The 2009 Influenza Pandemic: Strengths and Weaknesses of the Response in a Small Developed Country (New Zealand)

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Aim & Methods

To inform future influenza pandemic planning, we aimed to review the literature on the health sector response to the influenza A (H1N1) 09 pandemic in New Zealand (NZ) in 2009. We searched PubMed and Google Scholar along with the websites of government agencies (identifying n=48 PubMed-indexed works as of 1 October 2011).

Results

Epidemiological context

NZ was one of the first countries to experience the 2009 pandemic [1], which was characterized by a short and abrupt “epidemic curve” (Figure 1) with evidence of moderate infectivity [2]. It was much less severe than what had been anticipated and planned for in pandemic planning preparations, which were relatively advanced [3]. A fifth of the NZ population (18%) had evidence of infection from the pandemic strain in 2009 and 1122 people were hospitalized. Of those hospitalized, 102 were treated in intensive care units (ICUs), and there were 49 pandemic-attributed deaths. The health burden was relatively worse for Māori (indigenous population) and Pacific peoples in NZ [4].

![Figure 1: Example graph from a (very regular) NZ Ministry of Health online update on the pandemic (No. 161) (http://www.infonews.co.nz/news.cfm?id=44864)](image)

Strengths of the response

Our impression from the published literature, media reports and our own work experience during 2009, is that the NZ health sector performed very well. Objectively the combination of virus characteristics and health sector responses with case identification, isolation, contact tracing and the provision of antivirals. There is some suggestion that these helped slow the initial spread. That is “the considerable interval without reported cases during May (before the epidemic accelerated in June) provides some suggestive evidence for the success of the containment measures” [6].

Weaknesses of the response

1. **No overall review of the response:** As of early 2012, there has been no detailed review of the epidemiology and public health response to the 2009 pandemic in NZ. Similarly, the response has not been considered in the light of review work by WHO and others on the international response [7][8]. There has also been no reviews of the response from an equity perspective (especially the impact on Māori).

2. **No review of the effectiveness of containment measures:** Probably the most distinctive element of NZ’s pandemic plan is a major focus on border control and containment (“Keep it out, Stamp it out”). These measures consumed a great deal of resources during the planning phase and the pandemic itself – and so it is particularly relevant to review these.

3. **No sophisticated analytic studies on risk factors for poor outcomes:** Such work in the form of a case-control study of hospitalized cases could have substantially improved on the risk factor data from descriptive studies. Furthermore, national research funding agencies were relatively slow in making funds available for pandemic-related research [9].

4. **No studies on pandemic vaccine uptake and acceptability:** No such work was identified and yet this information would inform future decision-making around the provision of pandemic vaccine.

5. **No evaluation of the public health messages:** The hygiene and other messages used in mass media campaigns by the health sector were not formally evaluated (even though some behavioral data on hand hygiene and respiratory hygiene were collected).

6. **No economic impact assessment:** Studying the economic impacts on the health sector, education sector and economy (eg, tourism impacts, absenteeism from school and work) would help inform future decision-making around pandemic control. The cost of unused monovalent pandemic vaccine and expired stockpiled antivirals was also not documented.

Conclusions

While the 2009 pandemic was much less severe than what had been anticipated, the NZ health sector still responded successfully and contributed to an extremely low case fatality proportion. Nevertheless, we have identified various weaknesses in the response, particularly in how it was evaluated and researched. These gaps will limit the capacity for improvements in future pandemic planning. Some of these issues may be relevant to other countries – which also need to upgrade pandemic plans and improve disaster management.

References

5. Personal communication Lisa Higgins, ANZIC Research Centre, Australia.
9. Personal communication Lisa Higgins, ANZIC Research Centre, Australia.