For information

Legislative Council Panel on Health Services

Measures to prevent the spread of Japanese Encephalitis in Hong Kong

Purpose

This paper sets out the measures to prevent the spread of Japanese encephalitis (JE) in Hong Kong and the Administration's position in respect of JE vaccination in humans.

Background

2. Under agenda item "Japanese encephalitis case in Yuen Long" of the meeting of the Panel on Health Services held on 8 November 2004, Members requested an information note outlining the measures taken by the Administration on mosquito control and management of pig excreta as well as the Administration's thinking concerning JE vaccination. The Administration's actions and position are set out in the ensuing paragraphs.

Preventive Actions

Mosquito control in pig farms

3. The Culex tritaeniorhychus mosquitoes, the principal vector of JE, are infected by feeding on infected pigs and wild birds. To prevent the spread of JE in local pig farms, anti-mosquito work was initiated by the Agriculture, Fisheries and Conservation Department (AFCD) to all local pig farms in August 2003. All local pig farms are inspected by AFCD officers at least once a month to enforce mosquito control. To facilitate the operation, a standardized checklist is used to ensure that every potential mosquito breeding ground on pig farms would be inspected. Farmers will also be advised to conduct effective pest control routinely as part of the farm management system, and carry out improvement work deemed necessary. If any mosquito breeding spot is noted

on site, sampling of mosquito larvae/pupae will be done by AFCD inspecting officers and the case would be referred to the Food and Environmental Hygiene Department (FEHD) for enforcement actions.

4. Furthermore, AFCD also educates local pig farmers and farm workers in aspects of JE prevention. Written information on JE in human beings and animals, the use of pesticides, and practical measures of pest control is provided to farmers on a regular basis, especially before the start of the rainy season. To enhance the awareness of the mosquito-borne diseases and the importance of pest control on farms, AFCD has organized three seminars on relevant topics in conjunction with FEHD and the Department of Health (DH) for farmers and farm workers since July 2003.

Breeding grounds of JE vector outside pig farms

5. On the prevention of JE, FEHD maintains mosquito control work throughout the year around pig farms and at sites with gathering of migratory birds, such as ponds and riverbanks, particularly during the rainy season. Other than carrying out anti-mosquito measures including removal of waste and larviciding to all potential breeding grounds in public places, FEHD refers sites with proliferated undergrowth to the Lands Department (Lands D) and Home Affairs Department for grass cutting as well as illegal cultivation sites to Lands D for follow-up actions. It also advises the public and relevant bodies on measures to prevent the creation of JE vector breeding places and requests the owners of pools and water hyacinth fields to keep sufficient number of mosquito predatory fishes in the water bodies as biological control agents.

6. In October 2004, FEHD also started a one-year territory-wide JE vector survey to assess the distribution of the vectors, which would provide scientific basis for strategic control. Moreover, since a 5-year-old-boy living in the Yuen Long district was suspected in end October to contract JE, FEHD has immediately deployed additional anti-mosquito teams to mount a whole series of enhanced measures. They have intensified the mosquito control measures, including both fogging and larviciding, in areas within a two-kilometre radius of the patient's residence and areas around pig farms in the vicinity at weekly intervals, and distributed leaflets on mosquito prevention to villagers in the vicinity. With a view to monitoring and evaluating the effectiveness of the control measures, FEHD has set up mosquito traps in the vicinity of the boy's

residence. Moreover, FEHD has also carried out vector surveys and mosquito control measures in the vicinity of the home of another 40-year-old man living in Ap Lei Chau, who was confirmed to be infected with JE on 18 November 2004.

Management of pig excreta

7. Livestock waste, whether it is in solid or liquid form, is subject to control under the Waste Disposal Ordinance (WDO) (Cap 354). Pig farmers usually scoop out the solid livestock waste and put them in covered containers, which will then be collected at regular intervals by a contractor commissioned by the Government. Liquid livestock waste is usually produced when farmers hose down the remaining livestock excreta, or when they wash the livestock premises. The wastewater is collected and conveyed to a purpose-built wastewater treatment plant for treatment to the required legislative standards before discharge.

8. Regular visits to livestock farms are made by staff of the Environmental Protection Department (EPD), with a view to ensuring that all livestock waste is properly handled in accordance with the requirements under the WDO. As every livestock farm is required to install a functioning wastewater treatment plant to handle the liquid portion of livestock waste, EPD will check on the plant operation and watch out for any irregularities on the handling of livestock waste.

JE vaccination in pigs

9. The Government is assessing the implications of implementing a trial vaccination programme for pigs against JE to reduce the risk of the virus threatening public health. The Centre for Health Protection (CHP) and AFCD are studying the details of a trial JE vaccination programme for pigs in local farms. The programme is aimed at reducing the risk of pigs, a host of the JE virus, from becoming a source of infection while the Culex tritaeniorhychus mosquitoes feed on them for their blood meals. It is expected that the pilot programme, if proceeds, would take at least a few months to materialise as the departments concerned have to work out the mechanism and implementation details of the programme. The JE vaccine costs approximately US$1 per dose and each pig requires two doses initially. For the programme to be properly evaluated and the effectiveness in reducing the risk of JE in humans to be

assessed, it will be necessary to continue the programme for a minimum of five years. The cost of vaccine alone given the current population of 330,000 pigs is approximately $20 million per year (including on-going booster vaccinations for breeding stock). Vaccination details and logistics for the programme, if implemented, will be developed in consultation with pig farmers.

JE vaccination in humans

10. Currently, a mouse-brain-derived inactivated JE vaccine is licensed in Hong Kong. Studies have shown that the vaccine offers 80-100% protection against JE. However, the vaccine can cause adverse reactions including local vaccination reactions (20%), mild systemic illness (10%), and hypersensitivity reactions (0.6%). Incidents of fatal anaphylaxis have been reported. Rarely, post-vaccination neurological complications such as encephalitis and peripheral neuropathy occur. Hence, the decision to vaccinate humans against JE or otherwise has to take into account the potential benefits and risks of such move.

11. Serological studies conducted by the CHP found only a very small proportion (0.3%) of Hong Kong people aged below 40 years have JE antibodies. This shows JE is not prevalent in Hong Kong during the past 40 years.

12. CHP's Scientific Committee on Vector-borne Disease concluded at its meeting in August 2004 that the need for vaccination in humans other than those travelling to endemic areas for 30 days or more is not indicated. The Committee will keep monitoring the situation in view of new data and developments, and reassess benefits and risks in relation to human JE vaccination.

13. Members are invited to note the above actions taken or being kept in view by the Administration with a view to containing the spread of JE in Hong Kong.

Health, Welfare and Food Bureau
December 2004