POCKET BOOKLET OF
CASE DEFINITION FOR
INFECTIOUS DISEASES
IN MALAYSIA

Coordinated by:

Communicable Disease Unit
Selangor State Health Department

1st Edition
August 2013
Selangor contributed the highest number of notifications of infectious diseases in Malaysia during 2012. The top 5 notified diseases were Dengue, Tuberculosis, Hand, Foot and Mouth Disease (HFMD), Measles and Food Poisoning. This reflects the burden of disease in Selangor and reflects the high awareness among health care personnel in monitoring and reporting such cases. However, the problem of misdiagnosis, mismanagement and delay in diagnosis of cases is still prevalent and of concern.

In the year 2003, the Surveillance Section of the Disease Control Division, Ministry of Health (MOH) Malaysia published the first edition of “Case Definition of Infectious Diseases in Malaysia” followed by the second edition in 2006. We found it very valuable and felt it should be a compulsory guide for all medical practitioners dealing with communicable diseases.

In order to ensure all medical doctors and paramedics especially the frontliners are equipped with the latest case definitions for notifiable diseases, the Communicable Disease Unit of the Selangor State Health Department took the opportunity to publish this pocket size “Booklet of Infectious Diseases” as part of its initiative to provide a complete yet quick reference tool that can be carried along and used during their daily practice. This booklet will serve as a practical guide towards making the right diagnosis and decisions on management as well as notification of the cases. Hopefully this will also benefit the environmental health officer on how to categorize the diseases and conduct further investigation and control measures.

This book also highlights a section on syndromic notification whereby notification of ‘health event’ under surveillance can be made based on the signs and symptoms whenever in doubt of the true diagnosis. The important samples required for diagnostic confirmation of the disease have been included in this book. All notifications must be reported to the nearest district health office.

It is our sincere hope that this booklet will be of use for early detection and notification of infectious diseases and improving the quality of diseases in all health facilities in Selangor.
INTRODUCTION

Selangor contributed the highest number of notifications of infectious diseases in Malaysia during 2012 (30%). The top 5 notified diseases were Dengue, Tuberculosis, Hand, Foot and Mouth Disease (HFMD), Measles and Food Poisoning. This reflects the burden of disease in Selangor as well as from the high awareness among health care personnel. However, the problem of misdiagnosis, mismanagement and delay in diagnosis of cases is still prevalent and of concern.

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### 1.0 MANDATORY NATIONAL NOTIFICATION OF INFECTIOUS DISEASES UNDER INFECTIOUS DISEASE PREVENTION AND CONTROL ACT 1988.
All notification/cases should be notified to nearest district health office.

#### VACCINE PREVENTABLE DISEASES

<table>
<thead>
<tr>
<th>No</th>
<th>Diseases</th>
<th>Notification by phone or e-notifikasi and written notification within 24 hours</th>
<th>Written notification or e-notifikasi within 1 week after diagnosis</th>
<th>Lab Test Result Required for Notification</th>
<th>Diagnosis Status at the time of notification</th>
<th>Confirmatory Laboratory Tests</th>
</tr>
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<tbody>
<tr>
<td>1</td>
<td>Mumps and Measles</td>
<td>√</td>
<td>Pending, Positive, Negative</td>
<td>Both provisional or confirmed</td>
<td>Viral Serology</td>
<td>Viral Isolation Antibody Tite</td>
</tr>
<tr>
<td>2</td>
<td>Acute Poliomyelitis (Acute Flaccid Paralysis, AFP)</td>
<td>√</td>
<td>Pending, Positive, Negative</td>
<td>Both provisional or confirmed</td>
<td>Stool for viral isolation</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Whooping Cough (Pertussis)</td>
<td>√</td>
<td>Pending, Positive, Negative</td>
<td>Both provisional or confirmed</td>
<td>Nasopharyngeal aspirate/swab or per nasal swab C&amp;S, Nasopharyngeal aspirate/swab or per nasal swab PCR</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Hepatitis B</td>
<td>√</td>
<td>Only Positive</td>
<td>Only confirmed case</td>
<td>Viral antibody</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Tetanus</td>
<td>√</td>
<td>Pending, Positive, Negative</td>
<td>Concluded as confirmed even no test or test negative</td>
<td>Swab C&amp;S</td>
<td>Smear</td>
</tr>
<tr>
<td>6</td>
<td>Diphtheria</td>
<td>√</td>
<td>Pending, Positive, Negative</td>
<td>Both provisional or confirmed</td>
<td>Throat</td>
<td>Swab C&amp;S, Serum antibody</td>
</tr>
<tr>
<td>No</td>
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<td>Notification by phone or e-notifikasi and written notification within 24 hours</td>
<td>Written notification or e-notifikasi within 1 week after diagnosis</td>
<td>Lab Test Result Required for Notification</td>
<td>Diagnosis Status at the time of notification</td>
<td>Confirmatory Laboratory Tests</td>
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<tr>
<td>1</td>
<td>Cholera</td>
<td>√</td>
<td>Pending, Positive, Negative</td>
<td>Both provisional or confirmed</td>
<td>Rectal Swab, Stool C&amp;S</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Dysentery</td>
<td>√</td>
<td>Pending, Positive, Negative</td>
<td>Both provisional or confirmed</td>
<td>Rectal swab, Stool C&amp;S</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Food Poisoning</td>
<td>√</td>
<td>Pending, Positive, Negative</td>
<td>Concluded as confirmed even no test or test negative</td>
<td>Food sample, Gastric content, Stool or vomitus</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Hepatitis A</td>
<td>√</td>
<td>Only Positive</td>
<td>Only confirmed case</td>
<td>Viral antibody, Viral antigen</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Typhoid/Paratyphoid</td>
<td>√</td>
<td>Pending, Positive, Negative</td>
<td>Both provisional or confirmed</td>
<td>Stool C&amp;S, Blood C&amp;S, Urine C&amp;S</td>
<td>Positivity rate of blood culture is different ie. 90% at the first week and 50% at the third week. Stool culture can be negative on the first week and become positive on the third week (in untreated cases).</td>
</tr>
<tr>
<td>6</td>
<td>Salmonellosis</td>
<td>√</td>
<td>Pending, Positive, Negative</td>
<td>Both provisional or confirmed</td>
<td>Blood, stool or other clinical specimens for C&amp;S</td>
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<tr>
<td>No</td>
<td>Diseases</td>
<td>Notification by phone or e-notifikasi and written notification within 24 hours</td>
<td>Written notification or e-notifikasi within 1 week after diagnosis</td>
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<td>Confirmatory Laboratory Tests</td>
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<tr>
<td>13</td>
<td>Leptospirosis</td>
<td>√</td>
<td>Pending, Positive.</td>
<td>Both probable or confirmed</td>
<td>ELISA or any other rapid immune diagnostic test (Serum)</td>
<td>MAT (Serum – same sample for ELISA can be used for MAT)</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>a) 1st sample at the time of diagnosis</td>
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<td></td>
<td></td>
<td></td>
<td>PCR (Whole blood*)</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>PCR (Mixed stream urine*)</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>Culture (Blood, CSF/ body fluids, tissues)</td>
</tr>
<tr>
<td>No</td>
<td>Diseases</td>
<td>Notification by phone or e-notifikasi and written notification within 24 hours</td>
<td>Written notification or e-notifikasi within 1 week after diagnosis</td>
<td>Lab Test Result Required for Notification</td>
<td>Diagnosis Status at the time of notification</td>
<td>Confirmatory Laboratory Tests</td>
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</tr>
<tr>
<td>14</td>
<td>Brucellosis* (administratively ordered)</td>
<td>√</td>
<td>Pending, Positive</td>
<td>Both probable or confirmed</td>
<td>C&amp;S PCR</td>
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<tr>
<td>15</td>
<td>Hand, Foot and Mouth Disease (HFMD)</td>
<td>√</td>
<td>Pending, Positive, Negative</td>
<td>Both provisional or confirmed</td>
<td>Swab C&amp;S (vesicle, ulcer, rectal) C&amp;S- stool, CSF</td>
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<td>16</td>
<td>Ebola</td>
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<td>Both provisional or confirmed</td>
<td>Stool C&amp;S, Viral Serology, Skin Histology, PCR, Viral Isolation</td>
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<td>17</td>
<td>Plague</td>
<td>√</td>
<td>Pending, Positive, Negative</td>
<td>Both provisional or confirmed</td>
<td>Direct Fluorescent A/B, Gram Stain, Antibody Titre,</td>
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<td>18</td>
<td>Rabies</td>
<td>√</td>
<td>Pending, Positive, Negative</td>
<td>Both provisional or confirmed</td>
<td>Direct fluorescent antibody (FA) in clinical specimens, preferably brain tissue (post mortem) or from skin or corneal smear (ante mortem).</td>
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<tr>
<td>No</td>
<td>Diseases</td>
<td>Notification by phone or e-notifikasi and written notification within 24 hours</td>
<td>Written notification or e-notifikasi within 1 week after diagnosis</td>
<td>Lab Test Result Required for Notification</td>
<td>Diagnosis Status at the time of notification</td>
<td>Confirmatory Laboratory Tests</td>
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<td>19</td>
<td>Tuberculosis</td>
<td>√</td>
<td>Only Positive</td>
<td>Only confirmed case</td>
<td>Sputum Smear &amp; CXR, Sputum Smear, Sputum Smear &amp; Biopsy, Sputum Smear &amp; C&amp;S</td>
<td>For Smear +ve PTB</td>
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<tr>
<td></td>
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<td></td>
<td></td>
<td></td>
<td>Sputum Smear &amp; Biopsy, Sputum Smear &amp; C&amp;S</td>
<td>Extra PTB</td>
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<tr>
<td>20</td>
<td>Leprosy</td>
<td>√</td>
<td>Only Positive</td>
<td>Only confirmed case</td>
<td>Skin smear</td>
<td></td>
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**Mandatory National Notification**

**Tuberculosis / Leprosy**

- **Tuberculosis**
  - Notification by phone or e-notifikasi and written notification within 24 hours
  - Written notification or e-notifikasi within 1 week after diagnosis
  - Lab Test Result Required for Notification
  - Sputum Smear & CXR, Sputum Smear, Sputum Smear & Biopsy, Sputum Smear & C&S
  - Diagnosis Status at the time of notification: Only confirmed case
  - Confirmatory Laboratory Tests: Sputum Smear & CXR & Biopsy, Sputum Smear & CXR & C&S
  - Note: For Smear +ve PTB, Sputum Smear (-ve) & CXR (+ve) For Smear -ve PTB, Extra PTB with smear -ve PTB

- **Leprosy**
  - Notification by phone or e-notifikasi and written notification within 24 hours
  - Written notification or e-notifikasi within 1 week after diagnosis
  - Lab Test Result Required for Notification
  - Sputum Smear & CXR, Sputum Smear & Biopsy, Sputum Smear & C&S
  - Diagnosis Status at the time of notification: Only confirmed case
  - Confirmatory Laboratory Tests: Skin smear
  - Note: Extra PTB with smear -ve PTB
### Vector Borne Diseases

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<th>Diseases</th>
<th>Notification by phone or e-notifikasi and written notification within 24 hours</th>
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<th>Confirmatory Laboratory Tests</th>
<th>Note</th>
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<tr>
<td>21</td>
<td>Dengue Fever, Dengue Hemorrhagic Fever (DHF), Dengue Shock Syndrome (DSS)</td>
<td>✓</td>
<td>Pending, Positive, Negative</td>
<td>Both provisional or confirmed</td>
<td>Viral Serology, Viral Isolation</td>
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<tr>
<td>22</td>
<td>Malaria</td>
<td>✓</td>
<td>Only Positive</td>
<td>Only confirmed case</td>
<td>Blood smear</td>
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<tr>
<td>23</td>
<td>Typhus</td>
<td>✓</td>
<td>Pending, Positive, Negative</td>
<td>Both provisional or confirmed</td>
<td>EIA, IPT Immunofluorescent</td>
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<tr>
<td>24</td>
<td>Yellow Fever</td>
<td>✓</td>
<td>Pending, Positive, Negative</td>
<td>Both provisional or confirmed</td>
<td>Viral Serology, Viral Isolation, Tissue Histology</td>
<td></td>
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<tr>
<td>25</td>
<td>Relapsing Fever</td>
<td>✓</td>
<td>Pending, Positive, Negative</td>
<td>Both provisional or confirmed</td>
<td>Blood C&amp;S, Antibody Titre, Stool C&amp;S</td>
<td></td>
<td></td>
</tr>
<tr>
<td>26</td>
<td>Japanese Encephalitis</td>
<td>✓</td>
<td>Only Positive</td>
<td>Only confirmed case</td>
<td>Viral Serology, Antibody Titre</td>
<td></td>
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### HIV/AIDS and Sexual Transmitted Infections

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<thead>
<tr>
<th>No</th>
<th>Diseases</th>
<th>Notification by phone or e-notifikasi and written notification within 24 hours</th>
<th>Written notification or e-notifikasi within 1 week after diagnosis</th>
<th>Lab Test Result Required for Notification</th>
<th>Diagnosis Status at the time of notification</th>
<th>Confirmatory Laboratory Tests</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>27</td>
<td>HIV/AIDS Infection</td>
<td>✓</td>
<td>Only Positive</td>
<td>Only confirmed case</td>
<td>EIA, Western Blot, Immuno fluorescent, LIA, PCR, PA</td>
<td></td>
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</table>
MANDATORY NATIONAL NOTIFICATION

<table>
<thead>
<tr>
<th>No</th>
<th>Diseases</th>
<th>Notification by phone or e-notification and written notification within 24 hours</th>
<th>Written notification or e-notification within 1 week after diagnosis</th>
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<th>Confirmatory Laboratory Tests</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>28</td>
<td>Gonococcal Infections</td>
<td>√</td>
<td>Only Positive</td>
<td>Only confirmed case</td>
<td>Gram stain, Swab C&amp;S</td>
<td></td>
<td></td>
</tr>
<tr>
<td>29</td>
<td>Syphilis</td>
<td>√</td>
<td>Only Positive</td>
<td>Only confirmed case</td>
<td>RPR, FTA, TPHA, PA</td>
<td></td>
<td></td>
</tr>
<tr>
<td>30</td>
<td>Chancroid</td>
<td>√</td>
<td>Only Positive</td>
<td>Only confirmed case</td>
<td>Gram stain Swab C&amp;S Antibody Titre</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Other than written notification, the following diseases must be notified by telephone within 24 hours: Acute Poliomyelitis, Cholera, Dengue, Diphtheria, Food Poisoning, Plague, Rabies, Measles and Yellow Fever.

*For Influenza - Cluster of ILI cases should be notified to the nearest health clinics.

Abbreviation:

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSF</td>
<td>Cerebrospinal fluid</td>
</tr>
<tr>
<td>ED</td>
<td>Emergency Department</td>
</tr>
<tr>
<td>EIA</td>
<td>Enzyme immunoassay</td>
</tr>
<tr>
<td>EDTA</td>
<td>Ethylene Di – amine Tetra Acetate</td>
</tr>
<tr>
<td>ELISA</td>
<td>Enzyme – link Immunosorbent Assay</td>
</tr>
<tr>
<td>FA</td>
<td>Fluorescent antibody</td>
</tr>
<tr>
<td>HFMD</td>
<td>Hand, Foot and Mouth Disease</td>
</tr>
<tr>
<td>HPE</td>
<td>Histopathological examination</td>
</tr>
<tr>
<td>IF</td>
<td>Immunofluorescent test</td>
</tr>
<tr>
<td>IMR</td>
<td>Institute for Medical Research</td>
</tr>
<tr>
<td>LIA</td>
<td>Line immunoassay</td>
</tr>
<tr>
<td>MAT</td>
<td>Microscopic agglutination test</td>
</tr>
<tr>
<td>MOH</td>
<td>Ministry of Health</td>
</tr>
<tr>
<td>NPHL/MKAK</td>
<td>National Public Health Laboratory</td>
</tr>
<tr>
<td>PCR</td>
<td>Polymerase Chain Reaction</td>
</tr>
<tr>
<td>PHL</td>
<td>Public Health Laboratory</td>
</tr>
<tr>
<td>PVA</td>
<td>Polyvinyl isopropyl alcohol</td>
</tr>
<tr>
<td>RPR</td>
<td>Rapid plasma reagent</td>
</tr>
<tr>
<td>TPHA</td>
<td>Treponema pallidum hemagglutination</td>
</tr>
<tr>
<td>VTM</td>
<td>Viral transport media</td>
</tr>
<tr>
<td>WHO</td>
<td>World Health Organisation</td>
</tr>
</tbody>
</table>
2.0 VACCINE PREVENTABLE DISEASES

2.1 MEASLES (ICD 10: B 05)

2.1.1 Case definition

Clinical case definition

a. Any person with fever and erythematous maculopapular rash and cough, coryza (runny nose) or conjunctivitis (red eyes)

OR

b. Any person who is clinically suspected as measles infection

2.1.2 Laboratory confirmation test

a. Positive IgM Measles antibodies OR

b. Presence of measles virus in clinical samples using culture techniques or

c. Presence of measles virus in clinical samples using molecular techniques.

2.1.3 Sample for confirmation


b. If the onset of rash is less than 5 days, take urine or nasopharyngeal (aspirates or lavage)

OR

Nasal/throat swab for viral isolation.

("ENSURE MEASLES LABORATORY REQUEST FORM IS USED")

2.1.4 Reference Laboratory

National Public Health Laboratory, Sungai Buloh.

2.1.5 Additional note

Blood test should be taken again 10-20 days after first specimen if:

- Measles/Rubella IgM result is equivocal.
- Measles/Rubella IgM result is negative for blood taken less than 5 days from the onset of rash.
2.2 ACUTE POLIOMYELITIS (ICD 10: A 36)

2.2.1 Case Definition

Clinical case definition
A disease due to polio virus infection, often recognized as an acute onset of flaccid paralysis.

Criteria for diagnosing Acute Poliomyelitis:
- Poliovirus is isolated OR
- Positive serology (4 fold or greater increase in antibody) OR
- Epidemiologically linkage to another confirmed case

2.2.2 Case classification

a. Suspected: A disease due to poliovirus infection, often recognized by an acute onset of flaccid paralysis.

b. Confirmed: A case with any of the above criteria for diagnosis.

2.2.3 Laboratory confirmation test

Poliovirus isolation from 2 separate stool specimens, collected 24 hours to 48 hours apart and both taken within 14 days of onset of paralysis.

In isolated case where sample cannot be collected within 14 days, the specimen should be collected within 60 days of onset of paralysis.

2.2.4 Reference Laboratory

Institute of Medical Research (IMR), Kuala Lumpur.

Additional note: -

The detection of any wild poliovirus will require URGENT ATTENTION and will be considered a national emergency. In this situation it is vital to immediately activate the National Plan of Action for Importation of Wild Poliovirus. All wild poliovirus cases and outbreaks should be investigated IMMEDIATELY.
ACUTE FLACCID PARALYSIS (AFP) (POLIOMYELITIS SURVEILLANCE)

Malaysia has been certified FREE from the wild polio virus since 29 October 2000. However, AFP Surveillance is needed to provide evidence to the regional certification commission of the absence of the wild polio virus transmission until global certification.

Acute Flaccid Paralysis (AFP) means a condition where there is sudden loss of control over muscles especially over legs or arms in children less than 15 years old. The clinical case definition includes all following conditions:

- Polio
- Poliomyelitis/encephalitis
- Post polio vaccine encephalitis/encephalomyelitis
- Gullain Barre’ Syndrome
- Flaccid Muscle Paralysis
- Tranverse Myelitis & Tranverse Neuritis
- Acute Flaccid Paralysis not due to motor vehicle accident (MVA)
- Hypotonia due to potassium deficiency
- Acute flaccid monoplegia or paralysis
- Acute flaccid hemiplegia or paraplegia

Inclusive Criteria - It is a case of AFP if it has any one of the following criteria:

- Poliovirus is isolated.
- Positive serology (4 fold or greater rise in antibody).
- Epidemiological linkage to another confirmed case.
- Residual paralysis after 60 days.
- Death of a suspected case.

Vaccine Associated Paralytic Poliomyelitis (VAPP):

Criteria for Diagnosis of VAPP:

- Clinical polio and no epidemiological links to confirm case of wild virus or outbreak associated with polio cases.
- History of recent exposure to OPV and adequate stool specimens is negative for wild virus.
- Positive for Sabin in WHO accredited laboratory.
- Other differential diagnosis of AFP has been ruled out.
- Polio–like sequelae at 60–day follow–up.
- Review and diagnosis by ‘Expert Review Committee’.

Laboratory confirmation test:

- 2 separate stool specimens, collected 24 hours to 48 hours apart; and both taken within 14 days of onset of paralysis (for viral isolation).
- In isolated case where sample cannot be collected within 14 days, the specimen should be collected within 60 days of onset of paralysis.
2.3 **PERTUSSIS (WHOOPING COUGH) (ICD 10: A 37.0)**

2.3.1 Case definition

a. **Suspected/Clinical** – A person with cough lasting at least 2 weeks with at least **ONE** of the following:
   - Paroxysmal cough (spasm of uncontrolled coughing)
   - Inspiratory “whoop”
   - Post-tussive vomiting (i.e. vomiting after coughing)

b. **Confirmed** – A clinically compatible case that is laboratory confirmed.

<table>
<thead>
<tr>
<th>Laboratory criteria for diagnosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Isolation of <em>Bordetella pertussis</em> from the clinical specimen</td>
</tr>
<tr>
<td>OR</td>
</tr>
<tr>
<td>Positive polymerase chain reaction (PCR) for <em>B. pertussis</em></td>
</tr>
<tr>
<td>OR</td>
</tr>
<tr>
<td>Positive paired sera for <em>B.pertussis</em></td>
</tr>
</tbody>
</table>

2.3.2 Laboratory confirmation test

a) **Culture** of nasopharyngeal swab on Bordet-Gengou medium.

b) **Polymerase chain reaction (PCR)** for *B. pertussis*

2.3.3 Sample for confirmation

a) Nasopharyngeal aspirate is the best specimen for PCR.

b) Per nasal or posterior-nasopharynx can also be obtained. **DO NOT SEND THROAT SWAB.**

2.3.4 Reference Laboratory

Institute of Medical Research (IMR), Kuala Lumpur.
2.4 HEPATITIS B (ICD 10: B 16.9)

2.4.1 Acute Hepatitis B

2.4.1.1 Case definition

Clinical Description
An acute illness with a discrete onset of any sign or symptom* consistent with acute viral hepatitis (e.g. fever, headache, malaise, anorexia, nausea, vomiting, diarrhea, and abdominal pain), and either a) jaundice, or b) elevated serum alanine aminotransferase (ALT) levels >100 IU/L. A recent history of exposure maybe present.

Note:
1. Symptoms of hepatitis with jaundice and markedly raised ALT can occur in chronic hepatitis B individuals who is experiencing HBV reactivation/hepatitis flare.
2. *A documented negative hepatitis B surface antigen (HBsAg) laboratory test result within 6 months prior to a positive test (either HBsAg, hepatitis B "e" antigen (HBeAg), or hepatitis B virus nucleic acid testing (HBV NAT) including genotype) result does not require an acute clinical presentation to meet the surveillance case definition.

Laboratory Criteria for Diagnosis
- HBsAg positive, AND/OR
- Immunoglobulin M (IgM) antibody to hepatitis B core antigen (IgM anti-HBc) positive (if done)

2.4.1.2 Case Classification

Confirmed: A case that meets the clinical case definition, is laboratory confirmed, and is not known to have chronic hepatitis B.
2.4.2 Chronic Hepatitis B

2.4.2.1 Case definition

**Clinical Description**
No symptoms are required. Persons with chronic hepatitis B virus (HBV) infection may have no evidence of liver disease or may have a spectrum of disease ranging from chronic hepatitis to cirrhosis or liver cancer.

**Laboratory Criteria for Diagnosis**
Immunoglobulin M (IgM) antibodies to hepatitis B core antigen (IgM anti-HBc) negative AND a positive result on one of the following tests:
- hepatitis B surface antigen (HBsAg),
- hepatitis B e antigen (HBeAg), OR
- nucleic acid test for hepatitis B virus DNA (including qualitative, quantitative and genotype testing),
OR
HBsAg positive or nucleic acid test for HBV DNA positive (including qualitative, quantitative and genotype testing) or HBeAg positive **two times at least 6 months apart**
(Any combination of these tests performed 6 months apart is acceptable).

2.4.2.2 Case Classification

- **Probable**:
  A person with a single HBsAg positive or HBV DNA positive (including qualitative, quantitative and genotype testing)
  OR
  HBeAg positive lab result and does not meet the case definition for acute hepatitis B.

- **Confirmed**:
  A person who meets either of the above laboratory criteria for diagnosis.

**Comment(s)**
Multiple laboratory tests indicative of chronic HBV infection may be performed simultaneously on the same patient specimen as part of a "hepatitis panel." Testing performed in this manner may lead to seemingly discordant results, e.g., HBsAg-negative AND HBV DNA-positive.

For the purposes of this case definition, any positive result among the three laboratory tests mentioned above is acceptable, regardless of other testing results. Negative HBeAg results and HBV DNA levels below positive cutoff level do not confirm the absence of HBV infection.

*Source: Centers for Disease Control and Prevention 1600 Clifton Rd. Atlanta, GA 30333, USA

2.4.3 How to interpret Hepatitis B serologic test results

The following table provides interpretations for Hepatitis B serologic markers.

<table>
<thead>
<tr>
<th>Tests</th>
<th>Results</th>
<th>Interpretation</th>
</tr>
</thead>
<tbody>
<tr>
<td>HBsAg, anti-HBc, anti-HBs</td>
<td>negative, negative, negative</td>
<td>Susceptible</td>
</tr>
<tr>
<td>HBsAg, anti-HBc, anti-HBs</td>
<td>negative, positive, positive</td>
<td>Immune due to natural infection</td>
</tr>
<tr>
<td>HBsAg, anti-HBc, anti-HBs</td>
<td>negative, negative, positive</td>
<td>Immune due to Hepatitis B vaccination</td>
</tr>
<tr>
<td>HBsAg, anti-HBc, IgM anti-HBc, anti-HBs</td>
<td>positive, positive, positive, negative</td>
<td>Acutely infected</td>
</tr>
<tr>
<td>HBsAg, anti-HBc, IgM anti-HBc, anti-HBs</td>
<td>positive, positive, negative, negative</td>
<td>Chronically infected</td>
</tr>
</tbody>
</table>
### Interpretation of Hepatitis B Serologic Test Results

<table>
<thead>
<tr>
<th>Test</th>
<th>Status</th>
<th>Interpretation</th>
</tr>
</thead>
<tbody>
<tr>
<td>HBsAg</td>
<td>negative</td>
<td>Interpretation unclear; four possibilities:</td>
</tr>
<tr>
<td>anti-HBc</td>
<td>positive</td>
<td>1. Resolved infection (most common)</td>
</tr>
<tr>
<td>anti-HBs</td>
<td>negative</td>
<td>2. False-positive anti-HBc, thus susceptible</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3. &quot;Low level&quot; chronic infection</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4. Resolving acute infection</td>
</tr>
</tbody>
</table>

**Hepatitis B surface antigen (HBsAg):**

A protein on the surface of HBV; it can be detected in high levels in serum during acute or chronic HBV infection. The presence of HBsAg indicates that the person is infectious. The body normally produces antibodies to HBsAg as part of the normal immune response to infection. HBsAg is the antigen used to make Hepatitis B vaccine.

**Hepatitis B surface antibody (anti-HBs):**

The presence of anti-HBs is generally interpreted as indicating recovery and immunity from HBV infection. Anti-HBs also develops in a person who has been successfully vaccinated against Hepatitis B.

**Total Hepatitis B core antibody (anti-HBc):**

Appears at the onset of symptoms in acute Hepatitis B and persists for life. The presence of anti-HBc indicates previous or ongoing infection with HBV in an undefined time frame.

**IgM antibody to Hepatitis B core antigen (IgM anti-HBc):**

Positivity indicates recent infection with HBV (≤6 months). Its presence indicates acute infection.


*Source: Centers for Disease Control and Prevention 1600 Clifton Rd. Atlanta, GA 30333, USA*
2.5 TETANUS (ICD 10:A 33)

2.5.1 Clinical Case Definition

i. Neonatal Tetanus (less than 28 days of age)
   Any neonate able to suck and cry normally in the first two days of life and then becomes unable to suck normally and becomes stiff or has convulsions (i.e. jerking of muscles) or both between the 3rd to 28th days of life.

ii. Generalized tetanus
   A person presents with trismus or lock jaw and facial spasms (risus sardonicus) followed by stiffness of the neck, difficulty in swallowing, and rigidity of pectoral and calf muscles. Person may also present as generalized muscle spasms (opisthotonos) Spasms continue for up to 4 weeks, and complete recovery may take months.

iii. Local tetanus
   A person may have persistent contraction of muscles in the same anatomic area as the injury. The contractions may persist for many weeks before gradually subsiding.

iv. Cephalic tetanus
   A person may have tetanus involving the cranial nerves especially involving the facial area. This is usually due to otitis media (C. tetani is present in middle ear flora) or can be seen after head injury.

2.5.2 Case Classification:

Confirmed: A clinically compatible case as reported by a doctor. Diagnosis of cases does not require laboratory or bacteriological confirmation.

2.5.3 Notification

a. Any case diagnosed by treating doctor as tetanus should be notified to the nearest District Health Office within 7 days of diagnosis date.

b. Diagnosis of the cases DOES NOT require laboratory or bacteriological confirmation.

c. Vaccine potency test, surveillance and investigation of related batch (currently, vaccine potency test not available).
2.6 DIPHTHERIA  (ICD 10:A 36)

2.6.1 Case definition

Clinical criteria: an illness of the upper respiratory tract characterized by laryngitis or pharyngitis or tonsilitis and an adherent membrane of the nose, pharynx, tonsils and/or larynx.

2.6.2 Case classification

a. Suspected : A clinically compatible case that is not laboratory confirmed and is not epidemiologically linked to a laboratory–confirmed case.

b. Confirmed : A clinically compatible case that is either laboratory-confirmed OR epidemiologically linked to a laboratory–confirmed case.

2.6.3 Laboratory confirmation test

- Isolation of *Corynebacterium diphteriae* from the nose or throat culture,
- OR
- Histopathology diagnosis of *diphteriae*,
- OR
- Positive PCR test

2.6.4 Reference Laboratory

Institute of Medical Research (IMR), Kuala Lumpur : Vaccine potency test, surveillance and investigation on the specific vaccine’s batch – used by the affected individuals/community.
2.7 MUMPS  (ICD 10: B 26.9)

2.7.1 Case definition

Clinical case definition
An illness with acute onset of unilateral or bilateral tender, self-limited swelling of the parotid or the salivary gland, lasting for ≥ 2 days, and without other apparent cause.

Laboratory criteria for diagnosis
- Isolation of mumps virus from clinical specimen,  OR
- Significant rise between acute- and convalescent-phase titres in serum mumps immunoglobulin G antibody level by any standard serologic assay,  OR
- Positive serologic test for mumps immunoglobulin M (IgM) antibody

2.7.2 Case classification

a. Probable: A case that meets the clinical case definition has non contributory or no serologic or virologic testing, and is nor epidemiologically-linked to a confirmed or probable case.

b. Confirmed: A case that is laboratory confirmed or that meets the clinical case definition and is epidemiologically linked to a confirmed or probable case.
A laboratory-confirmed case does not need to meet the clinical case definition.

Comment:
Two probable cases that are epidemiologically linked would be considered confirmed, even in the absence of laboratory confirmation. False-positive IgM result by immunofluorescent antibody assays have been reported.

2.7.3 Reference laboratory

IMR: Vaccine potency test and sero-prevalence study.
2.8 **HAEMOPHILUS INFLUENZA DISEASE**  
* (ICD 10: G00.0)

2.8.1 **Case definition**

**Clinical case definition**
Invasive diseases caused by *Haemophilus influenzae* type b may produce any of several clinical syndromes including meningitis, bacteraemia, epiglottitis, or pneumonia.

**Laboratory criteria for diagnosis**
Isolation of *H.*Influenzae type b from a normally sterile site (eg: blood or cerebrospinal fluid or less commonly, joint, pleural or pericardial fluid).

2.8.2 **Case classification**

- **Probable**: A clinically compatible case with detection *H.*Influenzae type b antigen in CSF.
- **Confirmed**: A case that is laboratory confirmed (growth or identification of *H.*Influenzae type b in CSF or blood)

**Notes:**
Positive antigen test result from urine or serum sample are unreliable for diagnosis of *H.*Influenzae type b disease. Any person with *H.*Influenzae type b isolated in CSF or blood maybe reported as a confirmed case, regardless of whether their clinical syndromes was meningitis.

2.8.3 **Reference laboratory**

IMR: Vaccine potency test and sero-prevalence study.
2.9  **RUBELLA-ADULT TYPE  (ICD 10: B 06.9)**

2.9.1 Case definition:

Clinical case definition
An illness that has all the following characteristics:

- Acute onset of generalized maculopapular rash
- Temperature > 99.0°F (>37.2°C), if measured
- Arthralgia/arthritis, lymphadenopathy or conjunctivitis

Laboratory criteria for diagnosis

- Isolation of rubella virus  OR
- Significant rise between acute-and convalescent-phase titres in serum rubella immunoglobulin G antibody level by any standard serologic assay,  OR
- Positive serologic test for rubella immunoglobulin M (IgM) antibody

2.9.2 Case classification

a.  **Suspected:** A case that meet the clinical case definition.

b.  **Confirmed:** A case that is laboratory-confirmed or that meet the clinical case definition and epidemiologically linked to a laboratory-confirmed case.

Comments:
Serum rubella IgM test results are false positives have been reported in persons with other viral infections (eg: acute infection with Epstein-Barr virus [infectious mononucleosis], recent cytomegalovirus infection and parvovirus infection) or in the presence rheumatoid factor. Patients who have laboratory evidence of recent measles infection are excluded.

2.9.3 Reference laboratory:

IMR: Vaccine potency test surveillance and investigation of the affected batch of the vaccine.
2.10 RUBELLA - CONGENITAL SYNDROME  (ICD 10: P35.0)

2.10.1 Case Definition

Clinical case definition
Presence of any defect or laboratory data consistent with congenital rubella infection which are defined as the following:
An illness usually manifested in infant resulting from rubella infection in utero and characterized by signs or symptoms from the following categories:
  a) Cataracts/congenital glaucoma, congenital heart disease (most commonly patent ductus arteriosus, or peripheral pulmonary artery stenosis), loss of hearing, pigmentary retinopathy.
  b) Purpura, splenomegaly, jaundice, microcephaly, mental retardation, meningoencephalitis, radiolucent bone diseases.

Laboratory criteria for diagnosis
- Isolation of rubella virus  OR
- Demonstration of rubella-specific immunoglobulin M antibody,  OR
- Infant rubella antibody level that persists at a higher level and for a longer period then expected from passive transfer of maternal antibody (i.e: rubella titre that does not drop at the expected rate of a twofold dilution per month).

2.10.2 Case classification

a. Probable : A case that is not laboratory confirmed and that has any two complication listed in paragraph (a) above of the clinical description or one complication from paragraph (a) and one from paragraph (b) above, any lacks evidence of any etiology.

b. Confirmed : A clinically compatible case that is laboratory confirmed. Infection only is a case that demonstrates laboratory evidence of infection but without any clinical symptoms or sign.
Comments:
In probable cases either or both of the eye related findings (ie: cataract and congenital glaucoma) are interpreted as a single complication. In case classified as infection only, if any compatible sign or symptoms (eg: hearing loss) are identified later, the case is reclassified as confirmed.

2.10.3 Reference laboratory
IMR: Vaccine potency test surveillance and investigation of the affected batch of the vaccine.

2.11 ACUTE VIRAL HEPATITIS C, D & E (ICD 10:B 17.0, B17.0, B 17.2)

2.11.1 Case Definition

Clinical case definition
Acute illness typically including acute jaundice, dark urine, anorexia, malaise, extreme fatigue and right upper quadrant tenderness. Biological signs include increased urine urobilinogen and more than 2.5 times the upper limit of serum alanine aminotransferase (ALT)

Laboratory criteria for diagnosis
- Hepatitis Non A & B : IgM anti-HAV and IgM anti-HBc (or HBs Ag) negative.
- Hepatitis C : Anti- HCV positive
- Hepatitis D : HBs Ag positive or IgM anti-HBc positive + anti-HDV positive (only as co-infection or superinfection on Hepatitis B.
- Hepatitis E : IgM anti-HEV positive

2.11.2 Case Classification
Suspected : A case that is compatible with the clinical description.
Confirmed : A suspected case that is laboratory confirmed.

2.11.4 References Laboratory
IMR
3.0 FOOD WATERBORNE DISEASES

3.1 CHOLERA (ICD 10:A 00)

3.1.1 Case Definition

Clinical Case Definition
Acute severe watery diarrhea with or without vomiting.

Laboratory Criteria For Diagnosis
Isolation of Vibrio cholerae 01 or 0139 from stools in any patient with diarrhea.

3.1.2 Case Classification

a. **Suspected**: A case that meets the clinical case definition.

b. **Confirmed**: A suspected case that is laboratory confirmed.

3.1.3 Outbreak situations
During outbreak situation, surveillance should be intensified with the introduction of active case finding. Laboratory confirmation is to be performed as soon as possible.

3.1.4 Type of specimen
Rectal swab, Stool swab

3.1.5 Reference Laboratory
National Public Health Laboratory (MKAK),
Institute of Medical Research (IMR)
3.2 **DYSENTERY**  (ICD 10: A 09)

3.2.1 Case Definition

**Clinical Case Definition:**
Acute diarrhea with visible blood in the stool.

**Laboratory Criteria For Diagnosis**
Isolation examination is necessary to confirm dysentery. Stool should be cultured for specific pathogen that causing the dysentery such as *Shigella dysentetiae*, *E.coli* 0157, *Entamoeba histolytica* etc.

3.2.3. Case Classification

a. **Suspected:** A case with bloody diarrhea that is not laboratory confirmed.
b. **Confirmed:** A clinical case that is laboratory confirmed for specific pathogen.

3.2.3. Type of specimen
Stool swab, Rectal swab

3.2.4. Reference Laboratory

- National Public Health Laboratory (MKAK)
- Institute of Medical Research (IMR)  

Identification specific strain for surveillance purposes.
3.3 FOOD POISONING (ICD 10: A 05.9)

3.3.1 Case Definition

Clinical Case Definition
Acute onset of vomiting and/or diarrhea and/or other symptoms associated with ingestion of food.
Food poisoning may also present with neurological symptoms such as paresthesias, motor weakness and cranial nerve palsies.

Laboratory Criteria For Diagnosis
Isolation of pathogen or identification of non-microbiological agent from specimen.

3.3.2 Case Classification
Any case notified that fulfills the clinical case definition of food poisoning is considered a confirmed case of food poisoning.

3.3.3 Type of specimen
Stool swab, rectal swab, vomitus, food and water samples, environmental samples and etc.

3.3.4 Reference Laboratory
National Public Health Laboratory (MKAK),
Institute of Medical Research (IMR)
3.4 **HEPATITIS A** (ICD 10:B15.9)

3.4.1 Case Definition

**Clinical Case Definition**

Acute illness typically includes fever, malaise, extreme fatigue, anorexia, nausea, acute jaundice and right upper quadrant tenderness with raised alanine aminotransferase more than 2.5 times normal.

**Laboratory Criteria For Diagnosis**

Positive IgM antibody to Hepatitis A virus (anti HAV).

3.4.2 Case Classification

a) **Suspected**: A case that is compatible with clinical description.

b) **Confirmed**: A suspected case that is laboratory confirmed.

3.4.3 Type of specimen

Serum/Blood

3.4.4 Reference Laboratory

National Public Health Laboratory (MKAK),
Institute of Medical Research (IMR)
3.5 **TYPHOID / PARATYPHOID** (ICD 10:A01.0/ A01.1-A01.4)

### 3.5.1 Case Definition

**Clinical Description**

An illness that is often characterised by insidious onset of sustained fever, headache, malaise, anorexia, relative bradycardia, constipation or diarrhea, and non-productive cough. However, many mild and atypical infections occur. Carriage of *S. typhi* may be prolonged.

**Laboratory Criteria for confirmation**

Isolation of *Salmonella typhi / paratyphi* from blood, stool or other clinical specimens.

*(Note: Isolation of organism is required for confirmation)*

### 3.5.2 Case Classification

- **a. Suspected**: A case that meets the clinical case definition.
- **b. Probable**: A suspected case with positive serodiagnosis or antigen detection test but without *Salmonella typhi/paratyphi*.
- **c. Confirmed**: Isolation of *Salmonella typhi/paratyphi* from blood, stool or other clinical specimens.

### 3.5.3 Type of specimen

- **Stool & rectal swab**: positive after 1 week of illness.
- **Blood (Widal Test)**: 1st presentation then repeat after 7-14 days
  
  : Four fold rise in titre is diagnostic.

*(Note: A single positive SEROLOGY specimen is not diagnostic but may be supported the diagnosis by clinical features)*

### 3.5.4 Reference Laboratory

- **a. National Public Health Laboratory (MKAK)**: Identification of specific strain for surveillance purposes.
- **b. Institute of Medical Research (IMR)**: Specialised in finger printing for molecular epidemiologic surveillance.
3.6 SALMONELLOSIS \textit{(ICD 10: A02.0)}

3.6.1 Case definition

\textbf{Clinical case definition}
An illness with fever, diarrhea, vomiting and abdominal cramps.

\textbf{Laboratory criteria for confirmation}
Isolation of \textit{Salmonella} sp. from blood or stool or other clinical specimens.

3.6.2 Case classification

\textbf{a. Suspected} : A case that meets the clinical case definition.

\textbf{b. Confirmed} : Suspected case with laboratory confirmation.
Both provisional/suspected and confirmed cases should be notified.

3.6.3 References Laboratory

\textbf{PHL} : Identification of specific strain of the etiologic agent for surveillance purposes.
4.0 ZOONOSIS: EMERGING & RE-EMERGING DISEASES

4.1 LEPTOSPIROSIS

4.1.1 Case Classification

Leptospirosis is difficult to distinguish from a number of other diseases on clinical grounds alone. History of possible exposure is paramount to aid clinical diagnosis.

a. Clinical case

A case that is compatible with the following clinical description:

Acute febrile illness with history of exposure to water and/or environment possibly contaminated with infected animal urine with ANY of the following symptoms:

- headache
- myalgia particularly associated with the calf muscles and lumbar region
- arthralgia
- conjunctival suffusion
- meningeal irritation
- anuria or oliguria and/or proteinuria
- jaundice
- hemorrhages (from the intestines and lungs)
- cardiac arrhythmia or failure
- skin rash
- gastrointestinal symptoms such as nausea, vomiting, abdominal pain, diarrhea

b. Probable Case:

A clinical case AND positive ELISA/other Rapid tests.
c. Confirmed case:

A confirmed case of leptospirosis is a **suspected OR probable case** with any one of the following laboratory tests:

1. **Microscopic Agglutination Test (MAT),**
   - For single serum specimen - titre 1:400
   - For paired sera - four fold or greater rise in titre

2. **Positive PCR** (samples should be taken within 10 days of disease onset)

3. **Positive culture for pathogenic leptospires** (blood samples should be taken within 7 days of onset and urine sample after the 10th day)

4. **Demonstration of leptospires in tissues using immunohistochemical staining** (e.g. in post mortem cases)

5. In places where the laboratory capacity is not well established, a case can be considered as confirmed if the result is **positive by two (2) different rapid diagnostic tests.**

4.1.2 Reference Laboratory

a. National Public Health Laboratory (MKAK)
b. Institute of Medical Research (IMR)

**Source:**

*Guidelines for the diagnosis, management, prevention and Control of Leptospirosis in Malaysia, 1st Edition, 2011*
4.2 BRUCELLOSIS

4.2.1 Case Definition

Clinical description
An illness characterized by acute or insidious onset of fever, night sweats, undue fatigue, anorexia, weight loss, headache, and arthralgia.

Laboratory criteria for diagnosis
- Isolation of *Brucella* sp. from a clinical specimen,
  OR
- Fourfold or greater rise in *Brucella* agglutination titer between acute- and convalescent-phase serum specimens obtained ≥2 weeks apart and studied at the same laboratory,
  OR
- Demonstration by immunofluorescence of *Brucella* sp. in a clinical specimen

4.2.2 Case classification

a. Probable: a clinically compatible case that is epidemiologically linked to a confirmed case or that has supportive serology (i.e. *Brucella* agglutination titer of ≥160 in one or more serum specimens obtained after onset of symptoms)

b. Confirmed: a clinically compatible case that is laboratory confirmed.

4.2.3 Type of specimen: Blood

4.2.4 Reference Laboratory

a. National Public Health Laboratory (MKAK)
b. Institute of Medical Research (IMR)
4.3 **HAND, FOOT & MOUTH DISEASE (HFMD)** (ICD 10:A 33)

4.3.1 Clinical case definition:

Any child with:

a. Mouth / tongue ulcer **AND**

b. Maculopapular rashes **AND** / OR vesicles on palms and soles

c. **with OR without** history of fever.

4.3.2 Case classification:

a. **Suspected**: A case that meets the clinical case definition.

b. **Confirmed**: A suspected case in which laboratory investigation confirms the presence of virus **OR** when cases are epidemiologically linked to a laboratory confirmed case.

4.3.3 Type of specimen:

Stool sample/vesicle swab/mouth ulcer swab/rectal swab

4.3.4 Reference Laboratory

National Public Health Laboratory (MKAK)

(Source: HFMD Guidelines 2007)
4.4 **EBOLA-MALBURG VIRAL DISEASES**  
* (ICD 10: A 98.3, A 98.4)  

4.4.1 **Case definition**

**Clinical case definition**  
Ebola Hemorrhagic Fever begins with acute fever, diarrhea that can be bloody and vomiting. Headache, nausea and abdominal pain are common. Conjunctiva injection, dysphagia and hemorrhagic symptoms such as nose bleeds, bleeding gum, vomiting of blood, blood in stool, purpura may further develop. Some patients may also show maculopapular rash on the trunk. Dehydration and significant wasting occur as the disease progresses. At later stages, there is frequent involvement of the central nervous system, manifested by somnolence, delirium or coma. Case fatality range from 50 to 90%.

**Laboratory criteria for diagnosis**

**Supportive:**
- Positive serology (ELISA for IgG and/or IgM), OR

**Confirmatory:**
- Positive virus isolation (in laboratory of biosafety level 4) OR
- Positive skin biopsy (immunohistochemistry) OR
- Positive PCR

4.4.2 **Case classification**

a. ** Provisional/Suspected:** A visitor or returned traveler from endemic area with clinical features compatible with the above clinical description.

b. **Confirmed:** A suspected case that is laboratory confirmed.

4.4.3 **References Laboratory**

Consult with Institute Medical Research (IMR), MKAK, UM, UKM  
Other references laboratory: CDC Laboratory Atlanta
4.5 **PLAGUE (ICD 10: A20.9)**

4.5.1 Case definition

Clinical case definition
- Disease characterized by rapid onset of fever, chills, headache, severe malaise, prostration with
  - **Bubonic form**: extreme painful swelling of the lymph nodes (buboes)
  - **Pneumonic form**: cough with blood-stained sputum, chest pain, difficult breathing.

*(Note: Both forms can progress to a septicaemic form with toxaemia. Sepsis without evident buboes rarely occurs).*

Laboratory criteria for diagnosis
- Isolation of *Yersinia pestis* in cultures from buboes, blood, CSF or sputum, **OR**
- Passive haemagglutination (PHA) test, demonstrating an at least fourfold change in antibody titre, specific for F1 antigen of *Y.pestis* as determined by haemagglutination test in paired sera.

4.5.2 Case classification

a) **Suspected**: A case compatible with the clinical description.

b) **Confirmed**: A suspected or probable case that is laboratory confirmed.

Both provisional/suspected and confirmed cases should be notified.

4.5.3 Special Aspects

Collaboration with Veterinary Department in surveillance that relevant to the disease.
4.6 RABIES  (ICD 10: A82)

4.6.1 Case definition

Clinical case definition
Rabies is an acute neurological syndrome (encephalomyelitis) dominated by hyperactivity or paralytic syndromes that progresses towards coma and death, usually by respiratory failure, within 7-10 days after the first symptoms if no intensive care is instituted. Other clinical symptoms include dysphagia, hydrophobia and convulsions.

Laboratory criteria for diagnosis
- Detection of rabies viral antigens by direct fluorescent antibody (FA) in clinical specimens, preferably brain tissue (post mortem) or from skin or corneal smear (ante mortem).
- FA positive after inoculation of brain tissue, saliva, cerebrospinal fluid (CSF) in cell culture, in mice or suckling mice.
- Isolation of rabies virus from clinical specimens and confirmation of rabies viral antigens by direct fluorescent antibody testing.

4.6.2 Case classification
a. Suspected: A case that is compatible with the clinical definition.
b. Confirmed: A suspected case that is laboratory confirmed.
   Both provisional/suspected and confirmed cases should be notified.

4.6.3 References Laboratory
Veterinary Research Institute

4.6.4 Special Aspects
Collaboration with Veterinary Department (inc. Zoonotic Surveillance).
5.0  **TUBERCULOSIS AND LEPROSY**

5.1  **TUBERCULOSIS**  (ICD 10:A15-A19)

5.1.1 Case Definition

**Clinical description:**
Cough more than two weeks, hemoptysis, dyspnoea, chest pain, fever, night sweat, loss of weight, loss of appetite.

**TUBERCULOSIS CLASSIFICATION**

a) **Pulmonary Tuberculosis Smear Positive (PTB +ve)**

Tuberculosis involving lung parenchyma:

- Without radiology examination: at least two sputum Acid Fast Bacilli (AFB) positive
  
- With radiographic abnormalities consistent with active pulmonary tuberculosis and at least one sputum AFB positive

  OR

- Without radiology examination: at least one sputum AFB positive and one sputum culture (MTB C&S) positive for *Mycobacterium tuberculosis*.

b) **Pulmonary Tuberculosis Sputum Smear Negative (PTB –ve)**

Tuberculosis involving lung parenchyma:

- With radiographic abnormalities consistent with active Pulmonary Tuberculosis but three sputum AFB negative

  OR

- Without radiology examination: three sputum AFB negative and at least one sputum culture (MTB C&S) positive for *Mycobacterium tuberculosis*.
c) Extra-pulmonary Tuberculosis

a. Tuberculosis of organs other than lung parenchyma: pleura, miliary tuberculosis, lymph nodes, abdomen, genito-urinary tract, skin, joints and bones, tuberculosis meningitis, etc.

b. Diagnosis should be based on at least positive specimen from an extra-pulmonary site, or histological or strong clinical evidence consistence with active extra-pulmonary tuberculosis.

*Any patient diagnosed with both Pulmonary and Extra-Pulmonary Tuberculosis should be classified as a case of Pulmonary Tuberculosis.

5.1.2 Investigation

- Sputum AFB
- Sputum MTB C&S – it should be taken for all pulmonary TB cases
- Chest X Ray
- Mantoux test
- Any body fluid specimen for AFB or MTB C&S

5.1.3 Notification

Any confirmed case diagnosed by treating doctor should be notified to the nearest PKD within one week. TBIS 10A1 should be sent to nearest PKD within one week.

5.2 LEPROSY (HANSEN’S DISEASE) (ICD 10:A 30)

5.2.1 Case Definition

Clinical Description

a. One or more hypopigmented or erythematous skin lesion(s) with a definite loss of sensation, AND/OR
b. Thickened & tenderness of ≥ 1 peripheral nerve(s) with or without signs of nerve damage, AND/OR
c. Presence of acid-fast bacilli in the slit skin smear or skin biopsy.
Laboratory Criteria for Diagnosis

a. Acid-fast bacilli in skin smears (made by scrape-incision method).

b. The presence of granuloma with or without acid-fast bacilli from a full thickness skin biopsy of a lesion.

c. Demonstration of acid-fast bacilli in skin or dermal nerve, obtained from the full thickness skin biopsy of a lepromatous lesion.

5.2.3 Case Classification

WHO Operational Case Definition

A case of leprosy is defined as a person showing one or more of the following features and who has yet to complete a full course of treatment:

- Hypo-pigmented or reddish skin lesions with definite loss of sensation
- Involvement of the peripheral nerves as demonstrated by definite loss of sensation
- Skin smear positive for acid fast bacilli

Multibacillary
- Includes all smear-positive cases

Paucibacillary
- Includes all smear-negative cases

5.2.4 Laboratory Test

- Slit skin smears for the detection of acid-fast bacilli
- Mouse footpad Inoculation to test for antibiotic sensitivity
- Polymerase Chain Reaction (PCR) for the detection of Mycobacterium leprae and to determine antibiotic sensitivity.

Additional Note:
- Any case(s) that fulfills any of the above case definitions should be notified to the nearest District Health Office within 7 days from the diagnosis date.

5.2.5 References Laboratory

a. Health clinic – for Slit skin smear

b. Dermatology Unit, Hospital Selayang, Hospital Sungai Buloh (HSB) or Hospital Tengku Ampuan Rahimah (HTAR) – for Punch biopsy

c. National Public Health Laboratory (NPHL)/MKAK – for mouse foot pad inoculation
6.0 VECTOR BORNE DISEASES

6.1 DENGUE FEVER (ICD 10: A 90, A 91)

6.1.1 Case definition of Dengue Fever (DF)

WORLD HEALTH ORGANIZATION CLASSIFICATION OF DENGUE FEVER (DF) AND DENGUE HAEMORRHAGIC FEVER (DHF) (1997) 2, Level 9

Given the variability in the clinical illness associated with dengue infection, it is not appropriate to adopt a detailed clinical definition of dengue fever. Rather, the need for laboratory confirmation is emphasized. The following classifications are proposed:

- **Probable** – an acute febrile illness with **two or more** of the following manifestations:
  - headache
  - retro-orbital pain
  - myalgia
  - arthralgia
  - rash
  - haemorrhagic manifestations
  - leucopenia

  **AND**

  - supportive serology (a reciprocal haemagglutination-inhibition antibody titre $\geq 1280$, a comparable IgG enzyme-linked immunosorbent assay (ELISA) titre or a positive IgM antibody test on a late acute or convalescent-phase serum specimen)

  **OR**

  - occurrence at the same location and time as other confirmed cases of dengue fever.

- **Confirmed** – a case confirmed by laboratory criteria (see below).

- **Reportable** – any probable or confirmed case should be reported.
Laboratory criteria for confirmation of dengue fever are

- Isolation of the dengue virus from serum or autopsy samples; OR

- Demonstration of a fourfold or greater change in reciprocal IgG or IgM antibody titres to one or more dengue virus antigens in paired serum samples; OR

- Demonstration of dengue virus antigen in autopsy tissue, serum or cerebrospinal fluid samples by immunohistochemistry, immunofluorescence or ELISA; OR

- Detection of dengue virus genomic sequences in autopsy tissue serum or cerebrospinal fluid samples by polymerase chain reaction (PCR).


**Dengue case classification by severity**

1. Dengue + warning signs

   a. Probable dengue
      - Live in or travel to dengue endemic area.
      - Fever or history of acute fever, lasting 2-7 days, occasional biphasic and two of the following criteria:
        - Nausea, vomiting
        - Rash
        - Aches and pains
        - Tourniquet test positive
        - Leucopenia
        - Any warning sign
b. Dengue with warning signs

Warning signs:
- Abdominal pain or tenderness
- Persistent nausea, vomiting
- Clinical fluid accumulation
- Mucosal bleed
- Lethargy, restlessness
- Liver enlargement more than 2cm
- Laboratory: Increased haematocrit concurrent with rapid decrease in platelet count

2. Severe Dengue

a. Severe plasma leakage leading to:
   - Dengue Shock Syndrome
   - Fluid accumulation with respiratory distress

b. Severe bleeding:
   - as evaluated by clinician

c. Severe organ impairment:
   - Liver: AST or ALT > 1,000 or increasing trend
   - CNS: impaired consciousness
   - Heart and other organs

6.2 MALARIA (ICD 10:B54)

6.2.1 Clinical case definition

Signs and symptoms are generally non specific; most patients experience fever, usually cyclical.

Common associated symptoms include:
- headache
- back pain
- chills
- sweating
- myalgia
- gastrointestinal complaints (diarrhea, nausea, vomiting)
Commonly associated signs:

- anaemia
- splenomegaly.

Asymptomatic parasitemia can occur among persons who have been long-term residents of areas in which malaria is hyperendemic.

### 6.2.2 Case Classification

1) **Uncomplicated Malaria**: Patient diagnosed malaria through lab confirmation without complication and can be effectively treated with oral antimalarials.

2) **Severe Malaria**: Patient diagnosed malaria through lab confirmation presented with one or more of the following clinical criteria:
   - impaired consciousness/coma
   - severe normocytic anemia [hemoglobin<7]
   - renal failure
   - Acute Respiratory Distress Syndrome
   - hypotension
   - Disseminated Intravascular Coagulation (DIVC)
   - spontaneous bleeding
   - acidosis
   - hemoglobinuria
   - jaundice
   - repeated generalized convulsions
   - parasitemia of > 5%

These patient should be treated aggressively with parenteral antimalarial therapy.

### 6.2.3 Laboratory criteria for diagnosis

- Microscopic parasitic detection in peripheral blood film (BFMP) OR
- Positive Dipstick antigen detection tests (HRP II or LDH)

### 6.2.4 When to notify

Any laboratory confirmed cases should BE NOTIFIED.

*Source: CDC Malaria Treatment Guideline 2011*
6.3 **TYPHUS** *(ICD 10: A 75.9)*

6.3.1 **Case definition**

**Clinical case definition**

a) **Scrup Typhus**
- Fever, severe headache, rash, myalgia and gastrointestinal symptoms.

**Classical triad of:**
- Eschar
- Regional lymphadenopathy
- Maculopapular rash
  (seen seldom in indigenous population)

**Severe case:** encephalitis and interstitial pneumonitis as a prominent features

b) **Murine typhus**
- Presence of fever with chills, headache, myalgia, arthralgia
- Maculopapular rash especially over the axilla and inner surfaces of arms and trunk.
- Pulmonary involvement, non productive cough, effusion and infiltrate in the chest X-ray.

c) **Tick typhus**
- Presence of high grade fever, headache and prostration.
- Skin rash (maculopapular, petechiae appear on the fifth day of illness).
- Multisystem involvement and prominent neurological manifestation.

*(Note: respond within 48 hours following tetracycline therapy, strongly suggest ricketttsia infection).*
Laboratory criteria for diagnosis
- Positive immunoperoxidase test, with IgG titre 1: 400 or IgM 1: 50 OR four fold rise in antibody titre in paired serum.
- Isolation of orientia tsutsugamushi by inoculation of patients blood in white mice (preferably treated with cyclophosphamide at 0.2mg/gm intraperitonealy or intramuscularly on day 1, 2 and 4 after inoculation).

6.3.2 Case classification
a. Provisional/suspected: A case that is compatible with the clinical description.
b. Confirmed: A suspected case with laboratory confirmation.

Both provisional and suspected case should be notified.

6.3.3 References Laboratory
Institute Medical Research (IMR) – For strain identification and epidemiological surveillance.

6.4 YELLOW FEVER  (ICD 10: A95.9)

6.4.1 Case definition

Clinical case definition
Characterised by acute onset of fever followed by jaundice within 2 weeks of onset of first symptoms. Haemorrhagic manifestations and signs of renal failure may occur. Travel history to an endemic area is helpful in diagnosis.

Laboratory criteria for diagnosis
- Isolation of yellow fever virus, OR
- Presence of yellow fever specific IgM or a four-fold or greater rise in serum IgG levels in paired sera (acute and convalescent) OR
- Positive post-mortem liver histopathology OR
- Detection of yellow fever antigen in tissues by immunohistochemistry OR
- Detection of yellow fever virus genomic sequences in blood or organs by PCR
6.4.2 Case classification

a. Suspected: A case that is compatible with the clinical description.

b. Confirmed: A suspected case that is laboratory confirmed or epidemiologically linked to a confirmed case or outbreak.

Both provisional/suspected and confirmed cases should be notified.

6.4.3 References Laboratory

Institute Medical Research (IMR) and NPHL.

6.5 RELAPSING FEVER (ICD 10: A 68.9)

6.5.1 Case definition

Clinical case definition
An acute febrile illness caused by spirochetes of the genus *Borrelia*. The high fevers of presenting patients spontaneously abate and then recur. It is transmitted to human by 2 vectors, ticks and lice. Louse-borne relapsing fever is more severe than the tick-borne variety.

Clinical manifestations includes abrupt onset of fever with prodromic symptoms, pulse is rapid in proportion to the fever, cough and systemic symptoms including gastro-intestinal tract (GIT) upset and jaundice.

Relapses episode characterized by:
- The primary febrile episode typically ends after 3-6 days by crisis that can culminate in fatal shock. About 7-10 days later, the first relapse occurs abruptly. Subsequent relapses tend to be less severe.
- The primary febrile episode, usually only 1-2.
- Louse-borne relapsing fever normally produces fewer relapses.
- In tick-borne disease, relapses average 3, and there can be more than 10.
Laboratory criteria for diagnosis
- Definitive diagnosis is established by visualizing spirochetes in smears of peripheral blood during a febrile episode.
- Multiple smears (both thick and thin, using Wright and Giemsa stains) may need to be examined.

6.5.2 Case classification
a. Suspected: A case that is compatible with the clinical definition.
b. Confirmed: A suspected case that is laboratory confirmed.

6.5.3 References Laboratory
Institute Medical Research (IMR)

6.6 JAPANESE ENCEPHALITIS (ICD 10: A83.0)

6.6.1 Case definition

Clinical case definition
Japanese encephalitis is characterized by a febrile illness with encephalopathy.

Laboratory criteria for diagnosis
a. Presumptive - Detection of an acute phase anti-viral antibody response through one of the following:
   - Elevated and stable serum antibody titres to JE virus through ELISA, haemagglutination-inhibition or virus neutralization assays OR
   - IgM antibody to the virus in the serum.
b. **Confirmatory**:
   - JE virus-specific IgM in the CSF, **OR**
   - Four-fold or greater rise in the JE virus-specific antibody in paired sera (acute and convalescent phases) through IgM/IgG, ELISA, haemagglutination inhibition test or virus neutralization test, in a patient with no history of recent yellow fever vaccination and where cross-reactions to other flaviviruses have been excluded.
   - Detection of the JE virus, antigen or genome in tissue, blood or other body fluid by immunochemistry or immunofluorescence or PCR.

### 6.6.2 Case classification

- **Suspected**: A case that is compatible with the clinical description.
- **Confirmed**: A suspected case with confirmatory results.

### 6.6.3 References Laboratory

Virology Division, UM, UKM, UNIMAS, Institute Medical Research (IMR) : Sero-prevalence and Vaccine potency test. Collaboration with Veterinary Department, Ministry of Agriculture.
7.0 HIV/AIDS

7.1 AIDS (ICD 10:B20-B21-B23-B24)

7.1.1 Case Definition

Clinical case definition requires the following:
A positive test for HIV antibodies by the ELISA and Particle Agglutination test, AND/OR
a positive confirmatory test (done at a reference centre)
AND

a) AIDS Defining Diagnosis:
   - More than 10% body weight loss or cachexia, with diarrhea or fever, or both, intermittent or constant, for at least 1 month, NOT known to be due to a condition unrelated to HIV infection
   - Cryptococcal meningitis
   - Pulmonary or extra–pulmonary tuberculosis
   - Kaposi sarcoma
   - Neurological impairment that is sufficient to prevent independent daily activities not known to be due to a condition unrelated to HIV infection (for example, trauma or cerebrovascular accident)
   - Candidiasis of the eosophagus (which may presumptively be diagnosed based on the presence of oral candidiasis accompanied by dysphagia)
   - Clinically diagnosed life-threatening or recurrent episodes of pneumonia, with or without etiological confirmation
   - Invasive cervical cancer
   OR

b) A CD4 T cell lymphocyte count of less than 200/uL
7.2 HIV INFECTION  (ICD 10:B24)

7.2.1 Case Definition

IN ADULTS, ADOLESCENTS OR CHILDREN AGED > 18 MONTHS

A reportable case of HIV infection must meet at least one of the following criteria:

A. Laboratory criteria
   i. Detection of antibody to HIV virus.
      A positive test for HIV antibodies by the ELISA and Particle Agglutination test,
      and/or a positive confirmatory test (done at a reference centre)
      OR
   ii. Detection of HIV virus (PCR)

B. Clinical or other criteria (if the above laboratory criteria are not met)
   Condition that meet criteria included in the case definition for AIDS (refer 7.1)

IN A CHILD AGED <18 MONTHS

Case of HIV infection must meet at least one of the following criteria:

A. Laboratory criteria
   a. Definitive
      Positive result or report of detectable quantity on any of the following HIV virology
      (non-antibody) tests:
      - HIV nucleic acid (DNA or RNA PCR) detection
      - HIV p24 antigen test including neutralization assay
      - HIV isolation (viral culture)
      OR
   b. Presumptive
      A child who does not meet the criteria for definitive HIV infection but who has positive
      result on only one specimen (excluding cord blood) using the above HIV virology
      (non-antibody) tests.
      OR
B. Clinical or other criteria (if the above laboratory criteria are not met and no other causes of immune suppression)

Criteria for case definition of paediatric AIDS are:

- Candidiasis of the oesophagus, trachea, bronchi, or lungs
- Cryptococcosis, extrapulmonary
- Cryptosporidiosis with diarrhea persisting > 1 month
- Cytomegalovirus diseases of an organ other than liver, spleen, or lymph nodes in patient > 1 month of age
- Herpes simplex virus infection causing a mucocutaneous ulcer persisting > 1 month; or bronchitis, pneumonitis, or oesophagitis for any duration in a patient > 1 month of age
- Kaposi sarcoma
- Lymphoma of the brain (primary)
- *Mycobacterium avium* complex or *M. kansasii* disease, disseminated (site other than/in addition to lungs, skin, cervical or hilar lymph nodes)
- *Pneumocystis carinii* pneumonia
- Progressive multifocal leucoencephalopathy
- Toxoplasmosis of the brain in a patient > 1 month of age
- Two or more bacterial infections within a 2-year period (septicaemia, pneumonia, meningitis, bone or joint infections) or abcess of an internal organ or body cavity – excluding otitis media or superficial abscesses.
7.2.2 Notification

Notification via HIV notification form (HIV 97) is required.

7.2.3 Laboratory Facilities For Confirmatory Test

- Hospital Sungai Buloh,
- Institute of Medical Research (IMR),
- Hospital Kuala Lumpur

8.0 SEXUAL TRANSMITTED INFECTIONS

8.1 GONOCOCCAL INFECTIONS (ICD 10:A 54.9)

8.1.1 Case Definition

Clinical case definition

A sexually transmitted infection commonly manifested by urethritis, cervicitis or salpingitis. Infection may be asymptomatic.

Laboratory criteria for diagnosis

- Observation of Gram negative (-ve) intracellular diplococci in a urethral smear obtained from a male OR

- Isolation of *N. gonorrhoeae* from a clinical specimen (culture on modified Thayer Martin culture medium) OR

- Nucleic acid amplification tests (NAATs) and nucleic acid hybridization tests.

8.1.2 When to notify

Only confirmed cases should be notified.
8.2 SYPHILIS

8.2.1 Case Definition

Clinical Case definition

A. ACQUIRED

a. Primary Syphilis (*ICD 10:* A 51.0)
   Characteristic lesion is the chancre (solitary, painless indurated ulcer), but atypical primary lesions may occur.

b. Secondary Syphilis (*ICD 10:* A 51.4)
   A stage of infection caused by *T.pallidum* and characterized by:
   - Localized or diffused mucocutaneous lesion and generalized lymphadenopathy
   - Constitutional symptoms which are common and clinical manifestations are protean
   - The primary chancre may still be present

c. Latent Syphilis (*ICD 10:* A 53.0)
   A stage of asymptomatic infection due to *T.pallidum*.
   Latent syphilis is subdivided into early latent syphilis when duration of infection is < 24 months and late latent syphilis after > 24 months from initial infection.

   Presence of one or more of the following criteria, indicate early latent syphilis:
   - A history of symptoms consistent with primary or secondary syphilis without a history of subsequent treatment in the past 24 months.
   - A history of sexual exposure to a partner with confirmed or presumptive syphilis and no history of treatment in the past 24 months.
   - Reactive VDRL/RPR and TPHA tests from an individual whose only possible exposure occurred within 24 months.

d. Neurosyphilis (*ICD 10:* A 52.3)
Evidence of central nervous system (CNS) infection with \textit{T.pallidum}.

**B. CONGENITAL SYphilIS (ICD 10:A 50.9)**
- A condition caused by infection in utero with \textit{T.pallidum}. A wide spectrum of severity exists, and only severe cases are clinically apparent at birth.
- An infant or child (<2 years) may have signs such as hepatosplenomegaly, characteristic skin rash, condyloma lata, snuffles, jaundice (non viral hepatitis), pseudoparalysis, anaemia, or edema (nephritic syndrome and malnutrition).
- An older child may have stigmata such as interstitial keratitis, nerve deafness, anterior bowing of shins, frontal bossing, mulberry molars, Hutchinson teeth, saddle nose, rhagades, or Clutton joints.

**Laboratory diagnosis criteria for:**

**PRIMARY, SECONDARY AND LATENT SYphilIS**
- Non-specific serology with reaginic tests (VDRL/RPR)-reactive result should be confirmed with specific treponemal tests (TPHA/TPPA/EIA)
- Demonstration of \textit{T.pallidum} in clinical specimens by dark field microscopy
- Direct immunofluorescent test (DFAT) for \textit{T.pallidum}
- PCR for \textit{T.pallidum}

**NEUROSYPHILIS**
- A reactive serologic test for syphilis and reactive VDRL in cerebrospinal fluid (CSF)
- Serum specific treponemal test (TPHA/TPPA/EIA)
- CSF protein concentration, cell count, VDRL test, \textit{T.pallidum} PCR

**CONGENITAL SYphilIS**
- Serum quantitative RPR/VDRL test (to be compared with mother's titre)
- Demonstration of \textit{T.pallidum} by dark field microscopy
- \textit{T.pallidum} PCR on body fluids
- CSF analysis for cells, protein and VDRL

**8.2.2 When to notify**

A confirmed syphilis case should be notified.
8.3 CHANCROID  (ICD 10:A 51)

8.3.1 Case Definition

**Clinical Case definition**
A sexual transmitted infection commonly manifested by one or more painful genital ulcers with/without regional lymphadenopathy.

**Laboratory criteria for diagnosis**
- Observation of Gram negative (–ve) coccobacilli with characteristic appearance ("school of fish") of scrapings from the ulcer base or pus aspirated from the bubo.
- Isolation of *Haemophilus ducreyi*
- PCR

8.3.2 Case Classification

a. **Confirmed** : A clinical compatible case that is laboratory confirmed by the isolation of *H.ducreyi*.

OR

b. **Probable/suspected** : Clinical compatible case with the exclusion of
- Primary syphilis by dark-field examination of exudates or by serological test for syphilis performed at least 7 days after onset of ulcer
- Herpes genitalis (painful grouped erosions/vesicles)

8.3.3 When to notify

Only a confirmed case should be notified.
9.0 SYNDROMIC NOTIFICATION AND LABORATORY INVESTIGATION

Syndromic notification is the notification of a “health event” under surveillance in which the case definition is based on a syndrome, not on a specific disease.

The **six syndromes** that require notification are:

1. **Acute Neurological Syndrome**
2. **Acute Respiratory Syndrome**
3. **Acute Dermatological Syndrome**
4. **Acute Hemorrhagic Syndrome**
5. **Acute Jaundice Syndrome**
6. **Acute Diarrhea Syndrome**

**Criteria for infections that require syndromic notification:**

1. High potential for spread and rapid transmission in the community,
2. Unexpectedly high case fertility rates,
3. Newly recognized syndromes,
4. High political or media profile,
5. Potential for imposition of trade and travel, restrictions by other countries,
6. Proximity to international borders, airports and ports,
7. Unusual and unexpected events,
8. Occurring in high density and urban areas,
9. Significant possibility of vector and zoonotic transmission.

**Notification procedure**

When a doctor encounters a patient that satisfies the definition of any of the six syndromes, the doctor should complete the syndromic notification form (KKM-syndsurv/2003/2). The completed form should be sent to the nearest District Health Office (DHO) within 24 hours.
SYNDROMIC NOTIFICATION FORM
DISEASE CONTROL DIVISION
MINISTRY OF HEALTH MALAYSIA
TEL: 03-8883 4327 FAX: 03- 8888 6271

Reporting A & E / Hospital : …………………………………………………………………………………………………………………………….
Tel.No: ……………………………… …….Fax No:……………………………………………………………………………………………………………….
Patient’s Name  : ……………………………………………………………………………………………………………………………………………
Patient’s Address : ……………………………………………………………………………………………………………………………………………
IC No: ………………………………………………R/N No : ……………………………………………... (if applicable)
Age : …………………………     Sex: Male / Female                    Ethnicity: M / C / I / Other

Admission: ICU / Ward………………../ Mortuary.        Date of admission:…………./……..../……………………………………..

Please tick the relevant box for the syndrome reported :

<table>
<thead>
<tr>
<th>CLINICAL SYNDROMES</th>
<th>DATE OF ONSET</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute dermatological syndrome</td>
<td>(dd/mm/yr)</td>
</tr>
<tr>
<td>Acute neurological syndrome</td>
<td></td>
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<tr>
<td>Acute respiratory syndrome</td>
<td></td>
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<tr>
<td>Acute hemorrhagic syndrome</td>
<td></td>
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<tr>
<td>Acute jaundice syndrome</td>
<td></td>
</tr>
<tr>
<td>Acute diarrheal syndrome</td>
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</tr>
</tbody>
</table>

Working diagnosis: …………………………………………………………………………………………………………………………….

Has the patient been in a foreign country in the last three weeks?

[ ] Yes        If yes please state the country (s): ………………………………………………………..

[ ] No

Name of Reporting Officer: ……………………………………………………………....   Signature: …………………………………………

Designation : ………………………………………………………………………………  Date: ……………………………………..

Note: Please fax this form within 24 hours to District Health Office. Thank you.

(see overleaf for instructions for completing this form and the definations of the syndrome)
9.1 ACUTE NEUROLOGICAL SYNDROME

9.1.1 Clinical Case Definition

Acute neurological dysfunction with one or more of the following:

- Deterioration of mental function
- Stupor/coma
- Convulsion
- Signs of meningeal irritation e.g. neck stiffness, positive Kernig's sign/Brudzinski's sign
- Involuntary movements e.g. myoclonus, tremors
- Other neurological symptoms e.g. headache, visual disturbances, vomiting

AND

Severe Illness (see glossary for definition)

AND

Absence of predisposing factors (see glossary for definition)

9.1.2 Type of specimen

Feces, blood/serum, CSF, throat swab

9.1.3 Reference Laboratory

National Public Health Laboratory
9.2 ACUTE RESPIRATORY SYNDROME

9.2.1 Clinical Case Definition
Acute onset of cough or respiratory distress (e.g. tachypnoea, chest recession, dyspnea, cyanosis)

AND
Severe illness (see glossary for definition)

AND
Absence of predisposing factors (see glossary for definition)

9.2.2 Type of specimen
1. Throat swab/gargle
2. Nasopharyngeal swab
3. Sputum
4. Bronchoalveolar lavage/tracheal aspirate
5. Pleural fluid
6. Blood/serum
7. Urine

9.2.3 Reference Laboratory
National Public Health Laboratory (MKAK)
9.3 **ACUTE DERMATOLOGICAL SYNDROME**

9.3.1 **Clinical Case Definition**

Acute febrile illness with rash (rash can be erythematous, macular/popular and vesicular/pustular)

OR

other skin manifestations e.g pruritus, desquamation, pigmentation

AND

absence of predisposing factors (see glossary for definition)

9.3.2 **Type of specimen**

1. Vesicular fluid
2. Crust/swab at base of ulcer
3. Pus
4. Skin scraping/biopsy
5. Blood/serum

9.3.3 **Reference Laboratory**

National Public Health Laboratory (MKAK)
9.4 ACUTE HAEMORRHAGIC SYNDROME

9.4.1 Clinical Case Definition

Acute onset of fever of less than 3 weeks duration
AND

Any two of the following:
- Haemorrhagic or purpuric rash
- Epistaxis
- Haematemesis
- Haemoptysis
- Blood in stool
- Other haemorrhagic symptoms
AND
Absence of predisposing factors (see glossary for definition)

9.4.2 Type of specimen

1. Blood
2. Blood smear: thin and thick smear
3. Serum
4. Post-mortem tissue specimens: biopsies of liver and spleen and cerebrospinal fluid

9.4.3 Blood Reference Laboratory

National Public Health Laboratory
9.5 **ACUTE JAUNDICE SYNDROME**

9.5.1 Clinical Case Definition
Acute onset of jaundice **AND** severe illness **AND** absence of known predisposing factors e.g. drugs

9.5.2 Type of specimen
1. Serum
2. Blood smear
3. Blood culture
4. Urine
5. Post-mortem liver biopsy

9.5.3 Blood Reference Laboratory
National Public Health Laboratory

9.6 **ACUTE DIARRHAL SYNDROME**

1. Clinical Case Definition
Acute onset of diarrhea **AND** absence of known predisposing factors e.g. drugs

2. Type of specimen
Faeces

3. Blood Reference Laboratory
National Public Health Laboratory
10.0 OTHER ILLNESSES/DISEASES

10.1 ILI (INFLUENZA-LIKE ILLNESS)

10.1.1 Clinical Case Definition
A person with sudden onset of fever >38°C and cough or sore throat in the absence of other diagnosis.
(Note: The onset of fever should be within three days of presentation and fever should be measured at the time of presentation).

a. Severe Acute Respiratory Infection (sARI)
   - meets ILI case definition (sudden onset of fever >38°C and cough or sore throat in the absence of other diagnosis), AND
   - shortness of breath or difficulty breathing, AND
   - requires hospital admission

b. Influenza Case : A patient with ILI or sARI and laboratory confirmation of influenza infection through Ribonucleic Acid (RNA) detection, antigen detection, or virus isolation.

4.1.2 Type of specimen
Throat swab / nasopharyngeal swab

Source:
Enhanced Influenza Surveillance, Guidelines to complete the daily aggregated data form for Influenza-Like-Illness (ILI) & severe Acute Respiratory Infections (sARI), October 2009
10.2 AVIAN INFLUENZA (AI) IN HUMAN

10.2.1 Case Definition

Clinical case definition

1. **Patient under Investigation (PUI)**
   Patient under investigation any individual presenting with fever (temperature >38°C)
   AND
   One or more of the following symptoms: **cough; sore throat; shortness of breath**;
   Having been in direct contact with dead poultry or birds during the last 7 days prior to the onset of symptoms.

2. **Suspect influenza A/H5 case**

   2(a): Any individual presenting with **fever (temperature > 38°C)**
   AND
   Living within/ history of visiting to **300 metre radius** from the index house/farm of the confirmed A/H5 among birds/chickens in an affected area gazetted by DVS AND having been in direct contact with **birds/poultry** during the last 7 days prior to the onset of symptoms

   OR

   Living outside the 300 meter radius but within **10 kilometre radius** from the index house/farm of the confirmed A/H5 among birds/chickens in an affected area gazetted by DVS OR history of visiting that area AND having been in direct handling with **dead or ill birds/poultry** in that area during the last 7 days prior to the onset symptoms

   OR

   Having **worked in a laboratory** during 7 days prior to the onset of symptoms where there is **processing** of samples from human or animals that are **suspected of having highly pathogenic avian influenza (HPAI)**.
2(b) : Death from an **unexplained acute respiratory illness**

AND

One or more of the following:

a. residing within **1 kilometre area** where **HPAI is suspected or confirmed** in human or animal;

b. having been in **direct contact** during the last 7 days prior to the onset of symptoms with a **confirmed case of Influenza A/H5** among poultry or human during its infectious period (starting from a day before the onset of symptoms up to 7 days after onset of symptoms).

**Laboratory criteria for diagnosis**

An individual for whom laboratory testing demonstrates one or more of the following:

a) positive viral culture for Influenza A/H5;

b) positive PCR for Influenza A/H5;

c) immunofluorescence antibody (IFA) test positive using Influenza A/H5 monoclonal antibodies;

d) 4-fold rise in Influenza A/H5 specific antibody titre in paired serum samples

**10.2.2 Case Classification**

a) **PUI/suspected** : A case that meets the clinical case definition

b) **Confirmed** : A PUI/suspected case in which laboratory investigation confirms the presence of influenza virus of avian origin i.e. H5 and H7 in a clinical specimen.

Laboratory confirmation is **NOT** required for initial management of patient (isolation) and notification of case.
10.3 SEVERE ACUTE RESPIRATORY SYMPTOMS (SARS)

10.3.1 Case Definition

Clinical case definition
A person with history of fever (>38°C)
AND
One or more symptoms of lower respiratory tract illness (cough, difficulty in breathing, shortness of breath)
AND
Radiographic evidence of lung infiltrates consistent with pneumonia or RDS or autopsy findings consistence with the pathology of pneumonia or RDS without an identifiable cause.
AND
No alternative diagnosis can fully explain the illness.

Laboratory criteria for diagnosis
A person with symptoms and signs that are clinically suggestive of SARS and positive laboratory findings for SARS-CoV based on one or more of the following diagnostic criteria:

a) PCR positive for SARS- CoV using a validated method from:
   - At least two different clinical specimens (e.g. nasopharyngeal and stool)
   OR
   - The same clinical specimen collected on two or more occasions during the course of the illness (e.g. sequential nasopharyngeal aspirates)
   OR
   - Two different assays or repeat PCR using a new RNA extract from the original clinical sample on each occasion of testing.
b) **Seroconversion by ELISA or IFA**

- Negative antibody test on acute serum followed by positive antibody test on convalescent phase sera tested in parallel.

  **OR**

- Fourfold or greater rise in antibody titre between acute and convalescent phase sera tested in parallel.

c) **Virus Isolation**

- Isolation in cell culture of SARS-CoV from any specimen

  **AND**

- PCR confirmation using a validated method

### 10.3.2 Case Classification

a. **Suspected**: A case that meets the clinical case definition.

b. **Confirmed**: A suspected case in which laboratory investigation confirms the presence of SARS virus, either with positive antibody against SARS-CoV in a clinical specimen.

Laboratory confirmation is not required for management of patient (isolation and epidemiological investigation) and notification of case.
11.0 GLOSSARY

11.1 Acute
Acute is defined as a period of 3 weeks or less.

11.2 Severe Illness
Severe illness are illnesses characterized by at least one of the following:
- Hospital admission
- Major organ failure
- Altered state of consciousness
- Circulatory collapse
- Death

11.3 Absence of Known Predisposing Factors
Absence of known predisposing factors is the absence of known underlying disease or other factors e.g. drugs which can explain the occurrence of the syndrome.
### LIST OF DISTRICT HEALTH OFFICES (DHO) IN SELANGOR

<table>
<thead>
<tr>
<th>No.</th>
<th>District</th>
<th>Address</th>
<th>Tel.</th>
<th>Fax.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>DHO Petaling</td>
<td>101-301, Block C, Glomax Business Centre, Jalan SS 6/1, Kelana Jaya, Selangor.</td>
<td>03-7804 5333</td>
<td>03-7805 1458</td>
</tr>
<tr>
<td>2.</td>
<td>DHO Hulu Langat</td>
<td>Lot 7523, Jln Hentian 1C, Plaza Hentian Kajang, Jln Reko, 43000 Kajang, Selangor.</td>
<td>03-8736 7770</td>
<td>03-8736 9687</td>
</tr>
<tr>
<td>3.</td>
<td>DHO Gombak</td>
<td>No 23 Dan 25, 2/8 Bandar Baru Selayang, 68100 Batu Caves, Selangor.</td>
<td>03-6120 7601</td>
<td>03-6120 7602</td>
</tr>
<tr>
<td>4.</td>
<td>DHO Klang</td>
<td>Blok B, Jalan Langat, Bandar Botanic, 41200 Klang, Selangor.</td>
<td>03-3323 9554</td>
<td>03-3323 9485</td>
</tr>
<tr>
<td>5.</td>
<td>DHO Sepang</td>
<td>43900 Sepang, Selangor.</td>
<td>03-8706 6001</td>
<td>03-8706 6002</td>
</tr>
<tr>
<td>6.</td>
<td>DHO Sabak Bernam</td>
<td>Kompleks Pejabat-Pejabat Kerajaan, Sungai Besar, 45300 Sabak Bernam, Selangor.</td>
<td>03-3224 2355</td>
<td>03-3224 1354</td>
</tr>
<tr>
<td>7.</td>
<td>DHO Hulu Selangor</td>
<td>44000 Kuala Kubu Bharu, Selangor.</td>
<td>03-6064 1216</td>
<td>03-6064 2425</td>
</tr>
<tr>
<td>8.</td>
<td>DHO Kuala Langat</td>
<td>Jalan Morib, 42700 Banting, Selangor.</td>
<td>03-3187 2355</td>
<td>03-3181 4196</td>
</tr>
<tr>
<td>9.</td>
<td>DHO Kuala Selangor</td>
<td>Jalan Semarak, 45000 Kuala Selangor, Selangor.</td>
<td>03-3289 3454</td>
<td>03-3289 5044</td>
</tr>
<tr>
<td>10.</td>
<td>DHO Lapangan Terbang Antarabangsa</td>
<td>Tingkat 1, Bangunan pentadbiran KLIA, 64000 Sepang, Selangor.</td>
<td>03-8776 8399</td>
<td>03-8787 2054</td>
</tr>
<tr>
<td>11.</td>
<td>DHO Pelabuhan Klang</td>
<td>Persiaran Raja Muda Musa, 42000 Klang, Selangor.</td>
<td>03-3168 6364</td>
<td>03-3168 4171</td>
</tr>
</tbody>
</table>
13.0 REFERENCES


4. Garis panduan Panduan Umum Pengurusan Wabak Penyakit-Penyakit Bawaan Makanan dan Air di Malaysia (FWBD/UMU/GP/001) (Pindaan 2006), Kementerian Kesihatan Malaysia, EDISI KEDUA 2006 MOH/EPI/23.00(GU)


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7. Centers for Disease Control and Prevention 1600 Clifton Rd. Atlanta, GA 30333, USA

8. HFMD Guidelines 2007


10. Case Definitions For Infectious Diseases In Malaysia, Epidemiology Unit (CDC), Kelantan State Health Department, Malaysia, 2004


12. Protokol Veterinar Malaysia Penyakit Brucella (PVM 141:2008) by Department of Veterinary Services (DVS) Malaysia
**Booklet Development Group**

**Advisor**
Dato’ Dr. Hj. Azman b. Hj. Abu Bakar,
Director,
Selangor State Health Department

**Chairperson**
Dr. Hj. Zainudin b. Abdul Wahab,
Deputy State Director of Health,
Public Health Division,
Selangor State Health Department

**Members**
Dr. Harishah Talib, Public Health Physician, Communicable Disease Unit, JKNS
Dr. Venugopalan K. Balan, Public Health Physician, Vector Borne Disease Unit, JKNS
Dr. Masitah Mohamed, Public Health Physician, HIV/STD Unit, JKNS
Dr. Faridah Kusnin, Public Health Physician, TB/Kusta, JKNS
Dr. Tan Seok Siam, Hepatologist, Selayang Hospital
Dr. Vickneswari Ayadurai, Family Health Specialist, PKD Petaling
Dr. Fazlina Mohamad Yusoff, Family Health Specialist, PKD Kuala Langat
Dr. Noorhaslinda Hassan, Family Health Specialist, PKD Petaling
Dr. Sazidah Mohd Karli, Public Health Physician, PKD Kuala Langat
Dr. Ismawati Ismail, Communicable Disease Unit, JKNS
Dr. Sofwan Albar b. Nursyirwan, Vector Borne Disease Unit, JKNS
Dr. Mas Norehan Merican Aljunid Merican, Med. Officer, Vector Borne Disease Unit, JKNS
Dr. Sharifah Maliah Wan Mustapha, Medical Officer, Vector Borne Disease Unit, JKNS
Dr. Khairul Rafizah Hairodin, Medical Officer, Communicable Disease Unit, JKNS
PKP Mohd Wazir Hj. Khalid, Vector Borne Disease Unit, JKNS
PKP Wan Nor Fareeda W.Yahya, Communicable Disease Unit, JKNS
PKP Farah Shahana Ramli, Communicable Disease Unit, JKNS
PPPK Mohmad Farhan Kadri, Communicable Disease Unit, JKNS
PPKP Ahmad Muntazal Akmal Mustafa, Communicable Disease Unit, JKNS
PPKP Mohamad Khairol Ezry Yaacob, Communicable Disease Unit, JKNS
PPP Mohd Saiful Safari Sharif, Communicable Disease Unit, JKNS