

Dengue Outbreak Toolbox

Updated: June 2019



Key reference documents

- [Technical handbook for dengue surveillance, dengue outbreak prediction/detection and outbreak response](#) (Geneva: World Health Organization; 2016).
- [Dengue guidelines for diagnosis, treatment, prevention and control: new edition](#) (Geneva: World Health Organization; 2009).
- [Dengue health information page](#) (Geneva: World Health Organization).
- [Dengue and severe dengue fact sheet](#) (Geneva: World Health Organization; 2019).



Case definitions

WHO suggested outbreak case definition

Suspected case: not applicable

Probable case (with or without warning signs¹):

- fever **and** two or more of the following: (nausea/vomiting, rash, aches and pains, tourniquet test positive, leukopenia);
- fever **and** two or more of the following: (nausea/vomiting, rash, aches and pains, tourniquet test positive, leukopenia) **and** any warning sign.

Confirmed case:

- A probable case with laboratory confirmation:
 1. Highly suggestive
 - Immunoglobulin M (IgM) positive in a single serum sample;
 - Immunoglobulin G (IgG) positive + in a single serum sample with a house index (HI) titre of 1280 **or** greater;
 - detection of viral antigen NS1+ in a single serum sample (by enzyme-linked immunosorbent assay (ELISA) or rapid tests).

¹ Requiring strict observation and medical intervention. Warning signs may include abdominal pain or tenderness, persistent vomiting, clinical fluid accumulation, mucosal bleeding, lethargy, restlessness, liver enlargement >2 cm, or increase in haematocrit with rapid decrease in platelet count

2. Confirmed

- polymerase chain reaction (PCR) positive;
- virus culture positive;
- IgM seroconversion in paired sera;
- IgG seroconversion in paired sera **or** fourfold IgG titre increased in paired sera.

Severe dengue:

- suspected dengue with one or more of the following: severe plasma leakage, leading to dengue shock syndrome, fluid accumulation with respiratory distress; severe bleeding, as evaluated by clinician; severe organ involvement, such as liver (aspartate aminotransferase (ASAT) **or** alanine aminotransferase (ALT) elevation > 1000), central nervous system (impaired consciousness) **or** heart **and** other organs.

WHO surveillance case definition

- Any person who lived in, **or** travelled to, a dengue endemic area with onset of fever and two **or** more of the following: nausea/vomiting, rash, aches and pains, tourniquet test positive, leukopenia, **or** any warning sign. In: Dengue guidelines for diagnosis, treatment, prevention and control: new edition (WHO, 2009).



Data collection tools

- Case investigation forms: Not available.
- Line lists: Not available.
- Electronic tools: Not available.



Laboratory confirmation

- Technical handbook for dengue surveillance, dengue outbreak prediction/detection and outbreak response (Geneva: World Health Organization; 2016 (Chapter 2, page 15)).



Response tools and resources

- Western Pacific regional action plan for dengue prevention and control (Manila: WHO Regional Office for Western Pacific; 2016).
- Handbook for clinical management of dengue (Geneva: World Health Organization; 2012).
- Handbook for integrated vector management (Geneva: World Health Organization; 2012).



Other resources

- (Lien erroné) Weekly Epidemiological Record; 93(36):457–476.
- Meeting of the Strategic Advisory Group of Experts on Immunization, April 2018 – conclusions and recommendations. Weekly Epidemiological Record; 93(23):329–343.
- Tool for the diagnosis and care of patients with suspected arboviral diseases (Washington (DC): Pan American Health Organization, 2017).