Pandemic lessons from Australia

Pandemic flu hit Australia at the start of its peak flu season. **Melissa Sweet** looks at the virus's effects and what the northern hemisphere can learn as its winter approaches

In the three months since influenza A/H1N1 first emerged in Australia, the response has evolved—judging by newspaper headlines—from hysteria through accusations of over-reaction to concern about the effect of critically ill patients on stretched intensive care units.

At the same time, the general public and health services have grappled with messages and policies that have been, at times, inconsistent. "The big concern from our perspective would be the lack of consistent information the general public received, especially about what they should do," said Carol Bennett, executive director of the Consumers Health Forum Australia.

"It would be really useful now to review the response in a pragmatic way and an honest way, and to look at the general principles that we've learnt."

Communication has been inconsistent partly because different parts of Australia have gone through the pandemic at different times and officials have been faced with the challenge of adjusting the response to cope with an infection that has not been as dangerous as the worst case scenario expectations that underpinned planning. It is also a consequence of the complexity of Australia's federation, requiring coordination of one national and eight state and territory governments.

But it also reflects division in medical and scientific experts' views, with some warning of the potential for tens of thousands of deaths, while others have cautioned against over-reaction.

Scale of epidemic

According to official figures, Australia, with a population of 21 million, had 27 663 confirmed cases by 11 August, with 95 confirmed deaths and 3281 hospital admissions. The

TOP TIPS FOR THE NORTHERN HEMISPHERE

CHRIS CRERAR/NEWS LTD/NEWSPIX

Paul Torzillo, respiratory and intensive care physician, Sydney (left)

- Facilitate primary healthcare sector's access to antiviral treatments
- Ensure primary healthcare sector is aware of obesity, pregnancy, and the postpartum period as high risk categories for severe disease
- Encourage primary healthcare sector to assess respiratory rate and where possible to do pulse oximetry in patients with typical influenza symptoms, to check for potential severe disease
- Increase intensive care capacity to cope with increased numbers of patients with overwhelming respiratory failure
- Enhance rapid delivery systems for vaccinations when available

Heath Kelly, head of the epidemiology unit at the Victorian Infectious Diseases Reference Laboratory

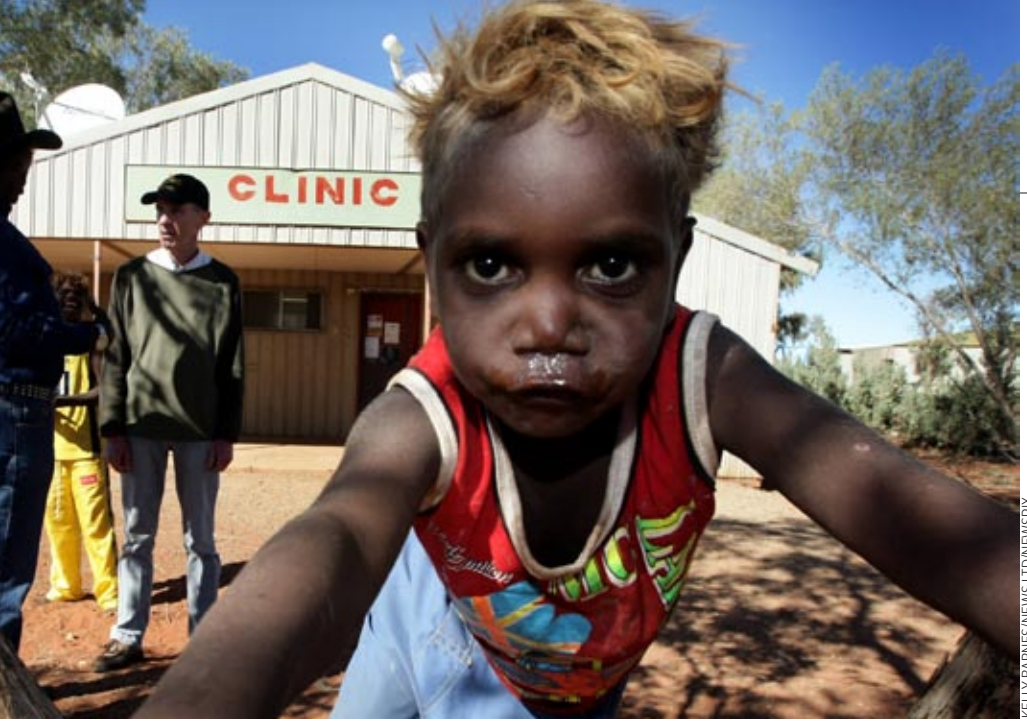
- Carefully track the pandemic in order to make reasonable comparisons with past seasonal epidemics
- Have a rational approach to school closure, as has been adopted in the Australian protect phase and is planned by the US
- The messages to the public about pandemic control should be the same as for control of seasonal influenza
- Use the pandemic to improve infection control procedures in and out of hospital
- Be aware of the pandemic paradox: a high proportion of asymptomatic and mild cases but serious disease in the overweight and pregnant women. The overweight with confirmed pandemic infection may consume a disproportionate time in intensive care

Kate Clezy, infectious diseases physician, Sydney

- Have absolutely clear infection control guidelines (many aspects have been hotly debated in Australia—eg, the merits of different types of mask, 1 m *v* 2 m rules for close contact, eye protection *v* no eye protection)
- Have clear plan to manage pregnant women—from early identification, counselling, treatment, and escalation to intensive care and extracorporeal membrane oxygenation
- Have a plan to manage the workforce, especially identification and treatment of infected healthcare workers. Many will get very mild disease and would in normal circumstances continue to be at work
- Have a clear plan for communication with all staff to balance media reports with local responses
- The pandemic plans we had before A/H1N1 did not include the possibility of large numbers of people getting mildly unwell. Plans need to be reviewed to include this possibility

Chris Mitchell, president, Royal Australian College of General Practitioners (right)

- Patients go to their general practitioner whatever the pandemic plans say
- General practice needs the resources to meet this need
- Lack of early access to personal protective equipment and antivirals for general practice was a serious problem
- The response from general practice was reliant on the attitudes of lead general practitioners
- Variation between plans across state jurisdictions caused problems for general practice



KELLY BARNES/NEWS LTD/NEWSPIX

Public health physician Charles Douglas, centre, on a visit to the Kiwirrkurra Aboriginal Community after the death of a young man with swine flu

federal minister for health and ageing, Nicola Roxon, told a news conference on 5 August that the median age of those who have died is 51, compared with 83 for seasonal influenza.

Heath Kelly, head of the epidemiology unit at the Victorian Infectious Diseases Reference Laboratory, which was in the thick of a testing surge in early June, thinks it likely, based on information to date, that the national pandemic death toll will be under 1000, compared with the 1500 to 3000 deaths that modelling attributes to influenza annually.

"There have been some unnecessary, alarmist comments to the public by professionals," he said. "One can't generalise by the experience of one region or one state in the southern hemisphere, but one thing you could learn from Victoria is that the peak to date has not been worse than previous influenza peaks.

"It's something the northern hemisphere could take some comfort in, although we are dealing with a virus that we have not seen before and should be cautious about predictions."

Lack of good data about seasonal influenza was impeding efforts to evaluate the pandemic's relative impact, he added.

"There appears to be something different about this H1N1 and seasonal H1N1," he said. "Although H1N1 viruses affect younger people, this H1N1 virus appears to be more virulent in pregnant women and overweight or obese people."

John Mathews, a professorial fellow at the University of Melbourne and a former senior public health adviser to the Australian government, expects the outbreak will finish in September in most parts of Australia with total hospital admissions no more than 4000 to 5000.

He expects there will be fewer than 200 deaths in hospital patients, although the numbers of influenza related deaths outside hospitals will not be known for some time.

This contrasts with the 1918-9 pandemic, when there were about 15 000 deaths in a population of 6 million. "The implication is, 'don't panic,'" he said.

Appropriate response?

Peter Collignon, an infectious diseases physician at the Australian National University, has been a vocal critic of the overall response, arguing that it has been excessive and promoted fear that may help spread the virus by encouraging people with mild illness to present to health services.

"One of the lessons we need to learn is not to over-react," he said. "The problem with influenza experts is that they're to a large degree fixated on what happened in 1918-9 and think that's going to happen again. Over 95% of deaths then were due to bacterial pneumonia. We now have effective antibiotics."

However, others believe the risks are being understated. Paul Torzillo, a senior respiratory and intensive care physician at Royal Prince Alfred Hospital in Sydney, has never seen young adults so sick from influenza before and warns intensive care units in the northern hemisphere to prepare for a surge.

"I've never seen anything like this in my professional life, and I've been a respiratory intensivist for 30 years," he said. "There may well be fewer people who are old with comorbidities who die, but there is no question that the overwhelming respiratory failure you see in young people is something you rarely ever see with normal influenza."

PANDEMIC PLANNING

In October 2006, several people thought to be infected with avian influenza flew into the Australian city of Brisbane, triggering an emergency response that revealed important gaps in the country's preparedness for a pandemic.

The "patients" were in fact participants in a massive exercise testing whether the $A610m invested in pandemic planning over the previous three years had been well spent. Observers from international agencies, including the World Health Organization, and many countries were also looking for useful lessons.

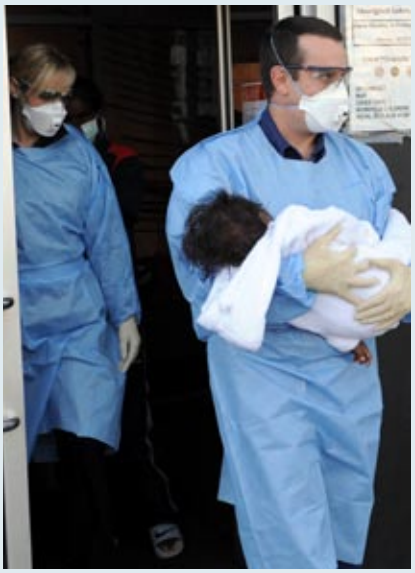
The subsequent report on Exercise Cumpston (www.flupandemic.gov.au/internet/panflu/publishing.nsf/Content/34B24A2E2E6018E9CA2573D7000006D2/$File/exercise-cumpston-report.pdf) made many recommendations, including that:

- Decision making processes be streamlined
- There should be greater flexibility in planning
- Messages across and between governments should be consistent, and
- General practice, primary care and community pharmacies should be better integrated into planning.

The report also questioned the health system's capacity for distributing antivirals in the event of a pandemic and identified a lack of information for indigenous and culturally and linguistically diverse populations.

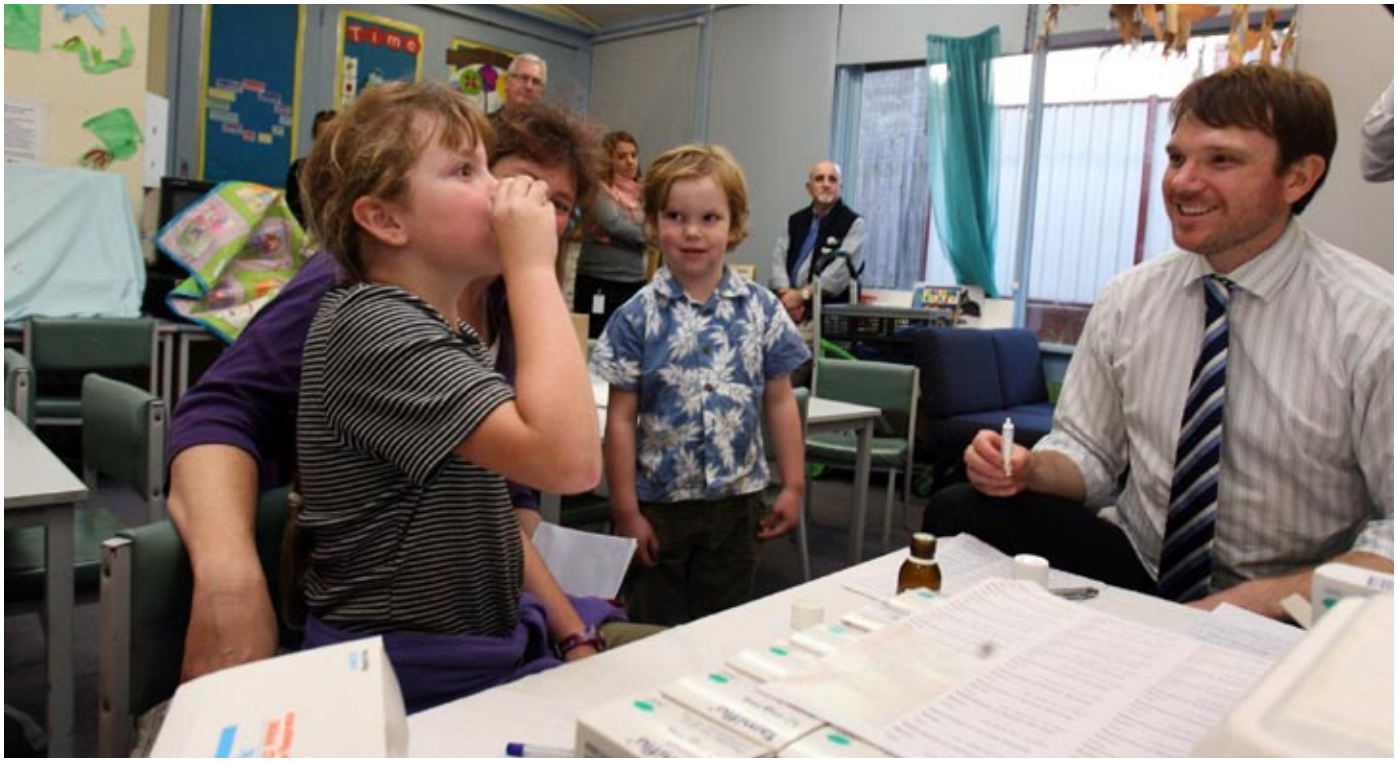
In the three months since the influenza A/H1N1 broke in Australia it has become clear that the lessons from Exercise Cumpston remain extremely relevant.

While views about many aspects of the pandemic differ, there is widespread agreement about at least one thing: that there should be a rigorous, transparent, and independent evaluation of the Australian response to help guide future efforts both locally and globally.



Adelaide: Ambulance officers carry a young boy suspected of having swine flu

MICHAEL MARSCHALL/NEWS LTD/NEWSPIX



DAVID GERAGHTY/NEWS LTD/NEWSPIX

Primary school pupil receives a dose of Tamiflu after a case of swine flu was reported at her school

Terry Nolan, head of the University of Melbourne School of Population Health, who is running clinical trials in children of an A/H1N1 vaccine, also cautions against being overly dismissive.

"I think people have underestimated its severity and backed off from it probably more than they should have," he said. The virus is having a significant impact on the health system, particularly hospital and intensive care unit admissions.

Professor Nolan also says Australia may not have used antivirals intensively enough in the early stages to flatten the epidemic curve, which might have helped the health system cope better with surging demand.

Robert Booy, professor of paediatrics and child health at the Children's Hospital, Westmead, in Sydney, advises taking a nuanced perspective. "We had both more severe disease and a huge amount of very mild disease," he said, "and people either played it one way or the other, and in doing so they either underplayed it or overplayed it, and the truth was in between."

Proactive approach

Meanwhile, health and medical organisations in the northern hemisphere are being advised to be proactive and prepared in their communication strategies to both their members and the public.

The Royal Australian and New Zealand College of Obstetricians and Gynaecologists was caught in the media spotlight when alarm about pregnant women hit the front pages. "We could perhaps have been a bit more proactive in getting messages out there," said college president Ted Weaver.

Dr Weaver said it also would have been helpful to have more multidisciplinary messages, with better linkages between public health and clinical groups. "We found it a bit tricky to get infectious diseases advice to link in with our advice and public health advice."

For general practice, a key lesson has been the importance of leadership within practices— for example, in ensuring practice plans are in place and implemented—and access to personal protective equipment and antivirals, according to Chris Mitchell, president of the Royal Australian College of General Practitioners. He also stressed the importance of health and medical colleges providing prompt telephone services to members as well as web material.

A critical issue for hospitals and other health services, according to Sydney infectious diseases physician Kate Clezy, is ensuring there are clear, consistent messages to staff about infection control, and that the concerns of vulnerable staff, especially pregnant women, are addressed.

Many questions remain, including about resistance to oseltamivir and the safety and effectiveness of vaccines now being tested.

Warwick Anderson, chief executive of the National Health and Medical Research Council, which fast tracked $A7m (£3.5m; €4m; $5.8m) for research into pandemic influenza and will hold a workshop for researchers and policy makers in December, advises caution in the face of many uncertainties.

"The important issue is that we keep our eye on this," he said, "because I think nobody really knows what's going to happen."

Anne Kelso, director of the WHO Collaborating Centre for Reference and Research on Influenza in Melbourne, adds that the needs of developing countries, which are unlikely to gain equitable access to vaccines, are a major issue.

"As a global community, we need to be very concerned about developing countries," she said. "The impact could be far more severe than we've seen in countries like our own."

The Federal Department of Health and Ageing had not responded to a detailed list of questions at the time of going to press.

Melissa Sweet freelance health journalist, New South Wales, Australia

Competing interests: MS has honorary appointments at University of Sydney School of Public Health and University of Notre Dame Medical School (Sydney campus).

Details of the Australian health management plan for pandemic influenza are available at www.flupandemic.gov.au/internet/panflu/publishing.nsf/Content/ahmppi.

Cite this as: *BMJ* 2009;339:b3317