

INTEGRATED DISEASE SURVEILLANCE AND RESPONSE (IDSR)

A guideline for implementation in Timor-Leste



Democratic Republic of Timor-Leste

Ministry of Health

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**Democratic Republic of Timor-Leste
Ministry of Health**

in collaboration with



**World Health Organization
Country Office for Timor-Leste**



STRONG TL

Surveillance Training
Research Opportunities
National Guidelines
for communicable disease control in Timor-Leste

**Menzies School of Health Research and
STRONG TL project**

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Disclaimer

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Preface

Integrated Disease Surveillance and Response (IDSR) is a strategy and public health surveillance system which aims to systematically and continually detect, report and respond to communicable diseases. In Timor-Leste there are currently 2 surveillance systems in use at both the municipal and national level. The first surveillance system is Indicator-Based Surveillance (IBS) which includes syndromic surveillance, sentinel surveillance and laboratory-based surveillance. Aggregate IBS data is notified weekly and monthly from every health facility in Timor-leste. The second type of surveillance in Timor-Leste is event-based surveillance (EBS) where information about events (outbreaks) or rumours of events adversely affecting public health are reported directly to the Ministry of Health for investigation.

In Timor-Leste, the Department of Surveillance and Epidemiology (*Vijilansia Epidemiolojia*) and the Department for Control of Communicable Diseases (*Departementu Controla Doencas Contagiosas*), within the Ministry of Health have the capacity to respond to and prevent diseases under priority surveillance in Timor-Leste. The Ministry of Health also follows their obligations to the *International Health Regulations 2005* (IHR) and relevant national strategic plans.

This IDSR guideline focuses on four (4) types of diseases with the aim to respond systematically and uniformly: 1) Diseases which pose an epidemic risk, 2) Diseases targeted for elimination or eradication, 3) Diseases which are addressed by a dedicated program or funding, and 4) Diseases that are important for governments to monitor and control.

In order to meet their obligations to respond appropriately, the Director General of *Serbisu Prestações de Saúde, Ministerio da Saude Timor-Leste* calls for the staff in the municipal health centres, health posts, hospitals and private clinics to identify and report suspected cases of disease as outlined in this IDSR, so that samples and investigations can ensue to determine the aetiology and respond appropriately.

Efforts to prevent and control priority diseases require socialization of this IDSR guideline to all health workers in Timor-Leste.

Support for the development of this IDSR has come from the World Health Organization (WHO) and from the project, STRONG TL (Surveillance, Training, Research Opportunities and National Guidelines for communicable disease control in Timor-Leste).

This IDSR guideline is also available in the Tetum language and is the second edition produced by the Department of Surveillance and Epidemiology. We hope that this guideline can serve as a tool to enable the surveillance and epidemiology program to succeed in its efforts to control communicable diseases in Timor-Leste.

Finally, I trust you will use this guideline to carry out your tasks as health professionals in Timor-Leste, in order to serve our countrymen and women in the area of healthcare.


Dra. Odete da Silva Viegas, Dermatologista
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Introduction

Disease surveillance in Timor-Leste

Public health surveillance is defined as “the ongoing systematic collection, analysis, and interpretation of outcome-specific data, closely integrated with the timely dissemination of these data to those responsible for preventing and controlling disease and injury” (Thacker and Berkelman, 1988). Surveillance has long been established in Timor-Leste. The main component of surveillance in Timor-Leste is indicator-based surveillance, including syndromic surveillance, sentinel surveillance and laboratory based surveillance. This surveillance data is reported weekly and monthly from health care facilities around the country. To complement the routine indicator-based surveillance, event-based surveillance is used as a source of information about events that are potential risks to public health. This information is obtained through formal channels (established routine reporting systems) and informal channels (media, reports from non-health sector, non-governmental reports) and should be rapidly assessed for and investigated to minimize the risk these events pose to public health (World Health Organization, 2008).

Health workers and the community they serve play important roles in detecting events with potential threats to public health. Integrated community health services known as SISCa (*Servisu Integradu da Saude Comunitaria*) have been in existence for several years. SISCa is organized by community leaders such as *suco* chiefs, *aldeia* chiefs or informal leaders in the community. SISCa serves as an interface between the provision of health services by health workers at a community health center or its outreach, and the participation of communities in health promotion programs and utilization of health services. Through SISCa, unexplained illnesses and deaths, or clusters of diseases are reported to the community health center, which are responsible to initiate local response activities and to report the events to the municipal health office.

The *Departamentu Vijilansia Epidemiolojia* (Surveillance and Epidemiology Department – ‘VE’) and *Departamento Controla de Doenças Contagiozas* (Communicable Disease Control Department – ‘CDC’) under the leadership of *Ministério da Saúde* (Ministry of Health -Mds) is the strategic focal point for disease surveillance and response at the national level. CDC undertakes surveillance and public health action for malaria, dengue, human immunodeficiency virus (HIV), hepatitis, tuberculosis (TB), neglected tropical disease (NTD)

and International Health Regulation (IHR) events. VE undertakes surveillance and response to most other diseases/conditions. As laboratory capacity in Timor-Leste develops, the number of diseases under surveillance by VE is anticipated to change, shifting from syndromic surveillance towards more laboratory-based surveillance. Both departments are under the supervision of the Directorate of Health Services Delivery, responsible to the National Directorate of Disease Control. Data analysis of routine and events-based reports comes from the municipal public health offices and community health centers. This information is disseminated in the form of quarterly bulletins. Data are coordinated by the Department of Health Statistics and Information, under the supervision of the National Director of Planning, Policy and Cooperation. Since 2018, a joint initiative of VE and the World Health Organization (WHO), has seen the monthly publication of the *Timor-Leste Epidemiological Bulletin*. Initiatives to develop computerized health information management now is ongoing in Timor-Leste using DHIS2 tools, may potentially enhance the performance of Integrated Disease Surveillance and Response (IDSR).

Figure 1 provides a graphical representation of the flow of information for disease/conditions under surveillance in Timor-Leste.

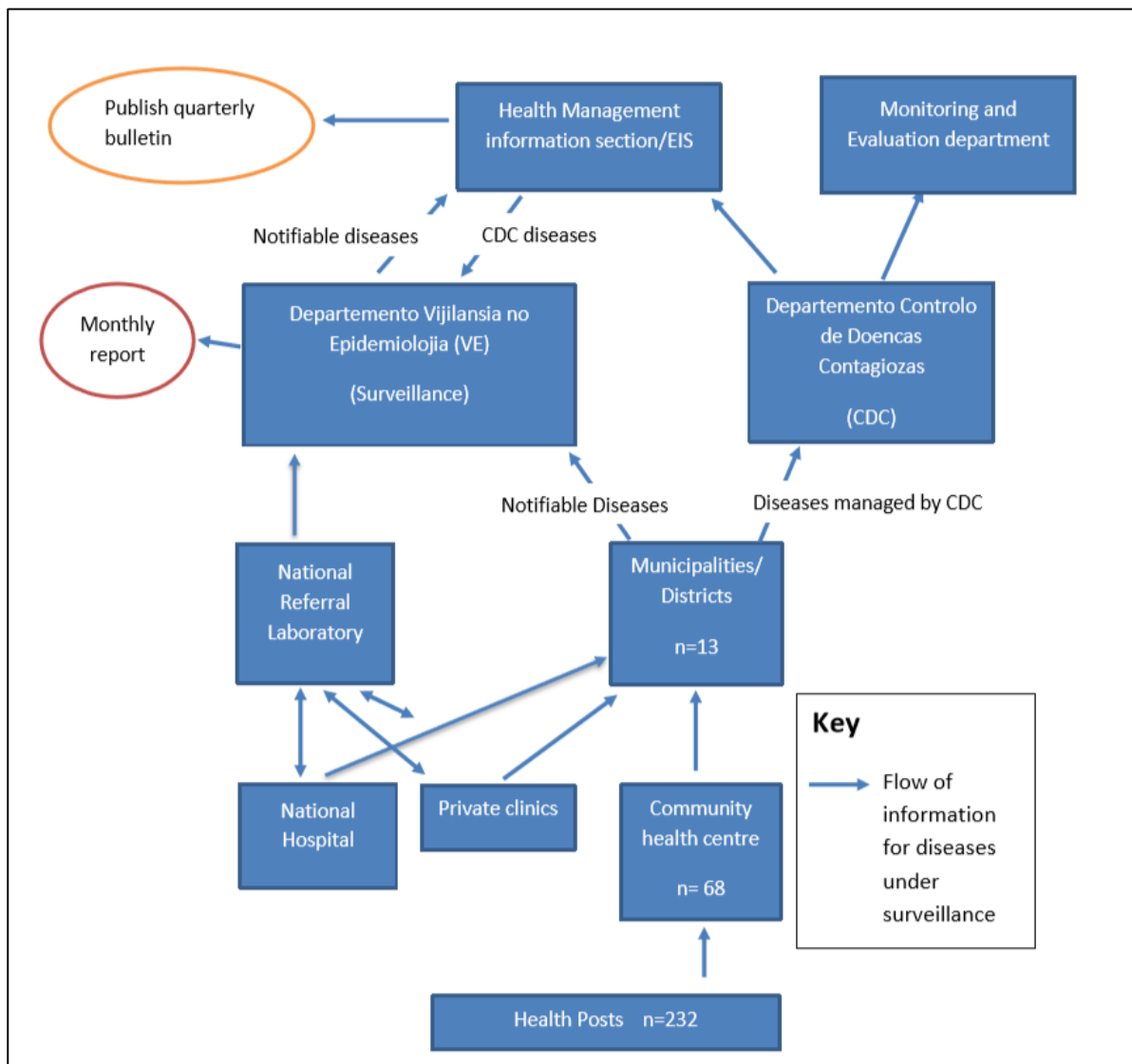



Figure 1: Flow of information for surveillance of diseases/conditions in Timor-Leste

To implement the IDSR guidelines, national Surveillance and Epidemiology Department (VE) and CDC officers and the surveillance units in the municipal health offices require access to routinely reported data from community health centers and case based reports following outbreak investigations. IDSR is expected to strengthen epidemic preparedness and response to selected priority diseases. Effective prevention, control or elimination of these priority diseases are pivotal in leveraging public health development in Timor-Leste.

Priority Diseases in Timor-Leste

There are four groups of priority communicable diseases in Timor-Leste, namely: epidemic-prone diseases; certain diseases which become the focus of public health programs often funded by certain donor agencies; diseases under elimination or eradication; and diseases which become a significant burden to public health. Diseases that need to be notified within 24 hours are in Table 1 below and are marked with an ‘urgent’ symbol.

Table 1. Priority communicable diseases in Timor-Leste that require notification within 24 hours

Diseases to be notified within 24 hours		
▪ Acute flaccid paralysis	▪ Neonatal tetanus	
▪ Anthrax	▪ Pertussis	
▪ Cholera	▪ Plague	
▪ COVID-19 (since 2020)	▪ Poliomyelitis	
▪ Dengue virus infection	▪ Rabies	
▪ Diphtheria	▪ Severe acute respiratory syndrome (SARS)	
▪ Fever with rash	▪ Smallpox	
▪ Japanese encephalitis virus	▪ Typhoid	
▪ Malaria	▪ Viral haemorrhagic fevers (Ebola, Lassa fever, Marburg, Crimean Congo)	
▪ Measles	▪ Yellow fever	
▪ Meningitis/Encephalitis	▪ Zika	
▪ Monkeypox (since 2022)		

Outbreak reporting and investigation

Suspected outbreaks, or when 2 or more cases of epidemic prone or vaccine preventable disease occur in the same area within 3 days or less should be reported. Outbreaks require notification within 24 hours and investigation activities should include the 10 steps listed in Table 2 below.

Table 2: Outbreak Investigation (10 steps)

1. Confirm the outbreak, diagnosis and aetiology
2. Form an investigation team
3. Communication
4. Case definition
5. Case finding and interviewing
6. Environmental studies- inspection/testing
7. Describe outbreak in time, place, person
8. Develop and test a hypothesis +/- analytical study
9. Intervention
10. Evaluation and reporting



*These steps can occur in any order depending on the situation.

Case definitions and public health responses

This section of the IDSR guidelines presents the 54 conditions that are under surveillance in Timor-Leste in 2022. Some conditions are regularly notified, some are rare, and some will hopefully never occur in Timor-Leste. For each disease, there is a surveillance case definition, the public health response required following notification, and resources to find additional information. Where a national or international guidelines exists, references for quick access are provided.



This microscope symbol denotes diseases which are required to be notified by laboratories as they depend on laboratory results.

Acute flaccid paralysis (AFP)



Case definition

Reporting: Notify confirmed cases

Confirmed case: Requires clinical evidence only

Clinical evidence

Any child under 15 years of age with acute flaccid paralysis* (including Guillain-Barré syndrome) or any person of any age with paralytic illness if polio is suspected.

* Acute flaccid paralysis syndrome is characterized by rapid onset of weakness of an individual's extremities, often including weakness of the muscles of respiration and swallowing, progressing to maximum severity within 1-10 days. The term "flaccid" indicates the absence of spasticity or other signs of disordered central nervous system (CNS) motor tracts such as hyperflexia, clonus, or extensor plantar responses.

Public health action

Follow up each AFP case within 24 hours. Refer to the AFP guidelines.

Use the form "AFP case investigation form" to collect information about the case and determine whether it is a case of AFP potentially due to polio or another cause.

Collect a faeces sample from the case and send to the National Health Laboratory (NHL) for testing.

Causes of AFP may include:

- paralytic polio
- Guillain-Barré syndrome
- non-polio enteroviruses
- other infections (rare infections), especially infections of the vertebral column
- tumours
- poisons/toxins
- stroke

Management of contacts

Check immunization status for polio, promote immunization in those not vaccinated.

Sources of information and further resources

- Vijilansia Moras Ne'ebe Prevene ho Imunizasaun; 2018. Departamentu Vijilansia Epidemiolojia Diresaun Nasional Saude Publiku, Ministeriu Da Saude, Republika Demokratika Timor-Leste.
- World Health Organization Regional Office for South-East Asia (WHO SEARO). Surveillance Guide for Vaccine-Preventable Diseases in the WHO South-East Asia Region (2017). Poliomyelitis.
http://www.searo.who.int/immunization/documents/sg_module3_polio.pdf

Anthrax



Case definition

Reporting: Confirmed and suspected cases should be reported

Confirmed case: Requires acute illness with one of the known anthrax clinical forms **AND** laboratory isolation or detection of *Bacillus anthracis* from an affected tissue or site.

Suspected case: Requires acute illness with one of the known anthrax clinical forms **AND** has an epidemiological link to confirmed or suspected animal cases or contaminated animal products

Anthrax clinical forms

- (a) **Cutaneous form:** Any person with skin lesion evolving over 1 to 6 days, from a papular through a vesicular stage, to a depressed black eschar invariably accompanied by oedema that may be mild to extensive.
- (b) **Gastro-intestinal:** Any person with abdominal distress characterized by nausea, vomiting, anorexia and followed by fever.
- (c) **Pulmonary (inhalation):** any person with brief prodrome resembling acute viral respiratory illness, followed by rapid onset of hypoxia, dyspnoea and high temperature, with X-ray evidence of mediastinal widening.
- (d) **Meningeal:** Any person with acute onset of high fever with convulsions, loss of consciousness, meningeal signs and symptoms.

Public health action

Follow up all confirmed and suspected cases immediately – inform the responsible officer for the zoonotic diseases unit at VE. Also consider approaching WHO for support.

Case follow up

Interview case/carer to identify exposure source (infected animals, animal products, deliberate act); trace to origin and implement preventative measures.

Contacts

Contact trace others who may have been exposed to the same source.

Sources of information and further resources

- World Health Organization (WHO). Guidelines for the Surveillance and Control of Anthrax in Human and Animals. 3rd Edition.
<https://www.who.int/csr/resources/publications/anthrax/whoemczdi986text.pdf?ua=1>
- Heymann, D. 2015. Control of Communicable Diseases Manual. 20th Edition. American Public Health Association.

Campylobacteriosis

Case definition

Reporting: Confirmed cases should be reported
Confirmed case: Requires laboratory evidence only



Laboratory evidence: Isolation or detection of *Campylobacter* in a clinical sample

Public health action

No public health response for individual cases. Report to Departamentu VE. People should be advised not to attend school or work, or to prepare food or provide care for others while they have diarrhoea.

Be alert for clusters or outbreaks. If an outbreak is suspected inform the Rapid Response Team (RRT) in the municipality within 24 hours.

Only follow up cases if an increase in community or outbreak is reported. Complete “Formulario Investigasaun Kazu” to record information about exposures.

Outbreak

Cluster of cases greater than the usual endemic number.

- Confirm the presence of an outbreak
- Form investigation team
- Identify all cases in community
- Establish a case definition (time, place, person)
- Implement control measure(s) to prevent further cases
- Confirm diagnosis of disease using clinical and/or laboratory criteria
- Make a line listing of all cases. Interview case/cares using gastroenteritis case investigation form to ascertain demographic information, symptoms, date of onset and identify potential exposures
- Describe the outbreak (summarize number infected, characteristics of people affected, where, epidemic curve)
- Feedback outcome to community affected

* the above steps don't need to be followed in order

Sources of information and further resources

- World Health Organization (WHO) *Campylobacter* (2019). <https://www.who.int/news-room/fact-sheets/detail/campylobacter>
- World Health Organization (WHO) Foodborne Disease Outbreaks: Guidelines for Investigation and Control (2008). https://apps.who.int/iris/bitstream/handle/10665/43771/9789241547222_eng.pdf;jsessionid=2512A5B6860FFA991748683E8C90A9A5?sequence=1
- Northern Territory Government, Australia. *Campylobacteriosis* (2016). <https://nt.gov.au/wellbeing/health-conditions-treatments/digestive-health/bowel-infection>
- Heymann, D. 2015. *Control of Communicable Diseases Manual*. 20th Edition. American Public Health Association

Chicken pox (Zoster) - *Varisela*

Case definition

Reporting: Both confirmed and suspected cases should be reported

Confirmed case: Requires laboratory evidence

Suspected case: Requires clinical evidence only

Laboratory evidence

Detection of varicella-zoster virus by nucleic acid testing (PCR) from a skin swab or from CSF.

Clinical evidence

Acute onset of a diffuse maculopapular rash developing into vesicles within 24-48 hours and forming crusts (or crusting over) within 5 days.



Public health action

Report all confirmed and suspected cases of chicken pox to the Departamentu VE (Also inform the VPD Officer in the national office).

Currently there is no vaccine program for varicella zoster in Timor-Leste and no guidelines. Investigate each case using the form “Formatu investigasaun varisela nian”. Confirm the case’s immunization status and look for further cases amongst contacts.

Isolate the case and advise them not to go to work or school until they are better (until all blisters have dried, usually about 5 days after onset of rash).

Sources of information and further resources

- World Health Organization (WHO). Immunizations, Vaccines and Biologicals. Varicella (2018). <https://www.who.int/immunization/diseases/varicella/en/>
- World Health Organization (WHO). Varicella. Vaccine-preventable diseases: surveillance standards (2019). https://www.who.int/immunization/monitoring_surveillance/burden/vpd/WHO_SurveillanceVaccinePreventable_22_Varicella_R1.pdf?ua=1
- United States Centers for Disease Control and Prevention. Strategies for the Control and Investigation of Varicella Outbreaks Manual, 2008 (2008). <https://www.cdc.gov/chickenpox/outbreaks/manual.html>

Chikungunya virus infection

Case definition

Reporting: Confirmed cases should be reported

Confirmed case: Requires laboratory evidence



Laboratory evidence

- Detection of chikungunya virus by nucleic acid testing (PCR) or virus isolation
- OR
- Detection of chikungunya-specific IgM in the absence of IgM to other possible flaviviruses
- OR
- IgG seroconversion or a fourfold or greater rise in titre of chikungunya-specific IgG in samples collected at least 3 weeks apart.

Public health action

Report suspected and confirmed cases to VE immediately. Also inform VE at the national level.

Investigate and respond to all cases (suspected and confirmed). The officer in charge of surveillance at the Centro de Saude has this responsibility. Use the dengue case investigation form (it records the same information as required for chikungunya). Create a line list in the municipality and then send to the national office of VE. Be sure to collect information about demographics, symptoms, onset dates, and where the case lived and visited in the 2 weeks prior to onset of symptoms.

Inform Environmental Health (Saude Ambiental) where the case lives, works or encountered mosquitoes so that they can implement vector control measures.

Sources of information and further resources

- World Health Organization Regional (WHO). Emergencies - Chikungunya.
<https://www.who.int/emergencies/diseases/chikungunya/en/>

Cholera - *Kolera*



Case definition

Reporting; Confirmed and suspected cases should be reported

Confirmed case: Requires laboratory definitive evidence **OR**

Laboratory suggestive evidence **AND** clinical evidence

Suspected case: Requires clinical evidence only

Laboratory definitive evidence

Detection of *Vibrio cholerae* 01 or 0139

Laboratory suggestive evidence

Detection of *Vibrio cholerae* in absence of typing

Clinical evidence

A person aged 5 years or older with severe dehydration or death from acute watery diarrhoea **OR**

In an area with a current confirmed cholera epidemic,

- i. A child under 5 years of age with severe dehydration* or death from acute watery diarrhoea **AND** absence of other known cause; **OR**
- ii. A person aged 5 years or older with acute diarrhoea

* Severe dehydration in a child requires 2 or more of the following signs: lethargy or unconsciousness; sunken eyes; not able to drink or drinking poorly; skin pinch goes back very slowly

Public health action

Follow up all confirmed and suspected cases immediately – report to VE. Use the form “Formatu Imediata, Loron Hanesan (Iha oras 24 nia laran)”.

Case follow up

Interview case/carer to identify exposure. Identify:

- contact with other people with diarrhoea;
- water sources (drinking, bathing and other);
- eating of seafood, particularly shellfish; and
- travel to a cholera-affected areas.

Educate the case on the type of infection and how it is transmitted. Highlight the importance of hygienic practices, particularly hand washing with soap and water after going to the toilet. Linen and towels used by the case should not be shared, and should be washed separately; and water discarded to a place where no one else will come in contact with it (e.g. septic latrine system). The case should be told not to work and to avoid food preparation and caring for others while he/she has symptoms.

Cholera continues on next page

Contact follow up

Contacts are those who live with someone with cholera, those who shared food or drink with someone with cholera, or those who have eaten/drunk from a contaminated food/water source. Tell contacts of the risk of infection to watch for signs or symptoms of cholera for 5 days after contact with a sick person or exposure to a contaminated source. Contacts should be told to seek medical care if symptoms develop.

Prevention

- Isolate suspected and confirmed case(s) where possible and provide education as above.
- Identify exposure through interview of cases, environmental health investigation and laboratory testing of suspected sources. Potential sources include epidemiological link to a case, unsafe sewerage disposal, contaminated water or food. Implement control measures based on source.

OUTBREAK

Cholera is outbreak prone and efforts to contain the outbreak need to be implemented urgently. If a cluster of cases occur, expert advice and additional resources should be sort early to contain the outbreak.

Sources of information and further resources

- World Health Organization (WHO). Global Task Force on Cholera Control (GTFCC) Surveillance Working Group. Interim Guidance Document on Cholera Surveillance (2017). https://www.who.int/cholera/task_force/GTFCC-Guidance-cholera-surveillance.pdf?ua=1
- World Health Organization (WHO). Global Task Force on Cholera Control (GTFCC) - Prevention and control of cholera outbreaks: WHO policy and recommendations. <https://www.who.int/cholera/technical/prevention/control/en/>
- World Health Organization (WHO). Cholera Outbreak. Assessing the outbreak response and improving preparedness (2004). <https://www.who.int/cholera/publications/final%20outbreak%20booklet%20260105-OMS.pdf>
- World Health Organization (WHO). First steps for managing an outbreak of acute diarrhoea (2010). http://apps.who.int/iris/bitstream/handle/10665/70538/WHO_CDS_CSR_NCS_2003.7_R ev.2_eng.pdf?sequence=1
- United Nation International Children’s Emergency Fund (UNICEF). Cholera Toolkit (2013). <https://www.unicef.org/cholera/Cholera-Toolkit-2013.pdf>
- Pacific Public Health Surveillance Network. Pacific outbreak manual (2016). https://www.pphsn.net/Publications/Pacific_Outbreak_Manual_Mar_2016.pdf

COVID-19 (Coronavirus disease 2019)

Case definition



Reporting: Confirmed cases should be reported.

Confirmed case:

Detection of SARS-CoV-2 virus by nucleic acid testing (PCR) from a respiratory specimen;
or

Detection of SARS-CoV-2 virus antigen (i.e. rapid antigen test – RAT) from a respiratory specimen AND symptoms consistent with influenza-like illness (ILI) or severe acute respiratory infection (SARI).

or

Detection of SARS-CoV-2 virus antigen (i.e. rapid antigen test – RAT) from a respiratory specimen AND epidemiological evidence (ie. *close contact*).

* please refer to ILI and SARI case definitions in this IDSR guideline.

Clinical evidence

Since early 2022, the surveillance strategy for COVID-19 has changed. The strategy for surveillance and response to COVID-19 is to follow an integrated strategy for ALL respiratory pathogens including COVID-19, influenza, respiratory syncytial virus (RSV), etc. This is according to the guideline, “Integrated Surveillance of Respiratory Pathogens in Timor-Leste”.

Those people who fulfil the syndromic case definitions in this document for ILI (influenza-like illness) and SARI (severe acute respiratory infection) should have a sample collected for COVID-19 and influenza as a minimum.

If a medical doctor suspects someone has COVID-19 based on clinical symptoms or compelling epidemiological information they should collect a nasopharyngeal swab and test for COVID-19. Symptoms that may indicate a COVID-19 infection may include (but are not limited to) acute respiratory symptoms, fever, cough, feeling weak/tired, headache, myalgia, sore throat, coryza, dyspnoea, anorexia, nausea, diarrhoea, altered mental state, or loss of taste or smell.

Public health action

Follow up all confirmed and suspected cases immediately – report to VE. Use the form “Formatu Imediata, Loron Hanesan (Iha oras 24 nia laran)”.

When investigating all respiratory illness cases, use the form called “CASE INVESTIGATION FORM FOR INTEGRATED RESPIRATORY SURVEILLANCE (ILI, SARI, ARI, COVID-19, Influenza and RSV)”.

For information about management of cases and close contacts refer to the National guideline for the surveillance and management of COVID-19 cases and contacts in Timor-Leste (*Matadalan Nasional Konaba Vijilansia no Jestaun Kontaktu ba COVID-19 ba Timor-Leste*).

Advise those who are sick to rest at home until their symptoms have finished, particularly their cough. Give advice to stay away from others where possible, wash hands with soap and water regularly, and to cover the mouth when coughing or sneezing to prevent transmission.

Seasonal influenza and influenza or COVID-19 outbreaks

Give community wide messages about prevention activities, especially vaccination against COVID-19, including booster vaccines. Antiviral treatment is recommended for people at risk of severe disease if influenza or COVID-19 is suspected.

If an outbreak is suspected;

- Contact the Departamentu Vijilansia Epidemiolojia immediately to report a cluster of cases.
- Contact an animal health authority immediately if disease is linked to exposure to sick animals.
- Begin a line list of cases.

IMPORTANT

COVID-19 cases are required to be reported to the WHO in accordance with the *International Health Regulations (IHR) 2005*.

Immunisation against COVID-19 is very effective at protecting against severe disease and death. Mask wearing, hand-washing and physical distancing are simple public health measures which also may prevent/reduce transmission.

Sources of information and further resources

- Matadalan Nasional Konaba Vijilansia no Jestaun Kontaktu ba COVID-19 ba Timor-Leste (Ver. 6, Atualizadu 22 Fev. 2021).
- “Timor-Leste Ministerio da Saude. Operational protocol for influenza-type illnesses (ILI) and Severe Acute Respiratory Infection (SARI) Surveillance for Influenza in Sentinel Sites in Timor-Leste (2018) - (Draft).”
- World Health Organization (WHO) Coronavirus 2019 (2022)
https://www.who.int/health-topics/coronavirus#tab=tab_1

Dengue virus infection



Case definition

Reporting: Confirmed and suspected cases should be reported

Confirmed case: Laboratory evidence **OR**
Clinical evidence **AND** epidemiological evidence

Suspected case: Requires clinical evidence only

*Dengue virus infection is classified into 3 categories for the purposes of treatment; mild dengue, moderate dengue and severe dengue.

The surveillance department's responsibility however is to report cases based on the surveillance case definitions above (confirmed or suspected) and to report information on case numbers, hospitalisations and mortality.

Laboratory evidence

- Detection of dengue virus by nucleic acid testing (PCR) **OR**
- Detection of dengue non-structural protein 1 (NS1) antigen **OR**
- Detection of dengue specific IgM antibody, **OR**
- Rise in dengue specific IgG antibody titres.

Clinical evidence

Fever **AND** 2 or more of the following:

- Headache,
- Retro-orbital pain,
- Myalgia or arthralgia,
- Rash,
- Haemorrhagic manifestations,
- Leucopaenia.

Epidemiological evidence

Related in time or place to a confirmed case.

Mild dengue

Without Warning Signs

A-1 Without Risk factors

A-1: Mild Fever, normal platelet count, without complications, no evidence of capillary leakage.

A-2 With risk factors

A1 + Presence of co-morbidities and other risk factors.

Moderate dengue

With Warning Signs & Co-morbidity

B-1. Dengue Fever with warning signs and symptoms

- Recurrent vomiting
- Abdominal pain/tenderness
- General weakness/lethargy/restless
- Mild pleural effusion/ascites
- Hepatomegaly
- Increased Hct > 20% , with minor bleeds

B-2. With high risk & co-morbid conditions

- Infants

- Old age
- Diabetes
- Hypertension
- Pregnancy
- CAD
- Haemoglobinopathies
- Immunocompromised patient
- Patient on steroids, anticoagulants or immunosuppressants.

Severe dengue

- C-1. Compensated shock
- C-2. Decompensated shock
- C-3. Significant haemorrhage, Severe organ involvement, severe metabolic disorder (acidosis, dyselektrolytemia)

Public health action

Report suspected and confirmed cases immediately to the Departamento VE who will follow standard process to follow-up.

Collect samples from suspected cases to test for dengue.

Investigate and respond to all cases (suspected and confirmed). The officer in charge of surveillance at the Centro de Saude has this responsibility. Use the dengue case investigation form. Create a line list in the municipality and then send to the national office of VE. Be sure to collect information about demographics, symptoms, onset dates, and where the case lived and visited in the 2 weeks prior to onset of symptoms.

Inform Environmental Health (Saude Ambiental) where the case lives, works or encountered mosquitoes so that they can implement vector control measures.

Sources of information and further resources

- World Health Organization Regional Office for South-East Asia (WHO SEARO). Comprehensive Guidelines for Prevention and Control of Dengue and Dengue Haemorrhagic Fever (2011). http://apps.searo.who.int/pds_docs/B4751.pdf
- World Health Organization Regional Office for South-East Asia (WHO SEARO). Neglected Tropical Diseases – Dengue (2019). http://www.searo.who.int/entity/vector_borne_tropical_diseases/topics/dengue/en/
- Timor-Leste Guidelines for Clinical Management of Dengue Fever, 2022 (Draft).
- Timor-Leste Outbreak Guidelines, 2021 (Draft).
- Heymann, D. 2015. Control of Communicable Diseases Manual. 20th Edition. American Public Health Association.

Diarrhoea (Bloody) - *Diarea ho ran – Te'ben ho ran*

Case definition

Reporting: Notify confirmed cases

Confirmed case: Requires clinical evidence only

Clinical evidence: Acute diarrhoea with 3 or more watery or liquid stools within the past 24 hours, with the presence of blood.

Public health action

No routine follow up for individual cases. People should be advised not to attend school or work, or to prepare food or provide care for others while they have diarrhoea.

Be alert for clusters or outbreaks. If an outbreak is suspected inform the Rapid Response Team (RRT) in the municipality within 24 hours.

Only follow up cases if an increase in community or outbreak is reported. Complete “Formulario Investigasaun Kazu” to record information about exposures.

Outbreak

Cluster of cases greater than the usual endemic number.

- | | |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none">• Confirm the presence of an outbreak• Form investigation team• Identify all cases in community• Establish a case definition (time, place, person)• Implement control measure(s) to prevent further cases | <ul style="list-style-type: none">• Confirm diagnosis of disease using clinical and/or laboratory criteria• Make a line listing of all cases. Interview case/cares using gastroenteritis case investigation form to ascertain demographic information, symptoms, date of onset and identify potential exposures• Describe the outbreak (summarize number infected, characteristics of people affected, where, epidemic curve)• Feedback outcome to community affected |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

* the above steps don't need to be followed in order

Sources of information and further resources

- Heymann, D. 2015. Control of Communicable Diseases Manual. 20th Edition. American Public Health Association.
- World Health Organization (WHO) Foodborne Disease Outbreaks: Guidelines for Investigation and Control (2008).
https://apps.who.int/iris/bitstream/handle/10665/43771/9789241547222_eng.pdf;jsessionid=2512A5B6860FFA991748683E8C90A9A5?sequence=1
- World Health Organization (WHO) Guidelines for the control of shigellosis, including epidemics due to *Shigella dysenteriae* type 1 (2005).
<https://apps.who.int/iris/bitstream/handle/10665/43252/9241592330.pdf?sequence=1>

Diarrhea (simple) - *Diarea simples*

Case definition

Reporting: Notify confirmed cases

Confirmed case: Requires clinical evidence only

Clinical evidence: Acute diarrhoea with 3 or more watery or liquid stools within the past 24 hours, without the presence of blood.

Public health action

No routine follow up for individual cases. People should be advised not to attend school or work, or to prepare food or provide care for others while they have diarrhoea.

Be alert for clusters or outbreaks. If an outbreak is suspected inform the Rapid Response Team (RRT) in the municipality within 24 hours.

Only follow up cases if an increase in community or outbreak is reported. Complete “Formulario Investigasaun Kazu” to record information about exposures.

Outbreak

Cluster of cases greater than the usual endemic number.

- | | |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none">• Confirm the presence of an outbreak• Form investigation team• Identify all cases in community• Establish a case definition (time, place, person)• Implement control measure(s) to prevent further cases | <ul style="list-style-type: none">• Confirm diagnosis of disease using clinical and/or laboratory criteria• Make a line listing of all cases. Interview case/cares using gastroenteritis case investigation form to ascertain demographic information, symptoms, date of onset and identify potential exposures• Describe the outbreak (summarize number infected, characteristics of people affected, where, epidemic curve)• Feedback outcome to community affected |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

* the above steps don't need to be followed in order

Sources of information and further resources

- Heymann, D. 2015. Control of Communicable Diseases Manual. 20th Edition. American Public Health Association.
- World Health Organization (WHO) Foodborne Disease Outbreaks: Guidelines for Investigation and Control (2008).
https://apps.who.int/iris/bitstream/handle/10665/43771/9789241547222_eng.pdf;jsessionid=2512A5B6860FFA991748683E8C90A9A5?sequence=1

Diphtheria – *Difteria*



Case definition

Reporting: Confirmed and suspected cases should be reported

Confirmed case: Requires laboratory definitive evidence; **OR**
Laboratory suggestive evidence **AND** clinical evidence; **OR**
Clinical evidence **AND** epidemiological evidence.

Suspected case: Requires clinical evidence only in the absence of a more likely diagnosis.

Laboratory definitive evidence

Detection of toxigenic *Corynebacterium diphtheriae* from the nose or throat.

Laboratory suggestive evidence

Detection of *Corynebacterium diphtheriae* from a respiratory tract specimen (toxin production unknown).

Clinical evidence

- An upper respiratory tract infection
- AND
- An adherent membrane of the nose **OR** pharynx **OR** tonsils **OR** larynx

Epidemiological evidence

Contact between 2 people involving a plausible mode of transmission at a time when:

- a) one meets the **confirmed case definition** for diphtheria AND is likely to be infectious (usually 2 weeks or less and seldom more than 4 weeks after onset of symptoms)

AND

- b) b) the other has **clinical evidence** of diphtheria which starts within approximately 2-5 days after this contact

Diphtheria continues on next page

Public health action

Report suspected and confirmed cases to Departamentu VE immediately so they may investigate.

Use the form “Formulariu investigasaun kazu difteria” to record information.
Collect a throat/laryngeal swab to test for *Clostridium Diphtheria* at the NHL.

Case management

Ensure that the case has been isolated and begun treatment. Cases must be in respiratory isolation while infectious (until completion of 48 hours of effective antibiotics or 2 weeks after onset).

During convalescence, the case should receive an age-appropriate diphtheria booster dose of diphtheria toxoid or full primary series if they have not received any previous diphtheria immunization.

Contact management

Close contacts, especially household contacts who have had contact with an infectious case in the preceding 5 days should receive prophylactic antibiotics. See WHO surveillance guideline for VPD, diphtheria for antibiotic regimen. Additionally, all contacts who haven't had a booster dose in the preceding 5 years should receive a diphtheria containing vaccine (or full course if not immunized).

Undertake active case finding in community to identify further cases.

Sources of information and further resources

- Vijilansia Moras Ne'ebe Prevene ho Imunizazaun; 2018. Departamentu Vijilansia Epidemiolojia Diresaun Nasional Saude Publiku, Ministeriu Da Saude, Republika Demokratika Timor-Leste.
- World Health Organization Regional Office for South-East Asia (WHO SEARO). Surveillance Guide for Vaccine-Preventable Diseases in the WHO South-East Asia Region. Diphtheria (2017).
http://www.searo.who.int/immunization/documents/sg_module4_diphtheria.pdf

Dog bite – *Asu tata*

Case definition

Reporting: Confirmed cases should be reported

Confirmed case: A bite inflicted upon a person by a dog

Public health action

No routine public health follow up for individual cases of a regular dog bite.

Clinicians to follow normal treatment guidelines.

It is important to note that if the dog is suspected as rabid, or if the individual is suspected of developing rabies, follow the guidelines for response to rabies.

Important:

Probable case of rabies: A person with an acute encephalomyelitis with history of bite or scratch from a suspected rabid animal.

Suspected case of rabies: A person with an acute encephalomyelitis (headache, fever, hydrophobia, delirium, convulsions, or paralysis) progressing to death within 10 days after the first symptom.

Sources of information and further resources

- World Health Organization (WHO). Animal bites (2019). <https://www.who.int/news-room/fact-sheets/detail/animal-bites>
- World Health Organization (WHO). Rabies (2019). <http://www.searo.who.int/india/topics/rabies/en/>
- Timor-Leste Rabies Guidelines (in development).

Fever with rash - *Isin manas ho rash*



Case definition

Reporting: Confirmed cases should be reported

Confirmed case: Requires clinical evidence only

Clinical evidence

An illness characterized by all of the following:

- A generalized maculopapular rash (non-vesicular) **AND** fever (at least 38°C if measured) at the time of rash onset

OR

- A healthcare worker suspects measles or rubella

Public health action

Refer to the guideline “*Post Elimination Sustainability Plan. Measles, Rubella. Timor-Leste*” and “*Strategies and operational guidelines on Measles Elimination and Rubella/CRS Control (2016)*”

Report all cases of fever and rash to the Departamentu VE immediately (Also inform the VPD Officer in the national office).

Case management

Investigate the case immediately – use the “Measles/Rubella case investigation form” to record information on demographics, symptoms, onset date, travel history, and history of any contact with returned travelers.

Determine the case’s immunization status for measles/rubella. Record the dates vaccinations were received.

Collect a throat swab (PCR) or blood for serology (IgM) to determine whether the case has measles or rubella.

Advise the case to isolate themselves and not attend their usual activities. Cases should avoid public places (e.g. markets, school) and remain confined at home (or isolated in hospital if required) for at least 5 days after the onset of the rash.

Contact management

Identify all people who the case had contact with during the time he/she was infectious (4 days before and until 4 days after the onset of rash for measles and for rubella, 7 days before until 7 days after the onset of rash); make a line-listing of these contacts, including their names, addresses and phone numbers. Determine whether they are or were ill and if rubella is suspected, pregnancy status for all women of childbearing age. Contacts without documented evidence of measles and/or rubella vaccination should be vaccinated (except pregnant women) and the symptoms of measles and rubella should be explained to them.

In large outbreaks, it may not be feasible to identify all contacts due to time, resources, and logistical constraints. In this situation, contact tracing should be deprioritized, and a large public health immunization response should be triggered along with a risk communication and awareness campaign.

Sources of information and further resources

- Vijilansia Moras Ne'ebe Prevene ho Imunizazaun; 2018. Departamentu Vijilansia Epidemiolojia Diresaun Nasional Saude Publiku, Ministeriu Da Saude, Republika Demokratika Timor-Leste.
- Ministeriu da Saude Timor-Leste. Strategies and operational guidelines on Measles Eliminatio and Rubella/CRS Control (2016).
- Ministeriu da Saude Timor-Leste. Post Elimination Sustainability Plan. Measles, Rubella. Timor-Leste.
- World Health Organization Regional Office for South-East Asia (WHO SEARO). Surveillance Guide for Vaccine-Preventable Diseases in the WHO South-East Asia Region. Measles and Rubella (2017).
http://www.searo.who.int/immunization/documents/sg_module1_measles_rubella.pdf
- Australian Government Department of Health. Measles. National guidelines for public health units. Communicable Disease Network of Australia (2015).
<http://www.health.gov.au/internet/main/publishing.nsf/Content/cdna-song-measles.htm>

Haemophilus influenzae (invasive) - *Haemophilus influenzae* (invasivu)

Case definition

Reporting; Notify confirmed cases
Confirmed case: Requires laboratory evidence



Laboratory evidence: Detection or isolation of *Haemophilus influenzae* in a normally sterile site (e.g. blood culture, CSF etc).

Public health action

Report all cases to the Departamentu VE (VPD officer).

Investigate using the “Acute encephalitis syndrome investigation form”. Determine the case’s *Haemophilus influenzae* b (HiB) immunization status – In Timor-Leste immunity against HiB is from the “Penta” vaccine in the childhood vaccination schedule.

Inform the immunization program of the case.

Case management

Give appropriate antibiotics to treat the *H. influenzae* infection and give rifampicin to eliminate nasopharyngeal carriage of *H. influenzae*.

Contact Management

Identify vulnerable contacts (ie. in household, kindergarten or hospital);

- An infant <7 months of age (regardless of vaccination status), **OR**
- A child aged 7 months to 5 years who is inadequately vaccinated. To determine if child is inadequately vaccinated, use the Hib catch-up table in current edition of the Australian Immunization Handbook). **OR**
- Healthcare workers exposed to nasopharyngeal secretions.

In these cases, all contacts should receive rifampicin, with the exception of pregnant women or those with previous adverse reaction or other contraindication to rifampicin, for whom ceftriaxone may be used.

Sources of information and further resources

- World Health Organization Regional Office for South-East Asia (WHO SEARO). Surveillance Guide for Vaccine-Preventable Diseases in the WHO South-East Asia Region. Invasive Bacterial Disease (*Haemophilus influenzae*). (2017). http://www.searo.who.int/indonesia/topics/immunization/module_7_-_ibd.pdf
- World Health Organization (WHO). Immunizations, Vaccines and Biologicals. Pneumococcal disease (2018). <https://www.who.int/immunization/diseases/pneumococcal/en/>
- Australian Government Department of Health. Series of National Guidelines (SoNGs) – *Haemophilus influenzae* type b invasive infection (2017). <http://www.health.gov.au/internet/main/publishing.nsf/Content/cdna-song-hib.htm#contact>
- Centers for Disease Control and Prevention. Global pneumococcal disease and vaccine (2018). <https://www.cdc.gov/pneumococcal/global.html>

- World Health Organization Regional Office for South-East Asia (WHO SEARO). Accelerating introduction of new vaccines and related technologies (2019). Available from http://www.searo.who.int/immunization/topics/new_vaccines/en/

Hepatitis – Viral (Acute jaundice syndrome) - *Síndroma ikterísia agudu*

Case definition

Reporting: Confirmed cases should be reported

Confirmed case: Requires clinical evidence only

Clinical evidence

A child less than 5 years of age (excluding those with neonatal jaundice)

OR

Acute illness with AT LEAST 2 of the following:

- Fever;
- Malaise;
- Abdominal discomfort;
- Loss of appetite;
- Nausea.

AND

One of the following:

- Jaundice;
- Dark urine;
- Elevated aminotransferase (ALT);
- Elevated aspartate aminotransferase (AST).

Public health action

No response to individual cases.

When an outbreak is suspected, report to the Rapid Response Team in the Municipality within 24 hours so that a response/investigation can be initiated. In an outbreak, collect blood samples to test for hepatitis A.

Sources of information and further resources

- World Health Organization (WHO). WHO-recommended surveillance standard of acute viral hepatitis (2019).
https://www.who.int/immunization/monitoring_surveillance/burden/vpd/surveillance_type/passive/hepatitis_standards/en/

Hepatitis A

Case definition

Reporting: Confirmed cases should be reported

Confirmed case: Requires laboratory evidence only



Laboratory evidence

- Detection of hepatitis A by nucleic acid testing (PCR)

OR

- Detection of hepatitis A IgM in the absence of a recent vaccination

AND

- Meets clinical case definition for acute jaundice syndrome

Public health action

No public health response to individual cases.

Advise close contacts (e.g. Household contacts, people who go to school with the case), if they develop symptoms indicative of hepatitis A (jaundice), don't go to work, school, or prepare food or care for others (including changing nappies).

When an outbreak is suspected, report to the Rapid Response Team in the Municipality within 24 hours so that a response/investigation can be initiated. In an outbreak, collect blood samples to test for hepatitis A.

The incubation period for hepatitis A is 15-50 days, so when investigating an outbreak, it is important to collect information from that time about:

- household and sexual contacts who have had an illness that seems like hepatitis;
- restaurants where the case has eaten;
- social gatherings where the case has eaten;
- all sources of drinking water;
- eating of raw or partially cooked shellfish;
- attendance or employment at child care centers by case or household contacts;
- attendance or employment in a health care setting/health center/hospital
- water exposure (for example swimming);
- exposure to sewage, or failed sewage disposal systems; and
- search for other cases, particularly in family members of children linked to school or child care environment.

Hepatitis A continues on next page

Hepatitis A – Continued...

A person is infectious two weeks before the onset of prodromal symptoms to either one week after the onset of jaundice (if it occurs), **OR** two weeks after the onset of prodromal symptoms (if jaundice does not occur).

While infectious cases should be told:

- Not donate blood
- Not prepare or handle food to be eaten by other people
- Not have sex
- Not provide personal care to others
- Not attend childcare, preschool, primary school or work that could put others at risk
- Not share drugs or drug paraphernalia, and
- Not share utensils, towels or personal items with others.

Contacts should be advised to seek medical care if they develop jaundice. They should be given advice about hygiene, in particular hand washing with soap and water after using the toilet and before preparing food.

If hepatitis A vaccine is available, it should be given to all unimmunized contacts except where the contact is under 1 year of age, has chronic liver disease or is immunosuppressed.

Sources of information and further resources

- World Health Organization (WHO). Immunization, Vaccines and Biologicals. Hepatitis A (2019). <https://www.who.int/immunization/diseases/hepatitisA/en/>
- Australian Government Department of Health. Hepatitis A. Response for public health units. Communicable Disease Network of Australia (2018). www.health.gov.au/internet/main/publishing.nsf/Content/cdna-song-hepa.htm
- World Health Organization South East Asian Region (WHO-SEARO). Surveillance and outbreak alert. Viral Hepatitis (2019). http://www.searo.who.int/entity/emerging_diseases/topics/Hepatitis/en/
- Pacific Public Health Surveillance Network. Pacific outbreak manual (2016). https://www.pphsn.net/Publications/Pacific_Outbreak_Manual_Mar_2016.pdf

Hepatitis B

Case definition

Reporting: Confirmed cases should be reported
Confirmed case: Requires laboratory evidence only



Laboratory evidence

- Detection of hepatitis B IgM in the absence of a recent vaccination OR detection of hepatitis B surface antigen (HBsAg)

AND

- Is negative for hepatitis A IgM (if done) and hepatitis E IgM (if done)

Public health action

No follow up for individual cases. Notify to CDC

Sources of information and further resources

- Timor-Leste Ministry of Health. Draft National Strategic Plan HIV and STIs, 2017-2021 (2016).
- World Health Organization (WHO). Hepatitis B (2018). <https://www.who.int/news-room/fact-sheets/detail/hepatitis-b>
- World Health Organization South East Asian Region (WHO-SEARO). Hepatitis B (2018). http://apps.searo.who.int/PDS_DOCS/B4752.pdf
- World Health Organization South East Asian Region (WHO-SEARO) (2019). Guidelines for verification of achievement of hepatitis B control target through immunization in the WHO South-East Asia Region (2019). <http://www.searo.who.int/immunization/highlights/verification/en/>

Hepatitis C

Case definition

Reporting: Confirmed cases should be reported

Confirmed case: Requires laboratory evidence only



Laboratory evidence

Detection of hepatitis C antibodies or detection of hepatitis C virus by nucleic acid testing

Public health action

No follow up for individual cases. Notify to CDC

Sources of information and further resources

- Timor-Leste Ministry of Health. Draft National Strategic Plan HIV and STIs, 2017-2021 (2016).
- World Health Organization (WHO). Hepatitis C (2018).
<https://www.who.int/hepatitis/topics/hepatitis-c/en/>
- World Health Organization (WHO). WHO guidelines for the screening, care and treatment of persons with chronic hepatitis C infection (2016).
<https://www.who.int/hepatitis/publications/hepatitis-c-guidelines-2016/en/>
- World Health Organization South East Asian Region (WHO-SEARO). Hepatitis (2018).
<http://www.searo.who.int/entity/hepatitis/en/>

Human immunodeficiency virus (HIV)

Case definition



Reporting: Only confirmed cases are reported as per below.

Adults and children 18 months or older

Confirmed HIV infection is diagnosed based on:

- A positive HIV antibody testing (rapid or laboratory-based enzyme immunoassay). This is confirmed by a second HIV antibody test (rapid or laboratory-based enzyme immunoassay) relying on different antigens or of different operating characteristics;

AND/OR

- A positive virological test for HIV or its components (HIV-RNA or HIV-DNA or ultrasensitive HIV p24 antigen) confirmed by a second virological test obtained from a separate determination.

Children younger than 18 months

Confirmed HIV infection is diagnosed based on:

- A positive virological test for HIV or its components (HIV-RNA or HIV-DNA or ultrasensitive HIV p24 antigen) confirmed by a second virological test obtained from a separate determination taken more than four weeks after birth.

* Positive HIV antibody testing is not recommended for definitive or confirmatory diagnosis of HIV infection in children until 18 months of age.

Public health action

Report cases to CDC who will coordinate a response based on their guidelines.

The HIV program at CDC will respond.

Sources of information and further resources

- Timor-Leste Ministry of Health. Draft National Strategic Plan HIV and STIs, 2017-2021 (2016).
- World Health Organization (WHO). HIV (2019). <https://www.who.int/hiv/en/>

Influenza - Gripe

Case definition

Reporting: Notify confirmed cases

Confirmed case: Requires laboratory evidence only



Laboratory definitive evidence

1. Detection of influenza virus by nucleic acid testing (PCR) from appropriate respiratory tract specimen

OR

2. Laboratory detection of influenza virus antigen from appropriate respiratory tract specimen

OR

3. IgG seroconversion or a significant increase in antibody level or a fourfold or greater rise in titre to influenza virus

OR

4. Single high titre by CFT or HAI to influenza virus

OR

5. Isolation of influenza virus by culture from appropriate respiratory tract specimen

Public health action

When investigating all respiratory illness cases, use the form called “CASE INVESTIGATION FORM FOR INTEGRATED RESPIRATORY SURVEILLANCE (ILI, SARI, ARI, COVID-19, Influenza and RSV)”.

Advise those who are sick to rest at home until their symptoms have finished, particularly their cough. Give advice to stay away from others where possible, wash hands with soap and water regularly, and to cover the mouth when coughing or sneezing to prevent transmission.

Seasonal influenza and influenza outbreaks

Give community wide messages about prevention activities. Antiviral treatment is recommended for people at risk of severe disease if influenza or COVID-19 is suspected.

If an outbreak is suspected;

- Contact the Departamentu Vijilansia Epidemiolojia immediately to report a cluster of cases.
- Contact an animal health authority immediately if disease is linked to exposure to sick animals.
- Begin a line list of cases.

IMPORTANT

Immunisation against influenza is effective at protecting against severe disease and death but not yet widely available in Timor-Leste. Mask wearing, hand-washing and physical distancing are simple public health measures which also may prevent/reduce transmission.

New subtypes of influenza are required to be reported to the WHO in accordance with the *International Health Regulations (IHR) 2005*.

Sources of information and further resources

- Timor-Leste Ministerio da Saude. Operational protocol for influenza-type illnesses (ILI) and Severe Acute Respiratory Infection (SARI) Surveillance for Influenza in Sentinel Sites in Timor-Leste (2018) - (Draft).
- Heymann, D. 2015. Control of Communicable Diseases Manual. 20th Edition. American Public Health Association.
- World Health Organization (WHO) Influenza (2019). <https://www.who.int/influenza/en/>

Influenza Like Illness (ILI) - *Infesaun Respiratoriu Superior Agudu*

Case definition

Reporting: Notify confirmed cases

Confirmed case: Requires clinical evidence only

Confirmed case: History of fever or measured fever of $\geq 38\text{ C}^\circ$;

AND

Cough or sore throat;

AND

Onset within the last 10 days;

Public health action

Since early 2022, the surveillance strategy for ILI (influenza-like illness) has changed. The strategy for surveillance and response to follow an integrated strategy for ALL respiratory pathogens including COVID-19, influenza, respiratory syncytial virus (RSV), etc. This is according to the guideline, “Integrated Surveillance of Respiratory Pathogens in Timor-Leste”.

Those people who fulfil the syndromic case definitions in this document for ILI (influenza-like illness) and should have a sample collected for COVID-19 and influenza as a minimum, particularly at ILI/SARI sentinel sites.

If a medical doctor suspects someone has COVID-19 based on clinical symptoms or compelling epidemiological information they should collect a nasopharyngeal swab and test for COVID-19. Symptoms that may indicate a COVID-19 infection may include (but are not limited to) acute respiratory symptoms, fever, cough, feeling weak/tired, headache, myalgia, sore throat, coryza, dyspnoea, anorexia, nausea, diarrhoea, altered mental state, or loss of taste or smell.

When investigating all respiratory illness cases, use the form called “CASE INVESTIGATION FORM FOR INTEGRATED RESPIRATORY SURVEILLANCE (ILI, SARI, ARI, COVID-19, Influenza and RSV)”.

For information about management of COVID-19 cases and close contacts refer to the National guideline for the surveillance and management of COVID-19 cases and contacts in Timor-Leste (*Matadalan Nasional Konaba Vijilansia no Jestaun Kontaktu ba COVID-19 ba Timor-Leste*).

Advise those who are sick to rest at home until their symptoms have finished, particularly their cough. Give advice to stay away from others where possible, wash hands with soap and water regularly, and to cover the mouth when coughing or sneezing to prevent transmission.

Seasonal influenza and influenza or COVID-19 outbreaks

Give community wide messages about prevention activities, especially vaccination against COVID-19, including booster vaccines. Antiviral treatment is recommended for people at risk of severe disease if influenza or COVID-19 is suspected.

If an outbreak is suspected;

- Contact the Departamentu Vijilansia Epidemiolojia immediately to report a cluster of cases.
- Contact an animal health authority immediately if disease is linked to exposure to sick animals.
- Begin a line list of cases.

IMPORTANT

COVID-19 cases, SARS and new human influenza subtypes are required to be reported to the WHO in accordance with the *International Health Regulations (IHR) 2005*.

Immunisation against COVID-19 is very effective at protecting against severe disease and death. Mask wearing, hand-washing and physical distancing are simple public health measures which also may prevent/reduce transmission.

Sources of information and further resources

- Timor-Leste Ministerio da Saude. Operational protocol for influenza-type illnesses (ILI) and Severe Acute Respiratory Infection (SARI) Surveillance for Influenza in Sentinel Sites in Timor-Leste (2018) - (Draft).
- Heymann, D. 2015. Control of Communicable Diseases Manual. 20th Edition. American Public Health Association.
- World Health Organization (WHO) Influenza (2019). <https://www.who.int/influenza/en/>
- Matadalan Nasional Konaba Vijilansia no Jestaun Kontaktu ba COVID-19 ba Timor-Leste (Ver. 6, Atualizadu 22 Fev. 2021).
- World Health Organization (WHO) Coronavirus 2019 (2022) https://www.who.int/health-topics/coronavirus#tab=tab_1

Japanese encephalitis virus (JEV)

Case definition

Reporting; Only confirmed cases should be reported

Confirmed case: Requires laboratory evidence



Laboratory evidence

Requires **one** of the following:

- Detection of Japanese encephalitis virus by nucleic acid testing; **OR**
- IgG seroconversion or a significant increase in antibody level or a fourfold or greater rise in titre of Japanese encephalitis virus-specific IgG proven by neutralization or another specific test, with no history of recent Japanese encephalitis vaccination; **OR**
- Detection of Japanese encephalitis virus-specific IgM in cerebrospinal fluid, in the absence of IgM to Murray Valley encephalitis, Kunjin and dengue viruses: **OR**
- Detection of Japanese encephalitis virus-specific IgM in serum in the absence of IgM to Murray Valley encephalitis, Kunjin and dengue viruses, with no history of recent Japanese encephalitis vaccination
- Isolation of Japanese encephalitis virus

Public health action

Report suspected and confirmed cases to VE immediately. Also inform VE at the national level.

Investigate and respond to all cases (suspected and confirmed). The officer in charge of surveillance at the Centro de Saude has this responsibility. Use the “Acute encephalitis syndrome investigation form” Create a line list in the municipality and then send to the national office of VE. Be sure to collect information about demographics, symptoms, onset date, and where the case lived and visited in the 2 weeks prior to onset of symptoms.

Inform Environmental Health (Saude Ambiental) where the case lives, works or encountered mosquitoes so that they can implement vector control measures.

Sources of information and further resources

- World Health Organization Regional Office for South-East Asia (WHO SEARO). Surveillance Guide for Vaccine-Preventable Diseases in the WHO South-East Asia Region. Japanese Encephalitis (2017).
http://www.searo.who.int/indonesia/topics/immunization/module_9_-_je.pdf
- World Health Organization Regional (WHO). Japanese Encephalitis (2015).
<https://www.who.int/news-room/fact-sheets/detail/japanese-encephalitis>
- World Health Organization (WHO). Japanese Encephalitis. Vaccine-preventable diseases: surveillance standards (2019).
https://www.who.int/immunization/monitoring_surveillance/burden/vpd/WHO_SurveillanceVaccinePreventable_10_JE_R2.pdf?ua=1
- United States Centers for Disease Control and Prevention (CDC). Japanese Encephalitis (2019). Available at <https://www.cdc.gov/japaneseencephalitis/index.html>

Leprosy - *Lepra*

Case definition

Reporting: Confirmed cases should be reported

Confirmed case: Requires clinical evidence **AND** laboratory evidence.

Laboratory evidence

- Demonstration of acid fast bacilli in skin or dermal nerve from a biopsy of a skin lesion using Fite stain, without growth of mycobacteria on conventional media (if done)

OR

- Identification of non-caseating granulomas with peripheral nerve involvement, without growth of mycobacteria on conventional media (if done)

Clinical Evidence

A chronic bacterial disease characterized by the involvement primarily of skin as well as peripheral nerves and the mucosa of the upper airway. Clinical forms of Hansen's disease represent a spectrum reflecting the cellular immune response to *Mycobacterium leprae*. The following characteristics are typical of the major forms of the disease, though these classifications are assigned after a case has been laboratory confirmed.

- *Tuberculoid*: one or a few well-demarcated, hypopigmented, and hypoesthetic or anesthetic skin lesions, frequently with active, spreading edges and a clearing center; peripheral nerve swelling or thickening also may occur
- *Lepromatous*: a number of erythematous papules and nodules or an infiltration of the face, hands, and feet with lesions in a bilateral and symmetrical distribution that progress to thickening of the skin, possibly with reduced sensation.
- *Borderline (dimorphous)*: skin lesions characteristic of both the tuberculoid and lepromatous forms
- *Indeterminate*: early lesions, usually hypopigmented macules, without developed tuberculoid or lepromatous features but with definite identification of acid-fast bacilli in Fite stained sections.

Public health action

CDC will respond based on the Timor-Leste Lepra Guidelines.

Sources of information and further resources

- MoH Timor-Leste. Lepra guidelines
- World Health Organization (WHO). The Guidelines for the Diagnosis, Treatment and Prevention of Leprosy (2018). <https://www.who.int/lep/resources/9789290226383/en/>

Malaria



Case definition

Reporting: Only confirmed cases are reported
Confirmed case: Requires laboratory evidence

Laboratory evidence:

Any person with *Plasmodium* detected by microscopy in thin or thick blood smears

OR

Detection of Plasmodium by rapid diagnostic test (RDT) or PCR

Public health action

Report cases to CDC who will coordinate a response based on their guidelines.

The Malaria Control Program at CDC will respond.

Sources of information and further resources

- Timor-Leste Ministry of Health. National Strategic Plan for Malaria Elimination, 2017-2021 (2016). <http://ram.rawcs.com.au/wp-content/uploads/2017/12/National-Malaria-Strategic-Plan-for-Malaria-Elimination-Timor-Leste-2017-2021.pdf>
- World Health Organization (WHO). HIV (2019). <https://www.who.int/malaria/en/>
- World Health Organization Regional Office for South-East Asia (WHO SEARO). Malaria (2019). <http://www.searo.who.int/entity/malaria/en/>



Case definition

Reporting: Confirmed cases should be reported

Confirmed case: Requires laboratory evidence AND clinical evidence; OR
Clinical evidence AND epidemiological evidence

Laboratory evidence

At least ONE of the following in the absence of a recent vaccination

- Detection of measles virus by nucleic acid testing (PCR); OR
- Detection of measles virus antigen; OR
- Detection of measles specific IgM; OR
- IgG seroconversion or a significant increase in measles IgG level; OR
- Isolation of measles virus.



Clinical evidence

An illness characterized by all of the following:

- A generalized maculopapular rash (non-vesicular) AND fever (at least 38°C if measured) at the time of rash onset

OR

- A healthcare worker suspects measles.

Epidemiological evidence

Contact between 2 people involving a plausible mode of transmission at a time when:

- a. One meets the **confirmed case definition** for measles AND is likely to be infectious
- AND
- b. The other has **clinical evidence** of measles which starts within 7-18 days after this contact.

Public health action

Refer to the guideline “*Post Elimination Sustainability Plan. Measles, Rubella. Timor-Leste*” and “*Strategies and operational guidelines on Measles Elimination and Rubella/CRS Control (2016)*”

Report all confirmed cases of measles to the Departamentu VE immediately (Also inform the VPD Officer in the national office). The public health response is largely the same as that for fever and rash.

Measles continues on next page

Public health action (continued)

Case management

Investigate the case immediately – use the “Measles/Rubella case investigation form” to record information on demographics, symptoms, onset date, travel history, and history of any contact with returned travelers.

Determine the case’s immunization status for measles/rubella. Record the dates vaccinations were received.

Advise the case to isolate themselves and not attend their usual activities. Cases should avoid public places (e.g. markets, school) and remain confined at home (or isolated in hospital if required) for at least 5 days after the onset of the rash.

Contact management

Identify all people who the case had contact with during the time he/she was infectious (4 days before and until 4 days after the onset of rash for measles); make a line-listing of these contacts, including their names, addresses and phone numbers. Determine whether they are or were ill. Contacts without documented evidence of measles and/or rubella vaccination should be vaccinated (except pregnant women) and the symptoms of measles should be explained to them.

In large outbreaks, it may not be feasible to identify all contacts due to time, resources, and logistical constraints. In this situation, contact tracing should be deprioritized, and a large public health immunization response should be triggered along with a risk communication and awareness campaign.

Sources of information and further resources

- Vijilansia Moras Ne’ebe Prevene ho Imunizazaun; 2018. Departamentu Vijilansia Epidemiolojia Diresaun Nasional Saude Publiku, Ministeriu Da Saude, Republika Demokratika Timor-Leste.
- Ministeriu da Saude Timor-Leste. Strategies and operational guidelines on Measles Elimination and Rubella/CRS Control (2016).
- Ministeriu da Saude Timor-Leste. Post Elimination Sustainability Plan. Measles, Rubella. Timor-Leste.
- World Health Organization Regional Office for South-East Asia (WHO SEARO). Surveillance Guide for Vaccine-Preventable Diseases in the WHO South-East Asia Region. Measles and Rubella (2017).
http://www.searo.who.int/immunization/documents/sg_module1_measles_rubella.pdf
- Australian Government Department of Health. Measles. National guidelines for public health units. Communicable Disease Network of Australia (2015).
<http://www.health.gov.au/internet/main/publishing.nsf/Content/cdna-song-measles.htm>



Case definition

Reporting: Both confirmed and suspected cases should be reported

Confirmed case: Requires laboratory definitive evidence

Suspected case Requires clinical evidence OR laboratory suggestive evidence

Laboratory definitive evidence

- The detection of (culture, PCR or antigen detection) of a pathogen in the CSF of any person

OR

- The detection of (culture, PCR, gram stain or antigen detection) of a pathogen from the blood of any child (<5 years old) **AND** who has clinical evidence (see clinical evidence below)

Laboratory suggestive evidence

CSF examination showing at least one of the following:

- turbid appearance; OR
- leukocytosis (> 100 cells/mm³); OR
- leukocytosis (10-100 cells/ mm³) AND either an elevated protein (> 100 mg/dl) or decreased glucose (< 40 mg/dl)

Clinical evidence

Acute fever (> 38⁰C) and 1 of the following signs:

- Neck stiffness; OR
- Altered consciousness OR
- Petechial/purpural rash OR
- Other meningeal signs

Public health action

No response to individual cases except in case of a confirmed laboratory report of *Neisseria meningitidis* (called Meningococcal disease). Use the appropriate form (Formatu AES) to collect information from the case.

Management of contacts

Interview case/carer to determine demographic data, illness onset, symptoms and contacts. Close contacts are people in the same household, boarding school, children and staff in childcare and intimate (kissing) partner. Close contacts who had contact within 7 days before onset of the cases symptoms should be given information about the signs and symptoms of meningococcal disease and told to seek medical attention if they occur. Close contacts should receive a single dose of ciprofloxacin or if pregnant intramuscular injection ceftriaxone.

Antibiotics used for meningococcal disease contacts – ask for advice from a doctor

Antibiotic	Ciprofloxacin	Ceftriaxone	Rifampicin
Appropriate for →	All ages. Women drinking the oral contraceptive pill (OCP)	Pregnant women When there is difficulty accessing rifampicin	Small children
<i>Dose</i> →	Adults and children ≥12 years: 500 mg orally, 1 dose Children aged 5–12 years: 250 mg stat Children aged <5 years: 30mg/kg but no more than 125mg in a stat dose. *Ciprofloxacin suspension contains 250mg/5ml	Children aged < 12 years: 125mg IM - 1 dose Adults: 250 mg IM, 1 dose	Babies <1 month: 5 mg/kg orally, 12-hourly for 2 days Infants ≥ 1 month: 10 mg/kg up to 600 mg orally, 12-hourly for 2 days. Adult: 600 mg orally, 12-hourly for 2 days

Sources of information and further resources

- World Health Organization Regional Office for South-East Asia (WHO SEARO). Surveillance Guide for Vaccine-Preventable Diseases in the WHO South-East Asia Region. Invasive Bacterial Disease.
http://www.searo.who.int/indonesia/topics/immunization/module_7_-_ibd.pdf
- Australian Government Department of Health (2017). Invasive Meningococcal Disease. Communicable Disease Network of Australia National Guidelines for Public health units.
[http://www.health.gov.au/internet/main/publishing.nsf/Content/0A31EEC4953B7E6FCA257DA3000D19DD/\\$File/IMD-SoNG.pdf](http://www.health.gov.au/internet/main/publishing.nsf/Content/0A31EEC4953B7E6FCA257DA3000D19DD/$File/IMD-SoNG.pdf)
- World Health Organization (WHO). Meningococcal disease (2019).
<https://www.who.int/ith/diseases/meningococcal/en/>



Case definition

Reporting: Both probable and confirmed cases should be reported

Confirmed case: Requires laboratory definitive evidence

Probable case Requires clinical evidence AND laboratory suggestive evidence; OR
Required clinical evidence AND epidemiological evidence



Laboratory definitive evidence

- The detection of monkeypox virus DNA by PCR and/or sequencing

Laboratory suggestive evidence

In the absence of a recent smallpox/monkeypox vaccination or other known exposure to OPXV (during the period of 4-56 days after rash onset)

- has detectable levels of anti-orthopoxvirus (OPXV) IgM antibody; or
- a fourfold rise in IgG antibody titre based on acute (up to day 5-7) and convalescent (day 21 onwards) samples

Clinical evidence

Any person presenting with an unexplained acute rash or ≥ 1 acute skin lesions;

AND

One or more of the following symptoms;

- headache
- Acute onset of fever ($> 38.5^{\circ}\text{C}$)
- Lymphadenopathy (swollen lymph nodes)
- Myalgia (muscle pain/body aches)
- Back pain
- Asthenia (profound weakness)



AND

for which the following common causes of acute rash or skin lesions do not fully explain the clinical picture: varicella zoster, herpes zoster, measles, herpes simplex, bacterial skin infections, disseminated gonococcus infection, primary or secondary syphilis, chancroid, lymphogranuloma venereum, granuloma inguinale, molluscum contagiosum, allergic reaction (e.g., to plants); and any other locally relevant common causes of papular or vesicular rash.

N.B. It is not necessary to obtain negative laboratory results for listed common causes of rash illness in order to classify a case as suspected. Further, if suspicion of monkeypox infection is high due to either history and/or clinical presentation or possible exposure to a case, the identification of an alternate pathogen which causes rash illness should not preclude testing for MPXV, as coinfections have been identified.

Epidemiological evidence

Any person who;

- has had prolonged; direct physical contact with skin or skin lesions, including sexual contact; or contact with contaminated materials such as clothing, bedding or utensils] to a probable or confirmed case of monkeypox in the 21 days before symptom onset or a face-to-face exposure in close proximity, including health workers without appropriate PPE (gloves, gown, eye protection and respirator); OR
- has had multiple or anonymous sexual partners in the 21 days before symptom onset.

Public health action

As soon as a suspected case is identified, contact identification and contact tracing should be initiated, while further investigation of the source case is ongoing to determine if the case meets the probable or confirmed case definition.

Responsible officials should follow the “*National Guideline for Prevention, Care and Treatment of Monkeypox Virus Infection in Timor-Leste, Version 1.0*”.

The basic principles of case management are;

- Triage for home isolation vs. hospital isolation/admission
- Protection of compromised skin and mucus membranes
- Maintaining adequate hydration – oral or parenteral & nutritional therapy
- Symptomatic treatment and monitoring for complications
- Mental health care of patients with monkeypox
- Evolving options – not yet widely available and/or still under research – Antivirals, Post exposure prophylaxis

The basic principles of contact management are;

- Monitor for monkeypox symptoms for 21 days after the date of last exposure, including for the development of a rash or pimple-like lesions, or a fever.
- If symptoms compatible with monkeypox develop, immediately isolate, and test.

Sources of information and further resources

- Timor-Leste Ministry of Health. Vaccine-preventable diseases: surveillance standards (2022).
- WHO. Surveillance, case investigation and contact tracing for monkeypox, interim guidance, 24 June 2022 <https://www.who.int/publications/i/item/WHO-MPX-Surveillance2022>
- WHO. Clinical management and infection prevention and control for monkeypox: Interim rapid response guidance <https://www.who.int/publications/i/item/WHO-MPXClinical-and-IPC-2022>
- Australia CDNA Interim National Guidelines for Public Health Units for Monkeypox virus <https://www.health.gov.au/resources/publications/monkeypox-virus-infection-cdna-national-guidelines-for-public-health-units>

Mumps - Papeira

Case definition

Reporting: Suspected and confirmed cases should be reported

Suspected case: Requires clinical evidence only

Confirmed case: Requires clinical evidence AND laboratory evidence

Laboratory evidence

- Detection of mumps by PCR from an appropriate clinical specimen or isolation of mumps virus

OR

- Seroconversion or significant (at least fourfold) rise in serum mumps IgG titre as determined by any standard serological assay

OR

- Positive serological test for mumps-specific IgM antibodies (in absence of recent vaccination).

Clinical evidence

Acute onset of unilateral or bilateral tender, self-limited swelling of the parotid or other salivary gland, lasting two or more days and without other apparent cause.

Public health action

Report all confirmed and suspected cases of mumps to the Departamentu VE (Also inform the VPD Officer in the national office).

Currently there is no vaccine program for mumps in Timor-Leste and no guidelines. Investigate each case using the form “Formulariu investigasaun papeira”. Confirm the case’s immunization status and look for further cases amongst contacts.

Exclude the case from work, school, preschool, child care or other settings where there are susceptible individuals, especially young children and infants, for 5 days from the onset of parotitis.

Sources of information and further resources

- World Health Organization (WHO). Mumps. Vaccine-preventable diseases: surveillance standards (2019).
https://www.who.int/immunization/monitoring_surveillance/burden/vpd/WHO_SurveillanceVaccinePreventable_13_Mumps_R2.pdf?ua=1
- United States Centers for Disease Control and Prevention (CDC). Mumps.
<https://www.cdc.gov/mumps/hcp.html>
- Northern Territory Government, Australia. Mumps (2016).
<https://nt.gov.au/wellbeing/health-conditions-treatments/viral/mumps>

Pertussis - *Pertusis*

Case definition

Reporting: Confirmed cases and suspected cases should be reported

Confirmed case: Requires laboratory evidence AND clinical evidence

Probable case: Requires clinical evidence only in the absence of a more likely diagnosis

Laboratory evidence

- Detection of *Bordetella pertussis* by PCR, OR
- Seroconversion in paired sera for *Bordetella pertussis*, OR
- Isolation of *Bordetella pertussis*.

Clinical evidence

A cough lasting 2 weeks or more with at least **one** of the following:

- Paroxysms (i.e. fits) of coughing OR
- Inspiratory whoop OR
- Post-tussive vomiting (i.e. vomiting immediately after coughing)

Public health action

Report all cases (suspected and confirmed) to VE so they can be investigated.
Investigate cases using the form “Formatu investigasaun kazu pertusis”.

Case management

Isolate the case and ask them to avoid contact with others. Cases can transmit the disease up to 3 weeks after commencement of cough, 21 days after the onset of any cough, 14 days after onset of paroxysmal cough (if the onset is known), or until they have completed 5 days of a course of an appropriate antibiotic.

Contact management

A contact is someone who lives in the same household or had over 1 hour of close contact with someone with whooping cough while infectious. Identify high risk household contacts (Infants under 1 year of age who haven't had 3 pertussis containing vaccines and women in their third trimester of pregnancy). If resources permit, high risk close contacts and their households should receive 5-7 days of erythromycin, clarithromycin or azithromycin as post exposure prophylaxis.

Refer contacts to the EPI (Expanded Program Imunizasaun) to receive vaccination.

Pertussis continues on next page

Sources of information and further resources

- Vijilansia Moras Ne'ebe Prevene Ho Imunizasaun; 2018. Departamentu Vijilansia Epidemiolojia Diresaun Nasional Saude Publiku, Ministeriu Da Saude, Republika Demokratika Timor-Leste.

- World Health Organization Regional Office for South-East Asia (WHO SEARO). Surveillance Guide for Vaccine-Preventable Diseases in the WHO South-East Asia. Pertussis (2017).
http://www.searo.who.int/immunization/documents/sg_module5_pertussis.pdf

- Australian Government Department of Health. Pertussis. Response for public health units. Communicable Disease Network of Australia (2015).
<http://www.health.gov.au/internet/main/publishing.nsf/Content/cdna-song-pertussis.htm>

Plague



Case definition

Reporting: Confirmed and suspected cases should be reported

Confirmed case: Requires laboratory evidence

Suspected case: Requires clinical evidence without presumptive or confirmatory laboratory results

Laboratory evidence

Isolation or detection of *Yersinia pestis* from a clinical sample.

Clinical evidence

Plague is an acute, severe bacterial infection usually transmitted through a fleabite. It most commonly presents in bubonic, pneumonic or septicaemic form.

Initial symptoms are often nonspecific and may include fever, chills, muscle aches, nausea and lethargy.

Bubonic plague is the most common form worldwide. It is characterized by swelling and inflammation (buboes) of the local lymph nodes draining the site of the fleabite or elsewhere. The nodes are tender, firm and fixed, and may suppurate in the second week.

Pneumonic plague may be primary due to respiratory transmission from an external source, or secondary as a complication of bubonic plague. The onset of primary plague pneumonia is usually abrupt, with high fever, tachycardia and headache. Cough develops within 24 hours. Sputum is mucoid at first and then becomes bright red and foamy. Chest X-rays show a rapidly progressing pneumonia.

All forms of plague infection may progress to septicaemic plague, with bloodstream spread around the body, including to the meninges. This includes some who have no preceding localizing signs or buboes. Sepsis may also lead to disseminated intravascular coagulation.

Public health action

Report all suspected and confirmed case to the Departamentu VE immediately and inform the VE Rapid Response Team at the national office.

Investigate and respond to all suspected and confirmed cases.

Follow the WHO guideline below.

Sources of information and further resources

- World Health Organization Regional Office for South-East Asia (WHO SEARO). Operational Guidelines on Plague Surveillance, Diagnosis, Prevention and Control (2009).
http://www.searo.who.int/entity/emerging_diseases/documents/ISBN_9789_92_9022_37_6_4/en/

Pneumonia (<5 years old) - *Pneumonia*

Case definition

Reporting: Notify confirmed cases

Confirmed case: Requires clinical evidence only

Clinical evidence

A person aged less than 5 years of age with;

- A cough OR difficulty breathing

AND

- A rapid respiratory rate* or chest indrawing or decreased level of consciousness

* 50 or more breaths per minute for infant age 2 months up to 1 year

40 or more breaths per minute for young child 1 year up to 5 years

Public health action

No public health response to individual cases.

If child is hospitalized, collect respiratory tract specimen (sputum or nasopharyngeal aspirate [NPA]) and send to NHL for culture and respiratory pathogen PCR (if available).

Sources of information and further resources

- Heymann, D. 2015. Control of Communicable Diseases Manual. 20th Edition. American Public Health Association.
- World Health Organization (WHO) Influenza (2019). <https://www.who.int/influenza/en/>
- World Health Organization Regional Office for South-East Asia (WHO SEARO). Surveillance Guide for Vaccine-Preventable Diseases in the WHO South-East Asia Region. Invasive Bacterial Disease. http://www.searo.who.int/indonesia/topics/immunization/module_7_-_ibd.pdf

Polio



Case definition

Reporting: Both confirmed and probable cases should be reported

Confirmed case: Requires laboratory definitive evidence AND clinical evidence

Probable case: Requires clinical evidence **AND** the case is not dismissed as non-polio paralytic illness by a National Committee Certification Polio Eradication

Laboratory evidence

Wild poliovirus infection

1. Isolation or detection of wild poliovirus

Vaccine-associated poliomyelitis

1. Isolation or detection of Sabin-like poliovirus

Vaccine-derived poliomyelitis

1. Isolation or detection of poliovirus, characterized as a vaccine derived poliovirus according to the current definition of the World Health Organization.

Clinical evidence

Any child under 15 years of age with acute flaccid paralysis* (including Guillain-Barré syndrome) or any person of any age with paralytic illness if polio is suspected.

** Acute flaccid paralysis syndrome is characterized by rapid onset of weakness of an individual's extremities, often including weakness of the muscles of respiration and swallowing, progressing to maximum severity within 1-10 days. The term "flaccid" indicates the absence of spasticity or other signs of disordered central nervous system (CNS) motor tracts such as hyperflexia, clonus, or extensor plantar responses.*

Public health action

- Interview case/carer and complete "AFP case investigation form"
- Collect 2 stool specimens within 14 days of paralysis onset and at least 24 hours apart. Stool specimens can be collected up to 60 days, but preferably within 14 days. See 'Vijilansia Moras Ne'ebe Prevene ho Imunizasaun' for specimen transport requirements.¹
- Seek expert advice (WHO) to implement immediate and appropriate immunization activities.
- Inform health posts and health centers/hospital in the affected area to be on heightened alert for cases of AFP and report cases to Departamentu Vijilansia Epidemiolojia the same day.
- Complete follow up questionnaire "60-day case investigation form" 60-days post paralysis onset.

Sources of information and further resources

- Vijilansia Moras Ne'ebe Prevene ho Imunizasaun; 2018. Departamentu Vijilansia Epidemiolojia Diresaun Nasional Saude Publiku, Ministeriu da Saude, Republika Demokratika Timor-Leste.
- World Health Organization Regional Office for South-East Asia (WHO SEARO). Surveillance Guide for Vaccine-Preventable Diseases in the WHO South-East Asia Region. Poliomyelitis (2017).
http://www.searo.who.int/immunization/documents/sg_module3_polio.pdf



Case definition

Reporting: Confirmed and probable cases should be reported.

Confirmed case: Laboratory detection or isolation of rabies virus; or detection of rabies-neutralizing antibody in the serum or CSF of an unvaccinated person.

Probable case: A person with an acute encephalomyelitis with history of bite or scratch from a suspected rabid animal.

Suspected case: A person with an acute encephalomyelitis (headache, fever, hydrophobia, delirium, convulsions, or paralysis) progressing to death within 10 days after the first symptom.

Public health action

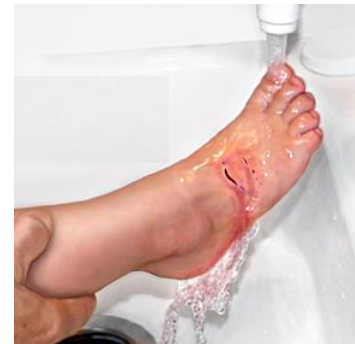
Report suspected and confirmed cases immediately to VE who will then inform the relevant other ministries and follow up the case.

Health workers should follow standard treatment protocols for dog bites (e.g., wash the wound, give antibiotics and vaccinate against tetanus)

Immediately washing an animal bite with soap and clean water is considered a very effective treatment in the prevention of rabies.

The Timor-Leste guidelines are under development in 2019 – until then refer to the links below:

- Inform the WHO immediately and ask for assistance.
- Inform all relevant ministries immediately (e.g. Agriculture).



Sources of information and further resources

- World Health Organization (WHO). Rabies (2019). <http://www.searo.who.int/india/topics/rabies/en/>
- World Health Organization (WHO). WHO Guide for Rabies Pre and Post Exposure Prophylaxis in Humans (2014). https://www.who.int/rabies/PEP_Prophylaxis_guideline_15_12_2014.pdf
- World Health Organization (WHO). Rabies in the South East Asian Region. http://www.searo.who.int/about/administration_structure/cds/CDS_rabies.pdf.pdf
- Australian Government Department of Health. Rabies Virus and Other Lyssavirus (Including Australian Bat Lyssavirus) Exposures and Infections Response for public health units (2018). <http://www.health.gov.au/internet/main/publishing.nsf/Content/cdna-song-abvl-rabies.htm>
- World Health Organization (WHO). Animal bites (2019). <https://www.who.int/news-room/fact-sheets/detail/animal-bites>
- United States Centers for Disease Control and Prevention (CDC). Rabies. Available at <https://www.cdc.gov/rabies/index.html>
- Timor-Leste Rabies Guidelines (2019 – under development).

Rheumatic heart disease (RHD) - *Moras fuan reumatika*

Case definition

Reporting: Both definite and borderline cases of rheumatic heart disease should be reported

Definite rheumatic heart disease

At least ONE of the following:

- Pathological mitral regurgitation and at least two morphological features of RHD of the mitral valve
- Mitral stenosis mean gradient > 4 mmHg
- Pathological aortic regurgitation and at least two morphological features of RHD of the aortic valve
- Borderline disease of both the aortic and mitral valves

Borderline rheumatic heart disease

At least ONE of the following:

- At least two morphological features of RHD of the mitral valve without pathological mitral regurgitation or mitral stenosis
- Pathological mitral regurgitation
- Pathological aortic regurgitation

Public health action

Cases should be reported to CDC for inclusion in monthly surveillance data.

Cases should be referred for follow-up assessment by a cardiologist to determine if surgery is required.

Cases should be asked for their consent to provide their details to the organization, Maluk Timor on ph: +6703311122. Maluk Timor currently maintain a register of RHD patients receiving prophylactic benzathine penicillin to prevent recurrences of acute rheumatic fever. Maluk Timor also are able to provide education to both cases and health professionals.

Sources of information and further resources

- Rheumatic Heart Disease Australia. The Australian guideline for the prevention, diagnosis and management of acute rheumatic fever and rheumatic heart disease – 2nd Edition (2012). <https://www.rhdaustralia.org.au/arf-rhd-guideline>
- World Health Organization (WHO) Rheumatic fever and rheumatic heart disease – report by the director general (2018).
- http://apps.who.int/gb/ebwha/pdf_files/WHA71/A71_25-en.pdf
- World Heart Foundation. Rheumatic Heart Disease (2018). <https://www.world-heart-federation.org/programmes/rheumatic-heart-disease/>

Rotavirus

Case definition

Reporting: Confirmed cases should be reported

Confirmed case: Laboratory detection of rotavirus in a stool specimen



Laboratory evidence

Laboratory detection of rotavirus in a stool specimen.

PUBLIC HEALTH RESPONSE

*** The rotavirus vaccine will be implemented in Timor-Leste in 2019. From 2019-2022, the public health response for rotavirus is to follow the “Manual for enhanced rotavirus surveillance in children <5 years hospitalized for diarrhoea in Timor-Leste (2019-2022)” ***

Rotavirus is a vaccine preventable disease. Report cases to the Departamentu VE, VPD. The only routine public health response to an individual case is to determine their immunization status and record this.

People should be advised not to attend school, kindergarten, work, or to prepare food or provide care for others while they have diarrhoea.

However, from 2019-2022, the public health response to rotavirus should follow the case-control study protocol within the “*Manual for enhanced rotavirus surveillance in children <5 years hospitalized for diarrhoea in Timor-Leste (2019-2022)*”.

Be aware of outbreaks.

Sources of information and further resources

- World Health Organization (WHO). Immunizations, Vaccines and Biologicals. Rotavirus (2018). <https://www.who.int/immunization/diseases/rotavirus/en/>
- Timor-Leste Ministeriu da Saude (2019). *Manual for enhanced rotavirus surveillance in children <5 years hospitalized for diarrhoea in Timor-Leste (2019-2022)*.
- World Health Organization (WHO). Vaccine Preventable Diseases Surveillance Standards. Rotavirus (2018). https://www.who.int/immunization/monitoring_surveillance/burden/vpd/WHO_SurveillanceVaccinePreventable_19_Rotavirus_R1.pdf?ua=1
- World Health Organization (WHO) Foodborne Disease Outbreaks: Guidelines for Investigation and Control (2008).
- https://apps.who.int/iris/bitstream/handle/10665/43771/9789241547222_eng.pdf;jsessionid=2512A5B6860FFA991748683E8C90A9A5?sequence=1
- Northern Territory Government, Australia. Rotavirus (2016). <https://nt.gov.au/wellbeing/health-conditions-treatments/viral/rotavirus>

Rubella

Case definition

Reporting: Confirmed cases should be reported.

Confirmed case: Requires laboratory evidence; **OR**
Clinical evidence **AND** epidemiological evidence

Laboratory evidence

At least ONE of the following in the absence of a recent vaccination

- Detection of rubella virus by nucleic acid testing (PCR); OR
- Detection of rubella virus antigen; OR
- Detection of rubella specific IgM; OR
- IgG seroconversion or a significant increase in rubella IgG level; OR
- Isolation of rubella virus.

Clinical evidence

An illness characterised by all of the following:

- A generalised maculopapular rash (non-vesicular) **AND** fever (at least 38°C if measured) at the time of rash onset

OR

- A healthcare worker suspects rubella.

Epidemiological evidence

Contact between 2 people involving a plausible mode of transmission at a time when:

- i. One has laboratory evidence of rubella **AND** is likely to be infectious

AND

- ii. The other has **clinical evidence** of rubella which starts within 7-18 days after this contact.

Public health action

Refer to the guideline “*Post Elimination Sustainability Plan. Measles, Rubella. Timor-Leste*” and “*Strategies and operational guidelines on Measles Elimination and Rubella/CRS Control (2016)*”

Report all confirmed cases of rubella to the Departamentu VE immediately (Also inform the VPD Officer in the national office). The public health response is largely the same as that for fever and rash.

Rubella continues on next page

Public health action (continued)

Case management

Investigate the case immediately – use the “Measles/Rubella case investigation form” to record information on demographics, symptoms, onset dates, travel history, and history of any contact with returned travelers.

Determine the case’s immunization status for measles/rubella. Record the dates vaccinations were received.

Advise the case to isolate themselves and not attend their usual activities. Cases should avoid public places (e.g. markets, school) and remain confined at home (or isolated in hospital if required) for at least 5 days after the onset of the rash.

Contact management

Identify all people who the case had contact with during the time he/she was infectious (7 days before and until 7 days after the onset of rash); make a line-listing of these contacts, including their names, addresses and phone numbers. Determine whether they are or were ill and, pregnancy status for all women of childbearing age. Contacts without documented evidence of measles/rubella vaccination should be vaccinated (except pregnant women) and the symptoms of rubella should be explained to them.

In large outbreaks, it may not be feasible to identify all contacts due to time, resources, and logistical constraints. In this situation, contact tracing should be deprioritized, and a large public health immunization response should be triggered along with a risk communication and awareness campaign.

Sources of information and further resources

- Vijilansia Moras Ne’ebe Prevene ho Imunizasaun; 2018. Departamentu Vijilansia Epidemiolojia Diresaun Nasional Saude Publiku, Ministeriu da Saude, Republika Demokratika Timor-Leste.
- Ministeriu da Saude Timor-Leste. Strategies and operational guidelines on Measles Elimination and Rubella/CRS Control (2016).
- Ministeriu da Saude Timor-Leste. Post Elimination Sustainability Plan. Measles, Rubella. Timor-Leste.
- World Health Organization Regional Office for South-East Asia (WHO SEARO). Surveillance Guide for Vaccine-Preventable Diseases in the WHO South-East Asia Region. Measles and Rubella (2017).
http://www.searo.who.int/immunization/documents/sg_module1_measles_rubella.pdf
- Australian Government Department of Health. Measles. National guidelines for public health units. Communicable Disease Network of Australia (2015).
- <http://www.health.gov.au/internet/main/publishing.nsf/Content/cdna-song-measles.htm>

Rubella – Congenital rubella syndrome (CRS)

Case definition

Reporting: Both suspected and laboratory confirmed CRS cases should be reported

Confirmed case: Laboratory evidence AND one list (a) condition

Suspected case: Clinical evidence only

Laboratory evidence

- Detection of rubella IgM antibody;

OR

- Sustained rubella IgG antibody level as determined on at least 2 occasions (at 1 month apart) between 6 and 12 months of age

OR

- Isolation of rubella virus or detection by nucleic acid (PCR) in an appropriate clinical sample (throat swab, nasal swab, blood, urine or CSF).

Clinical evidence

- Any infant in whom a qualified physician detects at least 2 of the findings in list (a);

OR

- At least one condition from list (a) and one in (b);

AND

- Without any other obvious clinical cause that has not been adequately tested by a laboratory:

List (a)	List (b)
<ul style="list-style-type: none"> • cataract, • congenital glaucoma, • congenital heart disease, • hearing impairment, • pigmentary retinopathy 	<ul style="list-style-type: none"> • purpura, • splenomegaly, • microcephaly, • developmental delay, • meningo-encephalitis, • radiolucent bone disease, • jaundice that begins within 24 hours of birth

Laboratory confirmed congenital rubella syndrome (CRS): An infant who has laboratory evidence AND one condition from list (a).

Congenital rubella infection (CRI): An infant who does not have list (a) clinical signs of CRS but who has laboratory evidence for CRS is classified as having CRI.

**Congenital rubella syndrome continues on
next page**

Public health action

Refer to the guideline “*Post Elimination Sustainability Plan. Measles, Rubella. Timor-Leste*” and “*Strategies and operational guidelines on Measles Elimination and Rubella/CRS Control (2016)*”

Report all confirmed cases of congenital rubella syndrome to the Departamentu VE immediately (Also inform the VPD Officer in the national office).

Case management

Follow guidelines below

Sources of information and further resources

- Vijilansia Moras Ne’ebe Prevene ho Imunizasaun; 2018. Departamentu Vijilansia Epidemiolojia Diresaun Nasional Saude Publiku, Ministeriu Da Saude, Republika Demokratika Timor-Leste.
- Ministeriu da Saude Timor-Leste. Strategies and operational guidelines on Measles Elimination and Rubella/CRS Control (2016).
- Ministeriu da Saude Timor-Leste. Post Elimination Sustainability Plan. Measles, Rubella. Timor-Leste.
- World Health Organization Regional Office for South-East Asia (WHO SEARO). Surveillance Guide for Vaccine-Preventable Diseases in the WHO South-East Asia Region. Measles and Rubella (2017).
http://www.searo.who.int/immunization/documents/sg_module1_measles_rubella.pdf

Salmonellosis

Case definition

Reporting: Confirmed cases should be reported
Confirmed case: Requires laboratory evidence only



Laboratory evidence: Isolation or detection of *Salmonella* in a clinical sample.

Public health action

No public health response for individual cases. Report to Departamentu VE. People should be advised not to attend school or work, or to prepare food or provide care for others while they have diarrhoea.

Be alert for clusters or outbreaks. If an outbreak is suspected inform the Rapid Response Team (RRT) in the municipality within 24 hours.

Only follow up cases if an increase in community or outbreak is reported. Complete “Formulario Investigasaun Kazu” to record information about exposures.

Outbreak

Cluster of cases greater than the usual endemic number.

- | | |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none">• Confirm the presence of an outbreak• Form investigation team• Identify all cases in community• Establish a case definition (time, place, person)• Implement control measure(s) to prevent further cases | <ul style="list-style-type: none">• Confirm diagnosis of disease using clinical and/or laboratory criteria• Make a line listing of all cases. Interview case/cares using gastroenteritis case investigation form to ascertain demographic information, symptoms, date of onset and identify potential exposures• Describe the outbreak (summarise number infected, characteristics of people affected, where, epidemic curve)• Feedback outcome to community affected |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

* the above steps don't need to be followed in order

Sources of information and further resources

- World Health Organization (WHO) *Salmonella* (2019). [https://www.who.int/news-room/fact-sheets/detail/salmonella-\(non-typhoidal\)](https://www.who.int/news-room/fact-sheets/detail/salmonella-(non-typhoidal))
- World Health Organization (WHO) Foodborne Disease Outbreaks: Guidelines for Investigation and Control (2008).
https://apps.who.int/iris/bitstream/handle/10665/43771/9789241547222_eng.pdf;jsessionid=2512A5B6860FFA991748683E8C90A9A5?sequence=1
- Northern Territory Government, Australia. *Salmonella* (2016). <https://nt.gov.au/wellbeing/health-conditions-treatments/digestive-health/salmonellosis>
- Heymann, D. 2015. Control of Communicable Diseases Manual. 20th Edition. American Public Health Association.

Scabies

Case definition

Reporting: Confirmed cases and suspected cases should be reported

Confirmed case: Requires laboratory evidence only

Suspected case: Requires clinical evidence only

Laboratory evidence

Detection of *Sarcoptes scabiei* in a skin scraping by microscopy or on skin by dermatoscopy.

Clinical evidence

An intensely itchy rash with small bumps on the skin in a typical distribution pattern involving the web spaces between the fingers or toes or other parts of the body.

Public health action

No public health responses for individual cases. Report to CDC.

Sources of information and further resources

- World Health Organization (WHO). Neglected Tropical Diseases – Scabies (2018). https://www.who.int/neglected_diseases/diseases/scabies/en/

Severe Acute Respiratory Infection (SARI)

Case definition

Reporting: Notify confirmed cases

Confirmed case: Requires clinical evidence only

Clinical evidence: an acute respiratory infection with:

- history of fever or measured fever of $\geq 38\text{ C}^\circ$;

AND

- cough or sore throat;

AND

- with onset within the last 10 days;

AND

- requires hospitalization.

Public health action

Since early 2022, the surveillance strategy for SARI (severe acute respiratory infection) and ILI (influenza-like illness) has changed. The strategy for surveillance and response is to follow an integrated strategy for ALL respiratory pathogens including COVID-19, influenza, respiratory syncytial virus (RSV), etc. This is according to the guideline, “Integrated Surveillance of Respiratory Pathogens in Timor-Leste”.

Those people who fulfil the syndromic case definitions in this document for SARI should have a sample collected for COVID-19 and influenza as a minimum, particularly at ILI/SARI sentinel sites.

If a medical doctor suspects someone has COVID-19 based on clinical symptoms or compelling epidemiological information they should collect a nasopharyngeal swab and test for COVID-19. Symptoms that may indicate a COVID-19 infection may include (but are not limited to) acute respiratory symptoms, fever, cough, feeling weak/tired, headache, myalgia, sore throat, coryza, dyspnoea, anorexia, nausea, diarrhoea, altered mental state, or loss of taste or smell.

When investigating all respiratory illness cases, use the form called “CASE INVESTIGATION FORM FOR INTEGRATED RESPIRATORY SURVEILLANCE (ILI, SARI, ARI, COVID-19, Influenza and RSV)”.

For information about management of COVID-19 cases and close contacts refer to the National guideline for the surveillance and management of COVID-19 cases and contacts in Timor-Leste (*Matadalan Nasional Konaba Vijilansia no Jestaun Kontaktu ba COVID-19 ba Timor-Leste*).

Advise those who are sick to rest at home until their symptoms have finished, particularly their cough. Give advice to stay away from others where possible, wash hands with soap and water regularly, and to cover the mouth when coughing or sneezing to prevent transmission.

Seasonal influenza and influenza or COVID-19 outbreaks

Give community wide messages about prevention activities, especially vaccination against COVID-19, including booster vaccines. Antiviral treatment is recommended for people at risk of severe disease if influenza or COVID-19 is suspected.

If an outbreak is suspected;

- Contact the Departamentu Vijilansia Epidemiolojia immediately to report a cluster of cases.
- Contact an animal health authority immediately if disease is linked to exposure to sick animals.
- Begin a line list of cases.

IMPORTANT

COVID-19 cases, SARS and new human influenza subtypes are required to be reported to the WHO in accordance with the *International Health Regulations (IHR) 2005*.

Immunisation against COVID-19 is very effective at protecting against severe disease and death. Mask wearing, hand-washing and physical distancing are simple public health measures which also may prevent/reduce transmission.

Sources of information and further resources

- Timor-Leste Ministerio da Saude. Operational protocol for influenza-type illnesses (ILI) and Severe Acute Respiratory Infection (SARI) Surveillance for Influenza in Sentinel Sites in Timor-Leste (2018) - (Draft).
- Heymann, D. 2015. Control of Communicable Diseases Manual. 20th Edition. American Public Health Association.
- World Health Organization (WHO) Influenza (2019). <https://www.who.int/influenza/en/>
- Matadalan Nasional Konaba Vijilansia no Jestaun Kontaktu ba COVID-19 ba Timor-Leste (Ver. 6, Atualizadu 22 Fev. 2021).
- World Health Organization (WHO) Coronavirus 2019 (2022) https://www.who.int/health-topics/coronavirus#tab=tab_1

Severe Acute Respiratory Syndrome (SARS)



Case definition

Reporting: Only confirmed cases should be reported.

Confirmed case: Requires laboratory definitive evidence AND clinical evidence.

** The WHO should be alerted if there are any alert cases under suspicion.

Laboratory definitive evidence

- Detection of Severe Acute Respiratory Syndrome-coronavirus (SARS-CoV) by nucleic acid testing using a validated method from at least two different clinical specimens (e.g. nasopharyngeal and stool) **OR** the same clinical specimen collected on two or more occasions during the course of the illness (e.g. sequential nasopharyngeal aspirates) **OR** two different assays or repeat PCR using a new RNA extract from the original clinical sample on each occasion of testing

OR

- Seroconversion or significant increase in antibody level or fourfold or greater rise in titre to SARS-CoV tested in parallel by enzyme-linked immunosorbent assay or immunofluorescent assay

OR

- Isolation of SARS-CoV **AND** detection of SARS-CoV by nucleic acid testing using a validated method.

Clinical evidence

A person with a history of:

- Fever ($\geq 38^{\circ}\text{C}$)

AND

- One or more symptoms of lower respiratory tract illness (cough, difficulty breathing),

AND

- Radiographic evidence of lung infiltrates consistent with pneumonia or Acute Respiratory Distress Syndrome (ARDS) **OR** autopsy findings consistent with the pathology of pneumonia or ARDS.

Alert case

In the absence of an alternate diagnosis:

1. Two or more health care workers in the same health care unit fulfilling the clinical case definition of SARS and with onset of illness in the same 10-day period.

OR

2. Hospital acquired illness in three or more persons (health care workers and/or other hospital staff and/or patients and/or visitors) in the same health care unit fulfilling the clinical case definition of SARS and with onset of illness in the same 10-day period.

Note

It should be recognized that the case definition provided by WHO may be modified in the event of a global alert. Until the epidemiology of SARS has been further defined, 'alert cases' should be reported. The aim of the alert cases is to provide early warning of the potential recurrence of SARS to rapidly implement appropriate infection control measures, expedite diagnosis and activate the public health response.

Public health action

Investigate the case urgently to ascertain the source of infection.

- Isolate the case (respiratory precautions).
- Educate contacts on symptoms and monitor contacts twice a day for fever for 10 days from the last contact.
- Notify Minister of Health and WHO.

Sources of information and further resources

- World Health Organization. WHO Guidelines for the Global surveillance of SARS Updated Recommendations (2004).
http://www.who.int/csr/resources/publications/WHO_CDS_CSR_ARO_2004_1.pdf?ua=1 (Page 18; Section 3.5 Public health management of a SARS alert)
- Heymann, D. 2015. Control of Communicable Diseases Manual. 20th Edition. American Public Health Association.

Sexually Transmitted Infections STI (Genital ulcers/urethral discharge) -*ulkun genital*

Case definition

Reporting: Notify confirmed cases

Confirmed case: Requires clinical evidence only

Clinical evidence: Presence of a genital lesion (ulcer on penis, scrotum, rectum, labia, vagina) OR urethral discharge (males only).

Public health action

No follow up for individual cases. Notify to CDC.

Sources of information and further resources

- Timor-Leste Ministry of Health. Draft National Strategic Plan HIV and STIs, 2017-2021 (2016).
- World Health Organization (WHO). HIV (2019). <https://www.who.int/hiv/en/>

Shigellosis

Case definition

Reporting: Confirmed cases should be reported
Confirmed case: Requires laboratory evidence only



Laboratory evidence: Isolation or detection of *Shigella* in a clinical sample.

Public health action

No public health response for individual cases. Report to Departamentu VE. People should be advised not to attend school or work, or to prepare food or provide care for others while they have diarrhoea.

Be alert for clusters or outbreaks. If an outbreak is suspected inform the Rapid Response Team (RRT) in the municipality within 24 hours.

Only follow up cases if an increase in community or outbreak is reported. Complete “Formulario Investigasaun Kazu” to record information about exposures.

Outbreak

Cluster of cases greater than the usual endemic number.

- | | |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none">• Confirm the presence of an outbreak• Form investigation team• Identify all cases in community• Establish a case definition (time, place, person)• Implement control measure(s) to prevent further cases | <ul style="list-style-type: none">• Confirm diagnosis of disease using clinical and/or laboratory criteria• Make a line listing of all cases. Interview case/cares using gastroenteritis case investigation form to ascertain demographic information, symptoms, date of onset and identify potential exposures• Describe the outbreak (summarize number infected, characteristics of people affected, where, epidemic curve)• Feedback outcome to community affected |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

* the above steps don't need to be followed in order

Sources of information and further resources

- World Health Organization (WHO) Foodborne Disease Outbreaks: Guidelines for Investigation and Control (2008). Available at
- https://apps.who.int/iris/bitstream/handle/10665/43771/9789241547222_eng.pdf;jsessionid=2512A5B6860FFA991748683E8C90A9A5?sequence=1
- World Health Organization (WHO) Guidelines for the control of shigellosis, including epidemics due to *Shigella dysenteriae* type 1 (2005). Available at
- <https://apps.who.int/iris/bitstream/handle/10665/43252/9241592330.pdf?sequence=1>
- Heymann, D. 2015. Control of Communicable Diseases Manual. 20th Edition. American Public Health Association. Northern Territory Government, Australia. Shigellosis (2016). Available at <https://nt.gov.au/wellbeing/health-conditions-treatments/digestive-health/shigellosis>

Smallpox



Case definition

Reporting: Only confirmed cases should be reported

Confirmed case: Requires clinical and laboratory evidence

Laboratory evidence

Isolation or detection of variola virus.

Clinical evidence

- An individual of any age presenting with acute onset of fever ($\geq 38.3^{\circ}\text{C}/101^{\circ}\text{F}$), malaise, and severe prostration with headache and backache occurring 2 to 4 days before rash onset; **AND**
- Subsequent development of a maculopapular rash starting on the face and forearms, then spreading to the trunk and legs, and evolving within 48 hours to deep-seated, firm/hard and round well-circumscribed vesicles and later pustules, which may become umbilicated or confluent; **AND**
- Lesions that appear in the same stage of development (i.e. all are vesicles or all are pustules) on any given part of the body (e.g. the face or arm), **AND**
- No alternative diagnosis explaining the illness.

Public health action

Relate the case immediately to VE and CDC at the national level. Inform the VPD officer in the national office). Follow up all cases urgently.

Case follow up

Investigate urgently to confirm the case and ascertain the source of infection.

Cases should be immediately isolated and notified to the health minister and WHO.

Contact follow up

All contacts of a confirmed case must be traced immediately. Contacts are anyone staying in the same household or persons who were not wearing appropriate personal protective equipment who had ≥ 15 minutes interaction with an infectious case of smallpox within a distance of 2 meters. These may include contacts at work, in social settings, and healthcare and emergency workers. People with smallpox are infectious from commencement of fever until the last scab drops off.

Quarantine all contacts (until 17 days from last exposure).

Check contacts daily for symptoms and isolate immediately if symptoms compatible with smallpox occur.

Liaise with WHO to obtain smallpox vaccine and vaccinate all contacts. Discuss wider vaccination campaign with experts.

Sources of information and further resources

- Communicable Diseases Network Australian. Smallpox national guidelines for public health units (2017).
[http://www.health.gov.au/internet/main/publishing.nsf/Content/33B47F135C9E299ACA2583520007D6F1/\\$File/smallpox-SoNG2018.pdf](http://www.health.gov.au/internet/main/publishing.nsf/Content/33B47F135C9E299ACA2583520007D6F1/$File/smallpox-SoNG2018.pdf)
- World Health Organization. Smallpox vaccines (2018).
<http://www.who.int/csr/disease/smallpox/vaccines/en/>

Streptococcus pneumoniae (invasive) - *Streptococcus pneumoniae* (invasivu)

Case definition

Reporting: Confirmed cases should be reported

Confirmed case: Requires laboratory evidence



Laboratory evidence

Detection or isolation of *Streptococcus pneumoniae* in a normally sterile site (e.g. blood culture, CSF, etc).

Public health action

No public health response to individual cases. Report to Departamentu VE.

Sources of information and further resources

- World Health Organization Regional Office for South-East Asia (WHO SEARO). Surveillance Guide for Vaccine-Preventable Diseases in the WHO South-East Asia Region. Invasive Bacterial Disease (*Streptococcus pneumoniae*) (2017). http://www.searo.who.int/indonesia/topics/immunization/module_7_-_ibd.pdf
- World Health Organization (WHO). Immunizations, Vaccines and Biologicals. Pneumococcal disease (2018). <https://www.who.int/immunization/diseases/pneumococcal/en/>
- Centers for Disease Control and Prevention (CDC). Global pneumococcal disease and vaccine (2018). <https://www.cdc.gov/pneumococcal/global.html>
- World Health Organization Regional Office for South-East Asia (WHO SEARO). Accelerating introduction of new vaccines and related technologies (2019). http://www.searo.who.int/immunization/topics/new_vaccines/en/



Case definition

Reporting: Confirmed and suspected cases should be reported
Suspect and confirmed Cases require clinical evidence only

Confirmed case

Any neonate with normal ability to suck and cry during the first 2 days of life **and**
- who, between 3 and 28 days of age, cannot suck normally **and**
- becomes stiff or has spasms (i.e. jerking of the muscles)

Note: The basis for case classification is entirely clinical and does not depend on laboratory confirmation. Neonatal tetanus cases reported by physicians are considered to be confirmed. However, investigators should examine neonatal tetanus case records during annual hospital record reviews.

Suspected case

Any neonatal death between 3 and 28 days of age in which the cause of death is unknown;
OR

Any neonate reported as having suffered from neonatal tetanus between 3 and 28 days of age and not investigated.

Public health action

Report all cases (suspected and confirmed) to VE for investigation.

Follow up all suspected and confirmed cases to determine demographics, symptoms, onset date and mother's immunization status, by completing the "Neonatal Tetanus case investigation form".

If the mother has never been immunized, immediately immunize the mother with one dose of a tetanus containing vaccine and provide a second dose 1 month later.

Liaise with EPI (Expanded Program Imunizasaun) to conduct a supplemental immunization activity for women of childbearing age in the locality and improve vaccine coverage.

Sources of information and further resources

- Vijilansia Moras Ne'ebe Prevene ho Imunizazaun; 2018. Departamentu Vijilansia Epidemiolojia Diresaun Nasional Saude Publiku, Ministeriu Da Saude, Republika Demokratika Timor-Leste.
- World Health Organization Regional Office for South-East Asia (WHO SEARO). Surveillance Guide for Vaccine-Preventable Diseases in the WHO South-East Asia Region. Neonatal Tetanus (2017).
http://www.searo.who.int/immunization/documents/sg_module6_nt.pdf

Tetanus

Case definition

Reporting: Confirmed and suspected cases should be reported

Confirmed case: Requires laboratory evidence

Suspected case: Requires clinical evidence

Laboratory evidence: isolation or detection of *Clostridium tetani* from a wound in a clinically compatible setting and prevention of positive tetanospasm in mouse test from such an isolate using specific tetanus antitoxin.

Clinical evidence: a clinically compatible case without other apparent cause.

Early symptoms of tetanus include:

- Painful muscle spasms that begin in the jaw (lock jaw)
- Stiff neck, shoulder and back muscles
- Difficulty swallowing
- Violent generalized muscle spasms
- Convulsions
- Breathing difficulties

A person may have a fever and sometimes develop abnormal heart rhythms. Complications include pneumonia, broken bones (from the muscle spasms), respiratory failure and cardiac arrest.

Public health action

Report all cases (suspected and confirmed) to VE so they can be investigated to determine the circumstances of injury.

Inform EPI (expanded program Imunizasaun) so they can conduct activities in the case's community in order to increase vaccine coverage.

In the case of outbreak (2 or more cases), search for contaminated street drugs or other common-use injections.

Sources of information and further resources

- Vijilansia Moras Ne'ebe Prevene ho Imunizasaun; 2018. Departamentu Vijilansia Epidemiolojia Diresaun Nasional Saude Publiku, Ministeriu Da Saude, Republika Demokratika Timor-Leste.
- World Health Organization Regional Office for South-East Asia (WHO SEARO). Surveillance Guide for Vaccine-Preventable Diseases in the WHO South-East Asia Region. Neonatal Tetanus (2017).
http://www.searo.who.int/immunization/documents/sg_module6_nt.pdf
- Heymann, D. 2015. Control of Communicable Diseases Manual. 20th Edition. American Public Health Association. Public health response

Traffic accident - *Asidente trafiku*

Case definition

Reporting: Notify confirmed cases

Confirmed case: Requires clinical evidence only

Clinical evidence: any person who has sustained an injury (or died) as a result of a road traffic collision.

Public health action

No public health response to individual cases.

Tuberculosis

Case definition

Reporting: Both bacteriologically confirmed cases and probable cases should be reported

Bacteriologically confirmed case: Requires laboratory evidence

Probable case: Requires clinical evidence only

Laboratory evidence

A bacteriologically confirmed TB case is one from whom a biological specimen is positive by smear microscopy or GeneXpert MTB/RIF. All such cases should be registered and reported, regardless of whether TB treatment has started.

Clinical Evidence

A clinically diagnosed TB case is one who does not fulfil the criteria for bacteriological confirmation but has been diagnosed with active TB by a clinician or other medical practitioner who has decided to give the patient a full course of TB treatment. This definition includes cases diagnosed on the basis of X-ray abnormalities or suggestive histology and extrapulmonary cases without laboratory confirmation. Clinically diagnosed cases subsequently found to be bacteriologically positive (before or after starting treatment) should be reclassified as bacteriologically confirmed.

Public health action

Report cases to CDC. The National Tuberculosis Program (NTP) will follow their manual to respond to cases appropriately.

Sources of information and further resources

- Timor-Leste Ministry of Health. NTP Manual, 4th Edition (2014).
- World Health Organization (WHO). WHO Guidelines on Tuberculosis Infection prevention and control (2019 update).
<https://apps.who.int/iris/bitstream/handle/10665/311259/9789241550512-eng.pdf?ua=1>
- World Health Organization (WHO). Tuberculosis (TB) (2019).
<https://www.who.int/tb/en/>

Typhoid



Case definition

Reporting: Only confirmed cases should be reported.

Confirmed case: Requires laboratory evidence

Laboratory evidence

Detection of *Salmonella typhi* in a clinical sample.

Public health action

Report cases to VE immediately. Also inform VE at the national level.

Case management

Interview case/carer to ascertain demographic details, symptoms, date of onset of illness, potential source of exposure and identify contacts.

Educate case on mode of transmission and to wash hands with soap after going to the toilet and before eating.

All cases should be excluded from work, school, child care and swimming pools until 48 hours after resolution of symptoms. All cases should be advised not to aid in feeding or preparing food for others until at least 48 hours after resolution of their symptoms.

If there is no history of any international travel, local sources of infection should be investigated. Search for case/carrier who is the source of infection and for the vehicle (food or water) through which infection was transmitted). Inform Environmental Health (Saude Ambiental).

Contact management

Identify household and travel contacts and provide information on symptoms. If they develop symptoms, follow case management actions above.

An outbreak is defined as two or more geographically, temporally or epidemiologically-linked cases (that are not the result of intra-household transmission). Response to an outbreak should be based on the risk factors identified.

Sources of information and further resources

- World Health Organization (WHO). Typhoid and other invasive salmonellosis. Vaccine-preventable diseases: surveillance standards.
https://www.who.int/immunization/monitoring_surveillance/burden/vpd/WHO_SurveillanceVaccinePreventable_21_Typhoid_R1.pdf?ua=1
- Australian Government Department of Health. Typhoid and Paratyphoid fevers. CDNA national guidelines for public health units (2017).
<http://www.health.gov.au/internet/main/publishing.nsf/Content/cdna-song-typhoid-paratyphoid.htm>
- Heymann, D. 2015. Control of Communicable Diseases Manual. 20th Edition. American Public Health Association.

Viral haemorrhagic fevers (Ebola, Lassa fever, Marburg, Crimean Congo)



Case definition

Reporting: Both confirmed cases and probable cases should be reported

Confirmed case: Requires laboratory definitive evidence only

Suspected case: Requires laboratory suggestive evidence AND clinical evidence AND epidemiological evidence

Laboratory definitive evidence

Laboratory definitive evidence requires confirmation by the Victorian Infectious Diseases Reference Laboratory (VIDRL), Melbourne, * or the Special Pathogens Laboratory, CDC, Atlanta, or the Special Pathogens Laboratory, National Institute of Virology (NIV), Johannesburg.

- Isolation of a specific virus

OR

- Detection of specific virus by nucleic acid testing, antigen detection assay

OR

- IgG seroconversion or a significant increase in antibody level or a fourfold or greater rise in titre to specific virus.

Laboratory suggestive evidence

- Isolation of virus pending confirmation by VIDRL, Melbourne or CDC, Atlanta or NIV, Johannesburg

OR

- Detection of specific virus by nucleic acid testing pending confirmation by VIDRL, Melbourne or CDC, Atlanta or NIV, Johannesburg

OR

- IgG seroconversion or a significant increase in antibody level or a fourfold or greater rise in titre to specific virus pending confirmation by VIDRL, Melbourne or CDC, Atlanta or NIV, Johannesburg

OR

- Detection of IgM to a specific virus.

Clinical evidence

A compatible clinical illness as determined by an infectious disease physician. Common presenting complaints are fever, myalgia, and prostration, with headache, pharyngitis, conjunctival injection, flushing, gastrointestinal symptoms. This may be complicated by spontaneous bleeding, petechiae, hypotension and perhaps shock, oedema and neurologic involvement.

Epidemiological evidence

- i. History of travel to an endemic/epidemic area within 9 days (Marburg), 13 days (Crimean Congo) or 21 days (Lassa, Ebola) of illness onset.

OR

- ii. Contact with a confirmed case

OR

- iii. Exposure to viral haemorrhagic fever (VHF)-infected blood or tissues.

Viral haemorrhagic fevers continues on next page

Public health action

Relate all confirmed and suspected cases immediately to VE and inform VE at the National Level.

Case follow up

Isolate the case.

Investigate urgently to confirm the case, ascertain the source of infection, symptoms, date of symptom onset and contacts.

Notify the health minister and WHO. Seek expert advice.

Contact follow up

Seek expert advice

Sources of information and further resources

- Heymann, D. 2015. Control of Communicable Diseases Manual. 20th Edition. American Public Health Association.
- World Health Organization (WHO). Ebola publications: surveillance, contact tracing, laboratory. (2019). <https://www.who.int/csr/resources/publications/ebola/surveillance/en/>
- World Health Organization (WHO). Technical guidance on Lassa Fever. (2019). <https://www.who.int/emergencies/diseases/lassa-fever/technical-guidance/en/>
- World Health Organization (WHO). Technical guidance on Marburg Virus Disease. (2019). <https://www.who.int/csr/disease/marburg/technical-guidance/en/>
- World Health Organization (WHO). Early detection, assessment and response to acute public health events. (2005). https://apps.who.int/iris/bitstream/handle/10665/112667/WHO_HSE_GCR_LYO_2014.4_eng.pdf;jsessionid=6C406A8AE187C8BA336E3D0696851EBB?sequence=1

Yaws - *Frambusia*

Case definition

Reporting: Confirmed, probable and suspected cases should be reported

Confirmed case: Requires clinical evidence AND laboratory definitive evidence

Probable case: Requires clinical evidence AND laboratory suggestive evidence

Suspected case: Requires clinical evidence only

Clinical evidence

- Age 15 years and under

AND

- Presence of skin/bone lesions suspicious of yaws such as papilloma, ulcer, papilloma, ulcer, papule, macule

Laboratory definitive evidence

Dual positive serology (a positive treponemal and non-treponemal antibodies test) with either:

- Dual path platform (DPP);

OR

- *Treponema pallidum* haemagglutination assay (TPHA) or *Treponema pallidum* particle agglutination assay (TPPA) **AND** Rapid plasma regain (RPR) positive.

Laboratory suggestive evidence

- A positive treponemal antibody test.

Public health action

Report cases to CDC (*Neglected Tropical Diseases* program).

CDC will respond to cases based on their guideline (Yaws case based surveillance and response guideline).

For a cluster of cases (>1), consider active case finding, testing and treatment in affected community.

Sources of information and further resources

- World Health Organization (WHO). Eradication of Yaws: A guide for program managers (2018).
<http://apps.who.int/iris/bitstream/handle/10665/259902/9789241512695-eng.pdf;jsessionid=466C24E38ED859C8902587602C744891?sequence=1>

Yellow fever



Case definition

Reporting: Confirmed and suspected cases should be reported

Confirmed case: Requires laboratory definitive evidence

Suspected case: Requires clinical evidence AND laboratory suggestive evidence

Clinical evidence

- History of travel to a yellow fever endemic country in the week preceding onset of illness

AND

- Clinical symptoms; The disease is characterized by sudden onset of fever; chills; head, back and muscle pain; nausea and vomiting. These may progress to jaundice and haemorrhagic signs or death within three weeks of onset. The clinical diagnosis of an isolated case of yellow fever is particularly difficult because the symptoms are similar to those of many other diseases, e.g. viral hepatitis, malaria, dengue, typhoid fever, leptospirosis and Ebola disease, and Lassa fever. Laboratory confirmation is therefore essential for the differential diagnosis of yellow fever.

Laboratory suggestive evidence

Yellow fever virus-specific IgM detected in the absence of IgM to other relevant flaviviruses, in the absence of vaccination in the preceding 3 months.

Laboratory definitive evidence

- Detection of yellow fever virus by nucleic acid testing (PCR)

OR

- Presence of yellow-fever-specific IgM or a fourfold or greater rise in serum IgG levels (acute or convalescent) in the absence of recent yellow fever vaccination

OR

- Isolation of yellow fever virus.

Public health action

Report all suspected and confirmed cases to the Departamento VE immediately and inform the VE national office.

Investigate all cases by collecting information about demographics, symptoms, onset date, and the travel history of the case in the period before the onset of their symptoms.

Involve environmental health (Saude Ambiental).

Sources of information and further resources

- World Health Organization Regional (WHO). Yellow Fever – Prevention and Control (2019). <https://www.who.int/csr/disease/yellowfev/en/>
- World Health Organization (WHO). List of countries, Territories and Areas – Yellow fever vaccination requirements and recommendations; malaria situation; and other vaccination requirements (2019). https://www.who.int/ith/ith_country_list.pdf
- Pan American Health Organization (PAHO). Yellow Fever: Guidelines (2019). https://www.paho.org/hq/index.php?option=com_topics&view=rdmore&cid=5053&item=yellow-fever&cat=scientific_technical&type=guidelines-5053&Itemid=40784&lang=en

Zika virus infection



Case definition

Reporting: Confirmed cases should be reported

Confirmed case: Requires definitive laboratory evidence or;
Suggestive laboratory evidence **AND** clinical evidence

Definitive laboratory evidence

Detection of zika virus (ZIKV) by nucleic acid testing (PCR) or virus isolation

OR

Detection of ZIKV-specific IgM in cerebrospinal fluid, in the absence of IgM to other possible flaviviruses

OR

IgG seroconversion or a significant increase in antibody level or a fourfold or greater rise in titre of ZIKV-specific IgG, **AND** recent infection by dengue or other epidemiologically possible flaviviruses has been excluded.

Suggestive laboratory evidence

Detection of ZIKV-specific IgM in blood, in the absence of IgM to other possible flaviviruses, and in the absence of a recent (within last 3 weeks) vaccination to another flavivirus.

Clinical evidence

Two or more (≥ 2) of the following:

- Fever
- Headache
- Myalgia or arthralgia
- Rash
- Non-purulent conjunctivitis

Public health action

Report suspected and confirmed cases to VE immediately. Also inform VE at the national level.

Investigate and respond to all cases (suspected and confirmed). The officer in charge of surveillance at the Centro de Saude has this responsibility. Use the dengue case investigation form (it records the same information as required for Zika). Create a line list in the municipality and then send to the national office of VE. Be sure to collect information about demographics, symptoms, onset date, and where the case lived and visited in the 2 weeks prior to onset of symptoms. Inform Environmental Health (Saude Ambiental) where the case lives, works or encountered mosquitoes so that they can implement vector control measures.

Sources of information and further resources

- World Health Organization Regional (WHO). Emergency Preparedness, Response - Publications, technical guidance on Zika virus.
<https://www.who.int/csr/resources/publications/zika/en/>

List of acronyms and symbols

Acronyms	
AFP	Acute flaccid paralysis
CDC	Timor-Leste, Ministry of Health, Centre for Disease Control, Departamentu Controlo de Doencas Contagiosas
CFT	Complement fixation test
CNS	Central nervous system
COVID-19	Coronavirus disease 2019
CRS	Congenital rubella syndrome
CRI	Congenital rubella infection
CSF	Cerebral spinal fluid
EPI	Expanded Program Imunizasaun
HAI	Hemagglutination inhibition test
HiB	<i>Haemophilus influenza type B</i>
HIV	Human immunodeficiency virus
IDSR	Integrated disease surveillance and response (guideline)
IgG	Immunoglobulin G
IgM	Immunoglobulin M
IHR	International Health Regulations
IM	Intramuscular
ILI	Influenza like illness
MdS	<i>Ministerio da Saude</i>
MoH	Timor-Leste Ministry of Health
NHL	National health laboratory
NPA	Nasopharyngeal aspirate
PCR	Polymerase chain reaction
RHD	Rheumatic heart disease
RRT	Rapid response team
SARI	Severe acute respiratory illness
SARS	Severe acute respiratory syndrome
SARS-CoV-2	Severe acute respiratory syndrome coronavirus-2
STI	Sexually transmitted infection
VE	Timor-Leste, Ministry of Health Surveillance and Epidemiology department, Departamentu Vijilansia Epidemiolojia
VPD	Vaccine preventable disease
WHO	World Health Organization
WHO SEARO	World Health Organization Regional Office for South-East Asia
ZIKV	Zika Virus
Symbols	
\geq	Greater than or equal to
$>$	Greater than
\leq	Less than or equal to
$<$	Less than

References

- Thacker SB, Berkelman RL. 1988. Public health surveillance in the United States. *Epidemiology Review*. 10:164–90.
- World Health Organization, Western Pacific region (WHO). 2008. A guide to establishing event-based surveillance. Available at <https://apps.who.int/iris/rest/bitstreams/920897/retrieve>



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