A community and clinical research approach to understanding Otitis Media with Effusion (OME)

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Background: Persistent middle ear infections can lead to fluctuating hearing loss, speech and language delays and behavioural problems. The causative bacterial infections are not fully understood and need further research. Aboriginal children suffer from high rates of ear disease, regardless of widespread immunisation against common bacterial agents of infection, such as pneumococcus. In previous investigations the Newcastle Ear Research Group has shown that Alloiococcus otitidis is commonly detected in the middle ear fluid (glue) of many Aboriginal and non-Aboriginal children in the Hunter, Mid North Coast and New England regions of NSW.

Aims: This project will study the importance of Alloiococcus otitidis and develop advanced DNA studies to detect and characterise the bacterial DNA “fingerprint” of infections in the middle ear of children who are receiving grommets for OME.

A Quality of Life study will also be undertaken to improve the understanding of how chronic ear disease affects sufferers and their families.

Fig.1: A co-operative model of research

Clinicians, nursing staff, theatre and ward staff, medical records, pathology, Aboriginal health, ethics department

Researchers

Literature review, data audit, university ethics, safety and institutional governance, internal funding, statisticians

Aboriginal Health Workers, GPs, external funding and ethics bodies

Community

Why Alloiococcus otitidis needs further research:
The Newcastle team are specialists in the detection and characterisation of this organism. Two distinct colony types have been identified. It is important to study whether they have the same biological properties and effects. Some strains are resistant to erythromycin, even when co-existing bacterial species are sensitive to the antibiotic.

Fig. 2. Two different strains of A.otitidis

Outcomes and Sustainability
This project is a model of research that demonstrates long-standing successful collaborations between Aboriginal health workers, clinical practitioners and researchers, utilising cutting edge technology to deliver new medical evidence for the understanding of ear disease.

We acknowledge the vital contribution of Indigenous and non-Indigenous families and staff at Maitland Hospital

3. Ashhurst-Smith, C. et al., 2007. FEMS Immunology and Medical Microbiology, 51, (1), pp.163-170