



EPIDEMIC TRENDS OF YELLOW FEVER AND CURRENT STATUS OF VACCINATION

Community Medicine

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KEYWORDS

Introduction:

Yellow fever is an acute viral hemorrhagic disease transmitted by infected mosquitoes. The "yellow" in the name refers to the jaundice that affects some patients. Symptoms of yellow fever include fever, headache, jaundice, muscle pain, nausea, vomiting and fatigue. A small proportion of patients who contract the virus develop severe symptoms and approximately half of those die within 7 to 10 days. The virus is endemic in tropical areas of Africa and Central and South America. Since the launch of the Yellow Fever Initiative in 2006, significant progress in combatting the disease has been made in West Africa and more than 105 million people have been vaccinated in mass campaigns. No outbreaks of yellow fever were reported in West Africa during 2015.^[1]

Epidemic trend:

On 21 January 2016, the Ministry of Health of Angola notified WHO of an outbreak of yellow fever (YF). The first case (with onset date of 5 December 2015) was identified in Viana municipality, Luanda province. As of 10 June, 3,137 suspected cases, including 345 deaths, had been reported from all the 18 provinces of Angola. A total of 847 cases had been laboratory-confirmed. The confirmed cases are from 78 districts of 16 provinces.[] This is fourth time epidemic outbreak in Angola in the year 2016 which is on a increasing epidemic trend.

On 22 March 2016, the National IHR Focal Point of the Democratic Republic of Congo (DRC) notified WHO of cases of yellow fever (YF) in connection with an ongoing outbreak in Angola (see DON posted on 13 April 2016). As of 31 May, a total of 700 suspected cases, including 63 deaths, had been reported from all the provinces by the national surveillance system. Samples were collected from 689 cases and sent for laboratory confirmation to the National Institute of Biomedical Research (INRB) in Kinshasa and the Pasteur Institute (IP) in Dakar, Senegal.[] Approximately 200,000 cases of yellow fever occur annually; 90% of them occur in Africa. A dramatic resurgence of yellow fever has occurred since the 1980s in both sub-Saharan Africa and South America. From 1 July 2017 through 14 January 2018, 35 confirmed human cases of yellow fever were reported in Brazil (Figure 1), including 20 deaths and 145 suspected cases who are under investigation. [4]

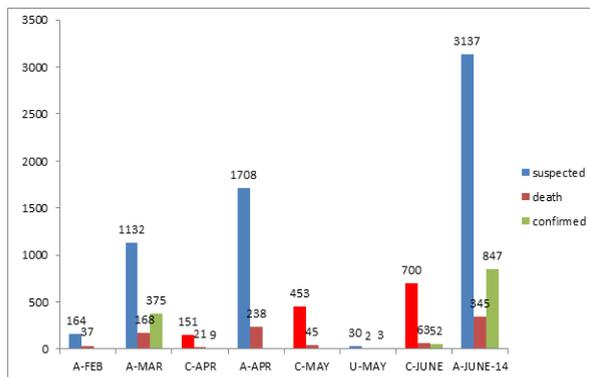


Figure-I: Epidemic outbreaks of yellow fever in the year 2016.[A- Angola, U- Uganda, C- Congo]

The World Health Organization (WHO) recommends routine immunization in all countries where the disease is common. This should typically occur between nine and twelve months of age. Those travelling to areas where the disease occurs should also be immunized.^[5]

Yellow fever vaccine:

Yellow fever vaccine is a live, weakened virus. It is given as a single shot. For people who remain at risk, a booster dose is recommended every 10 years. Yellow fever vaccine may be given at the same time as most other vaccines. Persons 9 months through 59 years of age traveling to or living in an area where risk of yellow fever is known to exist, or traveling to a country with an entry requirement for the vaccination. Laboratory personnel who might be exposed to yellow fever virus or vaccine virus.^[6]

Current Global Immunization status:

Attempts to control yellow fever by compulsory vaccination started in the beginning of 20th century and a mass vaccination campaign was carried out between 1933-1961 in some French speaking African countries (Benin, Burkina Faso, Cameroon, Chad, Cote d'Ivoire, Congo, Gabon, Guinea, Senegal, Togo) and resulted in gradual disappearance of the disease.[] Until the early 1990s almost 30 years after the end of the mass immunization campaign, YF remained only very sporadically active in the countries in which immunization was done. But at the same time the countries in which mass vaccination did not take place (e.g. Ethiopia, Gambia, Ghana, Guinea Bissau, Liberia, Nigeria and Sierra Leone) experienced large epidemics. Recently small outbreaks have been reported in many countries, mostly from west Africa. The current resurgence was a result of the interrupted mass vaccination campaigns in Africa.

To combat these, the Yellow Fever Initiative was launched in 2006 to secure global vaccine supply and increase population immunity through vaccination. The Initiative, led by WHO and supported by UNICEF and national governments, has a particular focus on high endemic countries in Africa. After the launch of the initiative, more than 105 million people have been vaccinated and no yellow fever outbreaks were reported in West Africa during 2015.^[1]

The Initiative recommends including yellow fever vaccines in routine infant immunizations (starting at age 9 months), implementing mass vaccination campaigns in high-risk areas for all people aged 9 months and older, and maintaining surveillance and outbreak response capacity. Between 2007 and 2016, 14 countries have completed preventive yellow fever vaccination campaigns. The Yellow Fever Initiative is financially supported by the Global Alliance for Vaccines and Immunization (GAVI Alliance), the European Community Humanitarian Office (ECHO), the Central Emergency Response Fund (CERF), ministries of health, and country-level partners.^[1]

More than US\$ 264 million has been invested by GAVI in yellow fever control since 2001, focusing mainly on African countries where the vast majority of yellow fever deaths occur. The Vaccine Alliance funds routine vaccine introductions, an emergency stockpile and preventive vaccination campaigns. Gavi's support is closely aligned with the Yellow Fever Initiative (described above).^[8]

Since 2011, GAVI-supported prevention campaigns have been organized in 14 countries in Africa, protecting more than 98 million people in Benin, Burkina Faso, Cameroon, the Central African Republic, Côte d'Ivoire, Ghana, Guinea, Liberia, Mali, Nigeria, Senegal, Sierra Leone, the Sudan and Togo. In 2015 alone, almost 10 million people were vaccinated through GAVI-supported immunization campaigns. Since 2010, yellow fever campaigns together with routine immunization programmes supported by GAVI have averted around 200,000 yellow fever-related deaths. The campaigns definitely have reduced the risk of yellow fever outbreaks in Africa, lowering the disease burden by an average 27% among 12 "high-risk" countries.^[8] Figure –II

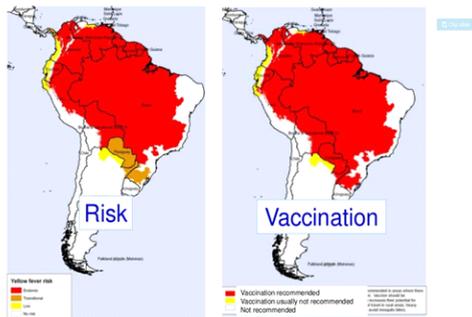


FIGURE II : Yellow fever vaccination risk and coverage in South American countries

No yellow fever outbreaks were registered in 2015 in countries in West Africa where campaigns had been conducted. However, rapid urbanization and environmental changes are shifting the geography of yellow fever, and the virus is now affecting areas previously considered non-endemic. Recent yellow fever epidemics, which have also spread outside of Africa, underline the continued global threat posed by yellow fever. Only 3 of the countries reported routine coverage rates of 80% or above in 2015, and 5 countries reported less than 60% coverage, out of the 17 countries in which yellow fever vaccine through routine immunization was introduced by the alliance.^[8] For example, in Nigeria, where yellow fever is highly endemic, routine immunization coverage was just around 54% in 2015.

Yellow fever vaccination and India:

All visitors travelling from India to African countries like Kenya, Uganda, Rwanda, Ghana, Mali, Ethiopia, Nigeria are required to vaccinated against yellow fever with having an international certificate.[] But globally the list of countries are long. In India there are 40 yellow fever vaccination points including port, airport and major hospitals out of which maximum 6 centres are present in Delhi, Maharashtra and Gujarat.^[9]

For entry into India:-Any person, Foreigner or Indian, (excluding infants below six months) arriving by air or sea without a vaccination certificate of yellow fever will be kept in quarantine isolation for a period up to 6 days if

- He arrives in India within 6 days of departure/transit from a yellow fever endemic area.
- Has come on a ship which has started from or transited at any port in a yellow fever endemic country within 30 days of its arrival in India provided such ship has not been disinfected in accordance with the procedure laid down by WHO.

For leaving India:- There is no health check requirement by Indian Government on passengers leaving India.^[9]

Conclusion:

Though yellow fever is not endemic in India, still it is a risk because of abundance presence of vectors and favorable climatic condition . That is why it is very important to study the epidemic trends of yellow fever and to remain cautious about the disease and it's prevention for policy makers, health administrators, health care providers.

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