

## Clues to childhood respiratory virus revealed by study

New Vanderbilt-led research published in the *New England Journal of Medicine* has identified the relatively unknown human metapneumovirus (MPV) as the second most common cause of severe bronchiolitis in young children.

Senior author John Williams, associate professor of pediatric infectious diseases and a well-known expert in MPV research, said it is gratifying to offer a clearer picture of how this virus impacts children.

'We found MPV is as important a cause of respiratory illness as influenza, and caused more illness than the three common types of parainfluenza virus combined. In fact, in young children, the burden of MPV was second only to RSV (respiratory syncytial virus) as a cause of bronchiolitis, he said.

The prospective research spanned 6 years (2003 to 2009) and involved samples taken from more than 10 000 children under 5 years. The children were hospitalised, treated in an emergency department, or seen in an outpatient clinic with a lower respiratory infection (bronchiolitis).

MPV was first described in 2001 and there are no specific treatments or vaccines for it other than supportive care for bronchiolitis, such as oxygen, bronchodilators, and intravenous fluids. No children involved in this study died from their infections. Williams said this is generally true for all the major causes of bronchiolitis in the US because of the level of medical care available in this country.

'But in developing nations worldwide, lower respiratory illness is a leading cause of death in young children. Only diarrhoea kills more children under the age of 5. We can infer, because of this study, that MPV is a major contributor to these deaths worldwide. We hope this will help stimulate more interest in research on vaccines and treatment for MPV,' he said.

## Resistance to second-line drugs in MDR tuberculosis

The emergence of extensively drug-resistant (XDR) tuberculosis (TB) and its increasing prevalence are consequences of the increased use of second-line drugs for multidrug-resistant (MDR) TB. A study in eight countries (Estonia, Latvia, Peru, Philippines, Russia, South Africa, South Korea, and Thailand) has illustrated the problem.

The study, published in the *Lancet* included 1278 consecutive adults with MDR TB during the years 2005–2008. Overall, 43.7% of these patients showed resistance to at least one second-line drug, 20.0% to at least one injectable second-line drug, and 12.9% to at least one fluoroquinolone. The prevalence of XDR TB was 6.7%. The strongest risk factor for resistance to second-line drugs was previous treatment with these drugs and this increased the risk of XDR TB more than four-fold. Resistance to second-line drugs was also associated

with unemployment, alcohol abuse, and smoking. Fluoroquinolone resistance and XDR TB were more prevalent among women than among men.

Previous treatment with second-line drugs is the strongest risk factor for resistance to these drugs and XDR TB. Policies for laboratory capacity and diagnostic strategies could be guided by representative drug-susceptibility information in each country.

## Allergies, asthma affected by geographic factors

Those living near the equator may find themselves sneezing and wheezing more than usual. And the reason may not be due to increasing pollen counts. According to a new study published in *Annals of Allergy, Asthma & Immunology*, living in locations closest to the equator can put you at increased risk of developing allergy and asthma.

'UV-B rays exposure is higher for people living in areas closer to the equator,' said Vicka Oktaria, lead study author. 'This increase in UV-B may be linked to vitamin D, which is thought to modify the immune system. These modifications can lead to an elevated risk of developing allergy and asthma.'

Previous studies have shown that latitude can reflect a variation in airborne allergens due to climate, housing and social and cultural differences. This study is one of the first using the individuals latitude location and UV-B exposure to examine the association with allergy and asthma.

## Pneumonia taking severe toll on children in developing world

Around 12 million children under the age of 5 are hospitalised with chest infections such as pneumonia and bronchiolitis each year, a global study suggests.

Researchers also found that an estimated 265 000 children under 5 suffering from chest infections die in hospital each year. Almost all of these deaths – 99% – take place in the developing world. About eight out of ten children who die from chest infections do so outside of hospital care.

Researchers at the University of Edinburgh, who carried out the study based on 2010 data, say that the findings indicate the severity of the problem in developing nations. They also suggest that alternative strategies should be explored in order to deal with the impact of the diseases.

The study found that a substantial number of children under 5 who became critically ill from chest infections were not treated in hospitals. Around 38% of severe cases did not reach hospital.

The study – the first of its kind – was published in the *Lancet* and supported by the World Health Organization. Its results were produced by a large international consortium of 76 researchers from 39 institutions, in 24 countries.