



**Fatal community-associated methicillin-resistant *Staphylococcus aureus* pneumonia after influenza**

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**TO THE EDITOR:** The report by Risson and colleagues of a fatal case of necrotising pneumonia caused by community-associated methicillin-resistant *Staphylococcus aureus* (CA-MRSA)<sup>1</sup> appropriately highlights the emerging issue of CA-MRSA infections in Australia,<sup>2</sup> and the possibility that severe *S. aureus* sepsis may follow recurrent furunculosis. We wish to draw attention to the association between severe staphylococcal pneumonia and a preceding influenza-like illness.

In September 2006, a 56-year-old woman of European background with a history of chronic back pain and depression presented to the Royal Darwin Hospital after a 4-day influenza-like illness characterised by cough, fever and sore throat. She then developed dyspnoea and pleuritic chest pain, followed by an abrupt respiratory deterioration.

She was intubated and admitted to the intensive care unit with severe sepsis. A chest x-ray showed widespread bilateral pneumonia. We began broad-spectrum antibiotic therapy with piperacillin-tazobactam and azithromycin as per the hospital's dry-season protocol for severe community-acquired pneumonia. Further history from her husband revealed an episode of boils 1 month previously, which responded to antibiotic therapy. We added vancomycin to the therapy and, when sputum and blood cultures showed MRSA 48 hours after admission, we also added rifampicin and gentamicin. On Day 5 of admission, her clinical condition deteriorated further and we replaced rifampicin and gentamicin with linezolid. Complement fixation testing of serum taken on admission showed an influenza A antibody titre of 128, consistent with recent acute infection. Despite ongoing intensive supportive care, the patient died from refractory respiratory failure 10 days after admission.

Typing of the *S. aureus* isolates from blood and sputum showed that their single

nucleotide polymorphism and variable gene profile was consistent with the Queensland clone (ST93-MRSA-IV) of CA-

MRSA, and that the Panton-Valentine leukocidin gene was present.

*S. aureus* has long been a recognised cause of influenza-associated pneumonia. Of concern, two recent reports from the United States identified 25 patients with CA-MRSA associated with severe pneumonia following influenza-like illnesses.<sup>3,4</sup> Most of these patients were young (median age of 21 years<sup>3</sup> and 17.8 years,<sup>4</sup> respectively) and otherwise healthy. Combined mortality in these two studies was 40%.

With an increasing prevalence of CA-MRSA in areas of Australia,<sup>2</sup> CA-MRSA pneumonia should be suspected in patients presenting with worsening respiratory status and sepsis following an influenza-like illness. We stress the importance of annual influenza vaccination for those at increased risk of influenza-related complications.<sup>5</sup>

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2 Nimmo GR, Coombs GW, Pearson JC, et al. Methicillin-resistant *Staphylococcus aureus* in the Australian community: an evolving epidemic. *Med J Aust* 2006; 184: 384-388.

3 Hageman JC, Uyeki TM, Francis JS, et al. Severe community-acquired pneumonia due to *Staphylococcus aureus*, 2003-04 influenza season. *Emerg Infect Dis* 2006; 12: 894-899.

4 US Centers for Disease Control and Prevention. Severe methicillin-resistant *Staphylococcus aureus* community-acquired pneumonia associated with influenza — Louisiana and Georgia, December 2006–January 2007. *MMWR Morb Mortal Wkly Rep* 2007; 56: 325-329.

5 National Health and Medical Research Council. The Australian immunisation handbook. 8th ed. Canberra: Commonwealth of Australia, 2003.