COMMENTARY

AUSTRALIA'S RESPONSE TO SWINE FLU IN 2009 – HAS IT BEEN APPROPRIATE?

ALEXANDER HAMILTON[1], ROBERT CROCKET[2], and BRENT SKIPPEN[3]

[1]St Vincent's Hospital; [2]Liverpool Hospital; and [3]Sydney Eye Hospital, Sydney, Australia.

Corresponding author: Dr Alexander Hamilton (raghamilton@hotmail.com)

ABSTRACT

Swine flu is a global crisis not only because it has caused many deaths, but also because of the public attention and fear that has resulted from the uncertainty of the pandemic. Internationally the response has been vast. Swine flu has received the highest possible WHO pandemic alert, while many countries including the USA have introduced aggressive strategies to minimize the impact of the pandemic. In Australia, the response has been equally significant and for the most part should be commended. Recently a new alert level has been created, known as the "Protect" alert, recognizing that swine flu is "in most cases mild, but occasionally severe". Yet this alert came too late in the course of the pandemic. The early alerts that did not recognize the new features of swine flu resulted in inappropriate reactions, such as the closure of schools in Queensland and Victoria.

KEYWORDS: Swine flu; Influenza; H1N1; Australia; Pandemic.

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INTRODUCTION

In 2009 swine flu caused significant distress globally. First described in Mexico in early 2009, swine flu rapidly spread across the world. Recently U.S. President Obama declared swine flu to be a national emergency for the United States (H1N1 Influenza Center, 2009). Yet whether the response in Australia and internationally has been appropriate remains a contentious issue.

Swine Flu was described in the New England Journal of Medicine as Swine-origin influenza A (H1N1) virus (S-OIV), differentiating it from the numerous swine viruses known to have existed in pigs for many years (Belshe, 2009; Novel H1N1 Virus Investigation Team, 2009). The unique feature of the novel swine flu is its ability to undergo person-to-person transmission, a feature not present in other swine viruses (Belshe, 2009). Transmission is thought to be via large particle respiratory droplet spread, such as coughing or sneezing (CDC, 2009a).

Globally over 414,000 cases of Swine Flu were confirmed in 2009 (WHO, 2009a). Deaths resulting from the disease were estimated at approximately 5,000 worldwide in 2009 (WHO, 2009a). In Australia, over 37,000 cases of swine flu were confirmed, resulting in almost 5,000 hospitalisations and at least 186 deaths (DOHA, 2009a). The majority of deaths occurred in New South Wales, while about 13% of cases were among Indigenous populations (DOHA, 2009a).

In the majority of cases swine flu is a mild, self-limiting illness. Symptoms are similar to seasonal influenza, and include fevers, cough, sore throat, malaise and rhinorrhoea (DOAH, 2009b). In the minority of cases, swine flu can be a severe, fatal disease in which patients develop pneumonia and respiratory failure (Novel H1N1 Virus Investigation Team, 2009). Very severe cases require admission to intensive care, invasive ventilation, and occasionally the use of extracorporeal membrane oxygenation (ECMO) (Lum et al., 2009). ECMO is a novel approach for the management of severe, potentially reversible, respiratory failure where maximal medical management has failed. Its benefit has recently been shown for swine flu in the Australian setting (Lum et al., 2009).

THE INTERNATIONAL RESPONSE TO SWINE FLU

Internationally the response to swine flu has been vast. In June of 2009 the World Health Organization raised its global pandemic alert to the highest level, phase 6, signifying community level outbreaks of the disease in multiple WHO regions (WHO, 2009b). This prompted a massive reaction from many countries in order to prepare for the possibility of a serious influenza pandemic.

In the USA, the Centre for Disease Control (CDC) has been aggressive in its reaction to swine flu. It has focused on two broad issues: reducing the spread and severity of the disease, and increasing information dissemination (CDC, 2009b). Particular efforts have been made to introduce testing for swine flu and initiate treatment with antiviral medications where appropriate (CDC, 2009b). A safe vaccine has been successfully developed and will be available to high-risk individuals (CDC, 2009c; Zhu et al., 2009). Efforts to increase public awareness of the disease have included the dissemination of information through websites, flyers and information packs directed at

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clinicians, health care workers and the general public (CDC, 2009b).

In Asia, the impact of swine flu has been less severe than in other parts of the world with the number of cases currently decreasing in most Asian countries, according to the WHO (WHO, 2009c). Furthermore the current impact of swine flu is considered low in all south-east Asian countries where data is available (WHO, 2009c).

THE AUSTRALIAN RESPONSE

Although the WHO has announced that the global pandemic alert for swine flu is at phase 6, it has also encouraged nations to create their own alert levels, acknowledging that swine flu differs between countries and regions (DOHA, 2009c). Australia has created a new alert level, known as the "Protect" alert, which describes a "pandemic virus that is mild in most cases but severe in some" (DOHA, 2009d). This new alert level exists beside the well established alert levels of "Contain" and "Sustain", reflecting a qualitatively different, new pandemic, rather than a difference of severity (DOHA, 2009c). The "Contain" phase represents a 'pandemic virus that has arrived in Australia and is causing a small number of cases', while "Sustain" represents a 'pandemic virus that is established in Australia and spreading in the community' (DOHA, 2009d).

The "Protect" alert allows a distinction to be made between people with severe disease and people with mild disease. The key elements of the alert include (DOHA, 2009c):

- Identifying the vulnerable in whom swine flu may be severe;
- Treating the vulnerable early and aggressively;
- Voluntary home isolation for those at low risk;
- The provision of a vaccine only to those at high risk from the disease.

Thus the underlying feature is to distinguish those at risk of severe disease from those at risk of mild disease, and to treat only those at high risk aggressively, rather than treating all those affected with expensive and unnecessary measures (DOHA, 2009c).

The school closures that received significant media attention in Australia in early 2009 were intended to reduce the spread of swine flu (DOHA, 2009e). The new "Protect" alert has veered away from the mass closure of schools. Instead the alert suggests children with respiratory illness should not attend school, and that children who become sick at school should be sent home (DOHA, 2009c).

A vaccination program has been established which focuses on protecting certain groups at higher risk of exposure (such as health care workers) and those at high risk of severe outcomes (such as pregnant women, people with underlying medical conditions and Aboriginal and Torres Strait Islander people) (DOHA, 2009b). While emphasis will be on targeting these priority groups, the opportunistic vaccination of anyone wishing to protect themselves from swine flu is also encouraged (DOHA, 2009i).

Intensive care facilities (ICU) have been burdened by swine flu. Early in the course of the pandemic published descriptions of the severity of swine flu highlighted the rapid clinical progression of the disease leading to respiratory failure and death (Kaufman et al., 2009). In Victoria, efforts were made to predict the likely need for ICU facilities based on assumptions about the severity of the disease, and using pandemic modeling programs from the USA (Lum et al., 2009).

HAS THE AUSTRALIAN RESPONSE BEEN APPROPRIATE?

The "Protect" alert was initiated in Australia on the 23rd of June 2009 (Lum et al., 2009). The decision to create this new phase represents one of the successful policies of the swine flu pandemic. The previous frameworks were reconsidered in the face of a pandemic that did not fit in to their rigid structure. Earlier in the pandemic Australia was deemed to be in a "Delay" phase, followed by a "Contain" phase which was initiated on the May 22nd 2009, however neither of these phases could cater for the fact that swine flu was usually mild and only rarely severe (Lum et al., 2009). As Appuhamy et al pointed out, "a key challenge for clinicians and public health officials alike was keeping up with the stream of changing information" (Appuhamy et al., 2009). Bishop agreed, that a vital element of the response was "the use and modification of the national pandemic plan framework" (Bishop et al., 2009). Even Collignon, a staunch critic of the overall response, agreed with the introduction of the "Protect" alert (Collignon, 2009).

Early in the pandemic some schools were closed in Queensland and Victoria in order to prevent the spread of swine flu, despite the World Health Organization at the time stating that schools did not need to be closed (DOHA, 2009f; Hamilton, 2009; Queensland Health, 2009a, WHO, 2009d). These measures have subsequently ceased, with the current alert level suggesting that "widespread closure of schools is not an appropriate intervention" (DOHA, 2009c). The closure of schools is not without impact, as was seen with the significant confusion and distress in Queensland and Victoria early in 2009. Many authors questioned practices such as border control measures to restrict the spread of influenza, given the lack of scientific evidence to support their effectiveness (Collignon, 2009; Bradt and Epstein, 2010). In the context of a disease that is in the majority of cases mild, enforcing school closures and restricting travel was not warranted.

Certain individuals are at higher than the normal risk of severe disease from swine flu. Recent evidence suggests pregnant women are at particularly high risk from swine flu (Jamieson et al., 2009). Others at high risk include children less than 5 years old, adults older than 65 years old, people with significant medical comorbidities, immunosuppressed patients and people living in care facilities (CDC, 2009a). The "Protect" phase acknowledges that these high risk individuals exist, and that they require particular attention in order to minimize the effect of swine flu. This is considered a particularly commendable policy from the Department of Health and Ageing, both in terms of providing care to those at risk of disease, and in terms of sensible resource allocation (Bishop et al., 2009).

According to the WHO, successful vaccination programs are the key to preventing influenza transmission (WHO, 2009e). The rapid development of a vaccine against swine flu was therefore an important step in reducing the disease burden from the disease. In Australia, the vaccine will be encouraged for high risk individuals, as described above (DOHA, 2009c; DOHA, 2009i). Early evidence suggests the vaccine is relatively safe, meaning its benefit should extend beyond just the 'high risk' individuals to include the wider population (Zhu et al., 2009). Although this may well be true, at this stage supplies of the vaccine are limited so those most at risk should be given the highest priority (Lancet, 2009). Thus the focus on high-risk individuals as the main target for a vaccination campaign is sensible given the limited vaccine supply available.

The clinical pattern of swine flu seen in Mexico at the beginning of the epidemic was of a severe, rapidly lethal disease causing respiratory failure (WHO, 2009e). Therefore it was prudent in Australia to be prepared for this clinical pattern and severity of swine flu. In Victoria predictions of the need for ICU facilities were made during the early stages of the pandemic. These predictions were made using an American influenza modeling package, "FluAid 2.0", and were based on assumptions about the proportion of people needing hospitalization and the proportion of hospitalized patients requiring admission to ICU (Lum et al., 2009). These predictions were shown to correlate closely with the actual numbers requiring transfer to ICU, although the need for ECMO was underestimated (Lum et al., 2009). Although this is a specific example of effective preparation, there has been criticism of preparatory efforts. For example Grayson argued that although experts were involved in all phases of the planning process, there was insufficient input from clinicians, which resulted in practical issues such as the distribution of medications being overlooked (Grayson and Johnson, 2009).

AT TIMES THE RESPONSE HAS BEEN EXCESSIVE

The current alert level of "Protect" is a sensible alert level given the threat posed by swine flu. However, this alert level occurred late in the pandemic, having been introduced only on the 23rd June 2009 (Lum et al., 2009). Early in the pandemic Australia was in a "Contain" phase (DOHA, 2009g). This phase was unsuited to swine flu because it did not allow an appropriately tailored response. Victoria, by creating a "modified sustain" alert, showed the necessary flexibility early in the pandemic to allow the distinction to be made between 'high risk' and 'low risk' groups (DOHA, 2009e). Nationally, swine flu should have been recognized as a novel crisis and a new alert level, such as "Protect", developed earlier.

INFORMATION DISSEMINATION

Although information about swine flu is available for those who seek it, Australia has not followed the USA in announcing swine flu as a national emergency (H1N1 Influenza Center, 2009). Therefore, swine flu is currently receiving less media attention here than in other countries such as the USA. The USA should be commended for this approach, particularly given that information dissemination is one of their stated priorities (CDC, 2009b). It has been suggested that paranoia and fear are driving transmission of the disease, as patients seek health care unnecessarily and spread the virus (Collignon, 2009). Yet more accurate information will result in people seeking treatment appropriately, in line with the true risk posed by swine flu.

In Australia, accurate and clear information can be found on the Department of Health and Ageing website, which is consistent with information on numerous state Department of Health websites (Queensland Health, 2009b, Victoria Health, 2009, Doha, 2009h). The Australian medical literature continues to publish articles about swine flu (Lum et al., 2009; Kaufman et al., 2009; Appuhamy et al., 2009; Bishop et al., 2009; Collignon, 2009, Bradt and Epstein, 2010, Grayson and Johnson, 2009). Thus for those who seek to be informed, information is readily available. For those who do not, swine flu's presence in the national media is dwindling. Perhaps we should follow American tactics in order to better educate the Australian population about the potential impact of swine flu.

CONCLUSION

The aggressive response to swine flu recognizes the magnitude of the crisis this pandemic has created. The response in Australia has been in large part appropriate. Although early in the pandemic the response was insufficiently tailored to the threat, as the pandemic has developed the response has improved. From this crisis we should learn the need to combine adequate preparatory efforts with a malleable response tailored to the specific features of a pandemic.

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