



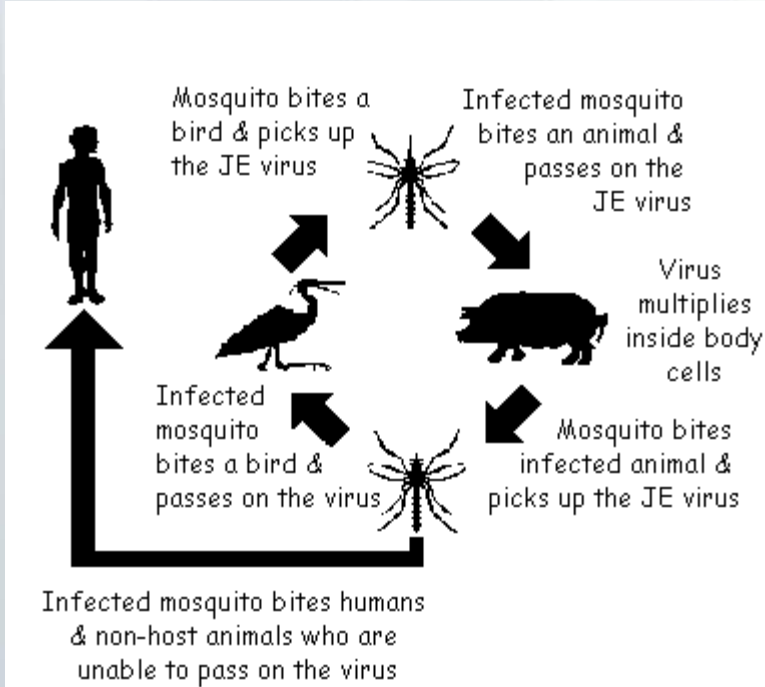
Japanese Encephalitis

Most common vaccine preventable encephalitis in Asia

Transmission

Flavivirus

- Culex mosquitos(night biters) transmit disease with a wide host range of domestic animals and birds
- Amplifying hosts wading birds(egrets) and pigs
- Humans are incidental hosts and cannot re-infect mosquitos

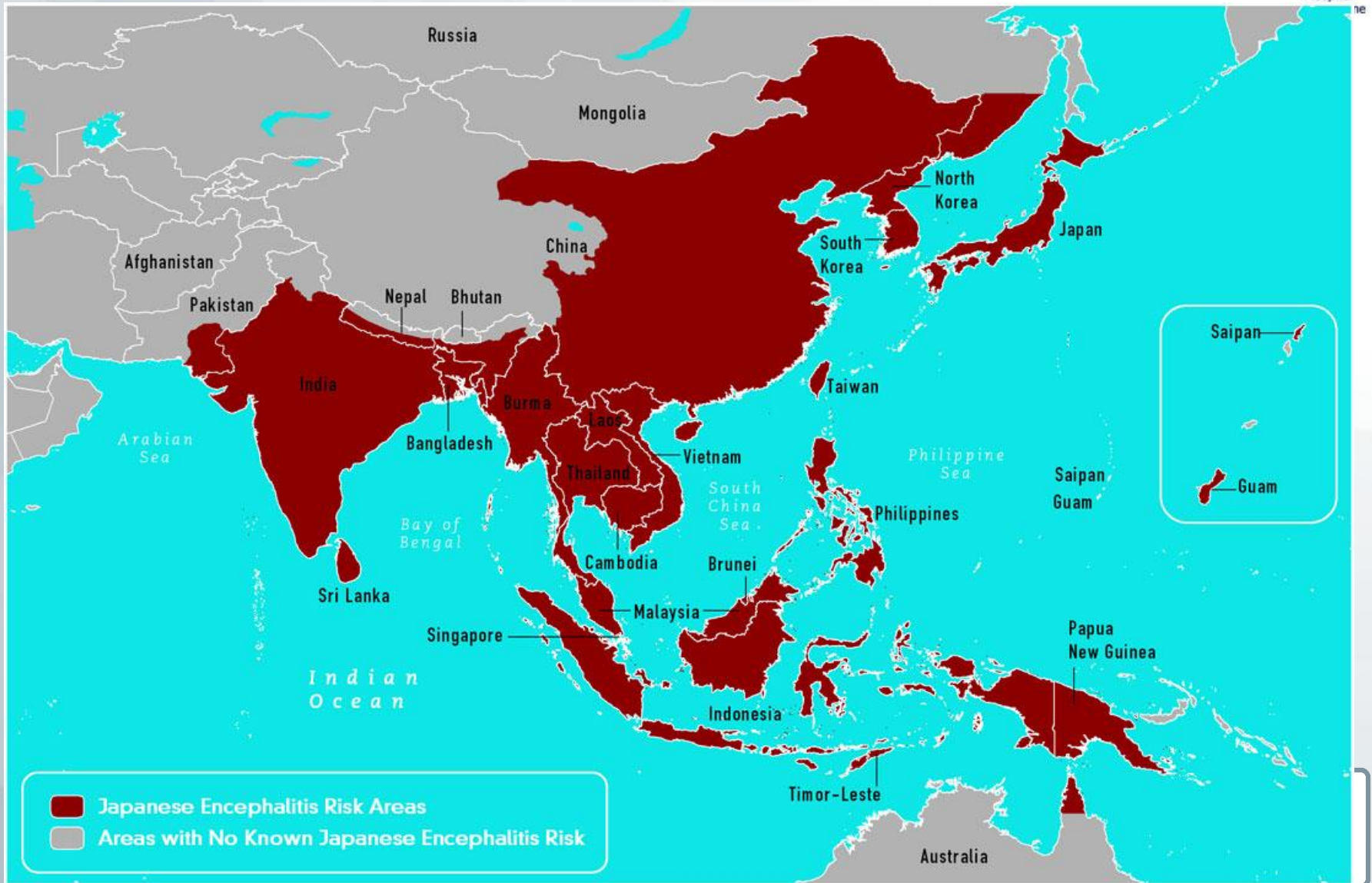


Clinical features

- Primarily a disease of children in < 15 years in endemic areas as adults have acquired immunity
- < 1% cases are symptomatic
- Incubation period 5-15 days
- Most common presentation is acute encephalomyelitis with sudden, headache, fever, neurological deficits, movement disorders, seizures
- Can also cause acute flaccid paralysis

- Case fatality rate of symptomatic cases -5-30%
- Long term neurologic deficits in 30-50%
- Treatment-supportive only

Epidemiology



Patterns of transmission

- 1. In temperate and subtropical areas ie northern Thailand and Vietnam, Korea, Japan, Taiwan, China, Nepal and Northern India disease is epidemic in summer or the wet season months- April- October
- 2. In tropical areas-most of south east Asia, Sri Lanka and southern India, the disease is endemic , occurring all year and peaking in the wet season. Local variability can occur

- Rural areas are at highest risk often with rice cultivation and flood irrigation and associated pig farming
- Can occur within or at the periphery of many Asian cities

Torres Strait and Northern Australia

- 1995- first case reports in Torres Strait and now presumed ongoing transmission peaking every wet season (December-May)
- 1998- 1 report from Cape York peninsula with no ongoing cases

Incidence in Endemic Countries

- WHO- 2011
- 67,000 symptomatic cases per year
- 75% in children under 15 years
- 50% cases reported from China (excluding Taiwan)
- 81% cases occur in areas with well established or developing JE programs
- 19% occur in areas with no JE programs
- Surveillance and reporting very variable depending on country so likely under reported
- Some countries with long standing vaccine programs have very low incidence eg Taiwan, Japan, South Korea although disease still present in animal vectors so travellers can be at risk
- Eradicated from Singapore

Travellers

- Very low incidence
- 1973-2011 in USA- 58 reports of JE among travellers from non endemic areas
- Australia- 12 notified cases since establishment of national Notifiable Disease Surveillance System in 2001, recent case 2015 in short term (2 week) traveller to Bali although did visit rural area

Duration of Travel

- Hills 2010
- 65% > 1 month
- 35% 10 days to 4 weeks

Estimated risk in Unimmunised Travellers

- Risk of acquiring symptomatic diagnosed JE approximately 1/200,000 per 1-2 week stay in endemic area such as Thailand (Finland Study)
- Cf risk of acquiring symptomatic JE in unimmunised children living permanently in these areas is 0.1-1/10,000

Risk Factors

- Travel during wet season
- Rural travel
- Extended travel or residence
- Poor protection against mosquito bites
- Outdoor activities
- Advanced age
- Pregnancy

National Vaccination Programs

TABLE 2. Characteristics of Japanese encephalitis (JE) immunization programs in countries with JE virus transmission risk, 2012

Country	JE immunization program	Strategy	Scheduled age to begin routine immunization	Vaccine used
Australia*	Targeted risk areas [†]	Routine	12 mos	MB [§]
Bangladesh	None	—	—	—
Bhutan	None	—	—	—
Brunei Darussalam	None	—	—	—
Burma (Myanmar)	None	—	—	—
Cambodia	Subnational [¶]	Routine	10 mos	LAV
China	National**	Routine	8 mos	LAV, VC
Taiwan	All areas	Routine	15 mos	MB
India	Risk areas ^{††}	Routine	16–24 mos	LAV
Indonesia	None	—	—	—
Japan	National	Routine	36 mos	VC
Laos	None	—	—	—
Malaysia	Subnational	Routine and outbreak response ^{¶¶}	9 mos	MB
Nepal	Subnational***	Routine	12 mos	LAV
North Korea	N/A ^{§§}	N/A	N/A	N/A
Pakistan	None	—	—	—
Papua New Guinea	None	—	—	—
Philippines	None	—	—	—
Russia*	None	—	—	—
Singapore	None	—	—	—
South Korea	National	Routine	12–24 mos	MB
Sri Lanka	National	Routine	9 mos	LAV
Thailand	National	Routine	18 mos	MB
Timor-Leste	None	—	—	—
Vietnam	Subnational ^{†††}	Annual campaign	12 mos	MB

Vaccines available in Australia

- 1. **Imojev**-live attenuated
- 2. **JEspect**-inactivated, 2 dose schedule 1 month apart
- Very good, comparable safety and efficacy data
- Adverse events- ISR, headache, fever, myalgia

Table 4.8.1: Recommended doses of JE vaccines (Australian Immunisation Handbook 2010)

Age of vaccine recipient	Vaccine	Number of doses	Booster
≥2 to <9 months	JEspect	2 doses* (28 days apart)	Not required
≥9 months to <18 years	Imojev JEspect	1 dose 2 doses* (28 days apart)	1–2 years after primary dose Not required
≥18 years	Imojev JEspect	1 dose 2 doses (28 days apart [†])	Not required 1–2 years after primary dose

- Note: JEspect- 2/12 -3 years dose is 0.25 ml instead of 0.5 ml
- Adults can have an accelerated course of JEspect if at high risk 7 days apart
- Imojev should be given 2 weeks or more prior to travel
- JEspect course should be completed 1 week prior to travel

Contraindications to Vaccination

- Imojev is a live attenuated vaccine and must not be given to pregnant or breastfeeding women or immunocompromised individuals
- Note same day or 4 week interval if other live vaccines are to be administered e.g. BCG, MMR, Yellow fever

Recommendations

- Travellers spending > 1 month in rural high risk areas or shorter term travellers during the wet season, spending time mostly outdoors or likely to repeat travel to high risk areas
- All travellers spending 6- 12 months in Asia even if mostly urban
- All residents > 12 month age of the outer islands in the Torres Strait