

H1N1 influenza ('swine 'flu') in the paediatric ICU in South Africa



The 2015 influenza season officially started during the second week of May, according to the National Institute of Communicable Diseases (NICD).^[1] The NICD website explains that the influenza strains in circulation change every year and that this year the 'swine 'flu' strain (influenza A(H1N1)pdm09) is behaving similarly to any of the other influenza strains. However, in 2009 this strain caused an influenza pandemic.^[1]

Influenza viruses are endemic in many species, including humans, birds and pigs, and they are known to result in annual seasonal outbreaks of disease, which cause both significant morbidity and mortality.^[2] Occasionally, however, influenza viruses cause pandemics, characterised by 'sustained community spread in multiple regions of the world'.^[2] The epidemiological definition of a pandemic is 'an epidemic occurring worldwide or over a very wide area, crossing international boundaries and usually affecting a large number of people'.^[3] The definition does not define the severity of the outbreak. In South Africa, the 2009 outbreak coincided with the winter months and thus the usual season for respiratory virus infections. What was unusual about the H1N1 outbreak was its predilection for older children, young adults and pregnant women. The median age of patients all over the world in this pandemic was 10 - 20 years.^[4]

In their article published in this journal, Ahrens and co-authors present their experience of critically ill children at Red Cross War Memorial Children's Hospital (RCWMCH) who were admitted with H1N1 infection during the outbreak from 1 August to 30 September 2009 and compare these patients with children affected by other respiratory viruses.^[5] During this period, 19 children with H1N1 were admitted to the Paediatric Intensive Care Unit (PICU) out of 20 admissions.

The data from this study reveal a number of interesting characteristics. Most of the H1N1-infected children in the study were younger than 3 years of age, with only three patients older than this.^[5] This is in contrast to our own experience of H1N1 affecting predominantly older children, as well as the description from the literature.^[4,6] In a study of all the paediatric deaths associated with the 2009 pandemic in the USA, the median age at death was 9.4 years, and 72% of the children were >5 years of age at the time of death.^[6] Comorbidities were prevalent in both of the

RCWMCH groups and are in accordance with data from the USA, where 68% of the children for whom the information was available had an associated high-risk medical condition.^[6] These conditions included neurodevelopmental and seizure disorders, asthma and other lung diseases, and cardiac disease. Four of the five deaths in the RCWMCH study were in children with significant underlying comorbidities.^[5]

Patients with H1N1 infection had greater morbidity and longer PICU stays than children with other respiratory virus infections.^[5] This inevitably has a knock-on effect in limiting turnover of beds and the availability of these beds to other children, particularly those requiring elective surgery.

What is of concern is the high prevalence of presumed hospital-acquired H1N1 infection in the RCWMCH study, namely 36.8%. Six out of the seven children with nosocomially acquired H1N1 infection had underlying chronic conditions; the seventh child was referred from another hospital.^[5] As the authors point out, the high bed occupancy rate in a very busy tertiary hospital serving the public health sector does increase the risk for hospital-acquired infections, especially during the respiratory virus season. It is incumbent upon us to emphasise the importance of prevention of transmission of infection between patients in our wards.

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