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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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 SheltersThai-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.

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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 goalof 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, theDSDPS 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 audienceand purpose of the Guidelines

These guidelines areintended 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

DisplacedPerson Temporary Shelter	District	Province
ThamHin	SuanPhueng	Ratchaburi
Don Yang	SangkhlaBuri	Kanchanaburi
Nu Po	Umphang	Tak
Um Piem	PhopPhra	
Mae La	Tha Song Yang	
Ban Mai NaiSoi	Mueang	Mae Hong Son
Ban Mae Surin	KhunYuam	
Mae La Oon	Sop Moei	
Mae La Ma Luang		

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 Componentsand 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 weeklydata. 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.

> NOTE: Definitions provided for suspect cases are designed for surveillance purposes only and are not intended for case management. A suspect case definition may change once an outbreak is detected. Additional 'confirmed case definitions' - usually based on further lab testing - are provided in Annex 4.

4.2 Reporting site: For the DSDPS, eachtemporary 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 shelterclinics/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 sheltersuspecting 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.

Steps 2-4 relevant whenever a threshold is passed

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:

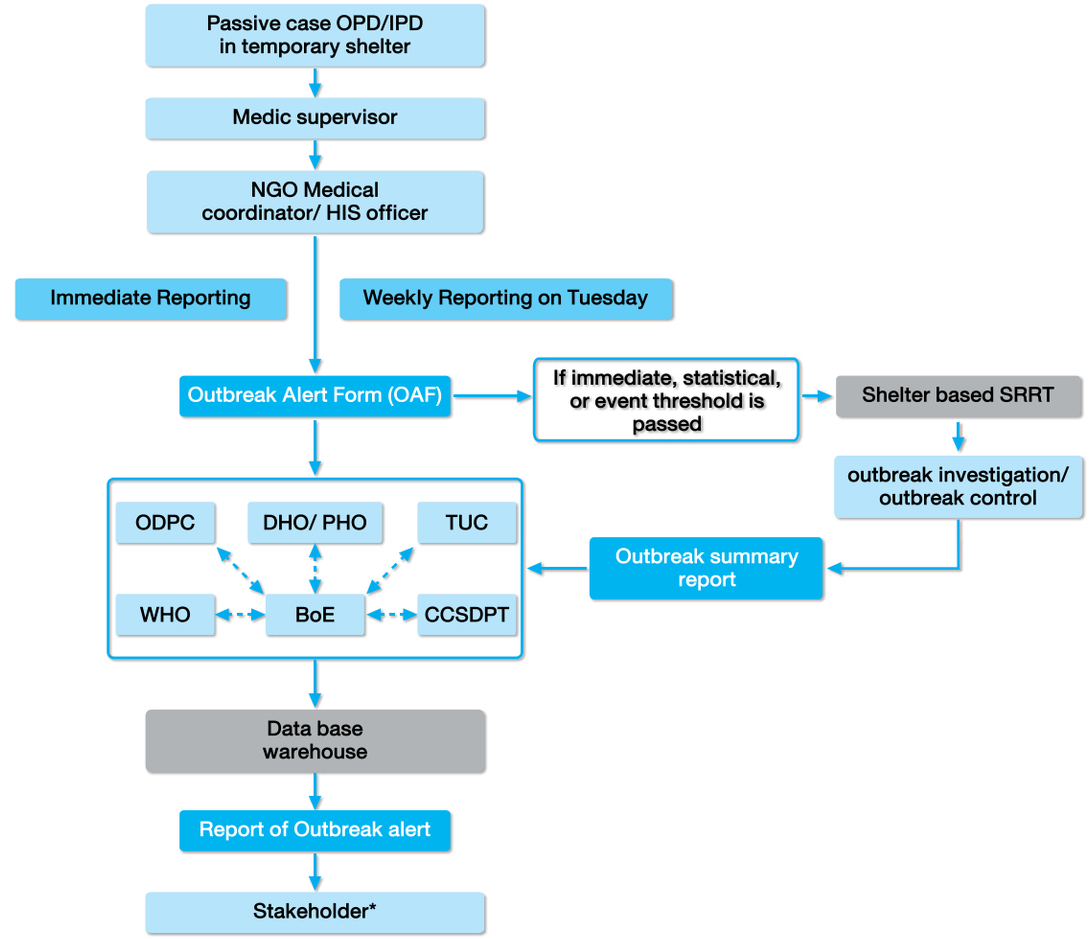
1. Designated reporting sites should send their aggregated report using the Outbreak Alert Form (OAF) to the District Health Office (DHO) via email with cc to the Provincial Health Office (PHO), Office of Disease Prevention and Control (ODPC), Bureau of Epidemiology (BOE), CCSDPT, Thailand MoPH and US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

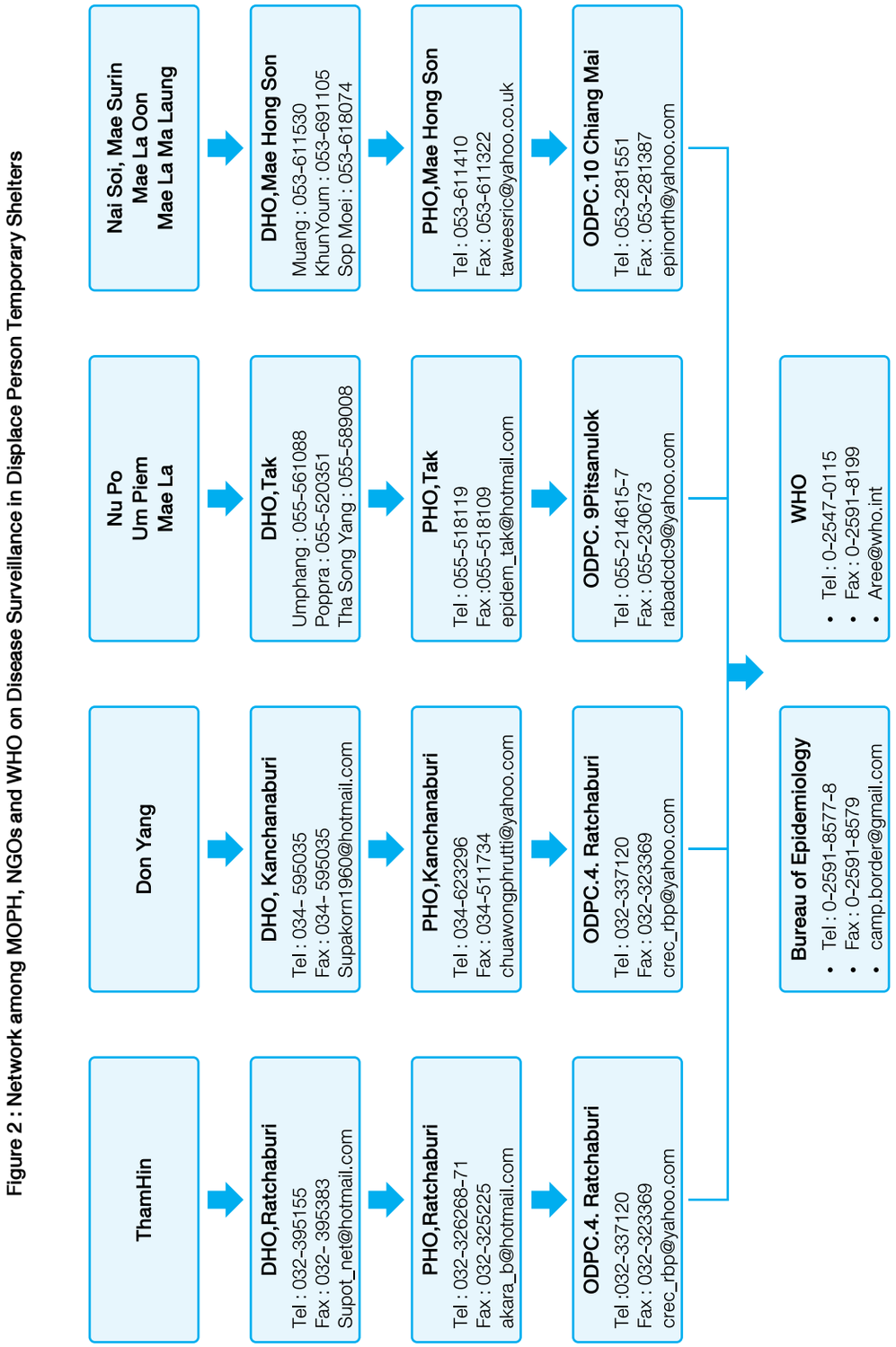
> NOTE: The absence of cases should also be reported (e.g. 'zero reporting') on a weekly basis to permit public health personnel to distinguish an area that is truly unaffected from one in which the communication systems has failed.

Figure 1 : Flow of Surveillance Data and Reporting



Stakeholder* : BVD, EPI, BGCD, BPS, DHO, PHO, ODPC, WHO, CCSDPT, NGOs, TUC

Figure 2 : Network among MOPH, NGOs and WHO on Disease Surveillance in Displace Person Temporary Shelters



Case definitions providedunder this section focus on diseases/syndromesin the immediate or statistical alert categories.

Surveillance Case Definitions for Medics

Diseases	Surveillance case definition	Note
1. Severe atypicalpneumonia	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

Diseases	Surveillance case definition	Note
4. Acute Flaccid Paralysis (AFP) / suspected poliomyelitis	**Children under 15 years old** with acute onset of hypotonic/atonic 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 meningeal 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		
7. Influenza like illness (ILI)	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	Note
8. Watery diarrhea	Three or more loose stool or one watery stool in the past 24 hours with or without dehydration	
9. Dengue infection	**Dengue fever :** Fever > 38^{O}C within last 7 days with at least 2 of the following manifestations: - headache - myalgia (muscle pain) - arthralgia (or bone pain) - rash hemorrhagic manifestations (petechiae and positive tourniquet test[1]) 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 anddiastolic 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 benegative or mildly positive during the phase of profound shock.	Dengue infection can present from fairly mild flu-like symptoms to severe life threatening illness. All suspected dengue should be reported as “dengue infection”

Diseases	Surveillance case definition	Note
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^{O}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 - 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	

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1) Bureau of Epidemiology, Department of Disease Control, Ministry of Public Health. National Definition ofInfectious Diseases, Thailand, 2003. (Publication in Thai)

2) World Health Organization (WHO). Protocol for the assessment of national communicable disease surveillance and response systems. Geneva: WHO, 2001. (WHO/CDS/CSR/ISR/2001.2)

3) World Health Organization (WHO). Outbreak Surveillance and Response in Humanitarian Emergencies: WHO guidelines for EWARN implementation.Geneva: WHO,2012. (WHO/HSE/GAR/DCE/2012.1)

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

Outbreak Alert Form

Name of Temporary shelter
Province
Agency
Week No.
Date
Date of Report
Reporter

Immediate Alert

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

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

Statistical Alert:

Diseases	This week			
	2014		2013	2009-13 median
	insiders	outsiders		
7. Influenza Liked Illness (ILI)				
8. Dengue infection				
9. Watery diarrhea				
10. Dysentery/ Bloody diarrhea				
11. Malaria				
12. Leptospirosis				

Event based Alert:

	Diseases	Insider	outsider	Total
13. Cluster of disease (e.g., jaundice, fever with rash, etc.)				
14. Suspected vaccine preventable diseases: rubella, pertussis, diphtheria, mumps, neonatal tetanus				

Note: Report diseases No.7-14 or zero report eachTuesday for the previous week (Sunday to Saturday). Send this form via email to DHO, PHO and cc to ODPC and BOE (camp.border@gmail.com and outbreak@health.moph.go.th), CCSDPT (his@ccsdpt.org), WHO (aree@searo.who.int), and TUC (THIRHP@cdc.gov).

Response to the outbreak or epidemic detected:

Outbreak Alert Form (Cont')

Malaria cases analysis

Temporary shelter Resident (s)				Non – Temporary shelter Resident (s)				Total			
PF	PV	Other	Pmix	PF	PV	Other	Pmix	PF	PV	Other	Pmix

Case Line Listing for outbreak

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

* 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@ccsdpt.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^{O}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 ……

Number of people in the patient's household, including patient ……..

Number of people <15 years of age in patient's household, including patient ……..

Patient's most recent arrival in temporary shelter ……. / ……. / …… (dd/mm/yyyy)

If patient arrived in temporary shelter less than 2 weeks ago, or if the patient left temporary shelter during the 2 weeks before getting sick, where did patient stay during the week before arriving? ……..
……

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 IPD ☐ outside hospital (specify name, location) ……Please indicate which of the following symptoms are reported:

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 …….. ^{o}C ☐ rectal ☐ oral ☐ axillary ☐ tympanic

3. Risk factors <u>To be filled by CHW after home visit</u>

Does patient or patient's family keep:

Chicken	☐ Y	☐ N	Geese	☐ Y	☐ N
Ducks	☐ Y	☐ N	Birds	☐ Y	☐ N
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	☐ Y	☐ N	Geese	☐ Y	☐ N
Ducks	☐ Y	☐ N	Birds	☐ Y	☐ N
Others	specify ……				

Have any chickens, ducks, geese, or wild birds died unexpectedly in the temporary shelter or village where the patient lived during the past 14 days?

☐ Y ☐ N ☐ Unknown

If answer is yes for the above two questions, ask for clinical signs in the sick or died animal

Acute sudden death	☐ Y	☐ N	☐ Unknown
Difficulty of breathing	☐ Y	☐ N	☐ Unknown
Swollen face	☐ Y	☐ N	☐ Unknown
Lacrimation/excess eye discharge	☐ Y	☐ N	☐ Unknown
Convulsion or twisted neck	☐ Y	☐ N	☐ Unknown
Diarrhea	☐ Y	☐ N	☐ Unknown

During the past 7 days, has the patient touched any animal (or the feces of any animal) listed below that was sick, or died unexpectedly?

Chicken	☐ Y	☐ N	Geese	☐ Y	☐ N
Ducks	☐ Y	☐ N	Birds	☐ Y	☐ N
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?
  ☐ Y ☐ N ☐ Unknown
- A person with an unexplained acute respiratory illnessthat later resulted/results in death?
  ☐ Y ☐ N ☐ Unknown
- Any other person for whom a diagnosis of influenza A/H5 is being considered?
  ☐ Y ☐ N ☐ Unknown

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

Name of reporter …….. Telephone number ……

Date of report …….. / …….. / 20 ….

Did patient develop respiratory failure ?	☐ Y	☐ N	☐ Unknown
Was patient mechanically ventilated ?	☐ Y	☐ N	☐ Unknown
Was patient admitted to ICU ?	☐ Y	☐ N	☐ 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)

……
Outcome

☐ Recovered (includes persons discharged from hospital)
☐ Died
☐ Lost to follow-up

Signs & Symptom:

Date of onset of symptoms ……

S & S	yes	no	unk		S & S	yes	no	unk
fever					headache			
coryza					sore throat			
nausea					vomiting			
irritability					stiff neck			
muscle pains					rigidness			
weakness					constipation			
diarrhea								

Date of onset of paralysis/parenthesis …….. / …….. / …….. (dd/mm/yyyy)

with fever ☐ Y ☐ N ☐ Unknown temp ……

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

SITE OF PARALYSIS			
left leg		respiratory muscles	
left arm		face	

Immunization history:

Usual Immunization Clinic: ……

	yes	no	unk	imm.card yesno		date of immunization day/month/year
OPV zero	……	……	…….	……	……	……../……../……
OPV 1	……	……	…….	……	……	……../……../……
OPV 2	……	……	…….	……	……	……../……../……
OPV 3	……	……	…….	……	……	……../……../……
OPV 4	……	……	…….	……	……	……../……../……

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.

Location	Person(s) visited	Date visited
……	……	…… / …… / …… to …… / …… / ……
……	……	…… / …… / …… to …… / …… / ……
……	……	…… / …… / …… to …… / …… / ……
……	……	…… / …… / …… to …… / …… / ……
……	……	…… / …… / …… to …… / …… / ……
……	……	…… / …… / …… to …… / …… / ……

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

Name	Address	Date immunized
……	……	……
……	……	……
……	……	……

Laboratory data:

Name of laboratory: ……

Address: …… Country: ……

Virus isolation studies:

	Feces/Swab 1	Feces/Swab 2	Other……
date collected	……/……/……	……/……/……	……/……/……
date sent to lab	……/……/……	……/……/……	……/……/……
dale of lab result	……/……/……	……/……/……	……/……/……
Polio virus isolated			
Type 1	……	……	……
Type 2	……	……	……
Type 3	……	……	……
Other (specify)	……	……	……

Serologic studies:

	Blood sample 1	Blood sample 2	Blood sample 3
date collected	……/……/……	……/……/……	……/……/……
date sent to lab	……/……/……	……/……/……	……/……/……
dale of lab result	……/……/……	……/……/……	……/……/……
Neutralization titer			
Type 1	……	……	……
Type 2	……	……	……
Type 3	……	……	……
Other (specify)	……	……	……

Interpretation

……

……

CSF (Cerebrospinal Fluid):

date	red cells	white cells	lymphocytes	glucose	protein
…… / …… /……	……	……	……	……	……
…… / …… /……	……	……	……	……	……
…… / …… /……	……	……	……	……	……

Poliovirus strain characterization results:

Poliovirus type	Strain characterization method	Results
……	……	……
……	……	……
……	……	……

Other results and/or comments: ……

Autopsy: ☐ Yes ☐ No

Pathology laboratory:

material	date collected	date sent	date of result	histopathology result (attach report)
……	…… / …… /……	…… / …… /……	…… / …… /……	……
……	…… / …… /……	…… / …… /……	…… / …… /……	……
……	…… / …… /……	…… / …… /……	…… / …… /……	……

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 ☐ walks with assistance

☐ limps ☐ 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……

Date …… / …… /…… Name of reporting physician ……..

Neurologist? ☐ Yes ☐ No

Control measure: (Include the date started, number of households searched, number of OPV doses given in children less than 5 years of age, date completed)

……

……

Final diagnosis:

Specify diagnosis ……..

☐ Discarded ☐ Confirmed

Check all which apply:

- ☐ Lab confirmed-virus
- ☐ Lab confirmed-serology
- ☐ Lab confirmed-virus and serology
- ☐ Residual paralysis after 60 days
- ☐ Wild virus indigenous
- ☐ Death after compatible illness
- ☐ Epidemiologic linkage
- ☐ No follow-up
- ☐ Vaccine associated
- ☐ Imported

Observations:

……

……

……

……

****

Investigator …… Position ……

Agency …… Date of investigation …… Tel……..……

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
☐ Corysa	☐ 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

Name-Surname	Section/Zone	Age	Sex	Lab specimen	Lab result	Outcome

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@ccsdpt.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, Legionnellosis
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 swab, 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 ofspecimens sent to laboratory - Number ofconfirmed influenza cases

2. Cholera

Key information

Organism	Vibrio choleraeSerogroup O1 orO139 - Biotype: Classical orEl 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	**Patients and contacts:** collectrectal swab for bacterial culture (useCary Blair transport media and keep in room temperature during transportation to laboratory). Suspected food: collect 300 gramsof 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 least250 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 orO139
Carrier	Any asymptomatic person who has rectal swab culture positive for Vibrio cholerae O1 orO139

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 cultureof 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. Chlorinationof water for consumption (maintain residual chlorine0.2 – 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 gramsin 1000 liters of water • Chlorine solution: 1 – 2 drops per 1 liter water

Surveillance during out-break	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

Organism	Measles virus
Incubation period	8 – 12 days
Communicable period	4 days before to 4 days after onset of rash
Mode of transmission	Airborne
Laboratory specimens	According to the global measles elimination program Individual case: single serum positive for Measles IgM Confirmed Outbreak: 1.) Obtain 10 – 20 single serum specimens from suspect cases to confirm measles IgM+ 2.) Obtain1 – 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	**Close contacts including:** - Household contacts - Classroom or workplace contacts - 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 **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	Selective vaccination activities: • Close contact vaccination: for close contacts (>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) • 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 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 ofspecimens sent to laboratory - Number ofconfirmed cases

4. Acute Flaccid Paralysis (AFP)

Case definition

- Children under 15 years who present with acute onset of hypotonic/atonic muscle weakness in one or both sides of upper and/or lower extremities (including GuillainBarre 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°C 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.

3. Investigate the case within 48 hours after case detection using WHO **case investigation form**
4. Perform outbreak response immunization (ORI) within 72 hours after case detection
5. 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 inCSF ≥ 40 unit (ELISA) and the ratio of JE IgM / Dengue IgM ≥ 1

Meningococcal meningitis / Meningococcemia

Organism	Neisseria meningitides serogroup A, B, C, D, E29, H, I, K, L, W135, X, Y, Z
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 dipplococci • 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 meningeal signs, or petichiae / purpura rash In age< 1year: 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

Investigation criteria	Either single case or cluster need to be investigated to prevent further transmission
Active case finding	Every close contact with a suspected case: household, school, and workplace **Activities to be done during active case finding** • Interview (in case of JE, history of vaccination should be asked) • In case of JE, catch up vaccination should be performed in children aged 18 month to 15 years old • Give health education about mosquito bite prevention and droplet precaution to all suspected cases and contacts
Environment	Promote air ventilation in house, school, workplace
Surveillance	Active surveillance until 30 days after the onset of last case

Meningococcal meningitis / Meningococcemia

<table>
<tr><td>Investigation criteria</td><td>Either single case or cluster need to be investigated to determine source of infection, to identify close contacts, and to provide post-exposure prophylaxis</td></tr>
<tr><td>Active case finding</td><td>Close contacts including:
- Household contacts
- Classroom or workplace contacts
Any person who had history of contact with the patient during illness
Activities to be done during active case finding
• Hospitalize every suspected case in respiratory isolation
• Collect nasopharyngeal or throat swab of close contacts
• Provide post-exposure chemoprophylaxis and follow up contact everyday to ensure the complete course of antibiotic.
<table>
<tr><td></td><td>Children > 1 month – 12 yrs</td><td>Adults</td></tr>
<tr><td>Rifampicin for 2 days</td><td>10 mg/kg/dose twice a day</td><td>600 mg twice a day</td></tr>
<tr><td colspan="3">OR</td></tr>
<tr><td>Ciprofloxacin single dose</td><td>Not recommended</td><td>500 mg</td></tr>
</table>
Note Nasopharyngeal or throat swab must be done before starting antibiotic</td></tr>
<tr><td>Surveillance</td><td>Active surveillance among close contacts until 20 days after the onset of last case</td></tr>
</table>

6. Dengue infection

Key information

Organism	Dengue virus serotype I, II, III, IV
Incubation period	3 – 14 days (usually 4 – 7 days)
Mode of transmission	Human - Mosquito (Aedesegypti, A.albopictus) - Human

Case definition

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

Dengue fever	Fever > 38^{O}C within last 7 days with at least 2 of the following manifestations: - headache - myalgia (muscle pain) - arthralgia (or bone pain) - rash - hemorrhagic manifestations (petechiae and positive tourniquet test[1]) - Low White Blood Cell Count (<5,000/cu.mm.) 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.
Dengue Hemorrhagic Fever (DHF)	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
Dengue Shock Syndrome (DSS)	DHF plus signs of shock (e.g. rapid pulse, narrow pulse pressure, hypotension, restlessness)

Individual case investigation/Outbreak investigation and response

Investigation criteria	**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.
Active case finding	**ACF** should performed in the village where the index case lives **Activities to be done during active case finding** • Interview all suspected cases • All suspected cases should be refer to medical doctor to evaluate severity of illness • Give health education about mosquito bite prevention and larva and mosquito control in community
Environment	1. Mosquito control by smoking insecticide at day0 and 7 in the index case house and community (in every house) 2. Larva survey: HI, CI at day0, 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

7. Dysentery (Acute bloody diarrhea)

Key information

Organism	*Shigella spp.* *(Group A; S .dysenteriae, Group B; S.flexneri, Group C; S.boydii, Group D; S. sonnei)*
Incubation period	12 – 96 hours (usually 1 – 3 days)
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	**Patientsand food handler (even if asymptomatic) of suspected food:** collectrectal swab for bacterial culture (useCary Blair transport media and keep in room temperature during transportation to laboratory)

Case definition

Suspected case	Acute diarrhea with visible mucous-bloody stool or presenting with WBC and RBC in stool under microscopic examination
Confirmed case	Suspected case who has rectal swab culture (RSC) positive for Shigella spp.
Carrier	Asymptomatic person (e.g. food handler) who has rectal swab culture positive for Shigella spp.

Outbreak investigation and response

Investigation criteria	Cluster needs to be investigated to find source of infection and prevent further transmission
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 culturefrom 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 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 completed course of antibiotic treatment • Infected food handlers must be followed up RSC after completed course of antibiotic treatment. If RSC negative for 2 times (>24 hr between RSC I and RSC II) then they can come back to work.
Surveillance during outbreak	Monitor number of suspected and confirmed cases daily until 7 days after onset of last case

8. Malaria

Key information

Organism	*Plasmodium falciparum, P. vivax, P. malariae, P. ovalae, P. knowlesi*
Incubation period	*P. falciparum 7 – 14 days* *P. vivaxand P. ovalae 8 – 14 days* *P. malariae7 – 30 days*
Mode of transmission	Human - Mosquito (Anophelesspp.) - 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 out-break	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; 1st serum – collected at least 7 days after onset of illness. 2nd serum – collected at 14 days after the 1st serum

Case definition

Suspected case	Fever >38°C and chill with at least of the following manifestations1: - 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

Organism	Corynebacteriumdiphtheriae (Toxin producing strain)
Incubation period	2 - 5 days
Communicable period	2 – 4 weeks after infection without appropriate antibiotic
Mode of transmission	Droplet and direct contact
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 day **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 an 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 sorethroat 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 *Corynebacteriumdiphtheriae*

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 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_4 after 6 months; and DTP_5 at 5 – 7 years old (if older than 7 years, change to dT) - Age ≥ 7 years:dT at month 0, 1, 2then 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 ofspecimens sent to laboratory - Number ofconfirmed cases

11. Pertussis

Key information

Organism	*Bordetella pertussis*
Incubation period	7 - 10 days (4 – 21 days)
Communicable period	More than 3 weeks after onset without appropriate antibiotic
Mode of transmission	Droplet
Laboratory testing	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

Case definition

Suspected case	Chronic cough > 2weeks 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_4 after 6 months and DTP_5 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 ofspecimens sent to laboratory - Number ofconfirmed cases

12. Neonatal tetanus

Key information

Organism	*Clostridium tetani*
Incubation period	symptoms usually appear from 4 to 14 days after birth
Communicable period	-
Mode of transmission	Through wound contaminated with *Clostridium tetani*bacterial spores
Laboratory testing	Laboratory confirmation is not necessary

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 paratyphiserovar 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 apatite - slow pulse rate - abdominal pain and constipation (sometime loose stool)
Confirmed case	Suspected case who has blood, urine, or stool culture positive for salmonella typhior 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. Chlorinationof water for consumption (maintain residual chlorine0.2 – 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 gramsin 1000 liters of water Chlorine solution: 1 – 2 drops per 1 liter water
Surveillance during outbreak	Keep active surveillance during outbreak until 2 month 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

Vaccination	**Keep routine** MMR vaccine coverage > 95%
Surveillance during outbreak	3. Keep active surveillance among close contacts and during outbreak until at least 6 weeks after the onset of last case 4. Data to be collected and monitored weekly during active surveillance - Number of suspected cases - Number ofspecimens sent to laboratory - Number ofconfirmed cases

15. Rubella

Key information

Organism	Rubella virus
Incubation period	14 – 21 days
Communicable period	7 days before onset of rash to 7 days after rash disappear
Mode of transmission	Droplet
Laboratory specimens	**Outbreak:** 5 – 10 single serum specimens in an outbreak to confirm rubella (Rubella IgM+)

Case definition

Suspected case	**Acute low grade fever with rash** plus one of the following symptoms: arthralgia, arthritis, lymphadenopathy, or conjunctivitis
Confirmed case	Suspected case who has rubella 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 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

Vaccination	Keep routine MMR vaccine coverage > 95%
Surveillance during outbreak	1. Maintain active surveillance among close contacts and during outbreak until at least 6 weeks after the onset of last case - Data to be collected and monitored weekly Number of suspected cases - Number ofspecimens sent to laboratory - Number ofconfirmed cases

16. Hepatitis A

Key information

Organism	Hepatitis A virus
Incubation period	4 weeks (15 – 50 days)
Communicable period	2 weeks before to 2 weeks after onset of illness
Mode of transmission	Eating contaminated food or water
Laboratory specimens	- **Patients:** single serum sample to detect anti-HAV IgM - **Water:**collect at least2,000 CC in new plastic bottle; keep in ice-packed box (2 – 8 °C); send to laboratory within 8 hours for PCR

Case definition

Suspected case	Acute fever with jaundice plus at least one of the following: fatigue, loss of appetite,/ abdominal pain
Confirmed case	Suspected case who has anti-HAV IgM positive serology

Outbreak investigation and response

Investigation criteria	Investigate cluster of suspect cases to find source of infection and prevent further transmission
Active case finding	- Every close contact with a hepatitis case: household and anyone who shared the suspected source of infection e.g. drinking water, ice, food **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

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. Chlorinationof water for consumption (maintain residual chlorine0.2 – 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 gramsin 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

Organism	Chikungunya virus
Incubation period	1 – 12 days (usually 2 – 4 days)
Mode of transmission	Human - Mosquito (*Aedesegypti, A.albopictus*) - Human
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

Suspected case	Fever with joint/bone pain plus at least one of the following: rash, petichiae, myalgia, orbital pain
Confirmed case	Suspected case who has laboratory confirmation

Individual case investigation/Outbreak investigation and response

Investigation criteria	**Investigate first case of epidemic** 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 communityhealth education about mosquito bite prevention and larva and mosquito control in community
Environment	1. Mosquito control by smoking insecticide at day0 and 7 in the index case house and in every house in the community 2. Larva survey: HI, CI at day0, 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

Annex 5

Laboratory Diagnostic Capacity in nine Displaced Person Temporary Shelters

Diagnostic Capacity in 9 Displaced Person Temporary ShelterHospitals as of January 2012

Diagnostic capacity	Ban ThamHin	Ban Don Yang	Ban Nu Po	Ban Um Piem	Ban Mae La	Ban Mai NaiSoi	Ban Mae Surin	Ban Mae La Oon	Ban Mae La Ma Laung
General lab test capacity									
Malaria thick/thin blood smears	yes	yes	yes	yes	yes	yes	yes	yes	yes
Total white count	yes	yes	yes	yes	yes	yes	yes	yes	yes
Differential white count	yes	yes	yes	yes	yes	yes	yes	yes	yes
CSF microscopy			Only AFB	Only AFB	Only AFB				
CSF chemistry									
Stool microscopy for parasites	yes	yes				yes	yes	yes	yes
Platelet count	yes	yes				yes	yes	yes	yes
Hgb/Hct	Only Hct	Only Hct	Only Hgb	Only Hgb	Only Hgb	yes	yes	yes	yes
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				
Diphtheria - API Coryne test strips									
Hep A - anti HAV IgM Assay						yes	yes		
Hep B (Hepatitis B surface Antigen		yes	yes	yes	yes	yes	yes	yes	yes
Hep C		yes	yes	yes	yes	yes	yes	yes	yes
Hep E - anti HEV IgM EIA diagnostic kit									
Leptospirosis - GenBioIgM ImmunoDOT	yes					yes	yes		
Measles/rubella - enzygnosta anti - measles virus/IgM									
Bacterial meningitis - BD DirectigenMeningitis 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				
Malaria (*P falciparum+ P vivax*)									

Diagnostic capacity	Ban ThamHin	Ban Don Yang	Ban Nu Po	Ban Um Piem	Ban Mae La	Ban Mai NaiSoi	Ban Mae Surin	Ban Mae La Oon	Ban Mae La Ma Laung
Weil - Felix	yes								
Anti HIV	yes	yes	yes	yes	yes	yes	yes	yes	yes
Influenza A+B Test,								yes	yes
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				
Respiratory viral transport media	yes					yes	yes	yes	yes
Referral lab used for confirming the following diseases:									
Influenza (any type)	RBR Hospital	BRIA Lab	Maesot Hospital	Maesot Hospital	Maesot Hospital	MHS Hospital	MHS Hospital	RMSC, CNX	RMSC, CNX
Bacterial pneumonia		BRIA Lab				MHS Hospital	MHS Hospital	MSR Hospital	MSR Hospital
Cholera	RBR Hospital	BRIA Lab	Maesot Hospital	Maesot Hospital	Maesot Hospital	MHS Hospital	MHS Hospital	RMSC, CNX	RMSC, CNX
Measles	RBR Hospital	BRIA Lab	Maesot Hospital	Maesot Hospital	Maesot Hospital	MHS Hospital	MHS Hospital	RMSC, CNX	RMSC, CNX
Polio	RBR Hospital	BRIA Lab	Maesot Hospital	Maesot Hospital	Maesot Hospital	MHS Hospital	MHS Hospital	RMSC, CNX	RMSC, CNX

Diagnostic capacity	Ban ThamHin	Ban Don Yang	Ban Nu Po	Ban Um Piem	Ban Mae La	Ban Mai NaiSoi	Ban Mae Surin	Ban Mae La Oon	Ban Mae La Ma Laung
Meningitis (viral or bacterial)	Refer the suspected case to hospital	BRIA Lab	Maesot Hospital	Maesot Hospital	Maesot Hospital	MHS Hospital	M HS Hospital	RMSC, CNX	RMSC, CNX
Encephalitis		KRCH				MHS Hospital	MHS Hospital	RMSC, CNX	RMSC, CNX
Dengue	RBR Hospital	BRIA Lab	Umphang Hospital	Umphang Hospital	Maesot Hospital	MHS Hospital	MHS Hospital	MSR Hospital	MSR Hospital
Bacillary dysentery	RBR Hospital					MHS Hospital	MHS Hospital	MSR Hospital	MSR Hospital
Malaria									
Leptospirosis	RBR Hospital	SKL Hospital	Maesot Hospital	Maesot Hospital	Maesot Hospital	MHS Hospital	MHS Hospital	MSR Hospital	MSR Hospital
Hepatitis (any type)	RBR Hospital	BRIA Lab	Maesot Hospital	Maesot Hospital	Maesot Hospital	MHS Hospital	MHS Hospital	RMSC, CNX	RMSC, CNX
Unknown etiology for severe case or clusters	RBR Hospital	KRCH Hospital	Maesot Hospital	Maesot Hospital	Maesot Hospital	MHS Hospital	MHS Hospital	RMSC, CNX	RMSC, CNX

Note:

RBR hospital : Ratchaburiprovincial hospital
KRCH hospital : Kwai River Christian hospital
BRIA Lab :Bangkok RIA Company limited
SKL hospital :SangklaBuri hospital
MHS hospital : Mae Hong Son provincial hospital
MSR hospital : Mae Sarianghospital
RMSC CNX : Regional Medical Science Center 10 at Chiang Mai

Annex 6

List of contact persons from relevant organizations (as of October 2014)

NGOs Agency Epidemiology (HIS) Contact List

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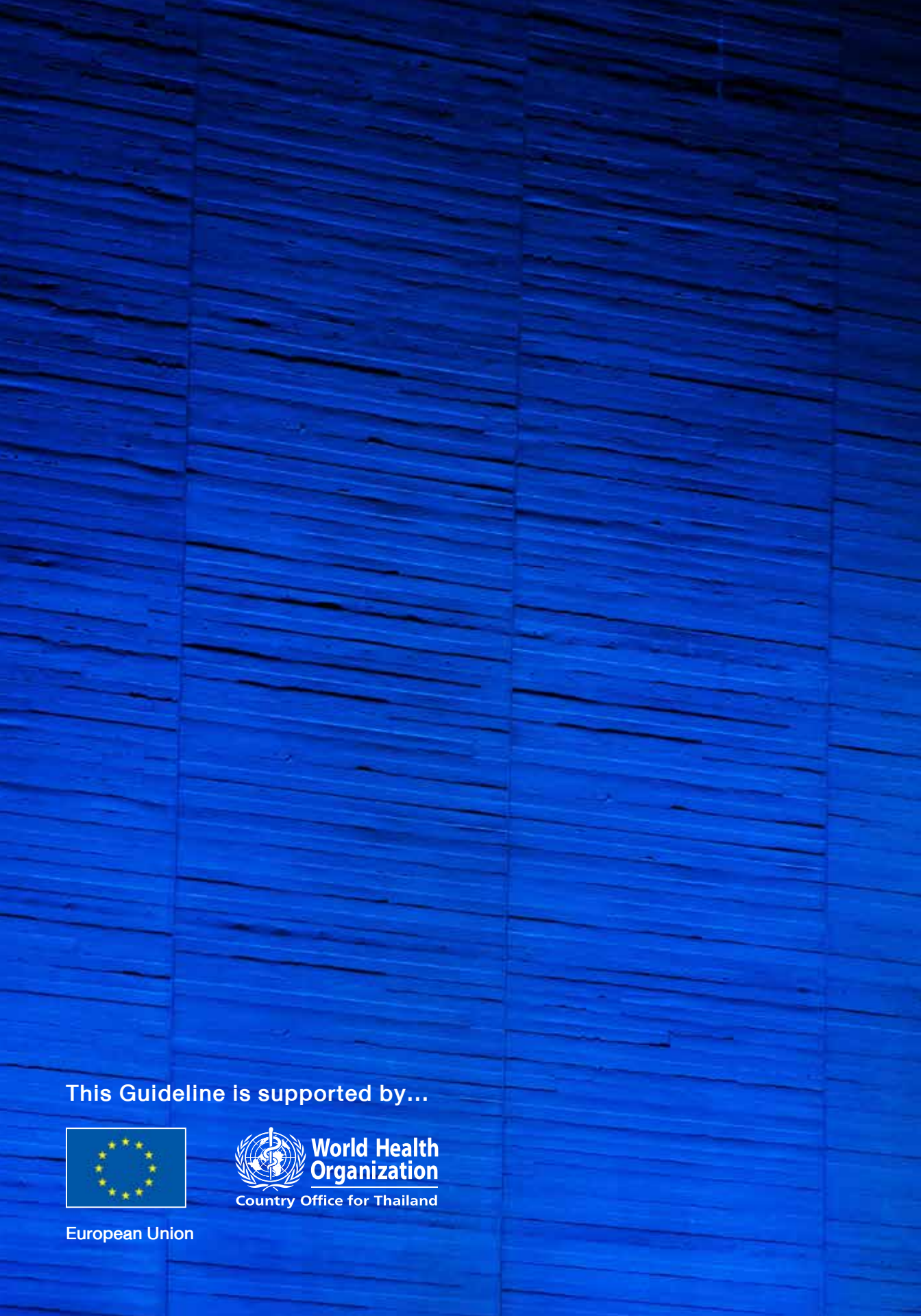

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