



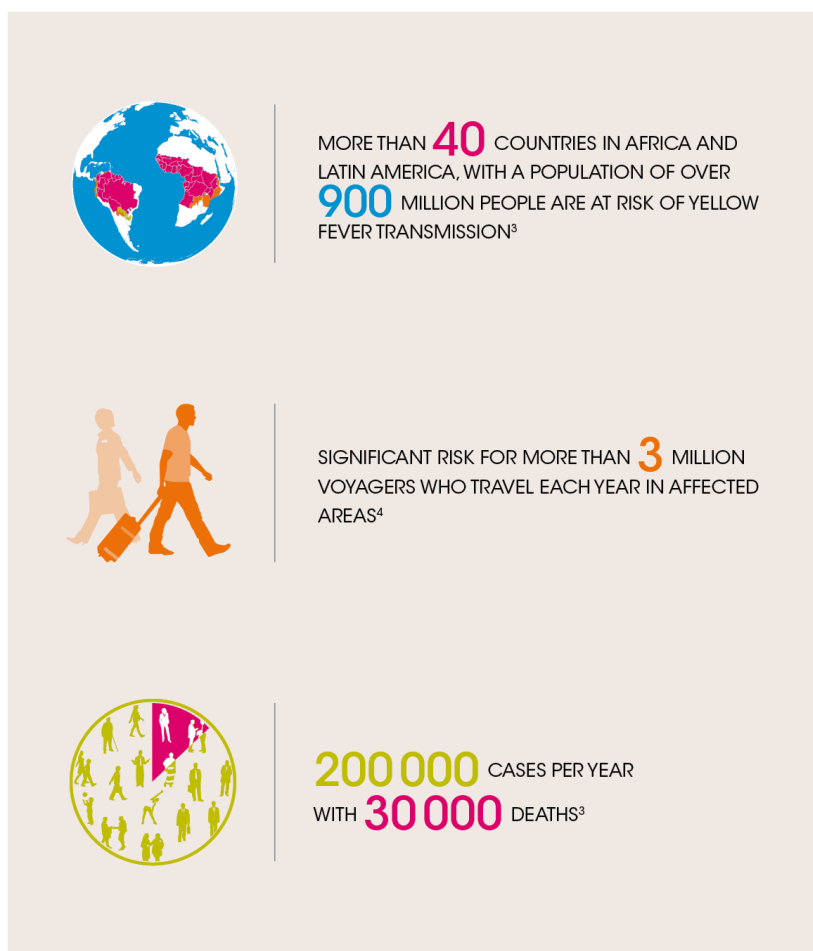
YELLOW FEVER: A MAJOR CONCERN FOR PUBLIC HEALTH

SANOFI PASTEUR OPERATES IN THE FIGHT AGAINST YELLOW FEVER

- Yellow fever is a serious acute viral hemorrhagic disease transmitted by infected mosquitos. There is no cure for yellow fever. Treatment is symptomatic, aimed at reducing the symptoms for the comfort of the patient, but it does not stop the evolution of the disease, which can be lethal.
- According to the World Health Organization (WHO), vaccination is the single most important measure for preventing yellow fever.¹ Large-scale vaccination has been very effective. However, where vaccination campaigns have ceased and vaccination coverage has not been sustained, the disease has recurred, leading to major outbreaks in countries where the disease was considered to have all but disappeared.²
- The Sanofi Pasteur vaccine against yellow fever produced in France:
 - is registered in more than 100 countries with more than 415 million doses distributed to residents and travelers to endemic areas since vaccine launch in 1979
 - requires a single injection, making it practical and easy to use
 - a single dose confers sustained immunity and life-long protection against yellow fever; a booster dose is not necessary²
 - is prequalified by the WHO for purchase by the United Nations.
- Sanofi Pasteur significantly invested in yellow fever vaccine production to:
 - optimize vaccination campaigns by providing the most appropriate presentation
 - increase production capacity to better meet future supply commitments and provide an uninterrupted supply of yellow fever vaccine
- Sanofi Pasteur is providing the majority of the 6 million doses of yellow fever vaccine for the stockpile funded by the Global Alliance for Vaccines and Immunization (GAVI) to fight against epidemics in Africa. In 2016, Sanofi Pasteur shipped more than 15 million vaccine doses to Africa to respond to yellow fever outbreaks on the continent.
- Sanofi Pasteur is one of the key partners of the Yellow Fever Initiative that makes an effort on yellow fever prevention.³

KEY FIGURES OF YELLOW FEVER

- WHO recommends for endemic areas: ²
 - integration of the vaccine against yellow fever in the national child immunization programs;
 - implementation of preventive vaccination campaigns for inhabitants of areas at risk of yellow fever where there is low vaccination coverage.
 - vaccination for travelers to and from areas at risk.



- To support vaccination against yellow fever, several international initiatives have been established: ⁵
 - The creation of an emergency stockpile of yellow fever vaccine to ensure rapid response to outbreaks reported in high-risk countries.
 - The Yellow Fever Initiative foundation, a preventive vaccination effort led by WHO and supported by UNICEF and national governments. This initiative recommends:
 - including the yellow fever vaccine in routine infant immunizations (starting at age 9 months)
 - implementing mass vaccination campaigns in high-risk areas for all people 9 months and older
 - maintaining surveillance and rapid response capacity to face outbreaks.
 - The fight against mosquitoes to reduce the risk of yellow fever transmission.⁵

- In fact, the risk of the transmission of yellow fever can be reduced in urban areas by eliminating potential mosquito breeding places.
- Spraying insecticide to kill adult mosquitos during urban epidemics, combined with emergency vaccination campaigns, reduces or interrupts the transmission of yellow fever.

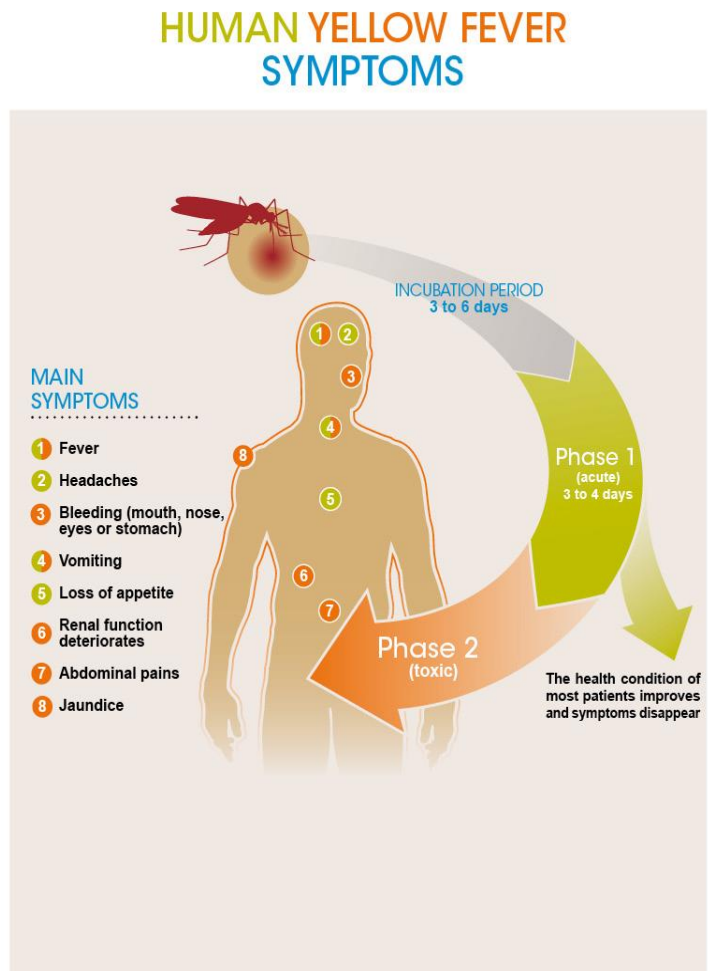
AREAS AT RISK OF YELLOW FEVER TRANSMISSION⁴



ABOUT YELLOW FEVER⁵

- Yellow fever is transmitted by infected mosquitos. The term "yellow" refers to the jaundice that affects some patients.
- There are three types of disease transmission cycles: sylvatic (or jungle), urban, and intermediate. Once someone has contracted the virus, the incubation period lasts from 3 to 6 days and is followed by the development of the disease, which may have one or two phases:
 - The acute phase:
 - Fever, muscle aches (back pain, headache), chills, loss of appetite, nausea or vomiting.
 - Most patients see their state of health improve and their symptoms disappear after 3 to 4 days.

- The “toxic” phase:
 - 15% of patients have a second phase following the initial remission.²
 - High fever comes back and several organ systems are affected. The patient quickly shows signs of jaundice and complains of pain appearing in the mouth, nose, eyes and stomach. When this is the case, blood can be found in vomit and feces. The renal function also deteriorates.
 - Half of the patients with this phase die within 7 to 10 days, and the others recover without significant organ damage.



References:

- ¹ World Health Organization (WHO) website – *Yellow fever vaccine: a global partnership*. Updated 2016, Accessed January 2018. <http://www.who.int/csr/disease/yellowfev/yfvaccine/en/>
- ² World Health Organization (WHO) website – *Vaccines and vaccination against Yellow Fever position paper* - Weekly epidemiological record, 2013. 88, 269–284. Accessed on January 15, 2018. <http://www.who.int/wer/2013/wer8827/en/>
- ³ World Health Organization (WHO) website – *Yellow Fever Initiative brochure*. Accessed on January 15, 2018. <http://www.who.int/csr/disease/yellowfev/YFibrochure.pdf>
- ⁴ Emily S Jentes, Gilles Pomerol, Mark D Gershman. *The revised global yellow fever risk map and recommendations for vaccination, 2010: consensus of the Informal WHO Working Group on Geographic Risk for Yellow Fever*. Lancet Infectious diseases, 2011. (11) 622-632. Accessed February 2018. <https://www.mmig.nl/static/filebank/1725c3c4f348d16cae72cfef97a828a/the-revised-global-yellow-fever-risk-map-and-recommendations-for-vaccination-2010-consensus-of-the-informal-who-working-group-on-geographic-risk-for-yellow-fever.pdf>
- ⁵ World Health Organization (WHO). *Yellow Fever Fact sheet*. Updated May 2016, accessed February 2018. <http://www.who.int/mediacentre/factsheets/fs100/en/>

Updated February 2018

CONTACT:

Global Media Relations
 Laurence Bollack
 T. +33 (0)1 53 77 46 46
MR@sanofi.com
www.sanofipasteur.com