Guidelines for Disease Surveillance

in Displaced Person Temporary Shelters Thai–Myanmar Border, 2012

Bureau of Epidemiology,
Department of Disease Control,
Ministry of Public Health, Thailand
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in Displaced Person Temporary Shelters
Thai-Myanmar Border, 2012

ISBN:978-616-11-1100-7
Number of copies: 700 copies

Acknowledgments
The guidelines for disease surveillance in displaced person temporary shelters-2012 was prepared by Bureau of Epidemiology, Department of Disease Control, Ministry of Public Health Thailand with the support from the Border and Migrant Health Programme of WHO Thailand through a series of workshops conducted with representatives from the national and provincial MOPH, NGOs (PU-AMI, ARC, IRC, MI), CCSDPT and TUC.

Organizing a series of workshops to review the context and revise the guidelines with the key stakeholders has been made possible with funding support from WHO and EU through the Aid to Up Rooted People Grant for Thailand (EuropeAid/129-862/L/ACT/TH)

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Publisher
Bureau of Epidemiology
Department of Disease Control
Ministry of Public Health
Nonthaburi
Thailand
Tel : 0-2590-1775, 0-2590-1793
Fax : 0-2590-1784

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Preface

The guidelines presented here are intended for use by the Non-Governmental Organizations (NGOs) providing health services in the temporary shelters and their counterparts at the local, regional, and national levels of the Ministry of Public Health (MoPH), with support from WHO and in collaboration with the Committee for Coordination of Services to Displaced Persons in Thailand (CCSDPT). The guidelines reflect a modified priority list of diseases and events of public health importance, a simplified format, and a closer harmonization of MoPH and CCSDPT systems.

The latest edition of Guidelines for Disease Surveillance in Displaced Person Temporary Shelters Thai-Myanmar Border was published in 2012 in an amount of 700 copied. Regarding to more demanding of the guideline, we are grateful to reprint and update contact persons both officers from MoPH and NGOs.

We hope that this effort will further the collaboration among all involved agencies and enhance the overall purpose of ensuring health security for displaced persons and Thai communities. Finally, we would like to acknowledge and thank all of the staff engaged in this worthy effort.

Dr. Tanarak Plipat
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1. Introduction to Disease Surveillance in Displaced Person Temporary Shelters (DSDPS)

1.1 Background

Over 145,000 displaced persons have been settled in temporary shelters along the Thai-Myanmar border since the mid 1980’s. International non-governmental organizations (NGOs) have been providing primary health services for this population under a separate system from the Thai MoPH. However, in recognition of the public health links between the displaced persons and local Thai communities, the NGOs and MoPH collaborated in 2001 to develop a system for Disease Surveillance in Displaced Person Temporary Shelters (DSDPS) to detect communicable disease outbreaks in the shelters. The surveillance system includes: practical guidelines for detecting and reporting priority epidemic prone diseases; data forms for investigation and reporting; and designated procedures for managing and analyzing data and responding to alerts.

The guidelines for the DSDPS were last updated in 2008. This current revision reflects a modified list of priority diseases and a closer harmonization of MoPH and CCSDPT systems.

1.2 Goal

While the DSDPS has undergone periodic revisions, the overriding goal of the system remains to protect the health security of populations in both the temporary shelters and the surrounding communities.

1.3 Objectives

As with any public health surveillance system, the DSDPS seeks to provide an ongoing systematic collection, analysis, and interpretation of health data essential to planning, implementing, and evaluating public health practice, closely integrated with the timely dissemination of these data to those who need to know. (See WHO/CDS/CSR/ISR/2001.2)

The system has two specific objectives:

The primary objective of the DSDPS is to ensure timely detection, confirmation, and control of communicable disease outbreaks in displaced person temporary shelters.

The secondary objective is to monitor trends of communicable diseases in the displaced person temporary shelters to allow appropriate public health response and provide evidence for program planning and evaluation.

The key task of the DSDPS is to detect and respond rapidly to signals which may alert public health authorities in the temporary shelters to a possible outbreak of an epidemic prone disease. Authorities in both temporary shelters and the local communities may need to quickly determine if there is indeed an outbreak occurring and mount an appropriate early response.

The secondary objective to monitor disease trends can help to evaluate public health interventions and optimize resource allocations. However, as currently structured the DSDPS is not intended to provide complete morbidity and mortality data for temporary shelter populations’ disease patterns.

1.4 Target audience and purpose of the Guidelines

These guidelines are intended for use by the NGOs and any others providing health services in the temporary shelters and their counterparts at the local, regional, and national levels of the MoPH. The guidelines provide the key elements for overall surveillance system operations, including: 1) standardized operating procedures; 2) basic case definitions to use for surveillance of targeted diseases and health events; 3) more detailed information on key diseases and recommended tasks for follow-up to an alert; and 4) templates for reporting and investigation forms.

2. DSDPS Function, Structure, and Principles

The DSDPS is based on passive case finding of priority diseases/syndromes at the displaced person temporary shelter facility level (both inpatient and outpatient) with active case finding as triggered by an appropriate alert.

These functions are implemented by a network of both NGOs and MoPH (see Figure 2) starting in the temporary shelters and involving agency staff at the local and national level and RTG staff at the district, province, and national levels. These staff collaborate to: 1) collect information on cases of epidemic prone diseases and unusual health events using standardized tools and forms; 2) inform the next reporting level and determine any appropriate steps for laboratory verification or outbreak confirmation; and 3) implement necessary control measures. (See Section 5 and Figure 1)

A key principle of the system is to ensure complementarity to the national Thai surveillance system while recognizing the specific requirements and operational capacities of the NGOs. As far as possible, the system also seeks to be complementary to the CCSDPT/UNHCR Health Information System.

Surveillance case definitions are designed to be sensitive rather than specific and are based primarily on clinical symptoms or syndromes without the need for initial laboratory confirmation (except for malaria). The response to any alert should involve all relevant stakeholders and include close collaboration between temporary shelter and local communities.

2.1 Population under surveillance

The target population for the DSDPS encompasses all those in the nine displaced person temporary shelters in the four provinces of Thailand bordering Myanmar, namely Ratchaburi, Kanchanaburi, Tak, and Mae Hong Son.
Table 1. Displaced Person Temporary Shelters

<table>
<thead>
<tr>
<th>Displaced Person Temporary Shelter</th>
<th>District</th>
<th>Province</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tham Hrin</td>
<td>Suan Phueng</td>
<td>Ratchaburi</td>
</tr>
<tr>
<td>Don Yang</td>
<td>Sangkhla Buri</td>
<td>Kanchanaburi</td>
</tr>
<tr>
<td>Nu Po</td>
<td>Umphang</td>
<td></td>
</tr>
<tr>
<td>Um Piem</td>
<td>Phop Phra</td>
<td>Tak</td>
</tr>
<tr>
<td>Mae La</td>
<td>Tha Song Yang</td>
<td>Mae Hong Son</td>
</tr>
<tr>
<td>Ban Mai Nai Soi</td>
<td>Mueang</td>
<td></td>
</tr>
<tr>
<td>Ban Mae Surin</td>
<td>Khun Yuam</td>
<td></td>
</tr>
<tr>
<td>Mae La Oon</td>
<td>Sop Moei</td>
<td></td>
</tr>
<tr>
<td>Mae La Ma Luang</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Mae Sot Hospital also uses the same reporting format and surveillance conditions for tracking and reporting cases seen among both displaced persons and migrants.

NOTE: Cases should be reported from any patient seen in a temporary shelter clinic outpatient department (OPD) or hospital/in patient department (IPD), including both temporary shelter residents and those (Thai and non-Thai) from outside the temporary shelters seeking care.

2.2 Components and frequency of reporting

The DSDPS has two main components based on the frequency of reporting:

Immediate reporting component: Suspicion of an unusual health event or possible case of a highly epidemic prone disease can signal the early stages of an outbreak. Any occurrence in this category should be reported to NGO and MoPH officials within 24 hours for possible verification and/or field investigation.

Weekly reporting component: Each temporary shelter should provide weekly aggregated data for other selected diseases/syndromes as well as zero reporting for all conditions under surveillance. Alerts which rely on a statistical cut-off or trend analysis may be identified based on the weekly reporting. (See section 2.3) Weekly reporting is also utilized to provide data on the secondary objective of the surveillance system—e.g. to monitor trends of diseases for program planning and evaluation.

NOTE: The reporting week should be from Sunday to Saturday with temporary shelter reports due to the next level on Tuesday of the following week.

2.3 Alerts and alert thresholds

Alerts can be thought of as “unusual health events that can signal the early stages of an outbreak” (WHO/HSE/GAR/DCE/2012.1). However, it should be emphasized that an alert is primarily an indication of the need for urgent additional follow-up but should not be considered an outbreak until the situation is verified. Most alerts will not end up being outbreaks. Nevertheless, an immediate response to verify the suspicion or in some situations, to provide preventive interventions, will be required even before lab confirmation can be obtained.

In the DSDPS alerts are primarily based upon the initial diagnosis of the temporary shelter medical staff or based on analysis of weekly data. Informal information from the community about an unusual health event may also signal the need for temporary shelter staff to investigate.

Diseases/syndromes under surveillance will have different thresholds which will trigger an alert. Thresholds are indicators above which the disease pattern is considered abnormal or unusual and may require a public health intervention.

Each disease/syndrome under surveillance is assigned to one of three thresholds for triggering an alert:

1) Immediate Alert—threshold is set to one case (or suspicious death) for conditions which require immediate reporting due to either the possible explosive nature of an outbreak or because the condition is targeted for eradication or elimination.

2) Statistical Alert—threshold is set to an observed rate where cases exceed the median for the reporting week seen in the last five years. This applies for conditions which rely on a trend analysis to demonstrate an increased incidence. By definition, these alerts will only be apparent through the weekly reporting component of the surveillance system. The BOE should provide all NGOs and other MoPH stakeholders with the weekly medians for the last five years for each disease/syndrome.

3) Event based Alert—threshold is based on identification of a cluster of five or more cases in one location in one week or any unusual group of cases which raises the concern of local health officials. Vaccine preventable diseases not noted elsewhere may be of particular concern.

3. Diseases/syndromes under surveillance

3.1 Risk assessment—criteria for selection of priority diseases/syndromes

The conditions under surveillance consist of acute public health events which have been assessed by the following criteria: 1) epidemic potential; 2) ability to cause severe morbidity or death; 3) international surveillance requirements, including diseases which are a specific target of a global control program; and 4) availability of prevention and control measures. For the DSDPS the selected conditions include both diseases and syndromes (e.g. a set of symptoms or signs in a patient which can capture conditions identified to be at risk for the population).
### 3.2 List of diseases/syndromes

All of the 14 diseases/syndromes under surveillance meet the criteria for inclusion as events of public health concern and should be considered important. However, they may be divided into three categories based on the assigned alert threshold:

**Immediate alert**
- Severe atypical pneumonia
- Cholera
- Measles
- Acute Flaccid Paralysis/ suspect poliomyelitis
- Meningitis/encephalitis
- Severe case/death of unknown etiology from any suspected infectious cause

**Statistical alert**
- Influenza like illness (ILI)
- Watery diarrhea
- Dysentery (bloody diarrhea)
- Dengue infection
- Malaria
- Leptospirosis

**Event based alert**
- Acute jaundice
- Other suspected vaccine preventable disease (e.g. diphtheria, pertussis, rubella)

### 4. Data Collection

#### 4.1 Case definitions:

The standard surveillance case definitions (see Section 6) should be used by all temporary shelter health facilities. Except for malaria (which requires prior lab confirmation before reporting), all cases should be reported based on clinical suspicion of the health staff and should be considered as “suspect” until further verified.

#### 4.2 Reporting site:

For the DSDPS, each temporary shelter (see Section 2.1) is considered a data reporting site. Data should be collected from all health facilities (e.g. clinics, hospitals, or SMRU-if available) and reported as aggregated data for the temporary shelter.

#### 4.3 Minimum data to collect for each health condition:

While temporary shelter clinics/hospitals may collect additional information on each patient, for the DSDPS weekly reporting, health facilities only need to include aggregated data for the following variables: case count and place of residence (e.g. inside/outside temporary shelter). Both Thai and non-Thai from outside the temporary shelter who are seen as patients in the temporary shelter health facilities should be included. Additional data may be required for conditions under immediate alert.

### 4.4 Other considerations:

a. For surveillance purposes, each patient should only be assigned one main condition
b. As far as possible, only ‘new visits’ for the same condition should be reported

### 5. Data reporting and transmission methods

To ensure early detection, appropriate warning to relevant health officials, prompt data analysis, and initiation of verification or public health response as necessary, the following protocol is recommended

#### A. Immediate reporting component:

1. The Medical Coordinator or responsible person for any temporary shelters suspecting a single case of the events under the ‘immediate alert category’ should report to the District Health Office (DHO) and Provincial Health Office (PHO) within 24 hours via email, telephone, or fax using the Outbreak Alert Form (OAF). Notification should also be sent via email to other stakeholders, including the Office of Disease Prevention and Control (ODPC), Bureau of Epidemiology (BOE), CCSDPT, Thailand MoPH and US CDC Collaboration (TUC), and WHO.

2. Based on the specific recommendations for each suspected disease (see Annex 4), local NGO health staff, in collaboration with DHO and PHO, should proceed with active case finding using the appropriate forms (see Annex 3) and necessary specimen collection. Laboratory confirmation should be obtained as soon as possible.

3. Depending on initial findings, a Surveillance Rapid Response Team (SRRT) may be called into action and further public health response required.

4. Once the investigation is completed, the SRRT should file an Outbreak Summary Report with the DHO via email with cc to the other relevant stakeholders.

#### B. Weekly reporting component:

1. Designated reporting sites should send their aggregated report using the Outbreak Alert Form (OAF) to the District Health Office (DHO) via email with cc to the Provincial Health Office (PHO), Office of Disease Prevention and Control (ODPC), Bureau of Epidemiology (BOE), CCSDPT, Thailand MoPH and US CDC Collaboration (TUC), and WHO every Tuesday.

2. At each reporting site, data should be analyzed and interpreted weekly to determine whether the statistical or event-based thresholds have been exceeded.
3. If analysis concludes that the alert threshold for a particular disease/syndrome has been exceeded, steps 2-4 from the Immediate Reporting Component should be implemented as soon as possible to permit early identification of a potential outbreak and a rapid response.

4. Summary feedback reports will be compiled weekly by the BoE and sent to all stakeholders.

NOTE: The absence of cases should also be reported (e.g., ‘zero reporting’) on a weekly basis to permit public health personnel to distinguish an area that is truly unaffected from one in which the communication systems has failed.
<table>
<thead>
<tr>
<th>Diseases</th>
<th>Surveillance case definition</th>
<th>Note</th>
</tr>
</thead>
</table>
| 1. Severe atypical pneumonia | Acute severe lower respiratory tract symptoms requiring hospital admission with at least one of the following manifestations:  
- inability to drink  
- frequent vomiting  
- convulsion  
- lethargy or unconsciousness  
- fever > 38°C is not decreased after 3 days antibiotic treatment, requires referral to hospital outside of the temporary shelter  
- requires endotracheal intubation  
- death  
Plus  
History of exposure: Poultry OR other severe pneumonia case OR travel to country with known cases of Severe Acute Respiratory Syndrome (SARS) or pandemic influenza | Surveillance objective is to identify serious lower respiratory tract infections which could potentially be Human Avian Influenza, H1N1, SARS, or a new subtype of atypical human influenza. |
| 2. Cholera | Acute onset of severe watery diarrhea with severe dehydration in any patient of age > 5 years old | During outbreak: any age will be suspected |
| 3. Measles | - Fever > 38°C AND maculo-papular rash AND cough with one of the following symptoms:  
- conjunctivitis (red eye)  
- runny nose  
- Koplik’s spot | Each individual case needs to be reported and investigated according to Thai national measles elimination program guidelines |
| 4. Acute Flaccid Paralysis (AFP) / suspected poliomyelitis | Children under 15 years old with acute onset of hypotonic/tonic muscle weakness in one or both sides of upper and/or lower extremities (including Guillain Barre Syndrome: GBS)  
OR  
Any age if Poliomyelitis is suspected | Each case needs to be reported and investigated according to Thai national polio eradication guidelines |
| 5. Meningitis / Encephalitis | Acute fever > 38°C with at least one of the following:  
- neck stiffness,  
- alteration of consciousness  
- other meningial signs  
- petichiae / purpural rash  
In age < 1 year: meningitis is suspected when fever is accompanied by bulging fontanel, alteration of consciousness or irritability | Surveillance objective is to rule out potential case of meningococcal meningitis, Japanese encephalitis, or other similar outbreak prone disease |
| 6. Severe Case/ Death of Unknown Etiology from any suspected cause of infectious diseases | Fever > 38°C with at least two of the following sign/symptoms:  
- sore throat  
- cough  
- runny nose  
- myalgia (muscle pain) | Need to fill in the case investigation form for  
- Severe case  
- Death  
- Request to treat with Tamiflu  
- Cluster of similar cases |
### Diseases Surveillance case definition

<table>
<thead>
<tr>
<th>Diseases</th>
<th>Surveillance case definition</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>8. Watery diarrhea</strong></td>
<td>Three or more loose stool or one watery stool in the past 24 hours with or without dehydration</td>
<td></td>
</tr>
</tbody>
</table>
| **9. Dengue infection** | **Dengue fever**: Fever > 38°C within last 7 days with at least 2 of the following manifestations:  
- headache  
- myalgia (muscle pain)  
- arthralgia (or bone pain)  
- rash  
  hemorragic manifestations (petechiae and positive tourniquet test)  
  Low White Blood Cell Count (<5,000/cu.mm.)  

**Dengue Hemorrhagic Fever**: patient who meet 4 criteria:  
1) Acute fever  
2) At least 1 hemorrhagic manifestation: petechiae, purpura, melena, mucosal bleeding, or positive tourniquet test1  
3) Platelet count < 100,000/cu.mm.  
4) Evidence of plasma leakage  
a. Hematocrit rising ≥ 20% from baseline or average  
b. Pleural effusion and/or ascites  

**Dengue Shock Syndrome**: DHF plus signs of shock (e.g. rapid pulse, narrow pulse pressure, hypotension, restlessness)  
Note:  
1. The tourniquet test is performed by inflating a blood pressure cuff to a point mid-way between the systolic and diastolic pressures for five minutes. A test is considered positive when 10 or more petechiae per 2.5 cm² (1 inch) are observed. In DHF, the test usually gives a definite positive result (i.e. >20 petechiae). The test may be negative or mildly positive during the phase of profound shock. |
| **10. Dysentery** (Bloody diarrhea) | Acute diarrhea with visible mucous–bloody stool or presenting with WBC and RBC in stool under microscopic examination | |
| **11. Malaria** | Positive laboratory test for malaria parasites | **Lab confirmation**: Identified asexual form of Plasmodium spp. from blood smear (thick film or thin film) or Screening test positive for Plasmodium spp. |
| **12. Leptospirosis** | Fever >38°C and chills with at least 1 of the following manifestations:  
- Severe muscle pain  
- Muscle tenderness  
- Conjunctivitis (red eye)  
- Dry cough  
- Hemoptysis  
- Alteration of consciousness  
- Jaundice  
- Decreased urine volume / acute renal failure  
- Hemorragic manifestations: (e.g.) petechiae, purpura, melena, mucosal bleeding,  

**PLUS history of exposure** to fresh river, stream, canal, lake water or environment conditions that are likely to be contaminated with urine and feces of domestic and wild animals | |
References


 Annexes

Annex 1: Outbreak Alert Form (OAF)
Annex 2: Outbreak Summary Report
Annex 3: Case Investigation Forms
Annex 4: Guidelines for Epidemiological Investigation and Outbreak Response
Annex 5: Laboratory Diagnostic Capacity in nine Displaced Temporary Shelters
Annex 6: List of Contact Persons

Annex 1

Outbreak Alert Form

<table>
<thead>
<tr>
<th>Diseases</th>
<th>case</th>
<th>death</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>insiders</td>
<td>outsiders</td>
</tr>
<tr>
<td>1. Severe atypical pneumonia</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Cholera</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Measles</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. AFP/suspected poliomyelitis</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Meningitis/encephalitis</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Severe Case/Death of Unknown Etiology from any suspected infectious cause</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: Report any suspected case of disease no. 1-6 immediately to DHO by FAX and via email to PHO with cc to ODPC BOE (camp.border@gmail.com and outbreak@health.moph.go.th), CCSDPT (hls@ccsdpt.org), WHO (area@searo.who.int), and TUC (THHR@cdc.gov).

Statistical Alert:

<table>
<thead>
<tr>
<th>Diseases</th>
<th>This week</th>
<th></th>
<th>2009-13 median</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2014</td>
<td>2013</td>
<td>insiders</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>outsiders</td>
</tr>
<tr>
<td>7. Influenza Like Illness (ILI)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Dengue Infection</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. Watery diarrhoe</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. Dysentery/ Bloody diarrhoe</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11. Malaria</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12. Leptospirosis</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Outbreak Alert Form (Cont')

#### Malaria cases analysis

<table>
<thead>
<tr>
<th>Temporary shelter Resident (s)</th>
<th>Non - Temporary shelter Resident (s)</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>PF</td>
<td>PV</td>
<td>Other</td>
</tr>
</tbody>
</table>

#### Case Line Listing for outbreak

<table>
<thead>
<tr>
<th>No.</th>
<th>Age (in years)</th>
<th>Sex</th>
<th>House Number</th>
<th>Section</th>
<th>Disease</th>
<th>Date of Onset</th>
<th>Date of Detection</th>
<th>Outcome of Treatment</th>
<th>Lab result</th>
<th>Travel outside the temporary shelter</th>
<th>Immunization Status</th>
<th>School Name</th>
<th>Number of closed contacts in same household</th>
</tr>
</thead>
</table>

* If patient age was < 1 yr, fill in number of months (0.1, 0.2, ..., 0.10, 0.11, etc)
* Drop down listing for Sexes (Male, Female); Travel outside the temporary shelter (Yes, No); Immunization history (Yes, No); Lab results (Positive, Negative, Pending)
* Travelling history usually defined as “travel outside 1 week before onset of disease signs and symptoms” except in Malaria in which “travel outside the temporary shelter 2 weeks before onset of signs and symptoms”
* For schooling age put the full name of the school with location (e.g., Primary School- Section 3A, etc.)
* Closed contacts means persons living together in the same shelter like house, border, monastery, church, etc.
Annex 2
Outbreak Summary Report

Name of Temporary shelter: ………….. Province: ………….. Agency: …………..
Reporter: ………….. Position: ………….. Tel: …………..
Date of report (dd/mm/yy): …………..

1. Introduction or Background
   • Disease: …………..
   • Index case: Age: ………….. Sex: ………….. Date of onset: …………..
   • Investigation: Start: ………….. Finish: …………..
   • Objective of investigation: …………..

2. Results
   • Number of cases: ………….. Number of death: …………..
   • Age: from ………….. to ………….. Median age: …………..
   • Sex: Male: ………….. cases Female: ………….. cases
   • Source of infection: …………..
   • Cause of outbreak: …………..
   • Risk factor: …………..
   • Laboratory finding: …………..
   • Number of contact: …………..
   • Duration of outbreak: from ………….. to …………..

3. Prevention and control measure
   • Control measure done: …………..
   • Outcome: …………..

4. Prediction of outbreak
   □ End of outbreak □ Subside □ Ongoing □ Others: …………..

5. Summary of public health important
   • Burden of disease (Attack rate): …………..
   • Impact inside and outside temporary shelter: …………..

6. Recommendation
   • Continuing control measure: …………..
   • Additional control measure: …………..

Note: Send this form to PHO by FAX, and via email at outbreak@health.moph.go.th, camp.border@gmail.com, aree@who.int, his@ccsdp.org, THIRHP@cdc.gov after ending of investigation.

Annex 3
Case Investigation Forms

Human Avian Influenza Screening Form

Patients name: ………….. Age: ………….. Sex: …………..
Address (section/zone/house #): …………..
Date of admission: …………..

1. Temperature > 38°C or history of fever
   □ Yes □ No

2. History of cough
   □ Yes □ No

3. History of breathing difficulty or shortness of breath
   □ Yes □ No

4. Risk assessment: History of contact with sick or dead poultry (chicken, duck, etc.) or their feces in the past 7 days inside or outside the temporary shelter
   □ Yes □ No

Note: Any patient/individual who has fever and if the answer for question # 2 or 3 is YES plus one of risk assessment question YES, inform the medics or camp doctors immediately.
Avian Human Influenza Case Investigation Form

Name of reporter: .................................. Position: .................................. Tel: .................................. 

Name of CHW responsible for the area: .................................. 

Date of report: ....... / ....... / 20 ....... Time of report: .......... a.m. ...... p.m. 

1. Demographic data

Name and surname: .................................. Sex: .................................. Male □ Female □ Unknown 
Age: .................................. years [if less than 1 year enter number of months] 
Ethnicity: □ Karen □ Karenni □ Shan □ Mon □ Burmese □ Other (specify): .................................. 
Temporary shelter: .................., Section: .........., Zone: .........., House number: .......... 

If yes, indicate which, if any, of patient’s or family’s animals has been sick or died unexpectedly during the past 14 days? 

□ Chicken □ Ducks □ Geese □ Birds □ Others □ specify: .................................. 

2. Signs and Symptoms:

Date of onset of illness: ....... / ....... / ....... (dd/mm/yyyy) 
Date of inpatient or hospital admission: ....... / ....... / ....... (dd/mm/yyyy) 

Admitted to: □ temporary shelter □ outside hospital (specify name, location): .................................. 

Muscle pain: □ Yes □ No □ Unknown 
Cough: □ Yes □ No □ Unknown 
Difficulty breathing: □ Yes □ No □ Unknown 
Shortness of breath: □ Yes □ No □ Unknown 
History of fever: □ Yes □ No □ Unknown 

Record the patient’s body temperature: .......... °C □ rectal □ oral □ axillary □ tympanic 

3. Risk factors To be filled by CHW after home visit

Does patient or patient’s family keep: 

□ Chicken □ Ducks □ Geese □ Birds □ Others □ specify: .................................. 

If yes, indicate which, if any, of patient’s or family’s animals has been sick or died unexpectedly during the past 14 days? 

□ Chicken □ Ducks □ Geese □ Birds □ Others □ specify: .................................. 

4. Contact cases finding:

During the 7 days prior to the onset of illness, has the patient been in contact (within touching or speaking distance) with: 

• A confirmed human case of influenza A/H5 infection? □ Yes □ No □ Unknown 
• A person with an unexplained acute respiratory illness that later resulted/results in death? □ Yes □ No □ Unknown 
• Any other person for whom a diagnosis of influenza A/H5 is being considered? □ Yes □ No □ Unknown 

5. Feedback from referral hospital to be reported by hospital doctors/nurses

Name of reporter: .................................. Telephone number: .................................. 

Date of report: ....... / ....... / 20 ....... 

Did patient develop respiratory failure? □ Yes □ No □ Unknown 
Was patient mechanically ventilated? □ Yes □ No □ Unknown 
Was patient admitted to ICU? □ Yes □ No □ Unknown 

□ Recovered (includes persons discharged from hospital) □ Died □ Lost to follow-up
Acute flaccid paralysis Case Investigation Form

Name of Temporary shelter ........... Province .................... Agency ....................
Reporter ................................ Position .................... Tel ....................
Date of report (dd/mm/yy) ........... / ........... / ...........

Case identification:
Name - Surname ..................... Age .................... year/month
Sex  male  female
Parent's name ............................ Relationship with case ............................
How long that the patient move to the temporary shelter ........... year ........... month
Date of onset of illness ........... / ........... / ........... (dd/mm/yyyy)
Date of inpatient or hospital admission ........... / ........... / ........... (dd/mm/yyyy)
Admitted to:  temporary shelter IPD outside hospital (specify name, location)
Outcomes
Recovered (includes persons discharged from hospital)
Died
Lost to follow-up

Signs & Symptom:
Date of onset of symptoms ....................

<table>
<thead>
<tr>
<th>S &amp; S</th>
<th>yes</th>
<th>no</th>
<th>unk</th>
</tr>
</thead>
<tbody>
<tr>
<td>fever</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>coryza</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>nausea</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>irritability</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>muscle pains</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>weakness</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>diarrhea</td>
<td></td>
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</tr>
</tbody>
</table>

Date of onset of paralysis/paresthesia ........... / ........... / ........... (dd/mm/yyyy)
with fever  Y  N  Unknown temp ............

paralysis  yes  no  unk
flaccid
asymmetrical
sudden onset
sensation loss
Kernig or Brudzinski sign
Babinski

SITE OF PARALYSIS
left leg
respiratory muscles
left arm
face

Immunization history:
Usual Immunization Clinic: ..........................................................

<table>
<thead>
<tr>
<th>OPV</th>
<th>yes</th>
<th>no</th>
<th>unk</th>
<th>imm.card</th>
<th>date of immunization</th>
</tr>
</thead>
<tbody>
<tr>
<td>zero</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>OPV 1</td>
<td></td>
<td></td>
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<tr>
<td>OPV 2</td>
<td></td>
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<tr>
<td>OPV 3</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>OPV 4</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

Preliminary clinical classification:
Discarded Case  Probable Case
If not polio, give final diagnosis and comments below.
Final diagnosis .................................... Date ........... / ........... / ........... (dd/mm/yyyy)
Comments: .............................................................................

Travel and contact history:
Indicate all places outside present village/city (including other countries) visited by the patient 28 days prior to onset of paralysis/paresthesia.
<table>
<thead>
<tr>
<th>Location</th>
<th>Person(s) visited</th>
<th>Date visited</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</tr>
</tbody>
</table>

Did the case come in direct contact with another household or close contact who was immunized within 75 days before paralysis/paresthesia?

- [ ] Y
- [ ] N
- [ ] Unknown

**Laboratory data:**

<table>
<thead>
<tr>
<th>Name</th>
<th>Address</th>
<th>Date immunized</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

**Virus isolation studies:**

<table>
<thead>
<tr>
<th>Feces/Swab 1</th>
<th>Feces/Swab 2</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date collected</td>
<td>Date collected</td>
<td>Date collected</td>
</tr>
<tr>
<td>Date sent to lab</td>
<td>Date sent to lab</td>
<td>Date sent to lab</td>
</tr>
<tr>
<td>Date of lab result</td>
<td>Date of lab result</td>
<td>Date of lab result</td>
</tr>
</tbody>
</table>

**Poliovirus strain characterization results:**

<table>
<thead>
<tr>
<th>Poliovirus type</th>
<th>Strain characterization method</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Serologic studies:**

<table>
<thead>
<tr>
<th>Blood sample 1</th>
<th>Blood sample 2</th>
<th>Blood sample 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date collected</td>
<td>Date collected</td>
<td>Date collected</td>
</tr>
<tr>
<td>Date sent to lab</td>
<td>Date sent to lab</td>
<td>Date sent to lab</td>
</tr>
<tr>
<td>Date of lab result</td>
<td>Date of lab result</td>
<td>Date of lab result</td>
</tr>
</tbody>
</table>

**Interpretation**

```
```

**CSF (Cerebrospinal Fluid):**

<table>
<thead>
<tr>
<th>Date</th>
<th>Red cells</th>
<th>White cells</th>
<th>Lymphocytes</th>
<th>Glucose</th>
<th>Protein</th>
</tr>
</thead>
<tbody>
<tr>
<td>.../.../...</td>
<td>...</td>
<td>...</td>
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<td>.../.../...</td>
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<td>.../.../...</td>
<td>...</td>
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<td>...</td>
<td>...</td>
<td>...</td>
</tr>
</tbody>
</table>

**Poliovirus type**

- Type 1
- Type 2
- Type 3
- Other (specify)

**Other results and/or comments:**

```
```

**Autopsy:**

- [ ] Yes
- [ ] No

**Pathology laboratory:**

<table>
<thead>
<tr>
<th>Material</th>
<th>Date collected</th>
<th>Date sent</th>
<th>Date of result</th>
<th>Histopathology result (attach report)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>.../.../...</td>
<td>.../...</td>
<td>.../...</td>
<td>.../.../.../...(attach report)</td>
</tr>
<tr>
<td></td>
<td>.../.../...</td>
<td>.../...</td>
<td>.../...</td>
<td>.../.../.../...(attach report)</td>
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<tr>
<td></td>
<td>.../.../...</td>
<td>.../...</td>
<td>.../...</td>
<td>.../.../.../...(attach report)</td>
</tr>
</tbody>
</table>

**Case follow up:**

Was case seen 60 days after onset of paralysis?

- [ ] Yes, at date .................
- [ ] No, why .....................

**Paralysis:**

- Paralysis present of 60 days or later
  - [ ] No
  - [ ] Yes, check site of paralysis
    - [ ] left leg
    - [ ] respiratory muscles
    - [ ] left arm
    - [ ] face
    - [ ] right leg
    - [ ] other cranial nerves
    - [ ] right arm

**Disability:**

- [ ] cannot walk
- [ ] limps
- [ ] walks with assistance
- [ ] walks normally
- [ ] other .....................

Did case die?

- [ ] No
- [ ] Yes, at date ................................
  Details ........................................

**Report of neurologist:** (attach if available, including electrodiagnostic results)

Summary of neurologist’s report, including final diagnosis...........................
Case Investigation Form

for other diseases

Name of Temporary shelter …………… Province …………… Agency …………………
Reporter ………………… Date of report (dd/mm/yy) …… / …… /……
Position ………………… Tel …………………

1. Patient information

Name-Surname …………………… Age …………… year/month
Sex  □ male  □ female
Parent’s name …………………… (for children aged less than 15 years)
Location (Zone/Section) ……………………
How long that the patient move to the temporary shelter …………. year ……… month
School and level of student ……………………
Immunization status (if under 15 yrs old) ……………………

2. Clinical data

Date of onset (dd/mm/yy) …… / …… /…… Date of detection …… / …… /……
Signs and symptoms (select signs and symptoms detected from the patient)

☐ Abdominal pain  ☐ Headache  ☐ Shock
☐ Bloody stool  ☐ Loose stool  ☐ Skin rash
☐ Chest discomfort  ☐ Mucous stool  ☐ Skin ulcer
☐ Chill Cramp  ☐ Myalgia  ☐ Sore throat
☐ Confusion  ☐ Nausea  ☐ Stiff neck
☐ Conjunctivitis  ☐ Neck swelling  ☐ Stupor
☐ Coryza  ☐ Palpitation  ☐ Sweating
☐ Cough  ☐ Petechiae  ☐ Vomiting
☐ Epistaxis  ☐ Purpura  ☐ Watery stool
☐ Erythema  ☐ Retro orbital pain  ☐ White patch
☐ Fever  ☐ Seizures
☐ Others specify

3. Laboratory finding:

Sample …………………… Date taken …… / …… /…… Lab received …… / …… /……
Name of laboratory …………………… Type of test ……………………
Date of result …… / …… /…… Result  □ positive  □ negative

4. Diagnosis

Final diagnosis …………………… ……………………
Outcome  □ Admitted in the temporary shelter
☐ Refer to hospital …………………
☐ Recovered  □ Died  □ Other (specify) ……………………
5. Risk factor (select factor related disease investigated)

- Travel Place ……………………… Located ………………………
- Malnutrition weight ………………..……… kg. grade………………………….
- Mosquito larva in water containers in patient’s house
- Crowed household environment
- History of raw food consumption
- History of animal contact
- Others specify ……………………………………………………………

6. Source of infection (select answer that may be source of infection of disease investigated)

- Food name/source …………………………………………………………..
- Water type/source …………………………………………………………….
- Case name …………. age ………… sex …… date of onset ……….
- Pig from ……………………………………………………………………
- Bat from ……………………………………………………………………
- Pigeon from …………………………………………………………………
- Others specify ……………………………………………………………

7. Contact case finding

<table>
<thead>
<tr>
<th>Name-Surname</th>
<th>Section/Zone</th>
<th>Age</th>
<th>Sex</th>
<th>Lab specimen</th>
<th>Lab result</th>
<th>Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</tr>
</tbody>
</table>

Lab specimens: B=Blood S=Stool C=CSF U=Urine O=Other

Outcome: A = Admitted in the temporary shelter Rh = Refer to hospital R = Recovered D = Died

8. Field investigator

Name ……………………………………… Position ………………………
Date of investigation (dd/mm/yy) ………………. / ………………. / ……….

Note: One form per case investigated
Summarized result in outbreak summary report
Send outbreak summary report to DHO by FAX, and via email at outbreak@health.moph.go.th, camp.border@gmail.com, aree@who.int, his@ccsdp.org, THIRHP@cdc.gov

Annex 4

Guideline for Epidemiological Investigation and Outbreak Response

This guideline refers to two types of epidemiologic investigations:

1. Individual case investigation: should be carried out immediately to confirm diagnosis and disease pathogens (s)
2. Outbreak investigation: should be performed if there is a cluster of cases in order to identify the cause and pattern of disease and to identify and put in place proper disease prevention and control measures

1. Severe Atypical Pneumonia

Key information

Organism: Influenza virus type A (seasonal H1, H3) or type B, other emerging infectious diseases (EIDs) e.g. SARS, Legionellosis
Incubation period: 1 – 5 days (usually 1 – 3 days)
Communicable period: 3 – 5 days after onset of symptoms
Mode of transmission: Droplet to airborne
Laboratory specimens: nasal or throat swabs, transported in viral transport media (respiratory VTM) and cold chain (2-8 °C), to be tested PCR for viruses

Outbreak: collect 5 nasal or throat swabs in an outbreak to confirm diagnosis

Case definition

Suspected case
Severe pneumonia case: Acute severe lower respiratory tract symptoms requiring hospital admission with at least one of the following manifestations:
- inability to drink
- frequent vomiting
- convulsion
- lethargy or unconsciousness
- fever > 38°C is not decreased after 3 days antibiotic treatment,
- requires referral to hospital outside of the temporary shelter
- requires endotracheal intubation
- death

Plus
History of exposure: Poultry OR other severe pneumonia case OR travel to country with known cases of Severe Acute Respiratory Syndrome (SARS) or pandemic influenza

Confirmed case:
Suspected case who has respiratory specimen positive for influenza or other pathogenic organisms
Individual case investigation/Outbreak investigation and response

Investigation criteria

Individual case needs to be investigated to promptly detect EIDs, determine risk factors, and provide recommendation for prevention and control.

Active case finding

Close contacts including:
- Household contacts
- Classroom or workplace contacts

Any person who had history of contact to the patient during illness

Activities to be done during active case finding:
- Interview all suspected cases and collect respiratory specimen from 5 cases (see laboratory specimens)
- Daily observation for URI symptoms among high risk groups (e.g. elderly and pregnant women) and chronic disease patients (e.g. those with DM, HT, kidney diseases, lung diseases, cardiovascular diseases, etc)
- Give health education about symptoms, complications
- Recommend case isolation (home or hospitalization depending on severity of illness), wearing mask for cases, hand hygiene and droplet precaution to prevent further spread

Society and Environment

- Stay home
- Avoid social events
- Avoid travelling outside the section / temporary shelter
- Promote hand hygiene in schools
- Active surveillance in schools (teachers should check number of students having ILI everyday and report to health staff in the section)

Surveillance during outbreak

1. Monitor trend of URI weekly
2. Data to be collected and monitored weekly:
   - Number of suspected influenza and URI cases
   - Number of specimens sent to laboratory
   - Number of confirmed influenza cases

2. Cholera

Key information

Organism: Vibrio cholerae
Serogroup: O1 or O139
- Biotype: Classical or El Tor
- Serotype: Ogawa, Inaba, Higojima

Incubation period: 2 – 3 hours to 5 days

Communicable period: During illness and up to 2 – 5 days after symptomatic period in patients who did not receive appropriate antibiotic treatment.

Mode of transmission: Eating contaminated food or water (usually raw food, leftover meal)

Laboratory specimens: collect rectal swab for bacterial culture (use Cary Blair transport media and keep in room temperature during transportation to laboratory).

Suspected food: collect 300 grams of food in a new plastic bag; seal; and transport in ice-packed box (2 – 8 °C) to laboratory within 8 hours.

Suspected water: collect at least 250 CC in a new plastic bottle; and transport in ice-packed box (2 – 8 °C) to laboratory within 8 hours.

Case definition

Suspected case: Acute onset of severe watery diarrhea with severe dehydration in a patient of age > 5 year old

Note:*** during outbreak: any age will be suspected

Confirmed case: Suspected case who has rectal swab culture positive for Vibrio cholerae O1 or O139

Carrier: Any asymptomatic person who has rectal swab culture positive for Vibrio cholerae O1 or O139

Individual case investigation/Outbreak investigation and response

Investigation criteria

Either single case or cluster need to be investigated to find source of infection and prevent further transmission

Active case finding

- Every close contact of a confirmed case; including household contacts and anyone who shares the same risk exposure
- Every case of acute diarrhea living or working in the area nearby a confirmed case
- Food handlers of suspected food

Activities to be done during active case finding

- Interview and collect rectal swab culture of all suspected cases and contacts
- Collect specimens from environment e.g. suspected food, water
- Give health education about hand hygiene and food sanitation to all suspected cases and contacts
- Initially improve environment to prevent further spread e.g. water chlorination, providing soap for hand washing

Environment

1. Decontamination of latrine and surrounding area
   - Thoroughly clean floor and surrounding area (not into the latrine itself) with brush and detergent made from 1 tsp 60% concentrated chlorine powder dissolved in 15 liters of water. Leave 30 minutes and then flush with clean water

2. Chlorination of water for consumption (maintain residual chlorine 0.2 – 0.5 ppm)
   - Chlorine powder: dissolve 0.5 tsp 60% concentrated chlorine powder in 10 liters of water (leave 30min before use)
   - Chlorine tab: 3 grams in 1000 liters of water
   - Chlorine solution: 1 – 2 drops per 1 liter water
### Surveillance during outbreak

1. Maintain active surveillance during the outbreak until at least 10 days after the onset of the last case.
2. Data to be collected and monitored daily:
   - Number of acute diarrhea patients
   - Number of rectal swab culture sent to laboratory
   - Number of rectal swab positive for *Vibrio cholerae*

### 3. Measles

#### Key information

<table>
<thead>
<tr>
<th>Organism</th>
<th>Measles virus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Incubation period</td>
<td>8 – 12 days</td>
</tr>
<tr>
<td>Communicable period</td>
<td>4 days before to 4 days after onset of rash</td>
</tr>
<tr>
<td>Mode of transmission</td>
<td>Airborne</td>
</tr>
<tr>
<td>Laboratory specimens</td>
<td>According to the global measles elimination program</td>
</tr>
<tr>
<td></td>
<td>Individual case: single serum positive for Measles IgM</td>
</tr>
</tbody>
</table>
|                   | Confirmed Outbreak:  
|                   | 1.) Obtain 10 – 20 single serum specimens from suspect cases to confirm measles IgM+  
|                   | 2.) Obtain 1 – 5 throat swab specimens (using influenza viral transport media) to identify measles virus genotype by viral isolation and PCR |

#### Case definition

| Suspected case | Fever > 38°C AND maculo-papular rash AND cough with one of the following symptoms:  
|               | - conjunctivitis (red eye)  
|               | - runny nose  
|               | - Koplik ‘s spot |
| Confirmed case | Suspected case who has laboratory confirmation of acute measles infection—either measles IgM+ or viral isolation from throat swab |

#### Individual case investigation/Outbreak investigation and response

| Investigation criteria | Single case needs to be interviewed and followed-up with active case finding among close contacts to prevent wider spread of measles  
|                       | Cluster need to be investigated to determine baseline vaccine coverage and high risk population, and to provide recommendations for prevention and control. |

#### Active case finding

<table>
<thead>
<tr>
<th>Close contacts including:</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Household contacts</td>
</tr>
<tr>
<td>- Classroom or workplace contacts</td>
</tr>
<tr>
<td>- Any person who had history of contact to the patient during 7 days before to 4 days after onset of rash e.g. friend, relatives, neighbors, health care workers</td>
</tr>
</tbody>
</table>

#### Activities to be done during active case finding

- Interview all suspected cases and collect specimens (see laboratory specimens)
- Give health education about symptoms, complications, nutrition, and advice to visit health care facilities if symptoms develop
- Recommend case isolation (home or hospitalization depends on severity of illness) and wearing mask and droplet hygiene to prevent further spread
- Consider vitamin A supplementary for children

#### Vaccination

<table>
<thead>
<tr>
<th>Selective vaccination activities:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Close contact vaccination: for close contacts (&gt;6 months of age) of a confirmed cases who have never received measles vaccine (efficient when given within 72 hours after contact to a case)</td>
</tr>
<tr>
<td>Other vaccination: for children 9 months – 12 years who have no evidence of measles vaccination including new comers and non-residents visiting the temporary shelter</td>
</tr>
</tbody>
</table>

| Mop up vaccination: includes vaccination for all children in the target age group, regardless of prior vaccination status. Rarely recommended; if considered, please notify provincial health office |

| Reinforce routine vaccination: Keep up vaccine coverage > 95% in the routine immunization |

#### Surveillance during outbreak

1. Maintain active surveillance among close contacts and during outbreak until at least 1 month after the onset of last case.
2. Data to be collected and monitored daily:
   - Number of suspected cases
   - Number of specimens sent to laboratory
   - Number of confirmed cases
4. Acute Flaccid Paralysis (AFP)

Case definition
- Children under 15 years who present with acute onset of hypotonic/atactic muscle weakness in one or both sides of upper and/or lower extremities (including Guillain-Barre Syndrome: GBS)
- Any age if Poliomyelitis is suspected

Activities:

WHO guideline for the polio eradication program recommend the following for every individual AFP case:

1. Report to district and provincial health office within 24 hours
2. Collect stool specimens to be analyzed for the presence of poliovirus.
   a. Collect specimen for virus isolation as early in course of illness as possible, but definitely within 14 days of onset of paralysis.
   b. Collect two specimens at an interval of 24-48 hours since virus excretion may be intermittent.
   c. Collect about 8 gm (about the size of the tip of thumb) in a clean, leak proof screw cap container,
   d. Send with Laboratory request form: http://www.searo.who.int/en/Section10/Section17/Section53/Section482_1811.htm

   Stool specimens have to be sealed in containers and stored immediately inside a refrigerator or packed between frozen ice packs at 4–8 oC in a cold box, ready for shipment to a laboratory. Undue delays or prolonged exposure to heat on the way to the laboratory may destroy the virus.

1. Investigate the case within 48 hours after case detection using WHO case investigation form
2. Perform outbreak response immunization (ORI) within 72 hours after case detection
3. Follow up at 60 days after onset of AFP to evaluate residual paralysis using WHO case investigation form

5. Meningitis/Encephalitis

Key information

Japanese encephalitis

Organism: Japanese B encephalitis virus
Incubation period: Depends on organism: JE 5 – 15 days
Mode of transmission: JE – mosquito bite (Culex spp.). Pigs are reservoir of the disease.
Laboratory specimens: JE: JE IgM in CSF ≥ 40 unit (ELISA) and the ratio of JE IgM / Dengue IgM ≥ 1

Meningococcal meningitis / Meningococcemia

Incubation period: 2 – 10 days (usually 3 – 4 days)
Communicable period: As long as organism is present in respiratory tract of patient and carrier. Appropriate antibiotic treatment can eliminate organism from respiratory tract within 24 hours.
Mode of transmission: Droplet
Laboratory specimens: Patient:
- CSF gram stain with gram negative diplococci
- CSF / blood culture with Neisseria meningitides
- CSF / serum (latex agglutination) positive for Neisseria meningitides
- CSF PCR positive for Neisseria meningitides
- Serogroup should be identified
Close contacts: nasopharyngeal or throat swabs for culture

Case definition

Suspected case: Acute fever>38°C with at least one of the following: neck stiffness, alteration of consciousness, other meningeval signs, or petichiae / purpura rash
In age< 1 year: meningitis is suspected when fever is accompanied by bulging fontanel, alteration of consciousness or irritability

Confirmed case: Suspected case with laboratory testing positive for an organism
Individual case investigation/Outbreak investigation and response

Japanese encephalitis

<table>
<thead>
<tr>
<th>Investigation criteria</th>
<th>Either single case or cluster need to be investigated to prevent further transmission</th>
</tr>
</thead>
<tbody>
<tr>
<td>Active case finding</td>
<td>Every close contact with a suspected case: household, school, and workplace</td>
</tr>
<tr>
<td></td>
<td><strong>Activities to be done during active case finding</strong></td>
</tr>
<tr>
<td></td>
<td>• Interview (in case of JE, history of vaccination should be asked)</td>
</tr>
<tr>
<td></td>
<td>• In case of JE, catch up vaccination should be performed in children aged 18 month to 15 years old</td>
</tr>
<tr>
<td></td>
<td>• Give health education about mosquito bite prevention and droplet precaution to all suspected cases and contacts</td>
</tr>
</tbody>
</table>

Environment | Promote air ventilation in house, school, workplace
Surveillance | Active surveillance until 30 days after the onset of last case

Meningococcal meningitis / Meningococcemia

<table>
<thead>
<tr>
<th>Investigation criteria</th>
<th>Either single case or cluster need to be investigated to determine source of infection, to identify close contacts, and to provide post-exposure prophylaxis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Active case finding</td>
<td><strong>Close contacts including:</strong></td>
</tr>
<tr>
<td></td>
<td>- Household contacts</td>
</tr>
<tr>
<td></td>
<td>- Classroom or workplace contacts</td>
</tr>
<tr>
<td></td>
<td>Any person who had history of contact with the patient during illness</td>
</tr>
<tr>
<td></td>
<td><strong>Activities to be done during active case finding</strong></td>
</tr>
<tr>
<td></td>
<td>• Hospitalize every suspected case in respiratory isolation</td>
</tr>
<tr>
<td></td>
<td>• Collect nasopharyngeal or throat swab of close contacts</td>
</tr>
<tr>
<td></td>
<td>• Provide post-exposure chemoprophylaxis and follow up contact everyday to ensure the complete course of antibiotic.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Children &gt; 1 month – 12 yrs</th>
<th>Adults</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rifampicin for 2 days</td>
<td></td>
</tr>
<tr>
<td>10 mg/kg/dose twice a day</td>
<td>600 mg twice a day</td>
</tr>
</tbody>
</table>

OR

| Ciprofloxacin single dose   | Not recommended | 500 mg |

**Note** Nasopharyngeal or throat swab must be done before starting antibiotic

Surveillance | Active surveillance among close contacts until 20 days after the onset of last case

6. Dengue infection

**Key information**

<table>
<thead>
<tr>
<th>Organism</th>
<th>Dengue virus serotype I, II, III, IV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Incubation period</td>
<td>3 – 14 days (usually 4 – 7 days)</td>
</tr>
<tr>
<td>Mode of transmission</td>
<td>Human - Mosquito (Aedesegypti, A.albopictus) - Human</td>
</tr>
</tbody>
</table>

**Case definition**

All of the three categories of Dengue infection need to be reported into the surveillance system.

<table>
<thead>
<tr>
<th>Dengue fever</th>
<th>Fever &gt; 38°C within last 7 days with at least 2 of the following manifestations:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>- headache</td>
</tr>
<tr>
<td></td>
<td>- myalgia (muscle pain)</td>
</tr>
<tr>
<td></td>
<td>- arthralgia (or bone pain)</td>
</tr>
<tr>
<td></td>
<td>- rash</td>
</tr>
<tr>
<td></td>
<td>- hemorrhagic manifestations (petechiae and positive tourniquet test)</td>
</tr>
<tr>
<td></td>
<td>- Low White Blood Cell Count (&lt;5,000/cu.mm.)</td>
</tr>
<tr>
<td>Dengue Hemorrhagic Fever (DHF)</td>
<td>Patient who meet 4 criteria:</td>
</tr>
<tr>
<td></td>
<td>1) Acute fever</td>
</tr>
<tr>
<td></td>
<td>2) At least 1 hemorrhagic manifestation: petechiae, purpura, melena, mucosal bleeding, or positive tourniquet test</td>
</tr>
<tr>
<td></td>
<td>3) Platelet count &lt; 100,000/cu.mm.</td>
</tr>
<tr>
<td></td>
<td>4) Evidence of plasma leakage</td>
</tr>
<tr>
<td>Dengue Shock Syndrome (DSS)</td>
<td>DHF plus signs of shock (e.g. rapid pulse, narrow pulse pressure, hypotension, restlessness)</td>
</tr>
</tbody>
</table>
### Individual case investigation/Outbreak investigation and response

<table>
<thead>
<tr>
<th>Investigation criteria</th>
<th>First case of epidemic should be investigated to determine source of infection and prevent further spread. Cluster needs to be investigated to determine high risk population, and implement prevention and control measures.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Active case finding</td>
<td>ACF should be performed in the village where the index case lives.</td>
</tr>
</tbody>
</table>
| **Activities to be done during active case finding** | - Interview all suspected cases.  
- All suspected cases should be referred to a medical doctor to evaluate severity of illness.  
- Give health education about mosquito bite prevention and larva and mosquito control in the community. |
| Environment            | 1. Mosquito control by smoking insecticide at day 0 and 7 in the index case house and community (in every house).  
2. Larva survey: HI, CI at day 0, 7, 14, 28.  
   - HI (House index = number of houses having larvae * 100 / number of total houses)  
   - CI (Container index = number of containers having larvae * 100 / number of total containers)  
3. Larva controls: destroy unused containers, larvicides. |
| Surveillance during outbreak | 1. Monitor number of DF, DHF, DSS cases weekly until 28 days after onset of last case.  
2. Monitor HI, CI keep HI<10% in houses and CI=0% in schools and temples or churches to evaluate the effectiveness of control measures. |

### Case definition

<table>
<thead>
<tr>
<th>Case definition</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Suspected case</td>
<td>Acute diarrhea with visible mucous-bloody stool or presenting with WBC and RBC in stool under microscopic examination.</td>
</tr>
<tr>
<td>Confirmed case</td>
<td>Suspected case who has rectal swab culture (RSC) positive for Shigella spp.</td>
</tr>
<tr>
<td>Carrier</td>
<td>Asymptomatic person (e.g. food handler) who has rectal swab culture positive for Shigella spp.</td>
</tr>
</tbody>
</table>

### Outbreak investigation and response

<table>
<thead>
<tr>
<th>Investigation criteria</th>
<th>Cluster needs to be investigated to find source of infection and prevent further transmission.</th>
</tr>
</thead>
</table>
| Active case finding    | - Every close contact with a confirmed case: household and anyone who share the same risk exposure.  
- Food handlers of suspected food. |
| **Activities to be done during active case finding** | - Interview and collect rectal swab culture from close contacts who have acute diarrhea and all food handlers of suspected food.  
- Give health education about hand hygiene and food sanitation to all suspected cases and contacts.  
- Initially improve the environment to prevent further spread e.g. water chlorination, providing soap for hand washing.  
- Prescribe Norfloxacin to confirmed cases and carriers.  
- Cases and carriers must be restricted from handling food until completion of antibiotic treatment.  
- Infected food handlers must be followed up RSC after completed course of antibiotic treatment. |
| Surveillance during outbreak | Monitor number of suspected and confirmed cases daily until 7 days after onset of last case. |

### 7. Dysentery (Acute bloody diarrhea)

#### Key information

<table>
<thead>
<tr>
<th>Organism</th>
<th>Shigella spp. (Group A: S. dysenteriae, Group B: S. flexneri, Group C: S. boydii, Group D: S. sonnei)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Incubation period</td>
<td>12 – 96 hours (usually 1 – 3 days)</td>
</tr>
</tbody>
</table>
| Communicable period | As long as 4 weeks after onset of illness in patient who did not receive appropriate antibiotic treatment.  
| Mode of transmission | Ingesting contaminated food or water; also person to person.  
| Laboratory specimens | Patients and food handler (even if asymptomatic) of suspected food: collect rectal swab for bacterial culture (use Cary Blair transport media and keep in room temperature during transportation to laboratory). |

### 8. Malaria

#### Key information

<table>
<thead>
<tr>
<th>Organism</th>
<th>Plasmodium falciparum, P. vivax, P. malariae, P. ovale, P. knowlesi</th>
</tr>
</thead>
</table>
| Incubation period | P. falciparum 7 – 14 days  
P. vivax and P. ovale 8 – 14 days  
P. malariae 7 – 30 days |
| Mode of transmission | Human – Mosquito (Anopheles spp.) – Human |
| Laboratory specimens | Identified asexual form of Plasmodium spp. from blood smear (thick film or thin film) or Screening test positive for Plasmodium spp.
**Case definition**

**Confirmed case**
- Fever with at least one of the following manifestations:
  - hepatomegaly/splenomegaly
  - chills
  - jaundice
  - anemia

Plus Malaria laboratory confirmation

**Outbreak investigation and response**

**Investigation criteria**
Cluster needs to be investigated to determine high risk population, and to implement prevention and control measures.

**Active case finding**
Perform in the village where the index case lives

**Activities to be done during active case finding:**
- Interview all suspected cases
- Give community health education about mosquito bite prevention
- Prescribe anti-malaria drugs for all confirmed cases according to malaria control guideline
- Follow up:
  - *P. falciparum*: Direct observational treatment and follow up blood smear at day 1, 2, 3, 7, 14, 21, 28
  - Other *Plasmodium* spp: Follow up blood smear of each case at day 14, 28, 60, 90

**Environment**
Provide chemically treated bed net (if available)

**Surveillance during outbreak**
Monitor number of suspected and confirmed cases weekly until 60 days after onset of last case

---

9. Leptospirosis

**Key information**

**Organism**
Leptospira spp. (Spirochete bacteria)

**Incubation period**
10 days (2 – 30 days)

**Communicable period**
-

**Mode of transmission**
Primarily through contact of skin (particularly wound) with water, moist soil or vegetation contaminated with the urine of infected animals.

**Laboratory testing**
Detect 4-fold rise of antibody titer from paired-sera:
- 1<sup>st</sup> serum – collected at least 7 days after onset of illness.
- 2<sup>nd</sup> serum – collected at 14 days after the 1<sup>st</sup> serum

---

**Case definition**

**Suspected case**
- Fever >38°C and chill with at least of the following manifestations:
  - Severe muscle pain
  - Muscle tenderness
  - Conjunctivitis (red eye)
  - Dry cough
  - Hemoptysis
  - Alteration of consciousness
  - Jaundice
  - Decreased urine volume / acute renal failure
  - Hemorrhagic manifestations: (e.g.) petechiae, purpura, melena, mucosal bleeding

**Plus history of exposure to** fresh river, stream, canal, lake water or environment conditions that are likely to be contaminated with urine and feces of domestic and wild animals

**Confirmed case**
Suspected case who has a 4-fold rise in antibody titers from paired-sera or single serum found IgM ≥ 1:100 or IgG ≥ 1:400 with Microscopic agglutination test (MAT)

**Individual case investigation/Outbreak investigation and response**

**Investigation criteria**
Investigate first case with onset more than 2 months after the latest case, any suspicious death, or cluster of similar cases

**Active case finding**
- Every person in the community, particularly those exposed to the suspected source of infection

**Activities to be done during active case finding**
- Interview all suspected cases and collect specimens
- Give health education about prevention and symptoms

**Environment**
Get rid of rodents
Clean environment, houses and surrounding area

**Surveillance during outbreak**
Monitor number of suspected and confirmed cases weekly until 60 days after onset of last case
### 10. Diphtheria

#### Key information

<table>
<thead>
<tr>
<th>Organism</th>
<th>Corynebacterium diphtheriae (Toxin producing strain)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Incubation period</td>
<td>2 - 5 days</td>
</tr>
<tr>
<td>Communicable period</td>
<td>2 – 4 weeks after infection without appropriate antibiotic</td>
</tr>
<tr>
<td>Mode of transmission</td>
<td>Droplet and direct contact</td>
</tr>
</tbody>
</table>

#### Specific treatment

- **Antibiotic**
  - Children: Penicillin G Sodium (PGS) 150,000 – 200,000 unit/kg/day IV. for 14 days
  - Adults: Penicillin G Sodium (PGS) 1.5-2 million unit IV. every 6 hours for 14 days
  - Penicillin allergy: Erythromycin 50 mg/kg/day oral for 14 days

- **Diphtheria Antitoxin (DAT)**
  - Skin test must be performed before giving DAT
  - Not necessary to wait for laboratory confirmation
  - In cases with incomplete diphtheria vaccination
    - Non-severe case: DAT 40,000–80,000 unit
    - Severe case: DAT 80,000–120,000 unit
  - In cases with complete diphtheria vaccination
    - Non-severe case: Admit and closely observe EKG and CXR. If there is evidence of heart block or cardiomegaly, consider DAT
    - Severe case: DAT 80,000–120,000 unit

All cases must be referred to a hospital for isolation until complete antibiotic treatment (14 days)

#### Laboratory testing

- Throat swab for bacterial culture
  - Must be taken before starting antibiotic
  - Use Amie’s transport medium or Steward agar for specimen transport
  - Send to laboratory within 24 hours

#### Case definition

- **Suspected case**
  - Fever with sore throat and dirty grey patch on tonsil, pharynx, nasal cavity, or glottis

- **Probable case**
  - Suspected case with one of the following:
    - Airway obstruction
    - Neuritis
    - Contact to another confirmed case within 2 weeks before onset of illness

- **Confirmed case**
  - Suspected case who has throat swab culture positive for Corynebacterium diphtheriae

#### Investigation criteria

<table>
<thead>
<tr>
<th>Interview single case</th>
<th>Investigate cluster</th>
</tr>
</thead>
<tbody>
<tr>
<td>and perform active case finding among close contacts to identify carriers and prevent wider spread;</td>
<td></td>
</tr>
<tr>
<td>Investigate cluster of suspect cases to determine baseline vaccine coverage and provide recommendation for prevention and control.</td>
<td></td>
</tr>
</tbody>
</table>

#### Active case finding

- **Close contacts include:**
  - Household contacts
  - Classroom or workplace contacts
  - Any person who had history of contact with the patient during 2 weeks before to 4 weeks after onset of illness e.g. friend, relatives, neighbors, health care workers

- **Activities to be done during active case finding**
  - Interview all suspected cases and admit to hospital for isolation and treatment
  - Collect specimens (see laboratory testing) from all suspected cases and contacts
  - All asymptomatic contacts must be prescribed Erythromycin 50mg/kg/day for 7 days (if throat swab positive, extend erythromycin to 10 days) and closely observe signs and symptoms of diphtheria
  - Give health education to the community about symptoms, complications, and advice to visit health care facilities if symptoms develop

#### Vaccination

- **All close contacts must be checked for DTP vaccination history**
  - Complete 5 doses of DTP in the last 5 years: no need for vaccination
  - Complete 5 doses of DTP but more than 5 years ago: give 1 dose of dT
  - Incomplete DTP: continue with the next doses according to routine immunization program schedule
  - Uncertain history of DTP:
    - Age < 7 years: DTP at month 0, 1, 2; boost with DTP after 6 months; and DTP at 5 – 7 years old (if older than 7 years, change to dT)
    - Age ≥ 7 years: dT at month 0, 1, 2 then boost every 10 years

**Keep up routine vaccine coverage > 95%**

#### Surveillance during outbreak

- Keep active surveillance among close contacts during outbreak until at least 2 weeks after the onset of last case

Data to be collected and monitored daily:
- Number of suspected cases
- Number of specimens sent to laboratory
- Number of confirmed cases

---

Guidelines for Disease Surveillance in Displaced Person Temporary Shelters - Nov 2014
11. Pertussis

**Key information**

<table>
<thead>
<tr>
<th>Organism</th>
<th>Bordetella pertussis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Incubation period</td>
<td>7 - 10 days (4 – 21 days)</td>
</tr>
<tr>
<td>Communicable period</td>
<td>More than 3 weeks after onset without appropriate antibiotic</td>
</tr>
<tr>
<td>Mode of transmission</td>
<td>Droplet</td>
</tr>
<tr>
<td>Laboratory testing</td>
<td>Throat swab or nasopharyngeal swab to be taken before starting antibiotic - Use Amie’s transport medium or Steward agar for specimen transport - Send to laboratory within 24 hours</td>
</tr>
</tbody>
</table>

**Case definition**

| Suspected case | Chronic cough > 2 weeks with at least one of the following: - Paroxysms of coughing - Inspiratory whooping - Post-tussive vomiting |
| Probable case  | Suspected case with history of contact to another confirmed case within 3 weeks before onset of illness |
| Confirmed case | Suspected case who has throat / nasopharyngeal swab culture positive for Bordetella pertussis |

**Individual case investigation/Outbreak investigation and response**

| Investigation criteria | Interview single case and perform active case finding among close contacts to identify carriers and prevent wider spread. Investigate cluster of suspect cases to determine baseline vaccine coverage and provide recommendation for prevention and control. |
| Active case finding   | Close contacts include: - Household contacts - Classroom or workplace contacts - Any person who had history of contact to the patient during 3 weeks before to 3 weeks after onset of illness e.g. friend, relatives, neighbors, health care workers |
| Activities to be done during active case finding | - Interview all suspected cases - Collect specimens [see laboratory testing] from all suspected cases and contacts - Give community health education about symptoms, complications, and advice to visit health care facilities if symptoms develop - All suspected cases and asymptomatic carriers must be prescribed Erythromycin 50mg/kg/day for 7 days |

**Vaccination**

| All contacts age 0 – 7 years must be checked for DTP vaccination history |
| Completed 5 doses of DTP: no need for vaccination |
| Incomplete DTP: continue with the next doses according to routine immunization program schedule |
| Uncertain history of DTP: |
| Age > 7 years: DTP at month 0, 1, 2; boost with DTP after 6 months and DTP at 5 – 7 years old |
| **Keep routine vaccine coverage > 95%** |

**Surveillance during outbreak**

1. Keep active surveillance among close contacts during outbreak until at least 6 weeks after the onset of last case
2. Data to be collected and monitored daily during active surveillance - Number of suspected cases - Number of specimens sent to laboratory - Number of confirmed cases

12. Neonatal tetanus

**Key information**

<table>
<thead>
<tr>
<th>Organism</th>
<th>Clostridium tetani</th>
</tr>
</thead>
<tbody>
<tr>
<td>Incubation period</td>
<td>Symptoms usually appear from 4 to 14 days after birth</td>
</tr>
<tr>
<td>Communicable period</td>
<td>-</td>
</tr>
<tr>
<td>Mode of transmission</td>
<td>Through wound contaminated with Clostridium tetanibacterial spores</td>
</tr>
</tbody>
</table>

**Case definition**

| Suspected case | Uncontrollable muscle spasm e.g. lockjaw, spastic back - May develop seizure when stimulated |

**Individual case investigation and response**

| Investigation criteria | Investigate single case to determine mechanism of infection, identify unvaccinated pregnant women, and implement prevention and control measures |
| Active case finding   | All neonates < 1 month old who were delivered by the same midwife - Activities to be done during active case finding |
|                       | - Interview all suspected cases - Give community health education about symptoms and advice to visit health care facilities if symptoms develop - Give health education to mothers about antenatal care and maternal and child health |

**Vaccination**

| Promote 100% Antenatal care including tetanus toxoid (TT) or dT to all pregnant women in the community |
13. Typhoid and Paratyphoid fever

Key information

| Organism       | Typhoid: Salmonella typhi  
|                | Paratyphoid: Salmonella paratyphi serovar A, B, or C |
| Incubation period | Typhoid: 8 – 14 days (3 – 30 days) 
|                | Paratyphoid: 1 – 10 days |
| Communicable period | As long as typhoid or paratyphoid bacilli present in excreta. Some patients become permanent carriers. |
| Mode of transmission | Consuming contaminated water and food |
| Laboratory testing | Culture of typhoid or paratyphoid bacilli from the blood, urine, or stool. Repeated sampling may be necessary. ***Serology in the form of the Widal test is no longer routinely used |

Case definition

Suspected case | Fever > 2 weeks with at least 2 of the following manifestations:  
- headache  
- loss of appetite  
- slow pulse rate  
- abdominal pain and constipation (sometimes loose stool) |

Confirmed case | Suspected case who has blood, urine, or stool culture positive for salmonella typhi or salmonella paratyphi |

Outbreak investigation and response

Investigation criteria | Investigate cluster of suspect cases to identify source of infection and provide recommendations for prevention and control. |
Active case finding | Activities to be done during active case finding  
- Interview all suspected cases  
- Collect specimens (see laboratory testing) from 10 - 20 suspected cases of an outbreak  
- Give health education about hand hygiene and food sanitation to all suspected cases and contacts  
- Initially improve environment to prevent further spread e.g. water chlorination, providing soap for hand washing  
- Collect specimens from environment e.g. suspected food, water |

Environment

1. Decontamination of latrine and surrounding area thoroughly clean floor and surrounding area (not into the latrine itself) with brush and detergent made from 1 tsp 60% concentrated chlorine powder dissolved in 15 liters of water. Leave 30 minutes and then flush with clean water  
2. Chlorination of water for consumption (maintain residual chlorine 0.2 – 0.5 ppm)  
   Chlorine powder: dissolve 0.5 tsp 60% concentrated chlorine powder in 10 liters of water (leave 30min before use)  
   Chlorine tab: 3 grams in 1000 liters of water  
   Chlorine solution: 1 – 2 drops per 1 liter water |

Surveillance during outbreak | Keep active surveillance during outbreak until 2 months after the onset of last case |

14. Mumps

Key information

| Organism | Mump virus |
| Incubation period | 9 – 18 days |
| Communicable period | 2 days before to 9 days after onset of parotitis |
| Mode of transmission | Droplet |
| Laboratory specimens | Outbreak: 5 – 10 single serum specimens in an outbreak to confirm mumps (Mumps IgM+) |

Case definition

Suspected case | Acute pain OR swelling of one or more salivary gland(s) |
Confirmed case | Suspected case who has mumps IgM positive serology |

Outbreak investigation and response

Investigation criteria | Investigate cluster of suspect cases to determine baseline vaccine coverage and high risk population; provide recommendations for prevention and control. |
Active case finding | Close contacts including:  
- Household contacts  
- Classroom or workplace contacts  
- Any person who had history of contact with the patient during 2 days before to 9 days after onset of parotitis  
Activities to be done during active case finding  
- Interview all suspected cases and collect specimens (see laboratory specimens)  
- Give community health education about symptoms, complications, wearing mask in cases, and droplet hygiene to prevent further spread |
### 15. Rubella

#### Key Information

<table>
<thead>
<tr>
<th>Organism</th>
<th>Rubella virus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Incubation period</td>
<td>14 – 21 days</td>
</tr>
<tr>
<td>Communicable period</td>
<td>7 days before onset of rash to 7 days after rash disappear</td>
</tr>
<tr>
<td>Mode of transmission</td>
<td>Droplet</td>
</tr>
<tr>
<td>Laboratory specimens</td>
<td>Outbreak: 5 – 10 single serum specimens in an outbreak to confirm rubella (Rubella IgM+)</td>
</tr>
</tbody>
</table>

#### Case definition

<table>
<thead>
<tr>
<th>Suspected case</th>
<th>Acute low grade fever with rash plus one of the following symptoms: arthralgia, arthritis, lymphadenopathy, or conjunctivitis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Confirmed case</td>
<td>Suspected case who has rubella IgM positive serology</td>
</tr>
</tbody>
</table>

#### Outbreak investigation and response

<table>
<thead>
<tr>
<th>Investigation criteria</th>
<th>Investigate cluster of suspect cases to determine baseline vaccine coverage and high risk population; provide recommendations for prevention and control.</th>
</tr>
</thead>
</table>
| Active case finding    | Close contacts including:  
  - Household contacts  
  - Classroom or workplace contacts  
  Any person who had history of contact with the patient during 7 days before onset of rash to 7 days after rash disappear  
  *Activities to be done during active case finding*  
  - Interview all suspected cases and collect specimens (see laboratory specimens)  
  - Give community health education about symptoms, complications, wearing mask for cases, and droplet hygiene to prevent further spread |

---

### 16. Hepatitis A

#### Key Information

<table>
<thead>
<tr>
<th>Organism</th>
<th>Hepatitis A virus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Incubation period</td>
<td>4 weeks (15 – 50 days)</td>
</tr>
<tr>
<td>Communicable period</td>
<td>2 weeks before to 2 weeks after onset of illness</td>
</tr>
<tr>
<td>Mode of transmission</td>
<td>Eating contaminated food or water</td>
</tr>
<tr>
<td>Laboratory specimens</td>
<td></td>
</tr>
</tbody>
</table>
  - Patients: single serum sample to detect anti-HAV IgM  
  - Water: collect at least 2,000 CC in new plastic bottle; keep in ice-packed box (2 – 8°C); send to laboratory within 8 hours for PCR |

#### Case definition

<table>
<thead>
<tr>
<th>Suspected case</th>
<th>Acute fever with jaundice plus at least one of the following: fatigue, loss of appetite, / abdominal pain</th>
</tr>
</thead>
<tbody>
<tr>
<td>Confirmed case</td>
<td>Suspected case who has anti-HAV IgM positive serology</td>
</tr>
</tbody>
</table>

#### Outbreak investigation and response

<table>
<thead>
<tr>
<th>Investigation criteria</th>
<th>Investigate cluster of suspect cases to find source of infection and prevent further transmission.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Active case finding</td>
<td>Every close contact with a hepatitis case: household and anyone who shared the suspected source of infection e.g. drinking water, ice, food</td>
</tr>
</tbody>
</table>
  *Activities to be done during active case finding*  
  - Interview and collect single serum sample from not more than 5 suspected cases to test for anti-HAV IgM  
  - Collect specimens from suspected source of infection  
  - Give community health education about hand hygiene and food sanitation to all suspected cases and contacts  
  - Initially improve environment to prevent further spread e.g. water chlorination |
**Guidelines for Disease Surveillance in Displaced Person Temporary Shelters - Nov 2014**

### Environment

1. Decontamination of latrine and surrounding area thoroughly clean floor and surrounding area (not into the latrine itself) with brush and detergent made from 1 tsp 60% concentrated chlorine powder dissolved in 15 liters of water. Leave 30 minutes and then flush with clean water.

2. Chlorination of water for consumption (maintain residual chlorine 0.2 – 0.5 ppm)
   - Chlorine powder: dissolve 0.5 tsp 60% concentrated chlorine powder in 10 liters of water (leave 30 min before use)
   - Chlorine tab: 3 grams in 1000 liters of water
   - Chlorine solution: 1 – 2 drops per 1 liter water

### Surveillance during outbreak

Maintain active surveillance during outbreak until at least 60 days after the onset of last case

### 17. Chikungunya

#### Key information

<table>
<thead>
<tr>
<th>Organism</th>
<th>Chikungunya virus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Incubation period</td>
<td>1 – 12 days (usually 2 – 4 days)</td>
</tr>
<tr>
<td>Mode of transmission</td>
<td>Human – Mosquito (Aedes aegypti, A. albopictus) - Human</td>
</tr>
</tbody>
</table>

#### Laboratory specimens

- Should be performed in the first few cases or not more than 5 cases during an outbreak
  - **Single serum** for chikungunya titer (Hemagglutination inhibition) > 1:1,280 or IgM positive
  - **Paired sera** for chikungunya titer with 4-fold rise of antibody titer

#### Case definition

<table>
<thead>
<tr>
<th>Suspected case</th>
<th>Fever with joint/bone pain plus at least one of the following: rash, petechiae, myalgia, orbital pain</th>
</tr>
</thead>
</table>
| Confirmed case | Suspected case who has laboratory confirmation

#### Individual case investigation/Outbreak investigation and response

| Investigation criteria | Investigate first case of epidemi to determine source of infection and prevent further spread. Investigate cluster of suspected cases to determine high risk population, and implement prevention and control measures. |

### Active case finding

**ACF should be performed in the village where the index case lives**

**Activities to be done during active case finding**

- Interview all suspected cases
- Give community health education about mosquito bite prevention and larva and mosquito control in community

**Environment**

1. Mosquito control by smoking insecticide at day 0 and 7 in the index case house and in every house in the community
2. Larva survey: Hi, CI at day 0, 7, 14, 28
   - Hi (House index = number of houses having larvae * 100 / number of total houses)
   - Ci (Container index = number of containers having Larvae * 100 / number of total containers)
3. Larva controls: destroy unused containers, use larvicides as necessary

**Surveillance during outbreak**

1. Monitor number of suspected chikungunya cases weekly until 28 days after onset of last case
2. Monitor Hi, Ci keep Hi<10% in houses and Ci=0% in schools and temples or churches to evaluate the effectiveness of control measures
## Laboratory Diagnostic Capacity in nine Displaced Person Temporary Shelter Hospitals as of January 2012

<table>
<thead>
<tr>
<th>Diagnostic capacity</th>
<th>Ban Tham Hin</th>
<th>Ban Don Yang</th>
<th>Ban Nu Po</th>
<th>Ban Um Pliem</th>
<th>Ban Mae La</th>
<th>Ban Mai NailSol</th>
<th>Ban Mae Surin</th>
<th>Ban Mae La Oon</th>
<th>Ban Mae La Ma Laung</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>General lab test capacity</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Malaria thick/thin blood smears</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
</tr>
<tr>
<td>Total white count</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
</tr>
<tr>
<td>Differential white count</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
</tr>
<tr>
<td>CSF microscopy</td>
<td>Only AFB</td>
<td>Only AFB</td>
<td>Only AFB</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CSF chemistry</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stool microscopy for parasites</td>
<td>yes</td>
<td>yes</td>
<td></td>
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<td></td>
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<td>Only Hct</td>
<td>Only Hgb</td>
<td>Only Hgb</td>
<td>Only Hgb</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
</tr>
</tbody>
</table>

### Rapid tests

| Cholera - Cryst al VC Rapid Dipstick |             |              |           |              |            |                 |              |               |                     |
| Dengue - any of several | Rapid test only at present time | Dengue IgG and IgM | Dengue IgG and IgM | Dengue IgG and IgM |                     |     |               |       |        |

### Other Tests

<p>| Diphtheria - API Coryne test strips |             |              |           |              |            |                 |              |               |                     |
| Hep A - anti HAV IgM Assay |             |              |           |              |            |                 |              |               |                     |
| Hep B (hepatitis B surface antigen) | yes | yes | yes | yes | yes | yes | yes | yes | yes |
| Hep C | yes | yes | yes | yes | yes | yes | yes | yes | yes |
| Hep E - anti HEV IgM EIA diagnostic kit |             |              |           |              |            |                 |              |               |                     |
| Leptospirosis - GenBiot IgM ImmunoDOT | yes |              |           |              |            |                 |              |               |                     |
| Measles/rubella - enzygnosta anti - measles virus/IgM |             |              |           |              |            |                 |              |               |                     |
| Bacterial meningitis - BD Directigen/Meningitis Combo Test, Pastorex (for meningococcal meningitis) |             |              |           |              |            |                 |              |               |                     |
| Shiga toxin (E coli and Shigella) - Meridian Premier EHEC |             |              |           |              |            |                 |              |               |                     |
| Typhoid - Tubex TF | yes (Widal test) |             |           |              |            |                 |              |               |                     |
| JE - any of several |             |              |           |              |            |                 |              |               |                     |
| Malaria (P falciparum) | yes | yes | yes | yes |            |                 |              |               |                     |
| Malaria (P falciparum+ P vivax) |             |              |           |              |            |                 |              |               |                     |</p>
<table>
<thead>
<tr>
<th>Diagnostic capacity</th>
<th>Ban Tham Hin</th>
<th>Ban Don Yang</th>
<th>Ban Nu Po</th>
<th>Ban Um Pliem</th>
<th>Ban Mae La</th>
<th>Ban Mai Nai Sol</th>
<th>Ban Mae Surin</th>
<th>Ban Mae La Oon</th>
<th>Ban Mae La Ma Laung</th>
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</thead>
<tbody>
<tr>
<td>Well – Felix</td>
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<td></td>
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<tr>
<td>Anti HIV</td>
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<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
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<tr>
<td>Influenza A+B Test</td>
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<td></td>
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<td>yes</td>
</tr>
</tbody>
</table>

**Transport capacity**

| Stool transport media (Cary Blair, Amie’s) | yes | yes | yes | yes | yes | yes | yes | yes | yes |
| Serum/blood transport (tubes +/- anticoagulant) | yes | yes | yes | yes | yes | yes | yes | yes | yes |
| CSF transport media | yes | yes | yes | yes | yes | yes | yes | yes | yes |
| Respiratory viral transport media | yes | yes | yes | yes | yes | yes | yes | yes | yes |

**Referral lab used for confirming the following diseases:**

<table>
<thead>
<tr>
<th>Influenza (any type)</th>
<th>RBR Hospital</th>
<th>BRIA Lab</th>
<th>Maesot Hospital</th>
<th>Maesot Hospital</th>
<th>MHS Hospital</th>
<th>MHS Hospital</th>
<th>RMSC, CNX</th>
<th>RMSC, CNX</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bacterial pneumonia</td>
<td>BRIA Lab</td>
<td>Maesot Hospital</td>
<td>Maesot Hospital</td>
<td>MHS Hospital</td>
<td>MHS Hospital</td>
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<td>RMSC, CNX</td>
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<tr>
<td>Cholera</td>
<td>RBR Hospital</td>
<td>BRIA Lab</td>
<td>Maesot Hospital</td>
<td>Maesot Hospital</td>
<td>MHS Hospital</td>
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<td>RMSC, CNX</td>
<td>RMSC, CNX</td>
</tr>
<tr>
<td>Measles</td>
<td>RBR Hospital</td>
<td>BRIA Lab</td>
<td>Maesot Hospital</td>
<td>Maesot Hospital</td>
<td>MHS Hospital</td>
<td>MHS Hospital</td>
<td>RMSC, CNX</td>
<td>RMSC, CNX</td>
</tr>
<tr>
<td>Polio</td>
<td>RBR Hospital</td>
<td>BRIA Lab</td>
<td>Maesot Hospital</td>
<td>Maesot Hospital</td>
<td>MHS Hospital</td>
<td>MHS Hospital</td>
<td>RMSC, CNX</td>
<td>RMSC, CNX</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Diagnostic capacity</th>
<th>Ban Tham Hin</th>
<th>Ban Don Yang</th>
<th>Ban Nu Po</th>
<th>Ban Um Pliem</th>
<th>Ban Mae La</th>
<th>Ban Mai Nai Sol</th>
<th>Ban Mae Surin</th>
<th>Ban Mae La Oon</th>
<th>Ban Mae La Ma Laung</th>
</tr>
</thead>
<tbody>
<tr>
<td>Meningitis (viral or bacterial)</td>
<td>Refer the suspected case to hospital</td>
<td>BRIA Lab</td>
<td>Maesot Hospital</td>
<td>Maesot Hospital</td>
<td>MHS Hospital</td>
<td>MHS Hospital</td>
<td>MHS Hospital</td>
<td>RMSC, CNX</td>
<td>RMSC, CNX</td>
</tr>
<tr>
<td>Encephalitis</td>
<td>KRCH</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dengue</td>
<td>RBR Hospital</td>
<td>BRIA Lab</td>
<td>Umphang Hospital</td>
<td>Umphang Hospital</td>
<td>MHS Hospital</td>
<td>MHS Hospital</td>
<td>MHS Hospital</td>
<td>RMSC, CNX</td>
<td>RMSC, CNX</td>
</tr>
<tr>
<td>Bacillary dysentery</td>
<td>RBR Hospital</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Malaria</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Leptospirosis</td>
<td>RBR Hospital</td>
<td>SKL Hospital</td>
<td>Maesot Hospital</td>
<td>Maesot Hospital</td>
<td>MHS Hospital</td>
<td>MHS Hospital</td>
<td>MHS Hospital</td>
<td>RMSC, CNX</td>
<td>RMSC, CNX</td>
</tr>
<tr>
<td>Hepatitis (any type)</td>
<td>RBR Hospital</td>
<td>BRIA Lab</td>
<td>Maesot Hospital</td>
<td>Maesot Hospital</td>
<td>MHS Hospital</td>
<td>MHS Hospital</td>
<td>MHS Hospital</td>
<td>RMSC, CNX</td>
<td>RMSC, CNX</td>
</tr>
<tr>
<td>Unknown etiology for severe case or clusters</td>
<td>RBR Hospital</td>
<td>KRCH Hospital</td>
<td>Maesot Hospital</td>
<td>Maesot Hospital</td>
<td>MHS Hospital</td>
<td>MHS Hospital</td>
<td>RMSC, CNX</td>
<td>RMSC, CNX</td>
<td></td>
</tr>
</tbody>
</table>

**Note:**

- RBR hospital : Ratchaburi provincial hospital
- KRCH hospital : Kwai River Christian hospital
- BRIA Lab : Bangkok RIA Company Limited
- SKL hospital : Sangkla Buri hospital
- MHS hospital : Mae Hong Son provincial hospital
- MSR hospital : Mae Sariang hospital
- RMSC CNX : Regional Medical Science Center 10 at Chiang Mai
### Annex 6

#### NGOs Agency Epidemiology (HIS) Contact List

<table>
<thead>
<tr>
<th>Temporary shelter</th>
<th>Position</th>
<th>Name</th>
<th>Email</th>
<th>Office Phone</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PU – AMI</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mae La, Umriem,</td>
<td>Epidemiologist and HIS Officer</td>
<td>Dr. Sai Aung Lynn</td>
<td><a href="mailto:thi.medepidemio@pu-ami.org">thi.medepidemio@pu-ami.org</a></td>
<td>0907486568, 055543231, 055542950</td>
</tr>
<tr>
<td>and Nu Po</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mae La, Umriem</td>
<td>Medical Coordinator</td>
<td>Dr. Ashok G Chiheini</td>
<td><a href="mailto:thi.medco@pu-ami.org">thi.medco@pu-ami.org</a></td>
<td>08 0668 8096, 055543531, 055542950</td>
</tr>
<tr>
<td>and Nu Po</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>ARC</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ban Don Yang</td>
<td>Medical coordinator</td>
<td>Dr. Aye Aye Moe</td>
<td><a href="mailto:arc.ayemoe@gmail.com">arc.ayemoe@gmail.com</a></td>
<td>0902165546 03459560</td>
</tr>
<tr>
<td><strong>IRC</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tham Hin</td>
<td>Clinical medical Officer</td>
<td>Dr. Aung Than Lin</td>
<td><a href="mailto:aungthant.lin@rescue.org">aungthant.lin@rescue.org</a></td>
<td>0818219413 032364 384 Ext. 105 (Office), 032364357 (Fax)</td>
</tr>
<tr>
<td>Tham Hin</td>
<td>Clinical Training Officer</td>
<td>Dr. Myat Thandar Aung</td>
<td><a href="mailto:myatthandar.aung@rescue.org">myatthandar.aung@rescue.org</a></td>
<td>0870265577, 032364364 (Office) Ext. 105, 032364357 (Fax)</td>
</tr>
<tr>
<td>Tham Hin</td>
<td>Laboratory and HIS Supervisor</td>
<td>Mr. Banjong Sudhiprapha</td>
<td><a href="mailto:banjong.sudhiprapha@rescue.org">banjong.sudhiprapha@rescue.org</a></td>
<td>0817639771 032364364 Ext. 105 (Office), 032364357 (Fax)</td>
</tr>
</tbody>
</table>

#### NGOs Agency Epidemiology (HIS) Contact List

<table>
<thead>
<tr>
<th>Temporary shelter</th>
<th>Position</th>
<th>Name</th>
<th>Email</th>
<th>Office Phone</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tham Hin</td>
<td>Field - Coordinator</td>
<td>Ms. Thidaruch Daewa</td>
<td><a href="mailto:Thidaruch.daewa@rescue.org">Thidaruch.daewa@rescue.org</a></td>
<td>0819192568, 032364364 Ext. 105 (Office), 032364357 (Fax)</td>
</tr>
<tr>
<td>Ban Nai Soi and</td>
<td>Clinical Training Officer</td>
<td>Dr. Khaing Mon Nwe</td>
<td><a href="mailto:Khaingmon.nwe@rescue.com">Khaingmon.nwe@rescue.com</a></td>
<td>053 6111307 053 611826</td>
</tr>
<tr>
<td>Ban Mae Surin</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ban Nai Soi and</td>
<td>Health Program Officer</td>
<td>Mr. Soesoi Pransum</td>
<td><a href="mailto:soesoi.pransum@rescue.org">soesoi.pransum@rescue.org</a></td>
<td>0871560786, 053 611826, 053 6111307</td>
</tr>
<tr>
<td>Ban Mae Surin</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ban Nai Soi and</td>
<td>Health Program Assistance</td>
<td>Mr. Oo Meh</td>
<td><a href="mailto:Oo.Meh@rescue.org">Oo.Meh@rescue.org</a></td>
<td>0899521039, 053 611826, 053 6111307</td>
</tr>
<tr>
<td>Ban Mae Surin</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>MI</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mae La Oon and</td>
<td>Clinical Nurse/HIS officer</td>
<td>Ms. Ammarat Phraikajee</td>
<td><a href="mailto:hhs.msr1@maltese-international.org">hhs.msr1@maltese-international.org</a></td>
<td>0892616751 053621559</td>
</tr>
<tr>
<td>Mae Ra Ma Luang</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mae La Oon and</td>
<td>Medical Coordinator</td>
<td>Dr. Soe Naing</td>
<td><a href="mailto:doc.msr1@maltese-international.org">doc.msr1@maltese-international.org</a></td>
<td>0871771201 053621559 053681575</td>
</tr>
</tbody>
</table>
### Ministry of Public Health Contact List

<table>
<thead>
<tr>
<th>Name</th>
<th>Position</th>
<th>Office</th>
<th>E-mail</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dr. Taranek Pratil</td>
<td>Director</td>
<td>BCE</td>
<td><a href="mailto:kepprate@gmail.com">kepprate@gmail.com</a></td>
</tr>
<tr>
<td>Dr. Swapanak Finroy</td>
<td>Veterinary, Senior Professional</td>
<td>BCE</td>
<td><a href="mailto:swapanak@gmail.com">swapanak@gmail.com</a></td>
</tr>
<tr>
<td>Ms. Paphani Surinigro</td>
<td>Health technical officer</td>
<td>BCE</td>
<td><a href="mailto:paphani@gmail.com">paphani@gmail.com</a></td>
</tr>
<tr>
<td>Dr. Anuvaro Sujayakul</td>
<td>Director</td>
<td>OCDPC</td>
<td><a href="mailto:anupongn@hotmail.com">anupongn@hotmail.com</a></td>
</tr>
<tr>
<td>Dr. Chasidewa Chakravatok</td>
<td>Health technical officer</td>
<td>OCDPC</td>
<td><a href="mailto:Cold_zone_4@hotmail.com">Cold_zone_4@hotmail.com</a></td>
</tr>
<tr>
<td>Dr. Sakchai Cinthamarnik</td>
<td>Director</td>
<td>OCDPC</td>
<td><a href="mailto:sakchai@gmail.com">sakchai@gmail.com</a></td>
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</table>
| Ministry of Public Health Contact List

<table>
<thead>
<tr>
<th>Name</th>
<th>Position</th>
<th>Office</th>
<th>E-mail</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dr. Wannika Wijit</td>
<td>Health technical officer</td>
<td>OCDPC</td>
<td><a href="mailto:wur_wannika@yahoo.com">wur_wannika@yahoo.com</a></td>
</tr>
<tr>
<td>Mr. Praditik Thepreepakwat</td>
<td>Health technical officer</td>
<td>OCDPC</td>
<td><a href="mailto:praditik@yahoo.com">praditik@yahoo.com</a></td>
</tr>
<tr>
<td>Dr. Watnap Luesane</td>
<td>Director</td>
<td>OCDPC</td>
<td><a href="mailto:watnap@gmail.com">watnap@gmail.com</a></td>
</tr>
<tr>
<td>Ms. Saly Sonthara</td>
<td>Health technical officer</td>
<td>OCDPC</td>
<td><a href="mailto:saro_s@hotmail.com">saro_s@hotmail.com</a></td>
</tr>
<tr>
<td>Dr. Pinithi Prachakerm</td>
<td>Chief Medical Officer</td>
<td>OCDPC</td>
<td><a href="mailto:pinithi_prachakerm@gmail.com">pinithi_prachakerm@gmail.com</a></td>
</tr>
<tr>
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<td><a href="mailto:phutpong@gmail.com">phutpong@gmail.com</a></td>
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</tr>
</tbody>
</table>
## Ministry of Public Health Contact List

<table>
<thead>
<tr>
<th>Name</th>
<th>Position</th>
<th>Email</th>
<th>Office</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Ratchburi, Tel: 032-326208-71, Fax: 032-325225, <a href="mailto:epide@rtpho.i-p.com">epide@rtpho.i-p.com</a></strong></td>
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<td><strong>Tak, Tel: 065-518119, Fax: 065-512629, <a href="mailto:epide@rtpho.i-p.com">epide@rtpho.i-p.com</a></strong></td>
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<tr>
<td>Mr. Wichai Sanchum</td>
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<td>Tha Song Yang DHO 055589008, 081 040 5535</td>
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<td>KhunYuan DHO 053691105</td>
</tr>
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</table>
### WHO Thailand Contact list

<table>
<thead>
<tr>
<th>Name</th>
<th>Position</th>
<th>Email</th>
<th>Office</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dr. Richard Brown</td>
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<td></td>
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<td></td>
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### Thailand MOPH – U.S. CDC Collaboration (TUC)

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<tbody>
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