A quick method to determine the best threshold level for universal vaccination when there is an outbreak of Japanese Encephalitis

P.H. Chung
Chinese University of Hong Kong, Hong Kong SAR, HK, China

Background: Japanese Encephalitis (JE) has an increasing trend in many parts of the world, especially the global warming facilitates the perpetuation of the vectors, mosquitoes. Although JE vaccination is a proven useful control strategy, at the same time it has a not low associated complication rate. What is the best time to opt for universal vaccination need a careful balance.

Methods & Materials: A risk versus benefit approach is used to determine the best time to opt for universal JE vaccination, using Hong Kong as an example. Two sources of information are used to determine the case loads / endemicity of JE (as a proxy to estimate the potential benefit for vaccination): (1) Seroprevalence in different population subgroups; (2) Surveillance information from the Government Disease Control Centre under the WHO IHR. Two sources of information are used to assess the potential risks for vaccination: (1) Complication rate for JE vaccination based on pharmaceutical companies’ data; (2) Acceptability, knowledge and attitude of JE vaccination in the public.

Results: The baseline case load of JE in Hong Kong is not high. However, certain subgroups are at high risk (e.g. elderly) as reflected by a higher seroprevalence rate. Universal vaccination may be justified only if the annual incidence is higher than the damage potentially caused by the vaccination itself.

Conclusion: There is a need to review the surveillance process since updated data is the crux for an accurate assessment. Even if there is an universal JE vaccination program, the responsible authority (e.g. government) has to address the concern from the public in order to achieve a satisfactory coverage for significant community protection.

http://dx.doi.org/10.1016/j.ijid.2016.02.889