



Recent Experiences in Japanese Encephalitis

Communicable Disease Division
Surveillance and Epidemiology Branch
Centre for Health Protection

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July 2017



衛生署

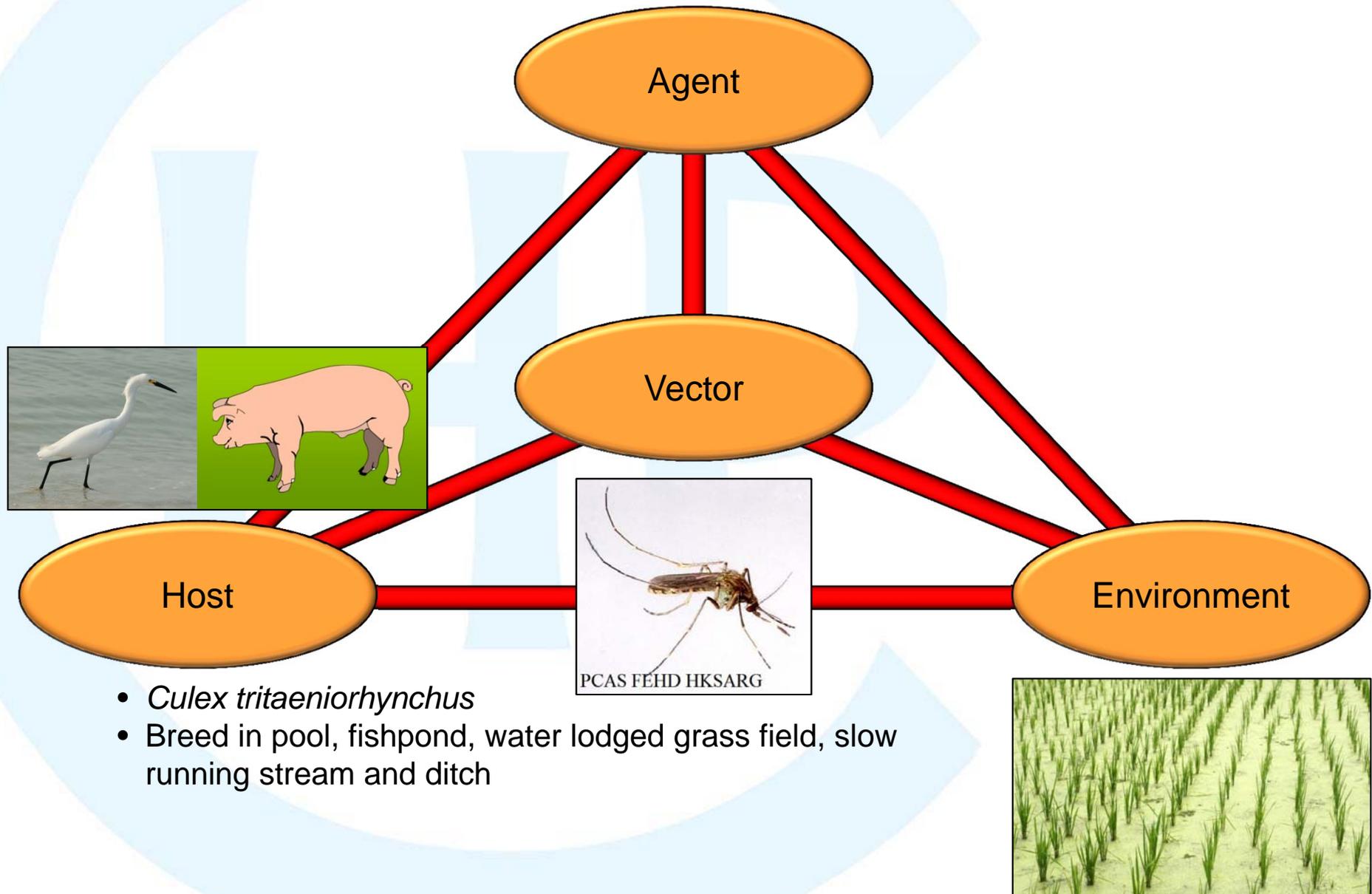
Department of Health

Japanese Encephalitis

- Caused by JE virus which exists in a transmission cycle between mosquitoes and pigs and/or water birds
- The principal type of mosquito that transmits the disease is *Culex tritaeniorhynchus*
- Humans become infected incidentally when bitten by infected mosquitoes
- Less than 1% of human JE virus infections result in JE
- The case-fatality rate can be as high as 30% among those with symptoms
- Of those who survive, 20%–30% suffer permanent intellectual, behavioural or neurological problems such as paralysis, recurrent seizures or inability to speak



Japanese encephalitis (JE)



Major vector for Japanese encephalitis in Hong Kong

Dengue Fever	Japanese Encephalitis
<i>Aedes albopictus</i>	<i>Culex tritaeniorhynchus</i>
Day biter	Active at night with peak of activities one hour after dark
Weak flier (about 100m)	2km flight range
	Humans as incidental or dead-end hosts

齊來把蚊滅
預防日本腦炎登革熱



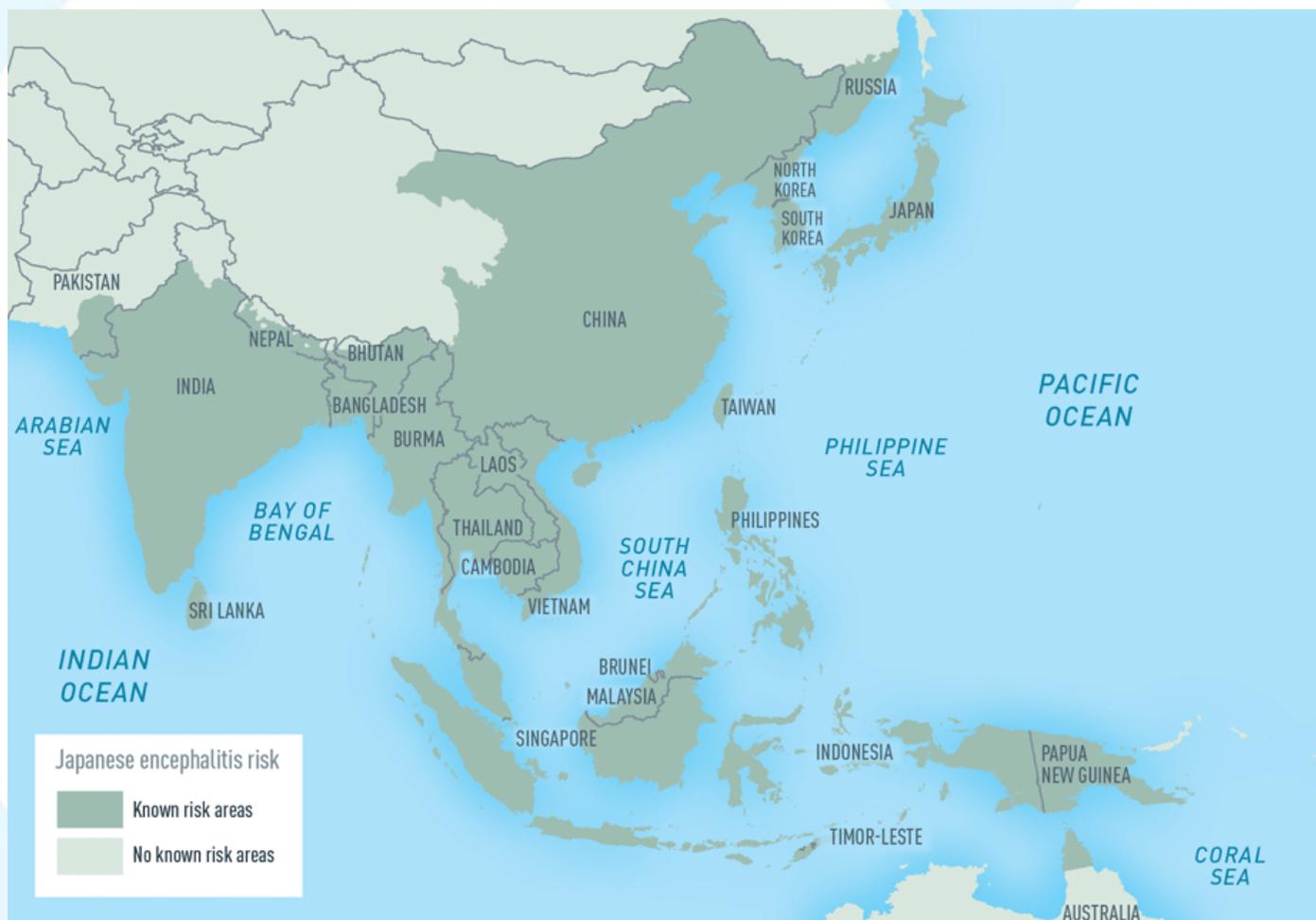
Prevent
Japanese Encephalitis
and Dengue Fever
Act Now!

舉報蚊患請致電
2868 0000
Please call 2868 0000 to
report mosquito problem



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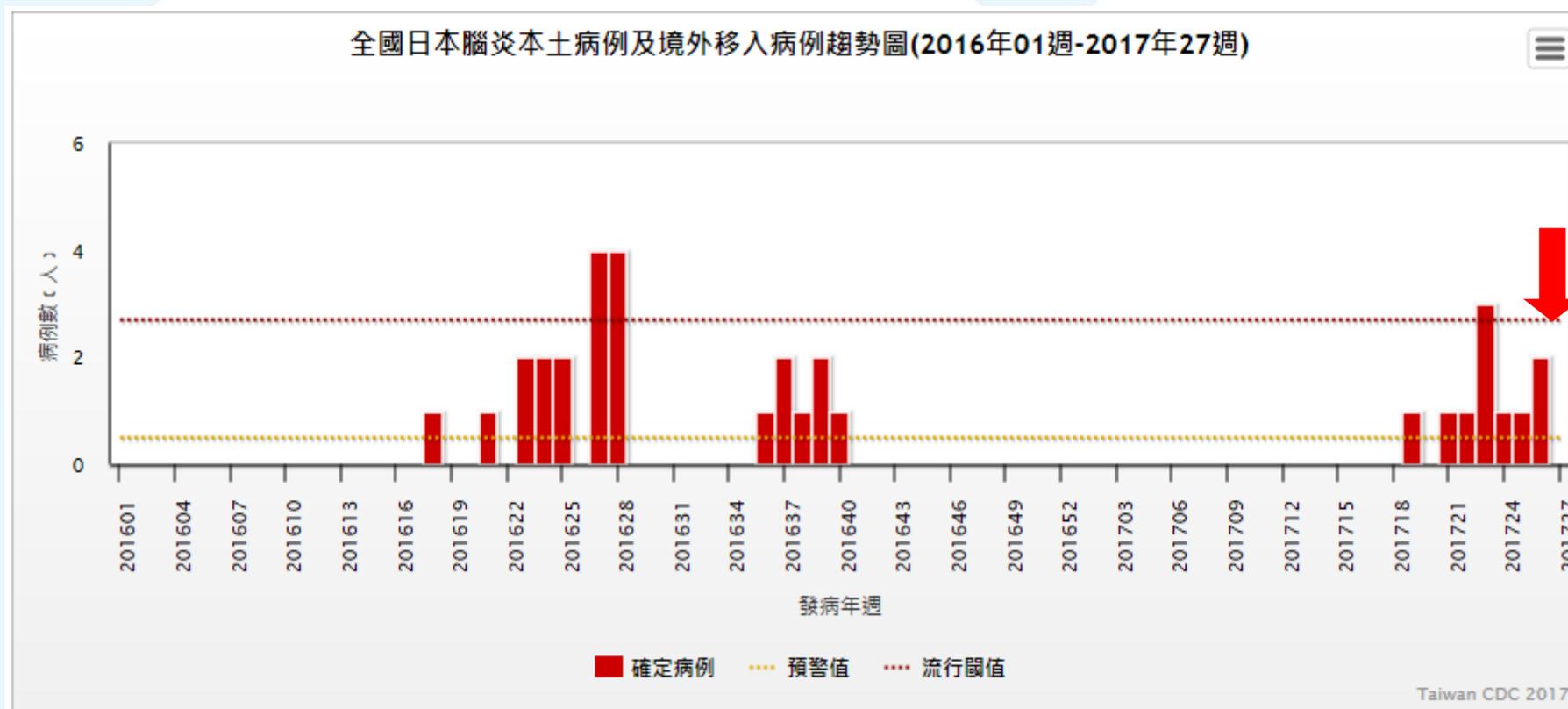
Geographic distribution of JE



Source: https://www.cdc.gov/travel-static/yellowbook/2018/map_3-08.pdf Centers for Disease Control and Prevention, United States



JE in Taiwan



Number of cases in 2017 (up to 6 July): 10

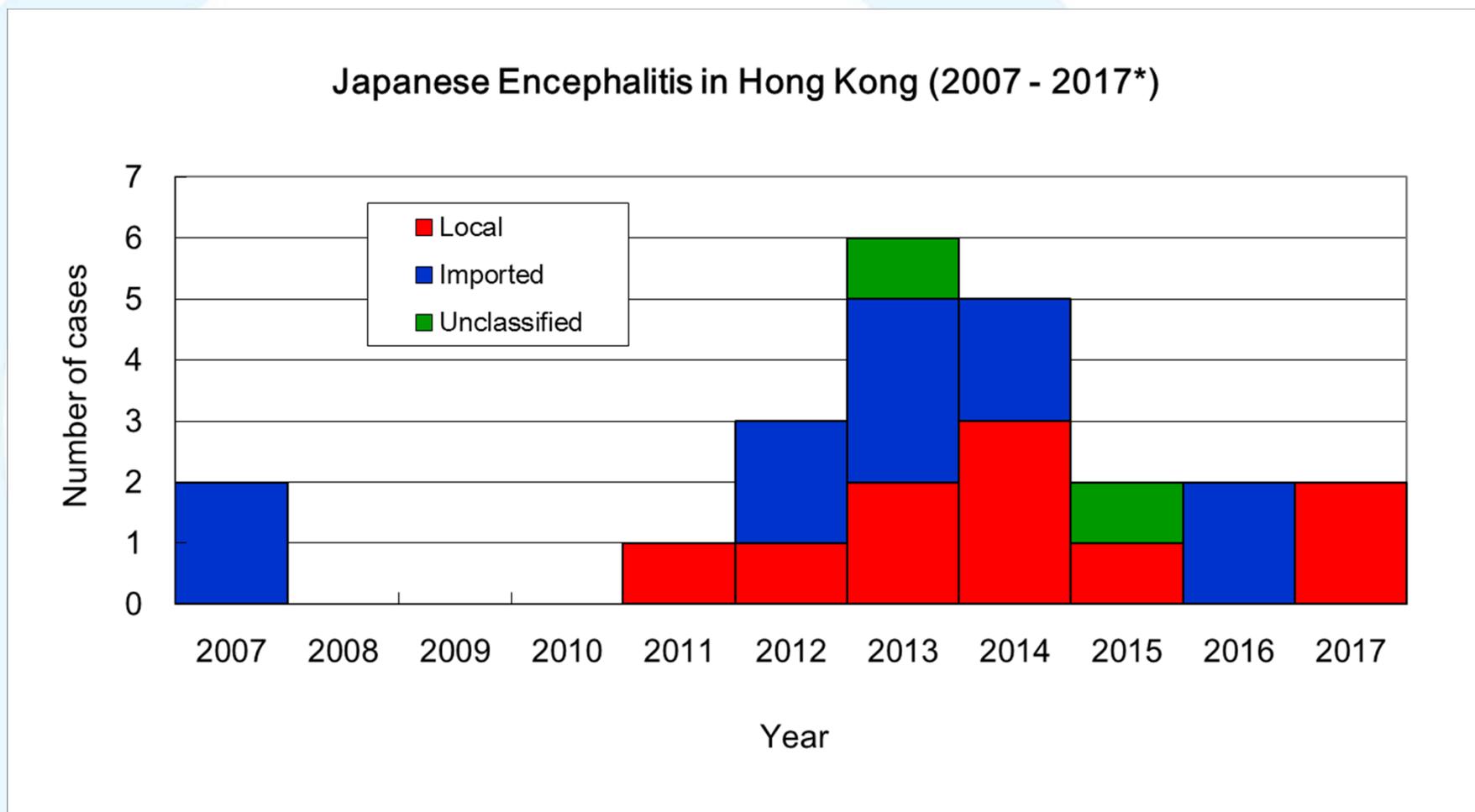
Source: Taiwan National Infectious Disease Statistics System



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Local situation



*As of 5 July 2017



Local situation

- Total 23 cases from 2007 – 2017 (as of 5 July)
 - 10 local cases
 - 11 imported cases
 - 8 cases were imported from China
 - 2 cases were imported from Thailand
 - 1 case was imported from Myanmar
 - 2 cases undetermined
- 15 Male : 8 Female
- Age : 4 to 69 years (median 36 years)
- Deaths due to JE: 2 cases in 2012 (both imported)



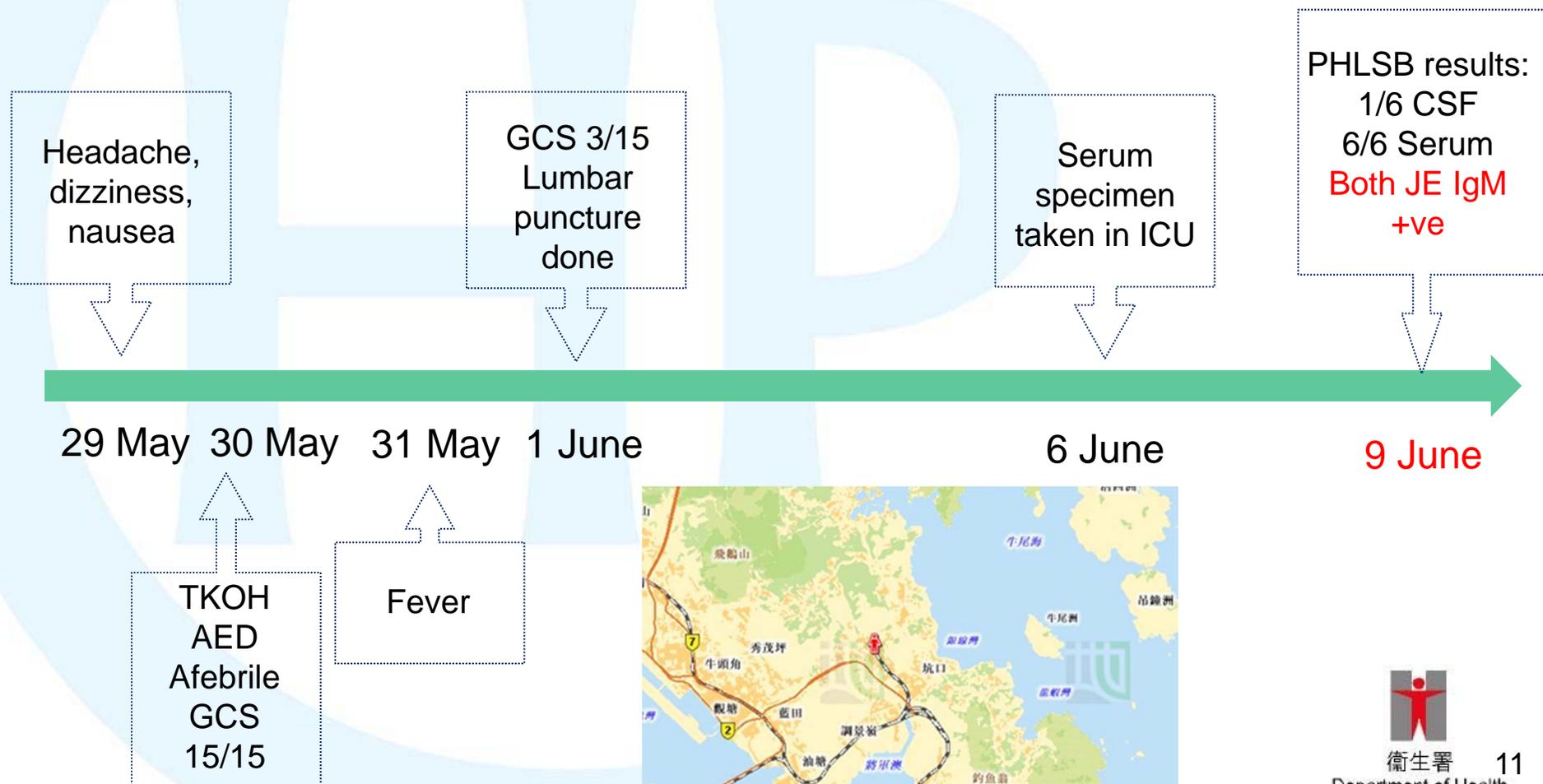
Two Local Japanese encephalitis cases recorded in 2017



The first case



Clinical course



Exposure history

Background

- M/69, Retired
- DM, HT, hyperlipidaemia, parkinsonism

Travel history

- Brief travel to Macao and mainland China during the incubation period (incubation period is 4-14 days)

Local movement

- Lives in **Ying Ming Court (英明苑明遠閣), Tseung Kwan O**
(*no pig farms within 2km radius*)
- Mainly stayed around his residence or visited his elder son in another estate in Tseung Kwan O

Home contacts

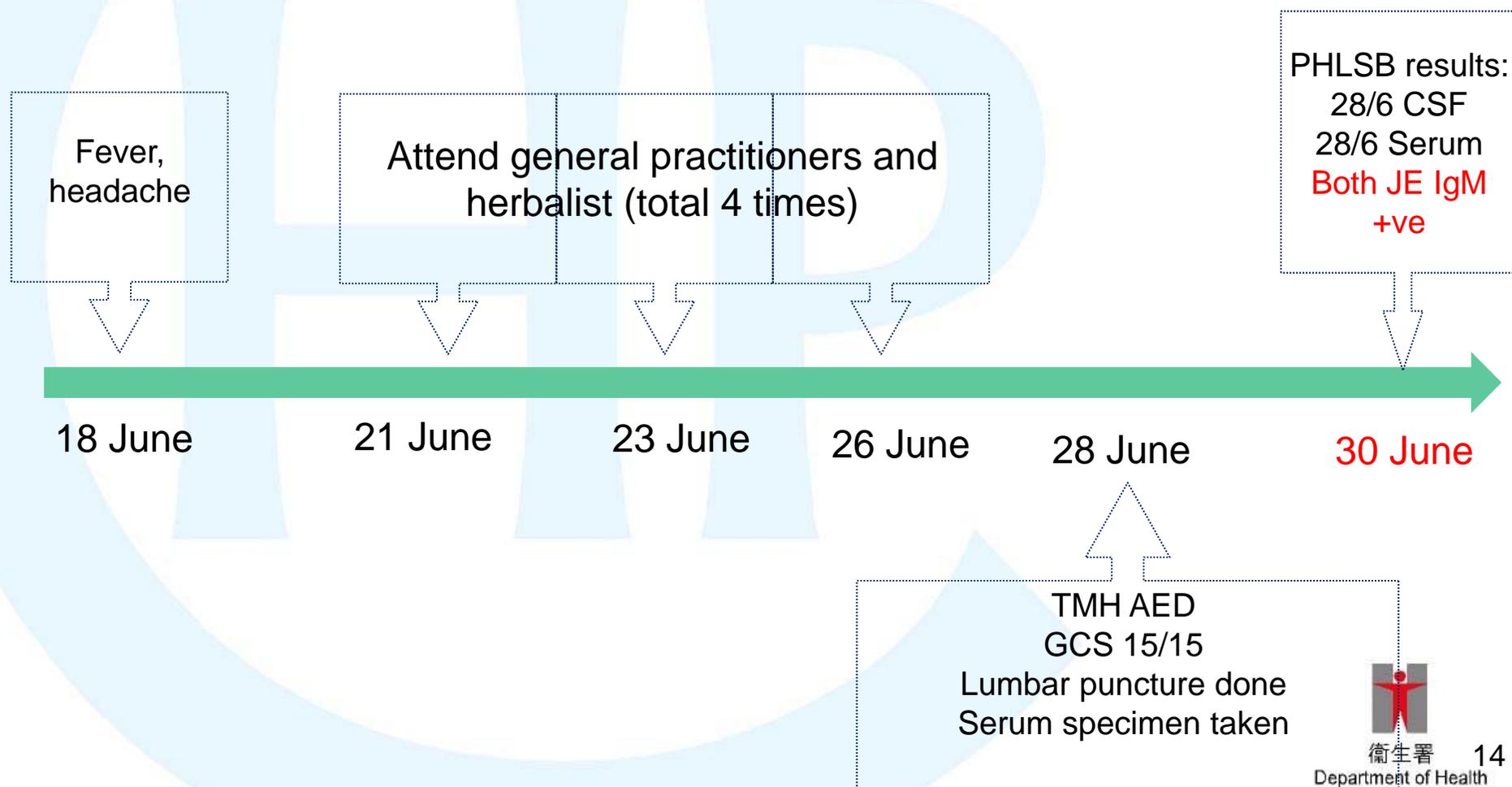
- Wife, younger son and domestic helper all **asymptomatic**



The second case



Clinical course



Exposure history

Background

- M/38, Worked as property management in Tsim Sha Tsui
- Good past health

Travel history

- No travel history during the incubation period (incubation period is 4-14 days)

Local movement

- Lives in **Shui Yee House, Tin Shui Estate (天瑞邨瑞意樓), Tin Shui Wai**
- He mainly stayed at home and office at East Tsim Sha Tsui.



Exposure history

Local movement (continue)

- He sometimes went to gym in **Tai Hing Gardens in Tuen Mun after work.**
- On 11/6/2017, he went to **Nina Fossil Garden (如心化石公園) and 路德圍 in Tsuen Wan** with his friend.
- Home contacts: lived with his mother and father, all remained asymptomatic.

➔ NO overlap of local movements for these two cases



Public health control measures

Active case finding

- Public enquiry **hotline** (Tel: 2125-1122 to 2374 later)
- **Site visits** to patients' residence for active case finding, **interviews, questionnaires**
- **Education leaflets** distributed to some surrounding estates
- **Health talks**



Public health control measures

Letters to doctors and private hospitals issued to enlist their support for early diagnosis, control and prevention

監測及流行病學處



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Surveillance
And
Epidemiology
Branch

本署編號 Our Ref. : (20) in DH SEB CD/8/16/1/2 Pt. 4

10 June 2017

Dear Doctor,

First case of Japanese encephalitis in 2017

The Centre for Health Protection (CHP) of the Department of Health writes to alert you the first case of Japanese encephalitis (JE) recorded in 2017. The patient is a 69-year-old man with underlying illnesses. He lives in Tseung Kwan O, Sai Kung District. According to his family, he developed headache, dizziness and nausea on 29 May 2017. He attended the Accident and Emergency Department of Tseung Kwan O Hospital (TKOH) on 30 May 2017 and was subsequently admitted for management. He developed fever since 31 May 2017. His condition deteriorated on 1 June 2017 and was transferred to the Intensive Care Unit for further management. The cerebrospinal fluid (CSF) specimen collected on 1 June 2017 and serum specimen collected on 6 June 2017 were tested positive for IgM antibodies against JE. He is now in critical condition. Although the patient had very brief travel history during the incubation period, based on epidemiological investigation findings so far, the case is managed as a local case at this stage as a precautionary measure. According to the information from Agriculture, Fisheries and Conservation Department, there is no pig farm within two kilometres of the residence of the patient.

JE is a viral disease transmitted by the bite of infective mosquitoes. The principal type of mosquito that transmits the disease is called *Culex tritaeniorhynchus* which breeds in water-logged fields, surface drainage channels, ponds, disused large water containers and sand pits. The mosquitoes become infected by feeding on pigs and wild birds infected with JE virus. Besides being widely distributed in rural areas, the vectors have also been found in urban areas in Hong Kong. The disease is not directly transmitted from person to person.

The incubation period of JE is usually 4 to 14 days. Mild infections may occur without apparent symptoms other than fever with headache. More severe infection is marked by quick onset of headache, high fever, neck stiffness, impaired



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本署編號 Our Ref. : (41) in DH SEB CD/8/16/1/2 Pt. 4

1 July 2017

Dear Doctor,

Second local case of Japanese encephalitis in 2017

The Centre for Health Protection (CHP) of the Department of Health writes to alert you the second local case of Japanese encephalitis (JE) recorded in 2017. The patient is a 38-year-old man with good past health and lives in Tin Shui (I) Estate of Tin Shui Wai. He developed fever and headache since 18 June 2017. He attended the Accident and Emergency Department of Tuen Mun Hospital (TMH) on 28 June 2017 and was admitted for management. The clinical diagnosis was encephalitis. The cerebrospinal fluid specimen and serum specimen collected on 28 June 2017 were tested positive for IgM antibodies against JE. He is now in stable condition. There was no travel history outside Hong Kong during the incubation period. According to information from the Agriculture, Fisheries and Conservation Department, there are two pig farms within two kilometres of the residence of the patient. This is the second local JE case recorded in 2017. The first case was recorded on 9 June 2017 and the patient lived in Tseung Kwan O, Sai Kung District. So far no epidemiological linkage has been found between these two cases.

JE is a viral disease transmitted by the bite of infective mosquitoes. The principal type of mosquito that transmits the disease is called *Culex tritaeniorhynchus* which breeds in water-logged fields, surface drainage channels, ponds, disused large water containers and sand pits. The mosquitoes become infected by feeding on pigs and wild birds infected with JE virus. Besides being widely distributed in rural areas, the vectors have also been found in urban areas in Hong Kong. The disease is not directly transmitted from person to person.

The incubation period of JE is usually 4 to 14 days. Mild infections may occur without apparent symptoms other than fever with headache. More severe infection is marked by quick onset of headache, high fever, neck stiffness, impaired mental state, coma, tremors, convulsions (especially in children) and paralysis. The



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Risk communication - Press releases

The Government of the Hong Kong Special Administrative Region
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CHP investigates local case of Japanese encephalitis 

CHP investigates local case of Japanese encephalitis

The Centre for Health Protection (CHP) of the Department of Health is investigating this evening (June 30) a local case of Japanese encephalitis (JE) and again urged the public to avoid going to rural areas from dusk till dawn when the vector which breeds in large water bodies such as rice paddies is most active.

The male patient, aged 38 with good past health, has developed fever and headache since June 18 and was admitted to Tuen Mun Hospital for management on June 28. The clinical diagnosis was encephalitis and he has been in stable condition.

His cerebrospinal fluid and blood samples tested positive for immunoglobulin M (IgM) antibodies against JE upon laboratory testing.

Initial enquiries revealed that the patient had no travel history in the incubation period. He lives in Tin Shui (I) Estate, Tin Shui Wai. His home contacts have remained asymptomatic and been put under medical surveillance.

"We are working closely with the Food and Environmental Hygiene Department (FEHD) to assess and prevent any possible spread of infection. The FEHD and the Agriculture, Fisheries and Conservation Department have been informed for vector investigations, surveillance and control. Epidemiological investigations are ongoing," a spokesman for the CHP said.

Officers of the CHP will conduct site visit and field investigations by questionnaire surveys at the patient's residence for active case finding and arranging blood tests. A health talk was held tonight jointly with the FEHD to deliver health advice to residents and the public.

Persons who have been to the vicinity of Tin Shui Estate with JE symptoms should call the CHP's hotline (2125 1122) operating from 9am to 6pm this weekend for laboratory investigation or referral as appropriate.

"We have informed the Guangdong and Macau health authorities of the case and will issue letters to doctors and hospitals to alert them to the latest situation," the spokesman added.

This is the second JE case recorded in 2017 and the first case reported on June 9 has been classified as a locally-acquired infection. Two (imported) and two (one local, one unclassified) cases were recorded in 2016 and 2015 respectively.

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CHP investigates case of Japanese encephalitis 

CHP investigates case of Japanese encephalitis

The Centre for Health Protection (CHP) of the Department of Health (DH) is investigating this evening (June 9) a case of Japanese encephalitis (JE) and again urged the public to maintain strict environmental hygiene, mosquito control and personal protective measures both locally and during travel.

The patient is a man aged 69 with underlying illnesses. According to his family, he attended the Accident and Emergency Department of Tseung Kwan O Hospital on May 30 for headache, dizziness and nausea since May 29 and was subsequently admitted for management. He has developed fever since May 31. His condition deteriorated on June 1 and was transferred to the Intensive Care Unit for further management. He is now in critical condition.

His cerebrospinal fluid and blood sample tested positive for immunoglobulin M (IgM) antibodies against JE upon laboratory testing.

Initial enquiries revealed that the patient lives in Ying Ming Court, Tseung Kwan O. His home contacts have remained asymptomatic and been put under medical surveillance.

"Although the patient had very brief travel history in the incubation period, based on findings of epidemiological investigations so far, the case is managed as a local case at this stage as a precautionary measure. As the patient has been comatose, details of his exposure history are pending. We are working closely with the Food and Environmental Hygiene Department (FEHD) to assess and prevent any possible spread of infection," a spokesman for the CHP said.

"Epidemiological investigations are ongoing. We have informed the FEHD and the Agriculture, Fisheries and Conservation Department for vector investigations, surveillance and control. Health education in the vicinity where the patient frequented will follow," the spokesman added.

Officers of the CHP will conduct site visit and field investigations by questionnaire surveys at the patient's residence for active case finding and arranging blood tests. A health talk will be held jointly with the FEHD to deliver health advice to residents and the public.

Persons who have been to the vicinity of Ying Ming Court with JE symptoms should call the CHP's hotline (2125 1122) for laboratory investigation or referral as appropriate. It will operate from 9am to 6pm tomorrow (June 10).

"We have informed the Guangdong and Macau health authorities of the case and will issue letters to doctors and hospitals to alert them to the latest situation," the spokesman added.

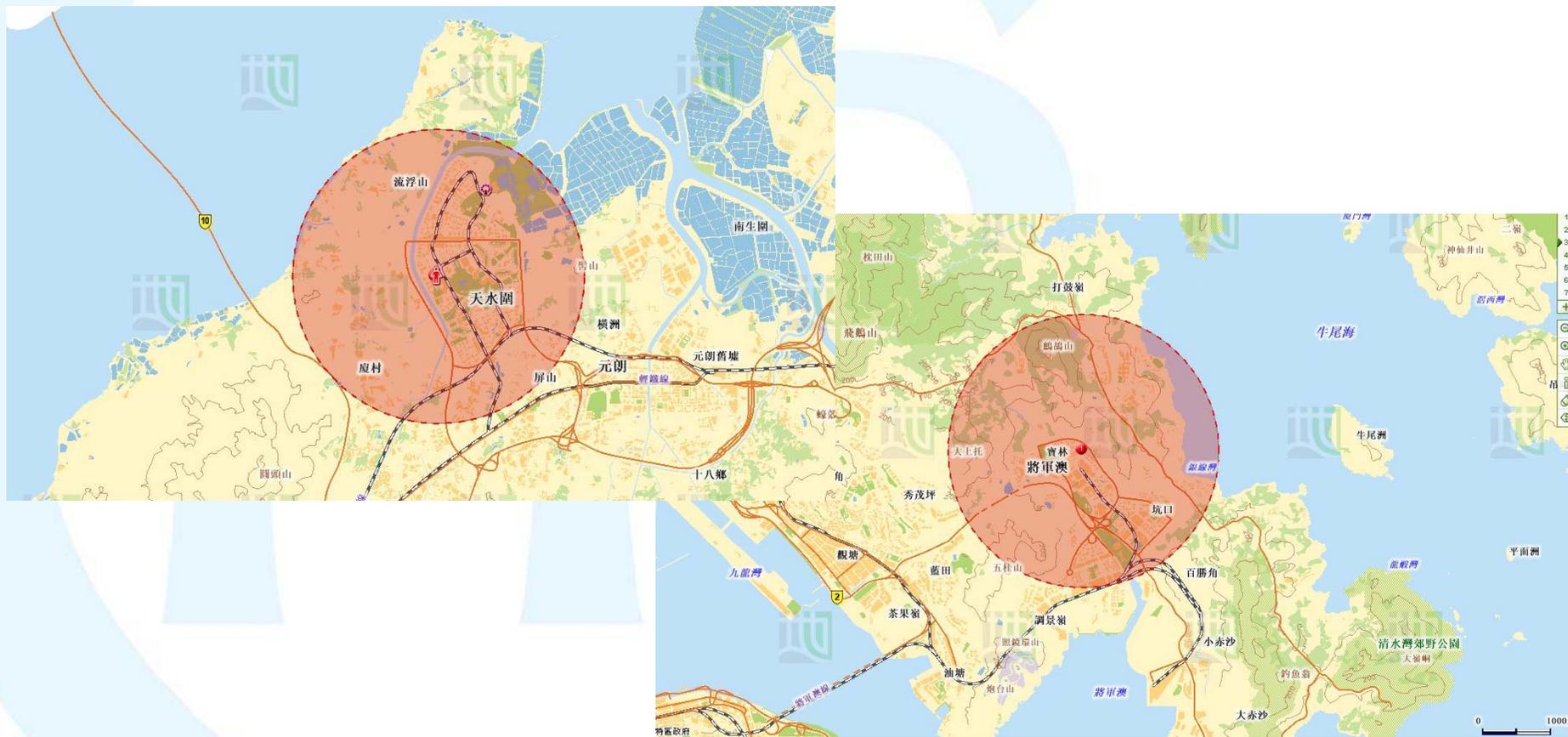
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Related Links

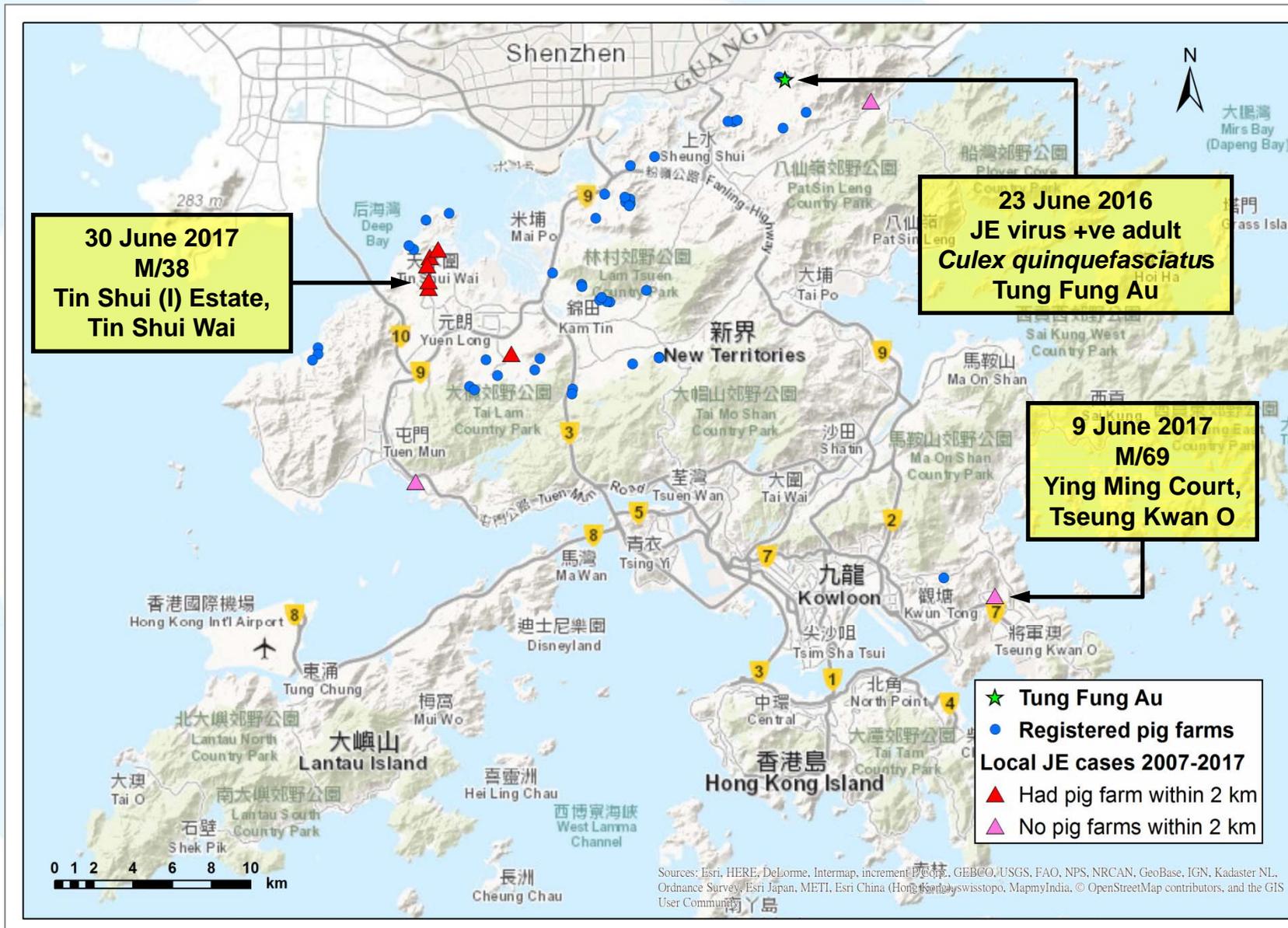
- Use insect repellents to prevent dengue fever and Japanese encephalitis



Vector control measures – by Pest Control Advisory Section (PCAS), FEHD



Residential addresses of local JE cases (2007-2017) and the 43 pig farms in Hong Kong



Interdepartmental meetings

- The **Anti-Mosquito Steering Committee (AMSC)** convened meetings to discuss ways to enhance mosquito prevention and control work (11 Apr 2017)
- The **Interdepartmental Coordinating Committee on Mosquito-borne Diseases (ICC)** convened meetings to examine the latest situation of mosquito-borne diseases and prevention and control actions that need to be strengthened (13 Jul 2017)



Thank you

