Preparing Indonesia for pandemic influenza

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Over the last 100 years, the incidence of influenza in Indonesia has been studied through a variety of surveys and sentinel surveillance activities *(1,2)*. Influenza is not a nationally notifiable disease in Indonesia, as it is generally perceived to be a mild self-limiting illness among the general public and, to some extent, by the medical profession as well.

Although there is limited information available about the relative importance of influenza in contributing to epidemic and sporadic disease, understanding the epidemiology of influenza viruses is important to document the potential burden of the disease, compared with that of other respiratory illnesses such as bacterial pneumonia *(3)*. Surveillance activities can provide useful baseline data for measuring local epidemics and can generate critical information regarding the circulating strains that could have an impact on the annual selection of appropriate vaccine strains. This is especially important to aid in the use of vaccines for the target population of yearly hajj pilgrims from Indonesia to Saudi Arabia *(4,5)*.

Influenza surveillance

The National Institutes of Health Research and Development (NIHRD) started to conduct influenza surveys in 1975 *(2)*. The surveys stopped and re-started several times as influenza was not perceived to be a priority, but were re-started in 1999. The aim of the surveys was to estimate the burden of influenza in the country.

Specifically, the objectives were:

- To identify the characteristics of influenza-like illness (ILI) cases;
- To identify the types and subtypes of the influenza virus in Indonesia;
- To form a national influenza network.

The surveys are conducted in 48 sites comprising both hospitals and health care centres in a total of 22 provinces *(1)*. Even though these surveys do not cover or fully represent the entire Indonesian population, they offer an opportunity to assess within-country variation in disease trends. This is especially important for a country of Indonesia's geographical expanse and population size. The survey findings suggest that influenza viruses circulate throughout the year. Between 2006 and 2008, there was a high prevalence of influenza A in the rainy season (December to February) and flu B had a consistent low prevalence throughout the year. During these surveys, influenza was detected in 20% of ILI cases where approximately 4000 entered the survey population each year. Future surveys will need to relate laboratory results with clinical outcomes as well as understand the age distribution and other demographic characteristics of those infected.

Avian influenza A H5N1

Avian influenza A H5N1 (AI H5N1) outbreaks in poultry were first identified in August 2003 *(6)*. Within two years, the disease had spread to 23 provinces covering 151 districts/cities causing over 10 million bird deaths. Since then, 31 out of 33 provinces (93.9%) have reported outbreaks and the first confirmed human H5N1 case in Indonesia occurred in June 2005 *(7,8)*.

The first human case was part of a cluster which included two confirmed cases and one probable case among five family members living together in a suburb west of Jakarta *(9)*. By December 2009, there were 161 laboratory-confirmed cases with 134 deaths (case-fatality rate 83.2%) in 13 provinces, 51 districts/municipalities and 110 subdistricts. The highest number of cases was found in Jakarta province (43), West Java province (40) and Banten (30) *(10)*.

The government embarked on a series of control measures which were encapsulated in 10 basic strategies in the national strategic plan for H5N1 influenza control: 1) control in animals; 2) case management; 3) protection of high-risk groups; 4) integrated surveillance; 5) restructuring of the poultry industry; 6) risk communication, education and public awareness; 7) law regulation and enforcement; 8) capacity building; 9) research and development; and 10) monitoring and evaluation *(11)*. Overall, these strategies were aligned with international guidance that emphasized controlling zoonotic diseases 'at source'.

The National Strategic Plan for AI H5N1 Control and Pandemic Influenza Preparedness 2006-2008 was issued in December 2005 *(12)*. However, due to limitations in the public health resources in the initial phases of the plan, greater emphasis was placed on activities to control the disease in animals, human case management, risk communications and integrated surveillance. By March 2007, a National Committee for AI H5N1 Control and Pandemic Influenza Preparedness was established which was headed by the Coordinating Minister for People's Welfare.

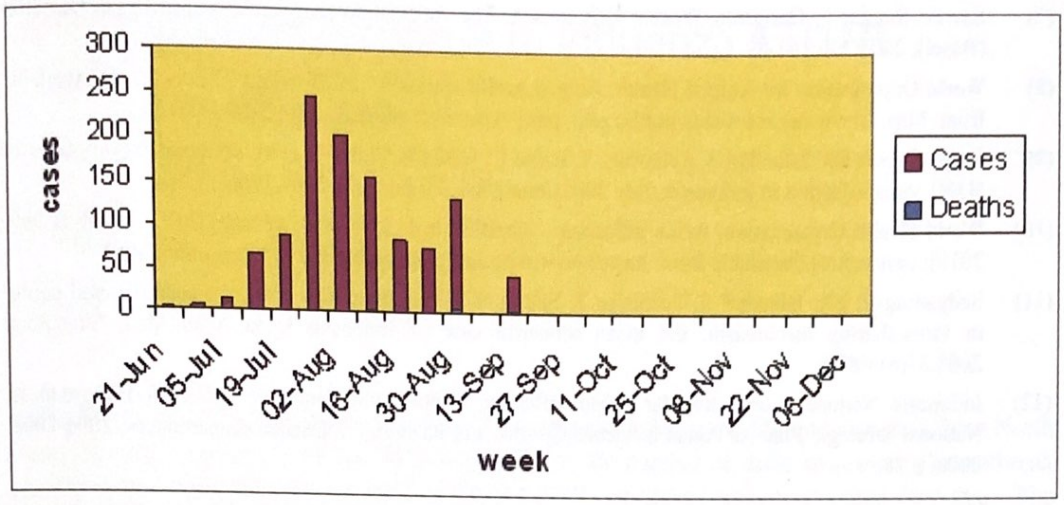
The control of AI H5N1 in birds and the preparedness for events that signal sustained transmission between humans continues. Indonesia has conducted two full field simulations of an epicentre containment following the development of specific guidelines to control an initial human cluster of influenza that signals the spread of a new virus.

Pandemic H1N1

The first cases of pandemic H1N1 were identified in July 2009 in Indonesia (Fig.). By September 2009, 1098 cases with 10 deaths were detected through the hospital network. Cases were detected in 25 of the 33 provinces and the maximum number was detected during the first two weeks of August. The case demographics show a similar rate of infection in males and females, and the majority of infections occurred in the 11-25-year-old age group. Since the initial phase of the pandemic focused on international travel and imported cases, Indonesia maintained border surveillance at both sea and air ports. Of the 1098 cases identified, 6% were foreign nationals and 13% had travel history to affected countries.

The impact of the pandemic has not been fully assessed but the impact on the health system during the first wave was assessed as moderate (according to the World Health Organization's classification system). Even though there was wide coverage of the pandemic in the media, the social impact was not considered as substantial. Some school closures were initiated by local authorities but other mass gatherings continued unaltered. As of end-February 2010, the situation in Indonesia suggests localized geographical spread with decreasing activity and low-level intensity and impact.

Fig.: Weekly Pandemic (H1N1) 2009 Cases and Deaths
Indonesia



Conclusions

Indonesia currently allocates limited resources to the general surveillance and response to influenza work due to other public health priorities. The disease burden is known through small surveys and limited surveillance that suggests circulation of the virus throughout the year. Due to the global emergency associated with AI H5N1 and the need for pandemic influenza preparedness, additional resources enabled the development of pandemic preparedness plans, enhanced capacity in diagnostics, case management and outbreak response. These activities aided in the response to H1N1.

Based on past experiences and the indication that all the ingredients for the creation of new influenza viruses with pandemic potential are present, there is no doubt that there will be an influenza pandemic in the near future; it is just a matter of time when and where the pandemic will occur. The only answer is to remain prepared.

Future activities for influenza need to emphasize better characterization of the disease epidemiology and vaccine strategy, and to monitor the AI H5N1 situation that may still trigger a new influenza pandemic.

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