



Yellow fever Global threat



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Introduction

- Yellow fever (YF) is a mosquito-borne viral hemorrhagic fever affecting an estimated 200,000 people and causing 30,000 deaths annually .

Introduction

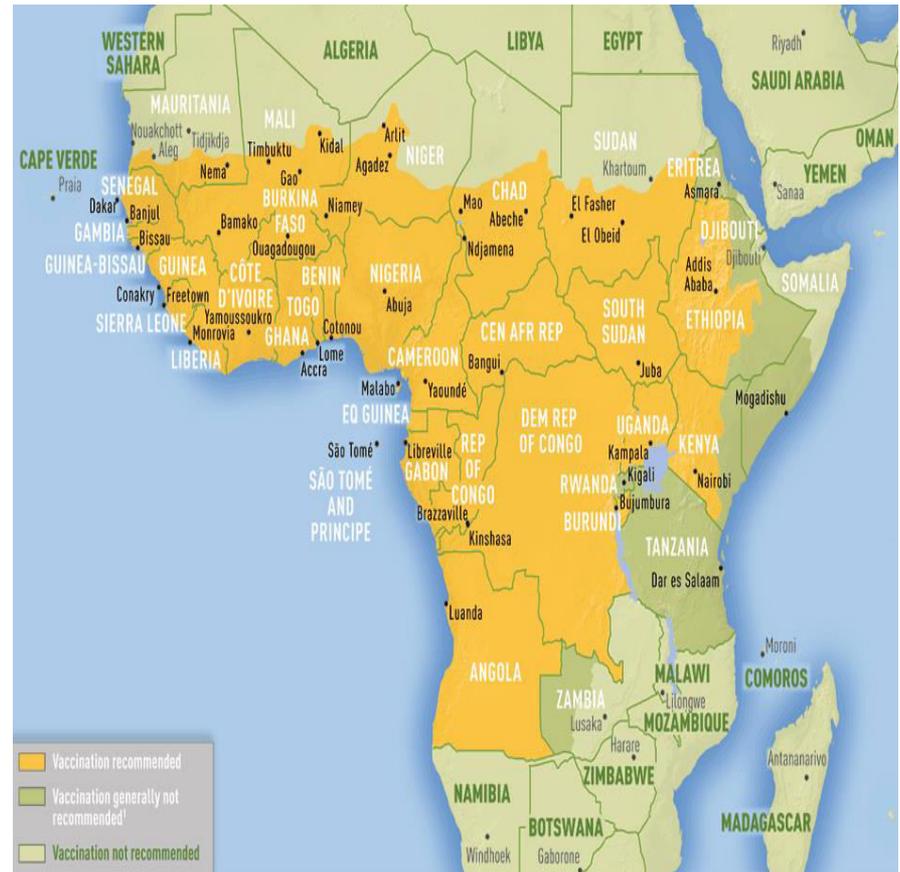
- Thirty-three countries, with a combined population of 508 million, are at risk in Africa. These lie within a band from 15°N to 10°S of the equator.
- In the Americas, yellow fever is endemic in nine South American countries and in several Caribbean islands. Bolivia, Brazil, Colombia, Ecuador and Peru are considered at greatest risk.

Risk area

America



Africa



Countries regarded as yellow fever infected

Africa:

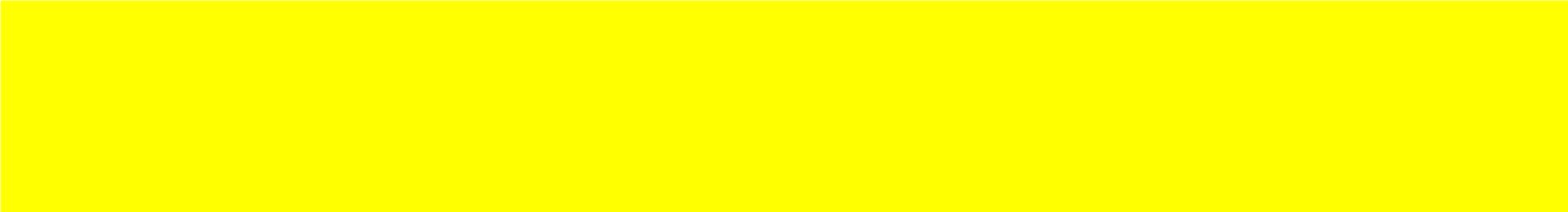
Burkina Faso, Burundi, Cameroon, Central African Republic, Chad, Congo, Democratic Republic of Congo (Zaire), Angola, Benin, Equatorial Guinea, Ethiopia, Gabon, Gambia, Ghana, Guinea, Guinea-Bissau, Ivory Coast (Cote D'Ivoire), Kenya, Liberia, Mali, Niger, Nigeria, Rwanda, Sao Tome and Principe, Senegal, Sierra Leone, Somalia, Sudan (South of 15° N), Togo, Uganda, Tanzania, Zambia.

America:

Bolivia, Brazil, Colombia, Ecuador, French Guiana, Guyana, Peru, Suriname, Trinidad and Tobago, Venezuela, Panama.

Definition

- Yellow fever is an acute viral haemorrhagic disease transmitted by infected mosquitoes. The "yellow" in the name refers to the jaundice that affects some patients

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- Reservoir: Monkey, Human, Mosquito
 - Incubation period: 3to 6 Days
 - Period of communicability: First 4 days of illness

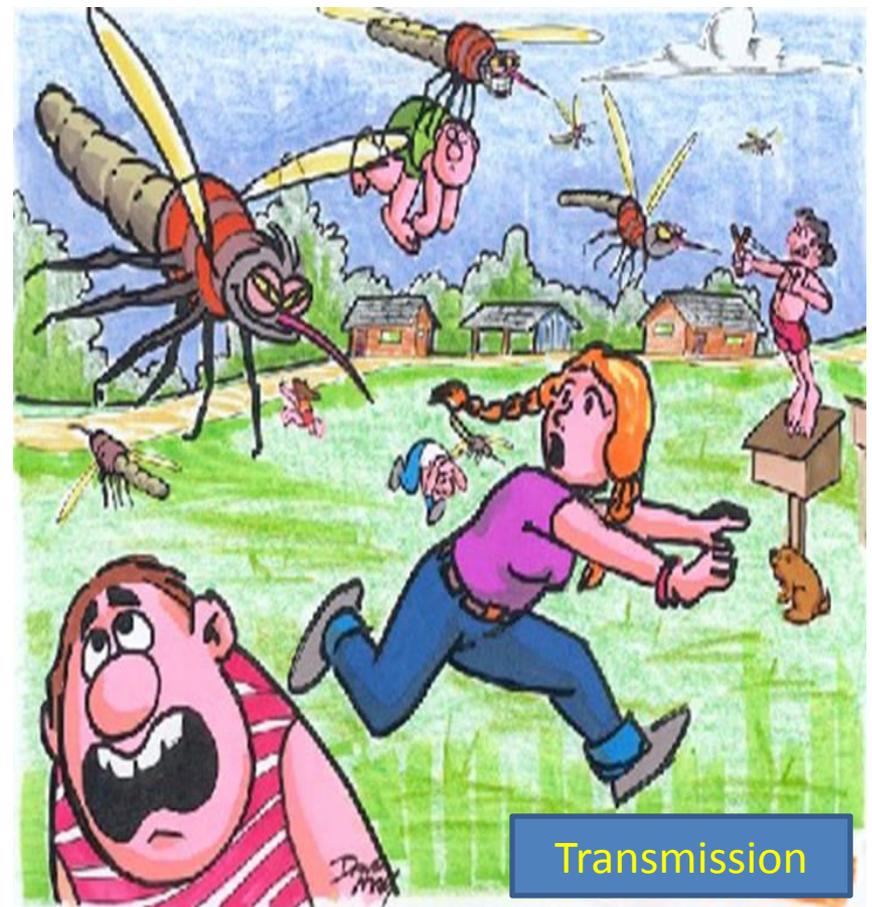
Symptom

Symptoms of yellow fever include fever,

- ❖ Headache.
- ❖ Jaundice.
- ❖ muscle pain.
- ❖ nausea.
- ❖ vomiting .
- ❖ and fatigue.

Transmission

- Large epidemics of yellow fever occur when infected people introduce the virus into heavily populated areas with high mosquito density and where most people have little or no immunity, due to lack of vaccination. In these conditions, infected mosquitoes transmit the virus from person to person



Global situation

Africa

the isolation of the virus in West Africa in 1927, research in East Africa began auspiciously in 1936 and within 10 years resulted in a detailed description in Uganda of the first YF transmission cycle for the continent, plus the identification of significant ecological and epidemiological details .

Africa

- In the mid-1930s evidence of YF was discovered in East Africa but in the absence of any known outbreaks or human disease .
1940 that the first outbreak and isolated cases of disease were detected.

Africa

Recent outbreaks of YF in Kenya (1992–1993), Sudan (2003 and 2005-2012) and Uganda (2010) important because each of these outbreaks have involved the re-emergence of a YFV genotype (East Africa) that remained undetected for nearly 40 years

Africa 2015-2016

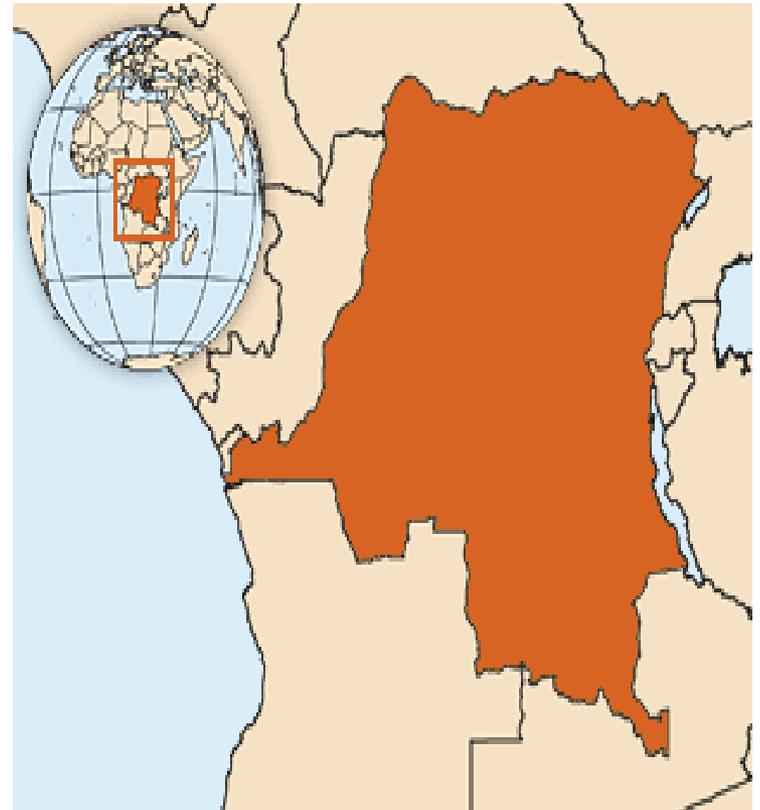
Angola

From 5 December 2015 to 20 October 2016 .

- 4347 suspected cases, with 377 deaths (case fatality rate, CFR: 8.7%).
- 884 cases have been laboratory confirmed, with 121 deaths (CFR: 13.7%).

Africa

- **Democratic Republic of the Congo**
- 31 May 2015, a total of 700 suspected cases, including 63 deaths, had been reported from all the provinces by the national surveillance system



Africa

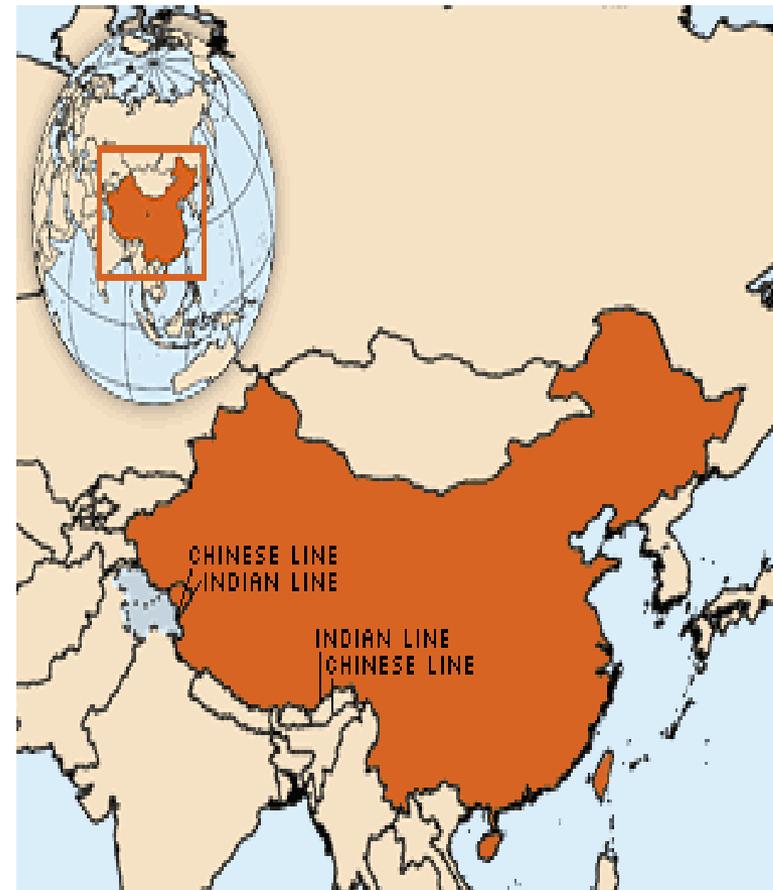
Uganda

- From 26 March to 18 April, 2016
- 30 cumulative suspected cases, including 7 deaths.
- The majority of cases are male. The cases do not have any history of travel outside of Uganda



Asia

- The first case in Asia reported on 11 March 2016
- Between 11 March and 12 April 2016, the National IHR Focal Point of China notified WHO of imported cases of YF. To date, a total of 11 laboratory-confirmed YF cases imported from Angola have been reported in China.



2017 Yellow fever Cases

America - Brazil



Yellow fever 2017

- On 24 January 2017, Brazil's International Health Regulations (IHR) National Focal Point (NFP) provided the Pan American Health Organization/World Health Organization (PAHO/WHO) with an update on the yellow fever situation. The geographical distribution of confirmed yellow fever human cases is expanding and includes, in addition to Minas Gerais State, the States of Espírito Santo and São Paulo. In addition, Bahia State reported 6 yellow fever human cases under investigation.

Situation in Sudan

situation in sudan

- The history of yellow fever in Sudan is rich as evidence by major outbreaks recorded since the years 1950s.

situation in sudan

- 7 states out of 18 states were affected in the last few years.
- These states were the 5 Darfur region states (North, South, East, West & Central Darfur) in addition to the 2 Kordofan states (North & South Kordofan).



situation in sudan

- As of 6 December 2005, the Federal Ministry of Health, SUDAN reported to WHO a total of 565 cases, including 143 deaths, with a case fatality rate of 25.3%.

situation in sudan

- From sep 2012 to dec 2013
- yellow fever in Darfur region of Sudan resulted in 849 suspected cases including 171 deaths (case fatality rate 20%).
- also reported from the South-Kordofan state, a place with high nomadic population. During that outbreak, 615 suspected cases including 183 death (CFR: 30%)

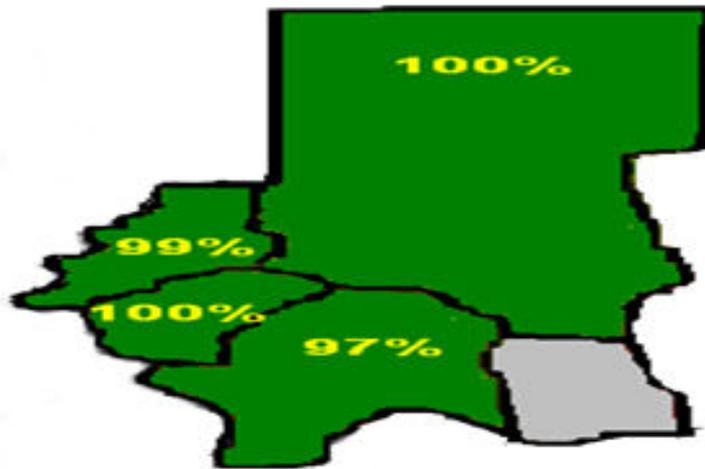
Control in Sudan

- The Sudan Epidemiology department of FMOH, working in close collaboration with State Ministries of Health to early detection of potential disease outbreaks .FMOH has established a surveillance system for yellow fever and other hemorrhagic fevers. Sudan national surveillance system was launched in 2001 and based on selected sentinel sites that are representing all country geographical areas and populations characteristics

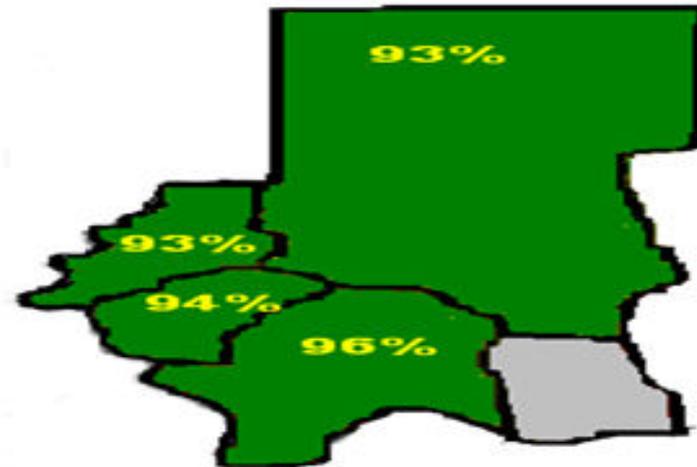
Prevention -vaccination

مقارنه بين التغطية الرقمية والجغرافيه لحملة الحمى الصفراء المرحلتين الاولى والثانية

التغطية الجغرافيه (المحايد)



التغطية الرقمية



< 80%



84-80%



>85%



Cont

- Vector control :
- Continuous program (survey & control)

Control

Responsibility of all



Control

- Verification by all sector
- MoH
- CAA
- Airlines
- Airport



control

- Yellow fever is prevented by an extremely effective vaccine, which is safe and affordable. A single dose of yellow fever vaccine is sufficient to confer sustained immunity and life-long protection against yellow fever disease and a booster dose of the vaccine is not needed.

Control

Vector control :-

- At State
- Airport
- Conveyance

Control



IHR : Article 24 Conveyance operators

permanently keep conveyances for which they are responsible free of sources of infection or contamination, including vectors and reservoirs. The application of measures to control sources of infection or contamination may be required if evidence is found.

Control



IHR : Article 24 Conveyance operators

- Specific provisions pertaining to conveyances and conveyance operators under this Article are provided in Annex 4. Specific measures applicable to conveyances and conveyance operators with regard to vector-borne diseases are provided in Annex 5.

Control



- IHR Article 38 Health
- Part of the Aircraft General Declaration

Control



- States Parties shall establish programmes to control vectors that may transport an infectious agent that constitutes a public health risk to a minimum distance of 400 metres from those areas of point of entry facilities that are used for operations involving travellers, conveyances, containers, cargo and postal parcels, with extension of the minimum distance if vectors with a greater range are present.(annex 5)

Control



- **Annex9 -- D. Disinsection of aircraft**

2.23 Contracting States shall limit any routine requirement for the disinsection of aircraft cabins and flight decks with an aerosol while passengers and crews are on board, to same-aircraft operations originating in, or operating via, territories that they consider to pose a threat to their public health, agriculture or environment.

Control



- **Annex9 -- D. Disinsection of aircraft**

2.24 Contracting States that require disinsection of aircraft shall periodically review their requirements and modify them, as appropriate, in the light of all available evidence relating to the transmission of insects to their respective territories via aircraft.

Control



- **Annex9 -- D. Disinsection of aircraft**

2.25 When disinsection is required a Contracting State shall authorize or accept only those methods, whether chemical or non-chemical, and/or insecticides, which are recommended by the World Health Organization and are considered efficacious by the Contracting State.

Reference

<http://www.who.int/mediacentre/factsheets/fs100/en/>

<http://www.who.int/csr/don/27-january-2017-yellow-fever-brazil/en/>

<http://www.who.int/emergencies/yellow-fever/situation-reports/28-october-2016/en/>

[Sudan Yellow Fever Risk Assessment Report 2013 FMOH](#)

THANK YOU

