

Situation summary in the Americas

Since epidemiological week (EW) 1 to EW 15 of 2017, **Brazil, Colombia, Ecuador, Peru, the Plurinational State of Bolivia,** and **Suriname** have reported suspected and confirmed yellow fever cases.

Following is an update on the situation in Brazil.

In **Brazil**, since the beginning of the outbreak in December 2016 up to 12 April 2017, there were 2,422 cases of yellow fever reported (623 confirmed, 1,128 discarded, and 671 suspected under investigation), including 326 deaths (209 confirmed, 53 discarded, and 64 under investigation). The case fatality rate (CFR) is 34% among confirmed cases.

According to the probable site of infection,¹ the cases were reported in 359 municipalities, while the confirmed cases were distributed among 108 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, 151 were in Minas Gerais, four in São Paulo, 48 in Espírito Santo, four in Pará, and two in Rio de Janeiro. In descending order, the CFR among confirmed cases by state is 100% in Pará, 80% in São Paulo, 34% in Minas Gerais, 31% in Espírito Santo, and 20% in Rio de Janeiro.

In the state of Minas Gerais, no new suspected cases have been reported since 23 March 2017, and the date of symptoms onset of the last reported case is 14 March 2017.² In the state of Espírito Santo, since EW 9 of 2017, a second increase has been observed in the number of cases, the majority of which are being reported from municipalities in the south of the state. Local and state authorities are intensifying immunization activities in the area and the possibility that additional cases could be detected among susceptible persons in the area is not excluded.

In Rio de Janeiro, an increase in the number of suspected cases was observed between 15 and 25 March; however, no new cases have been reported since 6 April (**Figure 1**). Of the 10 confirmed cases, 8 had as probable site of infection the municipality of Casimiro de Abreu,

¹ There are also 54 discarded cases that were reported by other Federal Units.

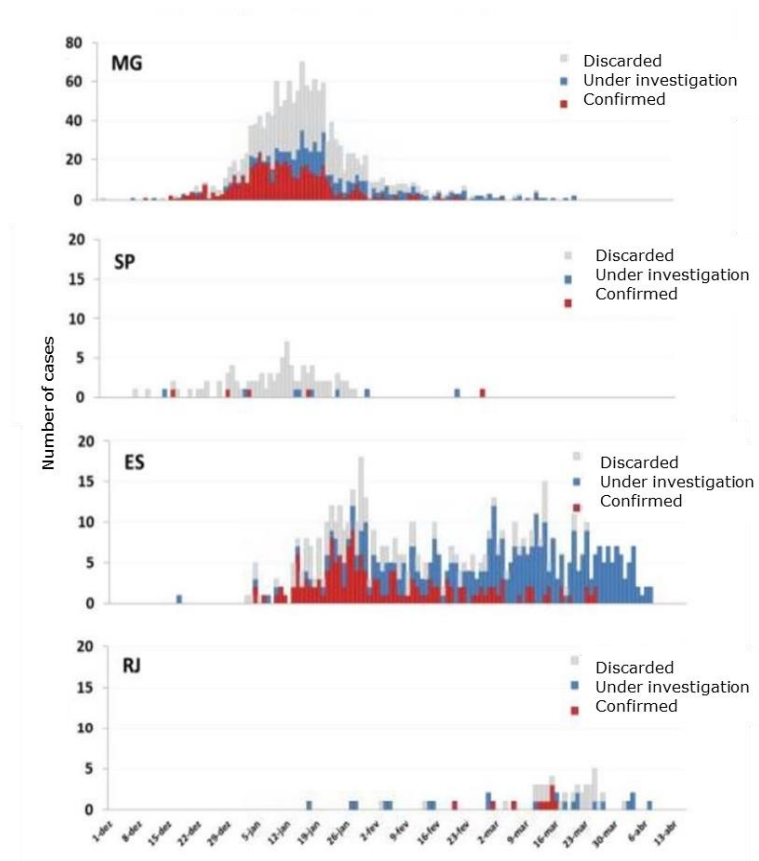
² Information is available at: http://www.saude.mg.gov.br/images/noticias_e_eventos/000_2017/2-abril-maio-junho/12-04_Atualizacao-FA.pdf

one had the municipality of São Fidelis, and the probable site of infection for the case who resided in Porciúncula is still under investigation.³

Moreover, in the state of Pará, the number of confirmed cases remains unchanged from EW 13 of 2017.

To date, *Aedes aegypti* has not been reported to have a role in transmission. However, confirmed epizootics in large cities, such as Vitoria in Espírito Santo⁴ and Salvador in Bahia,⁵ 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 13 April 2017.



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

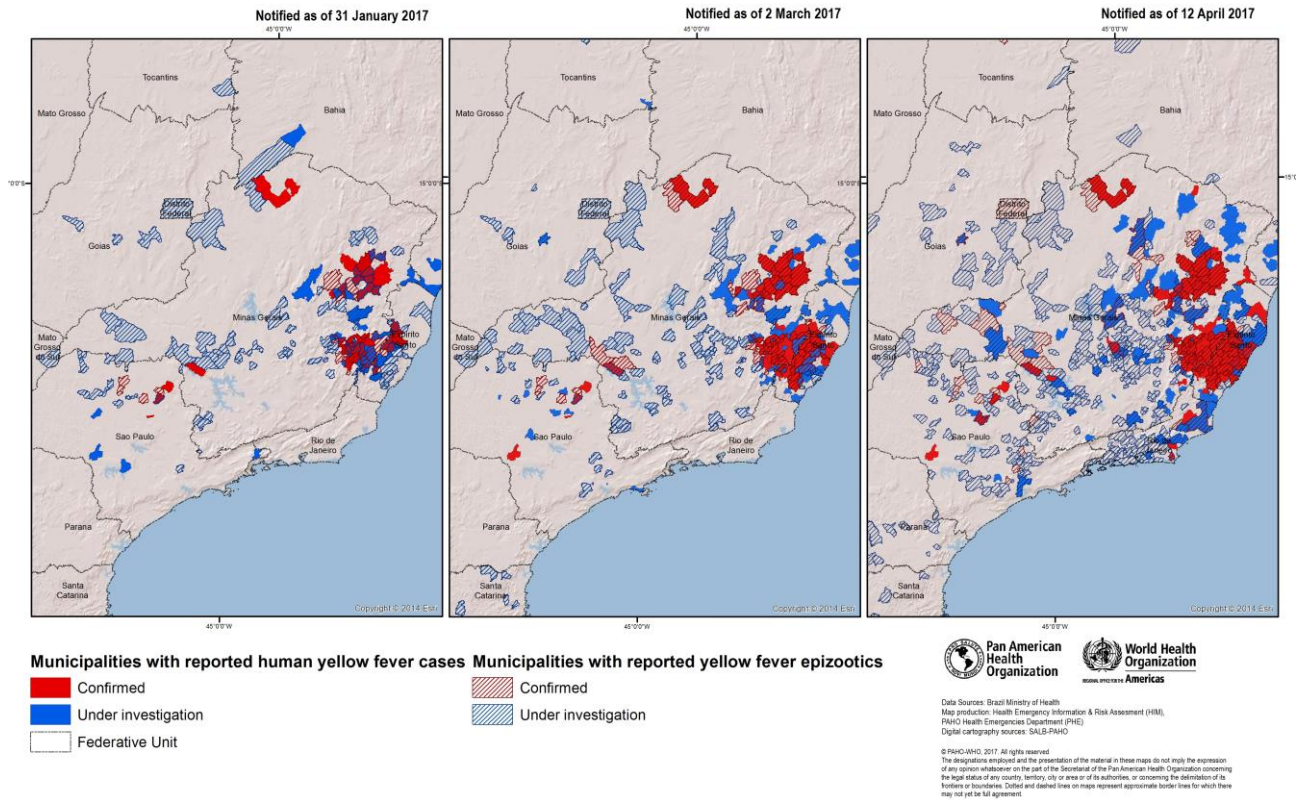
³ Information is available at: <http://www.febreamarelari.com.br/site/arg/Boletim-Epidemiologico-Febre-Amarela-11-04-2017.pdf>

⁴ Municipalities with confirmed epizootics. Available at: <http://saude.es.gov.br/Not%C3%ADcia/febre-amarela-silvestre-94-notificacoes-descartadas>

⁵ 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-acoes-de-controle-do-virus-da-febre-amarela&catid=13:noticias&Itemid=25

Figure 2 illustrates the municipalities with confirmed cases and cases under investigation, as well as confirmed epizootics, and epizootics under investigation that correspond to the cumulative total in three different dates.

Figure 2. Geographic distribution of reported human yellow fever cases and yellow fever epizootics, 31 January, 2 March, and 12 April 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 beginning of the outbreak up to 12 April 2017, a total of 2,949 nonhuman primates (NHP) epizootics were reported, of which 473 were yellow fever confirmed, 1,041 remain under investigation, and 82 were discarded. Between the release by Brazil of bulletins # 35 and 36 concerning yellow fever,⁶ an additional 78 epizootics in NHP were added, with the majority of them occurring between January and April of 2017 and being entered into the register system retrospectively.

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.

⁶ Monitoring of yellow fever cases and deaths in Brazil. 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>

Reports of epizootics currently under investigation in states bordering Argentina, Bolivia, Colombia, Guyana, Paraguay, Peru, Suriname, Uruguay, and Venezuela 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 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. There have been rare reports of serious side-effects from the yellow fever vaccine.

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.
- 2) Countries that are not currently experiencing outbreaks should not conduct immunization campaign. 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.

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 from: http://www2.paho.org/hq/index.php?option=com_content&view=article&id=13101&Itemid=42296&lang=en

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 an emergency situation and following 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, 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:
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- 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:
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References

1. Yellow fever reports. Brazil Ministry of Health. Available at:
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2. Peru Ministry of Health – MINSA, National Center for Epidemiology, Prevention and Control of Diseases; Situational Room for Health Situation Analysis – EW 13 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 14. 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