



Japanese encephalitis vaccines: Introduction

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JE Vaccines



Intro to Japanese encephalitis

- JE is the leading cause of viral encephalitis in Asia
- 1 clinical case per 250 infections
- 30% are fatal, 30-50% survive with permanent neurologic or psychiatric sequelae
- There is no cure for the disease. Treatment is focused on relieving severe clinical signs.

Global Burden of JE



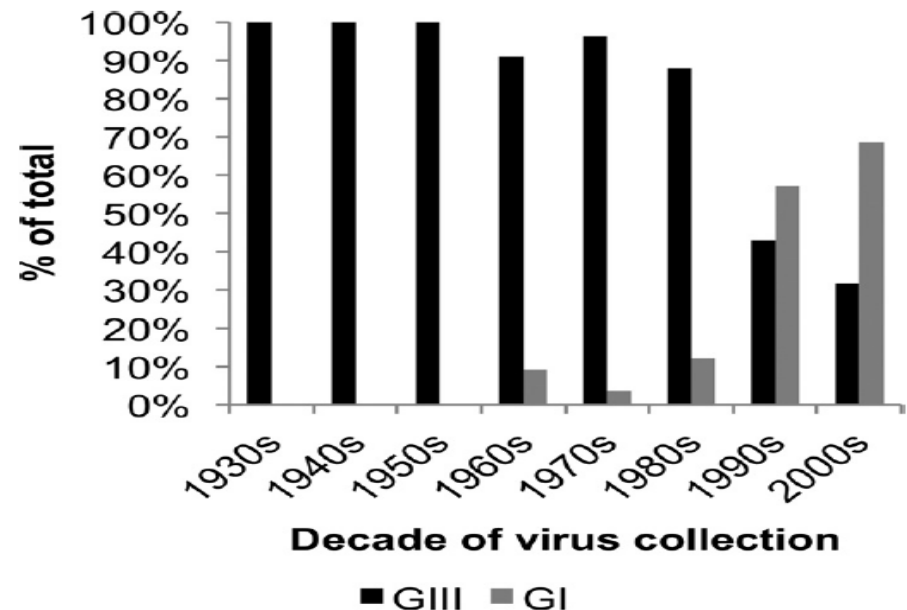
- Estimated ~68,000 JE cases globally
 - Overall incidence 1.8/100,000
 - 75% of cases in children 1-14Y
(incidence 5.4/100,000 in endemic regions)
- More than 3 billion people live in areas at-risk of JE
 - Annual incidence of clinical disease varies ranging from <10 to 100+ per 100 000 population.

JE Virus

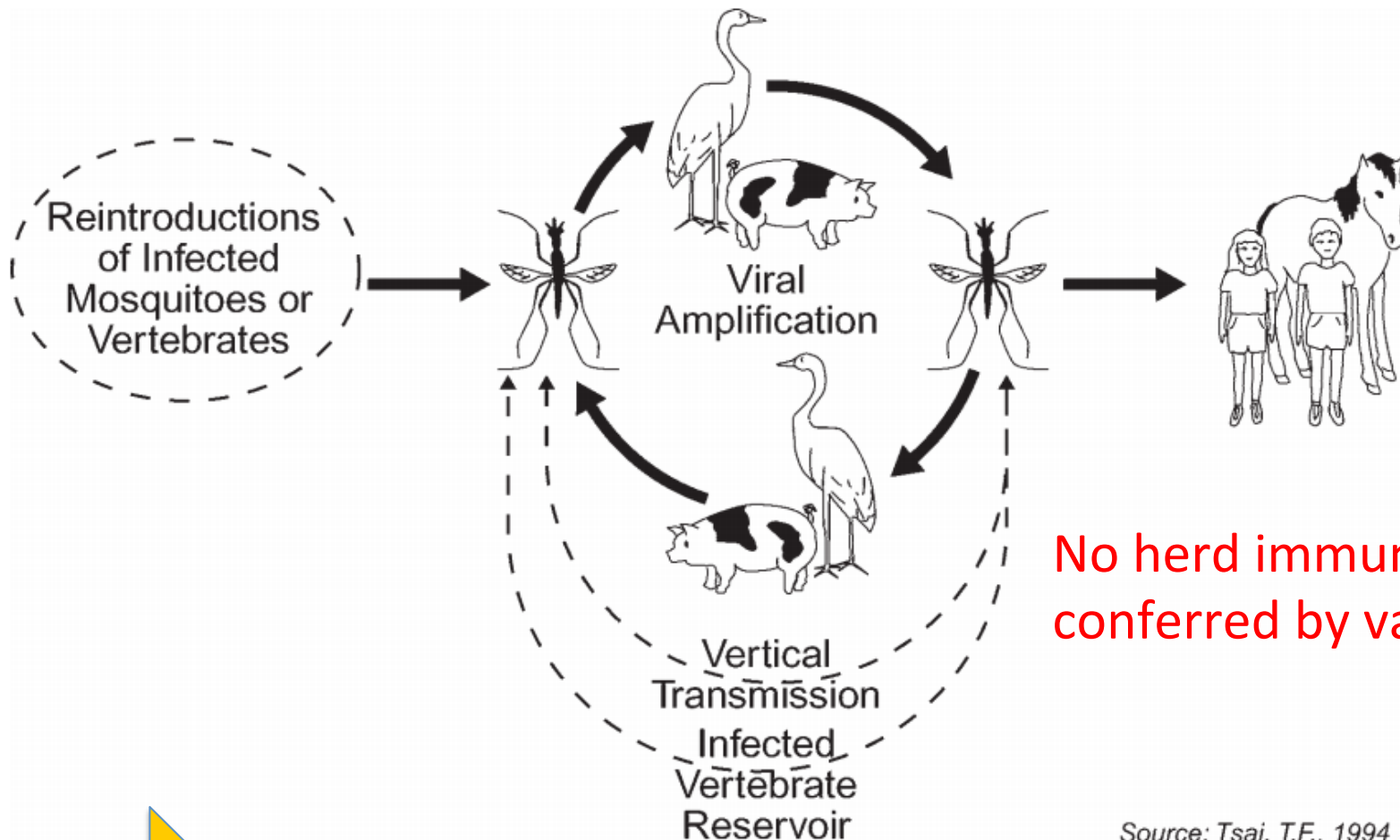


JE is a flavivirus related to dengue, yellow fever and West Nile viruses, and is spread by mosquitoes (primarily *Culex*)

5 genotypes identified,
types I and III being the
most prevalent

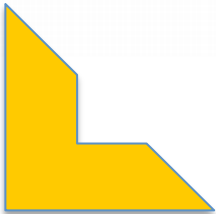


JE Enzootic Transmission Cycle

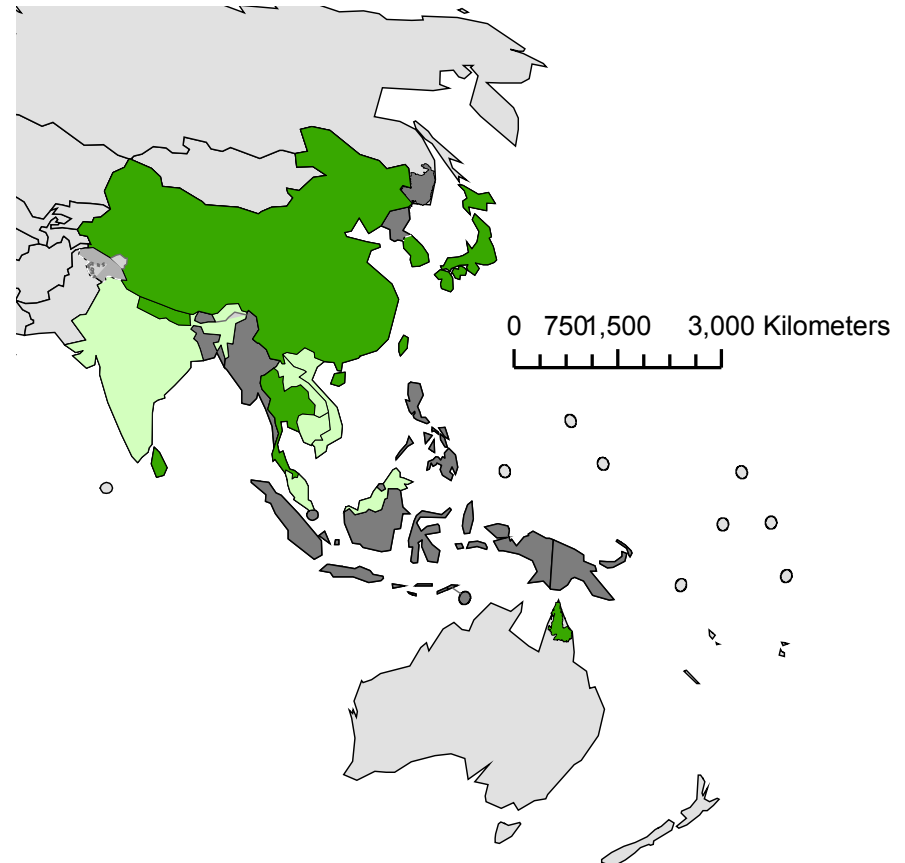
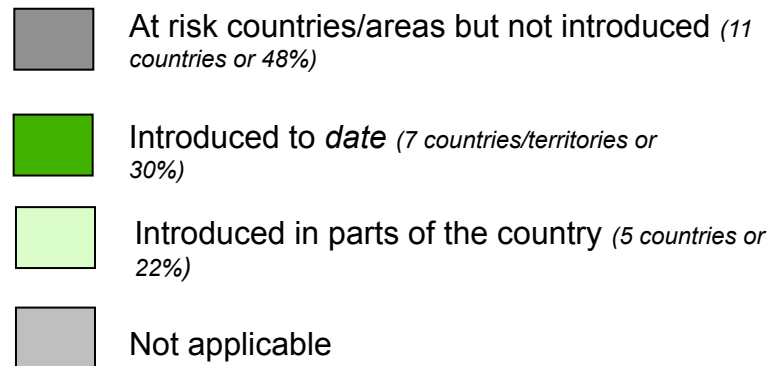


No herd immunity
conferred by vaccination

Source: Tsai, T.F., 1994



Countries and Territories using JE vaccine to date



Data Source: WHO/IVB Database, as at 29 September 2014 and International travel Health Database (<http://www.who.int/wer/2013/wer8834.pdf?ua=1>)

Map production: Immunization Vaccines and Biologicals, (IVB), World Health Organization

Date of slide: 29 September 2014

The boundaries and names shown and the designations used on this map do not imply the expression of any opinion whatsoever on the part of the World Health Organization concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted lines on maps represent approximate border lines for which there may not yet be full agreement.
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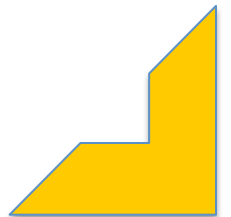
- WHO considers that 23 countries/Territories are at risk for JE
Risk Areas in Australia are: Torres Strait Islands and northern Cape York

Major Global Level Developments

- Changing product landscape
- WHO Pre-qualification of three JE vaccines
- GAVI financing window open



***Revision of 2006 WHO
Vaccine Position Paper on
JE Vaccines***



Membership



- **Piyanit Tharmaphornpilas*** (Working Group Chair), National Immunization Program, Ministry of Public Health, Thailand
- **Paba Palihawadana***, Central Epidemiological Unit, Ministry of Health, Sri Lanka
- **Alan Barrett**, Sealy Center for Vaccine Development, University of Texas Medical Branch, USA
- **Susan Hills**, Division of Vector-Borne Diseases, Centers for Disease Control and Prevention, USA
- **Ooi Choo Huck**, Sarawak Health Department, Ministry of Health, Malaysia
- **Heidi Meyer**, Viral Vaccines Section, Paul-Ehrlich-Institut, Germany
- **Khin Saw Aye Myint**, Eijkman Institute, Indonesia
- **Tom Solomon**, Institute of Infection and Global Health, University of Liverpool, UK
- **Tomohiko Takasaki**, Laboratory of Vector-Borne Viruses, National Institute of Infectious Diseases, Japan
- **Shyam Upreti**, Central Regional Health Directorate, Ministry of Health and Population, Nepal
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Key Topics Considered



- Vaccine immunogenicity*
- Vaccine effectiveness*
- Vaccine safety*
- Long-term protection*
- Co-administration
- Vaccination of special populations
- Ages/schedules of vaccination
- Vaccine strategies
- Vaccine impact
 - Public health
 - Economic

*Systematically reviewed
literature and formally
GRADEd evidence base

Process of Work



- **Processes**

- Constituted November, 2013
- Met by teleconference monthly
- 3-day face-to-face meeting in June, 2014

- **Activities**

- Systematic literature search- focus on new vaccines with international use.
- Reviewed evidence on critical and other key issues
- Drafted proposed recommendations and background paper

Outline for the JE Session



- Vaccines available against JE (A. Barrett)
- Review of the evidence: vaccine immunogenicity, effectiveness and impact (S. Hills)
- Review of the evidence: vaccine safety and co-administration (H. Meyer)
- Key conclusions and proposed recommendations on JE vaccines (P. Tharmaphornpilas)