

Having a Population-based Surveillance of Invasive Pneumococcal Disease to understand Vaccine Pressure and Failure

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In September 2009, 7-valent pneumococcal conjugate vaccine (PCV7) was included in the Hong Kong Childhood Immunisation Programme (HKCIP). In October 2010, it was replaced by 10-valent pneumococcal conjugate vaccine (PCV10), which was in turn replaced by 13-valent pneumococcal conjugate vaccine (PCV13) in December 2011. Having a population-based surveillance of invasive pneumococcal disease (IPD) is critical to understand serotype replacement due to vaccine pressure, persistence of vaccine serotype due to vaccine failure and unexpected changes of IPD epidemiology after introduction of universal childhood pneumococcal vaccination.

In Hong Kong, The Centre for Health Protection (CHP) conducts surveillance of invasive pneumococcal disease (IPD) at different levels, including (1) a laboratory surveillance system established in 2007 to cover all microbiology laboratories in public and private hospitals in Hong Kong with the Public Health Laboratory Services Branch (PHLSB) of the CHP to process all pneumococcal isolates from sterile sites for serotyping, antimicrobial susceptibility testing and characterization; (2) from 2014, doctors were requested to report IPD cases in children under the age of 18 years old to the CHP, which was extended by including IPD as one of the notifiable infectious diseases from January 2015; (3) clinical data related to hospitalized IPD cases are obtained from the Hospital Authority (HA). The data from the different surveillance systems are analysed to monitor the trend of IPD in Hong Kong, with particular focus on issues of serotype replacement, emergence of serotype 3 as the dominant serotype locally and apparent increase in cases of complicated pneumococcal pneumonia and empyema. The latest epidemiology of IPD from this surveillance will be presented, with implications on vaccine choice and development discussed.