

SINGAPORE: The Threat of Influenza Pandemic and Singapore's Response Plan

Pandemic Preparedness

1. Singapore has developed a pandemic preparedness plan detailing actions to be taken before and during an influenza pandemic. Our Influenza Pandemic Readiness and Response Plan was published and made available to the general public through MOH's website in June 2005. The objective of the plan is to mitigate the socio-economic impact of a pandemic occurring in Singapore, and to reduce morbidity and mortality associated with the pandemic.
2. We have also aligned the influenza pandemic plan with recommendations made by the WHO.

Singapore's National Strategy for Pandemic Preparedness

3. The national strategy is to establish an effective surveillance system to detect the importation of a novel influenza virus, mitigate the consequences when the first pandemic wave hits and then race to achieve national immunity when a vaccine becomes available. During an outbreak, we will have to sustain the nation through the first pandemic wave by minimizing mortality and morbidity through effective infection control, healthcare management, chemoprophylaxis and measures to increase social distances while ensuring preparedness for vaccination of the entire population when a vaccine becomes available. Our response aims at achieving the following 3 outcomes:

- a. **Maintain essential services in Singapore to limit social and economic disruptions.** In an influenza pandemic, it is important to limit the impact on essential services. As such, certain segments of the essential services will need the added protection to ensure full operational capacity in order to continue to provide Singaporeans with undisrupted services. These work units will be provided anti-viral prophylaxis (with Tamiflu).
- b. **Reduce morbidity and mortality through treatment of all influenza-like cases.** Due to the difficulty of confirming which patients have influenza, in practice, all persons presenting with influenza-like illnesses will be treated. Hence, all patients 1 year and older with influenza-like symptoms will be treated with the anti-viral drug, Tamiflu preferably within 48 hours of the onset of symptoms and continued for 5 days.
- c. **Slow and limit the spread of influenza to reduce the surge on healthcare system.** When an influenza pandemic is declared, the estimated number of cases requiring medical attention could easily overwhelm our healthcare system. Hence, additional measures will be taken to slow down the spread and reduce the surge requirements on our healthcare system. These include:

Operational Concept

4. The plan includes maintaining continuous global and local surveillance to provide early warning of a novel virus outbreak, maintaining a baseline medical and operational response capability to isolate and quarantine a local incident and having

the ability to ramp-up quickly to deal with a surge. The triggers for implementing the plans are indicated below:

- a. Alert Green. This is a situation where the public health threat to Singapore is minimal, either because there is no outbreak outside of Singapore, or where there is, the risk of import is low. In the case of Influenza Pandemic, WHO may announce a novel virus alert that could potentially be a candidate for a pandemic. The virus however has not acquired the ability to transmit efficiently from human to human. Our strategy is to step up vigilance and preparedness to meet the potential threat.
- b. Alert Yellow. This refers to a situation where there is inefficient human-to-human transmission of influenza caused by a novel virus outside Singapore. The potential for a global influenza pandemic is high, though not inevitable as it would still be possible to contain the outbreak through aggressive measures by the affected country. The risk of import into Singapore is elevated. Where there are isolated imported cases, such cases have not resulted in sustained transmission locally. Our strategy is to prevent further import of cases and to ring-fence and isolate cases to prevent secondary transmission. The focus will be to provide targeted treatment of all cases and anti-viral prophylaxis to contacts including attending healthcare workers.
- c. Alert Orange. This is when a pandemic is underway. WHO has confirmed that the novel virus is causing several outbreaks in one country and this has spread to other countries with consistent disease patterns indicating serious morbidity and mortality is likely in at least one segment of the affected population. Locally, there is evidence of human-to-human transmission, but the outbreak has not reached the community. However, given the infectivity of the virus, further outbreaks of the disease are expected. The strategy is to contain the spread and suppress the speed of transmission, while preserving essential services and resources. All the measures taken in Alert Yellow will continue where operationally feasible.
- d. Alert Red. This is a situation where there is a pronounced risk of acquiring the disease from the community. There is an increasing trend of mortality and morbidity rates among affected cases. The healthcare system is likely to be overwhelmed. The strategy is to regain control of the situation by implementing more stringent measures including closing of school and stop selected events to prevent congregation of large groups of people.
- e. Alert Black. Alert Black is sounded when the morbidity and mortality rates are exceedingly high, and emergency measures are needed to bring the situation under control. The healthcare and other social support system is overwhelmed by the pandemic. Economic activities are severely disrupted, as panic sweeps through the community. The focus for the nation is to contain the damage and regain the control of the situation, and other sectors such as economy, social etc may be less emphasized. Drastic measures like stopping all social events, mass prophylaxis or vaccination may be implemented.