

PREPARING FOR THE INEVITABLE— AN INFLUENZA PANDEMIC

GUEST EDITORIAL

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The world is currently at ‘Global Phase 3’ of the World Health Organization’s influenza pandemic alert phases, where human disease due to a novel strain of influenza is occurring, but there is no good evidence of human-to-human transmission. Given the instability of the influenza virus, the world is waiting for the first influenza pandemic of the twenty-first century. It is thus timely to consider the threat of the next influenza pandemic, the means for combating it and our readiness to deploy these measures.

Pandemics with symptoms resembling influenza have been recorded regularly over the past four centuries. In the past 175 years there have been seven well documented influenza pandemics, with onsets in 1833, 1836, 1847, 1889, 1918, 1957 and 1968: a pandemic occurring, on average, every 23 years. The longest period between recorded pandemics was 42 years; it is now 38 years since the last influenza pandemic.

A unique convergence of factors demands that we prepare for a pandemic.¹ There has not been an avian influenza strain in living memory as pathogenic in birds as H5N1, which is causing unprecedented mortality amongst poultry in Asia. Outbreaks in poultry have not been restricted to South East Asia but have spread into the Middle East, Indian sub-continent, Europe and Africa. In people with confirmed avian influenza H5N1 infection, the mortality rate approaches 60 per cent. The massive increase in high intensity poultry farming globally continues. The world population has tripled since the 1918 pandemic and there has been a dramatic increase in the number of crowded megacities (with populations exceeding 10 million people) in Asia, Africa and Latin America. International air travel has greatly increased the likelihood of rapid

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global spread of respiratory illnesses that have relatively short incubation periods. Meanwhile, across the world, there are fewer hospital beds per capita now than there were in 1968.²

In October 2006, Australia's health and emergency services participated in Exercise Cumpston 06, the largest health simulation exercise ever held in this country, to test our preparedness to respond to and contain an influenza pandemic. In late 2005, Exercise Eleusis employed a hypothetical scenario to test how well departments of agriculture and health, across all levels of Australian government, could work with industry to identify, contain and eradicate avian influenza. These investments in planning and preparedness reflect a recognition of the enormous health, social and economic consequences that might result from an inadequate response to an avian influenza outbreak in Australia or to the next influenza pandemic.

Given the public health importance of avian and pandemic influenza, two issues of the *NSW Public Health Bulletin* have been devoted to this topic. They will provide a ready reference to current knowledge and policy approaches. However, the pandemic influenza policy environment is dynamic and will continue to evolve, due both to changes in influenza epidemiology and to lessons learnt from exercising our responses. This first issue provides an historical context to a future influenza pandemic and considers the likelihood of an avian influenza outbreak in Australia. It also explores the responsibilities of various tiers of government in responding to a pandemic threat.

The issue opens with an article by Black and Armstrong, 'An introduction to avian and pandemic influenza', that explores the instability of influenza viruses, and how these viruses drift and shift to their survival advantage. The paper distinguishes between seasonal, avian and pandemic influenza and reminds us that the H5N1 avian influenza virus causing outbreaks in poultry flocks across the world meets two of the three prerequisites for a pandemic virus: a novel influenza strain and a virus with the ability to replicate in humans and cause serious illness.

Curson and McCracken, in 'The impact of the 1918–1919 influenza pandemic—Australian perspectives', provide a graphic description of the 1918–1919 pandemic and its impact in NSW. An influenza pandemic with a relatively high fatality rate would have a profound impact on society well beyond traditional health boundaries.³ This article provides a stark reminder that a well-informed media and general public are essential to an effective response.

Arzey's paper, 'The risk of avian influenza in birds in Australia', describes avian influenza and the five recorded outbreaks of highly pathogenic avian influenza that occurred in Australia between 1788 and 2006. These were controlled rapidly and effectively. Arzey discusses the risk of avian influenza H5N1 occurring in Australia, and the risk currently appears to be low.

In 'Commonwealth pandemic preparedness plans' Australia's Chief Medical Officer, John Horvath,

emphasises the challenge facing all nations that wish to be fully prepared for an influenza pandemic. He catalogues the broad range of measures already taken by the Australian government to ensure readiness. Australia's commitment to an Asian-Pacific regional partnership for responding to this threat deserves particular mention. Although there are both sound altruistic and moral imperatives for this approach, containment of a pandemic outside Australia's borders is clearly a desirable goal in reducing the risk of the pandemic spreading to this country.⁴ The Australian Department of Health and Ageing also has an important role in ensuring a well-coordinated and standardised approach across States and Territories.⁵ Horvath confirms the importance of exercises for testing systems and modifying plans on the basis of lessons learned.

Armstrong and Chant, in 'Preparing for the next influenza pandemic: A New South Wales perspective', remind us that the investment made in pandemic planning will stand us in good stead for other emerging infectious disease threats. They introduce the *NSW Health Interim Influenza Pandemic Action Plan* and place it in context within the hierarchy of other plans, particularly those of the World Health Organization and the Australian Government.

What is expected from a public health unit in responding to this threat? Recent disease modelling suggests that a massive public health effort may greatly attenuate a pandemic. Eastwood and colleagues, in 'Pandemic planning at the coal face: Responsibilities of the public health unit', address the complex set of challenges at local level.

It is essential therefore that we plan, prepare and practice now. As Dr Nabarro, the Representative of the Director for Health Action in Crises, World Health Organization, stated in December 2005, 'the pandemic could start tomorrow. By the time the pandemic starts, preparation will be too late'.⁶ The papers in this and the following issue of the *NSW Public Health Bulletin* indicate that while much remains to be done, preparations are well underway.

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