



Prevention of Otitis
media with Probiotics
in Indigenous Children

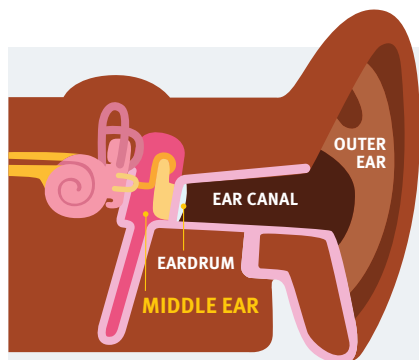
POPI Study

Prevention of Otitis
media with Probiotics in
Indigenous Children Study



“Otitis media in Aboriginal and Torres Strait Islander children remains a critical health issue which has significant impact on child development, education and subsequent employment. Our vision is to prevent otitis media in Aboriginal and Torres Strait Islander children by recolonising the upper airways with ‘good bacteria’ using niche probiotics.”

The Ear Health Gap



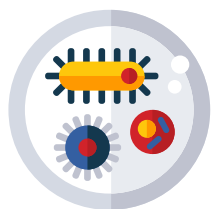
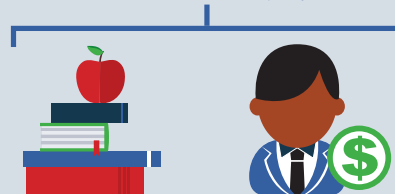
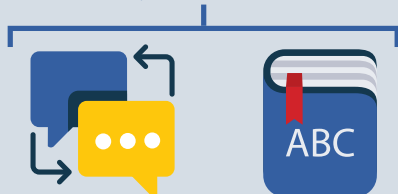
Aboriginal and Torres Strait Islander populations have some of the highest rates of otitis media (OM) in the world.¹ Aboriginal and Torres Strait Islander children experience OM earlier, more frequently and in more

severe forms than non-Indigenous Australians.^{2,3} Despite a plethora of public health, medical and surgical treatment options for OM in Indigenous children, the burden of disease remains substantial.



OM often results in a conductive hearing loss.

This can impact on **speech and language development** and also on subsequent **educational and employment outcomes**.



Using good bacteria in the fight against upper airway disease

Probiotics are live microorganisms which confer a health benefit to the host, i.e. 'good bacteria'.⁶

Both alpha haemolytic streptococci (AHS) and lactobacillus have shown promise in the prevention of pharyngotonsillitis^{7,8} and OM⁹ in European children. In both studies bespoke probiotic cocktails were developed from AHS with in vitro interfering properties against pathogens or 'bad bacteria'. These strains were obtained from the upper airways of healthy siblings.



In a randomised control trial of children with pharyngotonsillitis:

94%

of children treated with the probiotic cocktail **were healthy at three months** compared to

40%

who received placebo⁸



In a randomised control trial of children with OM:

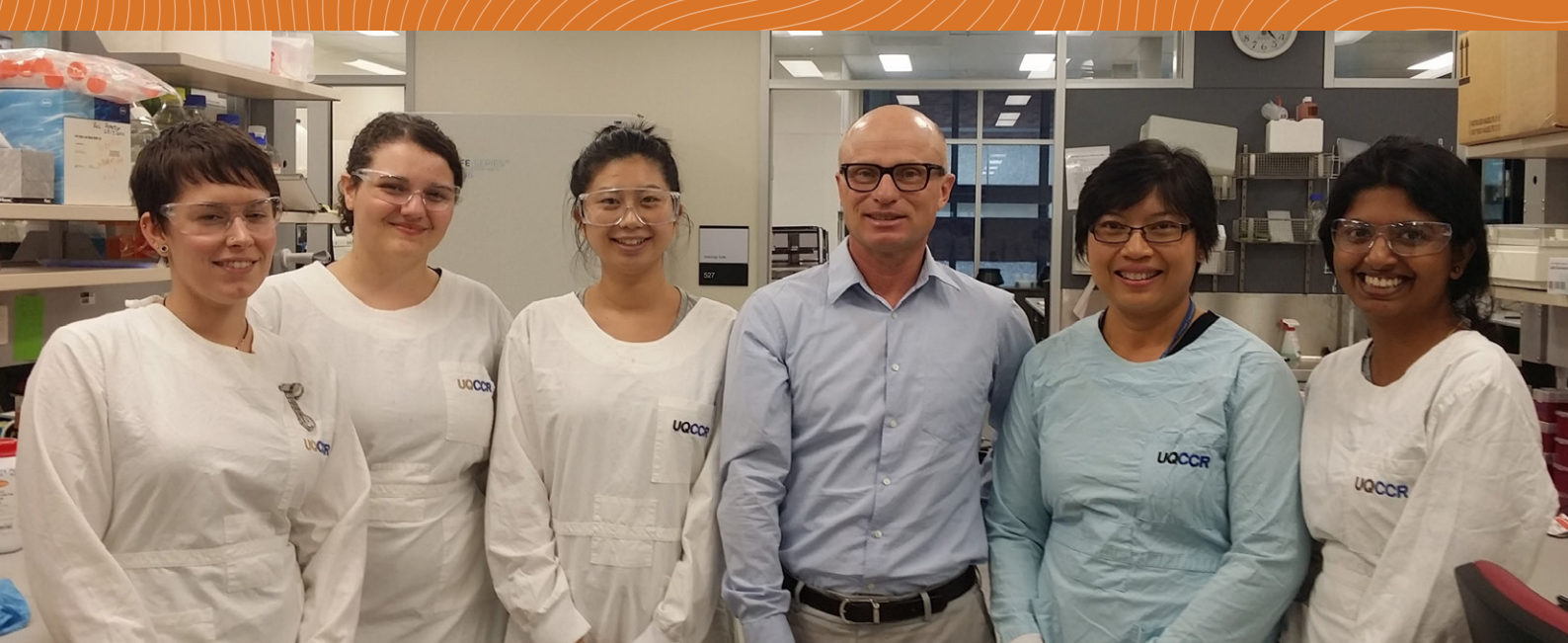
42%

of children in the probiotic group **were healthy at three months** compared to

22%

who received placebo⁹





Study Design

Stage 1

Germ Catchers:

Investigation of the upper airway microbiome in relation to OM



Swabs will be obtained from the nose, tonsils and mouth of Indigenous

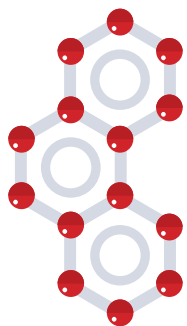
children prone to OM and those not prone to OM. Within the University of Queensland Centre of Clinical Research (UQCCR) and the Queensland Paediatric Infectious Diseases Laboratory we will search for commensal bacteria or 'good bacteria' that are abundant in the upper airways of children who do not suffer from OM.

We hypothesise that these bacteria will have the potential to interfere with the growth of the 'bad bacteria' that cause ear disease.

Stage 2

Germ Detectives:

Bacterial Interference Studies



Once these bacteria have been identified, we will then complete bacterial interference studies to

determine which species/strains inhibit the growth of the pathogens that cause ear disease.

This work will be undertaken at UQCCR led by Dr Hanna Sidjabat. Both potential strains identified within the community and commercially available strains will be investigated.

Stage 3

Germ Busters:

Probiotics to Prevent OM Pilot Study



With the strains of bacteria found to inhibit the growth of pathogens in the lab we will formulate a bespoke probiotic cocktail for the pathogens that cause

OM in Aboriginal and Torres Strait Islander children.

We will use these to 'recolonise' the upper airways of Aboriginal and Torres Strait Islander children prone to OM via a nasal spray to determine whether it reduces the recurrence of OM.

The Future



Indigenous infants are especially susceptible to the pathogens that cause OM.

Infections can occur as early as two months of age.¹⁰

The prevention of colonisation with pathogens by the establishment of upper airway flora consisting of 'good bacteria' may prevent the very early onset of OM in these children. The ultimate aim is therefore to determine whether the use of these niche probiotics to colonise the airways can prevent OM in Aboriginal and Torres Strait Islander infants.

If you'd like to support this exciting work, you can make a tax deductible donation via this link:

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Just select "Probiotic Discovery and Development" from the options and your support will help us greatly!



For further information, please contact:

Dr Andrea Coleman
a.coleman2@uq.edu.au

Investigators

Chief Investigator

Professor Anders Cervin

Associate Investigators

Dr Andrea Coleman; Ms Amanda Wood; Dr Hanna Sidjabat, Dr Seweryn Bialasiewicz; Mr Matthew Brown; Professor Theo Sloots, A/Prof Christopher Perry; A/ Prof Prof Kristian Roos; A/Prof Charlotte Simark-Mattsson; Dr Eva Grahn Håkansson

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