

## New initiative to tackle leading killer of children

The Johns Hopkins Bloomberg School of Public Health has received three grants from the Bill & Melinda Gates Foundation totalling more than US\$43 million to be used to help understand the causes of pneumonia, which go unidentified in up to one-third of patients. Pneumonia kills more children than any other illness. Scaling up proven and available interventions, like pneumococcal vaccines and antibiotic treatments, could prevent many pneumonia deaths and research to fully understand the causes of pneumonia in the remaining cases could help develop the tools to prevent even more.

The core initiative at Johns Hopkins, called PERCH (Pneumonia Etiology Research for Child Health), aims to build a new, rigorous evidence base by studying the causes of paediatric pneumonia in five to ten countries across the developing world using state-of-the-art diagnostics.

'Our current information on pneumonia etiology is about to become obsolete,' said Dr Orin Levine, principal investigator of the project. 'Most existing information was generated 10 to 20 years ago with laboratory techniques

that hadn't changed vastly since Louis Pasteur's time. By applying modern tools with standardised methods, we will be able to provide new, precise information to guide the development of new vaccines and treatments.'

Two additional Johns Hopkins studies will strengthen the initiative's fight against pneumonia and related diseases. Dr Hope Johnson will project the burden of disease in adolescents and adults attributable to two dangerous bacteria – the pneumococcus and the meningococcus – that together cause many cases of pneumonia and other life-threatening illnesses such as meningitis. Dr Jennifer Moisi will undertake an evaluation of diagnostic methods for pneumococcal disease, a major cause of childhood pneumonia, particularly in the developing world. Together these projects will influence the development and deployment of life-saving vaccines throughout the world.

The pneumonia initiative, based at Johns Hopkins' Department of International Health, follows on the heels of the successful PneumoADIP project at JHSPH, which accelerated access to childhood pneumococcal vaccines for the developing world by nearly 10 years. Through the new initiative, the JHSPH group continues to advance protection for all children against pneumonia.

## High-dose inhaled fluticasone for virus-induced wheezing in young children

A study at five centres in Quebec, Canada has led to the conclusion that high-dose inhaled fluticasone should not be used for the treatment of young children with virus-induced wheezing.

A total of 129 children aged 1–6 years with virus induced wheezing were randomised to inhaled fluticasone propionate 750 µg or placebo twice daily for a maximum of 10 days, at the onset of an upper respiratory infection over a period of 12 months. Treatment was started by the parents using an age-appropriate spacer with a mask or mouthpiece. Over an average of 40 weeks rescue systemic steroid treatment was given for 8% of URTIs in the fluticasone group and 18% in the placebo group, a significant 51% reduction. Children in the fluticasone group gained significantly less height and weight. There were no differences between the group in basal cortisol level, bone mineral density, or adverse events.

Prophylactic treatment with high-dose fluticasone reduced the need for rescue oral steroid but also interfered with growth. The researchers publishing in the *New England Journal of Medicine* recommend that this treatment should not be used in clinical practice until more is known about long-term toxicity.

## Steroids to facilitate extubation: meta-analysis

Steroids are often used to reduce complications after removal of an endotracheal tube but the evidence is unclear

and meta-analyses have given inconclusive results. Now a new meta-analysis has provided evidence in favour of prophylactic steroid.

The analysis included six trials (1923 patients). Compared with placebo, steroids given before extubation reduced the risk of laryngeal oedema significantly by 62% and of reintubation by 71%. A multidose steroid regimen reduced the risk of laryngeal oedema by 86% and of reintubation by 81%. A single dose of steroid did not have a significant effect. The number-needed-to-treat was 10 for the prevention of a case of laryngeal oedema and 50 to prevent one reintubation. Steroid administration was safe.

Scientists concluded that steroids in multiple doses are safe and effective in reducing postextubation laryngeal oedema and reintubation rates. *BMJ* editorialists advise using steroids only for patients at high risk of reintubation.

## Tissue engineered tracheo-bronchus

Surgeons in Spain have used tissue bioengineering to replace the distal trachea and left main bronchus of a 30-year-old woman with severe post-tuberculous bronchomalacia.

Cells and MHC antigens were removed from a human donor trachea which was then colonised with the recipient's cultured epithelial cells and mesenchymal stem-cell-derived chondrocytes. The trachea was then transplanted into the recipient. Four months after the operation the patient was well with a functional airway and not taking immunosuppressives.