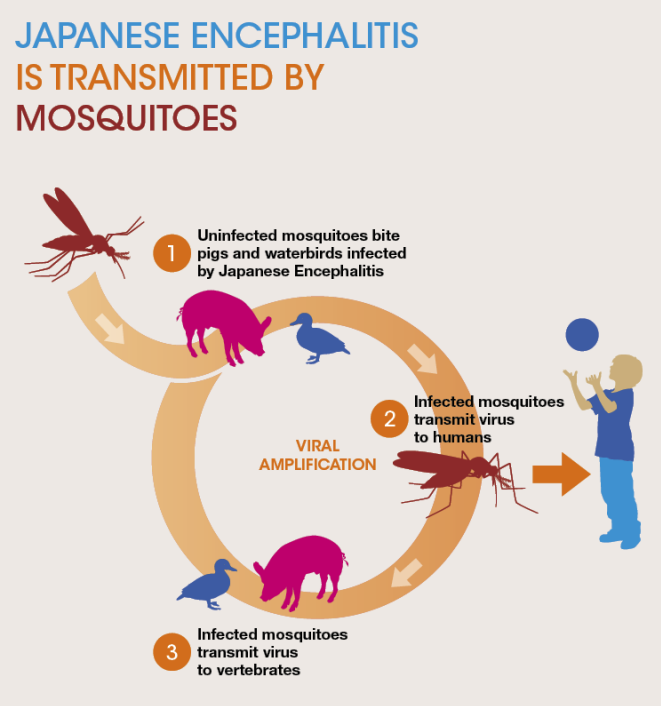
# VACCINATION AGAINST JAPANESE ENCEPHALITIS

## HOW IS JAPANESE ENCEPHALITIS TRANSMITTED?

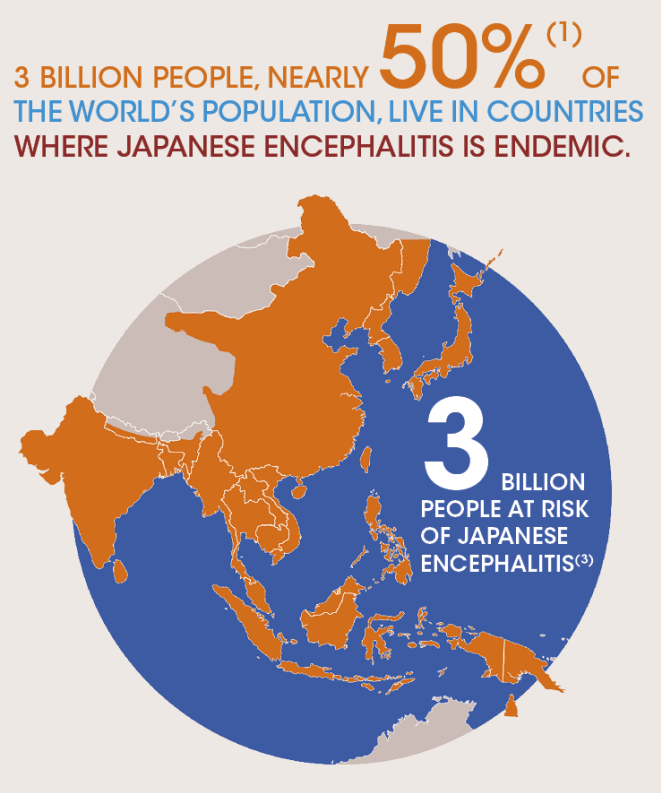
- The virus causing JE is a flavivirus related to dengue, yellow fever, and West Nile viruses [1, 4].
- It is transmitted by mosquitoes belonging to the *Culex* family.
- These mosquitoes breed in water and flooded rice fields and bite mainly in the evening and during the night [1-2].
- The transmission cycle of the virus includes mosquitoes, pigs, and wading birds such as herons and egrets [3-4].
- The virus reproduces in pigs and birds ("amplifying hosts") and infects mosquitoes that take blood meals from them [1-3-4].
- Infected humans do not pass on the virus to feeding mosquitoes and are therefore considered dead-end hosts [1-2].




- The virus tends to spill over into human populations when infected mosquito populations build up explosively and the human biting rate increases [3].

# FROM JAPAN TO SOUTH-EAST ASIA & THE WESTERN PACIFIC REGION

- The first case of JE was documented in 1871 in Japan [4].
- It has since spread to almost all Asian countries, whether temperate, tropical or subtropical [1].
- Some 24 countries are at risk mainly in South-East Asia and in the Western Pacific Region, as defined by the World Health Organization (WHO) [1].
- The spread of JE virus in new areas has been associated with agricultural development and intensive rice production supported by irrigation programs [4].
- The JE virus cannot be eliminated due to the animal reservoirs, but human vaccination in endemic areas could control the disease [1].
- While essentially a rural disease, JE cases have been reported in cities [1].




- Risk factors include living nearby rice fields and in close proximity with pigs and/or water birds [1-4].

# NO SPECIFIC CURE, BUT PREVENTABLE THROUGH VACCINATION

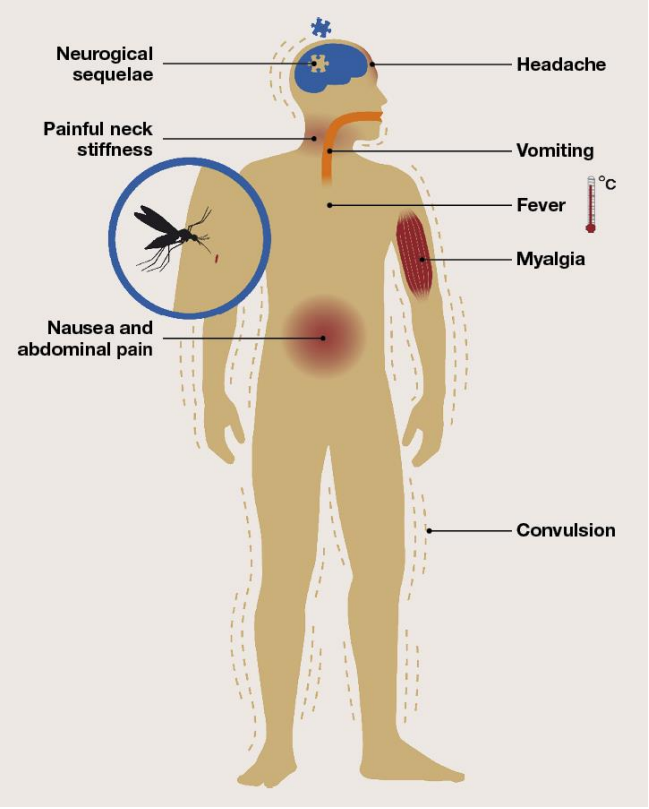
- There is no specific cure for Japanese Encephalitis. Treatment consists in relieving symptoms and helping patients overcome the disease [1-4].
- Vaccination is the most important preventive measure, and WHO recommends that JE vaccination be integrated into national immunization programs where JE is a public health priority [1].
- The Sanofi Pasteur vaccine against JE
  - was first registered in Australia in 2010 and received WHO prequalification status in 2014
  - is a recombinant live-attenuated vaccine
  - requires a single dose in adults
  - in children, a booster dose is recommended 12-24 months after the primary injection to ensure long-term protection.

# TRAVELERS ARE AT RISK OF JAPANESE ENCEPHALITIS

- JE can also affect children and adults travelling in countries where the JE virus is endemic.
- Personal preventive measures include
  - the use of mosquito repellents,
  - long-sleeved clothes,
  - coils and vaporizers [4].
- Travelers spending extensive time in JE endemic areas are recommended to get vaccinated before travel [2].
- The U.S. Advisory Committee on Immunization practices (ACIP) specifically recommends JE vaccination [2]
  - for travelers who plan to spend a month or longer in endemic areas
  - for frequent travelers to JE-endemic areas
  - for short-term (<1 month) travelers to endemic areas if they plan to travel outside of an urban area
  - for those who are uncertain about their travel duration, destinations or activities.
- JE vaccination is not recommended for travelers with very-low risk itineraries, such as shorter-term travel limited to urban areas or outside of a well-defined JE virus transmission season [2].

# JAPANESE ENCEPHALITIS SYMPTOMS [1]

- The first signs appear after an incubation period of 4 to 14 days.
- Abrupt onset of high fever is associated with myalgia, headache, painful neck stiffness and vomiting
- Children may present with nausea, vomiting and abdominal pain as initial symptoms.
- Patient's condition can deteriorate rapidly, ultimately leading to coma.
- Convulsions experienced by 75% of patients
- About 30% of survivors develop serious neurological sequelae



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[2] **CDC**. Japanese Encephalitis Vaccines - Recommendations of the Advisory Committee on Immunization Practices (ACIP) Info: Morbidity and Mortality Weekly Report. July 19, 2019, 68(2)1-33. Available at https://www.cdc.gov/mmwr/volumes/68/rr/rr6802a1.htm

[3] **WHO** Water-related diseases available at https://www.who.int/water_sanitation_health/diseases-risks/diseases/encephalitis/en/

[4] **WHO** factsheet Japanese encephalitis. 9 May 2019. Available at: https://www.who.int/en/news-room/fact-sheets/detail/japanese-encephalitis

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