

be provided by Rrs<sub>8</sub> and Xrs<sub>8</sub>. A fall in Rrs of 40% or an increase in Xrs of 65% are indicative of significant changes in respiratory function following BD inhalation. Further systematic studies are required to determine the clinical significance of post-BD changes in lung function in preschool children with lung disease.

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This work is supported by grants from the National Health and Medical Research Committee, Australia, the National Institutes of Health, USA and the Asthma Foundation of Western Australia. KU was supported by a grant from the Siriraj Hospital, Thailand.

Competing interests: None.

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## LUNG ALERT

### Emergence of influenza B viruses with reduced sensitivity to neuraminidase inhibitors

▲ Emergence of influenza B viruses with reduced sensitivity to neuraminidase inhibitors. Hatakeyama S, Sugaya N, Ito M, *et al.* *JAMA* 2007;**297**:1435–42.

Oseltamivir is a neuraminidase inhibitor effective in the treatment of influenza. In this Japanese study, the sensitivity of influenza B virus to neuraminidase inhibitors was assessed in 74 children before and after treatment with oseltamivir, and in a further 348 untreated patients, 66 of whom were adults.

They found that one patient treated with oseltamivir had a variant of influenza B virus with reduced neuraminidase inhibitor sensitivity. Among the untreated group, seven (1.7%) had variants with reduced sensitivity, due to a number of different mutations. Three of these were thought to have been contracted from close contact with siblings carrying variants of influenza B with the same mutation and the remainder contracted within the community. This is in contrast to the influenza A virus, which has exhibited generations of drug-resistant variants in 5.5–18% of cases, found in other studies.

The study shows that influenza B viruses are far less likely to have developed reduced sensitivity to neuraminidase inhibitors than influenza A viruses. However, once present, the mutant variants may be contracted both within families and the community. It is possible that widespread use of oseltamivir may have caused the generation of these mutant variants in the community.

Although influenza B causes smaller epidemics than influenza A, and the clinical course of infection does not appear to be affected by the mutations, ongoing surveillance for the development of neuraminidase inhibitor resistant influenza viruses is critical.

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