STANDARD OPERATING PROCEDURE FOR POTENTIAL INFECTIOUS DISEASE

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Contents

Foreword ................................................................. vi

Standard Operating Procedure (SOP) For Surveillance of Potential Infectious Disease Outbreak at National, State and District Level . . . 1

Introduction .............................................................. 1
Definition Of Surveillance ........................................... 1
Objectives ................................................................. 1
Infectious Disease (ID) Surveillance Systems In Malaysia . 2
Mandatory Notifiable Disease Surveillance ...................... 2
Laboratory Based Surveillance ...................................... 2
Clinical Based Surveillance .......................................... 3
Disease Surveillance By Other Agencies ......................... 3
Community Based Surveillance ...................................... 4
Surveillance Activities At The Various Levels .................. 9
Roles And Functions Of Districts, States And National Level In Surveillance ................................................. 10
Surveillance At The District/entry Point ......................... 12
Surveillance At The State ............................................. 12
Surveillance At The National Level (Disease Control Division) . . 13
Standard Operating Procedure For Surveillance Activities ................................................................. 13
Alert Mechanism ......................................................... 14
Alert Indicators ............................................................ 14
Mechanism For Alerting Relevant Parties ....................... 15

Standard Operating Procedure (SOP) For Operations Room During Infectious Disease Outbreak ................................................................. 17

When To Set Up An Operations Room ......................... 17
Term Of Reference (TOR) Of An Operations Room .......... 17
Levels Of Operations Room ........................................... 18
Who Decides To Set Up An Operations Room ................. 18
National Operations Room For The Control Of
An Infectious Disease Outbreak .............................. 19
National Operations Room Organization Chart .......... 19
National Operations Room ..................................... 20
State Operations Room For The Control Of An
Infectious Disease Outbreak ................................. 26
State Operations Room Organization Chart .......... 26
State Operations Room ......................................... 27
District Operations Room For The Control Of An
Infectious Disease Outbreak ................................ 31
District Operations Room Organization Chart ........ 31
Job Specification In An Operations Rooms ............. 32
Hospital Operations Room .................................. 36
Equipment Needed In An Operations Room ............. 36
When To Close An Operations Room ..................... 37
Operation Time Of Operations Room ..................... 37
Content Of Daily Report ...................................... 37

Appendix 1
Ministry Of Health Outbreak Technical Committee ...... 39

Appendix 2
State Health Department Outbreak Technical
Committee ......................................................... 40

Appendix
District Health Office Outbreak Technical Committee .... 41

Appendix 4
Independent Expert Team .................................... 42

Appendix 5
List Of Item In Rapid Response Kit ......................... 43

Standard Operating Procedure (SOP)
For Infection Control During Outbreak .................. 44

General Principles .............................................. 44
Infection Control By Syndromic Approach ............... 46
Standard Operating Procedure For Outpatient At
Health Center, Accident & Emergency Department
And Outpatient Clinics ...................................... 49
Guideline On Hospital Management Of Severe Acute
Respiratory Syndrome (SARS) ............................. 52
Handling Of Dead Body With Suspected Contagious
Disease ......................................................... 60
A newly emerging disease namely, the Severe Acute Respiratory Syndrome (SARS) had recently rocked the world. Even though the number of casualties in the affected countries was low, the economic fallout had been devastating. Malaysia too, did not escape its scourge.

After the SARS crisis, the frequently asked question is, “Did Malaysia handle the situation effectively?” It is generally perceived that the Ministry of Health, Malaysia (MOH) fared better this time around when compared to previous similar occasions. Even the World Health Organization (WHO) noted our effort!

What can we learn from this experience? For MOH, the SARS experience had opened new opportunities to test the rapid response effort in managing a crisis. The outbreak control and prevention machineries were activated even before the first suspected case of SARS was notified in the country. However there were undeniable weaknesses that needed to be identified and rectified. The level of preparedness when handling emergency situations of an outbreak requires a more comprehensive set of work procedures.

Identifying and formulating best practices policies and standards become a prerequisite for success when facing an outbreak. Hence, a documental manual, the Standard Operating Procedure (SOP) for Potential Disease Outbreak was developed.

I would like to congratulate the contributors from the multi disciplinary group of health professionals namely, epidemiologists, physicians, health inspectors, nurses and health educators for contributing their valuable time and experiences to develop this SOP. I urge implementers at all level to use this SOP so that we can counteract future outbreaks in the most effective, coordinated and organized manner, insya-Allah.

TAN SRI DATU DR MOHAMAD Taha BIN ARIF
Director General of Health, Malaysia
INTRODUCTION

The purpose of this standard operating procedure is to ensure effective surveillance of infectious disease at district, state and national levels.

DEFINITION OF SURVEILLANCE

Surveillance is the ongoing systematic collection, analysis, and interpretation of infectious disease data essential to the planning, implementation, and evaluation of health activities, closely integrated with the timely dissemination of information derived from these data to relevant persons/authorities, so as to take the appropriate action.

OBJECTIVES

• Identifying cases of infectious disease that require immediate health control measures
• Monitoring infectious disease incidence and distribution, and alert health workers to changes in disease activity in their area,
• Identifying infectious disease outbreaks and support their effective management,
• Assessing infectious disease impact and help set priorities for prevention and control activities,
• Identifying risk factors for infectious disease to support development of effective prevention measures,
• Evaluating prevention and control activities,
• Identifying and predicting emerging and re-emerging infectious diseases,
• Monitoring changes in infectious disease agents through laboratory testing,
• Generating and evaluating hypotheses about infectious disease occurrence,
• Fulfilling mandatory notifiable diseases and international reporting requirements, e.g. surveillance of yellow fever, cholera and plague.

**INFECTIOUS DISEASE (ID) SURVEILLANCE SYSTEMS IN MALAYSIA**

The surveillance systems for infectious diseases and the flow of surveillance data and information in Malaysia are shown in Figure 1.

**Mandatory notifiable disease surveillance**

The mandatory notifiable disease surveillance system requires the mandatory notification of 26 ID under the schedule 1 and 2 of the Prevention and Control of Infectious Disease Act 1988 (PCID) as shown in Appendix 1. This list is reviewed from time to time.

The present system involves manual reporting of ID using a prescribed notification form as provided for under this Act. However, an electronic Communicable Disease Control Information System (CDCIS) was implemented nationally since 2001. (Refer to CDCIS Manual).

Figure 2 shows the flow of surveillance data and information in the mandatory notifiable diseases surveillance system.

**Laboratory based surveillance**

Laboratory based surveillance system, which monitors the ID agents were introduced in August 2002. This system also complements the mandatory notifiable diseases surveillance system.

This system entails the reporting of micro-organisms isolated in all public/private laboratories in Malaysia to the relevant health authorities. Presently 6 types of bacteria viz. *V. cholerae*, *H. influenzae B*, *Salmonella* spp., *S. typhi/paratyphi*, *N. meningitides* and *Leptospira* are being prioritised to be monitored by the participating micro-
biology laboratories from the Ministry of Health (MOH).

This system is being piloted in all MOH microbiology laboratories and will be extended to the other laboratories in the public and private sectors in the country after evaluation of the pilot project. The number of micro-organisms which is to be monitored, will be reviewed from time to time.

Figure 3 shows the lab based surveillance flow chart.

Refer the Laboratory-Based Surveillance for detailed SOP.

Clinical based surveillance

Clinical based surveillance system includes the surveillance of:

- Acute flaccid paralysis, conjunctivitis and acute gastroenteritis on a national basis.
- Hand Foot and Mouth disease on a sentinel site basis.
- Five acute syndromes namely, acute jaundice syndrome, acute neurological syndrome, acute respiratory syndrome, acute dermatological syndrome and acute hemorrhagic fever syndrome (syndromic based surveillance) introduced in 2003.

Figure 4 shows the syndromic surveillance flow chart. For the detailed SOP of the Syndromic surveillance system refer to the Syndromic Notification and Laboratory Investigation manual.

Disease surveillance by other agencies

Other agencies such as Department of Veterinary Services and FOMEMA Sdn. Bhd also contribute to the surveillance of certain infectious diseases.

Surveillance of ID in foreign workers is being done by FOMEMA and reported to Disease Control Division.

The Department of Veterinary Services currently undertakes zoonotic disease surveillance. Any unusual occurrence of zoonotic diseases in animals (as listed in table 1 below) should be reported to the Surveillance Section, MOH as agreed by the Inter-ministry Committee For The Control of Zoonotic Diseases.
Table 1: List of zoonotic diseases of public health importance

<table>
<thead>
<tr>
<th>NO</th>
<th>DISEASE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Rabies</td>
</tr>
<tr>
<td>2</td>
<td>Nipah Virus Infection</td>
</tr>
<tr>
<td>3</td>
<td>Avian Influenza</td>
</tr>
<tr>
<td>4</td>
<td>Japanese Encephalitis</td>
</tr>
<tr>
<td>5</td>
<td>Vancomycin Resistant Enterococcus</td>
</tr>
<tr>
<td>6</td>
<td>Bovine Tuberculosis</td>
</tr>
<tr>
<td>7</td>
<td>Bovine Spongiform Encephalopathy</td>
</tr>
<tr>
<td>8</td>
<td>Brucellosis</td>
</tr>
<tr>
<td>9</td>
<td>Anthrax Infection</td>
</tr>
<tr>
<td>10</td>
<td>Toxoplasmosis</td>
</tr>
<tr>
<td>11</td>
<td>Leptospirosis</td>
</tr>
<tr>
<td>12</td>
<td>Salmonella Enteritidis/Typhimurium</td>
</tr>
<tr>
<td>13</td>
<td>Rift Valley Fever</td>
</tr>
<tr>
<td>14</td>
<td>Q.Fever</td>
</tr>
<tr>
<td>15</td>
<td>Hanta Virus</td>
</tr>
<tr>
<td>16</td>
<td>Filarisis</td>
</tr>
<tr>
<td>17</td>
<td>Yellow Fever</td>
</tr>
</tbody>
</table>

Community based surveillance

Community based surveillance system includes monitoring of rumours/reports on ID from the community and media (print/electronic) both nationally and internationally. This system is essential and should become an activity that should be formalised.

Disease Control Division (MOH), State Health Offices and District Health Offices including entry points should play a proactive role in monitoring rumours, local press and media reports and take prompt action to verify these reports in their areas of jurisdiction.
Figure 1: Surveillance systems in Malaysia
Figure 2: Flow of Surveillance Data & Information Dissemination

- **Case of infectious disease**
  - Reporting physician: Public sector, Private sector
  - District Medical Officer of Health
  - State Health Officer
  - Communicable Disease Control Section, Public Health Department, Ministry of Health
  - WHO and other relevant international agencies

- **Laboratory**
  - District Lab
  - State Lab
  - IMR
  - Other Labs
Figure 3: Laboratory Based Surveillance Flowchart

Microbiology laboratories of public and private hospitals and private laboratories

IMR/PHL and other reference laboratories (Confirmation, typing etc)

District Health Office

State Health Office

Communicable Disease Surveillance Section, MOH

Isolates with laboratory Notification Form

Key Note:
Data
Information Feedback
Figure 4: Syndromic Surveillance Flowchart

Diagnosis of Syndrome by Emergency Department/ Accident & Emergency Unit/Hospital Wards

District Health Office

State Health Office

Communicable Disease Surveillance Section, MOH

Key Note:
Data
Information Feedback
SURVEILLANCE ACTIVITIES AT THE VARIOUS LEVELS

Surveillance activities, as shown below must be undertaken routinely at all levels of the Ministry of Health. The extent and degree of the surveillance activities will depend on the type of infectious diseases as specified by the respective ID prevention and control programmes.
<table>
<thead>
<tr>
<th>No</th>
<th>FUNCTION</th>
<th>District/Entry point</th>
<th>State</th>
<th>National</th>
<th>District</th>
<th>State</th>
<th>National</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Collection of Data</td>
<td>Community Nurse</td>
<td>Epidemiology Officer</td>
<td>Epidemiologist</td>
<td>On-Going</td>
<td>Special disease</td>
<td>Special disease</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Health Inspector (CDC)</td>
<td>Health Inspector (CDC)</td>
<td>Health Inspector</td>
<td></td>
<td>situations</td>
<td>situations</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Medical Assistant</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Trained Nurse</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Doctor</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Compilation</td>
<td><strong>Health Inspector (CDC)</strong></td>
<td>Health Inspector (CDC)</td>
<td>Chief Health Inspector (CDC)</td>
<td>On-Going</td>
<td>On-Going</td>
<td>On-Going</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>/Aset. Statistician</td>
<td>Weekly</td>
<td>Weekly</td>
<td>Weekly</td>
</tr>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Monthly</td>
<td>Monthly</td>
<td>Monthly</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Quarterly</td>
<td>Quarterly</td>
<td>Quarterly</td>
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<td></td>
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<td></td>
<td></td>
<td></td>
<td>Annually</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Analysis</td>
<td>Medical Officer of Health</td>
<td>Epidemiology Officer</td>
<td>Epidemiologist</td>
<td>On-Going</td>
<td>On-Going</td>
<td>On-Going</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Chief Health Inspector (CDC)</td>
<td>Chief Health Inspector (CDC)</td>
<td>Epidemiology Officer</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>(CDC)</td>
<td></td>
<td>/Chief Health Inspector (CDC)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Interpretation</td>
<td>Medical Officer of Health</td>
<td>Epidemiology Officer</td>
<td>Epidemiologist</td>
<td>On-Going</td>
<td>On-Going</td>
<td>On-Going</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(CDC)</td>
<td></td>
<td>Epid Officer</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Information/Dissemination</td>
<td>Medical Officer of Health</td>
<td>Epidemiology Officer</td>
<td>Epidemiologist</td>
<td>On-Going</td>
<td>On-Going</td>
<td>On-Going</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Chief Health Inspector (CDC)</td>
<td>Chief Health Inspector (CDC)</td>
<td>Epidemiology Officer</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>(CDC)</td>
<td></td>
<td>/Chief Health Inspector (CDC)</td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>
Table 2: Roles And Functions Districts, States And National In Surveillance (Continued)

<table>
<thead>
<tr>
<th>6</th>
<th>Action*</th>
<th>Medical Officer of Health Rapid Assessment Team Rapid Response Team</th>
<th>Deputy Director (Health) Epidemiology Officer Rapid Assessment Team Rapid Response Team</th>
<th>Director Disease Control Dep. Director (Surveillance) Epidemiologist Epidemiology Officer Rapid Assessment Team Rapid Response Team</th>
<th>Following ALERT of Potential ID Outbreak</th>
<th>Following ALERT of Potential ID Outbreak</th>
<th>Following ALERT of Potential ID Outbreak</th>
</tr>
</thead>
<tbody>
<tr>
<td>7</td>
<td>Evaluation</td>
<td>Medical Officer of Health Chief Health Inspector (CDC)</td>
<td>Epidemiology Officer Health Inspector (CDC)</td>
<td>Epidemiologist Epidemiology Officer Chief Health Inspector (CDC)</td>
<td>On-Going and post outbreak</td>
<td>On-Going and post outbreak</td>
<td>On-Going and post outbreak</td>
</tr>
</tbody>
</table>

* Level of Action will depend on the potential ID outbreak situation.
** Health Inspector= Penolong Pegawai Kesihatan Persekitaran
# Asst. Statistician= Penolong Pegawai Perangkaan
Community Nurse= Jururawat Masyarakat
For Infectious Diseases which have specific prevention and control programmes such as:
  • Vector Borne Disease Control Programme
  • Food and Water Borne Disease Control Programme
  • AIDS/ HIV and STD Prevention and Control Programme
  • Tuberculosis/Leprosy Control Programmes
  • Vaccine Preventable Disease Control Programme
  • Zoonotic Disease Prevention and Control Programme
refer to the respective control programme manual for the roles and functions of the various levels.

**Surveillance at the District/Entry Point**

The District Health Office/Entry Point is responsible for the surveillance of infectious diseases in the district and must establish a system to routinely collect data from:
  • Health Clinics
  • General Practitioners’ Clinics
  • Hospitals (both government and private)
  • Microbiology laboratories
This data must be submitted according to the schedule in a timely manner to the State Health Office. The Medical Officer of Health (MOH) will be responsible for collating, analysing, interpreting and disseminating the information for action by relevant personnel in the district.

For Infectious Diseases which have specific prevention and control programmes such as:
  • Vector Borne Disease Control Programme
  • Food and Water Borne Disease Control Programme
  • AIDS/HIV Prevention and STD Prevention and Control Programme
  • Tuberculosis/Leprosy Control Programmes
refer to the respective control programme manual for the roles and functions of the various levels.

**Surveillance at the State**

The State Health Office is responsible to collate, analyse and interpret the surveillance data for trends and patterns of ID in the state.
The State Health Office must submit the State data/information according to the schedule in a timely manner to the Disease Control Division (MOH).

**Surveillance at the National Level (Disease Control Division)**

Disease Control Division (MOH) is responsible to receive surveillance data from all State Health Offices, directly from laboratories under the Laboratory Based Surveillance system and also directly from reporting physician under the Syndromic Surveillance System.

The Surveillance Section will then compile, analyse and interpret the surveillance data from the various sources to detect trends and patterns of disease outbreak on a national level. The section will employ appropriate tools and techniques for this purpose. The section will also be responsible for monitoring press and other media reports both nationally and internationally and to take the appropriate action when necessary.

---

**STANDARD OPERATING PROCEDURE FOR SURVEILLANCE ACTIVITIES**

Table 3 below shows the SOP for carrying out the various surveillance activities.

<table>
<thead>
<tr>
<th>ACTIVITIES</th>
<th>STANDARD OPERATING PROCEDURE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1  Collection of Data</td>
<td>• Collect data according to case definition using the specified notification forms</td>
</tr>
<tr>
<td></td>
<td>• Verify completeness of data in notification form</td>
</tr>
<tr>
<td></td>
<td>• Data entry according to data bases specified for each ID</td>
</tr>
<tr>
<td>2  Compilation</td>
<td>• Compile data according to variables as specified in CDCIS</td>
</tr>
<tr>
<td></td>
<td>• Integrate data using appropriate information technology</td>
</tr>
<tr>
<td>3  Analysis</td>
<td>• Describe the ID according to person, time and place using appropriate statistical software (Epi-data) for meaningful analysis.</td>
</tr>
<tr>
<td></td>
<td>• Do analytical studies if indicated</td>
</tr>
<tr>
<td></td>
<td>Interpretation</td>
</tr>
<tr>
<td>---</td>
<td>----------------</td>
</tr>
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<td>Information/</td>
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<td>Dissemination</td>
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<td>Action</td>
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<td></td>
<td>Evaluation</td>
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</tr>
</tbody>
</table>

* The details of these surveillance activities can be found in standard Epidemiology textbooks.

**ALERT MECHANISM**

Alert mechanism for any ID is derived from the various surveillance data system and should be undertaken by all levels.

**Alert Indicators**

Indicators of impending outbreaks will include:

1. **Action thresholds.**
   These thresholds will be established at district, state and national levels together with the relevant programmes taking into account:
   • Epidemiological trend in the district, state or country.
   • Baseline incidence levels of infections.
• The magnitude of the present problem compared with the baseline.
• The nature of the infection (for rare or very virulent infections, even one case can constitute an outbreak).

2. The occurrence of a cluster of disease or deaths related in person, place or time.

3. Alerts generated by other surveillance system e.g. vector density, GIS, epidemiological typing etc.

4. Surveillance-related information from
   • Vaccine coverage data
   • Food Laboratory results
   • Other agencies e.g. Department of Veterinary Services

4. Proxy indicators as in table 4:

<table>
<thead>
<tr>
<th>Proxy</th>
<th>Disease/problem</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute Gastroenteritis</td>
<td>Food and water borne disease</td>
</tr>
<tr>
<td>Acute Flaccid Paralysis</td>
<td>Poliomyelitis</td>
</tr>
<tr>
<td>HFMD</td>
<td>Enteroviruses</td>
</tr>
<tr>
<td>Acute Respiratory Infection</td>
<td>Pneumonia, Influenza virus</td>
</tr>
<tr>
<td>The defined syndromes under the syndromic notification system</td>
<td>Emerging or unknown infections</td>
</tr>
<tr>
<td>Unexplained/ill defined death of infectious origin</td>
<td>Emerging or unknown infections</td>
</tr>
</tbody>
</table>

**MECHANISM FOR ALERTING RELEVANT PARTIES**

1. **District Level**
   When an outbreak or impending outbreak is suspected based on surveillance activities, the district shall immediately alert:
   • The State Health Office by telephone to be followed by a written report within 24 hours to confirm the outbreak or otherwise.
   • The District Hospital and Microbiology Laboratory by phone to be on standby.
   • Other relevant governmental agencies in the district to be on standby depending on the nature of the outbreak.
• The DMOH of neighbouring districts depending on the nature of the outbreak.

2. **State Level**
   When an outbreak or impending outbreak is suspected in more than one district in the state, the State Health Director shall immediately alert:
   • The Surveillance Section, Disease Control Division by telephone to be followed by a written report within 24 hours to confirm the outbreak or otherwise.
   • The State Hospital and Microbiology Laboratory by phone to be on standby.
   • Other relevant governmental agencies in the state to be on standby depending on the nature of the outbreak.
   • The DMOH of the unaffected districts depending on the nature of the outbreak.
   • The State Directors of neighbouring states depending on the nature of the outbreak.

3. **National Level**
   When an outbreak or an impending outbreak is reported from more than one state, the Director of Disease Control Division will immediately alert:
   • Deputy Director General (Public Health)
   • The relevant Control and Prevention Programme Heads.
   • The Chief ID Consultant Physician.
   • IMR, NPHL and other relevant laboratory resources.
   • Any other relevant agencies when the need arise.

Refer to “Alert mechanism flow chart” available in the “Preparedness and Outbreak Response Manual”.
Standard Operating Procedure (SOP) For Operations Room During Infectious Disease Outbreak

When to set up an Operations Room

The Operations Rooms is activated when an infectious disease outbreak is confirmed. The nature of the infectious disease outbreak is when:

- Occurrence of Infectious disease with high mortality.
- Unusual occurrences/clusters of diseases/deaths in any area
- Bio terrorism threats.
- Global alert on any relevant infectious disease.
- When ordered by higher authority.

Term of Reference (TOR) of an Operations Room

- Central command and coordination for all outbreak response activities at relevant levels.
- Compile and monitor all information on outbreak response activities.
- Coordinate inter and intra agencies co-operation.
- Determining additional resources needed and coordinates its mobilization.
- Updating and analyzing information/data
  - Number of cases and deaths reported (case listing, admission, discharges etc)
  - Clinical-pathological-epidemiological discussion (case definitions, classifications, disease spectrum, laboratory findings and pathological results).
  - Epidemiological analysis and interpretations of results.
  - Prevention and control activities
  - Health promotion activities
  - Disease surveillance of healthcare workers.
– Current situation of the outbreak nationally and globally (if applicable)
  • Provide information to the public e.g. hotline.
  • Preparation and disseminates of daily report.
  • Preparation of press release/statement.
  • Preparation of information for the outbreak Task Force.

**Levels of Operations Room**

Operations Room may be set up at various levels depending on the extent and magnitude of the outbreak:

  • **District level:** when problem is confined to the district
    – District Health Office
    – District Hospital
  • **State level:** when more than one district are involved or massive outbreak in a single district.
    – State Health Department
    – Hospital (reference/state)
  • **National level:** when more than one states are involved and/or of international interest
    – Disease Control Division.

**Who decides to set up an Operations Room**

  • **At district level**
    – District Medical Officer of Health
    – Hospital Director (for hospital Operations Room)
    – State Deputy Director of Health (Public Health)
    – State Director of Health
  • **At state level**
    – Hospital Director (for hospital Operations Room)
    – State Deputy Director of Health (Public Health)
    – State Director of Health
    – Director of Disease Control
    – Deputy Director General (Public Health)
  • **At national level**
    – Director of Disease Control
    – Deputy Director General (Public Health)
    – Director General of Health
National Operations Room for the control of an Infectious Disease Outbreak

National Operations Room Organization Chart

Inter-ministry Outbreak Committee (Chairman: Minister of Health)

Outbreak Technical Committee (Chairman: Director General of Health) (refer Appendix 1)

National Operations Room (Chairman: Director Disease Control)

Independent Expert Team

- Secretariat
- Supplies and Procurement
- Health Information and Promotion
- Guideline
- Surveillance and Epidemiology
- Logistic
National Operations Room

Director : Director of Disease Control
Responsible to : Ministry of Health Outbreak Technical Committee Chairperson (DG/DDG (PH))

Members : All chairpersons of the Units/teams
Secretariat Unit
   Surveillance and Epidemiology Unit
   Supplies and Procurement Unit
   Health Promotion and Information Unit
   Guidelines Unit
   Logistic Unit

Task : Issuing directive and commands
   Chair daily National Operations Room meeting
   Oversees overall outbreak response

Secretariat

Chairperson : Deputy Director of Disease Control (CDC/Vector)
Assistant Chairperson : Deputy Director of Disease Control (CDC/Vector)
Responsible to : Director of National Operations Room

Members : Principal Asst. Director (Public Health Physician)
   Asst Director (Public Health Physician)
   Assistant Environmental Health Officer
   Legal Advisor
   *the number of members depends on workload

Task : Secretariat to Ministry of Health Outbreak Technical Committee
   • Arrange meetings
   • Prepare minutes
   • Gets feedback and follow-ups.
   • Disseminates recommendations and policies to respective levels/persons.
   Secretariat to Inter-agency Committee
   • Arrange meetings
   • Prepare minutes
• Gets feedback and follow-ups.
• Disseminates recommendations and policies to respective levels/persons.
• Co-ordinate activity report from all relevant departments and operations room units involved.
• Receive Units Report and integrate for overall National Operations Room Daily Report and disseminates to relevant persons and departments.
• Co-ordinate mobilizations of manpower.
• Prepare Cabinet Paper/Press Release
• Maintain information security (passwords use is recommended)
• Prepare the duty roster (according to shift).
• List down the telephone numbers of all officers on duty.
• Ensure the presence of officers on duty according to the roster.
• Coordinate with other departments for officers to be on call/duty roster.
• Prepare duty list and briefings to personnel involved.
• Document the chronology of events.
• Review Public Health Laws and Regulations (if necessary)

**Surveillance and Epidemiology**

**Chairperson** : Deputy Director of Disease Control (Surveillance).
**Assistant Chairperson** : Principal Asst. Director (Public Health Physician)
**Responsible to** : Director of National Operations Room

**Members** : Principal Asst. Director (Public Health Physician)
            Epidemiologist
            Infectious Disease Physician
            Clinical Specialist (relevant specialty)
            Assistant Director (Public Health Physician)
            Assistant Environmental Health Officer

*the number of members depends on workload*
Task: Compile notifications, clinical, epidemiological and laboratory data. Review case definitions. Classify cases. Epidemiological analysis and interpretations of results.
   - Descriptive and analytical analysis of clinical, epidemiological, environmental data and laboratory findings
   - Evaluates the effectiveness of control measures.
Devvelop and organize database. Gather technical information related to the disease from the Internet or other references. Maintain information security (passwords use is recommended).
Preparation and distribution of reports to the secretariat.
Prepare duty list and briefings to personnel involved.
Distribute the technical information to those concerned.
Responsible to coordinate Independent Expert Team (e.g. Rapid Assessment Team).

**Supplies and Procurement**

Chairperson: Deputy Director of Pharmacy.
Assistant Chairperson: Deputy Director (Health Technology Assessment)
Responsible to: Director of National Operations Room

Members:
- Principal Asst. Director (Pharmacy)
- Principal Asst. Director (Medical Division)
- Principal Asst. Director (Public Health Physician)
- Executive Officer (Finance)
- Executive Officer (Procurement)
- Assistant Director (Pharmacy)

*the number of members depends on workload*

Task: Management of vaccines supplies/insecticide
supplies/drugs supplies/personal protection equipment (PPE) supplies wherever applicable. 
Purchasing and distribution of related items. 
Prepare duty list and briefings to personnel involved.

Health Information and Promotion

Chairperson : Director of Health Education and Communication Centre
Assistant Chairperson : Principal Asst. Director (HECC)
Responsibility to : Director of National Operations Room

Members : Principal Asst. Director (HECC) 
           Principal Asst. Director (Public Health Physician) 
           Information Technology Officer 
           Assistant Director (HECC) 

*the number of members depends on workload

Task : Preparation of health education materials.  
Distribution of the health education material to the state, other related agencies and public.  
Coordinating the health education activities with mass media.  
Prepare Health Alert Cards.  
Establish and update the Homepage Information.  
Transfer guidelines into homepage.  
Compile and summarize the relevant information from mass media (newspapers cuttings, news etc).  
Assist in preparing Press Release/Statements.  
Dealing with risk communication issues. (refer to Chapter 4 on risk communication).  
Manage Hotline, telephone calls, email or public queries.  
Prepare unit report.  
Prepare duty list and briefings to personnel involved.
Guidelines Preparations

Chairperson: Deputy Director of Medical Development Division
Assistant Chairperson: Principal Assistant Director (Medical Development)
Responsible to: Director of National Operations Room

Members:
- Principal Assistant Director (Public Health Physician)
- Principal Assistant Director (Medical Division)
- Relevant Clinical Specialist
- Asst. Director (Medical)
- Asst. Director (Public Health)

Task:
- Prepare, distribute and monitor the implementation of the guidelines related to the infectious disease outbreak e.g.
  - Case management (e.g., treatment, clinical specimen and laboratory specimen, case follow up)
  - Quarantine and screening
  - Transportation of cases and dead bodies
  - Surveillance of health staff
  - Post-mortem
  - Infection Control in Hospital (Nosocomial), Health Center (including clinical waste management, decontaminations etc.)
  - Prepare duty list and briefings to personnel involved.

Logistic

Chairperson: Executive Officer
Assistant Chairperson: Administrative Assistant N22
Responsible to: Director of National Operations Room

Members:
- Administrative Assistants
  - Junior Administrative Assistant
  - Security Officer

*the number of members depends on workload
Task: Preparation, purchasing and maintenance of Operations Room equipment (refer to list).
Preparation of transportation and maintenance.
Preparation of food/drinks for officers on duty.
Provide rest facilities for off duty on call officers (e.g. room, bed, shower).
Maintain the cleanliness of Operations Room.
Register and systematic filing system.
Dispatch Daily Report to relevant person.
Obtain extra financial allocation for control and operations room activities.
Manage claim and payments.
Security of Operations Room.
Prepare duty list and briefings to personnel involved.
State Operations Room for the control of an Infectious Disease Outbreak

State Operations Room Organization Chart

State Outbreak Committee
(Chairman: State Health/Exco/State Secretary
(Secretary: State Health Officer)

State Health Department
Outbreak Technical Committee
(refer to Appendix 2)

Operations Room
(State Operations Room Director)

Independent Expert Team

Secretariat
Technical Information Unit
Health Promotion Unit
Support Unit
State Operations Room

Chairperson: Deputy State Health Director (Public Health)
Assistant Chairperson: State Epidemiology Officer
Responsible to: State Health Office Outbreak Task Force (State Health Director)

Members: Chairpersons from all units (Secretariat, Support Unit, Technical Information Unit, Health Promotion Unit, Enforcement)

Task: Issue directives and commands.
Oversees the overall outbreak response.
Report writing/Final report.

Secretariat

Chairperson: State Epidemiology Officer
Assistant Chairperson: Assistant Environmental Health Officer U36/38
Responsible to: State Operations Room Director

Members: Public Health Matron/Sister
Assistant Environmental Health Officer
Public Health Assistant
*the number of members depends on workload

Task: Organize Meetings.
Prepare duty roster.
Listing of telephone numbers of all officers on duty.
Ensure the presence of officers on duty according to the roster.
Receive Units Report and integrate for overall State Operations Room Daily Report and disseminates to relevant persons and National Operations Room or Disease Control Division.
Document the chronology of event.
Coordinate with other departments for officers to be on call.
Disseminates the guidelines related to the infectious disease outbreak e.g.
• Case management
• Case follow-up
• Quarantine and screening
• Transportation of cases
• Surveillance of health staff

Recommend policies.
Advice and coordinate enforcement activities.
Report writing.

**Technical Information Unit**

Chairperson : State Epidemiology Officer
Assistant Chairperson : Assistant Environmental Health Officer U32
Responsible to : State Operations Room Director

Members : Assistant Environmental Health Officer
Information Technology Officer
*the number of members depends on workload

**Task**
Collect and analyse the epidemiological data from reports from districts.
Input of data to database.
Preparation and distribution of reports to the secretariat.
Field visits and investigations.
Responsible to coordinate Rapid Assessment Team or Independent Expert Team.
Assess the effectiveness of control activities.
Update information/data.
Download all information related to the disease from the Internet.
Maintain data security (password).
Prepare duty list and briefings to personnel involved.
Support Team

Chairperson : Executive Officer
Assistant Chairperson : Administrative Assistant
Responsible to : State Operations Room Director

Members : Administrative Assistant (Finance)
           Administrative Assistant (Admin.)
           Junior Administrative Assistant
           *the number of members depends on workload

Task : Preparation, purchasing and maintenance of Operations Room equipment (refer to list).
      Preparation of transportation and maintenance.
      Preparation of food/drinks for officers on duty in the Operations Room.
      Maintain the cleanliness of Operations Room.
      Register and systematic filing system.
      Dispatch Daily Report to relevant person.
      Obtain extra financial allocation for control and operations room activities.
      Manage claim and payments.
      Security of Operations Room.
      Prepare duty list and briefings to personnel involved.

Health Promotion Unit

Chairperson : Senior Health Education Officer
Assistant Chairperson : Health Education Officer
Responsible to : State Operations Room Director

Members : Medical Doctor (from relevant discipline)
          Public Health Nurse
          Public Health Assistant
          *the number of members depends on workload

Task : Preparation of health education materials.
       Distribution of the health education material to
the districts, related agencies and public.
Coordinate the health education activities with mass media.
Compile the relevant information from mass media (newspaper cuttings, news etc).
Answer the Ho:line telephone calls, email or public queries.
District Operations Room for the control of an Infectious Disease Outbreak

District Operations Room Organization Chart

- District Outbreak Committee
  - Chairman: District Officer
  - Secretary: Medical Health Officer

- District Health Department
  - Outbreak Technical Committee
    - (refer to Appendix 3)

- Operations Room
  - (District Operations Room Director)

- Independent Expert Team

- Secretariat
- Enforcement
- Investigation Team
- Control Team

- Support Team
Job Specification in an Operations Rooms

**District Operations Room**

Head : Medical Officer of Health  
Assistant : District Epidemiology Officer or AEHO U36/32  
Members : Heads of units (Secretariat, Support, Investigation, Control and Enforcement)  
*the number of members depends on workload*

Task : Issue directive and command  
Oversees overall outbreak response  
Epidemiological analysis of outbreak  
Chair daily operations meeting  
Report writing  
Final report

**Secretariat**

Head : Medical and Health Officer/AEHO U36/32

Members : AEHO (CDC/Vector) U29  
Public Health Matron/Sister  
Public Health Assistant  
Pharmacist  
*the number of members depends on workload*

Task : Organize Meetings.  
Prepare the duty roster.  
List down the telephone numbers of all officers on duty.  
Ensure the presence of officers on duty according to the roster.  
Receives Units Report and integrates for overall district Operations Room Daily Report and disseminates to relevant persons and State Operations Room or State Epidemiology Unit.  
Document the chronology of event.  
Coordinate with other departments for officers to be on call.
Disseminates the guidelines related to the infectious disease outbreak i.e
- Case management
- Case follow-up
- Quarantine and screening
- Transportation of cases
- Surveillance of health staff
- Supply of antibiotic, PPE, vaccines, insecticides and other technical equipment.
- Compile the relevant information from mass media (newspaper, news etc).
- Report writing.

**Support Team**

Head : Senior Administrative Assistant N22

Members : Adm. Asst. N17
- Junior Administrative Assistant

*the number of members depends on workload

Task : Preparation of Operations Room equipment (stationeries, telepnone etc).
- Preparation of transportation.
- Preparation of food/drinks for officers on duty in the Operations Room.
- Maintain the cleanliness of Operations Room.
- Systematic filing system.
- Despatch Daily Report to relevant person.
- Obtain extra financial allocation for control and operations room activities.
- Manage claim and payments.
- Security of Operations Room.

**Investigations Team**

Head : Medical & Health Officer/AEHO U32/29

Members : AEHO U29
- Public Health Assistant
- Public Health Nurse

*the number of members depends on workload*
Task: Field investigations.
Primary contact tracing.
Specimen collection and send to relevant laboratory.
Result tracing.
Basic epidemiological analysis from case investigation/notification.
Input of data to database.
Preparation report and present to daily Operations Room meeting.

# the number of teams depends on magnitude of the problem

**Control Team**

Head: Medical & Health Officer/AEHO U32/29

Members: AEHO U29
Public Health Assistant
Public Health Nurse
Staff Nurse

*the number of members depends on workload*

Task: Secondary contact tracing.
Environmental control (decontaminations procedure).
Take environmental samples (eg water, food, environment).
Provide mass prophylaxis, vaccinations etc.
Follow-up discharged cases, quarantine and contact surveillance.
Distribution health education material to public and other related agencies.
Deliver health education activities.
Preparation preliminary report and present to daily Operations Room meeting.

# the number of teams depends on magnitude of the problem
Enforcement

Head : AEHO U32/29

Members : AEHO U29
          Public Health Assistant
          *the number of members depends on workload

Task : Implement enforcement activities accordingly.
       Coordinate with other enforcement agencies (e.g., Police, Immigration Dept. etc) for the following activities:
       • Premise closure
       • Stop work Order
       • Quarantine Order
       • Issue Compounds
       • Court action
       • Food Raid or Destroy
       Coordinates all activities related to patient care (including referrals).
Hospital Operations Room

- Hospital Operations Room (Hospital Director)
  - Deputy Hospital Director
    - Relevant specialists
    - Ambulance service
    - Pathologist
    - Infection Control Team
      - Secretariat
      - Mortuary service
      - Pharmacist/Radiologist
      - A&E Dept.

Equipment needed in an Operations Room

1. List of equipment for standard approval:
   - Telecommunication i.e.
     - Direct lines,
     - Hotlines,
     - Mobile telephones preferably with data link capability/intercom/ATUR phone/walkie-talkie.
   - Facsimile machines and dedicated line.
   - Computers (desktop, notebook) with pre-installed related software.
   - Printers and scanner.
   - LCD.
   - INTERNET with homepage and e-mail group.
   - White boards.
   - Soft board.
   - Stationary.
• Television with Astro (for news).
• Maps and/or GIS.
• Rapid Response Kit (refer to appendix 5).
• Directory of state health departments, district health offices, government/NGO/private hospitals and laboratories/staff/personnel with address, contact numbers and emails.
• Protocols, reporting formats, guidelines and references.
• Health information materials.
• Systematic filing system.
• Daily newspapers, downloading of news updates (national and international).
• Photostat machines.
• Paper shredder.
• Camera.

When to close an Operations Room

• Ordered by higher authority.
• No new cases/transmission within 2 incubation periods.

Operation Time of Operations Room

• Depends on Director of Operations Room.
• If long hours needed, shift duty is recommended.

Content of daily report

• Introduction
• Description of the situation of the disease/syndrome by frequencies according to place, time and person.
• Epidemiological analysis, laboratory and clinical findings.
• Control activities
• At National, State and District levels
• Quantity of activities by type at ground level
  – Case findings
  – Contact tracing
  – Law enforcement
  – Environmental control
- Health education activities
- Hospital
- Quarantine
- Activities at the national level.
  - Press Release, cabinet briefings etc.
  - Directives
  - Guidelines
  - International and regional meeting/collaborations
- Hotline
- Disease surveillance of health care workers
- Follow-up of previous decisions/policies
  - Problems encountered
  - Action taken
Appendix 1

Ministry of Health Outbreak Technical Committee

Chairman: Director General of Health
Assistant: Deputy Director General (Public Health)
Secretary: Director of Disease Control

Members:
- Deputy Director General of Health (Public Health).
- Deputy Director General of Health (Medical).
- Deputy Director General of Health (Research and Technical Support).
- Director of Food Quality Control.
- Director of Family Health Development.
- Director of Engineering Division.
- Director of Pharmacy Services.
- Director of Institute for Medical Research.
- Director of National Public Health Laboratory.
- Director of Infectious Disease Research Centre.
- Director of Health Education and Communication Centre.
- Director of Institute for Public Health.
- Deputy Directors for Disease Control (Vector).
- Deputy Directors for Disease Control (Surveillance).
- Deputy Directors for Disease Control (CDC).
- Deputy Directors for Disease Control (NCD).
- Infectious Disease Physician, Kuala Lumpur Hospital.
- Infectious Disease Paediatrician, Institute of Paediatrics Kuala Lumpur.
- Chief Pathologist Kuala Lumpur Hospital.
- Chief Physician Kuala Lumpur Hospital.
- Other co-opted members from relevant agencies as and when needed.
Appendix 2

State Health Department Outbreak Technical Committee

Chairman: State Health Director
Assistant: State Health Deputy Director (Public Health)
Secretary: Principal Assistant Director (Epidemiology)

Members: State Health Deputy Director (Medical)
State Health Deputy Director (Pharmacy)
State Health Deputy Director (Administration)
State Hospital Director
Principal Assistant Director (Family Health Development)
Principal Assistant Director (Vector)
State Information Technology Officer
State Public Health Engineer
State Physician/Infectious Disease Physician
State Pediatrician
State Pathologist
State Food Technologist
State Entomologist
State Health Education Officer
Assistant Environmental Health Officer U36
State Health Matron
Other co-opted members from relevant agencies as and when needed.
District Health Office Outbreak Technical Committee

Chairman : District Medical Officer of Health
Assistant : District Epidemiologist/Asst. Environmental Health Officer U36
Secretary : Asst. Environmental Health Officer U36/32

Members : Hospital Director
          Relevant Clinical Specialist
          Family Medicine Specialist
          Medical and Health Officer
          Asst. Environmental Health Officers
          • Disease Control
          • Vector Borne Disease Control
          • Food Quality Control
          • Environmental
          • Water Quality
          • Sanitation
          Health Matron/Health Sister
          Senior Medical Assistant
          Pharmacist
          Health Education Officer/AEHO-Health Education.
Other co-opted members from relevant agencies as and when needed.
**Appendix 4**

**Independent Expert Team**

Function: Assisting in technical outbreak management e.g.
- Epidemiological studies/investigations
- Technical advice
- Risk factors identifications
- Related interested areas in research and training
- Prevention and control
- Others where relevant

The team is responsible to the appointing body/person.

Appointing body/person (Depends on relevant levels): Director of Disease Control or EIP Director or State Health Director or District Health Officer or

Members may consist of experts from:

- External Experts (e.g. CDC Atlanta, WHO, etc)
- Local Experts (e.g. IMR, local universities, veterinarians)
- Epidemic Intelligence Program (EIP) Fellows & Facilitators
- Public Health Physicians/Epidemiologist
- Clinical specialist
- Rapid Assessment Team.
Appendix 5

List of item in Rapid Response Kit

Rapid Response Kit is a tool that is necessary for the Rapid Response Team to take along whenever they go to investigate an outbreak. The epidemic kits will comprise the following:

- Digital Camera
- Camera
- Hand held Global Positioning System (GPS) device
- Notebook computer (with downloaded resource materials, guidelines, questionnaire, statistical software etc).
- Portable printer
- Mobile phone with internet access
- Relevant laboratory materials including transport media
- Personal Protective Equipment
- Other relevant materials.
GENERAL PRINCIPLES

1. Standard precautions should be practiced in the management of all infectious cases. Additional precautions maybe required depending on the pathogens suspected.

2. At every level of care, there should be a designated officer (e.g. M&HO, DMOH, ICC/Director), to coordinate and monitor the practice of infection control measures.
   - The role of the coordinator includes:
     - Ensuring adherence to infection control practices.
     - Ensuring adequate supply and appropriate usage of Personal Protective Equipment (PPE).
     - Surveillance among healthcare workers involved in the management of contagious diseases (registry of staff involved).

3. Infection control practices should involve all clinical areas/disciplines involved in-patient care or patient movement.

4. Type of isolation required is dependant on the mode of spread of the microorganism suspected. Placement of infectious cases is often determined by the availability of isolation facilities in the health institution. In principle, placement of such cases, should be in the following facilities (in decreasing order of preference):
   - Single room with en-suite bathroom, negative pressure & HEPA filtration.*
   - Single room with en-suite bathroom, negative pressure but no HEPA filtration.*
   - Single room with en-suite bathroom and adequate air exchange (6–8 exchanges per hour). Nursed with room door closed.

* Negative pressure & HEPA filtration is required for infections spread via the respiratory route.
• Cohorting of patients. Patients confirmed with the same disease can be coho
tered. In general, suspected cases can be coho
tered only as a last option.
When cohorted, the following factors should be considered:
  – Spacing between beds i.e. at least 6 feet.
  – Regular decontamination of common areas including bath facilities.
  – Improved personal hygiene of patients including frequent hand washing.
  – All patients should be provided with surgical masks (if not contraindicated). Procedures that result in increase aerosolization of respiratory secretions (e.g. Nebulisation, chest physiotherapy) should be avoided.**
  – Adequate air exchanges in room of at least 6 exchanges/hr.**
5. Infection control measures should be appropriately adjusted (up or downwards) once pathogen/disease is identified or con
firmed.
6. Time to confirmation of diagnosis is crucial; to reduce implimen
tation of inappropriate infection control measures.
7. Each patient should be nursed using personalized equipments (thermometer, BP set, stethoscope). If sharing is necessary, ap
propriate decontamination should be performed.
8. Prophylaxis for close contact should be given when indicated e.g. meningococcal meningitis, diphtheria and HIV.

** required for infections transmitted by respiratory route.
## INFECTION CONTROL BY SYNDROMIC APPROACH

<table>
<thead>
<tr>
<th>Syndrome</th>
<th>Isolation</th>
<th>PPE</th>
<th>Specimens collection/transport/storage</th>
<th>Spillage contamination</th>
<th>Waste disposal</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACUTE DIARRHEAL SYNDROME</td>
<td>Mode of spread: oral-faecal</td>
<td>Gloves, Gowns, Boots/shoe cover</td>
<td>Leak proof container</td>
<td>Double bagged</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Recommendation:</strong> Standard precaution/hand washing (see General principles 1.4)</td>
<td></td>
<td>Document:</td>
<td></td>
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<tr>
<td></td>
<td><strong>Document:</strong></td>
<td></td>
<td>1. Syndromic Notification And Laboratory Investigation Manual</td>
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<td>Document:</td>
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<td></td>
<td></td>
<td></td>
<td>2. Protokol Keselamatan Maksim HKL (pgs. 1–7)</td>
<td></td>
<td>1. Disinfection And Sterilization Policy And Practice</td>
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<tr>
<td>ACUTE NEUROLOGICAL SYNDROME</td>
<td>Mode of spread: oral-faecal, droplets, close contact, vector borne</td>
<td>Gloves, Gowns, Masks – 3 ply surgical Visors/goggles depending on procedure a Boots/shoe cover</td>
<td>Leak proof container</td>
<td>Double bagged</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Recommendation:</strong> Strict Isolation + extended* PPE (see General Principles 1.4)</td>
<td></td>
<td>Document:</td>
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<td>Document:</td>
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</tbody>
</table>
| **ACUTE RESPIRATORY SYNDROME** | Mode of spread: droplets, close contact.  
**Recommendation:**  
Strict Isolation + N-95 mask, extended PPE (see General Principles 1.4)  
Barrier/close-contact/droplet  
As for SARS  
Standard precaution/hand washing | Gloves  
Gowns  
Masks – N-95 (PAPR needed for more invasive procedures e.g. bronchoscopy, intubation)  
Visors/goggle Boots/shoe cover | **Document:**  
1. SARS Management Protocol | **Document:**  
1. SARS Management Protocol  
2. Protokol Kasolamatan Makmal HKL (pgs. 1–7) | **Document:**  
1. SARS Management Protocol | **Document:**  
1. SARS Management Protocol |
| **ACUTE DERMATOLOGICAL SYNDROME** | Mode of spread: droplets/ close contact/airborne  
**Recommendation:**  
Strict Isolation + N-95, extended PPEs (if smallpox suspected) or  
Strict Isolation + extended PPE (if not smallpox) | Gloves  
Gowns  
Surgical masks – 2" ply  
Visors/goggles depending on procedure  
Boots/shoe cover | **Document:**  
1. SARS Management Protocol (if smallpox Sect 7; pgs 7–9) | **Document:**  
1. SARS Management Protocol (if smallpox Sect 7; pgs 7–9) | **Document:**  
1. Syndromic Notification And Laboratory Investigation Manual | **Document:**  
1. Disinfection And Sterilization Policy And Practice | **Document:**  
1. Disinfection And Sterilization Policy And Practice |
<table>
<thead>
<tr>
<th></th>
<th>2. Policy and Procedure of Infection Control, KKM (if not smallpox; pgs 12-26)</th>
<th>2. SARS Management Protocol (if smallpox Sect 7; pgs 7-9)</th>
<th>2. SARS Management Protocol (if smallpox Sect 7; pgs 7-9)</th>
<th>2. SARS Management Protocol (if smallpox Sect 7; pgs 7-9)</th>
</tr>
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<tbody>
<tr>
<td><strong>ACUTE HEAMORRHAGIC FEVER SYNDROME</strong></td>
<td>If history of travel to endemic area/countries with recent outbreak of exotic viral fevers (Africa) - as for SARS Management Protocol (Sect 7; pgs 7-9) If no relevant travel history, Standard precaution and hand washing recommended</td>
<td>Gloves Gowns</td>
<td>As in SARS Management Protocol</td>
<td>As in SARS Management Protocol</td>
</tr>
</tbody>
</table>
STANDARD OPERATING PROCEDURE FOR OUTPATIENT AT HEALTH CENTER, ACCIDENT & EMERGENCY DEPARTMENT AND OUTPATIENT CLINICS

At The Clinic Entrance

Create a triage corner/area/room before the registration counter. This must be managed by trained paramedic/doctors who have to be listed in special registry.

- All patients who come to the clinic should be screened for suspected “contagious disease” at this area.
- The health staff conducting the triage must wear a mask and gloves.
- This area must NOT be air-conditioned, window open and well ventilated.
- Information and instruction including posters regarding “contagious diseases” should be displayed at all entrances.
- All suspected cases to be sent immediately to hospital.
- Create special route (where possible) for transfer of suspected cases direct to designated hospital with referral letter according to procedure spelt out in guidelines for transportation of patient.
- Keep registry of these cases
  - Name
  - Identification number (I/C no.)
  - Address
  - Contact No/Hand-phone numbers
  - Sign and Symptoms
  - History of travel, where and contacts
  - Who are their immediate contacts
- The triage room must be disinfected after each suspected case.

Guidelines on room disinfections*

a) Compressed air that might re-aerosolize infectious materials should not be used.

* Note: Refer to Document: Disinfection and Sterilization Policy and Practice MOH 4th edition.
b) Personnel doing the cleaning should wear mask, gown and glove.
c) All spillage must be dealt with as soon as possible according to the procedure for decontamination of spillage.
d) Disinfect spillage with sodium hypochlorite 10,000 ppm and leave for 5–10 minutes contact time. Wipe spillage with absorbent materials and discard as clinical waste. Decontaminate area by wipping sodium hypochlorite. Mops and buckets should be disinfect-ed after removal of the spill.
e) All surfaces should be wipe with sodium hypochlorite 1,000 ppm and left to air dry for at least three hours.

**Guideline for the transportation of suspected cases**

The guideline must be strictly followed.

- Designate one vehicle if possible.
- During transportation of patient, switch off the air-conditioning and wind down all windows.
- If possible not more than one staff (fully protected*) to accompa-ny the suspected case.
- Relatives should not accompany the patient in the same vehicle.
- Driver must also use proper PPE.
- Other patients should not share this vehicle.
- This vehicle must be disinfected after every case and air-dried with window wound down and park in designated lot.

**Protection for Health Staff**

Besides the usual measures under standard precaution, health staff is required to take the following measures.

**Personal Hygiene**

Proper hand washing with clean water and soap
- Before and after handling of each patient.
- Before and after contact and after removing glove.

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*Note: Fully protected means wearing gloves and appropriately masked. Hands must be washed before and after contact with patient, after activities likely to cause contamination and after removing the gloves.*
• Avoid touching mucosal surfaces such as nose and eyes (it can be the route of infection).
• Use alcohol-based skin disinfectant if hand washing is not feasible.

**Personal protection**
- Wear PPE when handling suspected cases.
  - Disposable gloves
  - Appropriate mask
  - Disposable gown
  - Goggles
  - Apron
  - Goggles
  - Boots or shoe cover

**Staff is advised to have a bath and change clothing before going home (Clinic to provide this facilities)**

**Ensure good diet.**

**Daily and frequent monitoring of all health staff involved in the triaging.**

**Look out for early signs and symptoms.**

**Temperature recording twice daily**

**Avoid traveling to affected areas (where relevant)**

**Health care workers exposed to direct contact with suspected contagious patient should be monitored more closely. Provide early treatment where necessary.**

**Follow up suspected cases**

Clinic that has referred any suspected case to the designated hospital is required to follow up with that hospital (by telephone, on the following day) on the diagnostic outcome of the case. If the case is confirmed, notify the Medical Officer of Health.
GUIDELINE ON HOSPITAL MANAGEMENT OF SEVERE ACUTE RESPIRATORY SYNDROME (SARS)

Case definitions

Suspected case
A person presenting after 1st February 2003 with history of:
• High fever (> 38°C) AND
• One or more respiratory symptoms including cough, shortness of breath, difficulty in breathing, AND one or more of the following:
  • Close contact* with a person diagnosed with SARS within 10 days of the onset of symptoms,
  • Recent history of travel areas reporting cases of SARS.

Probable case
• A suspected case with chest x-ray findings of pneumonia or Respiratory Distress Syndrome (RDS), OR
• A person with an unexplained respiratory illness resulting in death, with an autopsy examination demonstrating the pathology of RDS without an identifiable cause.

Further comments:
In addition to fever and respiratory symptoms, SARS may be associated with other symptoms e.g. headache, muscular stiffness, loss of appetite, malaise, confusion, rash and diarrhoea.
Early laboratory findings may include thrombocytopenia and leucopenia. The incubation period is uncertain but preliminary reports suggest a period of up to 7–14 days.

Identification of Health Care Workers to manage suspected SARS

Hospitals must identify dedicated teams who will manage suspected SARS patients when they are admitted. These teams should comprise of physicians, paediatricians and nurses. The doctors from

* Close contact means having cared for, having lived with, or having had direct contact with secretions and body fluids of person with SARS.
these teams should also be available to review suspected SARS patients at A & E.

**Screening**

- A special counter should be set up in the A & E of all hospitals for suspected SARS patients to which patients can come directly. Dedicated staff should man this counter especially for SARS.
- All patients who come to A & E should also be screened for suspected SARS.
- All patients with symptoms of SARS should be rapidly diverted to designated examination rooms to minimize transmission to others.
- Whenever possible, patients under investigation for SARS should be separated from the probable cases.
- Those patients should be given a mask to wear.
- Staff involved in the triage process should wear gloves and a N-95 mask and wash hands before and after contact with any patient, after activities likely to cause contamination and after removing gloves.
- Staff in close contact with suspected SARS patients (e.g., examination of the patient) must also wear disposable gowns.
- If a patient is admitted, he/she must be taken to the dedicated isolation room/ward via a route identified only for these patients.
- The trolley or wheelchair used to transport the patient needs to be disinfected with Sodium hypochlorite 1000ppm and left to dry for 3 hours.

**Management of suspect and probable cases**

- A detailed history of the following should be obtained: clinical, travel and contact history including occurrence of respiratory disease in contact patients during the last 10 days.
- Chest x-ray and full blood count performed.
- If CXR demonstrates uni- or bi-lateral pulmonary infiltrates, the patient should be managed as a ‘Probable case of SARS’.
- All suspect and probable cases of SARS should be notified to the State Health Department.
- Suspect and probable cases should be admitted and nursed in
isolation facilities.
- Daily census of all SARS admissions and discharges should be sent to the State and National SARS Operations Room by 10.00am.
- The clinical workup of the case should follow the measures stated in the Document: Syndromic Notification and Laboratory Investigation Manual for acute respiratory syndromes.
- Virology samples should be sent to the National SARS Reference Laboratory in IMR.
- Bacteriology samples are processed in the respective hospitals (if assistance is required, the nearest Public Health Laboratories can be approached).
- All specimens from patients should be transported in accordance to MOH Guidelines of Transport of Infectious Material.
- The full blood count is monitored on alternate days; CXR repeated if clinically indicated.
- The case is treated as clinically indicated.
- In the event of death, post-mortem should be performed in accordance with the Document: Guidelines for post-mortem examination on a suspected death due to known or unknown infectious diseases.
- Dead bodies should be handled as per Document: Guidelines on handling of bodies with HIV/AIDS.

**Discharge of patient**

The following criteria are to be considered prior to making a decision to discharge a convalescent case from hospital:

**Clinical symptoms and signs**
- afebrile for 72 hours
- resolving cough

**Laboratory test: if previously abnormal**
- White cell count returning to normal
- Platelet count returning to normal
- Creatinine phosphokinase returning to normal
- Live function tests returning to normal
- Plasma sodium returning to normal
- C reactive protein returning to normal
Radiological findings

• Improving chest x-ray changes

Follow-up for convalescent cases

• Discharged convalescent patients should monitor and record their temperature twice daily.
• If they have an elevated temperature of 38°C or above on two consecutive occasions, they should report to the health care facility from which they were discharged.
• On discharge, a designated ambulance should send the patient home.
• As there is a potential for continued carriage (and hence the risk of continuing transmission) a precautionary approach is warranted. Therefore, following discharge from a hospital, convalescent cases should remain at home for 10 days. During this period they should stay indoors, keeping contact with others to a minimum.
• Follow up should be at 10 days or more at which time they should have a repeat chest x-ray, full blood count and any other blood tests that were previously abnormal. The patient should be followed up by the health care facility from which they were discharged. Additionally, the clinician may decide that the patient needs to be followed up before 10 days.
• At the 10th day assessment, a decision should then be made on whether or not further confinement is required. Further confinement would be recommended in those who are immunosuppressed. Subsequent follow-ups are recommended until chest x-ray and patient’s health returns to normal.
Flow chart of management of SARS

Patient screened

Triage

- Clinical history
- Physical examination
- CXR
- FBC

Non SARS

Suspected

Probable

Treat Accordingly

Normal CXR

CXR Pulmonary infiltrates

Admit/Isolate/Notify

Lab investigations

Treat as clinically indicated

Clinical improvement
- Afebrile 3 days
- Resolving cough

Discharge with follow-up in 10 days

Note
Try to limit patient’s movements within the hospital and try and reduce waiting time while undergoing preliminary investigations to limit possible exposure to others.
Isolation and infection control

- Newly diagnosed cases of SARS are potentially infectious and should be isolated and accommodated as follows in descending order of preference:
  - Negative pressure rooms with the door closed.
  - Single rooms with their own bathroom facilities. Single rooms can be fitted with extractor fans.
  - Cohort placement (if there are a large number of similar cases) in an area with an independent air supply, exhaust system and bathroom facilities.
- Turning off air conditioning and opening windows for good ventilation is recommended if an independent air supply is unfeasible. Please ensure that if windows are opened they are away from public places.
- Patients should be nursed according to the Standard Isolation Procedures.
- Strict adherence to the barrier nursing of patients with SARS, using precautions for airborne, droplet and contact transmission.
- All Health Care Workers (HCW) attending to the patient should adhere to Document: Policy and Procedure of Infection Control, KKM at all times.
- All staff, including auxiliary staff should be trained in the infection control measures required for the care of such a patient.
- There should be designated auxiliary staff.
- Suspected and Probable cases as well as contacts should not be nursed next to each other.
- Disposable equipment should be used wherever possible in the treatment and care of patients with SARS and disposed of appropriately. If devices are to be reused, they should be sterilized in accordance with manufacturers’ instructions. Surfaces should be cleaned with broad-spectrum disinfectants of proven antiviral activity like sodium hypochlorite 1,000 ppm.
- Movement of patients outside of the isolation unit should be avoided. If moved the patients should wear a N 95 mask.
- Visitors, if allowed should be kept to a minimum. They should be issued with personal protective equipment (PPE) and supervised.
- All non-essential staff (including students) should not be allowed into the unit/ward.
- **Hand washing is crucial**: therefore access to clean water is essen-
tial. **Hands should be washed before and after contact** with any patient, after activities likely to cause contamination and **after removing gloves**.

- Alcohol-based skin disinfectants could be used if there is no obvious organic material contamination.
- Particular attention should be paid to interventions such as the use of nebulisers, chest physiotherapy, bronchoscopy or gastroscopy; any intervention which may disrupt the respiratory tract.
- **Personal Protective Equipment (PPE)** should be worn by all staff and visitors accessing the isolation unit.
- The PPE worn in this situation should be:
  - N-95 mask as a minimum
  - Single pair of gloves
  - Disposable gown
  - Apron
  - Footwear that can be decontaminated
  - Goggles must be worn while conducting procedures with a potential for spillage (e.g. intubation, inserting CVP line)
- If not clinically contraindicated, the patient should be asked to wear a mask (N 95) when there are other people in the room.
- All spillage must be dealt with as soon as possible. Disinfect spillage with sodium hypochlorite 10,000 ppm and leave for 5-10 minutes contact time. Wipe spillage with absorbent material and discard as clinical waste. Decontaminate area by wiping with sodium hypochlorite 10,000 ppm. Mops and buckets should be disinfected after removal of the spills.
- All sharps should be dealt with promptly and safely.
- Linen from the patients should be prepared on site for the laundry staff. Appropriate PPE should be worn in this preparation and the linen should be put into biohazard bags.
- All clinical waste should disposed in accordance to Document: *MOH Waste Disposal Policy*.
- When the patient is discharged, any body fluid spills and splashes should be removed by the nursing staff wearing PPE using paper towels and disinfected with sodium hypochlorite 10,000 ppm. Disinfection of surfaces with sodium hypochlorite 1,000 ppm. Terminal disinfection with sodium hypochlorite 1,000 ppm and leave for 3 hours.
Staff monitoring

- A register of staff attending to cases of SARS should be created. Data required include:
  - Identification data.
  - Dates when they started and ended nursing the patient.
- The number of staff directly involved in nursing the patient should be kept to the minimum and should only be from the dedicated team identified.
- Any HCW who develops fever within one month of nursing the patient should report to the Physician-in-charge/Infectious Disease Specialist as soon as possible. Details of all HCW’s who fulfill the criteria for suspect or probable case of SARS should be notified to the Hospital Director and State Health Director as part of the hospital surveillance.
HANDLING OF DEAD BODY WITH SUSPECTED CONTAGIOUS DISEASE

**Body transfer from the ward to mortuary**
- Notify death in the ward to the mortuary staff.
- Place body in a plastic body bag before sending to mortuary.
- Staff handling the body shall wear appropriate PPE.
- Body trolley must be immediately disinfected after use.

**Post-mortem examination**
- Post-mortem examination shall be performed only on cases with unknown pathogen.
- Pathologist (Forensic or Histopathologist) should perform the autopsy.
- Staff performing the autopsy shall wear appropriate PPE.
- For suspected hazard group 3 pathogens, post-mortem examination shall be performed in Biosafety Level 2 plus autopsy room.

**Body release**
- Bathing rituals by relatives should be discouraged. (Body washing for Muslim bodies to follow Document: MOH Guidelines on Handling of Bodies with HIV/AIDS.)
- Body in plastic bag is placed in a sealed coffin before leaving the mortuary.
- The body should be taken for burial or cremation directly from the mortuary.

**Precautions for relatives and undertakers**
- Avoid direct contact with the body as much as possible.
- Relatives are strongly discouraged from touching or kissing the body.
- Any unavoidable handling of the body by relatives/undertakers should be done with full precautionary measures.
- They have to wear appropriate PPE.
GUIDELINES FOR POST-MORTEM EXAMINATION ON A SUSPECTED DEATH DUE TO KNOWN OR UNKNOWN INFECTIOUS AGENT


Death following the various syndromic approach

- Acute diarrhoeal syndrome
- Acute haemorrhagic fever syndrome
- Acute jaundice syndrome
- Acute neurologic syndrome
- Acute respiratory syndrome
- Acute dermatological syndrome

Legal aspects of post mortem examination

- In the Inquiries of Death Section of the Criminal Procedure Code there is no legal indication of post-mortem examination for the above listed syndromes.
- In the Section 10(1c) of the Disease Bearing Insect Act 1975, it is stated that the Director General of Health is empowered to order a post-mortem examination on a body where death is suspected to have been caused by any insect-borne disease.
- In the Section 16 of the Prevention and Control of Infectious Disease Act 1988, it is stated that whenever an authorised officer suspects that a person has died of an infectious disease he may order the body to be conveyed to such place as he may appoint for such examination as he may consider necessary.
- Section 22 of the Registration of Birth and Death Act 1957 stated that any medical practitioner can refuse to sign the death certificate if he suspects that death was from an infectious disease and not satisfied with any diagnosis written, unless the problem has been rectified.
- Written consent from the next of kin is required for any post-mortem examination not within the above legal indication.
Guidelines for post-mortem examination

- Classification of infections that may be encountered according to Hazard Group 3 and 4.
- Standard protocol to minimize the risk of infection for all autopsies as well as Hazard Group 3 cases.
- Pathologist and assistants should wear the following minimal protective attire for all autopsies.
  - Surgical scrub suit.
  - Waterproof disposal gown that completely covers the arms, chest and legs or ‘Tyvex’ full body suit.
  - Plastic disposable apron to cover chest, trunk and legs.
  - Eye protection or plain unventilated visor.
  - Face mask to protect the mouth and nose from direct splash contamination, if visor is not worn.
  - Disposable head cap.
  - Gloves: outer latex over neoprene cut resistant gloves.
  - Anti static rubber boots.
- Apart from the above protective measures, all staff working in the post-mortem examination room during the examination of a high risk case, need adequate training in mortuary techniques and safety procedures for such cases.
- It is recommended that the post-mortem examination of a known or suspected high risk case to be performed in a designated facility capable of handling such cases (upgraded bio safety level 2 or BSL3 autopsy room)
- The designated facilities are available as in the followings:
  - Hospital Kuala Lumpur, Wilayah Persekutuan
  - Hospital Tengku Ampuan Azan Kuantan, Pahang
  - Hospital Queen Elizabeth II Kota Kinabalu, Sabah

Work flows for handling a dead body suspected of known or unknown infectious agent include:

- Receiving ‘BID’ case
- Receiving body from the ward
- Body storage
- Body release
- Post-mortem examination
- Post-mortem specimens handling
Work flow for receiving brought in dead (BID) body suspected of known or unknown infectious agent

Start
Receive BID case (by MA A&E department)

Deceased accompanied by police

Yes
Inform mortuary (by MA A&E department)
Deceased send to mortuary (by attendants)

No
Inform police (by MA A&E department)

Generate body tag and freezer labels

Receive and register (by MA Forensic)

Is post-mortem required?

Yes
Perform post-mortem (Pathologist)
Refer post-mortem workflow

No
Issue burial permit (police)

Release body (by MA Forensic)
Release body workflow

End
Work procedure for receiving brought in dead (BID) body suspected of known or unknown infectious agent

- This work procedure is applicable for receiving brought in dead body from outside the hospital suspected of known or unknown infectious agent.
- All BID’s shall be sent to the Emergency Department (ED) of the hospital.
- All personnel involved in handling the body must follow the standard precautions and wear protective clothing which include surgical mask, a pair of gloves, plastic apron and rubber boots.
- Upon receiving the body, the Medical Assistant (MA) in ED shall verify whether police report has been made or not. If there is no police report, the MA (ED) shall inform the police. MA (ED) shall then inform the MA in the Mortuary about the BID case.
- All BID cases irrespective of whether there is a police report or not shall be sent to the mortuary by the ED and the Mortuary attendants.
- Upon receiving the body in the mortuary the MA shall register, **tag the body** with an appropriate **biohazard label**, check and verify whether an order for post-mortem examination has been requested or not.
- In cases where Section 10 of the Destruction of Disease Bearing Insect Act 1975 and Section 16 of the Prevention and Control of Infectious Disease 1988 applies, the MA Forensic shall inform the Pathologist, who in turn shall notify the Medical Officer of Health for authorisation.
- If post-mortem examination is requested, the pathologist shall perform it; refer to ‘post-mortem examination workflow.’
Workflow for receiving dead body from the ward suspected of known or unknown infectious agent

Start

Information received about death in the ward (MA Casualty/Admission)

Check and validate information (MA Casualty/Admission)

PM requested?

Yes

Sign burial permit and JPN Death Certificate Form (Medical Officer in Ward)

No

Collect burial permit (Attendant Ward)

Send trolley to the ward (Attendants Forensic)

Collect Body (Attendants Forensic)

Send body to mortuary and register body (MA Forensic)

Generate freezer labels of Body Tag

Body storage workflow

Release body workflow
Work procedure for receiving dead body from the ward suspected of known or unknown infectious agent

- This work procedure is applicable for receiving dead body from the ward suspected of known or unknown infectious agent. These include deaths in the wards, clinics, day-care centre, Operation Theatres etc.
- The MA in the mortuary shall receive information by phone from the ward staff regarding the death. Upon receiving the phone call, the MA shall check/validate the information, issue a serial number for the burial permit and determine whether a post-mortem examination is being requested or not.
- Upon determining that a post-mortem examination is not required, burial permit with the assigned serial number shall be issued/printed. For cases requiring post-mortem examination, burial permit shall not be issued/printed until the post-mortem examination has been conducted.
- For cases that do not require a post-mortem examination, the MA shall then request the ward doctor who last attended to the case to write the cause of death and sign the burial permit. For cases requiring a post-mortem examination, the body shall be registered in the mortuary and the ward doctor SHALL NOT write the cause of death in the burial permit form.
- All personnel involved in handling the body must follow the standard precautions and wear protective clothing which include surgical mask, a pair of gloves, plastic apron and rubber boots.
- The ward staff shall place the body in a body bag for transport to the mortuary after the “last office”.
- Ward attendant shall be requested to collect the trolley from the mortuary and a mortuary attendant shall accompany him to fetch the body from the ward.
- The attendants shall collect the body with the completed burial permit duly signed.
- Upon arriving, the MA shall register the body, tag the body with an appropriate biohazard label and admit it into the mortuary.
- For bodies which do not require a post-mortem examination, please refer to ‘body release workflow’ for procedure related to claiming body. For body that require post-mortem examination, refer to ‘BODY STORAGE WORKFLOW’ for procedure prior to performing post-mortem examination.
Workflow for storage of body suspected of known or unknown infectious agent

Start

Refer 'Body receive workflow'

Receive & Register body (MA Forensic)

Generate body tag and freezer label

Verify, identification and tagging of body (MA Forensic)

Any claimant?

Check body freezer functioning (MA/Attendant Forensic)

Label body freezer (MA Forensic)

Store body (MA/Attendant Forensic)

Stop

Refer 'Body receive workflow'

Yes

No
Work procedure for storage of body suspected of known or unknown infectious agent

- This work procedure is applicable for storing dead bodies suspected of known or unknown infectious agent received from within the hospital, as well as BID cases.
- All personnel involved in handling the body must follow the standard precautions and wear protective clothing which include surgical mask, a pair of gloves, plastic apron and boots.
- Upon receiving the body, the MA in the mortuary shall register the body, check/verify the body identification and tag the body with an appropriate biohazard and freezer label. Body tag and freezer label shall have the same information to enable identification of the body in their respective body freezer.
- For bodies with immediate claimant parties’ available, refer to ‘body release workflow’ and the Public Health Inspector shall supervise body release.
- For bodies without claimant parties, the MA shall verify the body tag and label the respective body freezer before storage.
- The MA shall ensure that the body freezer is functioning before storing the body.
Workflow for the release of body suspected of known or unknown infectious agent

Start

Notify Health Inspector (MA Forensic)

Body in the mortuary

Body receive workflow 1 and 2

Check and verify body registration details (MA Forensic)

Burial permit signed?

No

Perform Post Mortem (Pathologist)

Refer to Post Mortem workflow

Yes

Print deceased management forms

Document process of deceased management (MA Forensic)

Sign Burial Permit (Pathologist)

Verify identification of deceased and sign document (Claimant parties)

Is the body for export?

Yes

Make arrangement for body exportation (MA Forensic)

No

Issue burial permit and release body (MA Forensic)

Refer to Health Inspector’s procedure on handling infectious cases
Work procedure for release body of suspected or known or unknown infectious agent

- This work procedure is applicable for releasing of unclaimed bodies brought in dead for local burials/cremation only in Malaysia.
- Upon receiving the body arrangement shall be made for the burial permit to be signed by the police or by the Pathologist after performing post-mortem examination.
- The MA in mortuary shall check whether the claimant party is available to claim the body. If available he shall release the body as per approved procedure and policy. Refer to ‘BODY RELEASE WORKFLOW’.
- If there is no claimant party available, the MA shall proceed to store the body as per approved procedure and policy. Refer ‘BODY STORAGE WORKFLOW’.
- The Mortuary MA shall assist the police to make general identification of the body and make arrangement for the press release.
- If a Muslim body is not claimed by 3 days, the body shall be classified as unclaimed body and shall be referred to the Islamic Religious Body for burial purposes.
- If a non-Muslim body is not claimed by 3 days, the body shall be classified as unclaimed body and shall be referred to the respective religious body/welfare organisation for burial/cremation.
- Referral letter to the respective religious body/welfare organisation shall be signed by Hospital Director after getting clearance from police.
- Automatic reminders shall be sent to the respective religious body/welfare organisation according at predetermined intervals as defined in the local operational policy.
- After 2 weeks, if the criteria in No. 8 and 9 above is not fulfilled, the Hospital Director shall authorise a hospital burial.
- Upon collection of the body in the mortuary by the authorised representative of the respective religious body/welfare organisation, the Medical Assistant shall proceed to issue the burial permit and release of body. Refer to ‘BODY RELEASE WORKFLOW’.
Workflow for post-mortem examination on body of suspected or known or unknown infectious agent

Body in the mortuary
- Perform screening tests on the body (MA Forensic)
- Authorisation/Request for post mortem examination (Refer Legal aspects)
  - Check/verify authorisation/request & prepare body for post mortem examination
  - Perform post mortem examination in BSL2 or BSL3 autopsy room (Pathologist)
  - Collection of medico legal specimen (Pathologist)
  - Sign burial permit (Pathologist)
  - Generate deceased management form
  - Process documentation of deceased management (MA)
  - Cleaning of body, autopsy instruments & facilities (Attendant)
  - Preparation of Post Mortem Report (Pathologist)
  - Body storage/release (Attendant)
  - Submit report to record office (Pathologist)
  - Generate Post Mortem report/draft
  - Refer to workflow for collection of specimen
- Refer ‘Body receive workflow’
- Generate post mortem proforma
- Stop
Work procedure for post-mortem examination on body of suspected or known or unknown infectious agent

- This work procedure is applicable for all dead body suspected of known or unknown infectious agent.
- The post-mortem examination shall be performed by a senior pathologist in a BSL2 plus or BSL3 autopsy room.
- The collection of Medico Legal specimen/s shall be conducted in accordance with the Criminal Procedure Code (Section 331 Chapter XXXII).
- The collection of other specimens shall be conducted in accordance with the respective laboratory procedure.
- The burial permit shall be signed by the pathologist who performed the post-mortem examination.
- The MA shall fill-up the ‘BORANG PENGENDALIAN MAYAT’.
- Upon completion of the post-mortem examination, the autopsy instruments and facility shall be cleaned and disinfected. The body is placed in a double body bag and stored in the body freezer.

Post-mortem examination techniques

1. There should be a minimum dataset of information presented for deaths in the community, in addition to the usual identifiers and place of death. These include:
   - The precise circumstances of the death
   - Reasons for post-mortem examination
   - Detailed medical history should be obtained together with the prescribed medications
   - Recent history of travel to countries with an outbreak of infectious disease.
   - Recent hospital admissions
   - History of alcohol or other recreational drugs
   - Occupation
   - Phone number of the patient’s general practitioner
2. Consent form or Police Order (Polis 61) for post-mortem examination shall be obtained and inspected carefully and the identity of the deceased confirmed.
3. All intravenous (IV) lines and devices should remained in-situ when the body is transported to the mortuary.
4. Routine screening test, if available, shall be carried out before
commencing the autopsy.

5. The pathologist should plan the autopsy details such as time, place, persons assisting, procedure, instruments and related safety equipments.

6. There should be a minimal number of personnel (not more than 3 i.e. pathologist and 2 assistants) in the post-mortem examination room. Only one person should dissect at any particular time.

7. The post-mortem examination should be carried out in detail. The external examination should include:
   • Identification
   • Injuries
   • Lesions
   • Any abnormalities
   • Relevant specimens (swabs, Cisternal puncture, blood)

8. External examination
   • Y incision with *in-situ* dissection of the neck structures.
   • the internal organs may be removed individually, together in a single or in 4 main blocks.
   • All major organs should be dissected, separated and weighed.
   • if clinically relevant, the brain should be fixed intact.
   • specialized dissection techniques may be required such as
   • spinal cord, orbital contents etc
   • obtaining relevant and appropriate samples for biochemical, histological, microbiological and toxicological investigations (Refer to Guideline on collection and handling of post-mortem examination specimens).

**Autopsy report**

The report should include:
   • Demographic details
   • Clinical history and how it was obtained
   • How consent/order obtained
   • Indication of attendance of clinicians at autopsy
   • External examination findings
   • Internal examination findings (Refer to the minimum dataset as in the Appendix A5/RCPath Guideline September 2002)
   • Histopathology, biochemistry, microbiology and toxicology report.
   • Cause of death
Workflow for handling post-mortem specimens of suspected case of known or unknown infectious agent

1. Refer to post-mortem examination workflow
2. Perform Post-mortem examination (Pathologist)
3. Specimens
4. Generate and fill up request forms (Pathologist)
5. Label specimens (MA/MO)
6. Send specimens to respective labs (Virology, Microbiology, Histopathology, Chemical Pathology)
7. Results To Pathologist
Work procedures for handling post-mortem specimen of suspected known or unknown infectious agent

- This work procedure is applicable for handling post-mortem examination specimens collected during the course of post-mortem examination. This shall include handling of specimens for clinical and medico legal post-mortem examination. This is not applicable in certain unforeseen circumstances, such as court orders.
- Upon performing the post-mortem examination, the pathologist shall determine whether specimen is required or not.
- If a specimen is not required, the body may be released if claimant party is immediately available or may be stored if the claimant party is unavailable. Refer respective work procedure for body release/storage.
- If a specimen is required, the pathologist shall check whether this is a medico legal case or not.
- If it is not a medico legal case, the pathologist shall collect the specimen as per SOP and request the test to be performed through the respective laboratories. Refer to the workflow/procedure for requesting in house specimen for the respective laboratories.
- If it is a medico legal case, the pathologist shall collect the specimen as per SOP and the MA shall label and seal the specimen. The pathologist shall fill in a system supported investigation form.
- The sealed/labelled specimen shall be handed over to the police and acknowledgement receipt duly signed by the police shall be stored as per approved MOH procedure.
- The police shall be required to send the medico legal specimens to the respective laboratories.

Safety precaution

1. The aim is to reduce the risk as far as feasible within the resources available.
2. The issues addressed in these guidelines include:
   - Classification and stratification of the hazardous infections that may be encountered.
   - Development of standard protocols to minimise the risk of infection from cadaver.
• Assessment of risk on a case-by case basis, including the issue of pre-autopsy testing for infections
• Development of the protocol to deal with the more commonly encountered hazardous infections, and with rare but dangerous infections.
• Unresolved question of whether pathologists in all properly resourced mortuaries-should perform infectious autopsies (particularly hazard group 3) or whether specialist centres should be established regionally to deal with them.

**Acquisition of infection**

These five routes can acquire infections in the mortuary
• Percutaneous inoculation
• Inhalation
• Ingestion
• Skin contamination without inoculation
• Contamination of mucosal surfaces (eye, mouth, nose)

The main practical concerns are blood-borne viruses and inhaled virulent pathogens such as *M. tuberculosis*.

**Classification of pathogens**

The Advisory Committee on dangerous Pathogens (ACDP) categories infections agents into four hazard group (HG) categories, according to:
• Their virulence as infections
• Their transmissibility and ability to cause epidemic
• Their preventability (e.g. by vaccine or prophylactic chemotherapy)
• Their treatability
HAZARD GROUP INFECTIONS

Hazard Group 2 infections

The agents include antibiotic-resistant organisms such as:
- methicillin-resistant Staphylooccus aureus (MRSA),
- vancomycin-resistant enterococci (VRE),
- food poisoning,
- Salmonella spp and other enteric pathogens,
- Leptospira spp.

The most likely route of transmission of these biological agents in the post-mortem room is by
- hand to mouth.
- inoculation of staphylococci, meningococci and streptococci

Standard precautions (AIDS/STI section, KKM; 2002) include
- good hygiene procedures,
- proper hand washing,

Regarding autopsies on patients with meningococcal infection, with low risk of inhaled infection during the procedure, advice from occupational health units and departments of infection is against vaccination of mortuary staff and pathologists. Wearing a mask appropriate for a tuberculosis autopsy provides sufficient protection and additional antibiotic prophylaxis can be considered on a case-by-case basis.

Hazard Group 3 infections

These are caused by ‘biological agents that can cause severe human disease and presents a serious hazard to employees; it may present a risk of spreading to the community, but there is usually effective prophylaxis or treatment available’.

The Hazard Group 3 agents that can be encountered in the post-mortem room in Malaysia;
- Tuberculosis (TB)
- Human immunodeficiency virus (HIV),
• Hepatitis B virus (HBV)
• Hepatitis C virus (HCV)

**Hazard Group 4 infections**

These are caused by biological agents that cause severe human disease and is a serious hazard to employees; it is likely to spread to the community and there is usually no effective prophylaxis or treatment available.

These include;
• Ebola
• Marburg
• Nipah virus
• Lassa Fever
• Smallpox
• Congo-Crimea haemorrhagic fever
# POST-MORTEM SPECIMEN COLLECTION

<table>
<thead>
<tr>
<th>SPECIMEN</th>
<th>CONTAINER</th>
<th>AMOUNT</th>
<th>STORAGE &amp; TRANSPORT</th>
<th>PRECAUTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSF</td>
<td>Plain sterile bottle</td>
<td>Minimum 0.5 ml each in 3 different bottles</td>
<td>Transport in sealed container as soon as possible</td>
<td>For bacterial culture – Do not refrigerate CSF sample</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Virus</strong> — 4-8°C</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td></td>
<td><strong>If &gt;48hrs, -70°C</strong></td>
<td></td>
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<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Bacterial/fungus</strong> — ambient temperature</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td></td>
<td><strong>If &gt;24hrs, keep at 37°C (incubator)</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Parasite</strong> — ambient temperature</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>**If &gt;24hrs, keep in polyvinyl alcohol preservative</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Biochemical examination</strong> — ambient temperature</td>
<td></td>
</tr>
<tr>
<td>Conunctival swab/sme</td>
<td>Smear — on glass slides and sir dried</td>
<td>2 slides</td>
<td>Ambient temperature in slide box</td>
<td>Label either right or left eye</td>
</tr>
<tr>
<td>Conunctival swab/sme</td>
<td>Virus culture — use virus transport medium (VTM)</td>
<td></td>
<td><strong>Virus</strong> — 4-8°C</td>
<td>If both eyes are involved, take swabs from both eyes</td>
</tr>
<tr>
<td>Conunctival swab/sme</td>
<td>Bacterial culture — Stuarts/Amies</td>
<td></td>
<td><strong>Bacteria</strong> — ambient temperature</td>
<td></td>
</tr>
<tr>
<td>Sample Type</td>
<td>Collection Medium</td>
<td>Storage/Transport Requirements</td>
<td>Temperature (°C)</td>
<td></td>
</tr>
<tr>
<td>------------------------------</td>
<td>-------------------------------------------</td>
<td>---------------------------------------------------------------------</td>
<td>------------------</td>
<td></td>
</tr>
<tr>
<td>Throat swab</td>
<td>Cotton bud in transport medium</td>
<td>Swab must be fully immersed in the transport medium</td>
<td>Virus — 4-8°C</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Virus — VTM</td>
<td></td>
<td>Bacteria — ambient temperature</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Bacteria — Stuart /Amies</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>Transport in sealed container as soon as possible</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pernasal/nasopharyngeal swab</td>
<td>Cotton bud in transport medium</td>
<td>Swab must be fully immersed in the transport medium</td>
<td>Virus — 4-8°C</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Calcium alginate swab in transport medium</td>
<td></td>
<td>Bacteria — ambient temperature</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(for pertussis)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nasopharyngeal aspirate</td>
<td>Plain sterile bottle</td>
<td></td>
<td>Virus — 4-8°C</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Bacteria — ambient temperature</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>If &gt;24 hrs — 4-8°C</td>
<td></td>
</tr>
<tr>
<td>Throat gargle</td>
<td>Plain sterile bottle</td>
<td></td>
<td>Virus — 4-8°C</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Bacteria — ambient temperature</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>If &gt;24 hrs — 4-8°C</td>
<td></td>
</tr>
<tr>
<td>Sputum</td>
<td>Plain sterile bottle</td>
<td></td>
<td>Transport in sealed container as soon as possible</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Virus — 4-8°C</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Bacteria — ambient temperature</td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td>If &gt;24 hrs — 4-8°C</td>
<td></td>
</tr>
<tr>
<td>Sample Type</td>
<td>Storage Container</td>
<td>Storage Conditions</td>
<td></td>
<td></td>
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<tr>
<td>-----------------------------------</td>
<td>------------------------------</td>
<td>-------------------------------------------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bronchial — alveolar lavage</td>
<td>Plain sterile bottle</td>
<td><strong>Virus</strong> — 4-8°C</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Bacteria</strong> — ambient temperature</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>If &gt;24hrs — 4-8°C</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tracheal aspirate</td>
<td>Plain sterile bottle</td>
<td><strong>Virus</strong> — 4-8°C</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Bacteria</strong> — ambient temperature</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>If &gt;24hrs — 4-8°C</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pleural fluid</td>
<td>Plain sterile bottle</td>
<td><strong>Virus</strong> — 4-8°C</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Bacteria</strong> — ambient temperature</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>If &gt;24hrs — 4-8°C</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vesicle fluid</td>
<td>Cotton swab — VTM for viral culture</td>
<td><strong>Virus</strong> — 4-8°C</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Swab must be fully immerse in the transport medium</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Crust/swab base of eschar</td>
<td>Virus — in VTM Bacteria in Stuart /Amies transport medium</td>
<td><strong>Virus</strong> — 4-8°C</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Swab must be fully immerse in the transport medium</td>
<td><strong>Bacteria</strong> — ambient temperature</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Abscess: Needle aspirate I &amp; D</td>
<td>Sterile container</td>
<td>Transport as soon as possible at ambient temperature</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>If &gt;24hrs, refrigerate at 4-8°C</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Skin scraping/biopsy</td>
<td>For culture — sterile container HPE — 10% formalin</td>
<td><strong>Virus</strong> — 4-8°C</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Bacteria</strong> — ambient temperature</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>If &gt;24hrs, store in refrigerator at 4-8°C</td>
<td></td>
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</tr>
</tbody>
</table>
Standard Operating Procedure (SOP) For Risk Communication During Outbreak

Risk Communication

Introduction

The purpose of this standard operating procedure (SOP) is to prepare every individual in the Ministry of Health (MOH) to deal with potential crisis, prevent speculations and improve readiness to handle crisis.

Definitions

1. Health Risk is the probability/chance of harm or ill-health occurring and the severity of the consequences as a result of exposure to hazard* (biological, chemical, physical, psychosocial factors).
2. Risk Communication:
   i. Communicating the risk to the individual/public/patient so that they can make informed decision
   ii. The purposeful exchange of information about the existence, nature, form, severity, or acceptability of health risks between policy makers, healthcare providers and public/media with the intention of changing behaviour and inducing action to minimize/reduce the risk.
   iii. An interactive process of exchange of information and opinion among individuals, group and institutions.
   iv. An exchange of information among individuals and groups of people.

* Hazard is any agent which has the potential to cause injury, ill health, death or harm to the environment.
Objectives of Risk Communication

1. To prepare the department and program managers in dealing with the potential crisis.
2. To prevent speculations.
3. To prepare every individual in the organisation (MOH) to:
   - Be ready at all times
   - Improve readiness to handle the crisis
4. To allay tear and reduce anxiety.

Conceptual Framework
INFORMATION

1. Types of information
   • Numerical data/epidemiological information
   • News bulletin
   • Rumours
2. Sources of information:
   • Surveillance Unit (official source)
   • Media reports
   • Rumours (unknown source)

STANDARD OPERATING PROCEDURE FOR RISK COMMUNICATION

1. Need assessment
   • There is a need to take stock of the prevailing situation in the community before communicating the risks.
   • Quick assessment of communication situation
     - Prevailing behaviour
     - Existing knowledge
     - Risk perception
   • This may be carried out in the shortest period of time during a crisis state.
   • The target group should be analyzed to understand their motivations and opinion.
   • They need to be identified and information on their perception, beliefs, values, knowledge, attitude, behaviour, socio-economic status need to be collected so that cultural, religious and social barriers could be overcome.
   • Listen to all interested parties
2. How to get the information
   • Past experience
   • Situational analysis
   • Literature
   • Journalist/media reports
3. Content development
   a) Information should be:
      • Technically sound, timely and by experts/authority
      • The contents must be clear
      • Consist of relevant guidelines
• Consist of administrative instructions/guidelines on logistics

b) Packaging the content
• Should consist of technical information
• Should consists of epidemiological information
• Package differently for different groups:
  – Media – media kit
  – Public
  – Specific target
  – Expert group
  – Co-workers
  – Politicians
  – Tourist and foreign investors

c) Methods
• Interpersonal / face to face – usually with affected groups or relatives, contacts
• Hotline
• Mass media – general public
  – Radio/TV/Astro
    – Programs (local/international)
  – Materials – posters, flyers, pamphlet
• Website
  – For those who have assess
  – Computer literate

d) Spokesperson

<table>
<thead>
<tr>
<th>Level</th>
<th>Spokesperson</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. National</td>
<td>Minister, Director General, Deputy Director General, Appointed officer</td>
</tr>
<tr>
<td>2. State</td>
<td>Minister of Health, Director General of Health, State Health Exco, Appointed officer</td>
</tr>
<tr>
<td>3. District</td>
<td>Minister of Health, Director General of Health, State Health Exco, Appointed officer</td>
</tr>
</tbody>
</table>
| 4. Operation/Disaster site | Minister of Health  
|                           | Director General of Health  
|                           | Appointed officer |
| 5. Institution            | Minister of Health  
|                           | Director General of Health  
|                           | Appointed officer |
| 6. Interagency Collaboration | Minister of Health  
|                           | Director General of Health |

Function of Spokesperson is to provide guidance, technical input and advice on policy.

e) Feedback Mechanism
- Built in monitoring and evaluation to find out changes in knowledge and behaviour
  - Process evaluation
  - Impact evaluation
  - Monitoring mechanism
- “Damage control”
  - Formulate mechanism
FLOW CHART FOR ESTABLISHING ACTIVITY FOR OPERATING PROCEDURE

1. Activate communication network
2. Appointment of spokesperson/messenger
3. Briefing to all the key personnel: State EXCO (Health), Operations Room personnel, frontliners, media spokesperson
4. Compile FAQs from website/hotline. Prepare and anticipate Q&A
5. Prepare, pretest, review, seek approval, print and distribute educational materials.
6. Identify resource speaker for media and briefing.
7. Daily press release-media brief (jointly prepared with Secretariat)
8. Monitoring – evaluation
9. Documentation
10. States/district give feedback to national operations room
STANDARD OPERATING PROCEDURE FOR LAW ENFORCEMENT

INTRODUCTION

The purpose of this standard operating procedure (SOP) is to standardize the enforcement activities at state and district level.

1. Prevention and Control of Infectious Disease Act 1988
   • Sub-section 15(1), an authorized officer may order any contact to undergo observation in such places and for such period as he may think fit, or to undergo surveillance until he may be discharged without danger to the public.
     - The contact can be placed at home and the observation or surveillance can be conducted in a planned manner.
   • Definition of contact:
     A person who is at risk of exposes or suspected of being exposed to the infectious disease.

2. Procedures for Observation and Surveillance
   • Upon receiving a notification, the District Medical Officer of Health must identify all the contacts relating to the notified case.
   • Obtain relevant information from all the contact;
     - Name
     - Address
     - Identification number (I/C no.)
     - Telephone number (if available)
   • Complete 2 sets of the Order Form (see Appendix 1 and Attachment A).
   • Get the form to be signed by the contacts. One copy to be kept by the contact and one copy to be kept as record in a fail.
   • The number of days for observation or surveillance as stated by the higher authority. The date to state observation or surveillance is the last day of being exposed.
   • The officer that authorized the order must conduct the observation or surveillance from time to time the contact is undergoing the order to ensure that the order is followed.
   • Record all activities conducted during the observation or surveillance.
   • When encounter any problems during implementing the Order, the authorized officer may seek assistance from the Royal Police Force.
3. Record activities during surveillance or observation

**Registry of observation or surveillance of SARS contacts**

<table>
<thead>
<tr>
<th>No.</th>
<th>Case/suspect name</th>
<th>Contact name</th>
<th>Relation to case</th>
<th>Observation or surveillance</th>
<th>Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Date</td>
<td></td>
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<tr>
<td>1.</td>
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<tr>
<td>2.</td>
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<tr>
<td>3.</td>
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</tbody>
</table>
Appendix 1

KEMENTERIAN KESIHATAN MALAYSIA

Fail Rujukan:
Pejabat Kesihatan Daerah,

........................................
........................................
........................................
........................................
No. Telefon: .....................

Kepada:

Nama: ..........................................................
No. Kad Pengenalan: .................................
Alamat: ........................................................
..............................................................
..............................................................
PERINTAH PENGAWASAN DAN PEMERHATIAN DI RUMAH KEDIAMAN BAGI KONTAK JANGKITAN PENYAKIT BERJANGKIT DI BAWAH SEKSYEN 15(1) AKTA PENCEGAHAN DAN PENGAWALAN PENYAKIT BERJANGKIT 1988.

Tuan/Puan telah dikenalpasti sebagai kontak terdekat kepada seorang yang telah disyaki mengidap jangkitan penyakit berjangkit dan berkemungkinan tuan/puan telah terdedah kepada jangkitan itu.


2. Bagi menjalankan kuasa di bawah Seksyen 15(1) Akta 342, saya ........................................, pegawai diberikuasa untuk meletakkan tuan/puan di bawah pengawasan dan pemerhatian di rumah atau di kodioman sopori di alamat di atas dengan syarat syarat sopori di nyatakan di Lampiran A.


NAMA PEGAWAI DIBERIKUASA: .....................................................
JAWATAN: ..............................................................................
TARIKH: ..........................................................
MASA: ..............................................................................
PENGESAHAN MENERIMA SESALINAN PERINTAH OLEH KONTAK
YANG DILETAK DI BAWAH PENGAWASAN

Tandatangan: ..............................................................
Nama: ...........................................................................
No Kad Pengenalan: ..................................................
Tarikh: .........................................................
Masa: ............................................................
PERINTAH PENGAWASAN DAN PEMERHATIAN DI RUMAH
KEDIAMAN BAGI KONTAK PENYAKIT BERJANGKIT DI BAWAH
SUB-SEKSYEN 15(1) AKTA PENCEGAHAN DAN PENGAWALAN

1. TINDAKAN YANG PERLU DILAKUKAN SEMASA TEMPOH
PEMERHATIAN DAN PENGAWASAN.

A. TINGGAL DI RUMAH KEDIAMAN BERALAMAT DI ATAS

1. Hendaklah tinggal di rumah kediaman seperti di alamat yang
dinyatakan sepanjang masa bermula dari ...................... hingga
..................
2. Jika tuan/puan mempunyai anak, atau adik beradik yang bela-
jar di TADIKA, atau berseko ah atau yang perlu ke rumah pen-
jagaan, mereka juga dikehendaki tinggal di rumah bagi tem-
poh di atas.
3. Aturkan dengan saudara mera/akan untuk membeli keperluan
harian.
4. Jika terpaksa pergi ke suatu tempat kerana tidak dapat ditang-
guhan sila hubungni dan dapatkan nasihat daripada Pegawai
Kesihatan Daerah di nombor telefon .............................
5. Jika tuan/puan memerlukan bantuan mengenai keperluan ha-
rian sila hubungi telefon .................................
6. Elakkan daripada berhubung secara dekat dengan ahli-ahli ke-
luarga /akan-akan. Sekiranya saudara-mara, sahabat handai
menzjarah tuan/puan, adalah menjadi tanggungjawab tuan/ puan
untuk mencatatkan nama, alamat, no. telefon dan tarikh
kunjungan mereka.
7. Jika pasangan tuan/puan atau mana-mana orang dewasa yang
lain yang tinggal serumah tetapi tidak dikenakan perintah pen-
gawasan dan pemerhatian di rumah, mereka bebas melakukan
aktiviti harian.

B. PERIKSA TANDA-TANDA DEMAM
(Penyakit SARS sebagai contoh)

1. Periksa suhu badan setiap hari dan keadaan ini perlu selama
10 hari bermula dari tarikh .........................
2. Topeng muka hendaklah dipakai sepanjang masa jika demam atau batuk sebelum bantuan perubatan tiba.

C. AMALKAN KEBERSIHAN DIRI

1. Sentiiasa amalkan amalan kebersihan.
2. Tutup mulut semasa batuk dan bersin.
3. Dapatkan pengudaraan yang baik di dalam rumah.
4. Permukaan lantai atau meja tercemar oleh kahak, cecair, muntah atau bendalir dari hidung atau mulut boleh dibersihkan menggunakan bahan cuci seperti Chlorox. Bancuh yang disyorkan ialah 1 bahagian chlorox dengan 50 bahagian air.

D. PERKARA-PERKARA YANG DILARANG

1. Meninggalkan rumah beralamat di atas bagi tujuan membeli belah, bersiar-siar ke padang permainan, ke tempat awam atau ke tempat orang ramai berkumpul.

PERINGATAN

Pemeriksaan mengejut akan dilakukan bagi memastikan perintah-perintah di atas dipatuhi dan kegagalan mematuhi perintah-perintah di atas menyebabkan tindakan mahkamah dikenakan ke atas tuan/puan.
## Glossary

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Full Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>A&amp;E</td>
<td>Accident and Emergency</td>
</tr>
<tr>
<td>AEHO</td>
<td>Assistant Environment Health Officer</td>
</tr>
<tr>
<td>BID</td>
<td>Brought in dead</td>
</tr>
<tr>
<td>BP</td>
<td>Blood Pressure</td>
</tr>
<tr>
<td>BSL</td>
<td>Biosafety Laboratory</td>
</tr>
<tr>
<td>CXR</td>
<td>Chest X-ray</td>
</tr>
<tr>
<td>DDG</td>
<td>Deputy Director General</td>
</tr>
<tr>
<td>DG</td>
<td>Director General</td>
</tr>
<tr>
<td>DMOH</td>
<td>District Medical Officer of Health</td>
</tr>
<tr>
<td>EIP</td>
<td>Epidemic Intelligence Program</td>
</tr>
<tr>
<td>GIS</td>
<td>Geographical Information System</td>
</tr>
<tr>
<td>HFMP</td>
<td>Hand, Foot and Mouth Disease</td>
</tr>
<tr>
<td>HIV</td>
<td>Human Immunodeficiency virus</td>
</tr>
<tr>
<td>ICC</td>
<td>Infection Control Committee</td>
</tr>
<tr>
<td>ID</td>
<td>Infectious Disease</td>
</tr>
<tr>
<td>IMR</td>
<td>Institute Medical Research</td>
</tr>
<tr>
<td>IT</td>
<td>Information Technology</td>
</tr>
<tr>
<td>M&amp;HO</td>
<td>Medical and Health Officer</td>
</tr>
<tr>
<td>MA</td>
<td>Medical Assistant</td>
</tr>
<tr>
<td>MO</td>
<td>Medical Officer</td>
</tr>
<tr>
<td>MOH</td>
<td>Ministry of Health</td>
</tr>
<tr>
<td>NPHL</td>
<td>National Public Health Laboratory</td>
</tr>
<tr>
<td>PHL</td>
<td>Public Health Laboratory</td>
</tr>
<tr>
<td>PPE</td>
<td>Personal Protective Equipment</td>
</tr>
<tr>
<td>WHO</td>
<td>World Health Organisation</td>
</tr>
</tbody>
</table>
### Suggested checklist for Outbreak Preparedness

#### 1. Surveillance of Infectious Disease (ID) and Community control

<table>
<thead>
<tr>
<th>Task</th>
<th>Activities</th>
<th>Availability</th>
<th>Standards where applicable/Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Evidence of local enhancement of ID surveillance for known and unknown diseases</td>
<td>Ensuring the existing surveillance mechanism are in place</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Statutory surveillance of ID</td>
<td>Notification of ID using the prescribe form under the PCID Act 1988</td>
<td></td>
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</tr>
<tr>
<td>2. Syndromic approach surveillance</td>
<td>Manual for Syndromic notification (Surveillance Section)</td>
<td></td>
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<tr>
<td>3. Laboratory based surveillance for specific pathogens</td>
<td>Manual for Laboratory based surveillance (Surveillance Section)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Anti-microbial resistance surveillance</td>
<td>Manual for Anti-microbial resistance surveillance (IMR)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Case definition of ID (if available)</td>
<td>Booklet on Case Definition for Infectious Diseases in Malaysia (Surveillance Section)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Identify reporting mechanism for ID surveillance</td>
<td>6. Hospital based surveillance</td>
<td>7. Community based surveillance</td>
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<tr>
<td>-----------------------------------------------</td>
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<td></td>
</tr>
<tr>
<td>Summaries compiled</td>
<td>1. Category 1 ID - within 24 hours (e.g. cholera, food poisoning, dengue, poliomyelitis, yellow fever, plague, diphtheria, rabies, Ebola-Marburg, life-threatening IDs)</td>
<td>Regular and timely notification:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2. Category 2 ID - within 1 week (all other notifiable diseases)</td>
<td>Acute Flaccid Paralysis surveillance meets target for case definition (1 per 10,000 under 15)</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>Hand Foot and Mouth Disease surveillance – weekly including zero reporting</td>
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<td></td>
<td></td>
<td>Hospital discharges (HMIS) – monthly</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>Hospital laboratory based surveillance</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Develop a system for verification of rumours surveillance</td>
<td></td>
</tr>
<tr>
<td><strong>Dissemination of reports</strong></td>
<td>Weekly reports – availability of reports and dissemination to designated persons</td>
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</tr>
</tbody>
</table>
| **Mechanism for urgent reporting of ID cases from health staff and public** | 1. Website  
2. E-mailing mechanism  
3. Fax and phones  
4. Hotlines |
| **Dissemination of information about ID to health staff including regular updates** | Weekly Epidemiology Bulletin, monthly Epidemiology Newsletter and quarterly laboratory based surveillance report through the website and e-mail |
| **Ability to add quality control mechanisms into surveillance process e.g. on-going assessment of indicators such as notification delay, local response delay (at district health office/local authority level)** | Monitoring of QA indicators – ANTI, MI, Dengue notification time index, Dengue Dengue outbreak time index  
Regular review of QA indicators  
Evaluation of surveillance system |
<p>| <strong>Direct telephone lines available</strong> | Designed person handling hotlines |
| <strong>At least 6 monthly circle</strong> | At least annually/biannually |</p>
<table>
<thead>
<tr>
<th>Dissemination of ID to members of the public</th>
<th>Public talks-TV, radio, public societies, schools</th>
<th>Multilingual</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Phamplete, posters, brochures</td>
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<tr>
<td></td>
<td>Press conferences and press release</td>
<td></td>
</tr>
<tr>
<td>Local network established involving public health, clinical, infection control, laboratory representatives</td>
<td>Epidemic committees at district, state and national level depending on the nature and extent of outbreak</td>
<td>Refer to Infectious Disease Outbreak Preparedness and Rapid Response Guidelines</td>
</tr>
<tr>
<td></td>
<td>Activate RAT and RRT at district, state and national level depending on nature and extent of outbreak</td>
<td></td>
</tr>
<tr>
<td>Dissemination and use of more sensitive case definition for ID cases in high risk areas</td>
<td>Availability of: 1. Case definition booklet</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2. Syndromic notification manual</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3. Laboratory based surveillance manual</td>
<td></td>
</tr>
<tr>
<td></td>
<td>4. Others when the need arises</td>
<td></td>
</tr>
<tr>
<td>Clearly state policy for the management of close contacts of an ID case in the community</td>
<td>Availability of: Manual for control of each ID under the Control Program (e.g. cholera, dysentry, typhoid, Hepatitis A, TB, Polio, Diphtheria, Pertusis, Leprosy, HFMD, SARS)</td>
<td>Refer to manual for each ID</td>
</tr>
</tbody>
</table>

2. Level of Management of Preparedness

<table>
<thead>
<tr>
<th>Task</th>
<th>Activities</th>
<th>Availability</th>
<th>Standards/Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Formation of Task Force</td>
<td>Membership – relevant ministries, agencies, professional bodies and NGOs depending on the nature and extend of the outbreak</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. District level</td>
<td>The chairperson is the District Officer</td>
<td></td>
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</tr>
<tr>
<td>2. State level</td>
<td>The chairperson is the State Health Exco or State Secretary</td>
<td></td>
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</tr>
<tr>
<td>3. National level</td>
<td>The chairperson depends on Cabinet decision</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Formation of technical/expert committee</td>
<td>Memberships - relevant technical expert from ministries, agencies, professional bodies and universities. The Director General of Health or his Deputy is the chairperson</td>
<td></td>
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<td>----------------------------------------</td>
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</tr>
<tr>
<td>Operations Room</td>
<td>A dedicated Ops Room:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. District level</td>
<td>1. Operating time</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. State level</td>
<td>2. Manpower</td>
<td></td>
<td></td>
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<tr>
<td>3. National level</td>
<td>3. Schedule for staff</td>
<td></td>
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<tr>
<td></td>
<td>4. Amenities</td>
<td></td>
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<tr>
<td></td>
<td>5. Facilities</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>6. Communication lines and IT</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Good lines of communication between committee members, designated hospitals and designated laboratories</td>
<td>Chain of command – clear authority and responsibility</td>
<td></td>
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</tr>
<tr>
<td></td>
<td>Refer to Infectious Disease Outbreak Preparedness and Rapid Response Guidelines for line of command</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Flow chart showing line of command</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Response mechanism for an ID case</td>
<td>Rapid Assessment Team (RAT) activated at district, state and national level depending on the nature and extent of the outbreak</td>
<td>Formation of RAT. RAT shall verify occurrence of outbreak and undertake risk analysis and need assessment if necessary</td>
<td></td>
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<td>----------------------------------</td>
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<td>---------------------------------------------------------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>Control and Outbreak management</td>
<td>Rapid Response Team (RRT) activated at district, state and national level depending on the nature and extent of the outbreak</td>
<td>Criteria for activation of RRT at district, state and national level</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Control and Health Education Team activated</td>
<td>Refer to Infectious Disease Outbreak Preparedness and Rapid Response Guidelines</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Availability of guidelines for specific disease outbreak</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Assessment of national stockpile of PPE and contingency plans to access further supplies in the event of outbreak of ID</td>
<td>Stockpile - drugs, vaccines, reagents, PPE, disinfectants at: 1. District level 2. State level 3. National level</td>
<td>Auditing of stockpile quarterly</td>
<td></td>
</tr>
<tr>
<td>Identification of designated/hospital wards/rooms for ID</td>
<td>1. Designated hospitals/wards/rooms identified</td>
<td>Meet criteria for designated place: 1. Expertise</td>
<td></td>
</tr>
</tbody>
</table>

### 3. International measures

<table>
<thead>
<tr>
<th>Task</th>
<th>Activities</th>
<th>Availability</th>
<th>Standards/Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Collaboration with neighbouring countries</td>
<td>Bilateral and/or regional meeting</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clearly describe plan for border control</td>
<td>International Health Regulation for cholera, yellow fever, SARS and plague</td>
<td></td>
<td>Adaptation of the International Health Regulation for SARS guidelines for use in other emerging ID if the need arises</td>
</tr>
</tbody>
</table>

- 2. ID expertise available (ID specialists and/or physicians with ID experience)
- 3. Infection control facilities available
- 4. Trained staff
- 5. Equipment and supplies – PPE, drugs, disinfectants etc

- 2. Infection control facilities
- 3. Trained staff in infection control
- 4. Support staff
- 5. Trained Counselor
- 6. Equipment and supply

- Identification of designated laboratory (BSL3, BSL2 or BSL2 using BSL3 practices)

- Refer to Infectious Disease
- Outbreak Preparedness and Rapid Response Guidelines for inventory of laboratory resources
<table>
<thead>
<tr>
<th>Liaison with other agencies at international entry points receiving travelers from ID affected areas/countries</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interagency meeting – MOH, DCA, MAB, MAS, other airlines, KTM, Immigration, MOT, Customs, Polis, Arm Forces, Wisma Putra, Tourism, Port Authority etc where relevant</td>
</tr>
<tr>
<td>Establishment of contact points/coordinators for each of these agencies</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Surveillance and management of a suspected ID case identified during travel and/or a entry point</th>
</tr>
</thead>
<tbody>
<tr>
<td>Guidelines available and distributed to relevant agencies</td>
</tr>
<tr>
<td>1. Travel Advisory</td>
</tr>
<tr>
<td>2. In-flight announcement</td>
</tr>
<tr>
<td>3. Health Declaration Card at entry point</td>
</tr>
<tr>
<td>4. Health Alert Card at entry point</td>
</tr>
<tr>
<td>5. IEC materials available</td>
</tr>
</tbody>
</table>

| Guidelines of ID of international public health importance e.g. yellow fever, cholera, plague and SARS |
4. Communication

<table>
<thead>
<tr>
<th>Task</th>
<th>Activities</th>
<th>Availability</th>
<th>Standards/Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Developed strategy for dealing with the media on ID</td>
<td>Risk communication strategy in place</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Distributed information materials to clinicians and health care</td>
<td>Develop a mechanism for dissemination of information:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>workers about ID</td>
<td>1. Website/e-mail</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2. Pamphlets, booklets, newsletter etc</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Easily understood HE materials accessible to the public</td>
<td>Develop a mechanism for dissemination of information:</td>
<td></td>
<td>Multilingual</td>
</tr>
<tr>
<td></td>
<td>1. Website/e-mail</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2. Pamphlets, booklets, newsletter etc</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>3. Mass media - TV, radio, social talks, newspaper</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
5. Laboratory assessment

<table>
<thead>
<tr>
<th>Task</th>
<th>Activities</th>
<th>Meet standards</th>
<th>Standards</th>
</tr>
</thead>
<tbody>
<tr>
<td>Identification of designated laboratory (BSL3, BSL2 or BSL2 using BSL3 practices)</td>
<td>Inventory of designated laboratories</td>
<td></td>
<td>Refer to Infectious Disease</td>
</tr>
<tr>
<td></td>
<td>1. NPHL-enhanced BSL2</td>
<td></td>
<td>Outbreak Preparedness and Rapid Response Guidelines for inventory of</td>
</tr>
<tr>
<td></td>
<td>2. IMR -BSL3</td>
<td></td>
<td>laboratory resources</td>
</tr>
<tr>
<td></td>
<td>3. VRI -BSL3</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>4. Universities -UMMC enhanced BSL2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Designated reference laboratory for ID</td>
<td>Establishment of reference laboratory for specific ID</td>
<td></td>
<td>Refer to Infectious Disease</td>
</tr>
<tr>
<td></td>
<td>1. IMR -polio, SARS, dengue, influenza, HIV, enterovirus E11, Nipah, antibiotic resistance, bacterial pathogen, epidemiological typing</td>
<td></td>
<td>Outbreak Preparedness and Rapid Response Guidelines for inventory of</td>
</tr>
<tr>
<td></td>
<td>2. VRI -Nipah, anthrax, rabies (animal specimen)</td>
<td></td>
<td>reference laboratory</td>
</tr>
<tr>
<td></td>
<td>3. NPHL- measles, enteric diseases, TB, malaria, Hepatitis A</td>
<td></td>
<td>Refer Manual for laboratory based surveillance</td>
</tr>
<tr>
<td>Exercise</td>
<td>Availability of:</td>
<td>Refer to Laboratory Safety Manual</td>
<td></td>
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<td>----------------------------------------------</td>
<td>----------------------------------------------------------------------------------</td>
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<td></td>
</tr>
</tbody>
</table>
| Appropriate equipment including PPE          | 1. Bio safety cabinet  
2. Laminar flow cabinet  
3. PPE - gowns, face mask, goggles, boots, gloves, respiratory mask (N95) |                                                       |
| Specimen collection, packaging and transportation | Guidelines available and disseminated to relevant personnel                      | Guidelines available in relevant sessions of:  
1. Manual for Syndromic notification  
2. Laboratory collection and shipment manual (IMR) |
| Identification of courier services for transportation of specimens when needed | Courier service company identified                                               | Refer Laboratory Manual (IMR)                         |
| Identified other laboratories that has the ability to perform differential diagnosis testing or mechanism | Accessibility of specimens  
Inventory of laboratory and services                                               | Refer to National directory for laboratory capacities and capabilities (Bahagian Pembangunan dan Perancangan) |
### 6. Infection control assessment

<table>
<thead>
<tr>
<th>Task</th>
<th>Activities</th>
<th>Meet standards</th>
<th>Standards</th>
</tr>
</thead>
<tbody>
<tr>
<td>Establishment of the Infection Control Committee</td>
<td>Regular meetings – 3× per year at</td>
<td></td>
<td>1 Infection Control nurse per 250 beds</td>
</tr>
<tr>
<td></td>
<td>1. Hospital level</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2. State level</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>3. National level</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Infection control nurse</td>
<td></td>
<td>1 Infection Control nurse per ward</td>
</tr>
<tr>
<td></td>
<td>Link nurse</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Infection Control Kit</td>
<td>Intact and available when required:</td>
<td></td>
<td>Refer to Infection Control Policy and Procedures Manual 2002</td>
</tr>
<tr>
<td></td>
<td>1. Spillage kit</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2. Decontamination kit</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>3. PPE kit - gown, boots, mask, gloves</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Task</td>
<td>Activities</td>
<td>Meet standards</td>
<td>Standards</td>
</tr>
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<td>------------------------------------------</td>
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<td>--------------------------------------------</td>
</tr>
<tr>
<td>Access to kit 24 hours a day</td>
<td>Complete set available in Wads and A&amp;E</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A. Infection control in reception/ triage area</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Infection Control Team established</td>
<td>Trained staff in basic infection control</td>
<td></td>
<td>Regular training/refresher session conducted</td>
</tr>
<tr>
<td></td>
<td>Attended the Basic Infection Control course/ attachment/ refresher</td>
<td></td>
<td>Training modules available</td>
</tr>
<tr>
<td>Other hospital support staff</td>
<td>Attended the Infection Control Awareness Course</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Drills/dry runs for managing a suspect case</td>
<td>Conducted drills/dry runs</td>
<td></td>
<td>On regular basis</td>
</tr>
<tr>
<td></td>
<td>Audit of infection control</td>
<td></td>
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<tr>
<td></td>
<td>Report on targeted pathogens</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Depends on suitability of existing hospital infrastructure</td>
<td>Future hospital (Bahagian Pembangunan dan Perancangan)</td>
<td></td>
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<tr>
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<td>------------------------------------------------------------</td>
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</tr>
<tr>
<td>Triage area close to isolation area/isolation ward of the hospital</td>
<td></td>
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<tr>
<td>Isolation room /area within the reception /triage area</td>
<td>Designated room /area identified if required</td>
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<tr>
<td></td>
<td>Individual air conditioning</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Non air conditioning areas with windows opened to non-public areas</td>
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<tr>
<td>Patient care and cleaning material</td>
<td>Availability of:</td>
<td></td>
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</tr>
<tr>
<td></td>
<td>1. Mask (N95 or surgical) for suspect case</td>
<td></td>
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</tr>
<tr>
<td></td>
<td>2. Linen</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>3. Paper towels</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>4. Containers with lids / disposal bags</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Full PPE available for HCW staff 24 hours a day</td>
<td>Availability of PPE kit:</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1. Mask (N95 or surgical)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2. Goggles</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>3. Gown / Overall</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>4. Overshoes / Boots</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>5. Caps / Head cover</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>6. Gloves</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Task</td>
<td>Activities</td>
<td>Meet standards</td>
<td>Standards</td>
</tr>
<tr>
<td>------------------------------------------------</td>
<td>-----------------------------------------------------</td>
<td>----------------</td>
<td>-----------------------------------------------</td>
</tr>
<tr>
<td>Restricted number of staff assigned to work in the area</td>
<td>Identified staff list available and fulfill the criteria</td>
<td></td>
<td>Criteria for assigned staff (Bahagian Amalan)</td>
</tr>
<tr>
<td>Hand washing</td>
<td>Availability of:</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1. Water supply</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2. Sink with elbow tap</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>3. Foot-operated soap dispenser</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>4. Disposable hand towel</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>5. Alcohol hand rub/gel with emollient</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>6. Foot-operated bin</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>B. Isolation room/ward in the hospital</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Infection Control Team established</td>
<td>Trained staff in basic infection control</td>
<td></td>
<td>Regular training/refresher session conducted</td>
</tr>
<tr>
<td></td>
<td>Attended the Basic Infection Control course/attachment/refresher</td>
<td></td>
<td>Training modules available</td>
</tr>
<tr>
<td>Other hospital support staff</td>
<td>Attended the Infection Control Awareness Course</td>
<td></td>
<td></td>
</tr>
<tr>
<td>--------------------------------------</td>
<td>--------------------------------------------------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Drills/dry runs for managing a suspect case</td>
<td>Conducted regular drills/dry runs</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Regular audit of infection control</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Regular report on targeted pathogens</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Isolation room/ward</td>
<td>Type of room/ward</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1. Negative pressure (with HEPA filter)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2. Negative pressure (without HEPA filter)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>3. Positive pressure</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>4. Doors present</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>5. Doors able to be closed</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>6. Situated at the end of the corridor</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Isolation room/ward</td>
<td>Is the room set up appropriate for:</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1. A single room</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2. Cohort nursing</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>3. Isolation</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>4 rooms per secondary hospital</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1 ward per tertiary hospital</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Anteroom or separate entry room for changing and storage of supplies</td>
<td>Availability of:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>---------------------------------------------------------------</td>
<td>--------------------</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1. Sink with elbow tap</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2. Foot-operated soap dispenser</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>3. Disposable hand towel</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>4. Alcohol hand rub/gel with emollient</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>5. Foot-operated bin</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>6. PPE storage</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Ventilation</th>
<th>Availability of:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1. Negative pressure room with door</td>
</tr>
<tr>
<td></td>
<td>2. Positive pressure room with door</td>
</tr>
<tr>
<td></td>
<td>3. Individualised air conditioning</td>
</tr>
<tr>
<td></td>
<td>4. Room able to be isolated</td>
</tr>
<tr>
<td></td>
<td>5. Individual air conditioning for room – disconnect or – switch off</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Windows</th>
<th>Able to be opened:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1. Open onto a non-public area</td>
</tr>
<tr>
<td></td>
<td>2. Or an area that can be cordoned off</td>
</tr>
<tr>
<td>Toilet/Bathing facilities</td>
<td>Is it:</td>
</tr>
<tr>
<td>--------------------------</td>
<td>-------</td>
</tr>
<tr>
<td></td>
<td>1. Ensuite</td>
</tr>
<tr>
<td></td>
<td>2. If not -is it near to toilet facilities</td>
</tr>
<tr>
<td></td>
<td>3. Personal toilet attached to room or able to be isolated to that room</td>
</tr>
<tr>
<td></td>
<td>4. Bed pans/commode available</td>
</tr>
<tr>
<td></td>
<td>5. Bathroom nearby</td>
</tr>
<tr>
<td></td>
<td>6. Bathroom able to be isolated</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Supplies</th>
<th>Is it available 24 hours a day:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1. Linen</td>
</tr>
<tr>
<td></td>
<td>2. Paper towels</td>
</tr>
<tr>
<td></td>
<td>3. Containers with lids or bags for disposal</td>
</tr>
<tr>
<td></td>
<td>4. Disinfectants</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Full PPE available for HCW staff 24 hours a day</th>
<th>Availability of PPE kit:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1. Mask (N95 or surgical)</td>
</tr>
<tr>
<td></td>
<td>2. Goggles</td>
</tr>
<tr>
<td></td>
<td>3. Gown /Overall</td>
</tr>
<tr>
<td></td>
<td>4. Overshoes /Boots</td>
</tr>
<tr>
<td></td>
<td>5. Caps /Head cover</td>
</tr>
<tr>
<td></td>
<td>6. Gloves</td>
</tr>
<tr>
<td>Hand washing</td>
<td>Availability of:</td>
</tr>
<tr>
<td>----------------------</td>
<td>-------------------------------------------------------</td>
</tr>
<tr>
<td></td>
<td>1. Water supply</td>
</tr>
<tr>
<td></td>
<td>2. Sink with elbow tap</td>
</tr>
<tr>
<td></td>
<td>3. Foot-operated soap dispenser</td>
</tr>
<tr>
<td></td>
<td>4. Disposable hand towel</td>
</tr>
<tr>
<td></td>
<td>5. Alcohol hand rub/gel with emollient</td>
</tr>
<tr>
<td></td>
<td>6. Foot-operated bin</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Patient care equipment for each patient, preferably single use (NB minimise patient care procedures, e.g. taking temperature)</th>
<th>Individualised:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1. Thermometer</td>
</tr>
<tr>
<td></td>
<td>2. Stethoscope</td>
</tr>
<tr>
<td></td>
<td>3. Sphygmonometer (BP cuff with machine)</td>
</tr>
<tr>
<td></td>
<td>4. Tourniquet</td>
</tr>
<tr>
<td></td>
<td>5. IV pole</td>
</tr>
<tr>
<td></td>
<td>6. Portable sucker</td>
</tr>
<tr>
<td></td>
<td>7. Portable oxygen (PRN)</td>
</tr>
<tr>
<td></td>
<td>8. Basin</td>
</tr>
<tr>
<td></td>
<td>9. Screens</td>
</tr>
<tr>
<td></td>
<td>10. Bedpan and others</td>
</tr>
<tr>
<td>Cleaning</td>
<td>Dedicated staff handling per ward</td>
</tr>
<tr>
<td>--------------------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td>Individualised:</td>
<td></td>
</tr>
<tr>
<td>1. Hot water</td>
<td></td>
</tr>
<tr>
<td>2. Detergent</td>
<td></td>
</tr>
<tr>
<td>3. Single use cloths - damp dus</td>
<td></td>
</tr>
<tr>
<td>4. Sodium hypochlorite (bleach)</td>
<td>liquid</td>
</tr>
<tr>
<td>5. Mops and buckets</td>
<td></td>
</tr>
<tr>
<td>6. Bowls and others</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Waste management in the room</th>
<th>Availability of:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Containers with lids for</td>
<td></td>
</tr>
<tr>
<td>used PPE</td>
<td></td>
</tr>
<tr>
<td>(yellow bag)</td>
<td></td>
</tr>
<tr>
<td>2. Containers with lids for</td>
<td></td>
</tr>
<tr>
<td>general waste</td>
<td></td>
</tr>
<tr>
<td>(yellow bag)</td>
<td></td>
</tr>
<tr>
<td>3. Containers with lids for</td>
<td></td>
</tr>
<tr>
<td>medical waste equipment</td>
<td></td>
</tr>
<tr>
<td>(sharp bin)</td>
<td></td>
</tr>
<tr>
<td>4. Containers for linen (alginate</td>
<td></td>
</tr>
<tr>
<td>bag/pink bag)</td>
<td></td>
</tr>
<tr>
<td>5. Containers for clinical</td>
<td></td>
</tr>
<tr>
<td>waste (yellow biohazard bag)</td>
<td></td>
</tr>
<tr>
<td>Task</td>
<td>Activities</td>
</tr>
<tr>
<td>-----------------------------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
</tbody>
</table>
| Care of patient by family members | 1. Kept to one person or as few as possible  
2. Training in infection control for designated family member  
3. PPE available for carer |              |                       |
| C. Issues outside the isolation room |                                                                             |              |                       |
| Medical treatment areas     | 1. Postpone all non-essential treatment  
2. Isolation and infection control practised in other areas to be used by the ID case (e.g., X-ray)  
3. Transport using full PPE and mask for patient |              |                       |
| Transport patients outside the ward | 1. Staff accompanying the patient wearing full PPE  
2. Mask available for patient to wear at all times |              |                       |
<table>
<thead>
<tr>
<th>Waste Management Outside the Room</th>
<th>Availability of:</th>
</tr>
</thead>
<tbody>
<tr>
<td>3. If moving outside of hospital, designated vehicle and disinfected immediately after usage according to MOH guidelines</td>
<td>Refer to Infection Control Policy and Procedures Manual 2002</td>
</tr>
<tr>
<td>Waste Management Disposal</td>
<td>Compliance with the MOH policy on waste management and disposal</td>
</tr>
<tr>
<td>Transporting Waste</td>
<td>Dedicated trolley/cart</td>
</tr>
<tr>
<td>1. Sewer system</td>
<td></td>
</tr>
<tr>
<td>2. Septic system</td>
<td></td>
</tr>
<tr>
<td>3. Landfill</td>
<td></td>
</tr>
<tr>
<td>4. Incinerator</td>
<td></td>
</tr>
<tr>
<td>5. Incinerator</td>
<td></td>
</tr>
<tr>
<td>6. Containers with lids for used PPE (yellow bags)</td>
<td></td>
</tr>
<tr>
<td>7. Containers with lids for general waste (yellow bags)</td>
<td></td>
</tr>
<tr>
<td>8. Containers with lids for medical equipment (sharp bin)</td>
<td></td>
</tr>
<tr>
<td>Cleaning</td>
<td>Compliance with the MOH policy on disinfectant and sterilisation 2002</td>
</tr>
<tr>
<td>----------</td>
<td>--------------------------------------------------------------------</td>
</tr>
<tr>
<td>Laundry</td>
<td>Availability of:</td>
</tr>
<tr>
<td></td>
<td>1. Hot water (&gt;80°C)</td>
</tr>
<tr>
<td></td>
<td>2. Washing machine</td>
</tr>
<tr>
<td></td>
<td>3. PPE to be used by staff laundering</td>
</tr>
<tr>
<td></td>
<td>4. Isolation room</td>
</tr>
<tr>
<td></td>
<td>5. Sodium hypochlorite (bleach) 1000ppm</td>
</tr>
<tr>
<td></td>
<td>6. Drying – dryer</td>
</tr>
<tr>
<td>Utensils</td>
<td>Availability of:</td>
</tr>
<tr>
<td></td>
<td>1. Disposable /individualised utensils</td>
</tr>
<tr>
<td></td>
<td>2. Crockery and cutlery separate</td>
</tr>
<tr>
<td></td>
<td>3. Tray</td>
</tr>
<tr>
<td></td>
<td>4. Washing and drying dishes</td>
</tr>
<tr>
<td></td>
<td>5. Dishwasher</td>
</tr>
<tr>
<td>Cleaning, disinfection and sterilisation</td>
<td>Availability of:</td>
</tr>
<tr>
<td>----------------------------------------</td>
<td>------------------</td>
</tr>
<tr>
<td>1. Separate room area for these processes</td>
<td></td>
</tr>
<tr>
<td>2. Full PPE worn</td>
<td></td>
</tr>
<tr>
<td>3. Restricted number of staff</td>
<td></td>
</tr>
<tr>
<td>4. Manual or automated cleaning process</td>
<td></td>
</tr>
<tr>
<td>5. Clear and correct instruction on how to clean</td>
<td></td>
</tr>
<tr>
<td>6. Appropriate sterilisation available for needs</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Education and counselling</th>
<th>Provided for:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Staff</td>
<td></td>
</tr>
<tr>
<td>2. Patient</td>
<td></td>
</tr>
<tr>
<td>3. Visitors (limit the number)</td>
<td></td>
</tr>
</tbody>
</table>
Acknowledgements

The secretariat would like to acknowledge the use of materials from the Infectious Disease Outbreak Preparedness and Rapid Response Guidelines, Outbreak Preparedness Checklist, Syndrome Notification and Laboratory Investigation Manual, Policy and Procedure of Infection Control, Disinfection and Sterilization Policy and Practice, Laboratory Safety Manual HKL, Guideline for Post Mortem Examination in Cases Suspected of Infectious Disease HKL and Guidelines for Managing Muslim Dead Bodies Affected By AIDS/ HIV produced by various divisions and departments in the Ministry of Health Malaysia.

In addition, the secretariat would like to acknowledge the contributions of all participants and panelists during the Workshop on Outbreak Response Model held at Culmar Tropicale, Bukit Tinggi, Pahang on the 5th till 8th October 2003.
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