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
REFERENCES

1. WHO, WEEKLY EPIDEMIOLOGICAL RECORD, NO. 9, 27 FEBRUARY 2015

