

Situation summary in the Americas

Since epidemiological week (EW) 1 to EW 13 of 2017, **Brazil, Colombia, Ecuador, Peru, the Plurinational State of Bolivia,** and **Suriname** have reported suspected and confirmed yellow fever cases.

Following is a summary of the situation in Brazil.

In **Brazil**, since the beginning of the outbreak in December 2016 up to 29 March 2017, there were 1,987 cases of yellow fever reported (574 confirmed, 926 discarded, and 487 suspected under investigation), including 282 deaths (187 confirmed, 24 discarded, and 71 under investigation). The case fatality rate (CFR) is 33% among confirmed cases.

According to the probable site of infection,¹ the cases were reported in 330 municipalities, while the confirmed cases were distributed among 101 municipalities in 5 states (Espírito Santo, Minas Gerais, Pará, Rio de Janeiro, and São Paulo).

With regard to the confirmed fatal cases and their probable site of infection, 137 were in Minas Gerais, four in São Paulo, 43 in Espírito Santo, two in Pará, and one in Rio de Janeiro. In descending order, the CFR among suspected and confirmed cases by state is 100% in Pará, 80% in São Paulo, 32% in Minas Gerais, 31% in Espírito Santo, and 17% in Rio de Janeiro.

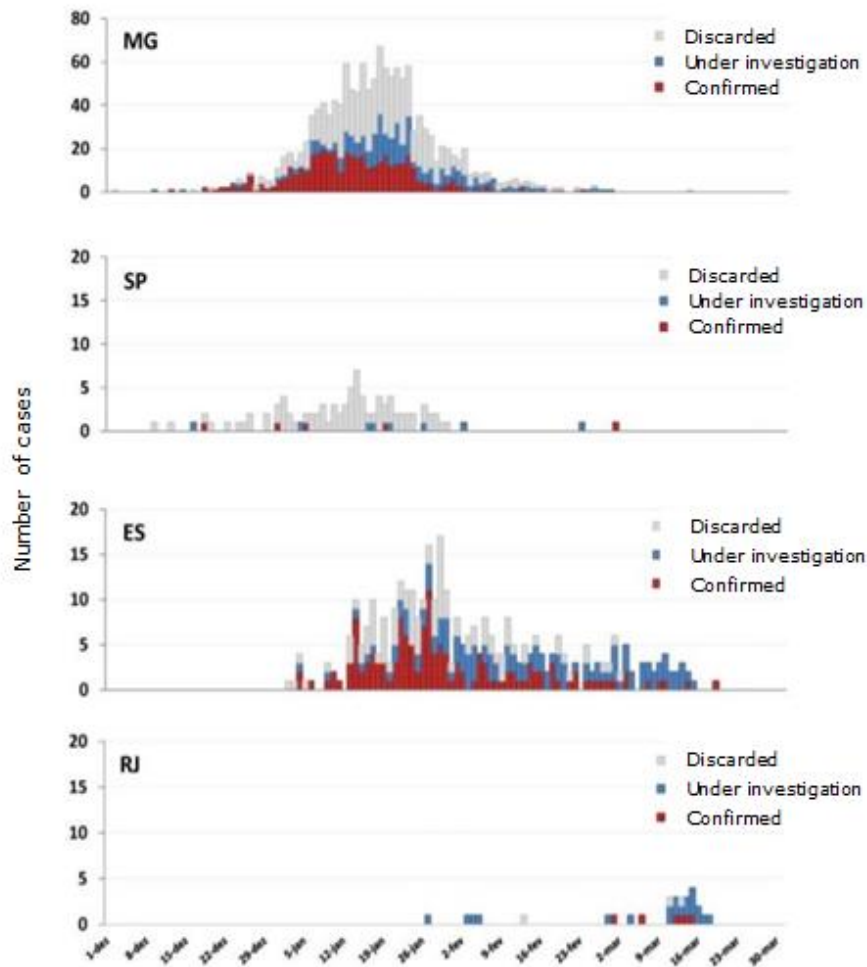
In the states of Minas Gerais and Espírito Santo, the downward trend in reported cases continues for a fifth consecutive week. In the state of Rio de Janeiro an increasing trend was observed between 9 and 15 March; it will be necessary to observe if this trend is maintained in the following weeks (**Figure 1**). In Rio de Janeiro, the 6 confirmed autochthonous cases were reported in the municipality of Casimiro de Abreu, which is located 136 km away from the city of Rio de Janeiro.² Moreover, in EW 13, two autochthonous cases of yellow fever were confirmed in the state of Pará, in the municipality of Alenquer. The state of Pará is within the area considered at risk for yellow fever and, between July 2014 and May 2016, two cases were confirmed.

¹ There are also 18 discarded cases that were reported by other Federal Units.

² Distance between cities: http://www.distanciascidades.com/distancia-rio_de_janeiro-casimiro_de_abreu-82104.html

To date, *Aedes aegypti* has not been reported to have a role in transmission. However, confirmed epizootics in large cities, such as Vitoria, Espírito Santo³ and Salvador, Bahia,⁴ represent a high risk for a change in the transmission cycle.

Figure 1. Distribution of reported yellow fever cases by date of symptoms onset and probable state of infection. Brazil, 1 December 2016 to 29 March 2017.



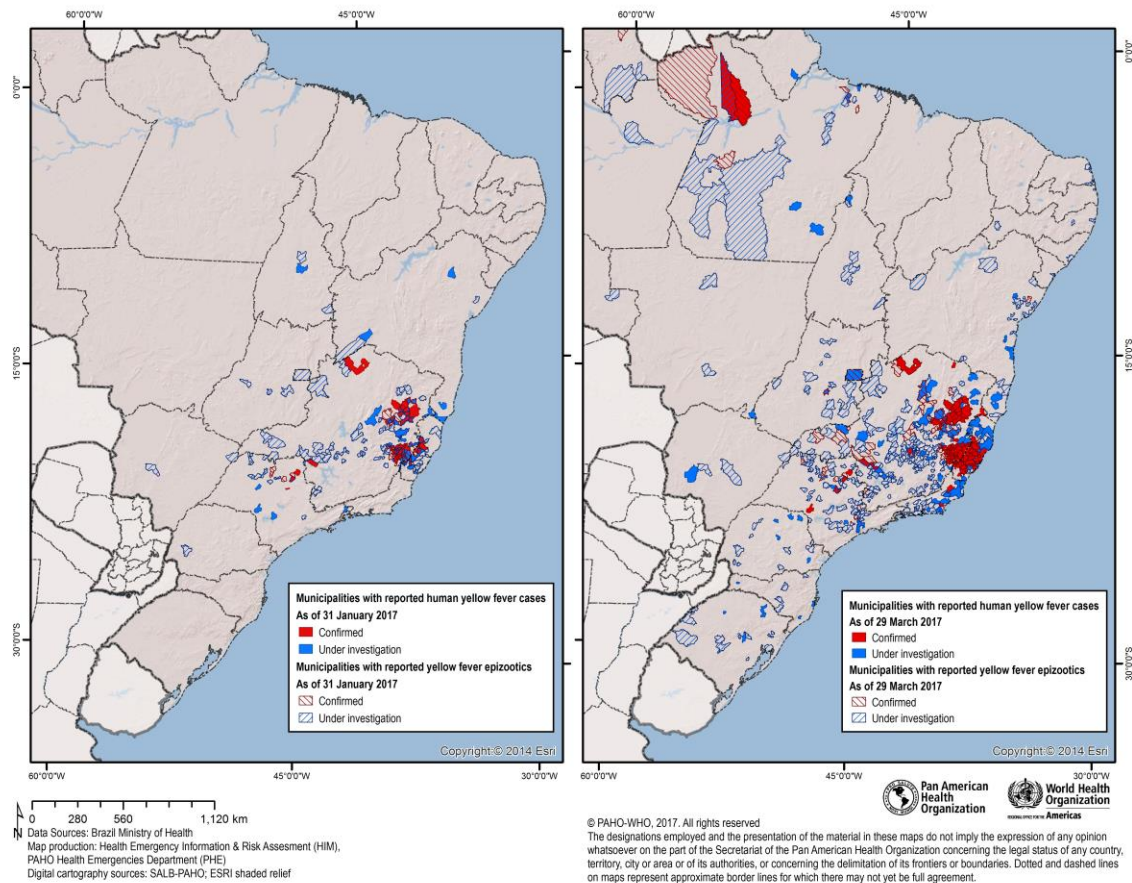
Source: Data published by the Brazil Ministry of Health and reproduced by PAHO/WHO

Figure 2 illustrates the municipalities with confirmed cases and cases under investigation, as well as confirmed epizootics, and epizootics under investigation.

³ Municipalities with confirmed epizootics. Available at: <http://saude.es.gov.br/Not%C3%ADcia/febre-amarela-silvestre-94-notificacoes-descartadas>

⁴ Confirmation of yellow fever in four monkeys in the neighborhoods of Vila Laura, Paripe, and Itaipara in Salvador. Available at: http://www.saude.ba.gov.br/novoportal/index.php?option=com_content&view=article&id=11761:-estado-intensifica-aco-es-de-controle-do-virus-da-febre-amarela&catid=13:noticias&Itemid=25

Figure 2. Geographic distribution of reported human yellow fever cases and yellow fever epizootics, Brazil, 31 January and 29 March 2017.



Source: Data published by the Brazil Ministry of Health (Monitoring of yellow fever cases and deaths), compiled and reproduced by PAHO/WHO

Since the last yellow fever Epidemiological Update⁵ up to 29 March 2017, 1,484 new epizootics were reported in nonhuman primates (NHP). Since the beginning of the outbreak up to 29 March 2017, a total of 2,712 NHP epizootics were reported, of which 466 were yellow fever confirmed, 896 remain under investigation, and 74 were discarded.

Epizootics in NHP were reported in the Federal District and in the states of Alagoas, Amazonas, Bahia, Goiás, Espírito Santo, Mato Grosso, Mato Grosso do Sul, Minas Gerais, Pará, Paraíba, Paraná, Pernambuco, Rio Grande do Norte, Rio Grande do Sul, Rio de Janeiro, Rondônia, Roraima, Santa Catarina, São Paulo, Sergipe, and Tocantins.

Reports of epizootics currently under investigation in the states of Amazonas (bordering Colombia, Peru, and Venezuela), Mato Grosso do Sul (bordering Bolivia and Paraguay), Pará (bordering Guyana and Suriname), Paraná (bordering Argentina and Paraguay), Rio Grande

⁵ PAHO/WHO Epidemiological Update: Yellow Fever. 23 March 2017. Available at: http://www2.paho.org/hq/index.php?option=com_docman&task=doc_download&Itemid=270&gid=38796&lang=en

do Sul (bordering Uruguay and Argentina), Rondônia (bordering Bolivia), Roraima (bordering Guyana and Venezuela), and Santa Catarina (bordering Argentina) represent a risk of spread of the virus to the bordering countries, especially in areas with similar ecosystems.

Recommendations

Given the current yellow fever situation in Brazil and the emergence of cases in areas where cases have not been detected in several years, the Pan American Health Organization, Regional Office of the World Health Organization (PAHO/WHO) urges Member States to continue efforts to detect, confirm, and adequately and timely treat cases of yellow fever. To this end, health care workers should be kept up-to-date and trained to detect and treat cases especially in areas of known virus circulation.

PAHO/WHO encourages Member States to take the necessary actions to keep travelers, heading to areas where yellow fever vaccination is mandatory, informed and vaccinated.

Vaccination

The most important yellow fever prevention measure is vaccination. Preventive vaccination can be carried out through systematic immunization in childhood or through unique mass campaigns to increase vaccination coverage in risk areas and also through vaccination of those traveling to at-risk areas.

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 is sufficient to confer immunity and protection for life, without the need for booster doses. Severe side effects are extremely rare.

Given the limitations on the availability of vaccines, it is recommended that national authorities conduct an assessment of vaccination coverage against yellow fever in risk areas in order to focus the distribution of vaccines. In addition, it is recommended to keep a stock of vaccines at a national level to respond to possible outbreaks.

The vaccine against yellow fever is contraindicated in:

- people with acute febrile illnesses, with a commitment to their general health;
- people with a history of hypersensitivity to hen's eggs and their derivatives;
- pregnant women, except in an emergency situation and following explicit recommendations of the health authorities;
- people severely immunocompromised by illness (e.g., cancer, Leukemia, AIDS, etc.) or by medicines;
- infants younger than 6 months (consult the vaccine laboratory leaflet);
- people of any age who have a disease related to the thymus.

Precautions:

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

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, February 2017, Available at: http://www.paho.org/hq/index.php?option=com_docman&task=doc_download&Itemid=270&gid=38104&lang=en
- Brazil Ministry of Health, Situation report on the yellow fever outbreak. Available at: <http://portalsaude.saude.gov.br/index.php/o-ministerio/principal/leia-mais-o-ministerio/619-secretaria-svs/11-svs/27300-febre-amarela-informacao-e-orientacao>.
- 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
- WHO. Updates on yellow fever vaccination recommendations for international travellers related to the current situation in Brazil. Available at: <http://www.who.int/csr/don/20-march-2017-yellow-fever-brazil/en/#>

References

1. Yellow fever reports. Brazil Ministry of Health. Available at: <http://portalsaude.saude.gov.br/index.php/o-ministerio/principal/leia-mais-o-ministerio/619-secretaria-svs/11-svs/27300-febre-amarela-informacao-e-orientacao>
2. Peru Ministry of Health – MINSA, National Center for Epidemiology, Prevention and Control of Diseases; Situational Room for Health Situation Analysis – EW 10 of 2017: Yellow Fever. Available at: http://www.dge.gob.pe/portal/index.php?option=com_content&view=article&id=14&Itemid=121
3. Epidemiological Bulletin EW 12. Colombia National Institute of Health. 2017. Available at: <http://www.ins.gov.co/boletin-epidemiologico/Paginas/default.aspx>
4. PAHO/WHO. Control of Yellow Fever. Field Guide. 2005. Scientific and Technical Publication No. 603. Available at: http://www.paho.org/hq/index.php?option=com_docman&task=doc_download&Itemid=270&gid=20159&lang=en