

Podcast: Vaccination against yellow fever

As of August 2022

Welcome to the next podcast on vaccination. We are happy that you are listening to this professional information. My name is Chloee. I am a health consultant at German Institute for Medical Mission. I am here today with our team member Ute.

We will today talk about the yellow fever vaccination. We included it in the series on childhood vaccination because it is one of the vaccines given routinely to infants aged 9 to 12 months in regions where yellow fever is endemic.

Ute, how frequent is yellow fever and where is it endemic?

Thank you, Chloee. The yellow fever virus is endemic in tropical, often rural areas of Africa and Central and South America. Globally, there are about 200,000 people infected every year, of whom 30,000 people die. Nearly 90% of yellow fever cases occur in Africa.⁵

How can I become infected with the virus that causes yellow fever?

Yellow fever is transmitted by infected mosquitos called *Aedes aegypti*. It can only infect monkeys and humans. Some few patients who contract the virus never develop any symptoms. More frequently, symptoms start 3 to 6 days after the mosquito bite. The symptoms include fever, muscle pain, head- and backache, nausea and vomiting. In most cases, the symptoms disappear after 3 to 4 days. Around 15% of patients enter into a second phase of disease in which symptoms that had already disappeared return. The patient then develops severe symptoms affecting mainly the kidneys and the liver and causing jaundice. The jaundice is responsible for the fever's name: yellow fever. Bleeding can occur from the mouth, nose, eyes or stomach. There is only supportive treatment, but no cure. Approximately half of the severe cases die within 7 to 10 days.⁶

How does a yellow fever epidemic develop?

A yellow fever epidemic occurs when an infected person enters a community where most people are not vaccinated and where many mosquitos breed. When one or several mosquitos bite the infected person, they contract the virus and transmit it after a small period to the next persons they bite.

Early detection is key in an epidemic outbreak of yellow fever. But differential diagnosis may be difficult as yellow fever can be confounded with severe malaria, dengue fever, leptospirosis, viral hepatitis, other haemorrhagic fevers and poisoning. A polymerase chain reaction test of blood and urine can detect the virus at an early stage of the epidemic. Later, the prevalence of antibodies will inform about the extent of the outbreak. However, neither the polymerase chain reaction test nor the antibody test are readily available, especially in rural laboratories.

What vaccines do we have against yellow fever?

Currently, we immunize with a vaccine that includes living attenuated yellow fever virus. This vaccine has been used since the 1930s and it is extremely effective. One single dose of this vaccine provides life-long protection after 10 days in 99% of immunized persons.⁷

In countries, where yellow fever is endemic, public health officials have introduced routine infant immunization, mass vaccination campaigns in outbreaks and vaccination of travellers in order to reduce infection numbers.

[What about the side effects of the yellow fever vaccine? Who should not be vaccinated?](#)

Mild side effects like fever or malaise are common after yellow fever vaccination. Serious side effects are caused in around 1-2 cases per 1 000 000 immunizations. Though the risk is very low, the living virus vaccine can provoke an attack on the liver, the kidneys or the nervous system. Infants aged less than 6 months carry an increased risk of developing an encephalitis after vaccination. Therefore, babies below the age of 6 months should never be immunized. For infants between 6 to 8 months the risk of contracting the disease has to be very carefully compared to the risk due to vaccination. Also, persons taking immunosuppressive medication, suffering from severe immunodeficiency or being allergic against egg protein should receive a waiver.

The yellow fever vaccination of pregnant women and persons over 60 years of age is conditional. It depends on the person's overall physical condition and the risk of contracting the disease. During an outbreak, the risk of contracting the disease is certainly higher than the risk of possible side effects of the vaccine.

In accordance with the International Health Regulations, countries have the right to restrict entrance for travellers without a valid certificate of yellow fever vaccination. However, travellers may show a certificate that vaccination is impossible due to medical reasons.⁸

[Yellow fever is a vector-transmitted disease. As for malaria, we should also have additional tools at hand to control its spread.](#)

Yes, of course. We have to reduce the breeding sites for the mosquitos and we can use mosquito repellents and dress accordingly to avoid mosquito bites. Bed nets do not help, as the yellow fever mosquito bites during daytime.

[Thanks for reminding us of these simple measures. However, as with malaria they are not enough to prevent infection.](#)

This is correct. Vaccination remains the major weapon in eradicating yellow fever. Prompt detection of yellow fever and a rapid response through emergency vaccination campaigns is the most important control measure during outbreaks. We have seen during the recent outbreaks in the capitals of Angola and DRC in 2016 that the virus is easily exported to other countries, including China. These outbreaks have shown that yellow fever poses a serious global threat requiring new strategic thinking.

Following this experience, the Eliminate Yellow Fever Epidemics, in shortEYE strategy was launched in 2017. Steered by WHO and other international organisations, the EYE strategy supports 40 countries and involves more than 50 partners. The objectives are to protect at-risk populations by vaccination, prevent international spread of yellow fever and contain outbreaks rapidly. An emergency stockpile of 6 million doses of yellow fever vaccine is available to countries experiencing outbreaks.⁹

[Thank you for giving us such interesting background information on yellow fever. In the case of this disease, we see again the value of vaccination and the benefit of global initiatives to increase](#)

vaccination coverage for better health in endemic regions. The more people are vaccinated, the less virus circulates in mosquitos as vectors of transmission. At some point, a mosquito bite is only a nuisance but not a life-threatening risk anymore. Let us join hands for a better acceptance of vaccination as a means for eradicating health menaces worldwide.

We invite you to join us on our next podcast about vaccines.

Until then - Be blessed and stay safe

Internet sources as of 07.07.2022

- 1 www.who.int/news-room/fact-sheets/detail/meningitis
- 2 www.who.int/teams/immunization-vaccines-and-biologicals/diseases/meningitis
- 3 <https://web.archive.org/web/20170202004714/http://immunizationinafrica2016.org/releases/2016/2/23/as-meningitis-nears>
- 4 www.path.org/media-center/serum-institutes-meningitis-acwxy-vaccine-candidate-demonstrates-strong-safety-and-immunogenicity/
- 5 <https://historyofvaccines.org/history/yellow-fever/overview>
- 6 www.who.int/health-topics/yellow-fever#tab=tab_1
- 7 www.who.int/news/item/17-05-2013-yellow-fever-vaccination-booster-not-needed
- 8 <https://wwwnc.cdc.gov/travel/yellowbook/2020/family-travel/vaccine-recommendations-for-infants-and-children>
- 9 www.who.int/news-room/fact-sheets/detail/yellow-fever
- 10 <https://historyofvaccines.org/history/yellow-fever/timeline>