmed Cases (WEE confirmed and Probable)
Type of Surveillance	Case-by-Case
Comments	Reporting should be etiology-specific, that is i.e. Eastern Equine Encephalitis (EEE), St. Louis Encephalitis, Western Equine Encephalitis (WEE)
Date of Development	June 2003

<sup>1</sup> Clinical illness is characterized by a febrile illness of variable severity associated with neurological symptoms ranging from headache to aseptic meningitis or encephalitis. Arboviral encephalitis cannot be distinguished clinically from other central nervous system (CNS) infections. Symptoms can include headache, confusion or other alteration in sensorium, nausea, and vomiting. Signs may include fever, meningismus, cranial nerve palsies, paresis or paralysis, sensory deficits, altered reflexes, convulsions, abnormal movements, and coma of varying degree.

<sup>2</sup> Serum IgM antibodies alone should be confirmed by demonstration of immunoglobulin G antibodies by another serologic assay (e.g., neutralization or hemagglutination inhibition).

<sup>3</sup> e.g. greater than or equal to 320 by hemagglutination inhibition, greater than or equal to 128 by complement fixation, greater than or equal to 256 by immunofluorescence, and greater than or equal to 160 by neutralization, or greater than or equal to 400 by enzyme immunoassay IgM).

# Psittacosis

Disease Case Classification	
Confirmed Case	<p>Clinical illness<sup>1</sup> with laboratory confirmation of infection:</p> <ul style="list-style-type: none"> <li>▪ Isolation of <i>Chlamydia psittaci</i> from respiratory secretions</li> <li>▪ Detection of <i>C. psittaci</i> by nucleic acid test (when available)</li> <li>▪ Four-fold or greater rise in serum antibody titres to <i>Chlamydia psittaci</i> between acute and convalescent phase sera (to a reciprocal titre of greater than or equal to 32)</li> <li>▪ Presence of immunoglobulin M antibody against <i>C. psittaci</i> by MIF (to a reciprocal titre of greater than or equal to 16)</li> </ul>
Probable Case	<p>Clinical illness<sup>1</sup> with a single high titre of IgG to <i>C. psittaci</i> and other diseases have been excluded  <b>OR</b>            Clinical illness<sup>1</sup> in a person epidemiologically linked to a confirmed case</p>
National Surveillance	
Provincial Surveillance	Confirmed Cases
Type of Surveillance	Case-by-Case
Comments	
Date of Development	June 2003

<sup>1</sup> Clinical presentations are variable. Most common are fever, headache, myalgia, chills, rash and upper or lower respiratory tract disease (usually with dry cough). There is usually a history of exposure to birds.

## Q Fever

Disease Case Classification	
Confirmed Case	<p>Clinical illness<sup>1</sup> with laboratory confirmation of infection:</p> <ul style="list-style-type: none"> <li>▪ Fourfold or greater change in antibody titre to <i>C. burnetii</i> phase II or phase I antigen in paired serum specimens ideally taken 3-6 weeks apart</li> <li>▪ Isolation of <i>C. burnetii</i> from a clinical specimen by culture</li> <li>▪ Demonstration of <i>C. burnetii</i> in a clinical specimen by detection of antigen or nucleic acid</li> <li>▪ Demonstration of <i>C. burnetii</i> in tissues by immunostaining or electron microscopy</li> </ul>
Probable Case	<p>Clinical illness<sup>1</sup> with a single supportive Immunoglobulin G (IgG) or Immunoglobulin M (IgM) titre  <b>OR</b>            Clinical illness<sup>1</sup> in a person who is epidemiologically linked to a confirmed case</p>
National Surveillance	Confirmed Cases
Provincial Surveillance	Confirmed Cases
Type of Surveillance	Case-by-Case
Comments	
Date of Development	June 2003

<sup>1</sup> Acute infection: A febrile illness usually accompanied by rigors, myalgia, malaise, and retrobulbar headache. Severe disease can include acute hepatitis, pneumonia, and meningoencephalitis. Asymptomatic infections may also occur.

Chronic infection: Potentially fatal endocarditis may evolve months to years after acute infection, particularly in persons with underlying valvular disease. A chronic fatigue-like syndrome has been reported in some Q fever patients.

# Rabies

Disease Case Classification	
Confirmed Case	<p>Clinical illness<sup>1</sup> with laboratory confirmation of infection:</p> <ul style="list-style-type: none"> <li>▪ Detection by direct fluorescent antibody of viral antigen in an appropriate clinical specimen (preferably the brain or the nerves surrounding hair follicles in the nape of the neck)</li> </ul> <p><b>OR</b></p> <ul style="list-style-type: none"> <li>▪ Isolation (in cell culture or in a laboratory animal) of rabies virus from saliva, cerebrospinal fluid, or central nervous system tissue</li> </ul> <p><b>OR</b></p> <ul style="list-style-type: none"> <li>▪ Identification of a rabies-neutralizing antibody titre greater than or equal to 5 (complete neutralization) in the serum or cerebrospinal fluid of an unvaccinated person</li> </ul> <p><b>OR</b></p> <ul style="list-style-type: none"> <li>▪ Detection of viral DNA by molecular methods (when available) from saliva or CSF</li> </ul>
Probable Case	
National Surveillance	Confirmed Cases
Provincial Surveillance	Confirmed Cases
Type of Surveillance	Case-by-Case
Comments	
Date of Development	June 2003

<sup>1</sup> Rabies is an acute encephalomyelitis that almost always progresses to coma or death within 10 days after the first symptom.

# Respiratory Syncytial Virus (RSV)

Disease Case Classification	
Confirmed Case	<p>Clinical illness<sup>1</sup> with laboratory confirmation of infection:</p> <ul style="list-style-type: none"> <li>▪ Isolation of RSV from respiratory secretions in cell culture</li> </ul> <p><b>OR</b></p> <ul style="list-style-type: none"> <li>▪ Identification of viral antigen in nasopharyngeal cells by FA, ELISA, or RIA</li> </ul> <p><b>OR</b></p> <ul style="list-style-type: none"> <li>▪ 4-fold or greater rise in RSV antibody titre between acute and convalescent sera</li> </ul>
Probable Case	Clinical illness <sup>1</sup> in a person who is epidemiologically linked to a confirmed case
National Surveillance	
Provincial Surveillance	Aggregate Reporting
Type of Surveillance	Laboratory
Comments	
Date of Development	June 2003

<sup>1</sup> Primary infection manifests as pneumonia, bronchiolitis, tracheobronchitis, or upper respiratory tract illness (often accompanied by fever and otitis media). The infection is very rarely asymptomatic.

# Rocky Mountain Spotted Fever

Disease Case Classification	
Confirmed Case	<p>Clinical illness<sup>1</sup> with laboratory confirmation of infection:</p> <ul style="list-style-type: none"> <li>▪ Fourfold or greater rise in antibody titre to <i>Rickettsia rickettsii</i> antigen by immunofluorescence antibody (IFA), complement fixation (CF), latex agglutination (LA), microagglutination (MA), or indirect hemagglutination antibody (IHA) test in acute- and convalescent-phase specimens ideally taken greater than or equal to 3 weeks apart</li> <li>▪ Positive PCR assay to <i>R. rickettsii</i> (when available) from blood or skin biopsy)</li> <li>▪ Demonstration of positive immunofluorescence of skin lesion (biopsy) or organ tissue (autopsy)</li> <li>▪ Isolation of <i>R. rickettsii</i> from clinical specimen</li> </ul>
Probable Case	<p>Clinical illness<sup>1</sup> with a single IFA serologic titre of greater than or equal to 64 or a single CF titre of greater than or equal to 16 or other supportive serology<sup>2</sup></p> <p><b>OR</b></p> <p>Clinical illness<sup>1</sup> in a person epidemiologically linked to a confirmed case</p>
National Surveillance	
Provincial Surveillance	Confirmed Cases
Type of Surveillance	Case-by-Case
Comments	
Date of Development	June 2003

<sup>1</sup> RMSF is the prototype disease of the spotted fever group. It is characterized by acute onset of fever and is usually accompanied by accompanied by malaise, myalgia, headache, chills, conjunctival injection and rash. The rash is initially maculopapular (on the palms and soles with rapid centripetal spread) and two-thirds of patients then develop a petechial exanthem.

<sup>2</sup> A fourfold rise in titre or a single titre greater than or equal to 320 by Proteus OX-19 or OX-2, or a single titre greater than or equal to 128 by an LA, IHA, or MA test.

# Rotavirus

Disease Case Classification	
Confirmed Case	Clinical illness <sup>1</sup> with laboratory confirmation of infection: <ul style="list-style-type: none"><li>▪ Identification of virus in stool by electron microscopy, ELISA, latex agglutination or molecular methods when available</li></ul>
Probable Case	Clinical illness <sup>1</sup> in a person who is epidemiologically linked to a confirmed case
National Surveillance	
Provincial Surveillance	Laboratory
Type of Surveillance	Laboratory
Comments	Serology can show evidence of infection, but does not definitively establish rotavirus as the cause of symptoms.
Date of Development	June 2003

<sup>1</sup> Clinical illness is characterized by fever, emesis, watery diarrhea and, sometimes associated with dehydration.

# Rubella

Disease Case Classification	
Confirmed Case	<p>Laboratory confirmation of infection in the absence of recent immunization with rubella-containing vaccine:</p> <ul style="list-style-type: none"> <li>▪ Isolation of rubella virus from an appropriate clinical specimen</li> </ul> <p><b>OR</b></p> <ul style="list-style-type: none"> <li>▪ Significant rise in serum rubella IgG antibody level by any standard serologic assay</li> </ul> <p><b>OR</b></p> <ul style="list-style-type: none"> <li>▪ Positive serologic test for rubella-specific IgM</li> </ul> <p><b>OR</b></p> <ul style="list-style-type: none"> <li>▪ Clinical illness<sup>1</sup> in a person who is epidemiologically linked to a laboratory confirmed case</li> </ul>
Probable Case	Clinical illness <sup>1</sup> in the absence of appropriate laboratory tests and not epidemiologically linked to a laboratory-confirmed case
National Surveillance	Confirmed Cases
Provincial Surveillance	Confirmed Cases
Type of Surveillance	Case-by-Case
Comments	
Date of Development	June 2003

<sup>1</sup> Clinical illness is characterized by fever and rash, and at least one of the following:

- arthralgia/arthritis
- lymphadenopathy
- conjunctivitis

# Salmonellosis

Disease Case Classification	
Confirmed Case	Laboratory confirmation of infection with or without symptoms: <ul style="list-style-type: none"><li>Isolation of a <i>Salmonella</i> sp. (excluding <i>Salmonella enterica</i> serovar typhi/paratyphi) from an appropriate clinical specimen</li></ul>
Probable Case	Clinical illness <sup>1</sup> in a person who is epidemiologically linked to a confirmed case
National Surveillance	Confirmed Cases
Provincial Surveillance	Confirmed and Probable Cases
Type of Surveillance	Case-by-Case
Comments	
Date of Development	June 2003

<sup>1</sup> Clinical illness is characterized by diarrhea, abdominal pain, nausea, and sometimes vomiting.

## Severe Acute Respiratory Syndrome (SARS)

Disease Case Classification	
Confirmed Case	<p>A person with:</p> <ul style="list-style-type: none"><li>▪ Early clinical presentation of SARS, i.e.,</li><li>▪ Fever (over 38° C) AND cough or breathing difficulty.</li></ul> <p><b>AND</b></p> <ul style="list-style-type: none"><li>▪ Radiographic evidence consistent with SARS, i.e., Radiographic evidence of infiltrates consistent with pneumonia or Acute Respiratory Distress Syndrome (ARDS)</li></ul> <p><b>AND</b></p> <ul style="list-style-type: none"><li>▪ Laboratory evidence of SARS-associated coronavirus (SARS-CoV) infection, i.e., PCR positive results or seroconversion or virus isolation (see SARS-CoV Laboratory Investigation)</li></ul> <p><b>OR</b></p> <p>A deceased person with:</p> <ul style="list-style-type: none"><li>▪ A history of early clinical presentation of SARS, i.e., Fever AND cough or difficulty breathing resulting in death</li></ul> <p><b>AND</b></p> <ul style="list-style-type: none"><li>▪ Autopsy findings consistent with SARS, i.e., Evidence of pneumonia or ARDS without an alternate identifiable cause</li></ul> <p><b>AND</b></p> <ul style="list-style-type: none"><li>▪ Laboratory evidence of SARS coronavirus infection, i.e., PCR positive results or seroconversion or virus isolation (see SARS-CoV Laboratory Investigation)</li></ul>
Probable Case	<p>A person with:</p> <ul style="list-style-type: none"><li>▪ Early clinical presentation of SARS, i.e., Fever (over 38° C) AND cough or breathing difficulty</li></ul> <p><b>AND</b></p> <ul style="list-style-type: none"><li>▪ Radiographic evidence consistent with SARS, i.e., Radiographic evidence of infiltrates consistent with pneumonia or Acute Respiratory Distress Syndrome (ARDS)</li></ul> <p><b>AND</b></p> <ul style="list-style-type: none"><li>▪ Epidemiologically linked to a person or place linked to SARS, i.e., Close contact with a confirmed SARS case, within 10 days of onset of symptoms, OR Close contact with a symptomatic person who has laboratory evidence of SARS-CoV</li></ul>

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infection, within 10 days of onset of symptoms,  
OR

Residence, recent travel or visit to an “Area with recent local transmission of SARS” within the 10 days prior to onset of symptoms OR

Close contact of a symptomatic person (including health care providers) with a probable case who has been to an “Area with recent local transmission of SARS” within the 10 days prior to the onset of symptoms.

**OR**

A deceased person with:

- A history of early clinical presentation of SARS, i.e., Fever AND cough or difficulty breathing resulting in death

**AND**

- Autopsy findings consistent with SARS, i.e.,  
Consistent with the pathology of ARDS without an alternate identifiable cause

**AND**

- Epidemiologically linked to a person or place linked to SARS, i.e.,

Close contact with a confirmed SARS case, within 10 days of onset of symptoms OR

Close contact with a symptomatic person who has laboratory evidence of SARS-CoV infection, within 10 days of onset of symptoms OR

Residence, recent travel or visit to an “Area with recent local transmission of SARS” within the 10 days prior to onset of symptoms OR

Close contact of a symptomatic person (including health care providers) with a probable case who has been to an “Area with recent local transmission of SARS” within the 10 days prior to onset of symptoms.

**OR**

A deceased person with:

- A history of early clinical presentation of SARS, i.e., fever AND cough or difficulty breathing resulting in death

**AND**

- Laboratory evidence of SARS coronavirus infection, i.e., PCR positive results or seroconversion or virus isolation

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“Symptomatic” Person

A person with:

- Symptoms consistent with prodromal or clinical presentation of SARS, i.e.,

Fever (over 38° C) AND one or more of cough, breathing difficulty, chills, rigors, malaise or headache

**AND**

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- Epidemiologically linked to a person with SARS, i.e.,  
Close contact<sup>1</sup> with a confirmed or probable SARS case, within 10 days of onset of symptoms OR  
Close contact with a symptomatic person who has laboratory evidence of SARS-CoV infection, within 10 days of onset of symptoms
- OR**  
A deceased person with:
- A history of symptoms consistent with prodromal or early clinical presentation of SARS, i.e.  
Fever AND one or more of cough, breathing difficulty, chills, rigors, malaise or headache resulting in death,
- AND**
- Epidemiologically linked to a person with SARS, i.e.  
Close contact with a confirmed or probable SARS case, within 10 days of onset of symptoms
- OR**  
Close contact with a symptomatic person who has laboratory evidence of SARS-CoV infection within 10 days of onset of symptoms

National Surveillance	Confirmed Cases
Provincial Surveillance	Confirmed and Probable Cases
Type of Surveillance	Case-by-Case
Comments	
Date of Development	November 2005

<sup>1</sup> Having cared for, lived with or had face-to-face (within 1 metre) contact with, or having had direct contact with respiratory secretions and/or body fluids of a person with SARS.

# Shigellosis

Disease Case Classification	
Confirmed Case	Laboratory confirmation of infection with or without symptoms: <ul style="list-style-type: none"><li>▪ Isolation of <i>Shigella</i> from an appropriate clinical specimen</li></ul>
Probable Case	Clinical illness <sup>1</sup> in a person who is epidemiologically linked to a confirmed case
National Surveillance	Confirmed Cases
Provincial Surveillance	Confirmed and Probable Cases
Type of Surveillance	Case-by-Case
Comments	
Date of Development	June 2003

<sup>1</sup> Clinical illness is characterized by diarrhea, fever, nausea, cramps, and tenesmus.

## Shingles (Herpes Zoster)

<b>Disease Case Classification</b>	
Confirmed Case	Clinical illness with or without laboratory confirmation of infection: <ul style="list-style-type: none"> <li>Unilateral vesicular eruption with a dermatomal distribution which may or may not be accompanied by acute neuritis and/or post herpetic neuralgia</li> </ul>
<b>Probable Case</b>	
<b>National Surveillance</b>	
Provincial Surveillance	Confirmed Case
Type of Surveillance	Case-by-Case
Comments	<i>NOTE:</i> The diagnosis of shingles is generally made by history and physical examination. Laboratory tests are not routinely required, but may be useful in complicated cases. These include visualization of the virus by electron microscopy, demonstration of viral antigen in smears using FA, presence of viral DNA by PCR, or a rise in serum antibodies.
Date of Development	June 2003

## \*Smallpox

Disease Case Classification	
Confirmed Case	Laboratory confirmation of infection: <ul style="list-style-type: none"> <li>▪ Isolation of <i>variola</i> virus from an appropriate clinical specimen (tier 3 laboratory only)</li> </ul> <b>OR</b> <ul style="list-style-type: none"> <li>▪ Positive PCR for <i>variola</i> virus</li> </ul> <b>OR</b> <ul style="list-style-type: none"> <li>▪ Negative stain electron microscopy identification of <i>variola</i> virus in an appropriate clinical specimen</li> </ul>
Probable Case	Clinical illness <sup>1</sup> in a person who has an epidemiological link to a laboratory-confirmed case or to a probable case
Suspect Case	Clinical illness <sup>1</sup> in a person who does not have an epidemiological link to a laboratory-confirmed case or to a probable case of smallpox <b>OR</b> Atypical lesion <sup>2</sup> known to be associated with the <i>variola</i> virus on a person who has an epidemiological link to a laboratory confirmed or probable case
National Surveillance	Confirmed, Probable and Suspect Cases
Provincial Surveillance	Confirmed, Probable and Suspect Cases
Type of Surveillance	Case-by-Case
Comments	
Date of Development	June 2003

<sup>1</sup> Clinical illness: acute onset of fever > 38.33° C followed by a rash characterized by vesicles or firm pustules in the same stage of development without other apparent cause. Major distinguishing features include: a febrile prodrome with a temperature > 38.8° C and systemic symptoms (prostration, severe headache, backache, abdominal pain, or vomiting) 1-4 days before rash onset; lesions are deep, firm, well-circumscribed pustules (may be confluent or umbilicated). Other distinguishing features include: rash concentrated on face and extremities, rash in same stage of evolution on any one part of the body, first lesions on oral mucosa/palate, followed by centrifugal rash on face or forearm, lesions on palms and soles (seen in >50% of cases), lesions may itch at scabbing stage, lesions evolve from papule to pustule in days, illness lasts 14-21 days.

<sup>2</sup> Atypical presentations of smallpox include: haemorrhagic lesions OR flat velvety lesions not appearing as typical vesicles nor progressing to pustules.

## St. Louis Encephalitis Arboviral Encephaliditides

Disease Case Classification	<b>Includes:</b> Eastern Equine Encephalitis (EEE); Powassan Encephalitis; St. Louis Encephalitis; Western Equine Encephalitis (WEE).
Confirmed Case	Clinical illness <sup>1</sup> with laboratory confirmation of infection: <ul style="list-style-type: none"> <li>▪ Fourfold or greater increase in serum antibody titre between acute- and convalescent-phase serum specimens ideally taken at least 2 weeks apart and run in parallel at the same laboratory</li> <li>▪ Isolation of virus from or demonstration of viral antigen or genomic sequences in tissue, blood, cerebrospinal fluid (CSF), or other body fluid</li> <li>▪ Specific immunoglobulin M (IgM) antibody by enzyme immunoassay (EIA) antibody captured in CSF or serum<sup>2</sup></li> </ul>
Probable Case	Clinical illness <sup>1</sup> occurring during a period when arboviral transmission is likely, and with a stable (less than or equal to twofold change) elevated antibody titre to an arbovirus <sup>3</sup>
National Surveillance	
Provincial Surveillance	Confirmed Cases (WEE confirmed and Probable)
Type of Surveillance	Case-by-Case
Comments	Reporting should be etiology-specific, that is i.e. Eastern Equine Encephalitis (EEE), St. Louis Encephalitis, Western Equine Encephalitis (WEE)
Date of Development	June 2003

<sup>1</sup> Clinical illness is characterized by a febrile illness of variable severity associated with neurological symptoms ranging from headache to aseptic meningitis or encephalitis. Arboviral encephalitis cannot be distinguished clinically from other central nervous system (CNS) infections. Symptoms can include headache, confusion or other alteration in sensorium, nausea, and vomiting. Signs may include fever, meningismus, cranial nerve palsies, paresis or paralysis, sensory deficits, altered reflexes, convulsions, abnormal movements, and coma of varying degree.

<sup>2</sup> Serum IgM antibodies alone should be confirmed by demonstration of immunoglobulin G antibodies by another serologic assay (e.g., neutralization or hemagglutination inhibition).

<sup>3</sup> e.g. greater than or equal to 320 by hemagglutination inhibition, greater than or equal to 128 by complement fixation, greater than or equal to 256 by immunofluorescence, and greater than or equal to 160 by neutralization, or greater than or equal to 400 by enzyme immunoassay IgM).

# Staphylococcal Intoxication

Disease Case Classification	
Confirmed Case	<p>Clinical illness<sup>1</sup> with laboratory confirmation of infection:</p> <ul style="list-style-type: none"> <li>▪ Detection of <i>Staphylococcus aureus</i> enterotoxin in stool, vomitus, or epidemiologically implicated food</li> </ul> <p><b>OR</b></p> <ul style="list-style-type: none"> <li>▪ Isolation of <math>\geq 10^5</math> organisms/g from stool, vomitus or epidemiologically implicated food (provided proper specimen handling)</li> </ul>
Probable Case	Clinical illness <sup>1</sup> in a person who is epidemiologically linked to a confirmed case
National Surveillance	
Provincial Surveillance	Laboratory
Type of Surveillance	Laboratory
Comments	<p>Phage typing is not useful in a non-outbreak situation. Furthermore, even within the scope of outbreak testing, it is not the diagnostic method of choice.</p> <p>This should be considered a tentative definition until the Provincial Laboratory reviews the significance of colony counts in stool specimens.</p>
Date of Development	June 2003

<sup>1</sup> Clinical illness is marked by abrupt onset of severe nausea, cramps, emesis, and prostration, often accompanied by diarrhea. Typically, there is a short time interval between ingestion of the implicated food and symptom onset.

## Subacute Sclerosing Panencephalitis (SSPE)

<b>Disease Case Classification</b>	
Confirmed Case	Diagnosis is usually made clinically, as viral isolation is difficult and there is a paucity of the immune response. All other possible etiologies of encephalitis should be ruled out. May be diagnosed by the demonstration of high measles titres in serum and CSF in the presence of a compatible illness, also role of brain biopsy (characteristic histopathology), EEG (characteristic pattern), and possibly PCR/molecular diagnostic techniques (and prior measles information in these individuals usually remarkable only for early age of occurrence prior to 2 years-of-age)
Probable Case	
National Surveillance	
Provincial Surveillance	Confirmed Cases
Type of Surveillance	Case-by-Case
Comments	SSPE is chronic encephalitis after measles in normal hosts. It is rare, developing in about 1/100, 000 hosts several years after infection, and covers a wide spectrum of severity.
Date of Development	June 2003

# Syphilis

Disease Case Classification	
Confirmed Case	Laboratory confirmation of infection: <ul style="list-style-type: none"><li>▪ Identification of <i>Treponema pallidum</i> by dark-field microscopy, fluorescent antibody equivalent examination of material from nasal discharges, skin lesions, placenta, umbilical cord or autopsy material of a neonate<sup>1</sup></li></ul> <b>OR</b> <ul style="list-style-type: none"><li>▪ Reactive serology (non-treponemal and treponemal) from venous blood (not cord blood) in an infant/child with clinical, laboratory or radiographic evidence of congenital syphilis, whose mother is without documented evidence of adequate treatment</li></ul>
<b>Primary Syphilis</b> Confirmed Case	Laboratory confirmation of infection: <ul style="list-style-type: none"><li>▪ Identification of <i>T. pallidum</i> by dark-field microscopy, fluorescent antibody, or equivalent examination of material from a chancre or a regional lymph node</li></ul> <b>OR</b> <ul style="list-style-type: none"><li>▪ Presence of one or more typical lesions (chancres), and reactive treponemal serology, regardless of non-treponemal test reactivity, in individuals with no previous history of syphilis</li></ul> <b>OR</b> <ul style="list-style-type: none"><li>▪ Presence of one or more typical lesions (chancres) and at least a 4-fold (e.g. 1:8 to 1:32) increase in the titre over the last known non-treponemal test in individuals with a past history of syphilis treatment</li></ul>
<b>Secondary Syphilis</b> Confirmed Case	Laboratory evidence of infection: <ul style="list-style-type: none"><li>▪ Identification of <i>T. pallidum</i> by dark-field microscopy, fluorescent antibody or equivalent examination of mucocutaneous lesions, condylomata lata and reactive serology (non-treponemal and treponemal)</li></ul> <b>OR</b> <ul style="list-style-type: none"><li>▪ Presence of typical mucocutaneous lesions, alopecia, loss of eyelashes and lateral third of eyebrows, iritis, generalized lymphadenopathy, fever, malaise or splenomegaly, <b>AND</b> either a reactive serology (non-treponemal and treponemal) or at least a 4-fold (e.g. 1:8 to 1:32) increase in titre over the last known non-treponemal test.</li></ul> <p><b>NOTE:</b> The possibility of a prozone reaction should be considered in individuals who are suspected of having secondary syphilis but whose non-treponemal test is non-reactive.</p>
<b>Early Latent Syphilis</b>	Laboratory confirmation of infection:

<sup>1</sup> For the purpose of this manual, a neonate is defined as a newborn up to and including 28 days old.  
Alberta Case Definition Manual 2003

Confirmed Case	<ul style="list-style-type: none"> <li>▪ An asymptomatic patient with reactive serology (non-treponemal and treponemal) who within the past 12 months had one of the following: <ul style="list-style-type: none"> <li>▪ Non-reactive serology</li> <li>▪ Symptoms suggestive of primary or secondary syphilis</li> </ul> </li> <li>▪ Exposure to a sexual partner with primary, secondary or early latent syphilis</li> </ul>
<b>Late Latent Syphilis</b> Confirmed Case	<p>Laboratory confirmation of infection:</p> <ul style="list-style-type: none"> <li>▪ An asymptomatic patient with persistently reactive treponemal serology (regardless of non-treponemal serology reactivity) who does not meet the criteria for early latent disease and who has not been previously treated for syphilis</li> </ul>
<b>Neurosyphilis</b> Confirmed Case	<p>Laboratory confirmation of infection:</p> <ul style="list-style-type: none"> <li>▪ Reactive treponemal serology (regardless of non-treponemal serology reactivity) and one of the following: <ul style="list-style-type: none"> <li>--Reactive CSF-VDRL in non-bloody cerebrospinal fluid (CSF)</li> <li>--Clinical evidence of neurosyphilis and CSF pleocytosis (particularly lymphocytes) in the absence of other known causes</li> </ul> </li> <li>▪ Clinical evidence of neurosyphilis and elevated CSF protein in the absence of other known causes</li> </ul>
<b>Tertiary Syphilis Other Than Neurosyphilis</b> Confirmed Case	<p>Laboratory confirmation of infection:</p> <ul style="list-style-type: none"> <li>▪ Reactive treponemal serology (regardless of non-treponemal test reactivity) together with characteristic abnormalities of the cardiovascular system, bone, skin or other structures, in the absence of other known causes of these abnormalities. (<i>T. pallidum</i> is rarely seen in these lesions, although when present, is diagnostic.)</li> </ul> <p><b>AND</b></p> <ul style="list-style-type: none"> <li>▪ No clinical or laboratory evidence of neurosyphilis.</li> </ul>
National Surveillance	Confirmed cases
Provincial Surveillance	Confirmed cases
Type of Surveillance	Case-by-case
Comments	No changes from Health Canada October 1999 definition
Date of Development	June 2003

# Tetanus

Disease Case Classification	
Confirmed Case	Clinical illness <sup>1</sup> without other apparent medical cause with or without laboratory evidence of <i>Clostridium tetani</i> or its toxin and with or without history of injury
Probable Case	
National Surveillance	Confirmed Cases
Provincial Surveillance	Confirmed Cases
Type of Surveillance	Case-by-Case
Comments	
Date of Development	June 2003

<sup>1</sup> Clinical illness is 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.

# Toxic Shock Syndrome (TSS) - Non-Group A Streptococcus

Disease Case Classification	
Confirmed Case	<p>Clinical illness involving <b>all six</b> of the following:</p> <ul style="list-style-type: none"> <li>▪ <b>Fever:</b> temperature <math>\geq 38.9</math> °C</li> </ul> <p><b>AND</b></p> <ul style="list-style-type: none"> <li>▪ <b>Rash:</b> diffuse macular erythroderma</li> </ul> <p><b>AND</b></p> <ul style="list-style-type: none"> <li>▪ <b>Desquamation:</b> 1-2 wk after onset of illness, particularly on the palms, soles, fingers, and toes.</li> </ul> <p><b>AND</b></p> <ul style="list-style-type: none"> <li>▪ <b>Hypotension:</b> systolic blood pressure less than or equal to 90 mm Hg for adults or less than fifth percentile by age for children aged less than 16 years; orthostatic drop in diastolic blood pressure greater than or equal to 15 mm Hg from lying to sitting, orthostatic syncope, or orthostatic dizziness.</li> </ul> <p><b>AND</b></p> <ul style="list-style-type: none"> <li>▪ <b>Multisystem involvement (<math>\geq 3</math> systems of the following):</b> <ul style="list-style-type: none"> <li><u>Gastrointestinal:</u> vomiting or diarrhea at onset of illness;</li> <li><u>Muscular:</u> severe myalgia and/or creatine phosphokinase level at least twice the upper limit of normal;</li> <li><u>Mucous membrane:</u> vaginal, oropharyngeal, and/or conjunctival hyperemia;</li> <li><u>Renal:</u> blood urea nitrogen (BUN) or creatinine at least twice the upper limit of normal for laboratory or urinary sediment with pyuria (greater than or equal to 5 leukocytes per high-power field) in the absence of urinary tract infection;</li> <li><u>Hepatic:</u> total bilirubin, alanine aminotransferase enzyme (ALT), or aspartate aminotransferase enzyme (AST) levels at least twice the upper limit of normal for laboratory;</li> <li><u>Hematologic:</u> thrombocytopenia (platelets less than 100,000/mm<sup>3</sup>);</li> <li><u>Central nervous system:</u> disorientation or alterations in consciousness without focal neurologic signs when fever and hypotension are absent.</li> </ul> </li> </ul> <p><b>AND</b></p> <ul style="list-style-type: none"> <li>▪ <b>Laboratory criteria:</b> Negative serologies for measles, leptospirosis, and Rocky Mountain spotted fever; Negative blood or cerebral spinal fluid cultures for organisms other than <i>S. aureus</i>.</li> </ul>
Probable Case	Clinical illness that involves five out of the six clinical findings (see Confirmed Case).
National Surveillance	
Provincial Surveillance	Confirmed and Probable Cases
Type of Surveillance	Case-by-Case
Comments	The diagnosis of TSS – Non-Group A Streptococcus is based mainly on clinical criteria.
Date of Development	August 2006

# Trichinosis

Disease Case Classification	
Confirmed Case	Clinical illness <sup>1</sup> with laboratory confirmation of infection: <ul style="list-style-type: none"> <li>▪ Demonstration of <i>Trichinella</i> sp. larvae in tissue obtained by muscle biopsy</li> </ul> <b>OR</b> <ul style="list-style-type: none"> <li>▪ Positive serologic test for <i>Trichinella</i> sp.</li> </ul> <b>OR</b> <ul style="list-style-type: none"> <li>▪ Demonstration of larvae in epidemiologically implicated food (meat)</li> </ul>
Probable Case	Clinical illness <sup>1</sup> in a person who is epidemiologically linked to a confirmed case
National Surveillance	
Provincial Surveillance	Confirmed and Probable Cases
Type of Surveillance	Case-by-Case
Comments	
Date of Development	June 2003

<sup>1</sup> Symptoms depend on the stage of the life cycle. Adult worms in the intestine cause diarrhea, abdominal cramps and vomiting, while systemic invasion by larvae result in fever, myalgia/myositis, periorbital edema and eosinophilia. Systemic symptoms are more common.

## Tuberculosis (TB)

Disease Case Classification	
Confirmed Case	<p>Demonstration on culture (from a specimen taken from the patient) of <i>Mycobacterium tuberculosis</i> complex (i.e. <i>M. tuberculosis</i>, <i>M. bovis</i> [excluding BCG strain], or <i>M. africanum</i>, <i>M. microti</i>, <i>M. conettii</i>)</p> <p><b>Clinical Case of Tuberculosis</b> Clinical findings compatible with active tuberculosis<sup>1</sup> in the absence of bacteriologic proof.</p> <p><b>New Case of Tuberculosis</b> No documented evidence or history of previously active tuberculosis</p> <p><b>Relapsed Case of Tuberculosis</b> Documented evidence or history of previously active tuberculosis that became inactive</p> <p><b>Inactive Tuberculosis</b></p> <ul style="list-style-type: none"> <li>▪ Cultures for <i>M. tuberculosis</i> negative for at least 6 months</li> </ul> <p><b>OR</b></p> <ul style="list-style-type: none"> <li>▪ In the absence of cultures, chest (or other) x-rays, stable for a minimum of 6 months</li> </ul>
Suspect Case	High index of suspicion of tuberculosis with commitment to treatment.
National Surveillance	Confirmed Cases
Provincial Surveillance	Confirmed and Suspect Cases
Type of Surveillance	Case-by-Case (AHW maintains a centralized TB registry for the purpose of case management and surveillance)
Comments	<p>Molecular biologic techniques are research tools and are not included in the definition.</p> <p>Cases of tuberculosis diagnosed in Canada include all cases: among Canadian born, immigrants, refugee claimants, students, visitors, migrant workers, and illegal aliens. Visitors = those non-Canadians travelling with or without a visa, stopping in Canada en route.</p>
Date of Development	June 2003

<sup>1</sup> Examples of clinical findings compatible with active tuberculosis are chest radiographic changes compatible with active tuberculosis, including idiopathic pleurisy with effusion, active extrapulmonary tuberculosis (meningeal, bone, kidney, peripheral lymph nodes, etc.), and pathologic or post-mortem evidence of active tuberculosis.

## \*Tularemia

Disease Case Classification	
Confirmed Case	Clinical illness <sup>1</sup> with laboratory confirmation of infection; <ul style="list-style-type: none"> <li>▪ Isolation of <i>Francisella tularensis</i> in an appropriate clinical specimen</li> </ul> <b>OR</b> <ul style="list-style-type: none"> <li>▪ Fourfold or greater change in serum antibody titre to <i>F. tularensis</i> antigen</li> </ul>
Probable Case	Clinical illness <sup>1</sup> with elevated serum antibody titre(s) to <i>F. tularensis</i> antigen (without documented fourfold or greater change) in a patient with no history of tularemia vaccination <b>OR</b> Detection of <i>F. tularensis</i> in a clinical specimen by fluorescent assay <b>OR</b> Positive PCR for <i>F. tularensis</i>
<b>Suspected Deliberate Release</b>	<b>Two or more suspected cases that are linked in time and place, especially geographically related groups of illness following a wind direction pattern</b>
National Surveillance	Confirmed and, Probable Cases
Provincial Surveillance	Confirmed and Probable Cases
Type of Surveillance	Case-by-Case
Comments	
Date of Development	June 2003

<sup>1</sup> Clinical illness: An illness characterized by several distinct forms, including the following: Ulceroglandular: cutaneous ulcer with regional lymphadenopathy Glandular: regional lymphadenopathy with no ulcer Oculoglandular: conjunctivitis with preauricular lymphadenopathy Oropharyngeal: stomatitis or pharyngitis or tonsillitis and cervical lymphadenopathy Intestinal: intestinal pain, vomiting, and diarrhea Pneumonic: primary pleuropulmonary disease Typhoidal: febrile illness without early localizing signs and symptoms

Clinical diagnosis is supported by evidence or history of a tick or deerfly bite, exposure to tissues of a mammalian host of *Francisella tularensis*, or exposure to potentially contaminated water.

# Typhoid Fever

Disease Case Classification	
Confirmed Case	Laboratory confirmation of infection with or without symptoms: <ul style="list-style-type: none"><li>▪ Isolation of <i>Salmonella typhi</i> from an appropriate clinical specimen</li></ul>
Probable Case	Clinical illness <sup>1</sup> in a person who is epidemiologically linked to a confirmed case
National Surveillance	Confirmed Cases
Provincial Surveillance	Confirmed and Probable Cases
Type of Surveillance	Case-by-Case
Comments	AHW maintains a Typhoid Registry for purposes of monitoring carriers as they potentially pose a long term health risk for transmission of disease (e.g. engaged in occupations involving food handling, childcare or care of the elderly.)
Date of Development	June 2003

<sup>1</sup> Clinical illness is characterized by insidious onset of sustained fever, headache, malaise, anorexia, relative bradycardia, constipation, or diarrhea.

# Typhus - Louseborne

Disease Case Classification	
Confirmed Case	<p>Clinical illness<sup>1</sup> with laboratory confirmation of infection:</p> <ul style="list-style-type: none"> <li>▪ Fourfold or greater rise in antibody titre to <i>Rickettsia prowazekii</i> antigen by immunofluorescence antibody (IFA), complement fixation (CF), enzyme immunoassay (EIA), or toxin-neutralization in acute- and convalescent-phase specimens ideally taken greater than or equal to 3 weeks apart</li> <li>▪ Positive PCR to <i>R. prowazekii</i> (when available)</li> <li>▪ Isolation of <i>R. prowazekii</i> from clinical specimen</li> <li>▪ Demonstration of positive immunofluorescence of skin lesion (biopsy) or organ tissue (autopsy)</li> </ul>
Probable Case	<p>Clinical illness<sup>1</sup> with a single high IFA serologic titre  <b>OR</b>            Clinical illness<sup>1</sup> in a person epidemiologically linked to a confirmed case</p>
National Surveillance	
Provincial Surveillance	Confirmed Cases
Type of Surveillance	Case-by-Case
Comments	
Date of Development	June 2003

<sup>1</sup> Clinical illness is characterized by a usually sudden and marked onset of symptoms, including headache, chills, prostration, fever, and myalgia. A maculopapular rash appears on the upper trunk and extremities (about day 6) and spreads centrifugally. The face, palms and soles are spared.

# Typhus - Murine

Disease Case Classification	
Confirmed Case	<p>Clinical illness<sup>1</sup> with laboratory confirmation of infection:</p> <ul style="list-style-type: none"> <li>▪ Fourfold or greater rise in antibody titre to <i>R. typhi</i> or <i>R. felis</i> antigen by immunofluorescence antibody (IFA), latex agglutination (LA), enzyme immunoassay (EIA), or toxin-neutralization in acute- and convalescent-phase specimens ideally taken greater than or equal to 3 weeks apart<sup>2</sup></li> <li>▪ Positive PCR assay to <i>R. typhi</i> (when available)</li> <li>▪ Isolation of <i>R. typhi</i> from skin lesion or blood</li> <li>▪ Demonstration of positive immunofluorescence of skin lesion (biopsy) or organ tissue (autopsy)</li> </ul>
Probable Case	<p>Clinical illness<sup>1</sup> with a single high IFA serologic titre  <b>OR</b>            Clinical illness<sup>1</sup> in a person epidemiologically linked to a confirmed case</p>
National Surveillance	
Provincial Surveillance	Confirmed Cases
Type of Surveillance	Case-by-Case
Comments	
Date of Development	June 2003

<sup>1</sup> Clinical illness is similar to that seen with epidemic typhus, except that it is milder. As well, only about 50% of patients develop a rash, and it may be present on the palms and soles.

<sup>2</sup> The IFA is the most sensitive and specific method. However, it does not discriminate between Louseborne and Murine typhus unless extra pre-steps are done.

# Typhus - Scrub

Disease Case Classification	
Confirmed Case	<p>Clinical illness<sup>1</sup> with laboratory confirmation of infection:</p> <ul style="list-style-type: none"> <li>▪ Fourfold or greater rise in antibody titre to <i>O. tsutsugamushi</i> antigen by immunofluorescence antibody (IFA), Weil-Felix slide agglutination (<i>proteus</i> OX-K), enzyme immunoassay (EIA), or immunoperoxidase test in acute- and convalescent-phase specimens ideally taken greater than or equal to 3 weeks apart</li> <li>▪ Positive PCR assay to <i>O. tsutsugamushi</i> (when available) from blood or CSF</li> <li>▪ Isolation of <i>O. tsutsugamushi</i> from blood (animal inoculation)</li> </ul>
Probable Case	<p>Clinical illness<sup>1</sup> with a single high serologic titre  <b>OR</b>            Clinical illness<sup>1</sup> in a person epidemiologically linked to a confirmed case</p>
National Surveillance	
Provincial Surveillance	Confirmed Cases
Type of Surveillance	Case-by-Case
Comments	
Date of Development	June 2003

<sup>1</sup> Clinical illness is characterized by a primary skin ulcer (eschar) corresponding to the site of mite attachment. This is followed by tender lymphadenopathy in the region of the bite wound and sudden onset of fever, severe headache, and myalgia. Ocular pain, conjunctival infection, dry cough, or CNS changes may occur. A maculopapular eruption appears on the trunk and extends to the extremities.

# Varicella (Chickenpox)

Disease Case Classification	
Confirmed Case	<p>Clinical illness<sup>[1]</sup> with laboratory confirmation* of infection:</p> <ul style="list-style-type: none"> <li>Detection of varicella virus by DFA, culture, or NAAT from an appropriate clinical specimen**</li> </ul> <p><b>OR</b></p> <ul style="list-style-type: none"> <li>Positive serology with a single elevated IgM</li> </ul> <p><b>OR</b></p> <ul style="list-style-type: none"> <li>Positive serology with IgG seroconversion (4-fold or greater rise) in paired sera samples</li> </ul> <p><b>OR</b></p> <ul style="list-style-type: none"> <li>Clinical illness<sup>[1]</sup> in a person who is epidemiologically linked to a confirmed case (varicella or shingles***).</li> </ul>
Probable Case	Clinical illness <sup>[1]</sup> in the absence of appropriate laboratory tests and not epidemiologically linked to a laboratory confirmed* case.
National Surveillance	Confirmed Cases
Provincial Surveillance	Confirmed and Probable Cases
Type of Surveillance	Aggregate
Comments	Similar laboratory findings can be found in patients with shingles instead of primary chickenpox.
Date of Development	June 2003. Revised February 2008.

<sup>[1]</sup> Clinical illness is characterized by a pruritic rash with rapid evolution of macules to papules, vesicles, and crusts; all stages are simultaneously present; lesions are superficial and may appear in crops

\* Similar laboratory findings can be found in patients with varicella and shingles.

\*\* Appropriate clinical specimens include swab from fresh lesion, CSF, or eye fluid aspirate.

\*\*\* Shingles is also referred to as herpes zoster. Varicella Zoster refers to the virus that causes varicella and reactivation of varicella virus results in herpes zoster.

## Vibrio cholerae, non-O1, non-O139

Disease Case Classification	
Confirmed Case	Clinical illness <sup>1</sup> with laboratory confirmation of infection: <ul style="list-style-type: none"><li>Isolation of non-O1, non-O139 <i>Vibrio cholerae</i> from stool, vomitus, or another appropriate clinical specimen</li></ul>
Probable Case	Clinical illness <sup>1</sup> in a person who is epidemiologically linked to a confirmed case
National Surveillance	
Provincial Surveillance	Confirmed Cases
Type of Surveillance	Case-by-Case
Comments	
Date of Development	June 2003. Revised July 2007.

<sup>1</sup> Clinical illness is characterized by gastroenteritis (watery diarrhea, abdominal cramps, nausea, emesis, fever, and headache), wound infection, or septicemia. The latter usually only develops in hosts who are immunocompromised, have chronic liver disease, or are severely malnourished.

# Vibrio Parahaemolyticus

Disease Case Classification	
Confirmed Case	Clinical illness <sup>1</sup> with laboratory confirmation of infection <sup>2</sup> : <ul style="list-style-type: none"> <li>▪ Isolation of <i>V. parahaemolyticus</i> from stool, vomitus, or other clinically appropriate specimen</li> </ul> <b>OR</b> <ul style="list-style-type: none"> <li>▪ Isolation of <i>V. parahaemolyticus</i> from implicated food(s), provided specimen is properly handled</li> </ul>
Probable Case	Clinical illness <sup>1</sup> in a person who is epidemiologically linked to a confirmed case
National Surveillance	
Provincial Surveillance	Confirmed Cases
Type of Surveillance	Case-by-Case
Comments	
Date of Development	June 2003. Revised July 2007.

<sup>1</sup> Clinical illness is characterized by watery diarrhea and abdominal cramps, but may also include nausea, emesis, fever and headache.

<sup>2</sup> Laboratory testing for this organism is performed only upon request.

## West Nile Virus Asymptomatic Infection (WNAI)\*\*

Disease Case Classification	
Confirmed Case	The absence of clinical criteria <b>AND</b> Laboratory confirmation of infection: <ul style="list-style-type: none"> <li>▪ West Nile virus (WNV) Nucleic Acid Testing (NAT) positive blood</li> </ul>
Probable Case	The absence of clinical criteria <b>AND</b> the following serology result: Positive Canadian Blood Services NAT screening test.
National Surveillance	Confirmed Cases
Provincial Surveillance	Confirmed and Probable Cases
Type of Surveillance	Case-by-Case
Comments	
Date of Development	Adopted from <i>National Surveillance for West Nile Virus Case Definition</i> May 2006 and WNV diagnostic testing and interpretation prepared by Dr. Peter Tilley, Medical Microbiologist, Provincial Laboratory for Public Health, April 2008.

**\*\* Note:** This category could include asymptomatic blood donors whose blood is screened using a Nucleic Acid Amplification Test (NAT), by Blood Operators (i.e. Canadian Blood Services or Hema-Quebec) and is subsequently brought to the attention of public health officials. The NAT assay that is used by Blood Operators in Canada is designed to detect all viruses in the Japanese encephalitis (JE) serocomplex. The JE serocomplex includes WN virus and 9 other viruses, although from this group only WN virus and St Louis encephalitis virus are currently endemic to parts of North America. Blood operators in Canada perform supplementary WN virus- specific NAT following any positive donor screen test result.

## West Nile Virus Neurological Syndrome (WNNS)

Disease Case Classification	
Confirmed Case <span style="color: red;">(FMP)</span>	<b>Clinical Criteria:</b> <ul style="list-style-type: none"> <li>▪ History of exposure in an area where West Nile virus (WNV) activity is occurring<sup>1</sup></li> <li style="text-align: center;"><b>OR</b></li> <li>▪ History of exposure to an alternate mode of transmission<sup>2</sup></li> <li style="text-align: center;"><b>AND</b></li> <li>▪ Onset of fever</li> <li style="text-align: center;"><b>AND</b></li> <li><b>NEW ONSET OF AT LEAST ONE</b> of the following:               <ul style="list-style-type: none"> <li>▪ Encephalitis (acute signs of central or peripheral neurologic dysfunction), or</li> <li>▪ Viral meningitis (pleocytosis and signs of infection e.g., headache, nuchal rigidity), or</li> <li>▪ Acute flaccid paralysis (e.g., poliomyelitis-like syndrome or Guillain-Barré-like syndrome),<sup>3</sup> or</li> <li>▪ Movement disorders (e.g., tremor, myoclonus), or</li> <li>▪ Parkinsonism or Parkinson like conditions (e.g., cogwheel rigidity, bradykinesia, postural instability), or</li> <li>▪ Other neurological syndromes as defined in the note** below.</li> </ul> </li> <li style="text-align: center;"><b>AND</b></li> <li><b>Laboratory confirmation of infection:</b> WNV Nucleic Acid Testing (NAT) positive blood or CSF.</li> </ul>
Probable Case <span style="color: red;">(FMP)</span>	<b>Clinical Criteria: as per confirmed case AND the following serology result:</b> <ul style="list-style-type: none"> <li>▪ WNV Immunoglobulin (IgM) positive, Immunoglobulin (IgG) negative,</li> <li style="text-align: center;"><b>OR</b></li> <li>▪ WNV IgM positive and WNV IgG positive (low avidity),</li> <li style="text-align: center;"><b>OR</b></li> <li>▪ WNV IgM positive, significant rise in WNV IgG,</li> <li style="text-align: center;"><b>OR</b></li> <li>▪ WNV IgM positive, fourfold or greater rise in WNV Hemagglutination Inhibition (HI) titre.</li> </ul>
Suspect Case	<b>Clinical Criteria: as per confirmed case in:</b> <ul style="list-style-type: none"> <li>▪ WNV IgM positive and WNV IgG positive (medium or high avidity),</li> <li style="text-align: center;"><b>OR</b></li> <li>▪ The absence of or pending laboratory results</li> <li style="text-align: center;"><b>AND</b></li> <li>The absence of any other cause.</li> </ul>
National Surveillance	Confirmed and Probable Cases
Provincial Surveillance	Confirmed and Probable Cases
Type of Surveillance	Case-by-Case
Comments	Date of Development
Date of Development	Adopted from <i>National Surveillance for West Nile Virus Case Definition</i> May 2006 and WNV diagnostic testing and interpretation prepared by Dr. Peter Tilley, Medical Microbiologist, Provincial Laboratory for Public Health, April 2008.

<sup>1</sup>History of exposure when and where West Nile virus transmission is present, or could be present, or history of travel to an area with confirmed WNV activity in birds, horses, other mammals, sentinel chickens, mosquitoes, or humans.

<sup>2</sup>Alternate modes of transmission identified to date include laboratory-acquired, in utero, receipt of blood components, organ/tissue transplant, and possibly via breast milk.

<sup>3</sup>A person with WNV-associated acute flaccid paralysis may present with or without fever or mental status changes. Altered mental status could range from confusion to coma with or without additional signs of brain dysfunction (e.g., paralysis, cranial nerve palsies, sensory deficits, abnormal reflexes, generalized convulsions and abnormal movements). Acute flaccid paralysis may result in respiratory failure.

**\*\* Note:**

A significant feature of West Nile neurological illness may be marked muscle weakness that is more frequently unilateral, but can be bilateral. WNV should be considered in the differential diagnosis of all suspected cases of acute flaccid paralysis with or without sensory deficit. WNV-associated weakness typically affects one or more limbs (sometimes affecting one limb only). Muscle weakness may be the sole presenting feature of WNV illness (in the absence of other neurologic features) or may develop in the setting of fever, altered reflexes, meningitis or encephalitis. Weakness typically develops early in the course of clinical infection. Patients should be carefully monitored for evolving weakness and in particular, for acute neuromuscular respiratory failure, which is a severe manifestation associated with high morbidity and mortality. For the purpose of WNV Neurologic Syndrome Classification, muscle weakness is characterized by severe (polio-like), non-transient and prolonged symptoms. Electromyography (EMG) and lumbar puncture should be performed to differentiate WNV-associated paralysis from acute demyelinating polyneuropathy (e.g., Guillain-Barré syndrome). Lymphocytic pleocytosis (an increase in WBC with a predominance of lymphocytes in the cerebrospinal fluid [CSF]) is commonly seen in acute flaccid paralysis due to WNV whereas pleocytosis is not seen as a feature of Guillain-Barré Syndrome.

Other emerging clinical syndromes identified during 2002 included, but were not limited to the following: myelopathy, rhabdomyolysis (acute destruction of skeletal muscle cells), peripheral neuropathy, polyradiculoneuropathy; optic neuritis, and acute demyelinating encephalomyelitis (ADEM). Ophthalmologic conditions including chorioretinitis and vitritis were also reported. Facial weakness was also reported. Myocarditis, pancreatitis and fulminant hepatitis have not been identified in North America, but were reported in outbreaks of WNV in South Africa. "Aseptic" meningitis without encephalitis or acute flaccid paralysis occurring in August and September when WNV is circulating may be due to non-polio enteroviruses circulating at the same time. This should be considered in the differential diagnosis. [Sejvar J., et al. (2003). JAMA, 290(4) :511-515, Sejvar J., et al. (2003) Emerg Infect Dis, 9(7) :788-93, and Burton, JM, et al. (2004). Can. J. Neurol. Sci., 31(2):185-193.]

# West Nile Virus Non-Neurological Syndrome (WN Non-NS)

## Disease Case Classification

### Confirmed Case

#### Clinical Criteria:

- History of exposure in an area where West Nile virus (WNV) activity is occurring<sup>1</sup>

**OR**

- History of exposure to an alternate mode of transmission<sup>2</sup>

**AND AT LEAST TWO** of the following<sup>3</sup>:

- Fever
- Myalgia<sup>4</sup>
- Arthralgia
- Headache
- Fatigue
- Lymphadenopathy
- Maculopapular rash

**AND**

#### Laboratory confirmation of infection:

- WNV Nucleic Acid Testing (NAT) positive blood or CSF.

### Probable Case

#### Clinical Criteria: as per confirmed case

#### AND the following serology result:

- WNV Immunoglobulin (IgM) positive and WNV Immunoglobulin (IgG) negative,

**OR**

- WNV IgM positive and WNV IgG positive (low avidity),

**OR**

- WNV IgM positive and significant rise in WNV IgG,

**OR**

- WNV IgM positive and fourfold or greater rise in WNV Hemagglutination Inhibition (HI) titre.

### Suspect Case

#### Clinical Criteria: as per confirmed case in:

- WNV IgM positive and WNV IgG positive (medium or high avidity),

**OR**

- The absence of or pending laboratory results

**AND**

- The absence of any other cause.

National Surveillance

Confirmed and Probable Cases

Provincial Surveillance

Confirmed and Probable Cases

Type of Surveillance

Case-by-Case

Comments

Date of Development

Adopted from *National Surveillance for West Nile Virus Case Definition* May 2006 and WNV diagnostic testing and interpretation prepared by Dr. Peter Tilley, Medical Microbiologist, Provincial Laboratory for Public Health, April 2008.

<sup>1</sup>History of exposure when and where West Nile virus transmission is present, or could be present, or history of travel to an area with confirmed WN virus activity in birds, horses, other mammals, sentinel chickens, mosquitoes, or humans.

<sup>2</sup>Alternate modes of transmission identified to date include laboratory-acquired, in utero, receipt of blood components, organ/tissue transplant, and possibly via breast milk.

<sup>3</sup>It is possible that other clinical signs and symptoms could be identified that have not been listed and may accompany probable case or confirmed case diagnostic test criteria. For example, gastrointestinal (GI) symptoms were seen in many case-patients in Canada and the USA in 2003 and 2004.

<sup>4</sup> Muscle weakness may be a presenting feature of WNV illness. For the purpose of WN Non-NS classification, muscle weakness or myalgia (muscle aches and pains) is characterized by mild, transient, unlikely prolonged symptoms that are not associated with motor neuropathy.

## Western Equine Encephalitis (WEE) Arboviral Encephaliditides

Disease Case Classification	<b>Includes:</b> Eastern Equine Encephalitis (EEE); Powassan Encephalitis; St. Louis Encephalitis; Western Equine Encephalitis (WEE).
Confirmed Case	Clinical illness <sup>1</sup> with laboratory confirmation of infection: <ul style="list-style-type: none"> <li>▪ Fourfold or greater increase in serum antibody titre between acute- and convalescent-phase serum specimens ideally taken at least 2 weeks apart and run in parallel at the same laboratory</li> <li>▪ Isolation of virus from or demonstration of viral antigen or genomic sequences in tissue, blood, cerebrospinal fluid (CSF), or other body fluid</li> <li>▪ Specific immunoglobulin M (IgM) antibody by enzyme immunoassay (EIA) antibody captured in CSF or serum<sup>2</sup></li> </ul>
Probable Case	Clinical illness <sup>1</sup> occurring during a period when arboviral transmission is likely, and with a stable (less than or equal to twofold change) elevated antibody titre to an arbovirus <sup>3</sup>
National Surveillance	
Provincial Surveillance	Confirmed Cases (WEE confirmed and Probable)
Type of Surveillance	Case-by-Case
Comments	Reporting should be etiology-specific, that is i.e. Eastern Equine Encephalitis (EEE), St. Louis Encephalitis, Western Equine Encephalitis (WEE)
Date of Development	June 2003

<sup>1</sup> Clinical illness is characterized by a febrile illness of variable severity associated with neurological symptoms ranging from headache to aseptic meningitis or encephalitis. Arboviral encephalitis cannot be distinguished clinically from other central nervous system (CNS) infections. Symptoms can include headache, confusion or other alteration in sensorium, nausea, and vomiting. Signs may include fever, meningismus, cranial nerve palsies, paresis or paralysis, sensory deficits, altered reflexes, convulsions, abnormal movements, and coma of varying degree.

<sup>2</sup> Serum IgM antibodies alone should be confirmed by demonstration of immunoglobulin G antibodies by another serologic assay (e.g., neutralization or hemagglutination inhibition).

<sup>3</sup> e.g. greater than or equal to 320 by hemagglutination inhibition, greater than or equal to 128 by complement fixation, greater than or equal to 256 by immunofluorescence, and greater than or equal to 160 by neutralization, or greater than or equal to 400 by enzyme immunoassay IgM).

## Yellow Fever

Disease Case Classification	
Confirmed Case	Clinical illness <sup>1</sup> with laboratory confirmation of infection: <ul style="list-style-type: none"> <li>▪ Isolation of yellow fever virus</li> </ul> <b>OR</b> <ul style="list-style-type: none"> <li>▪ Detection of yellow fever viral antigen or genome in body fluids or tissue</li> </ul> <b>OR</b> <ul style="list-style-type: none"> <li>▪ A 4-fold change in serum antibody titre to the yellow fever virus or a single elevated specific yellow fever IgM antibody titre in the absence of yellow fever vaccination within the previous 2 months</li> </ul>
Probable Case	Clinical illness <sup>1</sup> with a stable elevated antibody titre to yellow fever virus with no other known cause
National Surveillance	Confirmed Cases
Provincial Surveillance	Confirmed Cases
Type of Surveillance	Case-by-Case
Comments	
Date of Development	June 2003

**\* NOTE: In suspected bioterrorism context, both Confirmed and Probable cases are reportable. (See appendix reference CCDR, Volume 28-21; 1 November 2002)**

NOTE: For probable cases, cross-reactive serologic reactions to other flaviviruses must be excluded, and the patient must not have a history of yellow fever vaccination.

<sup>1</sup> Clinical illness: a mosquito-borne viral illness characterized by acute onset and constitutional symptoms followed by a brief remission and a recurrence of fever, hepatitis, albuminuria, and in some instances, renal failure, shock, and generalized haemorrhages.

# Yersiniosis

Disease Case Classification	
Confirmed Case	Laboratory confirmation of infection with or without symptoms: <ul style="list-style-type: none"> <li>▪ Isolation of <i>Yersinia enterocolitica</i> or <i>Y. pseudotuberculosis</i> from appropriate clinical specimen or food</li> </ul> <b>OR</b> <ul style="list-style-type: none"> <li>▪ Positive <i>Yersinia</i> serology by agglutination test or ELISA</li> </ul>
Probable Case	Acute clinical illness <sup>1</sup> in a person who is epidemiologically linked to a confirmed case
National Surveillance	
Provincial Surveillance	Confirmed Cases
Type of Surveillance	Case-by-Case
Comments	
Date of Development	June 2003. Revised July 2007.

<sup>1</sup> The illness typically manifests as acute febrile diarrhea, enterocolitis (fever, diarrhea with or without blood, severe abdominal pain), or acute mesenteric lymphadenitis mimicking appendicitis. Infection can be complicated by erythema nodosum, post infectious arthritis, and systemic infection.

## Appendix A: Case Definition Working Group Membership and their Representations

Alloway, Carol	Public Health Inspector, Regional Public Health Inspector Representative
Chandran, Dr. Uma	Medical Microbiology Resident, University of Alberta, Edmonton, Alberta AHW Representative
Johnson, Dr. Marcia	Deputy MOH, Capital Health Authority, Edmonton, Alberta CoMOsH Representative
Lee, Dr. Bonita Lee	Medical Virologist, Provincial Laboratory for Public Health (Microbiology) and Assistant Professor, Division of Pediatric Infectious Diseases, Department of Pediatrics, University of Alberta
Long, Dr. Richard	TB Consultant, Office of the Provincial Health Officer, AHW
Louie, Dr. Marie	Medical Microbiologist, Provincial Laboratory-Edmonton Site, Edmonton Alberta Provincial Laboratory Representative
MacDonald, Dr. Judy	Deputy MOH, Calgary Regional Health Authority, Calgary, Alberta CoMOsH Representative Backup
Mersereau, Teresa	Senior Team Lead/CDC Program, Disease Control & Prevention Branch, AHW AHW Lead/Working Group Chairperson
Singh, Dr. Ameeta	Infectious Diseases Medical Consultant, Office of the Provincial Health Officer, AHW
Thomas, Karen	Chinook Regional Health Authority, Lethbridge, Alberta Health Regional CDC Nurse Representative

## Appendix B: Alberta Notifiable Disease List



### COMMUNICABLE DISEASE CONTROL

#### Alberta Notifiable Disease List

AIDS	Malaria
Acute Flaccid Paralysis (AFP)	*Marburg Haemorrhagic Fever
Amoebiasis	Measles/Rubeola
*Anthrax	Meningococcal Disease, Invasive (IMD)
*Botulism	+Meningitis (viral)
Brucellosis	Meningitis (bacterial, see Hib, IMD, IPD, iGAS)
+Calicivirus Infection:	*Methicillin-Resistant Staphylococcus Aureus (MRSA)
- including Norovirus, Norovirus like viruses & other small round structured viruses (SRSVs)	Mucopurulent cervicitis (MPC)
Campylobacteriosis	Mumps
Chancroid	Neonatal Herpes Simplex Infection
Chickenpox (Varicella)	Non-gonococcal urethritis (NGU)
Chlamydial Infections	Paratyphoid Fever
Cholera (O1 & O139)	+Parvovirus
Congenital Cytomegalovirus (CMV)	Pertussis
Congenital Rubella Infection	*Plague
Congenital Rubella Syndrome (CRS)	Pneumococcal Disease, Invasive (IPD)
Congenital Toxoplasmosis	Poliomyelitis
Creutzfeldt-Jakob Disease - Classic (CJD)	Powassan Encephalitis
Creutzfeldt-Jakob Disease - Variant (vCJD)	Psittacosis
Crimean Congo Haemorrhagic Fever	Q fever
Cryptosporidiosis	Rabies
Cyclosporiasis	■ Respiratory Syncytial Virus (RSV)
Dengue Fever	Rocky Mountain Spotted Fever
Diphtheria	■ +Rotavirus
Eastern Equine Encephalitis (EEE)	Rubella
*Ebola Haemorrhagic Fever	St. Louis Encephalitis
E. coli O157:H7	Salmonellosis
+Enterovirus Infections:	Severe Acute Respiratory Syndrome (SARS)
- Including Coxsackie A, B & Echovirus	Shigellosis
Giardiasis	*Smallpox
Gonococcal Infections	+Staphylococcal Intoxication
Group A Streptococcal Disease, Invasive (iGAS)	Subacute Sclerosing Panencephalitis (SSPE)
+Haemophilus Influenzae, Invasive – non-type b	Syphilis
Haemophilus Influenzae, Invasive - type b (Hib)	Tetanus
Haemolytic Uremic Syndrome (HUS)	Toxic Shock Syndrome (if iGAS refer to Group A Streptococcal Disease, Invasive)
Hantavirus Pulmonary Syndrome (HPS)	Trichinosis
Hepatitis A (HAV)	Tuberculosis (TB)
Hepatitis B (HBV)	*Tularemia
Hepatitis C (HCV)	Typhoid Fever
Hepatitis (other, viral)	Typhus – Louseborne
HIV Infection	Typhus – Murine
■ Human Metapneumovirus (hMPV)	Typhus – Scrub
■ +Influenzae A/B	Varicella Zoster, Shingles
*Lassa Fever	Vibrio Parahaemolyticus
Legionellosis	Vibrio cholerae (non O1, non O139)
Leprosy	Western Equine Encephalitis (WEE)
Leptospirosis	West Nile Virus Asymptomatic Infection (WNAI)
Listeriosis	West Nile Virus Non-neurological Syndrome (WN-Non NS)
Lyme Disease	West Nile Virus Neurological Syndrome (WNNS)
Lymphogranuloma Venereum (LGV)	Yellow Fever
	Yersiniosis

Diseases in red are reportable to the Provincial Health Office by **fastest means possible (FMP)** through direct voice communication at (780) 419-9339. For Influenzae A/B and Rotavirus individual laboratory reports go to the MOH.

**Symbols:** (Red) FMP (\*) bioterrorism agents (+) no NDR required (■) aggregate reporting (·) line list. (Sept 2007)

## Appendix C: Glossary of Terms

### **aerosol:**

A fine mist or spray which contains minute particles.

### **antibody:**

Proteins produced by an organism's immune system to recognize foreign substances.

### **antigen:**

An antigen (Ag) is a molecule capable of inducing an immune response and of being recognized by an immunogen (antibody) and/or sensitized cells manufactured as a consequence of the immune response.

### **assay:**

A quantitative or qualitative evaluation, or test, of a substance. Frequently used to describe tests of the presence or concentration of infectious agents, antibodies, etc.

### **biosafety level:**

Specific combinations of work practices, safety equipment, and facilities, which are designed to minimize the exposure of workers and the environment to infectious agents.

Biosafety level 1 applies to the basic laboratory handling agents in Risk Group 1 (low individual and community risk) that are unlikely to cause disease in healthy workers and animals.

Biosafety level 2 applies to the laboratory handling Risk Group 2 agents (moderate individual risk, limited community risk) that can cause human disease, but are unlikely to be a serious hazard to healthy laboratory workers or the community.

Biosafety level 3 applies to laboratories handling Risk Group 3 (high individual risk and low community risk) agents that may be transmitted by the respiratory route which can cause serious infection.

Biosafety level 4 is the maximum containment available and is used by laboratories handling Risk Group 4 agents (high individual risk and high community risk) and for the diagnosis of exotic agents that pose a high risk of life-threatening disease, which may be transmitted by the aerosol route and for which there is no vaccine or therapy.

### **blood-borne pathogens:**

Any pathogens which can be transmitted from one person to another via blood. Such pathogens may also be transmitted by other body fluids, and this varies depending on the pathogen or type of body fluid.

### **carrier:**

A person or animal that harbors a specific infectious agent without visible symptoms of the disease. A carrier acts as a potential source of infection.

### **case-fatality proportion:**

The number of cases of a disease ending in death compared to the number of cases of the disease: usually expressed as a percentage. While deaths from other diseases are often expressed as mortality rates, SPB normally uses case-fatality proportions. This is due to the fact that rates include a time determinant - for example, 100 deaths per 1000 cases per year. However, the diseases SPB works with break out sporadically, and occur as brief epidemics.

### **case-to-infection ratio or proportion:**

The number of cases of a disease (in humans) compared to the number of infections with the agent that causes the disease (in humans).

**CD4 Count**

The CD4 cell ("T-cell") count is a test which measures the number of CD4 cells in a blood sample. Normal CD4 counts in adults range from 500 to 1200 cells per cubic millimeter (mm<sup>3</sup>) of volume.

The CD4 cell count is a laboratory marker of the strength of your immune system. It helps to determine how advanced your HIV disease is (staging) and to predict your risk of complications (prognosis). Medical conditions, such as thrush, *Pneumocystis carinii* pneumonia (PCP), and *Mycobacterium avium* complex (MAC) disease, occur at particular stages of HIV disease.

The CD4 count is a "quantitative" test--meaning the result is a number that can be compared with the number obtained from an earlier test. The HIV viral load measurement (level of HIV in the blood) is also important for disease staging and prognosis. Other laboratory studies, including the CD4 percentage, are less commonly used for these purposes.

**disease:**

Formally speaking, a disease is the condition in which the functioning of the body or a part of the body is interfered with or damaged. In a person with an infectious disease, the infectious agent that has entered the body causes it to function abnormally in some way or ways. The type of abnormal functioning that occurs is the disease. Usually the body will show some signs and symptoms of the problems it is having with functioning. Disease should not be confused with infection.

**ELISA (enzyme-linked-immunosorbent serologic assay):**

A technique that relies on an enzymatic conversion reaction. It is used to detect the presence of specific substances, such as enzymes, viruses, antibodies or bacteria.

**EM—Erythema Migrans:**

Typically large ring-like lesions (rash), usually with bright red outer border and partial central clearing. The lesions occur at least 48 hours after a tick bite and grow to at least 5 cm in diameter. Although the lesion can be located anywhere, the thigh, groin, and axilla are particularly common sites. The lesion is warm, but not often painful. Atypical EM of similar size without central clearing is occasionally seen.

**endemic:**

Disease that is widespread in a given population.

**enzootic:**

A disease which is constantly present in the animal community, but only occurs in a small number of cases.

**epidemic:**

The occurrence of cases of an illness in a community or region which is in excess of the number of cases normally expected for that disease in that area at that time.

**epizootic:**

An outbreak or epidemic of disease in animal populations.

**familial CJD:**

Cases occurring in families associated with mutations in the PrP gene (10 - 15% of cases).

**GSS:**

Gertsman-Straussler-Scheinker syndrome - an exceedingly rare inherited autosomal dominant disease, typified by chronic progressive ataxia and terminal dementia. The clinical duration is from 2 to 10 years, much longer than for CJD.

**host:**

An organism in which a parasite lives and by which it is nourished.

**iatrogenic CJD:**

A rare form of CJD introduced accidentally in a patient as the result of a medical procedure in which there has been exposure to infectious tissue. UK cases have resulted from treatment with human derived pituitary growth hormones or from grafts using dura mater (a membrane lining the skull).

**iatrogenic disease:**

Illness resulting from a physician's professional activity or from the professional activity of other health professionals.

**IgG:**

One of many antibodies present in blood serum, which is usually indicative of a recent or remote infection. IgG is most prevalent about 3 weeks after an infection begins.

**IgM:**

One of many antibodies present in blood serum which is usually indicative of an acute infection.

**immunohistochemistry:**

A type of assay in which specific antigens are made visible by the use of fluorescent dye or enzyme markers.

**infection:**

The entry and development of an infectious agent in the body of a person or animal. In an apparent "manifest" infection, the infected person outwardly appears to be sick. In an inapparent infection, there is no outward sign that an infectious agent has entered that person at all. For example, although humans have become infected with Ebola-Reston, a species of Ebola virus, they have not shown any sign of illness. By contrast, in recorded outbreaks of Ebola hemorrhagic fever caused by Ebola-Zaire, another species of Ebola virus, severe illness followed infection with the virus, and a great proportion of the case-patients died. Infection should not be confused with disease.

**neonate:**

A newborn up to and including 28 days old.

**Nosocomial infection:**

An infection occurring in a patient which is acquired at a hospital or other healthcare facility. Commonly called a cross infection.

**report of a disease:**

An official report that notifies an appropriate health authority of the occurrence of a disease in a human or in an animal. Human diseases usually are reported first to the regional health authority, followed by reporting to AHW (using the NDR form).

**reservoir:**

Any person, animal, arthropod, plant, soil or substance in which an infective agent normally lives and multiplies. The infectious agent primarily depends on the reservoir for its survival.

**risk:**

- A) The chance of being exposed to an infectious agent by its specific transmission mechanism.
- B) The chance of becoming infected if exposed to an infectious agent by its specific transmission mechanism.

**RT-PCR (reverse transcriptase polymerase chain reaction):**

Powerful technique for producing millions of copies of specific parts of the genetic code of an organism so that it may be readily analyzed. More specifically, RT-PCR produces copies of a specific region of complementary DNA that has been converted from RNA. The technique is often used to help in the identification of an infectious agent.

**surveillance of disease:**

The ongoing systematic collection, analysis and interpretation of data which leads to action being taken to prevent and control an infectious disease. The objective of surveillance is to assess the health status of populations, detect changes in disease trends or changes in how the disease is distributed, define priorities, assist in the prevention and control of diseases, and monitor and evaluate related treatment and prevention programs.

**transmission of infectious agents (such as a virus):**

Any mechanism through which an infectious agent, such as a virus, is spread from a reservoir (or source) to a human being. Usually each type of infectious agent is spread by only one or a few of the different mechanisms.

There are several types of transmission mechanisms:

- a) Direct transmission: This type of transmission is, at base, immediate. The transfer of the infectious agent is, as the name implies, directly into the body. Different infectious agents may enter the body using different routes. Some routes by which infectious diseases are spread directly include personal contact, such as touching, biting, kissing or sexual intercourse. In these cases the agent enters the body through the skin, mouth, an open cut or sore, or sexual organs. Infectious agents may spread by tiny droplets of spray directly into the conjunctiva (the mucus membranes of the eye), or the nose or mouth during sneezing, coughing, spitting, singing or talking (although usually this type of spread is limited to about within one meter's distance.) This is called droplet spread.

- b) Indirect transmission: Transmission may happen in any of several ways:

vehicle-borne transmission: In this situation, a vehicle—that is, an inanimate object or material called in scientific terms a "fomite"—becomes contaminated with the infectious agent. The agent, such as a virus, may or may not have multiplied or developed in or on the vehicle. The vehicle contacts the person's body. It may be ingested (eaten or drunk), touch the skin, or be introduced internally during surgery or medical treatment. Examples of vehicles that can transmit diseases include cooking or eating utensils, bedding or clothing, toys, surgical or medical instruments (like catheters) or dressings. Water, food, drinks (like milk) and biological products like blood, serum, plasma, tissues or organs can also be vehicles.

vector-borne transmission: When researchers talk about vectors, often they are talking about insects, which as a group of invertebrate animals carry a host of different infectious agents. (However, a vector can be any living creature that transmits an infectious agent to humans.)

Vectors may mechanically spread the infectious agent, such as a virus or parasite. In this scenario the vector—for instance a mosquito—contaminates its feet or proboscis ("nose") with the infectious agent, or the agent passes through its gastrointestinal tract. The agent is transmitted from the vector when it bites or touches a person. In the case of an insect, the infectious agent may be injected with the insect's salivary fluid when it bites. Or the insect may regurgitate material or deposit feces on the skin, which then enter a person's body, typically through a bite wound or skin that has been broken by scratching or rubbing.

In the case of some infectious agents, vectors are only capable of transmitting the disease during a certain time period. In these situations, vectors play host to the agent. The agent needs the host to develop and mature or to reproduce (multiply) or both (called cyclopropagative). Once the agent is within the vector animal, an incubation period follows during which the agent grows or reproduces, or both, depending on the type of agent. Only after this phase is over does the vector become infective. That is, only then can it transmit an agent that is capable of causing disease in the person.

- c) Airborne transmission: In this type of transmission, infective agents are spread as aerosols, and usually enter a person through the respiratory tract. Aerosols are tiny particles, consisting in part or completely of the infectious agent itself, which become suspended in the air. These particles may remain suspended in the air for long periods of time, and some retain their ability to cause

disease, while others degenerate due to the effects of sunlight, dryness or other conditions. When a person breathes in these particles, they become infected with the agent—especially in the alveoli of the lungs.

How do infectious aerosols get into the air?

Small particles of many different sizes contaminated with the infective agent may rise up from soil, clothes, bedding or floors when these are moved, cleaned or blown by wind. These dust particles may be fungal spores—infective agents themselves—tiny bits of infected feces, or tiny particles of dirt or soil that have been contaminated with the agent.

Droplet nuclei can remain in the air for a long time. Droplet nuclei are usually the small residues that appear when fluid emitted from an infected host evaporates. In the case of the virus causing hanta virus pulmonary syndrome, the rodent carriers produce urine. The act of spraying the urine may create the aerosols directly, or the virus particles may rise into the air as the urine evaporates. In other situations, the droplets may occur as an unintended result of mechanical or work processes or atomization by heating, cooling, or venting systems in microbiology laboratories, autopsy rooms, slaughterhouses or elsewhere.

Both kinds of particles are very tiny. Larger droplets or objects that may be sprayed or blown but that immediately settle down on something rather than remaining suspended, are not considered to belong to the airborne transmission mechanism. Such sprays are considered direct transmission.

**vCJD:**

Variant CJD, up until recently, unrecognized variant of CJD discovered by the National CJD Surveillance Unit and reported in *The Lancet* on 6 April 1996. This is characterized clinically by a progressive neuropsychiatric disorder leading to ataxia, dementia and myoclonus (or chorea) without the typical EEG appearance of CJD. Neuropathology shows marked spongiform change and extensive florid plaques throughout the brain.

**vector:**

A carrier which transmits infective agent from one host to another.

**virus:**

A minute infectious agent.

**zoonotic disease or infection:**

An infection or infectious disease that may be transmitted from vertebrate animals (such as a rodent) to humans.

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