## *Streptococcus pneumoniae*: is it associated with WU virus in otitis media?

Rocket, R.[1,3], Sloots, T.[1,3], **Massa**, **H.**[2], O'Neill, N.[1,3], Perry, E.[3], Barr, R.[3], Chang, A.[3], Nissen, M.[1,3], Perry, C.[3], Cripps, A.[2]

[1] Queensland Paediatric Infectious Diseases Laboratory, Sir Albert Sakzewski Virus Research Centre, Queensland Children's Medical Research Institute, Brisbane
[2] Griffith Health Institute, Griffith University, Gold Coast
[3] Children's Hospital Health Service, Brisbane

Otitis media (OM) is a polymicrobial disease and is a predominant reason for paediatric presentation to general practitioners. Antibiotic treatment of OM may lead to enhancing the development of antibiotic resistant strains of bacteria. Prevention of OM through future development of vaccinations requires comprehensive knowledge of the microbes within the nasopharynx and middle ear. This study examined bacterial and viral carriage in nasopharyngeal swabs (NPS) and middle ear fluid (MEF) from urban children with recurrent otitis media.

Nasopharyngeal swabs and MEF samples were collected from children aged 2-7 years who underwent tympanostomy. Samples were analysed for *Streptococcus pneumoniae* (Pnc), non-typeable *Haemophilus influenzae* (NTHi) and *Moraxella catarrhalis* (Mc) by culture. Parainfluenza 2 & 3 (HPIV-2, HPIV-3), respiratory syncitial virus (RSV), human metapneumovirus (hMPV), rhinovirus (HRV), adenovirus (HAdV), influenza virus A & B and WU virus were detected by PCR.

Bacterial growth was recorded in 85% of NPS samples but only 8% MEF samples. Multiple bacteria were identified in 69% of NPS samples but 15% had single bacteria only. Pnc, NTHi and Mc were detected in 38%, 38% and 23% of NPS samples respectively. Viruses were identified in 54% of NPS and 38% of MEF samples. NPS exhibited hMPV, HAdV, HRV, HPIV-2 and WU virus, with HPIV-2 and WU observed in 23% of NPS samples each. For MEF, HRV (15%) and WU (12%) were most common. NPS samples showed WU virus present with either HRV (15%) or HPIV-2 2 (8%) but MEF had no multiple viruses. Pnc was not coincident with viruses in NPS or MEF.

The predominant bacteria identified were Pnc, NTHi, and Mc however there was no evidence of positive association with specific viruses. WU virus was surprisingly frequent and present when more than one virus was detected. These preliminary results provide evidence for the polymicrobial nature of OM within urban children experiencing recurrent OM and confirm the challenge OM provides for future vaccine development.