30%
日本腦炎倖存者

出現嚴重後遺症

如身體殘障及智力問題等[1]

九個月大
或以上兒童
可接種
日本腦炎疫苗[15]

世衛建議
接種日本腦炎疫苗
為有效的預防方法[1]

承諾給孩子最好的
別奪走他們的快樂童年

VACCINE HUB
GET THE FACTS ON IMMUNISATION
Vaccinehubhk

MAT-HK-2000009-1.0-06/2020

SANOFI PASTEUR

30%
Japanese encephalitis survivors

Suffer from severe complications

including serious residual neurologic,psychosocial,
intellectual and/or physical disabilities[1]

Children
aged **9 months**
and **above**, could
be vaccinated by
Japanese
Encephalitis
vaccine[15]

WHO recommends
Japanese encephalitis virus
vaccination as an effective way
to prevent infection[1]

PROMISE
giving your child the best and
Do not strip them of their childhood joy

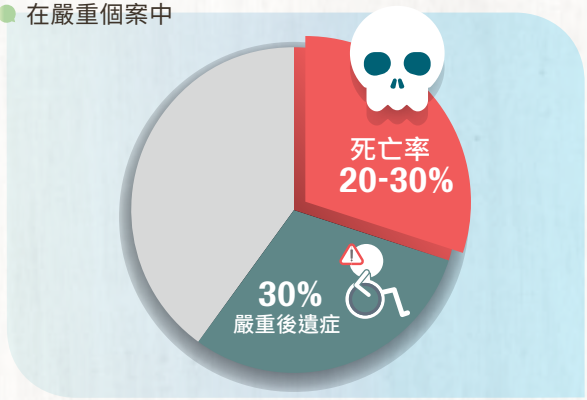
VACCINE HUB
GET THE FACTS ON IMMUNISATION
Vaccinehubhk

MAT-HK-2000009-1.0-06/2020

SANOFI PASTEUR

1 患上日本腦炎可引致什麼後果?[1]

- 大約每250個感染日本腦炎病毒的人士中，便有一人出現嚴重日本腦炎的病徵
- 其死亡率高達20-30%
- 在嚴重個案中



- 嚴重後遺症包括[1]

心理障礙

神經障礙

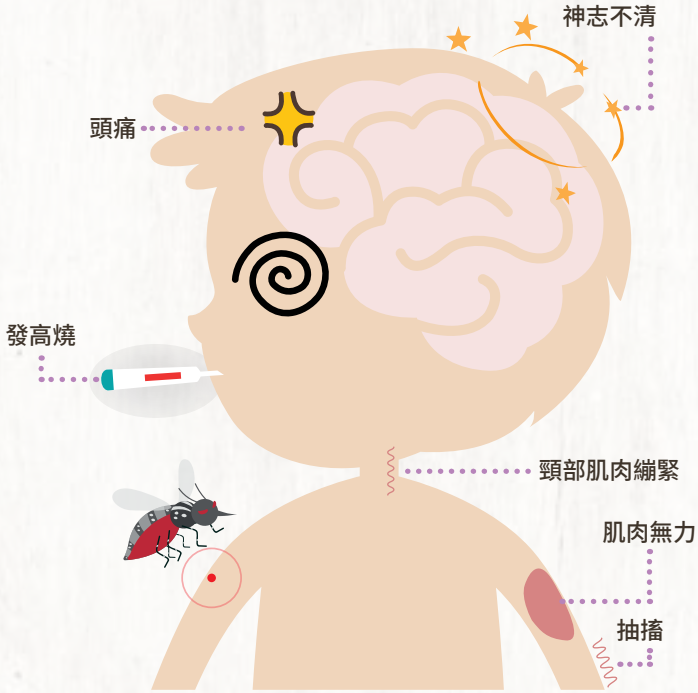
智力問題

身體殘障

2 如何治療日本腦炎?[1]

3 感染日本腦炎後會出現甚麼病徵?

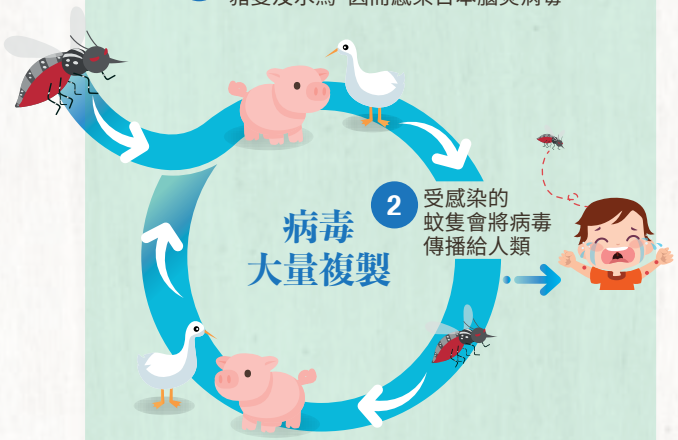
- 病徵通常在感染後4至14天出現[2]
- 嚴重感染個案會在短時間內出現頭痛、發高燒、頸部肌肉繃緊、神志不清、昏迷、震顫、抽搐(尤其是兒童)和癱瘓[2]



4 日本腦炎病毒是如何傳播的?

蚊子常於積水的地方繁殖，牠們叮咬帶病毒的豬隻或野生雀鳥後就會受感染，蚊子再於叮咬人類或動物時將病毒傳播[3]

1 無感染病毒的蚊隻透過叮咬受感染的豬隻及水鳥，因而感染日本腦炎病毒



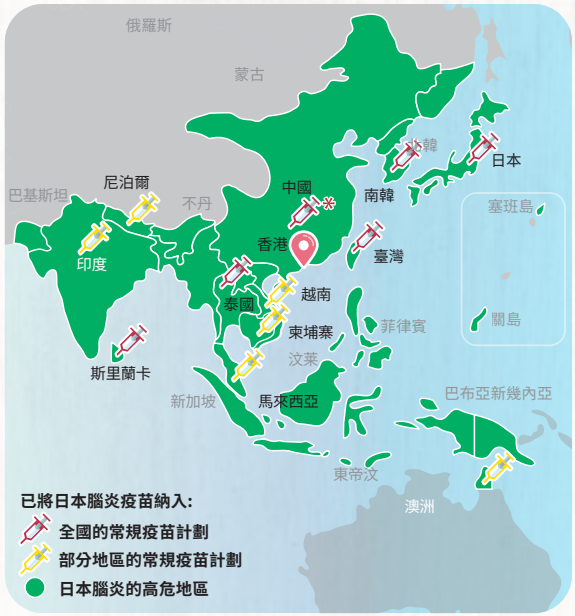
3 帶病毒的蚊叮咬未受感染的豬隻及水鳥，將病毒進一步散播

改編自Misra UK et al. (2010)

- 除此之外，帶有日本腦炎病毒的蚊隻所生的幼卵，亦帶有該病毒[3]
- 受感染的蚊、動物並無呈現病徵[3]

5 日本腦炎在不同地區的情況

- 根據美國疾病控制及預防中心數據顯示，現時已在26個亞洲國家發現日本腦炎病毒[4,5]



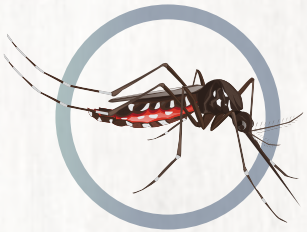
改編自美國疾病控制及預防中心網站
*青海、西藏及新疆省除外

6 日本腦炎在不同地區的情況

- 現時估計全球每年約有67,900個感染日本腦炎新症[6]
- 當中約 33,900 (50%) 個新症發生在中國 (不包括台灣)[6]

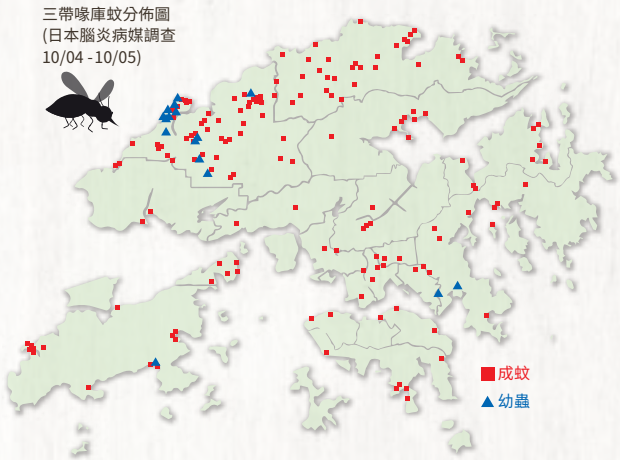
7 日本腦炎在本港的情況

- 庫蚊屬 (Culex) 可以傳播日本腦炎病毒，包括三帶喙庫蚊[2]



三帶喙庫蚊

- 日本腦炎病媒蚊(三帶喙庫蚊)在本港分佈圖[7]



改編自香港特別行政區食物環境衛生署

- 本港衞生防護中心的傳病媒介疾病科學委員會，於2017年下旬發出針對日本腦炎的建議中，首次明確指出**本港豬場兩公里範圍內的居民為日本腦炎的高危人士**[12]

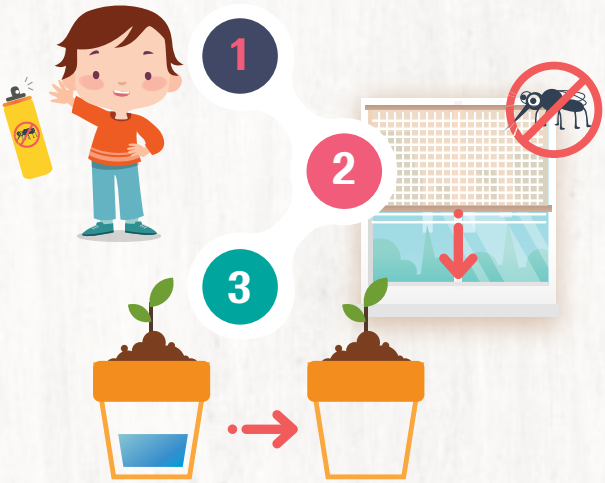
- 受影響人數高達633,000人[12]

- 本港豬場位置及兩公里範圍+

養豬場　屠宰場　兩公里範圍受影響地區

+豬場位置由香港漁農自然護理署提供

8 預防日本腦炎的方法[2]



1. 穿著寬鬆、淺色的長袖上衣及長褲，並於外露的皮膚及衣服塗上含避蚊胺 (DEET) 成分的驅蚊劑
2. 如房間沒有空調設備，應裝置蚊帳或防蚊網
3. 杜絕積水

9 防蚊產品效用比較

- 根據權威醫學期刊<新英倫醫學雜誌>發表一個研究驅蚊劑的效用文章：[13]

驅蚊劑成分及濃度	全面防蚊時間 (分鐘)	保護程度
避蚊胺 (DEET), 23.8%	200 – 360	A
DEET, 20%	180 – 325	B
大豆油, 2%	16 – 195	D
IR3535, 7.5%	10 – 60	E
香茅, 10%	7 – 60	E
香茅, 12%; 薄荷油, 2.5%; 雪松油, 2%; 檸檬草油, 1%; 天竺葵油, 0.05%	1 – 55	E
香茅, 10%; 薄荷油, 2%	1 – 45	E

10 多因素影響防蚊產品效果

防蚊產品的有效時間

在使用防蚊產品一段時間後，適當時需再補上

雨水、汗水有機會減低防蚊產品效能

雨水、汗水等有機會沖走皮膚上的防蚊產品

除了被動地預防由蚊傳播的疾病外，積極預防方法 (如注射疫苗) 同樣重要

11 注射日本腦炎疫苗

- 世界衛生組織建議，即使在某些國家或地區，日本腦炎的確診個案少，但若當地已出現以下適合日本腦炎傳播的因素，便應該考慮注射日本腦炎疫苗：[1]

鄰近已知有日本腦炎傳播的國家或地區

有動物宿主

其生態環境適合病毒散播

12 日本腦炎滅活疫苗（JE-CV）

- 日本腦炎滅活疫苗 (JE-CV)分別於2010及2014年，獲澳洲治療物品管理局及本港衛生署批准使用，以預防日本腦炎[14,19]

- 日本腦炎滅活疫苗的劑量及注射方法[15]

	9個月至17歲*	18歲或以上
主要疫苗接種份量	💉	💉
加強劑接種份量(與主要疫苗接種相隔十二至二十四個月)	💉	#

- 日本腦炎滅活疫苗(JE-CV) 需於皮下注射

在接種後5年內無須再接種加強劑

* 加強劑於5至17歲兒童，其安全及效用性數據尚未建立。然而，可就其他年齡組別數據考慮是否接種加強劑

- JE-CV疫苗的免疫數據

01

99.2%的之前沒有接種任何日本腦炎疫苗的研究幼兒(9至18個月大)，在接種一劑JE-CV疫苗28天後獲得保護[15]

02

另一個大型的臨床研究中，全部兒童(36至42個月大)在接種一針JE-CV疫苗加強劑28天後得全效保護，1年後保護率仍達99.4%[16@]

03

在一項第二期臨床研究中，所有之前接種過滅活日本腦炎疫苗（2至5歲）的兒童，在接種JE-CV疫苗28天內，其體內製造對抗日本腦炎的抗體水平皆達到保護水平[20`]

- JE-CV疫苗的安全性數據

01

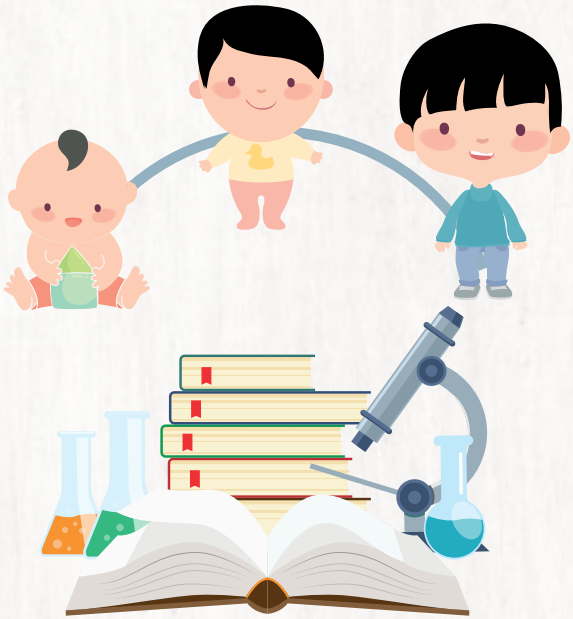
在一項大型的臨床研究中，大部分接種部分及身體性的反應屬短暫性及輕至中度，包括注射部位反應，食慾不振和煩躁[18]

02

報告指出有兩成接種JE-CV疫苗的試驗者，及對照組(接種甲型肝炎疫苗)的試驗者出現發燒，兩組並無差異[18^]

03

試驗者在接種疫苗6個月後，均沒有出現與疫苗有關的嚴重不良事件[18^]



' This is an open-label, crossover study, 100 children aged 2 to 5 years with a history of 2-dose primary vaccination with mouse-brain derived inactivated JE vaccine according to the Thai Expanded Program for Immunization schedule, and 200 JE vaccination-naïve 12- to 24-month-old toddlers were randomized 1:1 to receive JE-CV, containing ≥4 log10 plaque forming units, 1 month before or after hepatitis A control vaccine.

' 此研究屬開放及交叉式。100名之前根據泰國疫苗擴展計劃，接種過兩劑滅活鼠腦日本腦炎疫苗的2至5歲兒童，及200名之前沒有接種日本腦炎疫苗的12至24個月大的幼兒，隨機安排1:1，兩組皆接種日本嵌合腦炎(JE-CV)疫苗，當中噬斑形成單位 (plaque forming unit) 大過或等於，及之前或之後接種甲型肝炎控制疫苗

@ This controlled phase III comparative trial enrolled children aged 36-42 months in the Philippines. 345 children who has received one dose of JE-chimeric vaccine (JE-CV) in a study two years earlier, received a JE-CV booster dose. JE neutralizing antibody titers were assessed using PRNT50.

@ 此對照型的第三期比較試驗研究中，在菲律賓招收了36至42個月大的兒童參與。345個兒童參加者在兩年前另一個研究中接種了一針日本腦炎嵌合疫苗 (JE-CV)，再接種JE-CV 加強劑。日本腦炎中和抗體數量(Japanese encephalitis neutralizing antibody)是以斑塊中和減少試驗(PRNT50)一半的方法檢測

^ This is a randomized, controlled phase III trial with enrollment of 1,200 JE-vaccination naïve children (ae 12-18 months) in Thailand and the Philippines. Children received JE-CV (n=1098) or Hepatitis A control vaccine (n=102)

^ 此隨機、對照型的第三期試驗研究中，在泰國及菲律賓招收了1,200名未接種過JEV疫苗的12至18個月大幼兒。接種日本腦炎嵌合疫苗 (JE-CV) 及甲型肝炎對照疫苗的幼兒人數分別為1,098及102

This pamphlet, distributed only by healthcare professionals, is prepared for educating patients who have been prescribed with JE-CV

References:

1. WHO Japanese encephalitis vaccine position paper. Feb 2015.
2. Centre for Health Protection (2018), Centre for Health Protection - Japanese encephalitis. Available from: https://www.chp.gov.hk/en/healthtopics/content/24/28.html [Accessed: December 5, 2018].
3. Misra UK et al. Overview: Japanese encephalitis. Progress in Neurobiology. 2010;91:108-210.
4. Centers for Disease Control and Prevention (2015), Geographic Distribution | Japanese Encephalitis | CDC. Available from: https://www.cdc.gov/japaneseencephalitis/maps/index.html [Accessed: December 5, 2018].
5. Centers for Disease Control and Protection (2013), Japanese Encephalitis Surveillance and Immunization — Asia and the Western Pacific, 2012. Available from: https://www.cdc.gov/mmwr/preview/mmwrhtml/mm6233a2.htm [Accessed: December 5, 2018].
6. Campbell GL, Hills SL, Fischer M, et al. Estimated global incidence of Japanese encephalitis: a systematic review. Bull World Health Organ 2011;89:766-774E.
7. Food and Environmental Hygiene Department (2005), . Available from: The Government of HKSAR, Web site: https://www.fehd.gov.hk/english/pestcontrol/dengue_fever/images/je_before.pdf [Accessed: December 27, 2018].
8. Centre for Disease Control (2014), 登革熱病媒生態及習性介紹. Available from: R.O.C. Taiwan, Web site: https://www.cdc.gov.tw/professional/downloadfile.aspx?fid=BD0E69C0DEBCDE18 [Accessed: December 27, 2018].
9. Hong Kong Information Service Department (2016), Stay on guard against Japanese encephalitis. Available from: The Government of HKSAR, Web site: https://www.info.gov.hk/gia/general/201608/04/P2016080400937.htm [Accessed: December 27, 2018].
10. Nitatpattana N, et al. First Isolation of Japanese encephalitis from Culex quinquefasciatus in Thailand. Southeast Asian J Trop Med Public Health 2005;36(4):875-8.
11. Weng MH, et al. Isolation of Japanese encephalitis virus from mosquitoes collected in Northern Taiwan between 1995 and 1996. J Microbiol Immunol Infect. 1999;32(1):9-13.
12. Scientific Committee On Vector-borne Diseases (2017), Consensus Statement on Prevention and Control of Japanese Encephalitis. Available from: Centre for Health Protection, Web site https://www.chp.gov.hk/files/pdf/consensus_statement_japanese_encephalitis_oct_2017.pdf [Accessed: December 6, 2018].
13. Fradin MS, John FD. Competitive Efficacy of Insect Repellents against Mosquito Bites. N Engl J Med. 2002;247:13-8.
14. Therapeutic Goods Administration (2010), Australian Public Assessment Report for Japanese Encephalitis Chimeric Virus. Available from: Australia Government, Department of Health and Ageing Web site: https://www.tga.gov.au/sites/default/files/auspar-imojev.pdf [Accessed: December 27, 2018].
15. Japanese encephalitis vaccine (live, attenuated) package insert (September 2016)
16. Feroldi E., et al. Memory immune response and safety of a booster dose of Japanese encephalitis chimeric virus vaccine (JE-CV) in JE-VC-primed children. Hum Vaccin Imunother. 2013 Apr;9(4):889-97.
17. Janewongwirot P, Puthanakit T, Anugulruengkitt S. Immunogenicity of a Japanese encephalitis chimeric virus vaccine as a booster dose after primary vaccination with SA14-14-2 vaccine in Thai children. Vaccine 2016;34:5279-5283.
18. Feroldi E., Pancharoen C., Kosalaraksa P. et al. Single-dose, live-attenuated Japanese encephalitis vaccine in children aged 12-28 months: Rnadomized, controlled phase 3 immunogenicity and safety trail. Human Vaccines & Immunotherapeutics. 2012;8(7):929-93.
19. Drug Office (2014), . Available from: The Government of Hong Kong SAR, Department of Health Web site:https://www.drugoffice.gov.hk/eps/drug/productDetail/en/consumer/117653 [Accessed: May 29, 2020].
20. Chokephaibulkit K at al. Safety and Immunogenicity of a Single Administration of Live-attenuated Japanese Encephalitis Vaccine in Previously Primed 2- to 5-year-olds and Naive 12- to 24- month olds. Pediatr Infect Dis J 2010; 29:1111-1117

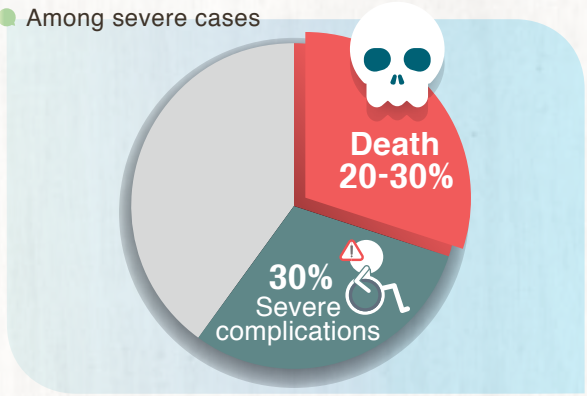
Sanofi Hong Kong Limited

1/F & Section 212 on 2/F, AXA Southside, 38 Wong Chuk Hang Road, Wong Chuk Hang, Hong Kong

Tel: (852) 2506 8333 Fax: (852) 2566 2965
www.vaccinehub.com.hk

1 What is the prognosis of JE?[1]

- Severe disease is estimated to occur in about 1 case per 250 JE virus.
- Case-fatality in clinical cases is estimated to be around 20-30%
- Among severe cases



- Severe complications include[1]

Residual neurologic disability

Psychosocial disability

Intellectual disability

Physical disability

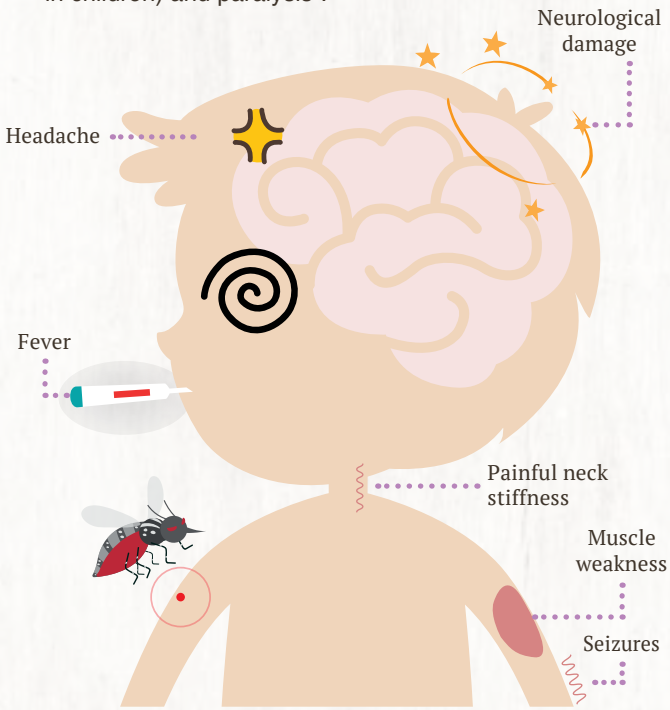
2 What is the treatment for JE?[1]

There is **no specific antiviral treatment** for JE.

Supportive care is important as it relieves symptoms and stabilizes the patient.

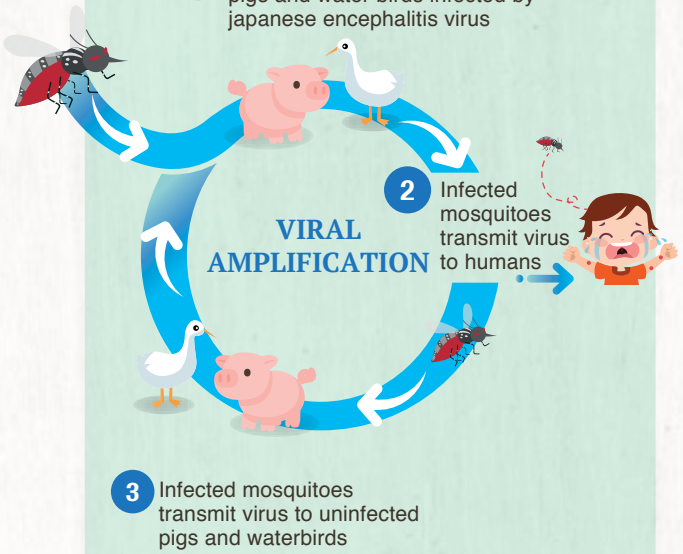
3 What are the signs and symptoms of JE?

- Symptoms usually start at around **4 – 14 days** after being infected[2].
- More severe infection is marked by **sudden onset** of headache, high fever, neck stiffness, impaired mental state, coma, tremors, convulsions (especially in children) and paralysis[2].



4 How is JE virus transmitted?

The infected mosquitoes transmit the virus to humans and animals during biting.
The mosquitoes breed where there is an abundant of water.[3]

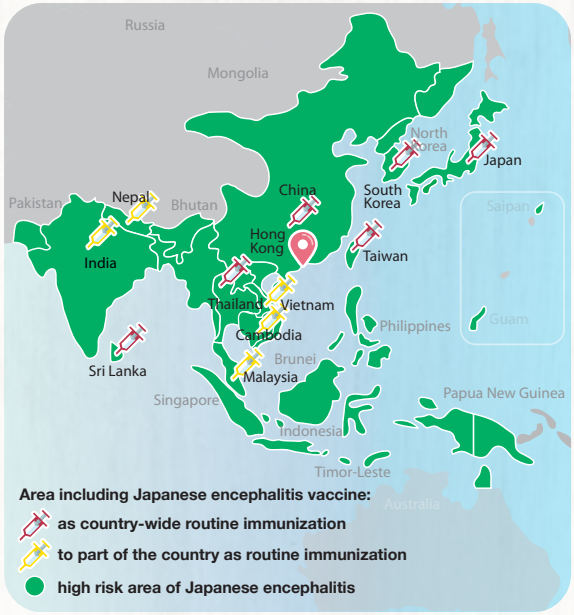


Adapted from Misra UK et al. (2010)

- JE virus can be transmitted vertically from infected mosquitoes to their offspring.[3]
- In addition, JE virus infected animals and mosquitoes generally remain asymptomatic.[3]

5 Geographic Distribution of JE Virus

- According to US Centers for Disease Control and Prevention data, a total of 26 countries have been identified with JE virus, which are located in Asia.[4,5]



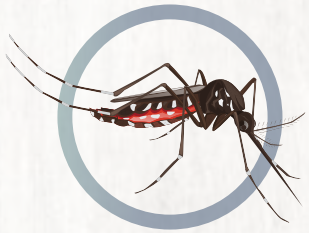
Adapted from US CDC website
*Except Qinghai, Tibet and Xinqiang Province

6 Surveillance data of JE virus

- It has been estimated that approximately 67,900 JE cases occur annually worldwide.[6]
- Approximately 33,900 (50%) of these cases occur in China (excluding Taiwan).[6]

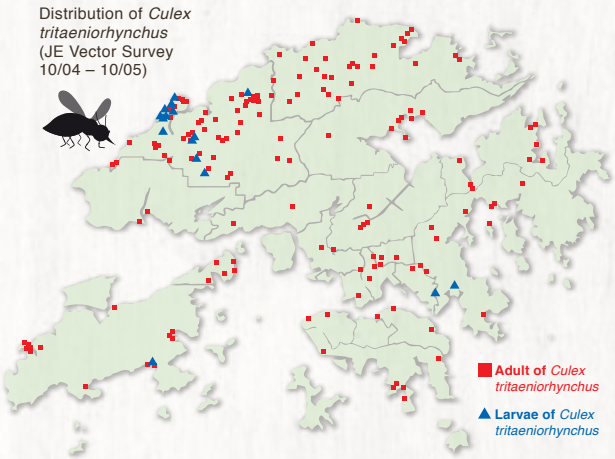
7 JE cases in Hong Kong

- Culex family could transmit JE virus, including *Culex tritaeniorhynchus*.[2]



Culex tritaeniorhynchus

- Distribution of JE virus vector mosquitoes.[7]



Adapted from Food and Environmental Hygiene Department, The Government of Hong Kong SAR

- Scientific Committee on Vector-borne Disease, Centre for Health Protection, HKSAR, defines population living within 2km of local pig farms as Japanese encephalitis high risk group, in the latest consensus statement published in late 2017.[12]

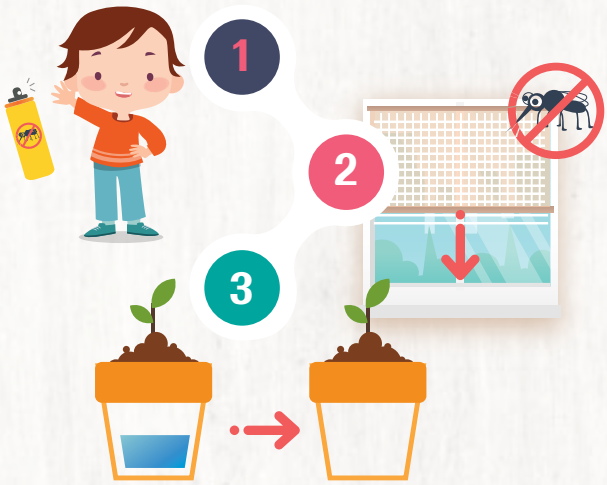
- Affected population is estimated to be 633,000.[12]

- Locations of local pig farms and area within 2 km of pig farms+

Pig Farm Slaughter House 2km affected area

+ Locations of pig farms are provided by Agriculture, Fisheries and Conservation Department, The Government of Hong Kong SAR

8 Preventive measures[2]



1. Wear loose, light-colored, long-sleeved tops and trousers, and use DEET-containing insect repellent on exposed parts of the body and clothing.
2. Use mosquito nets if air-conditioner is not available
3. Prevent accumulation of stagnant water

9 Efficacy of Insect Repellents

- According to a study on the efficacy of insect repellents published in The New England Journal of Medicine:[13]

Active Ingredient of Insect Repellents & its Concentration	Complete-Protection Time (min)	Category of Protection
DEET, 23.8%	200 – 360	A
DEET, 20%	180 – 325	B
Soybean oil, 2%	16 – 195	D
IR3535, 7.5%	10 – 60	E
Citronella, 10%	7 – 60	E
Citronella, 12%; peppermint oil, 2.5%; cedar oil, 2%; lemongrass oil, 1%; geranium oil, 0.05%	1 – 55	E
Citronella, 10%; peppermint oil, 2%	1 – 45	E

10 Factors affecting Efficacy of Insect Repellents

Protection Time of Insect Repellent

Upon certain duration after applying insect repellent, it is essential to re-apply in order to keep the efficacy

Raindrop & Sweat may Affect Efficacy

Raindrop & sweat may wash off insect repellents on skin

Other than passive preventive measures against mosquito-borne diseases, active prophylaxis such as vaccination is as important.

11 Vaccination

- World Health Organization recommends vaccination where there is a suitable environment for JE virus transmission, including:[1]

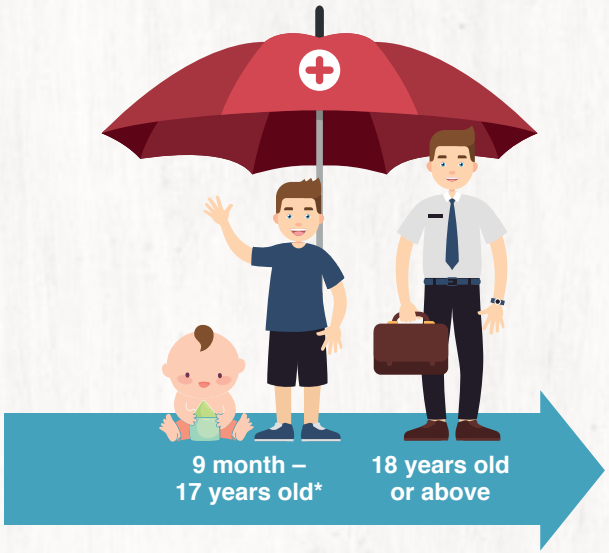
Proximity to other countries or regions with known JE virus transmission

Presence of animal reservoirs

Ecological conditions supportive of virus transmission

12 Live-attenuated Japanese encephalitis Vaccine (JE-CV)

- Live-attenuated Japanese encephalitis vaccine (JE-CV) was first approved by the Therapeutic Goods Administration Division in Australia and the Department of Health in Hong Kong in 2010 and 2014 respectively[14,19]
- Dosage & administration of JE-CV[15]



Primary schedule		
Booster schedule (12-24 months after primary dose)		#

- Please note live-attenuated Japanese encephalitis vaccine (JE-CV) should be administrated subcutaneously

#No need for a booster dose up to 5 years

* Safety and efficacy of a booster dose in children and adolescents 5 to 17 years of age have not been established. Nevertheless, the booster dose can be considered based on the available data in other age groups.

- JE-CV immunogenicity data

01

99.2% of studied infants and toddlers (9-18months), who had not immunized with any JE vaccine, are **seroprotected against JE** 28 days after a single dose of JE-CV vaccine.[15]

02

100% of studied children (36-42 months) got **seroprotected** 28 days **after administrating a booster dose** of JE-CV vaccine, the seroprotection against JE virus maintained at 99.4% after 1 year.[16@]

03

In a Phase II study, all previously **immunized children with inactivated Japanese encephalitis vaccine** (2-5 years old) **mounted seroprotective neutralizing antibody titers** against Japanese encephalitis virus within 28 days of vaccination.[20`]

- JE-CV safety data

01

Most local and systemic reactions are mild to moderate and transient, including injection site reaction, loss of appetite and irritability.[18]

02

Incidence rate of fever after vaccination are comparable in both JE-CV and Hepatitis A vaccine group.[18^]

03

There were no serious adverse events related to vaccination up to 6 months visit.[18^]