Yellow Fever Outbreak Toolbox
Updated: June 2022

Case definitions

WHO suggested outbreak case definition1

**Suspected case:**

- Any person with acute onset of fever, with jaundice appearing within 14 days of onset of the first symptoms.

**Probable case:**

- A suspected case; and one of the following:
  - presence of yellow fever IgM antibody in the absence of yellow fever immunization within 30 days before onset of illness; or
  - positive post-mortem liver histopathology; or
  - epidemiological link to a confirmed case or an outbreak.

**Confirmed case3:**

- A probable case; and
  1. Absence of yellow fever immunization within 30 days before onset of illness; and one of the following:
     - detection of yellow fever-specific IgM; or
     - detection of fourfold increase in yellow fever IgM, or IgG antibody titres between acute and convalescent serum samples, or both; or
     - detection of yellow fever-specific neutralizing antibodies.

For more information: outbreaktoolkit@who.int

Key reference documents

- Yellow fever health topic page (Brazzaville: World Health Organization).

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- 2. Absence of yellow fever immunization within 14 days before onset of illness; and one of the following:
  - detection of yellow fever virus genome in blood or other organs by polymerase chain reaction (PCR); or
  - detection of yellow fever antigen in blood, liver or other organs by immunoassay; or
  - isolation of yellow fever virus.


2. Yellow fever-specific means that the results of antibody tests (such as IgM or neutralizing antibody) for other prevalent flaviviruses are negative or not significant. Testing should include at least IgM for dengue fever and West Nile virus but may include other flaviviruses according to local epidemiology (for example, Zika virus).

3. Yellow fever confirmation is complex:
   - Any case classification should account for vaccination status.
   - Serological testing cannot distinguish between vaccine- and naturally-acquired antibodies.
   - Yellow fever diagnostic is both positive and differential. It is essential to rule out cross-reactivity with other arboviruses such as dengue, zika, chikungunya or West Nile virus. This cross-reactivity can be seen on serology testing (IgM) as well as plaque reduction neutralization assays (PRNT).

Results should be interpreted considering local epidemiology of other flaviviruses

### WHO surveillance case definition

- **Yellow Fever: Vaccine Preventable Diseases Surveillance Standards** (Geneva: World Health Organization; 2020)

### WHO other definitions

#### Outbreak definition:

- Presence of at least one confirmed case of yellow fever, as interpreted in a context of underlying population immunity and risk of onward amplification.

### Data collection tools

- Case investigation form(s):
- Line list(s): Not available.
- Electronic tools:
  - Go. Data yellow fever outbreak template: To download the template and use, kindly email the Go.Data team at godata@who.int

### Laboratory confirmation

For more information: outbreaktoolkit@who.int
- Disease commodity package - Yellow fever (Geneva; World Health Organisation; 2018)
- EYE.operations: Streamlined international transport mechanism for shipping samples to Regional Reference Laboratories at no cost to countries. Refer to EYE Ops booking form. Email contact: EYE.ops@who.int

**Response tools and resources**

- International Coordinating Group for Vaccine Provision

**Training**

- Yellow fever: Introductory level online course (Geneva; World Health Organization: 2016).

**Other resources**

- Yellow fever surveillance and outbreak response: revision of case definitions, October 2010 (Geneva; World Health Organization, 2010)
- Yellow fever: surveillance of adverse events following immunization against yellow fever: field guide for staff at the central, intermediate and peripheral levels (Geneva; World Health Organization; 2010)
- Disease commodity package - Yellow fever (Geneva; World Health Organisation; 2018)
- Control of Yellow Fever: Field Guide (Washington, DC; Pan American Health Organisation; 2005)
• Communication and social mobilization in yellow fever mass vaccination campaigns: 10 points from field experience (Geneva; World Health Organization; 2015)
• Tool for the diagnosis and care of patients with suspected arboviral diseases (page 55) (Washington (DC): Pan American Health Organisation; 2017).
• Yellow fever: rapid field entomological assessment during yellow fever outbreaks in Africa: Handbook: methodological field approaches for scientists with a basic background in entomology (Geneva; World Health Organization; 2014)