Managing outbreaks of viral respiratory infection in aged care facilities — challenges and difficulties during the first pandemic wave

Gulam Khandaker, Bridget Doyle, Dominic E Dwyer and Robert Booy

To the Editor: We describe here some of the difficulties in managing and investigating outbreaks of viral respiratory infection in aged care facilities (ACFs) in the context of an influenza pandemic. This adds to the previous report on logistics in a hospital setting.[1]

On 12 June 2009, NSW Health received a call from a surveillance officer in a remote town regarding a possible pandemic (H1N1) 2009 influenza outbreak in an ACF. On 9 June, a 77-year-old female resident had become unwell, without specific symptoms of influenza-like illness. From 7 to 10 June, nine of the other 27 residents developed influenza-like illness. On 10 June, nasal swabs were taken from the 10 unwell residents by the local general practitioner for influenza nucleic acid testing (NAT). On 12 June, the index case tested positive for pandemic influenza, while the other residents tested negative.

Due to concern that there might be a pandemic influenza outbreak in the facility, the index case and the nine residents with influenza-like illness were given oseltamivir (75 mg twice a day for 5 days) from 13 June; the other 18 residents and the 27 staff were given oseltamivir prophylaxis (75 mg daily for 10 days). A formal outbreak investigation and further laboratory testing (NAT, serological testing) revealed a dual outbreak dominated by rhinovirus (10 cases), with two cases of pandemic influenza and one case of untyped influenza A. All 28 residents and 26 of the 27 staff had received seasonal influenza vaccine in early 2009.

This outbreak illustrates that more than one respiratory virus may co-circulate in ACFs during winter outbreaks of respiratory infection. We followed Department of Health and Ageing policy guidelines for oseltamivir use in ACFs[2] and the facility was closed to visitors from 12 to 18 June. However, as all residents had received seasonal influenza vaccination, and given that older people are generally at lower risk of pandemic (H1N1) 2009 influenza,[3] we could have had a higher threshold for oseltamivir use. The total estimated cost of treatment and prophylaxis was $2750 (55 residents and staff at $50/person) for oseltamivir alone.

Co-infection with respiratory viruses may be more common than thought in ACFs; a recent Canadian study found two and three different pathogens in 15% and 4% of respiratory infection outbreaks, respectively, from a total of 83 outbreaks (of which 91% occurred in long-term care facilities).[4] If many ACF outbreaks have more than one respiratory virus involved, laboratory investigations should take a multiplex approach that covers common respiratory viruses. As many patients as practical (at least five) should be swabbed and tested to guide treatment, prophylaxis and other investigations. Community influenza surveillance should ideally include information on sensitivity to oseltamivir, and on other circulating respiratory viruses.

Acknowledgements: We acknowledge the assistance of Dr Jeremy McAnulty, Director of Communicable Diseases Branch, NSW Health; all the residents and staff of the ACF; and the laboratory staff at the Centre for Infectious Diseases and Microbiology, Westmead Hospital.

Competing interests: Robert Booy has received occasional funding from CSL, Roche, Sanofi-Aventis, GlaxoSmithKline and Wyeth to attend and present at scientific meetings, but all such funding is directed to a research account at The Children's Hospital at Westmead and not accepted personally. The Moran Health Care Group, the Australian Research Council and Roche provided funding to undertake a study relating to influenza in aged care facilities from 2006 to 2008.

Gulam Khandaker, Clinical Research Fellow[1]
Bridget Doyle, Surveillance Officer[2]
Dominic E Dwyer, Senior Medical Virologist[3]
Robert Booy, Head of Clinical Research[1]

1 National Centre for Immunisation Research and Surveillance of Vaccine Preventable Diseases, The Children's Hospital at Westmead, Sydney, NSW.
2 Public Health Unit, Greater Southern Area Health Service, Albury, NSW.
3 Centre for Infectious Diseases and Microbiology, Westmead Hospital, Sydney, NSW.

RobertB2@chw.edu.au

1 Devi U, Buising KL. Infection control of pandemic (H1N1) 2009 influenza in hospitals — a logistic challenge. *Med J Aust* 2010; 192: 164-165.
2 Communicable Disease Network Australia. A practical guide to assist in the prevention and management of influenza outbreaks in residential care facilities in Australia. Canberra: CDNA, 2009. http://www.health.gov.au/internet/main/publishing.nsf/Content/52FBCA168C422F70CA2575D3001301D8/$File/A%20practical%20guide%20Seasonal%20Flu%20in%20RCFs%2012%20Jun%2009.pdf (accessed Jul 2009).
3 Centers for Disease Control and Prevention (CDC). Outbreaks of 2009 pandemic influenza A (H1N1) among long-term-care facility residents — three states, 2009. *MMWR Morb Mortal Wkly Rep* 2010; 59: 74-77.
4 Marchand-Austin A, Farrell DJ, Jamieson FB, et al. Respiratory infection in institutions during early stages of pandemic (H1N1) 2009, Canada. *Emerg Infect Dis* 2009; 15: 2001-2003. ❑