

South Asia earthquake-affected areas, 2005

**Operational plan and Communicable Diseases surveillance/early warning
and response guidelines**



**World Health
Organization**



Ministry of Health, Pakistan

WHO Office Pakistan

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Communicable Diseases Working Group on Emergencies, WHO/HQ

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I. Operational structure

1. Overview of communicable disease surveillance/early warning and response following natural disasters – best practices

1.1 Limit the system to priority epidemic-prone diseases

In the acute phase of a natural disaster such as the South Asia earthquake, surveillance efforts must be prioritized to focus on the relatively few epidemic-prone diseases, which, based on experience in previous disasters, have the potential to cause the largest amount of morbidity and mortality in the affected population. During the acute phase of the humanitarian response, a full health survey is not possible due to limited resources and logistic challenges. **Priority** should be given to **communicable diseases for which effective control and prevention is possible**. The surveillance system must be simple, sensitive, and above all, must provide a stimulus for a timely response in order to prevent further morbidity and mortality.

1.2 Rapid response is crucial

Emergency surveillance systems should have several levels of disease detection. An alert (rumour) response component should be in place in addition to the ongoing weekly collection and analysis of written surveillance forms. Surveillance reporters should be encouraged to immediately notify authorities of epidemic-prone diseases or syndromes, which ideally should be investigated within 24 hours. An alert investigation form (with a line list) is enclosed for use in these investigations.

1.3 Analyse surveillance data weekly, but respond immediately to alerts

An early warning system is not designed to be a complete accounting of disease incidence, but should produce signals which can allow for the rapid detection of epidemics. Weekly reporting and analysis of the written surveillance forms is sufficient for monitoring of epidemic disease trends after natural disasters. Nevertheless, a daily alerting system via telephone, short messaging service (SMS), fax or email for key immediately notifiable diseases outbreaks should be in place in order to allow timely investigation of communicable disease alerts.

Data analysis methods and software used should be simple, easy to maintain and transferable between assigned surveillance officers of differing technical capabilities.

1.4 Data collection should not be limited to sentinel sites; instead, surveillance data should be collected from as many sources as possible for as long as possible.

The goal of the surveillance/early warning system should be the immediate detection of epidemic-prone diseases among the earthquake-affected population. This is best achieved by monitoring as many health interactions as possible given the prevailing circumstances and operational constraints. Standardized surveillance forms should be distributed to all health care providers; outpatient, inpatient, NGO, MOH, etc. It is important that the surveillance/early warning system established is structured in a manner that will enable it to complement or augment the previously existing national routine surveillance system.

2. Introduction

Effective communicable disease control relies on effective disease surveillance. Following a natural disaster, a sensitive communicable diseases surveillance/early warning and response system is essential for action on priority communicable diseases. It is a key part of public health decision-making during humanitarian emergencies. Four stages are being used to implement an effective Communicable Disease surveillance/early warning and response system in the earthquake-affected areas of Pakistan.

Stage 1: Planning

Reporting sites are being identified in the earthquake-affected areas, and wherever possible staffed by trained officers.

Objectives of the reporting structure are to:

- 1- Identify or recruit reporting sites from health care providers working in the earthquake affected areas.
- 2- Identify or assign focal persons for each reporting site
- 3- Immediately report notifiable diseases
- 4- Detect and monitor occurrence of communicable diseases outbreaks.
- 5- Identify patterns of diseases as compared with previous data.
- 6- Institute recommended control measures.

Additional non-communicable disease related activities that may be added include:

- 7- To quantify the number of injuries/wounds resulting from the earthquake.
- 8- To register the cumulative number of deaths from each reporting site.

Stage 2: Data Collection

WHO and Ministry of Health counterparts should:

- 1- Standardize and finalize reporting forms.
- 2- Specify the route of information flow and define responsibilities at each level of reporting.
- 3- Train national officers on data collection and reporting
- 4- Provide technical supervision to the flow of information from the field

Stage 3: Data Analysis

WHO and national counterparts at the Ministry of Health in Pakistan should review the reported alerts a daily basis, and analyze information on a weekly basis. This requires analytical epidemiological capacity at the central level. Reports generated after each weekly analysis should be made available to all stakeholders.

Additionally, efforts should be made to obtain current demographic population data.

Stage 4: Taking Action

WHO and Ministry of Health will:

- 1- Provide technical guidelines on public health interventions for controlling the reported communicable diseases
- 2- Develop a summary chart of the control measures needed for each notifiable disease including pharmaceutical and non-pharmaceutical measures.
- 3- Facilitate technical coordination of implementation of control measures.
- 4- Encourage stock-taking and advise on the pre-positioning of medical supplies required for implementation of recommended public health measures.

3. Operational plan

3.1 Surveillance Sites

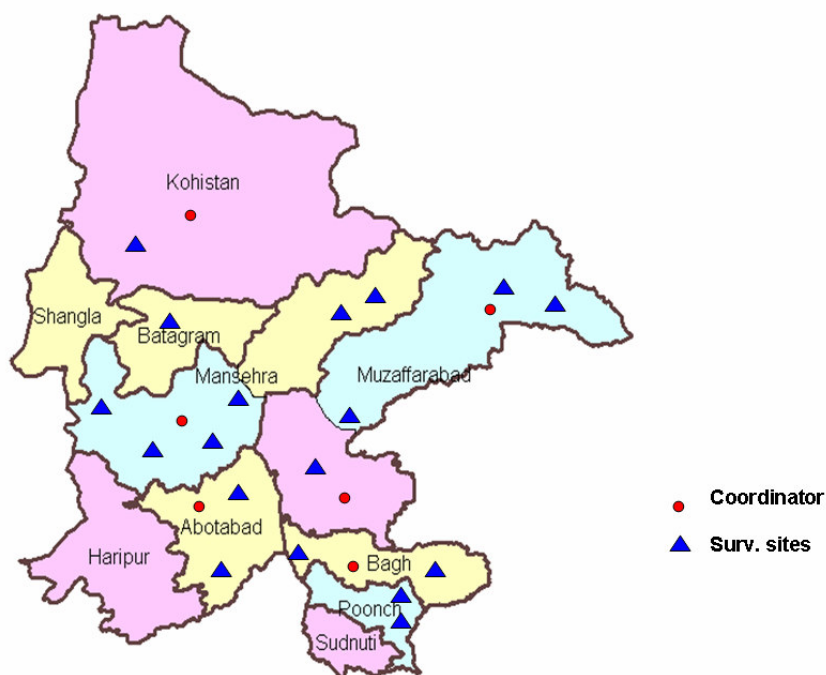
A total of 18 preliminary surveillance sites have so far been identified, and are detailed below.

Table 1: Reporting sites

| Province | Location | Total sites |
|-------------------------------------|--|-------------|
| Pakistan administered Kashmir (AJK) | Muzafarabad 2 in the city (ICRC FH, AIMS) 2 outside the city (Hattian Tehsil, Neelum Valley) | 4 |
| | Bagh 1 Forward Kahuta 1 in the city | 2 |
| | Poonch Rawlakot | 2 |
| North West Frontier Pakistan (NWFP) | Mansehra DHQ Shinkiari RHC Afghan Refugee camp in city 1 to be determined | 4 |
| | Balakot Rural health centre 1 to be determined | 1 |
| | Abottabad 1 Ayub Medical college 1 to be determined | 1 |
| | Batagram 1 Batagram city | 1 |
| | Kohistan and Shangala 1 Dassau city | 1 |
| | Current TOTAL | 16 |

Figure 1: Proposed surveillance (communicable disease information/data collection) sites, October 2005

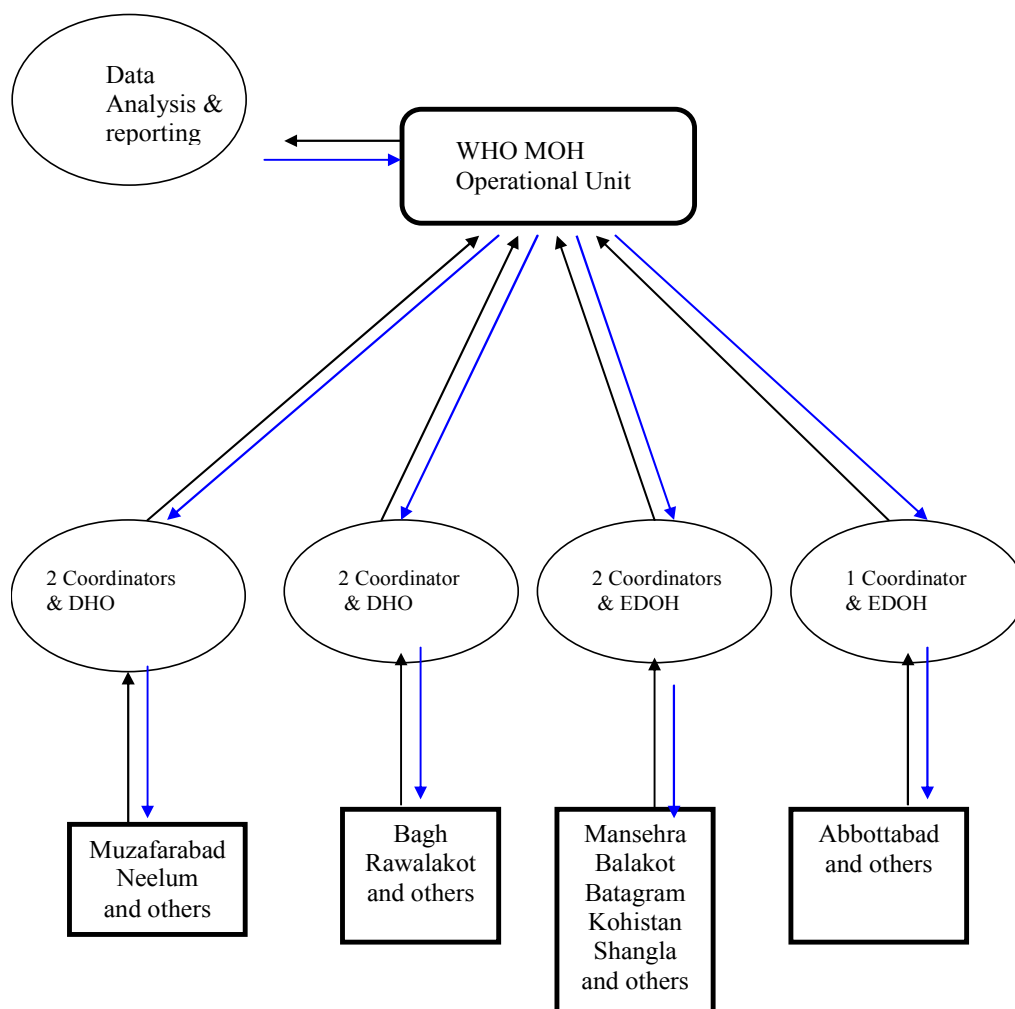
Surveillance sites in earthquake affected areas



3.2 Information and data flow

In order to ensure efficient coordination of information collected and subsequent feedback to stakeholders, information should flow as outlined in figure 2 below.

Figure 2



3.3 Surveillance Tools

Two forms will be used in communicable diseases reporting and response as below:

- 1- Weekly reporting form on Morbidity and Mortality: this is the main data collection and reporting tool. The form also contains case-definitions for epidemic-prone diseases and a list of notifiable priority communicable diseases of local and global public health concern.
- 2- Alert/Outbreak investigation form – to be used for alert and investigation.

3.4 Data entry and analysis

Data will be entered and analyzed using appropriate software. The National Institute of Health in Pakistan will support the production of appropriate electronic data entry files.

3.5 Report writing

Reports on data analysis and interpretation will be produced by the health operational unit under the technical supervision of the WHO Representative in Pakistan. Other types of reports may be formulated depending on the health information needs and urgency. Feedback reports will be published and distributed to all concerned sectors and facilities.

4. Human resources needed

4.1 Surveillance Officers: Public Health Graduates

Tasks:

- 1- Investigate alerts/rumors in the area
- 2- Encourage health care providers to participate in disease surveillance/early warning system
- 3- Collect the reporting forms from disease surveillance reporting units
- 4- Make sure data are correct and complete
- 5- Communicate with the coordinator to report the collected data

Each site should be operated by a trained surveillance officer who will be responsible for coordination of data collection at field level.

4.2 Coordinators (mid-level)

Qualification: Public health experts/epidemiologist

Tasks:

- 1- Technical support supervision of surveillance officers
- 2- Collection of data forms from surveillance officers
- 3- Report the collected data to the operational unit
- 4- Communicate rapidly with the operational unit for any sudden occurrence of major diseases for investigation
- 5- Undertake case/outbreak investigation and initial public health response as required
- 6- Coordinate with MOH teams especially District Health Officers and other stakeholders
- 7- Distribute feedback reports to the reporting sites

The mid-level coordinators will be distributed in the affected areas of South Asia/Pakistan Earthquake as follows:

- 1- Muzarafabad
- 2- Mansehra, Balakot, Batagram, Kohistan
- 3- Abbottabad
- 4- Bagh, Rawalakot

The coordinators in the field should work closely with the District Health Officers and provide additional support.

4.3 Operational Unit

Additional staff to support the operational unit include the following:

Data entry clerk

Tasks:

- 1- Compile the reported forms received at the operation unit
- 2- Enter the data received from the field

Program Assistant:

Tasks

- 1- Track and monitor incoming and outgoing mails and reports
- 2- Maintain program records
- 3- Administrative financial support
- 4- Assist the Program Coordinator in discharge of his/her duties

Program Coordinator

Qualification: Public Health Expert/Epidemiologist

Tasks:

- 1- Conduct data analysis and interpretation.
- 2- Produce reports and feedback reports.
- 3- Supervise surveillance activities conducted by the coordinators and the surveillance officers.
- 4- Coordinate all surveillance activities with MOH, partners and related stakeholders.
- 5- Replace the WHO International Expert once the system is settled.

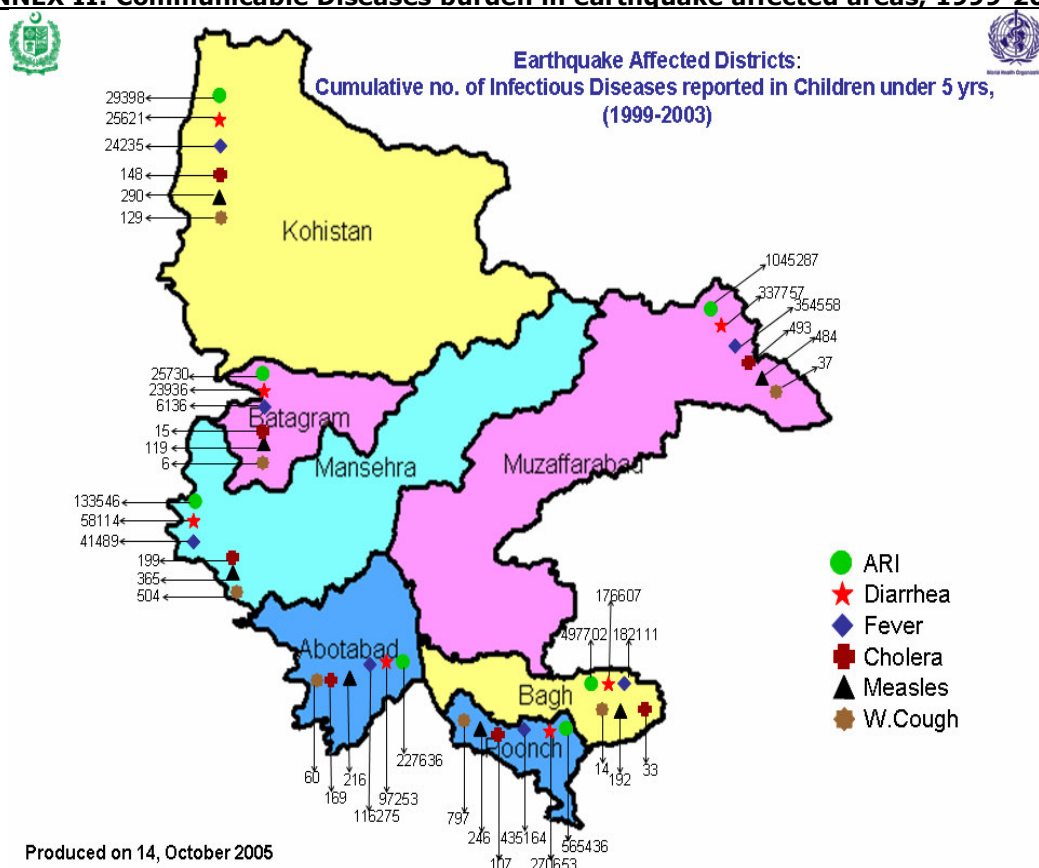
Table 3: Summary of Resources to support communicable disease surveillance/early warning and response activities

| Resource | | Total |
|---------------------------------------|--|-----------|
| Human resources | Surveillance Officers | 18 |
| | Public Health Experts/Epidemiologists | 6 |
| | National level Public Health Expert/Epidemiologist | 1 |
| | Data operator | 1 |
| | Program Assistant | 1 |
| | Field supporting staff: drivers | 24 |
| | TOTAL | 51 |
| Logistics (proposed estimates) | 23 Vehicles 27 Mobile phones 24 Satellite phones 9 Computers: 3 desktops and 6 laptops 50 Quick run bags 50 tents 50 food kits | |

ANNEX I: Population of earthquake affected districts

| TEHSIL WISE POPULATION OF EARTHQUAKE AFFECTED DISTRICTS | | |
|---|--------------|------------------|
| Districts | Tehsils | 2005 |
| Muzaffarabad | Athmuqam | 15 0764 |
| Muzaffarabad | Muzaffarabad | 54 4443 |
| Muzaffarabad | Hattian | 19 9157 |
| Bagh | Dhir Kot | 11 6170 |
| Bagh | Bagh | 20 7884 |
| Bagh | Haveli | 12 8478 |
| Poonch | Rawalakot | 26 1687 |
| Poonch | Abbaspur | 20 9314 |
| Poonch | Hajira | 16 2711 |
| Sudhnuti | Pallandari | 25 2678 |
| Total | | 2 233 285 |

ANNEX II: Communicable Diseases burden in earthquake affected areas, 1999-2003



II: Surveillance/early warning and response technical guidelines

1. Health risks for communicable diseases following South Asia Earthquake

The communicable diseases summary below is based on data collected by available documentation from South Asia earthquake-affected areas and previous similar emergencies.

Epidemic prone diseases:

- Cholera
- Shigellosis
- Typhoid fever
- Acute Lower Respiratory Infection
- Hepatitis A, E
- Measles
- Meningitis
- Influenza

Diseases linked to precarious conditions/overcrowding:

- All diarrhoeas
- Acute respiratory tract infection
- Hepatitis A, E
- Influenza
- Meningitis
- Measles
- Tuberculosis
- Crimean-Congo haemorrhagic fever

Vector borne diseases present in most of the earthquake-affected areas:

- Dengue
- Malaria
- Scrub Typhus
- Japanese encephalitis
- Crimean-Congo haemorrhagic fever

Zoonoses present in most of the earthquake-affected areas:

- Anthrax
- Rabies
- Brucellosis
- Leptospirosis

2. Risk factors for outbreak in emergency situations

| Disease / Health event | Risk factors |
|--|---|
| Acute respiratory infections | Inadequate shelter Poor health care services Overcrowding Lack of food, malnutrition Age group under one year old Elderly people Rainy season |
| Diarrhea diseases/Hepatitis A, E | Overcrowding Inadequate quantity and/or quality of water Poor personal hygiene Poor washing facilities Poor sanitation Insufficient soap Inadequate health care services |
| Measles | Measles immunization coverage rates below 80% in area of origin Population movement Overcrowding Malnutrition |
| Malaria and other vector borne diseases (Japanese Encephalitis, Scrub Typhus, Crimean Congo hemorrhagic fever) | Movement of people from areas of low endemicity to hyperendemic areas. Exposure to areas where vectors are more present Lack of shelter Interruption of vector control measures Inadequate health care services Stagnant water (rains) Seasonal changes in weather patterns (rains) |
| Meningococcal meningitis | Overcrowding High rates of acute respiratory infection |
| Dengue hemorrhagic fever | Dengue hemorrhagic fever endemic area Vector breeding sites (water pools, water storage, pounds, etc.) Poor vector control |
| Zoonoses | Poor control of slaughtering Contact with infected animals due to lack of veterinary control Increased rate of diseases in animals |
| Neonatal Tetanus, Adult tetanus | No safe procedures for traditional births attendants Disruption of immunization program Open wounds due to trauma Poor hygiene |
| Leptospirosis | Contamination of water by rat urine Contact with infected domestic and other animals (dogs, rats) Inadequately treated drinking water sources Poor hygienic conditions in shelters and immediate environment. |

3. Suggested health events for Surveillance/Early Warning system according to major risks of communicable diseases in the affected countries

- Suspect Cholera
- Acute diarrhoea
- Acute bloody diarrhoea
- Acute Jaundice syndrome
- Suspected meningitis
- Acute Lower Respiratory Infection
- Suspected measles
- Unexplained fever
- Suspected malaria
- Acute hemorrhagic fever
- Tetanus
- Typhoid fever
- Unknown diseases occurring in a cluster

Additional health events could be eventually included according to specific conditions and public health control activities:

- Malnutrition
- Hypothermia

4. Rumours

The rumours/health events may be communicated in an informal way by people selected as key informants from affected communities based on the following symptoms/health conditions:

- Acute bloody diarrhoea
- Suspect Cholera
- Typhoid fever
- Acute onset of fever with rash
- Acute onset of fever with convulsion or vomiting
- Acute onset of fever with hemorrhagic signs
- Yellow eyes/Jaundice/hepatitis
- Cluster of severe malaria, including death
- Meningitis
- Acute flaccid paralysis /suspected poliomyelitis (AFP)
- Tetanus
- Cluster of unexplained cases or deaths (people in the same settlement)

These rumours must be tracked according to when reported, when investigated and final classification of the rumour.

5. Case definitions for health events

| Health event (with acronym) | Definition |
|--|--|
| Suspect Cholera - AWD | Person aged over 5 years with severe dehydration or death from acute watery diarrhoea. Person aged over 2 years with acute watery diarrhoea <i>in an area where there is a cholera outbreak.</i> |
| Acute Diarrhoea - AD | Acute diarrhoea (passage of 3 or more loose stools in the past 24 hours) with or without dehydration |
| Acute Bloody Diarrhoea (Dysentery) - ABD | Acute diarrhoea with visible blood |
| Acute Lower Respiratory Infection ARI | Fever > 38°C, cough or difficulty in breathing AND fast breath (≥ 50 breaths/min) for infant aged 2 months to < 1 year fast breath (≥ 40 breaths/min) for child aged 1 to 5 years |
| Suspected Measles - MEA | Rash with fever and cough, runny nose or conjunctivitis |
| Acute Jaundice Syndrome - AJS | Acute onset of yellow eyes or skin |
| Suspected meningitis including suspected encephalitis* (see specific case definition for Japanese encephalitis below) - MEN | 12 months and over: sudden onset of fever (> 38° C) with one or more of the following: <ul style="list-style-type: none"> • Neck stiffness • Altered consciousness • Severe unexplained headache • Vomiting or Under 12 months: fever (> 38° C) with bulging fontanel |
| Acute Haemorrhagic Fever Syndrome - AHF | Acute onset of fever (less than 3 weeks) and any of the following. <ul style="list-style-type: none"> • Hemorrhagic or purpuric rash • Vomiting with blood • Cough with blood • Blood in stools • Epistaxis • Other hemorrhagic symptom |
| Confirmed Malaria - MAL | Person with fever or history of fever within the last 48 hours (with or without other symptoms such as nausea, vomiting and diarrhoea, headache, back pain, chills, myalgia) with positive laboratory test for malaria parasites [blood film (thick or thin smear) or rapid diagnostic test]. |
| Unexplained fever - UF | Fever (> 38°C) for more than 48 hours and not meeting the above case definitions |

Continued: Case definitions for health events

| | |
|--|---|
| Unexplained cluster of health events - UCE | An aggregation of cases with related symptoms and signs of unknown cause that are closely grouped in time and/or place. |
| Acute Flaccid Paralysis (suspected poliomyelitis) - AFP | Acute flaccid paralysis in a child aged < 15 years, including Guillain Barré syndrome or any acute paralytic illness in a person of any age. |
| Tetanus in adult - AT | One or more of the following signs: Trismus of the facial muscles (masseter and neck)/ <i>risus sardonius</i> Painful muscular contractions. |

*Case definition for Japanese Encephalitis

Sudden onset of fever, chills, aches, including headaches and sometimes meningismus, particularly in adults. In children, gastrointestinal pain and dysfunction may dominate initial stage of the disease and convulsions are common.

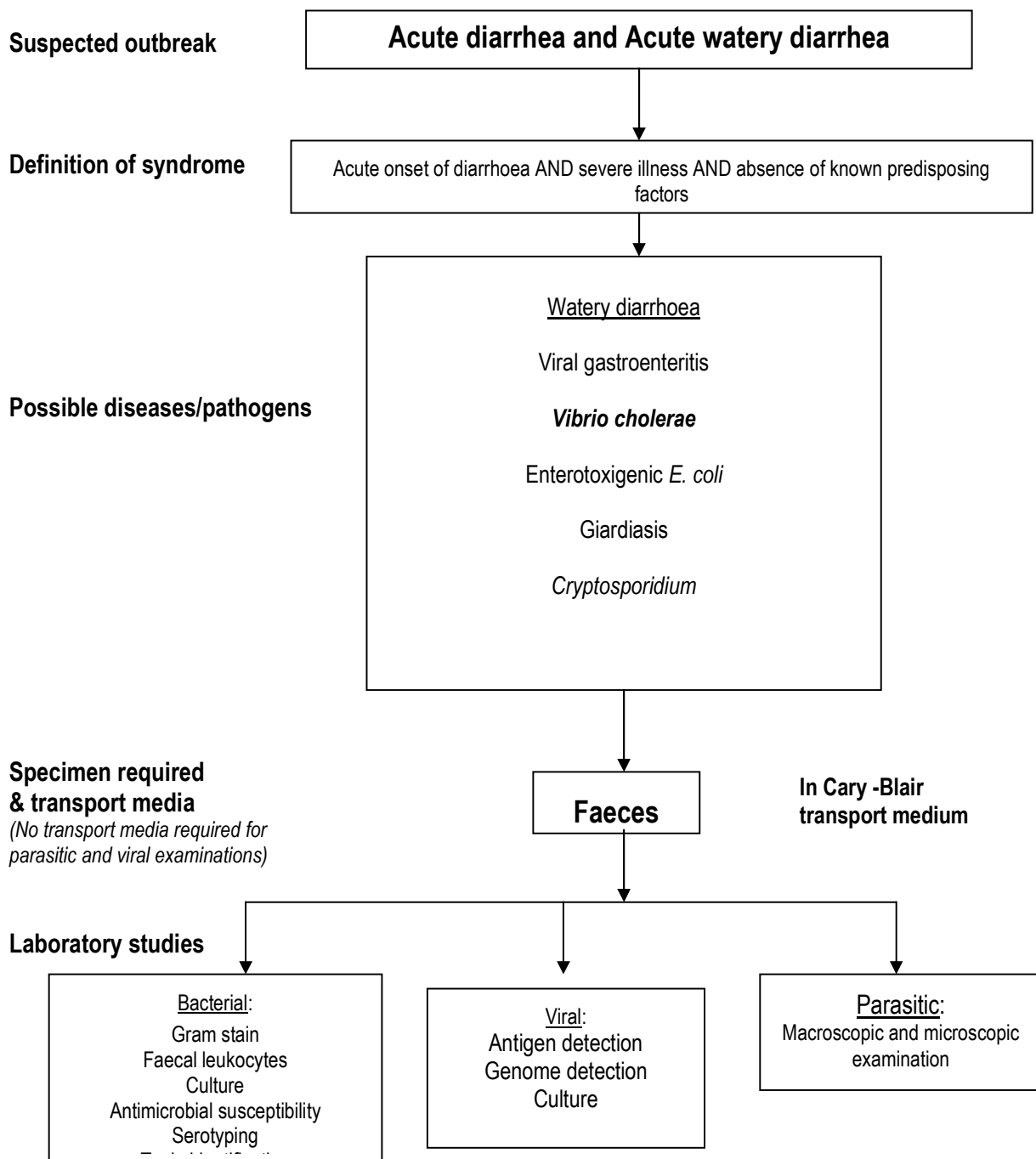
6. Suggested alert threshold to trigger further investigation

| Health event | Alert threshold | Action suggested |
|--|--|--|
| Suspect cholera | One case of acute watery diarrhoea in patient 5 years of age or older, or Death due to dehydration in patient 5 years or older | Active case finding and immediate specimen collection for laboratory confirmation. |
| Acute diarrhoea | Unexpected increase in cases of acute diarrhoea (passage of 3 or more loose stools in the past 24 hours) with or without dehydration | Active case finding and immediate specimen collection for laboratory confirmation |
| Acute bloody diarrhoea | A cluster of acute bloody diarrhoea in the same settlement in one week | active case finding and immediate specimen collection for laboratory confirmation |
| Acute Lower Respiratory Infections | Unexpected increase in cases | Active case finding and immediate specimen collection for laboratory confirmation |
| Suspected Measles | One case of suspected measles detected in settlements should be considered as the beginning of an outbreak | Immediate active case finding and immediate response in coordination with the national immunization programme |
| Acute Jaundice syndrome | One case of acute jaundice syndrome | Active case finding and immediate specimen collection for laboratory confirmation |
| Suspected meningitis Including suspected encephalitis | One case of meningitis | An investigation for the active case finding should be triggered and the collection of CSF should immediately be ensured to confirm the cases. |
| Acute hemorrhagic fever syndrome | One case of acute hemorrhagic fever | Active case finding and specimen collection for laboratory confirmation. |

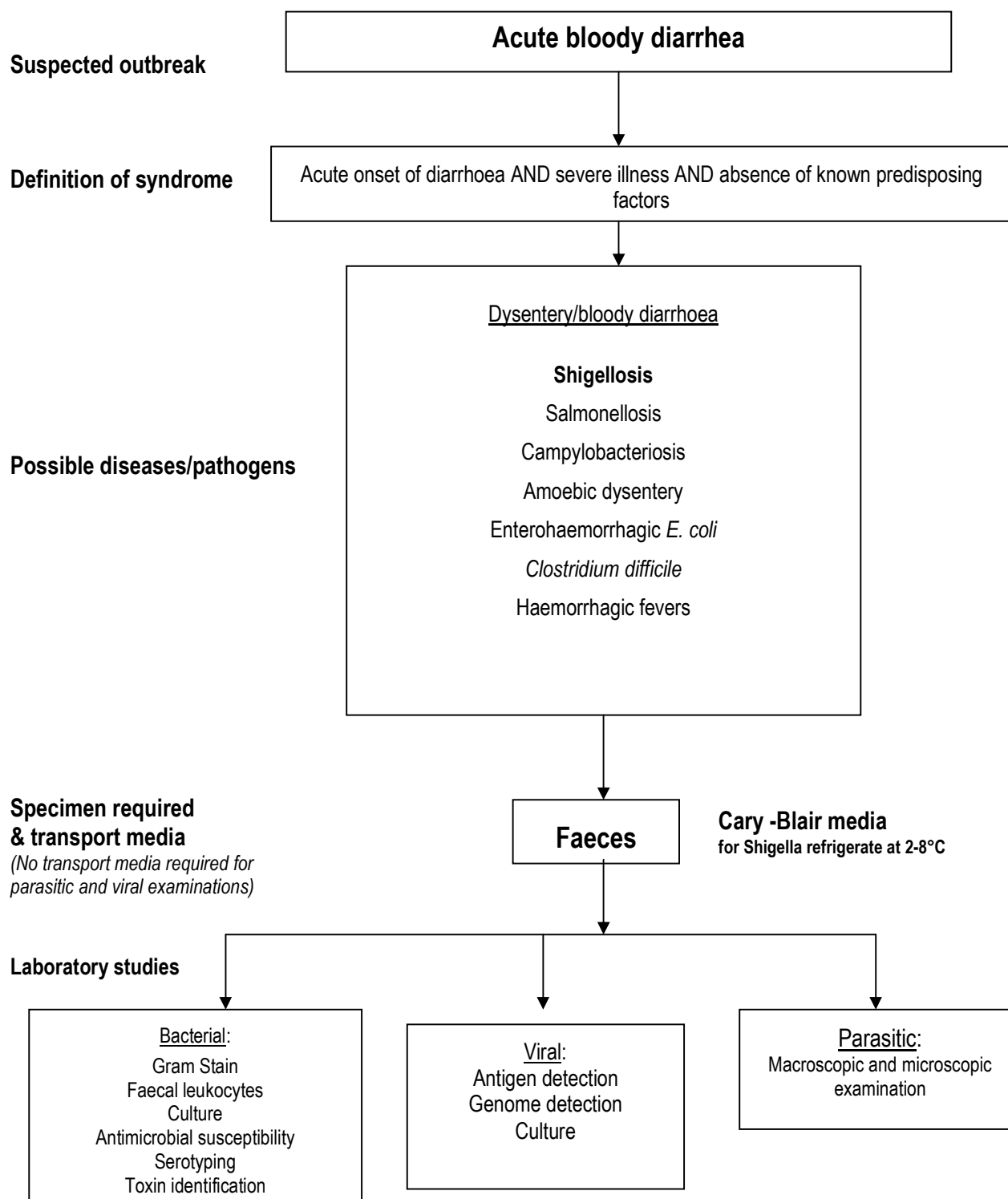
Continued: suggested Alert threshold to trigger further investigation

| Health event | Alert threshold | Action suggested |
|--|---|---|
| Suspected malaria | Increasing number of severe malaria cases, including death | Active fever finding and specimen collection for laboratory confirmation |
| Unexplained fever | Abnormal increase in unexplained fever cases associated with an unusual increase of specific mortality | Active case finding and specimen collection for laboratory confirmation |
| Unknown diseases occurring in cluster | An aggregation of cases with related symptoms and signs of unknown cause that are closely grouped in time and/or place | Active case finding and specimen collection for laboratory diagnosis |
| Acute Flaccid Paralysis (suspected poliomyelitis) | One case of acute flaccid paralysis | Active case finding and specimen collection for laboratory diagnosis |
| Adult tetanus | One case of adult tetanus | Reinforce community health messages; consider prophylaxis for those with similar exposure |

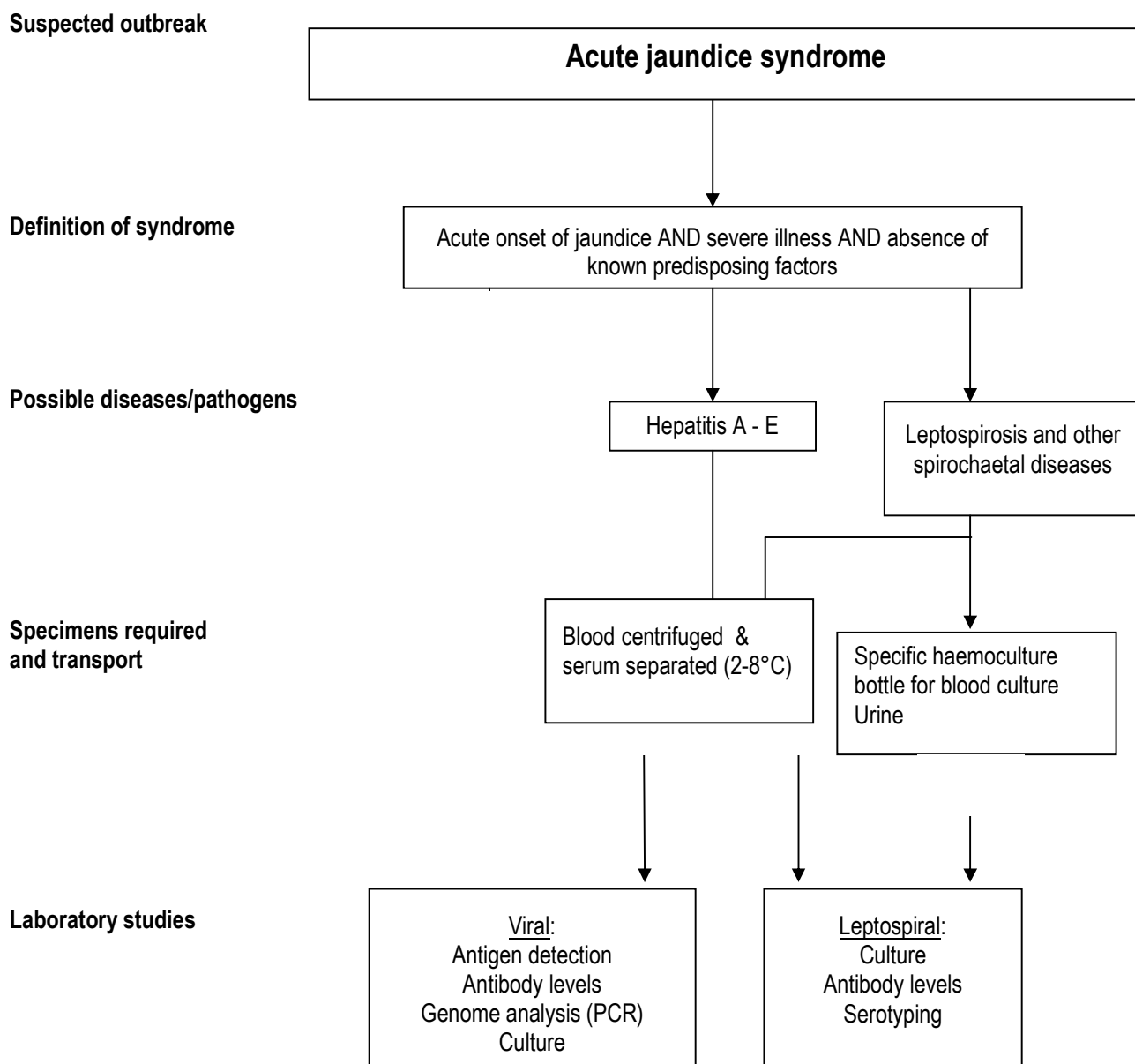
7. Flowchart for the laboratory confirmation of acute watery diarrhoea



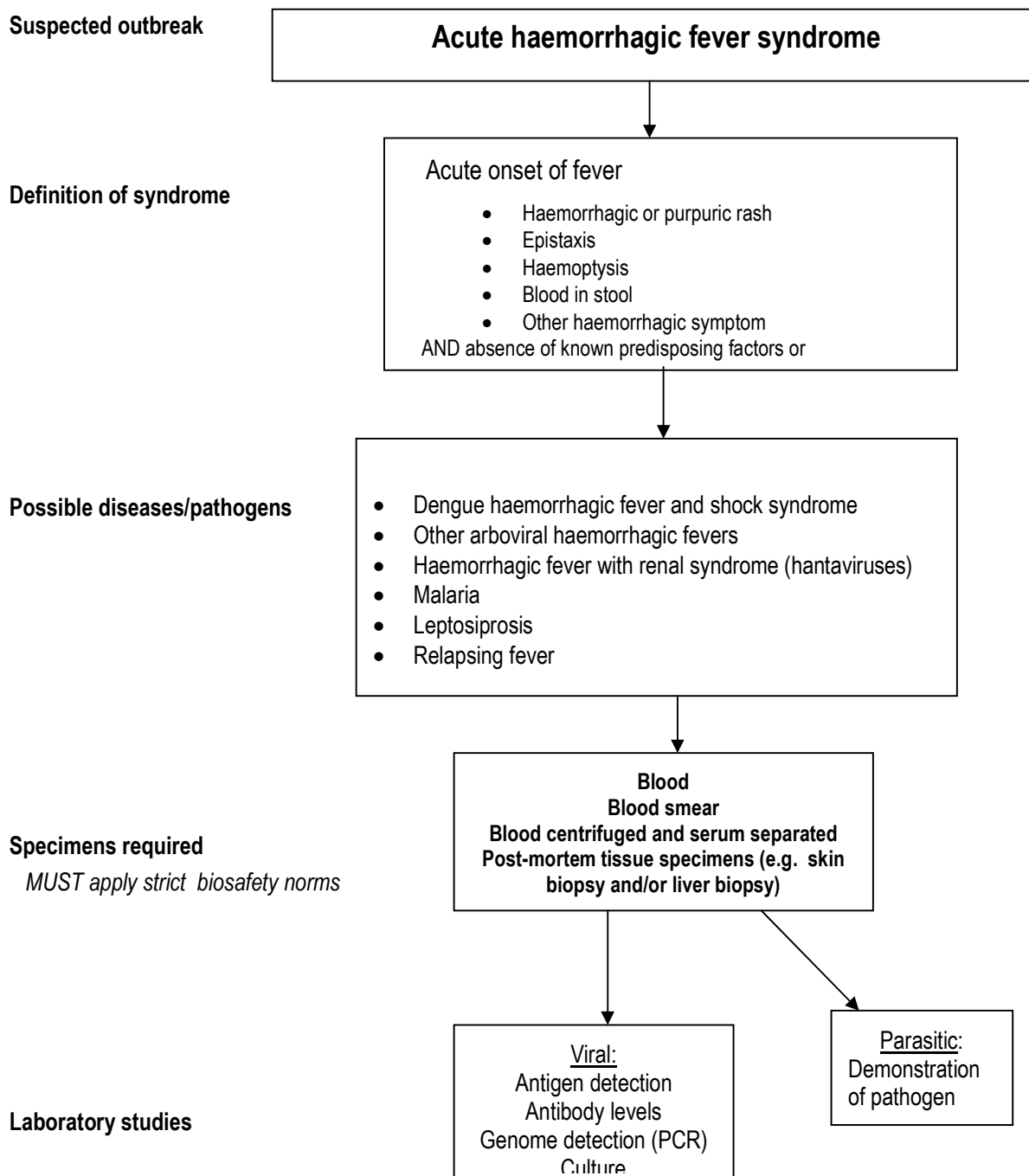
8. Flowcharts for the laboratory confirmation of acute bloody diarrhoea



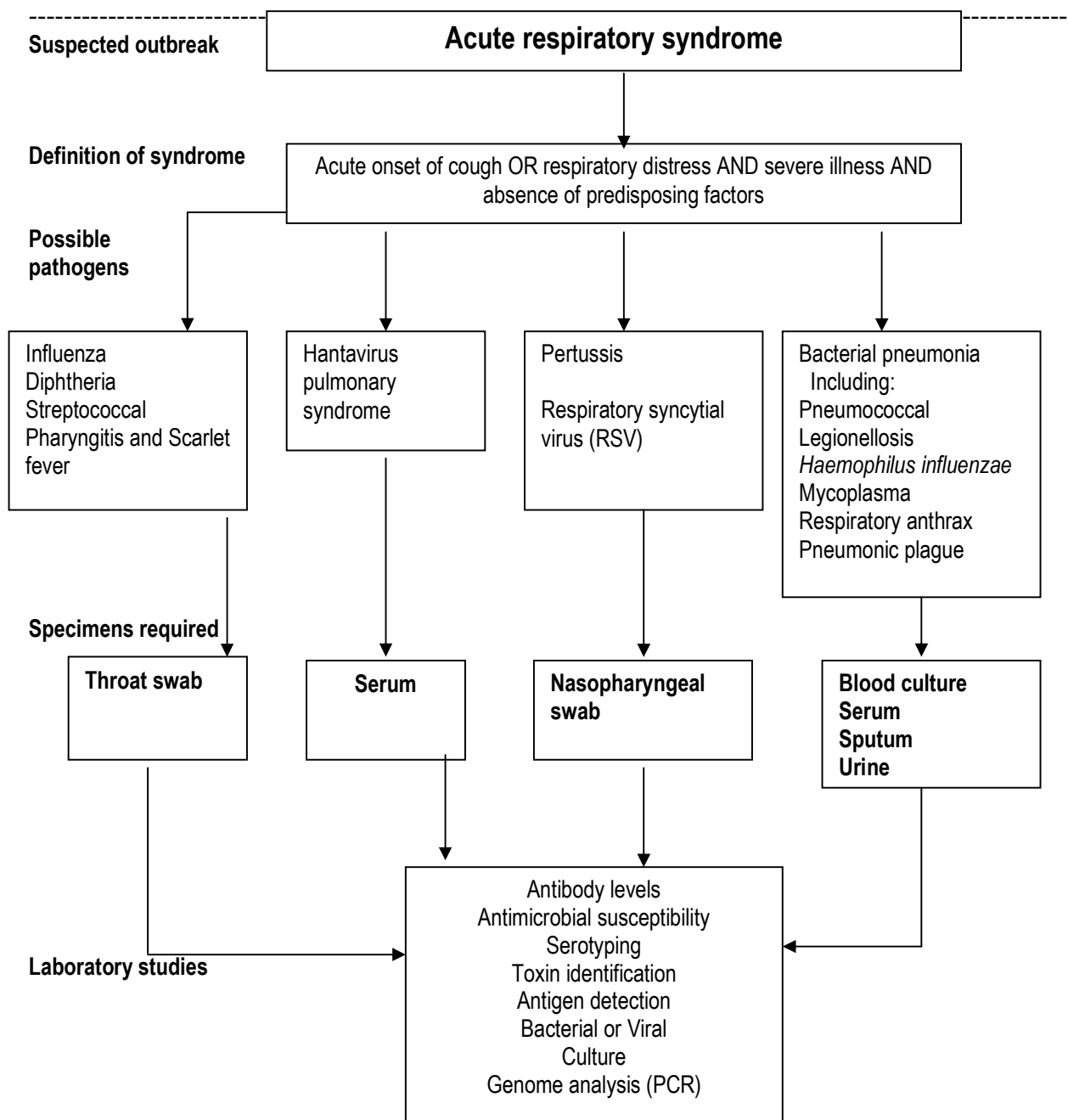
9. Flowcharts for the laboratory confirmation of acute jaundice syndrome



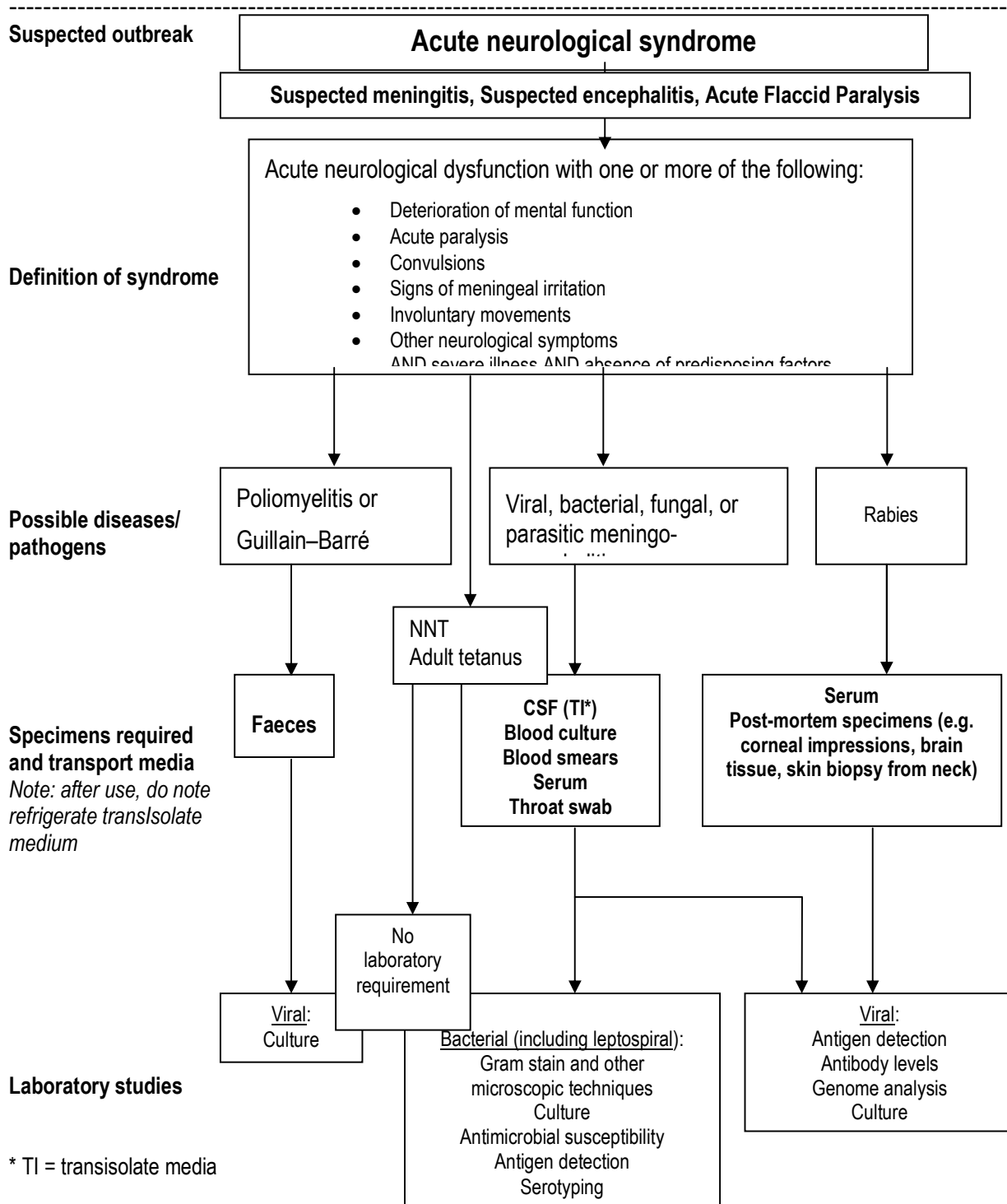
10. Flowcharts for the laboratory confirmation of acute hemorrhagic fever syndrome



11. Flowcharts for the laboratory confirmation of acute lower respiratory infection



12. Flowcharts for the laboratory confirmation of acute neurological syndrome (Suspected meningitis, suspected encephalitis, Acute flaccid paralysis)



13. Diseases under surveillance/early warning and response which require laboratory confirmation

| Health event | Case definition | Laboratory Suspicion (Field level screening) | Laboratory confirmation (Definitive diagnosis) |
|----------------------------------|---|--|--|
| Suspect cholera | Acute watery diarrhoea with severe dehydration in a patient older than five years, or death due to dehydration in patient 5 years or older. | Presumptive diagnosis using microscopy: <ul style="list-style-type: none"> • Motile Gram negative bacilli (<i>Vibrio</i>) • Gram negative rod, RBC and altered WBC (<i>Shigella</i>) • Vegetative or cystic forms (amoebes, <i>Giardia</i>, <i>Trichimonas</i>) • Positive agglutination of the stools for rotavirus or adenovirus using RDT | Identification of the causative micro-organism using culture techniques OR fine microscopy in a reference parasitology laboratory OR ELISA/viral culture for viral aetiologies |
| Diarrhoea with blood (Dysentery) | More than 3 loose stools per day (24 hours) with visible blood | | |
| Acute respiratory infection | Fever and at least one of the following : rhinitis, cough, redness or soreness of throat OR Fever and fast breath (≥ 50 breaths/min) and at least one of the following : cough, difficulty in breathing | Presumptive diagnosis using microscopy: <ul style="list-style-type: none"> • Monomorphic flora using Gram stain • Presence of AFB using the Ziehl Nielsen stain • Positive agglutination using a RDT¹ | Identification of the causative micro-organism using culture techniques (standard culture techniques as well as mycobacterium culture techniques) or PCR (TB) Viral infections such as influenza can be diagnosed by: <ul style="list-style-type: none"> • Serology or hemagglutination inhibition • Viral culture or PCR |
| Suspected Measles | Rash with fever and cough, runny nose or conjunctivitis | none | Identification of specific IgM in a serum |

¹ Remember that RDT remain screening tests. In the specific context of meningitis, no large Public Health response should be performed before a definitive laboratory confirmation of the agent, including serotyping on a culture (not directly on the CSF) and antimicrobial susceptibility

| | | | |
|--------------------------------------|---|---|--|
| Acute Jaundice syndrome ² | Acute onset of yellow eyes or skin | | OR ideally |
| Acute Hemorrhagic fever syndrome | Acute onset of fever (less than 3 weeks) and any of the following: Hemorrhagic or purpuric rash, Vomiting with blood, Cough with blood, Blood in stools (Epistaxis is an uncommon clinical presentation) | | Increase of IgM rate in paired sera (early & late) |
| Suspected meningitis | <ul style="list-style-type: none"> 12 months and over: sudden onset of fever (> 38° C) with stiff neck Under 12 months: fever with bulging fontanel | Presence of characteristic micro-organism at the Gram stain microscopy OR Positive agglutination using a RDT ³ | Identification of the causative micro-organism using culture techniques and including serotyping and AST |
| Acute Flaccid Paralysis | Acute flaccid paralysis in a child aged < 15 years, including Guillain Barré syndrome or any acute paralytic illness in a person of any age. | none | Identification of the poliovirus in a reference viral culture laboratory using WHO recommended methods |

² Leptospirosis can be diagnosed by serology, culture and immuno-fluorescence. Molecular techniques can also be used for confirmation. There is no real screening test available.

³ Remember that RDT remain screening tests. In the specific context of meningitis, no large Public Health response should be performed before a definitive laboratory confirmation of the agent, including serotyping on a culture (not directly on the CSF) and antimicrobial susceptibility

South Asia earthquake affected areas: Communicable Diseases surveillance/early warning and response

| | | | |
|-------------------|--|---|--|
| Malaria | Person with fever or history of fever >38°C within the last 48 hours with one or more of the following symptoms: such as nausea, vomiting and diarrhoea, headache, back joint pain, chills, myalgia) | | <p>Presence of characteristic micro-organism at the Giemsa stain microscopy (thick or thin smear) or rapid diagnostic test⁴.</p> <p>Giemsa stain microscopy can be used to differentiate between species of <i>plasmodia</i>.</p> <p>Most RDT detect an antigen (histidine rich protein 2) of plasmodium falciparum but the new cassette Combo test Pf /pan RDT (HRP2-aldolase) detect HRP2 and other antigens.</p> |
| Unexplained fever | Fever (> 38°C) for more than 48 hours and not meeting the above case definitions | Positive agglutination for Brucella on a serum, using a RDT | Identification of the causative micro-organism ⁵ using culture techniques |

Other diseases under surveillance which do not require laboratory confirmation:

- Adult tetanus

⁴ RDT detecting several antigens (HRP2 and other antigens) are recommended

⁵ Are included *Brucella* spp., *Salmonella* spp., *Leptospira* spp., viral diseases.

14. Kit for collection of specimens in emergency conditions

Laboratory sampling kit

This sampling kit is to be used for two different purposes:

- **Outbreak investigation**, used by mobile teams
- **Disease confirmation**, used by staff working in health centres

Important note: this kit is a **SAMPLING kit, not an ANALYSIS kit**, no RDT or rapid diagnosis can be made through it. To obtain results, samples must reach a laboratory.

This sampling kit allows the user to take:

- 4 CSF specimens
- 20 stool specimens
- 12 serology specimens
- 6 blood cell counting specimens
- 50 malaria smears
- 10 urine/sputum specimens
- 4 haemoculture specimens
- 10 throat swabs

It is possible to change the number of samples to be collected.

Contents of laboratory sampling kit

| Item | Quantity |
|---|-----------------|
| Adhesive tape | 1 |
| Alcohol 90, 30 ml | 1 |
| Bic pens, 3 different colours | 3 |
| Cary Blair transport media in glass tubes | 20 |
| Distilled water, 30 ml | 1 |
| Dressing tape 6cm*1 m | 1 |
| Empty plastic bah with zip | 5 |
| Glass slides 22*40 mm, pack of 50 | 2 |
| Gloves, non sterile, by 20 | 1 |
| Guideline on sampling | 2 |
| Haemoculture bottles and slides (BBL) | 4 |
| Hydrophilic cotton, 100g | 1 |
| Iodine, 30 ml | 1 |
| Kit CSF adult | 2 |
| Kit CSF children | 2 |
| Lancets, set of 200 | 1 |
| Marker | 1 |
| One rigid plastic case containing all equipment | 1 |
| Protective glasses | 1 |
| Protective masks | 3 |
| Request forms | 40 |
| Rubbers | 10 |
| Small metallic forceps | 1 |
| Sterile collection swab | 20 |
| Sterile plastic pipettes for blood/serum separation | 12 |
| Sterile saline 5 ml in glass tube | 5 |
| Tourniquet | 1 |
| Urine/stool collection box | 10 |
| Vacutainer blood collection kit | 1 |
| Safe waste disposal boxes | 5 |

Details about CSF sampling kits

| | |
|---|---|
| Pair of sterile gloves | 1 |
| Iodine applicator | 1 |
| Plastic sterile tubes and lid | 2 |
| Mini hand soap | 1 |
| Band aid | 1 |
| Labels | 3 |
| Alcohol swab | 2 |
| Gauze sponge | 1 |
| Hypodermic needle 21 G 1 1/2 | 1 |
| 3 ml plastic syringe | 1 |
| Spinal needle, 20G *3-1/2, 91mm*8,89cm ** | 1 |
| Insulated container for triple package | 1 |

Vacutainer blood collection kit

| | |
|---------------------------|----|
| Orange capped tube, 10ml | 12 |
| Purple capped tube, 5 ml | 6 |
| Vacutainer adaptor | 6 |
| Needles/butterfly needles | 20 |

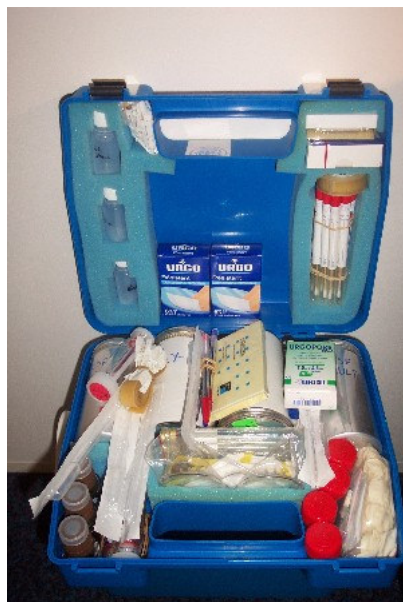
** for children, this item is replaced by spinal needle 22G * 2-1/2 , 72 mm*6,35cm

Figure 1: CSF collection kit*



*Developed by CDC meningitis branch for meningitis belt countries.

Figure 2: Sampling kit prototype



**Annex I: Weekly Surveillance Reporting Form
Morbidity (disease) and Mortality (death)**

Province: _____ District: _____ Sub district: _____
 Town/Village/Settlement/Camp: _____ Name of hospital or clinic: _____
 Estimated population (if known): _____ Population < 5 years: _____
 Supporting agency (ies): _____
 Name and telephone number of contact officer: _____

Start of week from Saturday:/...../2005 to end of week Friday:/...../2005
Week Number: _____

| Report the number of CASES | CASES (morbidity) | | DEATHS (mortality) | |
|---|-------------------|----------|--------------------|----------|
| | <5 | ≥5 years | <5 years | ≥5 years |
| TOTAL | | | | |
| Acute Diarrhoea | | | | |
| Suspect Cholera | | | | |
| Acute bloody diarrhoea | | | | |
| Malaria confirmed by lab test | | | | |
| Unexplained Fever (>38.5 ⁰) | | | | |
| Suspected Measles | | | | |
| Acute lower respiratory infection | | | | |
| Acute jaundice syndrome | | | | |
| Meningitis | | | | |
| Injury/wounds | | | | |
| Tetanus | | | | |
| Acute flaccid paralysis (AFP) | | | | |
| Others | | | | |
| | | | | |

- Please include only those cases that were seen during the surveillance week. Each case should be counted only once.
- Write "0" (zero) if you had no case or death during the week for one of the syndrome listed in the form.
- Be careful to report only the deaths that occurred during the week.
- Deaths should be reported only in the mortality section, NOT in the Cases (morbidity) section.
- Case definitions for surveillance are presented on the back.

B. OUTBREAK ALERT

Please contact PTCL wireless: 051 - 2505175 phone, or sending an e-mail to: Health@whopak.org

At any time **you suspect** any of the following diseases, you should alert the surveillance coordination with maximum information on time, place and number of cases and deaths.

- | | | | | |
|---------------------------|----------------------------------|---------------------|---------------------------|-----------------------|
| 1. Suspect Cholera | 4. Acute Bloody diarrhoea | 7. Measles | 10. Severe malaria | 12. AFP |
| 2. Typhoid fever | 5. Tetanus | 8. Hepatitis | 11. Dengue fever | 13. Meningitis |
| 3. Jaundice | 6. Measles | 9. Dengue | | |

WHO RECOMMENDED CASE DEFINITIONS

ACUTE DIARRHOEA

Acute diarrhoea (passage of 3 or more loose stools in the past 24 hours) with or without dehydration

SUSPECT CHOLERA

Person aged over 5 years with severe dehydration or death from acute watery diarrhoea.

Person aged over 2 years with acute watery diarrhoea *in an area where there is a cholera outbreak*.

To confirm a case of cholera:

Isolation of *Vibrio cholera* O1 or O139 from diarrhoeal stool sample

BLOODY DIARRHOEA

Acute diarrhoea with visible blood in the stool.

ACUTE JAUNDICE SYNDROME

Illness with acute onset of jaundice **and** absence of any known precipitating factors **and/or** fever.

ACUTE LOWER RESPIRATORY TRACT INFECTION / PNEUMONIA IN CHILDREN <5 YEARS

Cough or difficult breathing

and

Breathing 50 or more times per minute for infants aged 2 months to 1 year

Breathing 40 or more times per minute for children aged 1 to 5 years

and

No chest indrawing, no stridor, no general danger signs.

Note: Severe pneumonia = Cough or difficult breathing + any general danger sign (unable to drink or breast feed, vomits everything, convulsions, lethargic or unconscious) or chest indrawing or stridor in a calm child

To confirm case of epidemic bacillary dysentery:

Take stool specimen for culture and blood for serology. Isolation of *Shigella dysenteriae* type 1.

MALARIA

Person with fever or history of fever within the last 48 hours (with or without other symptoms such as nausea, vomiting and diarrhoea, headache, back pain, chills, myalgia) with positive laboratory test for malaria parasites [blood film (thick or thin smear) or rapid diagnostic test].

UNEXPLAINED FEVER

Fever (> 38°C) for more than 48 hours and not meeting other case definitions

MEASLES

Fever **and** maculopapular rash (i.e. non-vesicular) **and** cough, coryza (i.e. runny nose) or conjunctivitis (i.e. red eyes)

or

Any person in whom a clinical health worker suspects measles infection

To confirm case:

Presence of measles-specific IgM antibodies

MENINGITIS

Suspected case:

Sudden onset of fever (>38.5) with stiff neck.

In patients under one year of age, a suspected case of meningitis occurs when fever is accompanied by a bulging fontanelle.

Probable of bacterial meningitis:

Suspected case of acute meningitis as defined above with turbid cerebrospinal fluid.

Probable case of meningococcal meningitis:

Suspected case of meningitis as defined above

With gram stain showing gram negative diplococcus

Or ongoing epidemic

Or petechial or purpura rash

Confirmed case:

Suspected or probable case as defined above

With either

Positive CSF antigen detection for N.Meningitidis

Or positive culture of CSF or blood with identification of N. Meningitidis

TETANUS

One or more of the following signs:

Trismus of the facial muscles (masseter and neck)/*risus sardonius*

Painful muscular contractions.

Annex II: Alert Investigation: Sample case/cluster investigation form

District/Area: Town/Village/Settlement/Camp:

Health Facility: Agency:

Date:/...../.....

Name of reporting officer:

| Suspected disease/syndrome: (tick one box only) | Symptoms and signs: (you can tick several boxes) |
|--|--|
| <ul style="list-style-type: none"> <input type="radio"/> Suspect cholera <input type="radio"/> Acute diarrhoea <input type="radio"/> Acute bloody diarrhoea <input type="radio"/> Acute jaundice syndrome <input type="radio"/> Suspected meningitis <input type="radio"/> Acute Lower Respiratory Infection <input type="radio"/> Suspected measles <input type="radio"/> Unexplained fever <input type="radio"/> Suspected malaria <input type="radio"/> Acute Haemorrhagic Fever Syndrome <input type="radio"/> Cluster of cases or deaths of unknown origin <input type="radio"/> Acute flaccid paralysis /suspected poliomyelitis (AFP) <input type="radio"/> Tetanus in adults <input type="radio"/> Other | <ul style="list-style-type: none"> <input type="radio"/> Acute watery diarrhoea <input type="radio"/> Acute diarrhoea <input type="radio"/> Acute bloody diarrhoea <input type="radio"/> Fever <input type="radio"/> Rash <input type="radio"/> Other skin lesion <input type="radio"/> Cough <input type="radio"/> Vomiting <input type="radio"/> Jaundice <input type="radio"/> Neck stiffness <input type="radio"/> Convulsions/Seizures <input type="radio"/> Muscle weakness <input type="radio"/> Increased secretions (e.g. sweating, drooling) <input type="radio"/> Altered level of consciousness <input type="radio"/> Other (<i>specify</i>): _____ |
| | TOTAL NUMBER OF CASES REPORTED: |

Line listing

| Case No. | Age | Location | Sex (M/F) | Date of onset (dd/mm/YY) | Lab specimen taken* | Treatment given (Yes/No) | Outcome** | Final diagnosis |
|----------|-----|----------|-----------|--------------------------|---------------------|--------------------------|-----------|-----------------|
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| | | | | | | | | |

* Laboratory specimens: B=Blood, S=Stool, C=CSF, U=Urine, O = other

**Outcome: I = Currently ill, R= Recovering or recovered, D = died

Annex III: List of WHO guidelines on communicable diseases

| Title | Publication no./Date |
|--------------------------------------|---|
| FACT SHEETS | |
| Anthrax | Fact Sheet No. 264 October 2001 http://www.who.int/mediacentre/factsheets/fs264/en/ |
| Cholera | Fact Sheet No. 107 Revised March 2000 http://www.who.int/mediacentre/factsheets/fs107/en |
| Dengue and dengue haemorrhagic fever | Fact Sheet No. 117 Revised April 2002 http://www.who.int/mediacentre/factsheets/fs117/en/ |
| Diphtheria | Fact Sheet No. 89 Revised December 2000 http://www.who.int/mediacentre/factsheets/fs089/en/ |
| Food safety and foodborne illness | Fact Sheet No. 237 revised January 2002 http://www.who.int/mediacentre/factsheets/fs237/en/ |
| Hepatitis B | Fact Sheet No. 204 Revised October 2000 http://www.who.int/mediacentre/factsheets/fs204/en/ |
| Hepatitis C | Fact Sheet No. 164 Revised October 2000 http://www.who.int/mediacentre/factsheets/fs164/en/ |
| Hepatitis E | Fact sheet no. 280 Revised January 2005 http://www.who.int/mediacentre/factsheets/fs280/en/print.html |
| Influenza | Fact Sheet No. 211 March 2003 http://www.who.int/mediacentre/factsheets/fs211/en/ Advice for people living in affected area in case of suspicion http://www.who.int/csr/disease/avian_influenza/quidelines/advice_people_area/en/index.html |
| Injection safety: background | Fact Sheet No. 231 Revised April 2002 http://www.who.int/mediacentre/factsheets/fs231/en/ |
| Malaria | Fact Sheet No. 94 http://www.who.int/mediacentre/factsheets/fs094/en/ |
| Measles | Fact sheet N°286 March 2005 http://www.who.int/mediacentre/factsheets/fs286/en/ |
| Plague | Fact Sheet No. 267 February 2005 http://www.who.int/mediacentre/factsheets/fs267/en/ |
| Poliomyelitis | Fact Sheet No. 114 Revised April 2003 http://www.who.int/mediacentre/factsheets/fs114/en/ |
| Rabies | Fact Sheet No. 99 Revised June 2001 http://www.who.int/mediacentre/factsheets/fs099/en/ |

| | |
|-------------------------------------|---|
| Salmonella | Fact Sheet No. 139 April 2005 http://www.who.int/mediacentre/factsheets/fs139/en/index.html http://www.who.int/mediacentre/factsheets/fs139/en/index.html |
| Smallpox | Smallpox http://www.who.int/mediacentre/factsheets/smallpox/en/ |
| Tuberculosis | Fact Sheet No. 104 Revised March 2005 http://www.who.int/mediacentre/factsheets/fs104/en/ |
| Typhoid fever and Paratyphoid fever | Water related diseases http://www.who.int/water_sanitation_health/diseases/typhoid/en/ |
| The World Health Organization | About WHO http://www.who.int/about/en/ |

| GUIDELINES/PUBLICATIONS/REPORTS | |
|--|---|
| Communicable Diseases in Emergencies – A field manual: http://www.who.int/infectious-disease-news/IDdocs/whocds200527/whocds200527full.pdf | WHO/CDS/2005.27 ISBN 92 4 154616 6 |
| Protocol for the assessment of national communicable disease surveillance and response systems. Guidelines for assessment teams http://www.who.int/emc-documents/surveillance/whocdscsrir20012c.html | WHO/CDS/CSRIISR/2001.2 English only |
| Strengthening implementation of the Global Strategy for Dengue Fever/Dengue Haemorrhagic Fever Prevention and Control http://www.who.int/csr/resources/publications/dengue/en/whocdsdenic20001.pdf | WHO/CDS/(DEN)/IC/2000.1 English only |
| WHO report on global surveillance of epidemic-prone infectious diseases http://www.who.int/csr/resources/publications/surveillance/WHO_CDS_CSR_ISR_2000_1/en/ | WHO/CDS/CSR/ISR/2000/1 English only |
| Guidelines for the collection of clinical specimens during field investigation of outbreaks http://www.who.int/emc-documents/surveillance/whocdscsredc2004c.html | WHO/CDS/CSR/EDC/2000.4 English only |
| Hepatitis A http://www.who.int/emc-documents/hepatitis/whocdscsredc20007c.html | WHO/CDS/EDC/2000.7 English only |
| Guidelines for epidemic preparedness and response to measles outbreaks http://www.who.int/emc-documents/measles/whocdscsrir991c.html | WHO/CDS/CSR/ISR/99/1 English only |
| Influenza pandemic preparedness plan. The role of WHO and guidelines for national and regional planning http://www.who.int/csr/resources/publications/influenza/WHO_CDS_CSR_EDC_99_1/en/ | WHO/CDS/CSR/EDC/99/1 English only |

| | |
|---|---|
| Plague manual: epidemiology, distribution, surveillance and control http://www.who.int/emc-documents/plague/whocdscsredc992c.html | WHO/CDS/CSR/EDC/99.2 English and French |
| Laboratory methods for the diagnosis of meningitis caused by <i>Neisseria meningitidis</i> , <i>Streptococcus pneumoniae</i> , and <i>Haemophilus influenzae</i> http://www.who.int/emc-documents/meningitis/whocdscsredc997c.html | WHO/CDS/CSR/EDC/99.7 English and French |
| Laboratory methods for the diagnosis of epidemic dysentery and cholera, 1999 http://www.cdc.gov/ncidod/dbmd/diseaseinfo/cholera/top.pdf | WHO/CDS/CSR/EDC//99.8 English and French |
| Control of epidemic meningococcal disease. WHO practical guidelines. 2nd ed. http://www.who.int/emc-documents/meningitis/whoemcbac983c.html | WHO/EMC/BAC/98.3:6 |
| Guidelines for the surveillance and control of anthrax in human and animals. 3rd ed. | WHO/EMC/ZDI/98.6 |
| Cholera and other epidemic diarrhoeal diseases control. Technical cards on environmental sanitation, 1997 http://www.who.int/csr/resources/publications/cholera/WHO_EMC_DIS_97_6/en/ | WHO/EMC/DIS/97/6 |
| Cholera outbreak: assessing the outbreak response and improving preparedness: http://www.who.int/topics/cholera/publications/cholera_outbreak/en/ | WHO/CDS/CPE/ZFK/2004.4 |
| First steps for managing an outbreak of acute diarrhoea: http://www.who.int/topics/cholera/publications/first_steps/en/ | WHO/CDS/NCS/2003.7 Rev.1 |
| Epidemic diarrhoeal disease preparedness and response. Training and practice, 1998 (Participant's manual) http://www.who.int/emc-documents/cholera/whoemcdis973c.html | WHO/EMC/97.3 Rev.1 English, French and Spanish |
| Acute diarrhoeal diseases in complex emergencies: critical steps: http://www.who.int/topics/cholera/publications/critical_steps/en/ | WHO/CDS/NCS/2004.6 |
| Epidemic diarrhoeal disease preparedness and response. Training and practice, 1998 (Facilitator's guide) http://www.who.int/emc-documents/cholera/whoemcdis974c.html | WHO/EMC/97.4 Rev.1 English, French and Spanish |
| Dengue haemorrhagic fever: diagnosis, treatment, prevention and control. 2nd ed. http://www.who.int/csr/resources/publications/dengue/en/itoviii.pdf Prevention and Control of Dengue and Dengue Haemorrhagic Fever-Comprehensive Guidelines http://w3.whosea.org/en/Section10/Section332/Section554_2585.htm | 1997 English only |
| Guidelines for the control of epidemics due to <i>Shigella dysenteriae</i> type 1 http://whqlibdoc.who.int/publications/2005/9241592330.pdf | ISBN 9 24 15 9330X |
| Frequently asked questions on Avian Influenza http://www.who.int/csr/disease/avian_influenza/avian_faqs/en/index.html | |
| VIDEOS | |
| Protecting ourselves and our communities from cholera (41 min). http://www.who.int/emc/diseases/cholera/videos.html | 2000 English and French |

| WEB SITES | |
|---|---|
| WHO | http://www.who.int/ |
| WHO/Cholera | http://www.who.int/topics/cholera/en/index.html |
| WHO Communicable Diseases and Surveillance | http://www.who.int/csr/en/ |
| WHO Communicable Diseases Surveillance and Response | http://www.who.int/csr/ |
| WHO Infectious Diseases news, documents and Communicable disease toolkits | http://www.who.int/infectious-disease-news/ |
| WHO/Nutrition | http://www.who.int/child-adolescent-health/nut.htm |
| WHO Roll Back Malaria partnership | http://www.rbm.who.int/ |
| WHO/Roll Back Malaria department | http://www.mosquito.who.int/malariacontrol |
| WHO/Stop TB | Http://www.stoptb.org/ |
| WHO/Water and Sanitation | http://www.who.int/water_sanitation_health/en/ |