

Rates of hospitalisation for acute respiratory illness and the emergence of pandemic (H1N1) 2009 virus in the Hunter New England Area Health Service

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TO THE EDITOR: Hospitalisation rates for seasonal influenza are highest among young children and people aged over 65 years.¹⁻³ Calculation of laboratory-confirmed infection rates is difficult because influenza testing is not consistently performed. Using diagnostic codes to identify hospitalisations for acute respiratory illness provides one measure of the relative burden of pandemic (H1N1) 2009 (pH1N1) virus infection compared with influenza virus infections in previous influenza seasons.

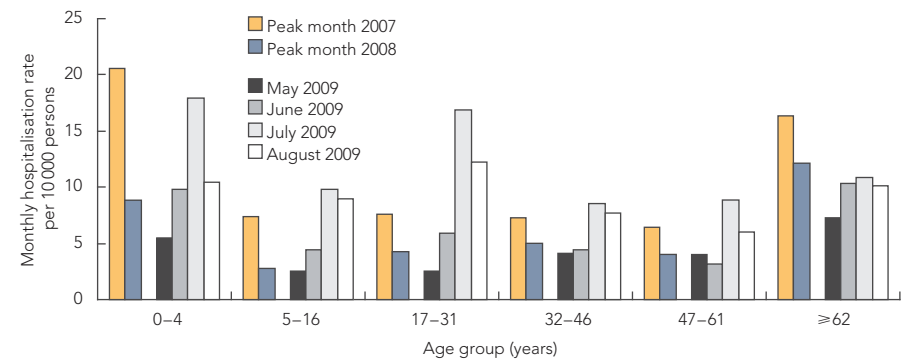
On 26 May 2009, the first pH1N1 virus human infection in New South Wales was identified, and between June and August 2009, pH1N1 was the predominant circulating influenza virus strain (found in 15%–82% of influenza A-positive specimens).⁴ In July 2009, the Hunter New England Area Health Service (HNEAHS) (population, 866 000) in NSW established population-based surveillance for hospitalisations for acute respiratory illness at all 35 HNE public hospitals admitting patients with respiratory illness. Data on hospitalisations coded with eight International Classification of Diseases (10th revision) codes (Box 1) were analysed by age group and year.

1 Emergency department ICD-10 separation codes used for acute respiratory illness hospitalisation surveillance

Code	Disease
J11	Influenza, virus not identified
J11.1	Influenza with other respiratory manifestations, virus not identified
J11.8	Influenza with other manifestations, virus not identified
J12.9	Viral pneumonia, unspecified
J15.9	Bacterial pneumonia, unspecified
J18.9	Pneumonia, unspecified
J22	Unspecified acute lower respiratory infection
J96.9	Respiratory failure, unspecified

ICD-10 = International Classification of Diseases (10th revision).

2 Monthly hospitalisation rates for acute respiratory illness in the Hunter New England Area Health Service region, May–August 2009, compared with peak monthly rates in 2007 and 2008*



* Hospitalisation rates are per 10 000 residents of the Hunter New England Area Health Service region.

Data for 2007 and 2008 (relatively severe and relatively mild influenza seasons, respectively)⁵ were used for comparison. Monthly hospitalisation rates for acute respiratory illness were calculated for 1 January 2007 to 31 August 2009.

Over the period June to August in 2007 and 2008, 1736 and 1267 hospitalisations for acute respiratory illness occurred, respectively, and monthly hospitalisation rates peaked during August in both years (859 [9.7/10 000 persons] in 2007 and 517 [5.8/10 000 persons] in 2008). The highest hospitalisation rates occurred in children aged 0–4 years (113 [20.6/10 000 persons] in 2007 and 37 [8.9/10 000 persons] in 2008) and in people aged ≥ 62 years (276 [16.3/10 000 persons] in 2007 and 212 [12.1/10 000 persons] in 2008).

In 2009, over the same 3-month period (June to August), there were 2378 hospitalisations for acute respiratory illness, with monthly hospitalisation rates peaking in July (1029 [11.4/10 000 persons]). Between May 2009 (before pH1N1 circulation) and July 2009, the monthly hospitalisation rate for acute respiratory illness in the HNEAHS increased by 260% (from 385 [4.3/10 000 persons] to 1029 [11.4/10 000 persons]). During the same period, age-specific hospitalisation rates increased more than threefold among children aged 0–4 years (from 31 [5.5/10 000 persons] to 101 [17.9/10 000 persons]) and 5–16 years (from 36 [2.5/10 000 persons] to 140 [9.8/10 000 persons]), and more than sixfold among people aged 17–31 years (from 43 [2.6/10 000 persons] to 281 [16.9/10 000 persons]) (Box 2).

In July 2009, age-specific hospitalisation rates among people aged 5–61 years exceeded respective peak age-specific hos-

pitalisation rates for 2007, while hospitalisation rates among children aged 0–4 years and people aged ≥ 62 years remained below 2007 peak rates for their respective age groups.

Although our analysis calculated hospitalisation rates for various types of respiratory illness (including infections with non-influenza viruses) and may be affected by changes in health care-seeking behaviour and coding practices, comparison over multiple seasons suggests several unique features of the 2009 influenza season in the HNE region. Compared with 2007 and 2008, the HNEAHS experienced a rapid, early increase in hospitalisations for acute respiratory illness, coinciding with the emergence of pH1N1. Furthermore, a disproportionate burden of hospitalisations occurred among people aged 5–61 years (particularly those aged 17–31 years), with a relatively lower burden among those aged ≥ 62 years. Ongoing surveillance will determine whether these age-specific trends continue in the 2010 influenza season.

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