

Situation summary in the Americas

Between January 2016 and December 2017, seven countries and territories of the Region of the Americas reported confirmed cases of yellow fever: the Plurinational State of Bolivia, Brazil, Colombia, Ecuador, French Guiana, Peru, and Suriname. The number of human cases and epizootics collectively reported in this period in the Region of the Americas is the highest observed in decades. The observed increase is as much related to an ecosystem favorable to the dissemination of the virus as to the unimmunized populations.

Since the [27 October 2017 Epidemiological Update on Yellow Fever](#) published by the Pan American Health Organization / World Health Organization (PAHO/WHO), **Brazil** and **Peru** have reported new yellow fever cases. A summary of the situation in both countries is provided below.

In **Brazil**, following the yellow fever outbreak reported between the second semester of 2016 and June 2017, during which 779 confirmed cases, 262 deaths, and 1,659 epizootics were reported,¹ there was a period with low transmission in humans. Confirmed cases were reported in epidemiological week (EW) 28, EW 38, and EW 40 of 2017, in São Paulo (2 cases) and in Rio de Janeiro state (1 case). For the cases confirmed in São Paulo state, one in EW 38 and the other in EW 40 (a fatal case in a 76-year-old man^{2,3}), Itatiba municipality was the probable site of infection. Guapimirim municipality was the probable site of infection of the case reported in Rio de Janeiro state.⁴ **Figure 1** shows the distribution of confirmed cases in the country from EW 1 of 2016 to EW 49 of 2017.

¹ Brazil Ministry of Health. Monitoring the yellow fever seasonal period. Report No. 05. Brazil - 2017/2018 (11 December 2017). Available at: <http://portalarquivos2.saude.gov.br/images/pdf/2017/dezembro/12/af-informe-febre-amarela-n5-12dez17-b.pdf>

² São Paulo State Health Secretary. Yellow fever epidemiological bulletin (11 December 2017). Available at: http://www.saude.sp.gov.br/resources/cve-centro-de-vigilancia-epidemiologica/areas-de-vigilancia/doencas-de-transmissao-por-vetores-e-zoonoses/doc/famarela/fa17_1112boletim_epidemiologico.pdf

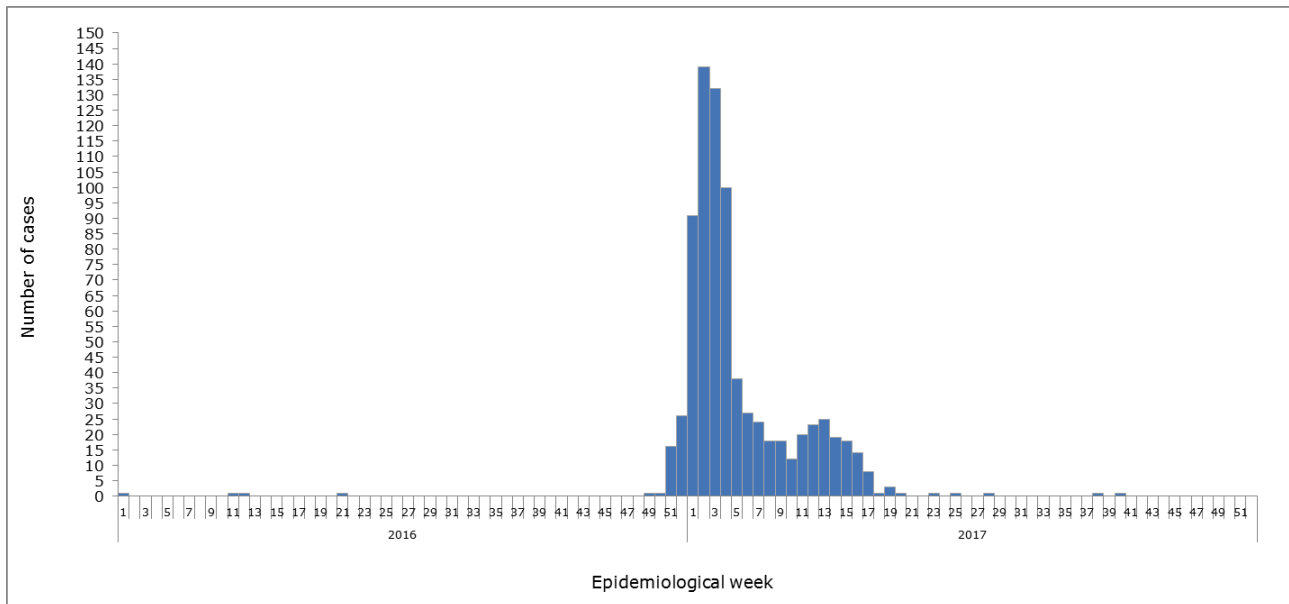
³ Itatiba Municipality Prefecture. Communication of the Municipal Health Secretary regarding yellow fever (17 October 2017). Available at: <http://www.itatiba.sp.gov.br/noticias/comunicado-da-secretaria-municipal-de-saude-sobre-febre-amarela.html>

⁴ Brazil Ministry of Health. Monitoring the yellow fever seasonal period. Report No. 02. Brazil - 2017/2018 (21 November 2017). Available at: <http://portalarquivos2.saude.gov.br/images/pdf/2017/novembro/21/af-informe-febre-amarela-2c.pdf>

In addition, Brazil authorities reported a case under investigation with probable site of infection in Brasilia, Federal District, in an area of epizootic occurrence;¹ as well as, two cases under investigation in the state of Rio Grande do Sul and two others in Santa Catarina. Another 37 cases are under investigation in various states.

Considering that a decade ago, the outbreak of yellow fever and the epizootic wave that had affected southeastern and southern Brazil had subsequently reached Argentina and Paraguay, it is necessary to closely monitor the yellow fever situation in the south and southeast of Brazil during the 2017-2018 period.

Figure 1. Distribution of confirmed yellow fever cases by epidemiological week (EW). Brazil, 2016 – 2017 (up to EW 49)



Source: Data published by the Ministry of Health of Brazil and reproduced by PAHO/WHO

From July 2017 to EW 49 of 2017, a total of 1,661 epizootics were reported, of which 144 were confirmed for yellow fever, 628 were classified as undetermined (samples were not collected), 703 remain under investigation, and 186 were discarded. The state with the highest number of confirmed epizootics is São Paulo (120). Epizootics were also confirmed in Mato Grosso (1), Minas Gerais (21) and Rio de Janeiro (2).¹ The occurrence of confirmed epizootics in Minas Gerais and São Paulo in the same areas affected by the 2016-2017 outbreak suggest the persistence of the risk of occurrence of human cases. **Figure 2** shows the comparison of the distribution of municipalities with epizootics in non-human primates (NHPs) confirmed for yellow fever between July 2016-June 2017 and July 2017-December 2017 (as of 6 December).

In Mato Grosso, the epizootic confirmed for yellow fever was reported in Cuiabá.⁵

In São Paulo, transmission continues to occur mainly in the Campinas area. The number of NHPs confirmed for yellow fever between July and December 2017 in São Paulo state is larger

⁵ Cuiabá Municipal Secretary. Available at: <http://www.cuiaba.mt.gov.br/saude/secretaria-de-saude-alerta-populacao-para-atualizar-cartao-de-vacina/15432>

than that observed between July 2016 and June 2017.² **Figure 3** shows continuous viral circulation, even during months with low temperatures and unfavorable climatic conditions for transmission.

The increase of NHPs confirmed for yellow fever in the period of July to December 2017, and the expansion of the virus to new areas where it previously had not been detected, such as the municipality of São Paulo and municipalities of Greater São Paulo (Cajamar, Caieiras, Mairiporã, Franco da Rocha, Guarulhos, and Itapeceira da Serra), indicate high virus transmission and subsequent high risk for non-immunized populations.

In response to this situation and in order to prevent transmission in humans, the Municipal Health Secretary and the São Paulo state government are intensifying the vaccination of people residing around the area of occurrence of epizootics in São Paulo municipality.

Epizootics in the municipality of São Paulo are occurring in a peripheral area bordering forest fragments where the actors of the wild cycle of transmission of the virus are present. No human cases have been detected.

Figure 2. Yellow fever epizootics in Brazil. December 2016 to 15 June 2017 and July 2017 to 6 December 2017.

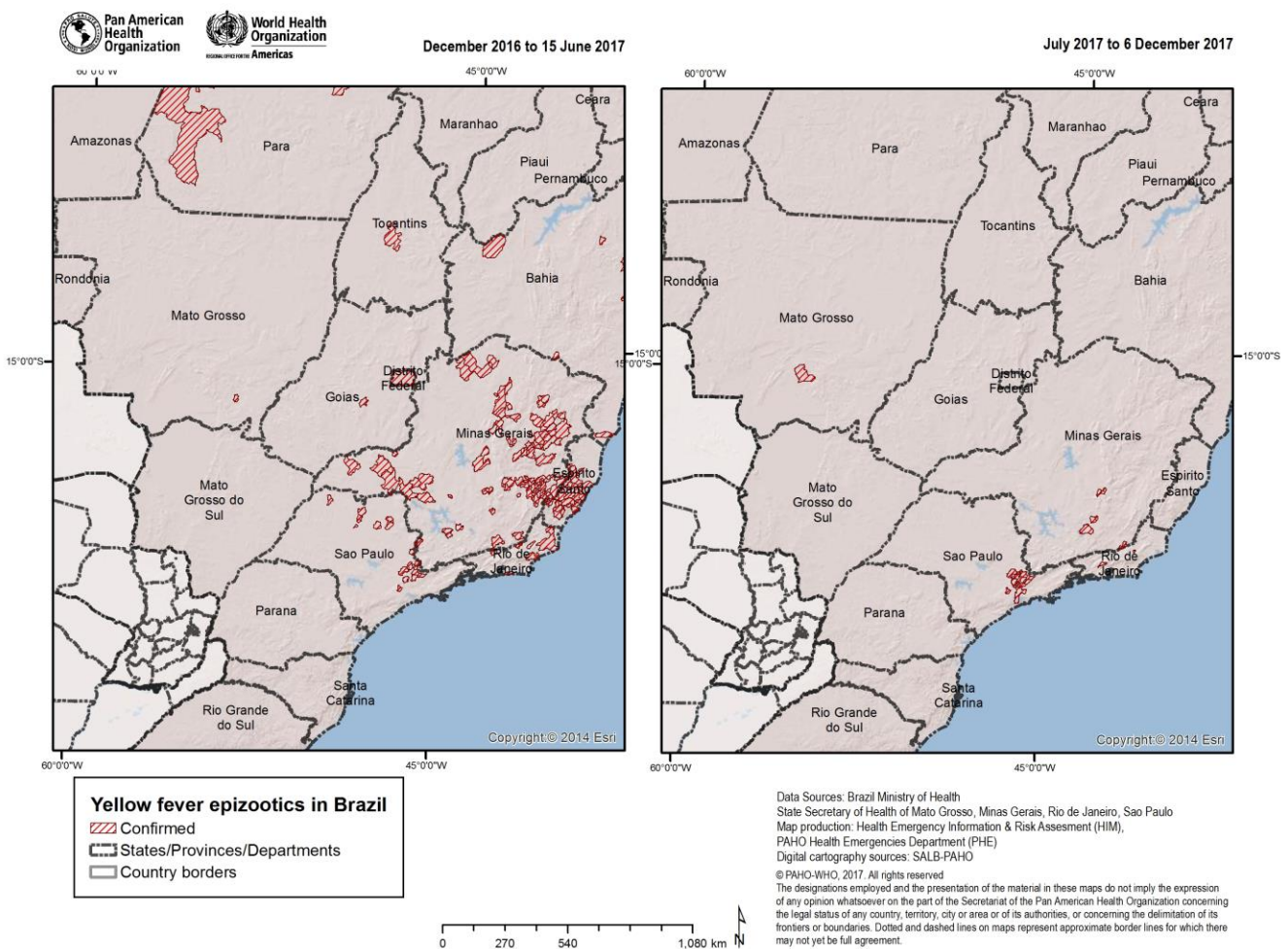
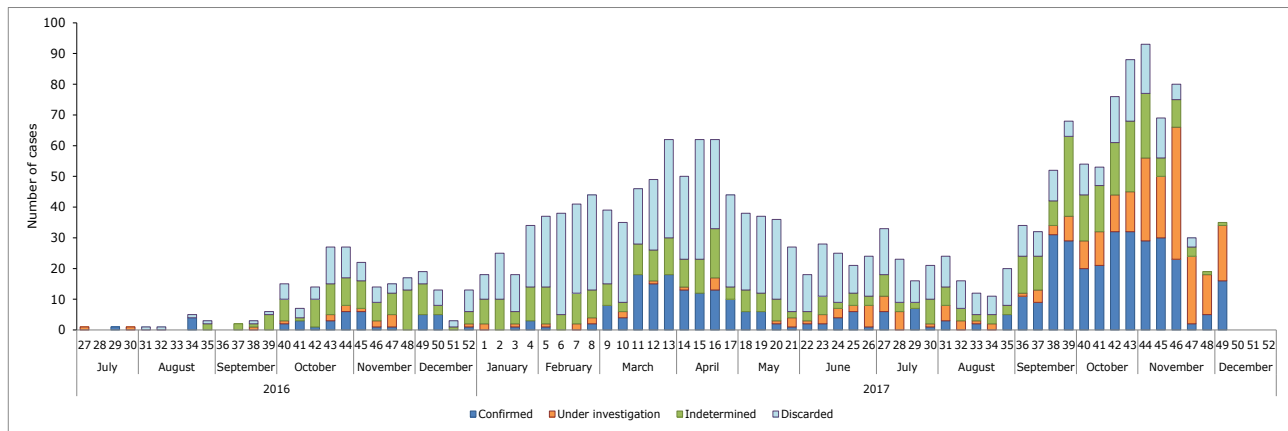


Figure 3. Distribution of reported epizootics in NHPs per EW according to classification. São Paulo state, EW 27 of 2016 to EW 49 of 2017.



Source: Data published by the São Paulo State Health Secretary and reproduced by PAHO/WHO

In **Peru**, between EW 1 to EW 44 of 2017, a total of 17 confirmed and probable cases of yellow fever were reported, including 3 deaths.⁶ Similarly to 2016, most cases occurred in the Junín department (6 cases).

Recommendations

PAHO/WHO encourages Member States to continue efforts to immunize the at risk populations and take the necessary actions to keep travelers informed and vaccinated, when heading to areas where yellow fever vaccination is recommended.

Vaccination

The yellow fever vaccine is safe and affordable and provides effective immunity against the disease in the range of 80 to 100% of those vaccinated after 10 days and 99% immunity after 30 days. A single dose provides life-long protection against yellow fever disease. A booster dose of yellow fever vaccine is not needed.

Given the limitations on the availability of vaccines and with the aim of promoting the rational use, PAHO/WHO reiterates its recommendations to national authorities:

1. Conduct an assessment of vaccination coverage against yellow fever in areas at risk at the municipal level to guarantee at least 95% coverage⁷ among the resident population of these areas.

⁶ Peru Ministry of Health. Situation Room for Health Situation Analysis 2017. Yellow fever EW 44 of 2017. Available at: <http://www.dge.gob.pe/portal/docs/vigilancia/sala/2017/salaSE44.pdf>

⁷ Pan American Health Organization. Regional immunization action plan. 54th Directing Council of PAHO, 67th session of the WHO Regional Committee for the Americas; 28 September – 1 October 2015; Washington (DC), United States. Washington (DC): PAHO; 2015. Available at: http://www2.paho.org/hq/index.php?option=com_content&view=article&id=13101&Itemid=42296&lang=en

2. Member States that are not currently experiencing outbreaks should not conduct yellow fever immunization campaigns. Priority should be given to the use of vaccines in susceptible populations and to avoid revaccination.
3. Ensure vaccination of all travelers to endemic areas at least 10 days before traveling.
4. Depending on vaccine availabilities, Member States should have a small stock that allows them to respond to outbreaks.
5. Postpone routine vaccination in children in non-endemic areas until sufficient vaccines are available. Once there is availability, catch-up campaigns should be conducted to complete vaccination schedules.

Precautions

It is recommended to individually assess the epidemiological risk of contracting disease when faced with the risk of an adverse event occurring in persons over 60 years who have not been previously vaccinated.

- The vaccine can be offered to individuals with asymptomatic HIV infection with CD4+ counts ≥ 200 cells / mm³ requiring vaccination.
- Pregnant women should be vaccinated in emergency epidemiological situations and following the explicit recommendations of health authorities.
- Vaccination is recommended in nursing women who live in endemic areas, since the potential risk of transmitting the vaccine virus to the child is far lower than the benefits of breastfeeding.
- For pregnant or lactating women traveling to areas with yellow fever transmission, vaccination is recommended when travel cannot be postponed or avoided. They should receive advice on the potential benefits and risks of vaccination to make an informed decision. The benefits of breastfeeding are superior to those of other nutritional alternatives.

The following people are usually excluded from yellow fever vaccination:

- Immunocompromised individuals (Including those with thymus disorders, symptomatic HIV, malignant neoplasms under treatment, and those that are receiving or have received immunosuppressive or immunomodulatory treatments, recent transplants, and current or recent radiation therapy).
- People with severe allergies to eggs and their derivatives.

Related Links

- PAHO/WHO Yellow Fever. Available at:
http://www.paho.org/hq/index.php?option=com_topics&view=rdmore&cid=5514&Itemid=40784&lang=en
- PAHO/WHO. Guidance on Laboratory Diagnosis of Yellow Fever Virus Infection. Available at:
http://www.paho.org/hq/index.php?option=com_docman&task=doc_download&Itemid=270&gid=38104&lang=en
- PAHO/WHO. Requirements for the International Certificate of Vaccination or Prophylaxis (ICVP) with proof of vaccination against yellow fever. Available at:
http://www.paho.org/hq/index.php?option=com_topics&view=article&id=69&Itemid=40784&lang=en