

Yellow Fever Outbreak Toolbox

Updated: November 2019



Key reference documents

- [Yellow fever fact sheet](#) (Geneva: World Health Organization).
- [Yellow fever information page](#) (Geneva: World Health Organization).
- [Yellow fever health topic page](#) (Brazzaville: World Health Organization).
- [Yellow fever](#) (Washington (DC): Pan American Health Organization; 2019).



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 case:

- A probable case; **and**

Absence of yellow fever immunization within 30 days before onset of illness; **and** one of the following:

- detection of yellow fever-specific IgM;² **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.

¹ *Yellow fever. Case definitions for public health surveillance* (Geneva: World Health Organization; 2015).

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).*

or

- 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.

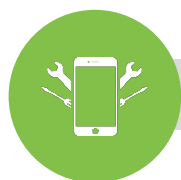
WHO surveillance case definition³

- Case definitions for public health surveillance (Geneva: World Health Organization; 2015).
- Control of yellow fever: Field guide (page 10) (Washington (DC): Pan American Health Organization; 2005).

WHO other definitions

Outbreak definitions:

- Presence of at least one confirmed case, as interpreted in a context.



Data collection tools

- Case investigation form(s):
 - Yellow fever – Investigation of yellow fever epidemics in Africa: Field guide (Geneva: World Health Organization; 2008).
 - Epidemiological investigation form for yellow fever. Control of Yellow Fever: Field guide (Annex 2) (Washington (DC): Pan American Health Organization; 2005).
- Line list(s): Not available.
- Electronic tools: Not available.



Laboratory confirmation

- Yellow fever – Investigation of yellow fever epidemics in Africa: Field guide (page 37) (Geneva: World Health Organization; 2008).
- Yellow fever laboratory diagnostic testing in Africa: Interim guidance (Geneva: World Health Organization; 2016).

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.



Response tools and resources

- Yellow fever – Investigation of yellow fever epidemics in Africa: Field guide (Geneva: World Health Organization; 2008).
- Control of yellow fever: Field guide (page 13) (Washington (DC): Pan American Health Organization; 2005).
- Vaccine-preventable diseases surveillance standards [Yellow fever coming soon] (Geneva; World Health Organization; 2019).



Training

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



Other resources

- Tool for the diagnosis and care of patients with suspected arboviral diseases (page 55) (Washington (DC): Pan American Health Organisation; 2017).
- Yellow fever surveillance and outbreak response: revision of case definitions. Weekly Epidemiological Record. 2010; 85(47):461–472.