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Pandemic Influenza - The Australian Response

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**Slide 1:**

Thank you for welcoming me here this afternoon to talk on the pressing topic of pandemic influenza

**Slide 2:**

We know that pandemics have been occurring for centuries of varying intensity. In 1580 for example there is a description of a respiratory disease which spread from Asia to Africa to Europe and America. It was said to be “of such fierceness that that in the space of six weeks it afflicted almost all the nations of Europe, of whom hardly the twentieth person was free of disease, and anyone who was so became an object of wonder”. Other major pandemics of which anecdotes exist are 1693 when all ages were attacked ‘the strong and hearty were taken in the same manner as the weak and spoiled’ and in 1847 described as the ‘Great Influenza’ in which there were 250,000 cases in London alone.

The influenza virus is despite its very small size and very smart bug. It gives us a headache. It drifts each year so we have to make a slightly different vaccine every season - than it can jump radically in which case its back to base vaccine wise and dealing with all the production, safety and efficacy issues.

**Slide 3**

In this century there have been three pandemics.

**Slide 4:**

This is an influenza hospital in USA similar hospitals were put together in Melbourne in 1919.

**Slide 5:**

The grey areas in this map indicate past areas of outbreaks in poultry, the green areas have occurred since April 2005. You can see there has been considerable spread and

only in the last week we have heard of outbreaks in Russia and in Mongolia in domestic flocks and wild waterfowl. The H5N1 has been identified as likely to have arisen from a goose in Southern China in the early 1990's. It has differentiated into at least three different strains and evidence is that more strains are evolving.

**Slide 6:**

The WHO notifications are laboratory confirmed cases. There are two classes of antiviral drugs the H5N1 is resistant to of course the cheaper of the two! But remains sensitive to the neuraminidase inhibitors. The Australian antiviral stockpile is primarily neuraminidase inhibitors.

**Slide 7:**

Since Dec 2004 the human cases have shown a changing epidemiology with an increase in the occurrences of 'clusters' usually people in the same Household, the age range of cases has increased from as young as 4 months to over 80 years of age. The Case fatality rate has also decreased from almost 90% now down to about 30%. While this reduction in mortality rates sounds good it also heralds that the virus is likely adapting to humans. It is more advantageous for species survival to have a host that also survives.

**Slide 8:**

We have estimated the impact on Australia of a pandemic – using an average attack rate (not as high as the most severe pandemics) and utilising a mathematical tool derived by the Centres for Disease Control in Atlanta. It actually doesn't take into account the worried well who can drain resources very quickly.

**Slide 9:**

As you can see the 1918 pandemic hit the young hard whereas the 1969 -70 pandemic affected those traditionally hit hard by influenza – the very young and the very old. This is a challenge in not only anticipating and preparing for a pandemic but to change interventions midstream dependent on who it attacks and its virulence. The ongoing impact of a pandemic will depend also on the age attack rate

**Slide 10:**

The Department and the Minister have been very engaged in dealing with the pandemic threat from its re emergence in 2003. We have upgraded our capacity within the department to respond and also the capacity of our surveillance and laboratory systems.

AS we are an island and although times are different now Australia was successful in keeping the Spanish influenza out in 1918 and indeed by the time it did get in 1919 it had apparently lost virulence. The Government has committed to border consideration. The Quarantine Act of 1908 gives the Minister the power do whatever to reduce, contain or avoid a serious epidemic once gazetted as so by the Governor General.

**Slide 11:**

The Department is spending over \$20 million to develop a state of the art - real time surveillance system. This means infectious disease authorities all around the country can enter data, talk to one another electronically and carry out a continuous analysis of the data as it comes in. This is crucial to dealing with a newly emergent disease for which we know little how it will behave.

**Slide 12:**

The government has invested in a stockpile which can be mobilised at the request of States and Territories when needed.

**Slide 13:**

Two contracts, one to CSL Ltd and one to Sanofi Pasteur. The contracts are tied also to the contract to supply for three years the inter-seasonal influenza vaccine. Sanofi Pasteur in fact have produced 2 million doses of a H5N1 vaccine which the National Institute of health in the USA has commenced clinical trials. CSL are going to develop a prototype vaccine - one in which all elements are tested except for the final antigen. The H5N1 virus is evolving. There is a chance that once it begins to transmit from human to human it will have changed so much that the original H5N1 vaccine will no longer confer protection. The mock – up vaccine will allow those critical proteins to be inserted and an effective vaccine on the go within weeks.

**Slide 14:**

Information has begun to the general practitioners had a wide strategy is being developed now for industry and general public. The Department has produced governance delineating high level decision making courses and a management plan 'The Australian Management Plan for Pandemic Influenza' of which I have a couple of copies here and which is available on the health dept website has been guided by an expert committee. There is more detail that needs to go into the planning – and as it often is the devil is in the detail – for example "how do we actually operationalise mass quarantine and mass vaccination?" This is all being worked on as we speak. Through the

communications strategy the Department will be seeking the input of industry and the community

**Slide 15:**

One of the reasons Influenza is so important is that it is contagious before the person becomes sick. This makes it difficult to control – much more difficult than SARS in which a person only became infectious after developing symptoms. Generally an adult is infectious for 5-7 days but a child may be infectious for up to 21 days

**Slide 16:**

We know from very good studies that the antivirals are effective at preventing influenza 80-90% and those who do get ill largely get only a mild illness. On the other hand antivirals need to be taken within 48 hours of the first symptoms to have any effect in treatment and then the duration is reduced. We don't know how effective it is when used for treatment in preventing serious complications or death. An important issue is shedding of virus (therefore transmission) giving the antivirals for prevention means there will be far virus circulating

**Slide 17:**

This is a short sentence but it has a major impact. It means are efforts will be directed primarily at containing - that is stopping the pandemic from spreading. Efforts will of course be directed to treatment of the ill but the main aim and the considered the way to get the greatest reduction in sickness and death is to concentrate on stopping the spread. If the pandemic cannot be stopped from spreading the strategy will change to keeping society functioning

**Slide 18:**

Based on our strategies the priority groups for antivirals are those exposed to a case or who are at high risk of exposure.

**Slide 19:**

But as we don't know which group the flu virus might be most severe in – we might to change this. For example if there is high morbidity and mortality in children to the pandemic virus and after assessing all the evidence it may be best to have children on antivirals for an extended period. WE have chosen to make the process for decision making as tight as possible rather than set in cement strategies which may not work.

The change from containment to essential services will not be made lightly and we have a clear process to do this. It is possible that some areas may be in containment and others in essential maintenance. The use of quarantine will also depend on phase designation. For example if the virus becomes widespread in Western Australia the whole state could be put in quarantine and on essential maintenance but free movement within yet the Eastern states may only be getting sporadic outbreaks and rigorous use of home quarantine and restriction of movement may be used to contain further spread.

The essential workers stage hopeful we won't reach this stage – some areas may. It means the stockpile will be used essentially for those workers who will keep society turning – health care, power, water, in fact almost all of us! But the teams will have been nominated and streamlined. Strategies to minimise the depletion of the stockpile will be put in place. The extent of such activities will depend on the progress of the vaccine.

**Slide 20:**

We have much to do and we are not shirking the ethical elements. We need to talk to business and we are just working through the format for that. Other countries in the world are going through the same deliberations. Companies big and small need to and many already are looking at how they will manage during an influenza to look both after their employees as well as their business

**Slide 21:**

Thank you