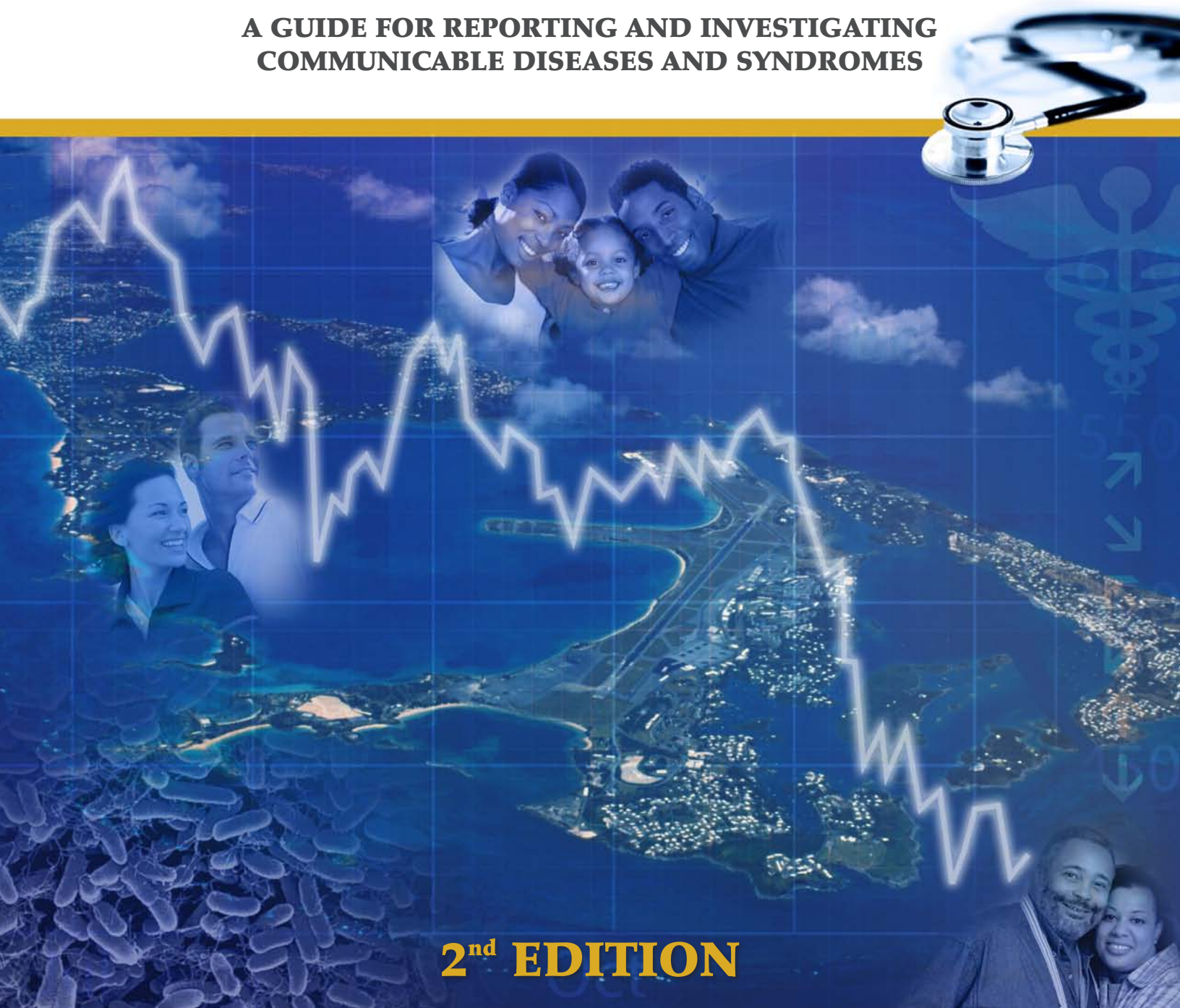
GOVERNMENT OF BERMUDA
Ministry of Health
Department of Health

SURVEILLANCE manual

A GUIDE FOR REPORTING AND INVESTIGATING COMMUNICABLE DISEASES AND SYNDROMES



2nd EDITION

SURVEILLANCE MANUAL

A GUIDE FOR REPORTING AND INVESTIGATING COMMUNICABLE DISEASES AND SYNDROMES

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FOREWORD

This *Surveillance Manual: A Guide for Reporting and Investigating Communicable Diseases and Syndromes* is a resource guide for ALL members of the surveillance team, including physicians, laboratorians, public health nurses, environmental health officers, infection control practitioners, and all other interested parties. It is not intended to replace other infectious disease manuals, but designed to complement them, giving a Bermudian perspective with Bermudian forms. This manual is intended to provide information to enhance the decision-making process. It should allow Bermuda's health-care workers to be prepared and respond in a timely manner to public health events.

This manual should serve as a comprehensive and important tool. Surveillance is **INFORMATION FOR ACTION**. Prompt reporting of disease and syndromes leads to prompt investigation of cases. This in turn leads to implementation of control and preventive measures that will further prevent the spread of disease.

This is the second edition of the *Surveillance Manual*. It is prompted by revision to the International Health Regulations (IHR) and the expansion of syndromic surveillance.

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PUBLIC HEALTH SURVEILLANCE IN BERMUDA

Public health surveillance has been defined as the ongoing, systematic collection, collation, analysis, interpretation and dissemination of health data essential to the planning, implementation and evaluation of public health practice. The ultimate objective of surveillance activities is its application to disease prevention and control.

The main uses of surveillance data are to:

- Estimate the size of a health problem
- Detect outbreaks of communicable diseases
- Characterize disease trends
- Evaluate interventions and preventive programs
- Provide information for use in health planning

In Bermuda, the Epidemiology and Surveillance Unit of the Department of Health has the responsibility for monitoring certain communicable and non-communicable diseases and syndromes and environmental factors that may impact on the health of the individual and the community as a whole.

The Epidemiology and Surveillance Unit has the following objectives:

- To allow for the early detection of and appropriate response to unusual events, clusters and outbreaks of diseases
- To provide epidemiological data on the magnitude, distribution and trends of diseases
- To provide relevant information to contribute to program planning, monitoring and evaluation

The Chief Medical Officer directs the Epidemiology and Surveillance Unit of the Department of Health. The Surveillance Officer is responsible for collecting and collating data from various reporting sources (sentinel physicians, laboratories, KEMH and clinics). This data is tabulated on a weekly basis and reported to the Caribbean Epidemiology Centre (CAREC) who provides information on the Caribbean region to the Pan American Health Organization (PAHO) which is the Regional Office for the Americas of the World Health Organization (WHO), a part of the United Nations system. Information provided is published in various PAHO/WHO documents. The Assessment Officer is responsible for data validation, analysis and interpretation, monitoring and evaluation, and information dissemination. The Nurse Epidemiologist carries out response and intervention activities including outbreak investigations and contact tracing.

Within the Department of Health, the Central Government Laboratory, the Environmental Health section and nurses within the Community Health section provide support to the Epidemiology and Surveillance Unit. The Epidemiology and Surveillance Unit also works closely with the Health Promotions Office. Linkage with King Edward VII Memorial Hospital is through the Infection Control Department and the Department of Pathology. Resource information and assistance are provided by CAREC/PAHO/WHO.

REPORTING PROCEDURES

Details of cases should be collected on a daily basis if possible. This practice will encourage reporting, thus leading to prompt investigation by the Epidemiology and Surveillance Unit.

Frequency of reporting for diseases and syndromes under surveillance in Bermuda has been divided into Immediate and Weekly. This division is based on public health significance and the urgency for public health action.

Immediate reporting of specific diseases and syndromes should be done by the diagnosing physician upon diagnosis, or on occasion, on suspicion alone. The report can be given verbally to the Chief Medical Officer or to the Epidemiology and Surveillance Unit. Confirmation in writing is required on the appropriate form. The form should then be sent or faxed to the Epidemiology and Surveillance Unit.

Weekly reporting of diseases and syndromes should be reported to the Epidemiology and Surveillance on the appropriate no later than Tuesday noon of every week. Weekly data should be tallied from the previous week on the Weekly Tally Sheet(s). The epidemiological week runs from Sunday to Saturday.

CONTACT INFORMATION

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DISEASES AND SYNDROMES UNDER SURVEILLANCE IN BERMUDA

CATEGORY	CONDITION	FREQUENCY OF REPORTING
SYNDROMES	Acute Flaccid Paralysis	Weekly
	Fever and Haemorrhagic Symptoms	Weekly
	Fever and Neurological Symptoms	Weekly
	Fever and Rash	Weekly
	Fever and Respiratory Symptoms	Weekly
	Gastroenteritis	Weekly
	Undifferentiated Fever	Weekly
DISEASES OF INTEREST	*Campylobacter*	Weekly
	Chicken pox (Varicella)	Weekly
	Cholera	Immediately
	Ciguatera Poisoning	Weekly
	Dengue Fever	Immediately
	Dengue Haemorrhagic Fever/Shock Syndrome	Immediately
	Diphtheria	Immediately
	E. Coli (pathogenic)	Weekly
	Influenza	Weekly
	Leprosy (Hansen's Disease)	Immediately
	Leptospirosis	Weekly
	Malaria	Immediately
	Measles	Immediately
	Meningitis due to *Haemophilus influenzae*	Immediately
	Meningococcal Infection due to *Neisseria meningitidis*	Immediately
	Mumps	Weekly
	Norwalk viruses	Weekly
	Pertussis	Immediately
	Plague	Immediately
	Pneumonia due to *Haemophilus influenzae*	Immediately
	Pneumonia due to *Streptococcus pneumoniae*	Weekly
	Poliomyelitis, Acute	Immediately
	Rabies (in humans)	Immediately
	Rotavirus	Weekly
	Rubella (German Measles)	Immediately
	Salmonellosis	Weekly
	Scabies	Weekly
	Shigellosis	Weekly
	Severe Acute Respiratory Syndrome (SARS)	Immediately
	Smallpox	Immediately
	Tetanus (excluding neonatal)	Immediately
	Tuberculosis (Pulmonary)	Immediately
	Tuberculosis (Extra-pulmonary)	Immediately
	Typhoid and Paratyphoid Fevers	Immediately
	Viral Encephalitis/Meningitis	Weekly
	Viral Hepatitis A,B,C	Immediately
	Yellow Fever (Urban or Sylvatic)	Immediately

CATEGORY	CONDITION	FREQUENCY OF REPORTING
SEXUALLY TRANSMITTED INFECTIONS	Acquired Immune Deficiency Syndrome (AIDS)	Immediately
	Bacterial Vaginosis	Weekly
	Chancroid	Weekly
	Chlamydia	Weekly
	Genital Herpes (HSV)	Weekly
	Gonorrhoea	Weekly
	Human Immunodeficiency Virus (HIV)	Immediately
	Human Papilloma Virus (HPV)	Weekly
	Lymphogranuloma venereum (LGV)	Weekly
	Non-specific urethritis (NSU)	Weekly
	Syphilis	Weekly
	Trichomoniasis	Weekly
	Genital Ulcer (not otherwise specified)	Weekly
	Urethral Discharge (not otherwise specified)	Weekly
	Vaginal Discharge (not otherwise specified)	Weekly
CONGENITAL AND NEONATAL INFECTIONS	Congenital Rubella	Weekly
	Congenital Syphilis	Weekly
	Ophthalmia neonatorum due to *Chlamydial trachomatis*	Weekly
	Ophthalmia neonatorum due to *Neisseria gonorrhea*	Weekly
	Ophthalmia neonatorum (not otherwise specified)	Weekly
	Tetanus neonatorum	Immediately
	Other congenital and neonatal infections (not specified)	Weekly
ADDITIONAL DISEASES OF INTEREST	Anthrax	Immediately
	Botulism	Immediately
	Brucellosis	Weekly
	Giardiasis	Weekly
	Hand, Foot and Mouth Disease	Weekly
	Legionellosis	Immediately
	Methicillin Resistant Staphylococcus Aureus (MRSA)	Weekly
	Scarlet Fever	Immediately
	Vancomycin Resistant Enterococci (VRE)	Weekly
	West Nile Virus	Immediately
	Food-borne or water-borne outbreaks	Immediately
	Any other exotic or unusual communicable disease/outbreak	Immediately

CASE DEFINITIONS

Accurate case definitions are fundamental to any surveillance system. Case detection and confirmation are required for proper investigation and public health action.

Case detection requires:

- Clear, simple case definitions that will ensure consistent standardized reporting and reliable information on disease occurrences and trends over time.

Case confirmation:

Clinical case confirmation requires:

- Accurate use of the case definition (sufficient when symptoms are highly specific, where there are inadequate laboratory facilities, or during an outbreak where the first few cases have been laboratory confirmed

Laboratory case confirmation requires:

- Specimens that are appropriately collected, stored, transported and analysed and prompt reporting of results through specified channels

Epidemiologically linked confirmation requires:

- A clinical case linked in time, place or circumstances to a laboratory confirmed case (this classification requires careful investigation)

When a "case" is reported to the Epidemiology and Surveillance Unit, it is important that these definitions are considered, and only cases that comply with the case definition will count as a case. Cases that meet only some of the case definition criteria must be reported as suspect cases. However, it is important to note that a case definition may not be the sole criteria used in reaching a clinical diagnosis, determining the standard of care required for a particular patient, and the prompting of public health action.

As this *Manual* is not intended as a replacement to other, more comprehensive disease guides, only case definitions for selected communicable diseases and syndromes are provided.

NOTE: The case definitions used in this manual are taken from the CAREC *Caribbean Communicable Disease Public Health Surveillance Manual for Action* (1999); some definitions have been updated as needed and additional updates may be required. As such, the *Surveillance Manual: A Guide for Reporting and Investigating Communicable Diseases and Syndromes* is presented in a loose-leafed format to facilitate updates.

SYNDROMES

Acute Flaccid Paralysis (AFP)

Acute onset of flaccid paralysis in the absence of trauma

Fever and Haemorrhagic Symptoms

Acute onset of fever (>38.0°C or 100.4°F) with or without jaundice in a previously healthy person, presenting with at least one haemorrhagic manifestation:

- Purpura
- Epistaxis
- Haemoptysis
- Melena

Fever and Neurological Symptoms

Acute onset of fever (>38.0°C or 100.4°F) with or without headache and vomiting in a previously healthy person, presenting with at least one of the following:

- Meningeal irritation
- Convulsions
- Altered consciousness
- Altered sensory manifestations
- Paralysis

Fever and Rash

Acute onset of fever (>38.0°C or 100.4°F) in a previously healthy person, presenting with a generalized rash

Fever and Respiratory Symptoms

Acute febrile illness (>38.0°C or 100.4°F) in a previously healthy person, presenting with at least one of the following:

- Cough
- Sore throat

Gastroenteritis

Acute onset of diarrhoea, with or without fever (>38.0°C or 100.4°F) in a previously healthy person, presenting with 3 or more loose or watery stools in the past 24 hours, with or without dehydration, vomiting and/or visible blood

Undifferentiated Fever

Acute febrile illness (>38.0°C or 100.4°F) in a previously healthy person of less than 7 days duration with two or more of the following symptoms:

- Headache
- Retro-orbital pain
- Arthralgia
- Myalgia
- Nausea
- Vomiting
- Jaundice

Note: Factors, such as collapse, recent travel, etc., should prompt further investigation.

BACTERIAL MENINGITIS AND MENINGOCOCCAL INFECTION

Meningitis due to *Haemophilus influenzae*

Suspect case

A person presenting with:

- Fever – usually of sudden onset
- Headache
- Signs of meningeal irritation
- Bulging fontanelle in children <1 year

AND two of the following:

- Pleocytosis of the CSF
- Elevated levels of protein in CSF (>45mg/100ml)
- Raised CSF pressure (> 180mm water)

Note: Symptoms are commonly preceded by an upper or lower respiratory tract infection.

Confirmed case

A suspect case with laboratory confirmation:

- Detection of *H. influenzae* in the CSF
- Presence of antigens to *H. influenzae* in the CSF

Meningococcal Infection due to *Neisseria meningitidis*

Suspect case

A person presenting with sudden onset of fever and one of the following:

- Neck stiffness
- Altered consciousness
- Other meningeal signs
- Petechial or purpural rash
- Bulging fontanelle in children <1 year

Confirmed case

A suspect case with laboratory confirmation:

- Detection of *N. meningitidis* in the CSF
- Presence of antigens to *N. meningitidis* in the CSF

REPORTING

All suspect and confirmed cases of bacterial meningitis should be reported **immediately** to the Epidemiology and Surveillance Unit by the diagnosing physician.

INVESTIGATIVE PROCEDURE

Source of Report

Physicians Offices
KEMH Infection Control Practitioner

Urgency of Action

Immediate

Procedure

A. Meningitis in children and infants.

1. Interview parents/guardians.
2. Identify age-susceptible contacts in household, nursery, school, playgroup, etc.
3. Provide parents of all contacts with advisory letter (see Sample)
4. Specific guidelines:
   - Meningitis due to *Haemophilus influenzae*
     i. Check HiB immunization status of age-susceptible contacts
     ii. Update HiB series if incomplete
     iii. Offer prophylactic treatment to all age-susceptible contacts who have not completed HiB immunization series
     iv. ii. and iii. should be done according to protocols approved by the Chief Medical Officer and/or the child's physician
   - Meningococcal Infection due to *Neisseria meningitides*
     i. Offer prophylactic treatment to household and other close contacts according to protocols approved by the Chief Medical Officer

B. Meningitis in adults.

1. Identify and interview close contacts.
2. Offer prophylactic treatment to close contacts only, depending on the type of infection, according to protocols approved by the Chief Medical Officer.
3. Monitor for compliance with prophylaxis and side effects.
4. Monitor for any further cases.

Definition of Contacts

1. Immediate family, household members and roommates of patient, especially those in contact with the patient in the 10 days prior to symptom onset. This also includes any 'special' friends of a child patient, with whom there was regularly at least one hour of play.
2. Individuals exposed to oral secretions (mouth kissing, shared foods, drinks or cigarettes, etc.) of the patient in the 10 days prior to symptom onset.
3. Sexual partners of the patient in the 10 days prior to symptom onset.
4. Special settings:
   - Preschool, day-care centre, play-group
     i. All staff
     ii. All children
   - Primary school
     i. All class members when there are two or more patients in same class
     ii. Network of contact must be assessed according to conditions in school when there are two or more patients in separate classes.

DENGUE

Dengue Fever

Suspect case

A person presenting with acute onset of fever and two or more of the following:

- Headache
- Retro-orbital pain
- Myalgia
- Arthralgia
- Rash (may not be visible on dark-skinned persons)
- Haemorrhagic manifestations

Confirmed case

A suspect case with laboratory or epidemiologic confirmation:

Laboratory confirmation:

- Detection of IgM antibodies to one or more of the dengue virus antigens by capture
- ELISA (most reliable on blood taken from convalescent serum >5 days after onset of symptoms)
- Isolation and identification of dengue virus from acute serum ≤ 5 days from onset of symptoms and provided to laboratory at 4-8°C
- Demonstration of dengue virus in clinical material by PCR
- Demonstration of a fourfold or greater rise in flavivirus antibody titres between acute and convalescent phase serum specimens by the HI test

Epidemiological confirmation:

- Suspect case occurring at the same location and time as a laboratory confirmed case

Dengue Haemorrhagic Fever (DHF)

Suspect case

A person presenting with:

- Fever or history of fever within the past week

AND haemorrhagic tendencies as evidenced by at least one of the following:

- Positive tourniquet test
- Petechiae, ecchymoses, or purpura
- Bleeding from mucosa, gastrointestinal tract, injection sites, etc.

AND

- Thrombocytopenia (100,000 mm^3 or less)

AND plasma leakage due to increased capillary permeability as manifested by at least one of the following:

- A haematocrit on presentation that is ≥ 20% above the average for that age and population
- A 20% drop in haematocrit following treatment
- Commonly associated signs of plasma leakage: pleural effusion, ascites, hypoproteinemia

Confirmed case

A suspect case with laboratory or epidemiologic confirmation:

Laboratory confirmation:

- A suspect case fulfilling the diagnostic laboratory findings for dengue fever. (Note: If the patient had been infected previously with another serotype, a single blood specimen from a case of DHF will give a reciprocal IgG antibody titre of ≥2560 in the HI test)

Epidemiological confirmation:

- A suspect case occurring during an epidemic period with a history of exposure to dengue

Dengue Shock Syndrome (DSS)

Suspect case

A suspect case of DHF with evidence of circulatory failure manifested by all of the following:

- Rapid and weak pulse
- Narrow pulse pressure (200mmHg or less) *or* hypotension for
- Cold clammy skin
- Altered mental status

Confirmed case

A suspect case with laboratory or epidemiologic confirmation:

Laboratory confirmation:

- A suspect case fulfilling the diagnostic laboratory findings for dengue fever.

Epidemiological confirmation:

- A suspect case occurring during an epidemic period with a history of exposure to dengue

REPORTING

All suspect and confirmed cases of Dengue should be reported **immediately** to the Epidemiology and Surveillance Unit by the diagnosing physician.

FOLLOW-UP

The Nurse Epidemiologist is responsible for case investigation. The Vector Control Unit, Environmental Health, is responsible for reduction of the mosquito population especially in a one mile radius surrounding confirmed cases.

FOODBORNE ILLNESSES

Note: For the purposes of this manual, "food" refers to any substance, whether processed, semi-processed or raw, which is intended for consumption, including drink, water, and ice, and any substance which has been used in the manufacture, preparation, or treatment of food.

Suspect Case

Illness

A person presenting with illness following ingestion of food or drink, with no other known cause. Common signs and symptoms include:

- Abdominal cramping
- Diarrhoea
- Fever
- Nausea
- Vomiting

Outbreak

An incident in which two or more people experience a similar illness after ingestion of a common food or drink

Confirmed Case

A suspect case where epidemiological analysis implicated the food or drink as the source of the illness and there is laboratory evidence of the aetiological agent.

REPORTING

All cases of foodborne illness should be reported weekly to the Epidemiology and Surveillance Unit.

All suspected outbreaks should be reported **immediately**.

INVESTIGATIVE PROCEDURE

Source of Report

Physicians Offices
KEMH: Emergency Department, Infection Control Practitioner, Laboratory
Environmental Health
Hotel Management
Restaurants
Care Institutions including day-care centres, schools, prisons, etc
Self-Referrals

Urgency of Action

As soon as possible

Procedure

In outbreak situation, refer to Outbreak Investigations Section of Manual. The Foodborne Illness Investigation Form and the Food-Specific Attack Rate Table should be completed.

The following guidelines should also be adhered to:

1. If the case or cases are associated with a restaurant or any public facility, notify the Chief Environmental Health Officer. Meet with the manager of the facility so that a list and samples of suspect foods can be obtained. Notify in writing and use standard letter

2. Collect samples from a representative sample of cases as follows:
   - If less than 50 cases - 100%
   - If between 51 and 100 cases - 75%
   - If between 101 and 200 cases - 50%
   - If more than 201 cases - 100 cases plus 10% of total

3. Whenever possible, interview and collect samples from a similar number of people with the same food/water exposure who did not become ill.

4. Data should also be collected from the food handlers who were involved in the preparation, processing and storage of the suspected foods.

HEPATITIS

Hepatitis A

Suspect case

A person presenting with abrupt onset of fever with jaundice in one week and one or more of the following:

- Weight loss
- Malaise
- Fatigue
- Nausea
- Abdominal discomfort

OR

- Any symptomatic person without jaundice but with a history of close contact with a confirmed case within the previous 2 weeks.

Confirmed case

A suspect case with laboratory confirmation:

- Anti-HAV IgM

Hepatitis B

Suspect case

A person presenting with jaundice and a history of insidious onset of at least three of the following:

- Malaise
- Weight loss
- Lethargy
- Right upper quadrant tenderness
- Itching
- Rash
- Arthralgia
- Dark urine, pale stools

Confirmed case

A suspect case with laboratory confirmation:

- HBsAg

Hepatitis C

Suspect case

A person presenting with jaundice and any of the following:

- Abdominal discomfort
- Right upper quadrant tenderness
- Weight loss
- Malaise
- Itching
- Rash
- Arthralgia
- Dark urine, pale stools

Confirmed case

A suspect case with laboratory confirmation:

- Anti-HCV

REPORTING

All newly diagnosed cases of Hepatitis should be reported **immediately** to the Epidemiology and Surveillance Unit, using the appropriate form (See Appendix)

INVESTIGATIVE PROCEDURE

Source of Report

Physicians Offices
KEMH Infection Control Practitioner
Public Health Clinics
Community Nurses

Urgency of Action

As soon as possible

Procedure

A. Hepatitis A

1. Interview patient.
2. Identify close contacts, household, sexual, etc.
3. Identify any overseas travel within the past eight weeks.
4. Identify any restaurants or particular foods eaten within the past eight weeks.
5. Offer gamma globulin injection to contacts within 14 days of contact with the infected person during the infective period.
6. Offer Havrix vaccination for long-term immunity.
7. If food-handler, ensure that he/she is excluded from work until jaundice and other symptoms have resolved. The attending physician is responsible for signing patient back to work.
8. Give prevention education to patients and contacts, emphasizing hand-washing as an important action in preventing transmission.

B. Hepatitis B

1. Interview patient.
2. Identify close contacts, household, sexual, etc.
3. Review risk history.
4. Identify any overseas travel within the past six months.
5. Offer Hepatitis B immune globulin injection to contacts within 14 days of contact with the infected person during the infective period.
6. Offer Hepatitis B vaccination for long-term immunity.
7. Give prevention education to patients and contacts, emphasizing safer-sex practices and the not sharing of razors, tooth-brushes, etc.

C. Hepatitis C

1. Interview patient.
2. Identify close contacts, household, sexual, etc.
3. Review risk history.
4. Identify any overseas travel within the past three months.
5. Give prevention education to patients and contacts, emphasizing safer-sex practices and the not sharing of razors, tooth-brushes, etc.

HIV INFECTION AND AIDS

Note: All patients diagnosed with HIV should be screened for tuberculosis, hepatitis and other sexually transmitted infections.

Human Immunodeficiency Virus (HIV) Infection

Confirmed Case

An adult, adolescent or child ≥ 18 months with laboratory confirmation through at least one of the following:

- Positive result on a screening test for HIV antibody (e.g., repeatedly reactive enzyme-linked immunoassay [ELISA]), followed by a positive result on a confirmatory (sensitive and more specific) test for HIV antibody (e.g., Western blot or immunoflorescence antibody test)

OR

- Positive result or report of detectable quantity on any of the following HIV virologic (nonantibody) tests:
  - HIV nucleic acid (DNA or RNA) detection (e.g., DNA polymerase chain reaction [PCR] or plasma HIV-1 RNA)
  - HIV p24 antigen test, including neutralization assay
  - HIV isolation (viral culture)

OR

- Diagnosis of HIV infection, based on the laboratory criteria above, that is documented in a medical record by a physician

A child <18 months with laboratory confirmation through at least on of the following:

- Positive results on two separate specimens (excluding cord blood)using one or more of the following HIV virologic (nonantibody) tests:
  - HIV nucleic acid (DNA or RNA) detection
  - HIV p24 antigen test, including neutralization assay, in a child ≥1 month of age
  - HIV isolation (viral culture)

Acquired Immune Deficiency Syndrome (AIDS)

Case Definition

Confirmed Case

An adult or adolescent ≥ 13 years who has been confirmed HIV positive (see HIV Infection) and has EITHER at least two of the following major signs:

- Involuntary weight loss of >10% of baseline body weight
- Chronic diarrhoea with at least two loose stools per day for ≥ 30 days
- Intermittent or constant fever for ≥ 30 days

AND at least one of the following minor signs:

- Persistent cough for >30 days
- Generalized pruritic dermatitis
- Herpes zoster, multi-dermatomal
- Oro-pharyngeal candidiasis
- Generalized lymphadenopathy

OR at least one of the following indicator diseases:

- Bacterial pneumonias, recurrent (≥ 2 per year)
- Candidiasis: esophageal or of bronchi, trachea, or lungs
- Cryptococcosis: extra-pulmonary
- Coccidioidomycosis, disseminated or extra-pulmonary
- Cryptosporidiosis, chronic intestinal (>30 days)
- Cytomegalovirus disease (other than liver, spleen, or nodes)
- Cytomegalovirus retinitis (with loss of vision)
- Encephalopathy with no other cause
- Herpes simplex: chronic ulcer(s) (>30 days)
- Bronchitis, pneumonitis, or oesophagitis
- Histoplasmosis, disseminated or extra-pulmonary
- Invasive cervical cancer
- Isosporiasis, chronic intestinal (>30 days)
- Kaposi's sarcoma
- Lymphoma: Burkitt's, immunoblastic, or primary of brain
- *Mycobacterium avium* complex or *M. kansasii*, (disseminated or extra-pulmonary)
- Nocardiosis
- Strongyloidiasis extra-intestinal
- Tuberculosis, any site
- *Pneumocystis* carinii pneumonia
- Progressive multifocal leukoencephalopathy
- Toxoplasmosis of brain
- Non-typhoid *Salmonella* septicemia, recurrent
- Wasting syndrome (defined as ALL of major signs)

OR CD4+ T-lymphocyte count less than 200 cells/*u*L

A child <13 years who has been confirmed HIV positive (see HIV Infection) and has EITHER at least two of the following major signs:

- Weight loss of >10% of baseline body weight
- Chronic diarrhoea with at least two loose stools per day for ≥ 30 days
- Intermittent or constant fever for ≥ 30 days
- Failure to thrive

AND at least one of the following minor signs:

- Generalized lymphodenopathy
- Oro-pharyngeal candidiasis
- Repeated common infections (otitis, pharyngitis, etc.)
- Persistent cough
- Generalized dermatitis
- Confirmed maternal HIV infection

OR at least one of the following indicator diseases:

- Bacterial infections: unexplained, serious, recurrent (>2 in a two-year period) including sepsis, meningitis, pneumonia, abscess of an internal organ, and bone/joint infections
- Candidiasis: esophageal or of bronchi, trachea, or lungs
- Chronic lymphoid interstitial pneumonitis (> 2 months)
- Chronic parotitis (> 2 months)
- Coccidioidomycosis, disseminated or extra-pulmonary
- Cryptococcosis: extra-pulmonary
- Cryptosporidiosis, chronic intestinal (>30 days)

- Cytomegalovirus (CMV) infection, with onset after 6 months
- Herpes simplex infection, disseminated, with onset after 1 month of age
- Histoplasmosis, disseminated or extra-pulmonary
- Kaposi's sarcoma
- Lymphoma: Burkitt's, immunoblastic, or primary of brain
- *Mycobacterium avium* complex or *M. kansasii*, (disseminated or extra-pulmonary)
- Isosporiasis, chronic and interstitial (> 30 days)
- Pneumocystis carinii pneumonia (PCP)
- Progressive multifocal leukoencephalopathy
- Toxoplasmosis, disseminated, with onset after one month of age
- Tuberculosis, any site

REPORTING

All new cases of HIV infection and AIDS are to be reported to the Chief Medical Officer and/or the Epidemiology and Surveillance Unit **immediately**, using the appropriate form (see Appendix). All deaths among persons with HIV infection (with or without an AIDS diagnosis) should be reported to the Epidemiology and Surveillance Unit. An indication should be made as to whether the death was AIDS-related.

Once a patient has been notified as being infected with HIV, their name is entered into the HIV/AIDS register. Detailed confidential records are kept on each patient.

INVESTIGATIVE PROCEDURE

Source of Report

Physicians Offices
Public Health Clinics

Urgency of Action

As soon as possible

Procedure

1. Interview patient.
2. Perform a baseline assessment of the patient's knowledge, support system, nursing needs and treatment plan.
3. Advise patient and provide information as necessary.
4. Identify critical period contacts and obtain contact information (names, addresses, telephone numbers, etc)
5. Advise patient of different types of partner notification
   a. Patient referral: the patient will notify their partner(s) with advice from the Public Health Nurse.
   b. Provider referral: the Public Health Nurse will confidentially notify the partner(s) directly, maintaining the anonymity of the patient.
   c. Conditional referral: the Public Health Nurse will give the patient up to 72 hours to notify their partner(s). The Public Health Nurse will then complete the notification process if the patient has not notified their

partner(s) or the partner(s) have not telephoned or attended the clinic for assessment.

6. Public Health Nurse may notify the partner(s) as follows:
   a. By telephone, stating reason for call, if telephone number only has been provided.
   b. By mail with a *Letter of Concern*, if only mailing address has been provided. The mailing address must first be confirmed with the Post Office.
   c. Hand-delivered *Letter of Concern* if no telephone number or address is provided, but partner frequents a particular location. For reasons of personal safety, Nurse will be accompanied.
   d. Other sources may be used to obtain contact information such as the Parliamentary Register, Transport Control Department, Social Insurance, Police and Prisons, etc.
   e. If partner does not respond or is unable to be notified after repeated attempts, the case should be referred to the Chief Medical Officer.
7. An appointment is made for the partner(s) at the Communicable Disease Clinic where partner is counselled, assessed, examined, and tested.

CONFIDENTIAL TESTING

The Communicable Disease Clinic, located at the Hamilton Health Centre on Victoria Street, provides confidential testing. Clients receive pre- and post-test counselling by staff trained in HIV/AIDS counselling. Clients also sign a consent form. This consent form is evidence of the following:

- Client has agreed to be tested
- Client has understood what has been discussed
- Client has been able to ask questions for clarification

Testing is offered under an assumed name or file number. Clients may choose any name they wish (e.g. *Baby Doll*, *Big Man*) as long as that name has not been used before and client can remember the pseudonym. Their real name remains in their personal file, but the assumed name/file number is written on the lab requisition form and specimen container.

Rapid HIV tests are performed at the Hamilton Health Centre Laboratory. If that test is positive, the same specimen is sent to the KEMH laboratory for supplementary ELISA testing and a Western Blot. If these tests are also positive, it is a confirmed positive result.

Results, whether negative or positive, should always be given in a face-to-face post-test counselling session.

HIV/AIDS AND PREGNANCY

All pregnant women are tested for HIV. Those found to be sero-positive receive counselling to help them make informed decisions about potential risks to both mother and foetus and treatment options.

LEGIONELLOSIS (Legionnaire's disease)

Suspect Case

A person experiencing an acute illness with the following:

- Fever
- Headache
- Myalgia

followed by signs and symptoms or radiological evidence of pneumonia

Confirmed Case

A suspect case with laboratory confirmation:

- Isolation of *Legionella* from lung tissue, respiratory secretions, pleural fluid, blood, or other normally sterile sites
- Demonstration of *Legionella pneumophila* in lung tissue, respiratory secretions, or pleural fluid by direct fluorescence antibody testing
- Demonstration of a 4-fold or greater rise in the reciprocal immunoflorescence antibody titre to ≥128 against *L. pneumophila*
- Demonstration of *L. pneumophila* antigen in urine by radioimmunoassay

REPORTING

All suspect and confirmed cases should be reported as soon as possible to the Epidemiology and Surveillance Unit.

FOLLOW UP

The Nurse Epidemiologist will interview the patient with the aim of identifying the source of infection.

An Environmental Health Officer will visit any suspected site(s) to investigate possible sources, collect water samples for analysis by the Central Government Laboratory and advise on preventive measures.

MEASLES

Suspect Case

A person presenting with fever, maculopapular rash and at least one of the following:

- Cough
- Coryza
- Conjunctivitis

Confirmed Case

A suspect case with laboratory or epidemiological confirmation:

Laboratory confirmation:

- Presence of measles-specific IgM antibodies
- A four-fold increase in measles antibody between acute and convalescent stages
- Isolation of measles virus

Epidemiological confirmation:

- Any suspect case linked epidemiologically to a laboratory confirmed case

REPORTING

All suspect and confirmed cases of measles should be reported **immediately** to the Epidemiology and Surveillance Unit.

FOLLOW-UP

The Nurse Epidemiologist will interview all cases, identify contacts and obtain vaccination histories. Susceptible contacts of cases will be offered immunization.

METHICILLIN RESISTANT STAPHYLOCOCCUS AUREUS (MRSA)

Confirmed case

Infection which is laboratory confirmed as being due to MRSA.

REPORTING

All cases of MRSA at KEMH should be reported to the Epidemiology and Surveillance Unit as soon as possible through the microbiology laboratory and/or the Infection Control Practitioner. The discharging nurse has the responsibility to inform the Community Nursing Service in advance when a colonized MRSA patient is due to be discharged from hospital and requires nursing care.

All cases of MRSA in the community should be reported to the Epidemiology and Surveillance Unit as soon as possible by the attending physician.

MUMPS

Suspect Case

A person presenting with fever and swelling of the salivary glands

Confirmed Case

A suspect case with laboratory confirmation:

- Detection of viral antigen by direct or indirect immunoflorescence on epithelial cells in urine sediment
- Demonstration of a four-fold or greater increase in specific antibody between acute and convalescent stages
- Isolation of virus from saliva, CSF or urine

REPORTING

All cases of mumps should be reported weekly to the Epidemiology and Surveillance Unit.

FOLLOW-UP

The Nurse Epidemiologist will interview all cases, identify contacts and obtain vaccination histories. Susceptible contacts of cases will be offered immunizations.

PERTUSSIS

Suspect Case

A person presenting with a cough lasting at least 2 weeks and any of the following:

- Paroxysms (fits) of coughing
- Inspiratory “whoop” at the end of coughing
- Vomiting after coughing (without any other apparent cause)

Confirmed Case

A suspect case with laboratory or epidemiological confirmation:

Laboratory confirmation:

- Bacterial culture of *Bordetella pertussis* from nasopharyngeal secretions
- Detection of specific IgM antibodies in serum by ELISA

Epidemiological confirmation:

- Any suspect case linked epidemiologically to a laboratory confirmed case

REPORTING

All suspect and confirmed cases of pertussis should be reported **immediately** to the Epidemiology and Surveillance Unit.

FOLLOW-UP

The Nurse Epidemiologist will interview all cases, identify contacts and obtain vaccination histories. Prophylactic treatment will be offered to all household and close contacts irrespective of age or immunization status. Susceptible contacts of cases will be offered immunizations. Child-age contacts with symptoms of cough will be excluded from day-care/school until evaluated by a physician.

RUBELLA AND CONGENITAL RUBELLA SYNDROME

Rubella

Suspect Case

A person experiencing an acute illness with low grade fever, and a diffuse punctate, maculopapular rash, and two or more of the following:

- Headache
- Malaise
- Mild coryza
- Conjunctivitis
- Post auricular, occipital or posterior cervical lymphadenopathy
- Arthralgia or arthritis

Confirmed Case

A suspect case with laboratory or epidemiological confirmation:

Laboratory confirmation:

- Isolation of rubella virus from throat swab, urine or blood
- Detection of rubella specific IgM antibody in serum
- 4-fold rise in rubella IgG antibody titre between acute and convalescent phase sera

Epidemiological confirmation:

- A suspect case who has been in contact with a laboratory confirmed case within the past 18 days

Congenital Rubella Syndrome

Suspect Case

An infant less than one year of age presenting with one or more of the following:

- Cataracts
- Low birth weight
- Hepatosplenomagaly
- Purpura
- Hearing impairment

Confirmed Case

A suspect case with laboratory confirmation:

- Presence of rubella specific IgM in serum within the first week of life
- Isolation of rubella virus from urine, throat swab or blood
- Maintenance of IgG antibody level during the first six months of life shown by an HI titre that fails to decrease at the expected rate of a two-fold dilution per month
- Detection of rubella virus in tissues by PCR

REPORTING

All suspect and confirmed cases of rubella and congenital rubella syndrome should be reported **immediately** to the Epidemiology and Surveillance Unit.

FOLLOW-UP

The Nurse Epidemiologist will interview all cases, identify contacts and obtain vaccination histories. Contacts who are not pregnant or intending to become pregnant but are susceptible will be offered immunizations. If the contact is a pregnant woman, a blood specimen should be obtained as soon as possible and tested for rubella antibody. Immunization will not be offered to women who are considering becoming pregnant within next three months.

SEXUALLY TRANSMITTED INFECTIONS

Chlamydia

Suspect Case

Males presenting with any of the following:

- Opaque urethral discharge
- Urethral itching
- Burning on urination

Females presenting with any of the following:

- Genital discharge
- Cervicitis
- Salpingitis

Babies (5-12 days old) presenting with any of the following:

- Acute papillary conjunctivitis
- Mucopurulent discharge from the eyes

Confirmed Case

A suspect case with laboratory confirmation:

- Demonstration of specific Chlamydial antigen by immunofluorescence or ELISA
- Isolation of Chlamydia in cell culture

Genital Herpes

Suspect Case

A person presenting with visible, painful genital or anal lesions

Confirmed Case

A suspect case with clinical or laboratory confirmation:

Clinical confirmation:

- A suspect case in which syphilis has been excluded and/or there is a history of one or more previous episodes of similar lesions

Laboratory confirmation:

- Isolation of herpes simplex virus from cervix, urethra or anogenital legion
- Demonstration of virus by antigen detection technique

Gonorrhoea

Suspect Case

Adults presenting with any of the following:

- Purulent discharge from the urethra
- Dysuria
- Vaginal and/or anal discharge

Babies developing any of the following symptoms 1-5 days after birth:

- Redness and swelling of the conjunctivae
- Mucopurulent or purulent discharge from the eyes

Confirmed Case

A suspect case with laboratory confirmation:

- Demonstration of gram negative intracellular diplococci in male urethral smears
- Culture of *Neisseria gonorrhoea* on special media

Syphilis

Suspect Case

Adults presenting with any of the following:

- Painless papule on the genitalia, eroding to a chancre (Primary syphilis)
- Skin rash and mucous membrane eruptions (Secondary syphilis)
- Cardiovascular disease; CNS disease (Tertiary syphilis)

An infant or child with:

- Generalized systemic disease
- Characteristic stigmata

OR

- An infant whose mother had untreated or inadequately treated syphilis at delivery, regardless of signs in the infant

Confirmed Case

A suspect case with laboratory confirmation:

- Demonstration of *Treponema pallidum* by dark-field or phase-contrast microscopy on exudates
- Positive VDRL test confirmed by treponema pallidum haemagglutination (TPHA) or fluorescent antibody (FTA-ABS)
- Rapid Plasma Reagin test with titre of >1:4

Non-specific Urethritis

Suspect Case

A person presenting with urethral inflammation or discharge

Confirmed Case

A suspect case with no laboratory evidence of *N. gonorrhoea* or *C. trachomatis* infection

Note: NSU is a clinical diagnosis of exclusion.

REPORTING

Sexually transmitted infections should be reported weekly to the Epidemiology and Surveillance Unit. Age and gender should be included.

Genital herpes should be reported only once per patient. The first diagnosis for a patient with no previous diagnosis should be reported.

FOLLOW-UP

Unless clients are actively referred to or diagnosed by the Communicable Disease Clinic, treatment, contact tracing, and notification are the responsibility of the diagnosing physician.

TUBERCULOSIS (TB)

Suspect case

A person presenting with an abnormal chest X-ray finding and/or a persistent productive cough for three weeks or more and one or more of the following:

- Chest pain when coughing or breathing
- Bloodstained sputum
- Weight loss
- Malaise
- Fatigue
- Fever
- Night sweats

In addition, anyone found to have a positive tuberculin skin test (TST) reaction must be evaluated for TB disease.

Confirmed case

A suspect case with laboratory confirmation:

- Detection of acid fast bacilli
- Isolation of *Mycobacterium tuberculosis*

TB cases are further defined as follows:

- New case: a patient who has never had treatment for TB or who has taken anti-tuberculosis drugs for less than four weeks
- Relapse: a patient who has been declared cured of any form of TB in the past by a physician, after one full course of chemotherapy, and has become bacteriologically positive
- Treatment failure: a patient who, while on treatment, remained or became again bacteriologically positive five months or later after commencing treatment or a patient who was initially bacteriologically negative before starting treatment and became bacteriologically positive after the second month of treatment
- Treatment after interruption: a patient who interrupts treatment for two months or more and returns bacteriologically, clinically or radiologically positive
- Chronic case: a patient who remained or became again bacteriologically positive after completing a fully supervised re-treatment regimen

Note:

- Pulmonary TB refers to disease involving the lung parenchyma.
- Any patient diagnosed with both pulmonary and extra-pulmonary tuberculosis should be classified as a case of pulmonary tuberculosis.
- All patients diagnosed with TB should be tested for HIV and vice-versa.

REPORTING

All suspect cases of TB should be reported **immediately** to the Epidemiology and Surveillance Unit by the diagnosing physician. A Tuberculosis Investigation Form should be completed and forwarded to the Epidemiology and Surveillance Unit (See Appendix).

INVESTIGATIVE PROCEDURES

Source of Report

Physicians Offices
KEMH Infection Control Practitioner
Pathologist (autopsy)
Public Health Clinics

Urgency of Action

Immediate

Procedure

1. Ensure case meets case definition
2. Interview patient.
3. Inspect residence
    a. Overcrowding
    b. Ventilation
4. Identify contacts (see Contact Tracing Log in Appendix)
5. Follow-up cases and contacts

Responsibilities

Physician

Diagnosis (include physical examination, chest x-ray, routine blood-work including HIV-testing)
Notification
Assessment and monitoring of patient
Prescribing medications

Department of Health

Contact tracing and testing
Patient education
Monitoring treatment compliance (Direct Observed Therapy)
Provision of cost-free medication

Under the Public Health Act, 1949, Part V, 95, the Chief Medical Officer has the power to remove to an institution any person with tuberculosis who poses a serious threat of infection to others.

Screening for Tuberculosis

Purpose

Screening for tuberculosis is done to identify infected persons at high risk of disease

Application

Groups and individuals that should be screened are as follows:

- Recent contacts of people known to have or suspected of having clinically active tuberculosis

- Foreign-born persons from high-prevalence countries
- Persons with other conditions which increase the risk of tuberculosis (immunosuppressed persons, injection drug users, etc.)
- Persons with HIV infection
- Residents of long-term care facilities, including prisons, and underserved populations

Tuberculin Skin Testing (TST)

Administration of the tuberculin skin test

1. Tuberculin skin testing is the standard method of identifying persons infected with Mtb. The intradermal Mantoux test should be used to determine if tuberculosis infection has occurred.

2. The Mantoux test is performed by the intradermal injection of 0.1ml of PPD tuberculin containing 5 TU (tuberculin units) into the dorsal surface of the forearm. The injection should be made with a disposable tuberculin syringe, just beneath the surface of the skin, with then needle bevel facing upward to produce a discrete, pale elevation of the skin 6mm to 10mm in diameter. Gloves are necessary for this procedure.

3. The Mantoux test should be read 48 to 72 hours after the administration of the injection. However if a patient fails to show up for the scheduled reading, positive reactions may still be measurable up to one week after administration.

Classification of the tuberculin reaction

1. The reading should be based on measurement of induration (hardened area) not erythema (redness). The measurement should be made in millimetres (mm).

2. A tuberculin reaction of 5mm or more is classified as positive in the following groups:
   - Persons who have had close recent contact with a patient known to have or suspected of having clinically active tuberculosis
   - Persons with chest radiographs showing fibrotic lesions likely to represent old healed tuberculosis
   - Persons with known or suspected HIV infection

4. A tuberculin reaction of 10mm or more is classified as positive in the following groups:
   - Foreign-born persons from high-prevalence countries
   - Persons with other conditions which increase the risk of tuberculosis (immunosuppressed persons, injection drug users, etc.)
   - Residents of long-term care facilities, including prisons, and underserved populations

5. A tuberculin reaction of 15mm or more is classified as positive in all other persons.

Note:

- As there is no reliable method of distinguishing tuberculin reactions caused by BCG vaccination from those caused by natural infection, positive tuberculin reactions in BCG-vaccinated persons should be assumed to indicate tuberculosis infection.
- Absence of a tuberculin reaction does not exclude the diagnosis of tuberculosis or tuberculosis infection as persons who have recently been infected may not yet have a reaction to the TST. Persons with a negative TST reaction who are still considered at increased risk should have the testing repeated in 4 months.

VANCOMYCIN RESISTANT ENTEROCOCCI (VRE)

Confirmed case

Infection which is laboratory confirmed as being due to VRE.

REPORTING

All cases of VRE at KEMH should be reported to the Epidemiology and Surveillance Unit as soon as possible through the microbiology laboratory and/or the Infection Control Practitioner. The discharging nurse has the responsibility to inform the Community Nursing Service in advance when a colonized VRE patient is due to be discharged from hospital and requires nursing care.

All cases of VRE in the community should be reported to the Epidemiology and Surveillance Unit as soon as possible by the attending physician

VIRAL ENCEPHALITIS/MENINGITIS

Viral Encephalitis

Suspect case

A person presenting with sudden onset of fever followed by three or more of the following:

- Headache
- Meningeal signs
- Drowsiness/ stupor
- Confusion/disorientation
- Tremors/convulsions
- Coma
- Spasticity/spastic paralysis

Confirmed case

A suspect case with laboratory confirmation:

- Detection of virus or viral protein in the CNS
- Specific viral antibody in the CSF

Viral Meningitis

Suspect case

A person presenting with sudden onset of fever followed by two or more of the following:

- Headache
- Nausea
- Vomiting
- Stiffness and pain in neck
- Maculopapular, vesicular or petechial rash

AND two of the following:

- Pleocytosis of the CSF
- Elevated protein
- Failure to culture bacteria from CSF

Confirmed case

A suspect case with laboratory confirmation:

- Detection of virus or viral protein in the CNS
- Specific viral antibody in the CSF

REPORTING

All cases of viral encephalitis/meningitis should be reported weekly to the Epidemiology and Surveillance Unit. If cases appear epidemiologically linked, they should be reported **immediately**.

OUTBREAK INVESTIGATIONS

An outbreak may be defined as the occurrence of more that the usual number of cases in a given time or place. Effective outbreak control and management depend on a sensitive surveillance system with accurate information on the occurrence and patterns of diseases in the population.

Outbreak investigations are triggered by:

- Monitoring of trends
- Epidemic curves
- Alerts from health professionals

The goal of an outbreak investigation is to break the chain of transmission and prevent the further spread of infection. This is achieved by:

- Containment and case management to minimize the effects of the illness
- Actively searching for new cases to monitor the development of the outbreak and assess the effectiveness of control measures being implemented
- Protection of susceptible individuals by identification of risk factors and population at greater risk of contracting the illness and then using methods to protect these groups from becoming infected

The objectives of any outbreak investigation are as follows:

- To control the spread of the outbreak and identify the etiologic agent, when applicable
- To guide the implementation of further control and prevention measures

Outbreak investigations are also important for evaluating and strengthening the surveillance system.

Ten Steps to a Successful Outbreak Investigation

An outbreak is a public health emergency and must be investigated quickly and efficiently. Any outbreak investigation will involve a multidisciplinary team. As such, coordination is pivotal for a successful outbreak investigation. There are ten key steps that must be performed in a successful outbreak investigation. These steps are guidelines as to how to approach the investigation, but they do not necessarily need to be conducted sequentially. More than one step may be performed at the same time. In particular control measures should start with the information available.
These ten steps are:

1. Confirm that an outbreak exists.

    - An outbreak is verified by comparison with the previous occurrence of similar cases. Consistently reported data from the surveillance system are invaluable in determining that an outbreak is occurring. Compare current disease data with earlier data on the disease in question. If no past data are available, rely on the knowledge and experience of local health staff.
    - Declare to relevant persons that an outbreak exists. Inform health care providers that an outbreak is occurring and advise on how to proceed. At each stage of the investigation, consider who else needs to be informed and provide regular updates to necessary persons/organizations. Inform or respond through authorized persons to the media and community if necessary.

- Seek assistance from external organizations (CAREC/PAHO/WHO) as necessary.

2. Verify the diagnosis.
   - This may require only a brief review of the clinical findings or may necessitate laboratory confirmation. As some laboratory tests may be complex and lengthy, outbreak investigation and some control measures may be undertaken prior to receipt of laboratory results.
3. Make a quick assessment of the patients.
   - Formulate a case definition using epidemiological, laboratory and clinical information, which will outline the criteria for inclusion as a suspect or confirmed case. Many investigations begin with a fairly broad case definition and this definition becomes more precise as the investigation proceeds.
4. Relate the cases in terms of person, place and time.
   - Seek a common cause. Study cases in relation to time of onset, place of exposure (including travel history) and characteristics of the person (age, sex, etc.)
5. Formulate a hypothesis.
   - This hypothesis should be as precise as possible to guide the investigation. It should incorporate all clinical, laboratory and epidemiologic facts of the investigation, and known details about the disease process.
6. Plan and conduct a detailed epidemiologic investigation.
   - Standardized investigation forms should be used for data collection. Use should be made of existing guidelines and special forms devised if necessary. The use of one or more control groups for comparison with cases may help in separating out which variables are important etiological factors.
   - The course of the outbreak should be monitored in terms of new cases and areas affected. This is facilitated by line-listing all cases and case-mapping with colour–coding for suspect and confirmed cases. There should be on-going review of the data and when the incidence falls to endemic levels or when no further cases are detected, the outbreak may be declared controlled or over. Continue to monitor the disease or syndrome that was investigated.
7. Analyze the data.
   - Analyze detailed data derived from case investigation, as rapidly as the data can be collected, comparing the attack rate among various pertinent groupings. Construct epidemic curves, calculate rates, develop tables and charts and apply statistical tests to the data.
8. Formulate a conclusion.
   - Conclusions should be based on all pertinent evidence.
9. Put control measures into operation.
   - These measures should be practical and be put into place immediately. Plans should be made to evaluate their effectiveness.

10. Write a report.

- This report should be clear, precise and usable. It should include both short and long term recommendations and be disseminated to appropriate decision-makers.

Outbreak Report Format

Introduction
- Background
- Reason for investigation

Methods
- Dates of investigation
- Site(s) of investigation
- Case finding – indicate what was done regarding case finding
- Laboratory specimens collected
- Describe response and intervention
- Describe statistical methods used for analysis

Results
- Date and location of first known case (index case)
- Results of additional case finding
- Laboratory analysis and results
- Describe key features of results of time, place and person analysis (include an epidemic curve)
- Results of response and evidence of impact

Discussion
- Based on result, describe the events leading to the outbreak
- Limitations of the investigation

Conclusion and Recommendations
- Emphasize the lessons learnt from the incident

Appendices
- Questionnaires
- Maps
- Investigation forms

APPENDICES

REPORTING AND INVESTIGATION FORMS

1. WEEKLY REPORTING FORMS
    a. SYNDROMIC SURVEILLANCE
    b. CONFIRMED DISEASE SURVEILLANCE
2. HOSPITAL CASE NOTIFICATION FORM (SYNDROMIC SURVEILLANCE)
3. CASE REPORT FORM
4. HIV/AIDS REPORTING FORM
5. HIV/AIDS CONTACT TRACING LOG
6. TUBERCULOSIS REPORTING FORM
7. TUBERCULOSIS CONTACT TRACING LOG
8. FOODBORNE ILLNESS INVESTIGATION FORM

GOVERNMENT OF BERMUDA
Ministry of Health
Department of Health
Epidemiology and Surveillance Unit

SYNDROMIC SURVEILLANCE WEEKLY TALLY SHEET

Syndromes	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Total
Acute Flaccid Paralysis								
Fever and Haemorrhagic Symptoms								
Fever and Neurological Symptoms								
Fever and Rash								
Fever and Respiratory Symptoms (ARI) < 5 yrs								
Fever and Respiratory Symptoms (ARI) ≥ 5 yrs								
Gastroenteritis < 5 yrs								
Gastroenteritis ≥ 5 yrs								
Undifferentiated Fever < 5 yrs								
Undifferentiated Fever ≥ 5 yrs								

Reporting Source: _____ Week Ending: _____ Epidemiological Week # _____

Return to Epidemiology and Surveillance Unit by Monday of following week.
Tel: 278-6501▪Fax: 296-3283

GOVERNMENT OF BERMUDA

Ministry of Health

Department of Health

Epidemiology and Surveillance Unit

COMMUNICABLE DISEASE WEEKLY TALLY SHEET

Diseases (age and sex specific if possible)	**Sunday**	**Monday**	**Tuesday**	**Wednesday**	**Thursday**	**Friday**	**Saturday**	**Total**
AIDS (call to report name)								
Chicken Pox								
Food-borne Illness (specify)								
Hepatitis (suspect and confirmed / call to report name)								
HIV Infection (call to report name)								
Influenza								
Measles, Mumps, Rubella, Pertussis								
Bacterial Meningitis (include name)								
Viral Meningitis								
Sexually Transmitted Infections (specify)								
Strep Throat								
Scarlet Fever								
Tuberculosis (suspect and confirmed / call to report name)								
Other (specify)								

Reporting Source: _____ Week Ending: _____ Epidemiological Week # _____

Return to Epidemiology and Surveillance Unit by Monday of following week.

Tel: 278-6501▪Fax: 296-3283

Department of Health
Epidemiology and Surveillance Unit

Syndromic Surveillance
Hospital Case Notification Form

Reporting Department / Ward:	Date of report:
Patient Information (Affix Patient Label)	

Syndrome	**Yes**	**No**	**Additional Information**
Undifferentiated fever			Date of admission / /
Gastroenteritis			Date of onset: / /
Fever with haemorrhagic symptoms			
Fever and neurological symptoms			Suspected diagnosis_____
Fever and Rash			➔ Laboratory confirmed aetiology (if available when notifying)
Acute respiratory infection OR Fever and respiratory symptoms			_____
Acute Flaccid Paralysis			Date of lab diagnosis: / /
Observations			

Name of Doctor/Nurse completing this form: _____

Signature: _____

This form is to be returned to the KEMH Infection Control Department.

Department of Health
Epidemiology and Surveillance Unit

Date of Notification: _____

Notified by: _____

Case Report

GENERAL INFORMATION

Patient's Name: _____

Birth Date: ___|___|___ Age: _____ Sex: ☐ Male ☐ Female

Address: _____

Telephone: Home: _____ Work: _____ E-Mail: _____

Occupation: _____

Current Status: ☐ Inpatient ☐ Outpatient ☐ Dead

CLINICAL DIAGNOSIS

Gastroenteritis:	☐ Salmonella	☐ Shigella	☐ Other _____
Hepatitis	☐ Type A	☐ Type B	☐ Type NANB
Meningitis:	☐ Bacterial	☐ Non-bacterial	
Tuberculosis:	☐ Pulmonary	☐ Other	
STD:	☐ Gonorrhea	☐ Syphilis	☐ Other _____

Other: _____

LABORATORY DATA

Culture: ☐ Negative ☐ Positive _____

Other: _____

ADDITIONAL COMMENTS

_____

_____

_____

_____

Doctor to contact for additional information:

_____

Date: _____ Signature: _____

For Department of Health Use Only

Action

- ☐ Follow-up
- ☐ Health Education
- ☐ Referral _____
- ☐ Culture
- ☐ X-Ray

Notes

Date: _____ Signature: _____

Department of Health
Epidemiology and Surveillance Unit

HIV/AIDS Confidential Reporting Form

Date of Report: _____

Reported by: _____

Patient Code #:_____

GENERAL INFORMATION

Last Name: _____ First Name: _____

Birth Date: ___|___|___ Age: _____ Sex: ☐ Male ☐ Female

Race: ☐ Black ☐ White ☐ Other Physician: _____

Address: _____ Parish: _____ Postal Code: _____

Telephone: Home: _____ Work: _____

Occupation: _____ Workplace: _____

REASON FOR HIV TEST

- ☐ Antenatal management
- ☐ Diagnostic
- ☐ Patient request
- ☐ TB Control
- ☐ Blood donor
- ☐ Occupational exposure
- ☐ Visa/Insurance
- ☐ Other _____

LABORATORY DATA

HIV Test Date: _____ Reactivity: _____

Western Blot Test Date: _____

CD4/T4 Count: _____ Test Date: _____

HIV RNA PCR (viral load): _____ Test Date: _____

CLINICAL INFORMATION

Symptoms: *(Tick all that apply)*

Date of Onset of Symptoms: _____

- ☐ Fever
- ☐ Night Sweats
- ☐ General Dermatitis
- ☐ Other: _____
- ☐ Cough > 1 month
- ☐ Shortness of breath
- ☐ Shingles
- ☐ Malaise/fatigue
- ☐ Weight loss
- ☐ Diarrhoea
- ☐ Oral/Anal/Genital Ulcers
- ☐ Lymphadenopathy (2 or more sites)
- ☐ Oro-pharyngeal Candidiasis

Co-infections: *(Tick all that apply)*

- ☐ Chlamydia
- ☐ Hepatitis B
- ☐ Gonorrhoea
- ☐ Hepatitis C
- ☐ Herpes
- ☐ Syphilis
- ☐ Other: _____

Indicator Diseases: *(Tick all that apply)*

- ☐ Atypical mycobacteriosis
- ☐ Cryptosporidiosis
- ☐ Histoplasmosis
- ☐ Kaposi's Sarcoma
- ☐ HIV Wasting Syndrome
- ☐ Candidiasis (oesophageal, tracheal or bronchial)
- ☐ Cytomegalovirus retinitis
- ☐ Recurrent bacterial pneumonia
- ☐ Pneumocystis Carinii Pneumonia
- ☐ Other: _____
- ☐ Cryptococcal infection
- ☐ Encephalopathy
- ☐ Toxoplasmosis
- ☐ Tuberculosis

CURRENT STATUS OF PATIENT

- ☐ HIV Asymptomatic
- ☐ HIV Symptomatic
- ☐ AIDS

RISK HISTORY/BEHAVIOUR

Tick all that apply

☐ No information

☐ Blood Transfusion
☐ History of STIs
☐ Intravenous Drug Use

☐ Accidental Exposure to Blood/Body Fluids
☐ Commercial Sex Worker (CSW)
☐ Use of other drugs: _____

☐ MTCT

Sexual contact:

☐ Male to Male
☐ Male to Female
☐ Female to Male
☐ Female to Female
☐ Male and Female

☐ With Partner known to be HIV +ve
☐ With Partner with multiple sex partners
☐ With Partner who has male and female partners
☐ With Partner who uses intravenous or other drugs
☐ With CSWs or Partner who has sex with CSWs

Age of first intercourse:	☐	<10	☐	10-14	☐	15-19	☐	20-25	☐	>25	☐
# of sexual partners in lifetime	☐	None	☐	1	☐	2-4	☐	5-9	☐	10-20	☐ >20
# of sexual partners in last 12 months	☐	None	☐	1	☐	2-4	☐	5-9	☐	10-20	☐ >20
Condom use in last 12 months	☐	Always	☐	Usually	☐	Sometimes	☐	Never			

ADDITIONAL INFORMATION

Education Level attained: ☐ None ☐ Primary ☐ Secondary ☐ Tertiary

Marital Status:

☐ Married
☐ Common-law Union
☐ Widowed

☐ Unmarried with regular partner
☐ Unmarried with no regular partner

DIAGNOSTIC MILESTONES

Date of First Positive HIV test: _____
Date commenced HAART: _____
Date of AIDS diagnosis: _____
Date of Death: _____ HIV/AIDS related: ☐

NOTES

Referred to: ☐ KEMH Outpatient Clinic ☐ Communicable Disease Clinic ☐ Consulting Physician

☐ Sexual Offences Act reviewed ☐ Physician informed of HIV diagnosis

_____

Nurse Epidemiologist

Department of Health
Epidemiology and Surveillance Unit

HIV/AIDS CONTACT TRACING LOG

Index Case (HIV/AIDS#)	First Name	Last Name	Address	Telephone #	Age	Sex	Date of Investigation	Conclusion	Remarks

Department of Health
Epidemiology and Surveillance Unit

Tuberculosis Investigation Form

Date of Report: _____

Reported by: _____

Patient Code #:_____

GENERAL INFORMATION

Last Name: _____ First Name: _____

Birth Date: ___|___|___ Age: _____ Sex: ☐ Male ☐ Female

Address: _____ Parish: _____ Postal Code: _____

Telephone: Home: _____ Work: _____

Occupation: _____ Workplace: _____

Country of Birth: _____ Duration of Residence in Bermuda: _____

CLINICAL INFORMATION

Reason for Investigation: (*Check one reason only*)
☐ Symptomatic ☐ General Screening ☐ Population at Risk Screening
☐ Contact, Household ☐ Contact, Close/Non-household ☐ Contact, Casual

Name of Contact: _____ Date of Contact: _____

Symptoms: *(Tick all that apply)*

Date of Onset of Symptoms: _____

☐ Fever ☐ Haemoptysis ☐ Chest Pain ☐ Persistent Cough ☐ Night Sweats ☐ Weight Loss

☐ Other _____

HIV Status: ☐ Positive ☐ Negative ☐ Not known ☐ Not tested for

DIAGNOSIS

Case Classification: ☐ Suspect ☐ Confirmed ☐ Pulmonary ☐ Extra-pulmonary

TST: Size of induration: _____ mm ☐ Positive ☐ Negative

X-Ray: ☐ Normal ☐ Abnormal

AFB: ☐ Smear positive ☐ Smear negative ☐ Not tested for

MTB: ☐ Culture positive ☐ Culture negative ☐ Not tested for

TREATMENT

☐ Prophylaxis ☐ Therapeutic

Date treatment commenced: _____
Prescribed length of treatment: _____ months

Treatment Regimen: ☐ INH ☐ Rifampin ☐ Ethambutol ☐ PZA ☐ Streptomycin

ADDITIONAL COMMENTS

_____

_____

For Department of Health Use Only

Residence

# of people sharing room: _____ Ventilation: ☐ Good ☐ Fair ☐ Poor

Follow-up

Date for follow up: _____

TST: Size of induration: _____ mm ☐ Positive ☐ Negative

Treatment Completion

Date of treatment completion: _____

TST: Size of induration: _____ mm ☐ Positive ☐ Negative

Notes

_____

_____

_____

_____

_____

_____

_____

_____

_____
Nurse Epidemiologist

C.M.O. RECOMMENDATIONS/COMMENTS

_____

_____

_____

_____

_____

_____
Chief Medical Officer

Department of Health
Epidemiology and Surveillance Unit

TB CONTACT TRACING LOG

Index Case (TB#)	First Name	Last Name	Relationship to Index Case*	Age	Sex	Date of Investigation	TB Signs or Symptoms	TST Result	Conclusion

***** Indicate genealogical relationship and whether contact is household, close/non-household, or casual.

Department of Health
Epidemiology and Surveillance Unit

Date of Notification:_____

Case ID#: _____

Foodborne Illness Investigation Form

ILL ☐ **NOT ILL** ☐

GENERAL INFORMATION

Name: _____ Date of Birth: ___/___/___ Age: _____ Sex: _____

Address: _____ Occupation: _____

_____ Visitor: Y ___ N ___ Address in Bermuda: _____

Contact info: _____ Arrival date: ___/___/___ _____

_____ Airline/Ship _____ _____

SIGNS AND SYMPTOMS

(check appropriate items)

1st Symptom: _____ Date: _____ Time: ____am/pm Duration of Symptoms: _____

Intoxications		Enteric Infections		Neurological	
Burning Sensation (mouth)	☐	Abdominal Cramps	☐	Headache	☐	Numbness	☐
Metallic Taste	☐	Diarrhea	☐	Chills	☐	Dizziness	☐
Excessive Salivation	☐	Bloody	☐	Myalgia	☐	Double Vision	☐
Nausea	☐	Mucus	☐	Edema	☐	Blurred Vision	☐
Vomiting	☐	Watery	☐	Jaundice	☐	Difficulty Swallowing	☐
Flushing	☐	#/day	☐	Anorexia	☐	Restlessness	☐
Itching	☐	Fever	☐	Rash	☐	Delirium	☐
Prostration	☐	°C/°F	☐	Weakness	☐	Paralysis	☐
Cyanosis	☐	Duration	☐	Dehydration	☐	Coma	☐

Other symptoms: _____

SPECIMENS OBTAINED

Specimen	Date of Collection	Laboratory Results

REMARKS AND DIAGNOSIS

_____

_____

_____

_____

FOOD HISTORY (72 hours of symptom onset or other specified times)

Day of Illness	Day before Illness	Two days before Illness
Date: _____	Date:_____	Date:_____
Breakfast Time:_____	Breakfast Time:_____	Breakfast Time:_____
Place: _____	Place: _____	Place: _____
Lunch Time:_____	Lunch Time:_____	Lunch Time:_____
Place: _____	Place: _____	Place: _____
Supper Time:_____	Supper Time:_____	Supper Time:_____
Place: _____	Place: _____	Place: _____
Snacks Time: _____	Snacks Time: _____	Snacks Time:_____
Place: _____	Place: _____	Place: _____

SUSPECT FOOD

poultry ☐ meat ☐ eggs ☐ fish ☐ shellfish ☐

water ☐ milk ☐ juice ☐ fruit ☐ vegetables ☐

Other: _____ Food-handler implicated: ☐

Anyone with similar exposure and/or illness: _____
Common location: _____
Recent travel: _____
Contact with animals: _____
Swimming pool used: _____
Source of drinking water: _____

ADDITIONAL INFORMATION

Interviewer: _____