

WELCOME TO

the 4th biennial Australian Otitis Media Conference



13-15 SEPTEMBER 2016

Hunter Medical Research Institute
and
Newcastle City Hall

CONFERENCE THEMES

This year's conference themes are:

1. Working at the grass roots of people care
2. Leading clinical practice
3. A comprehensive look at current research - all aspects of science, immunity, vaccines and interventions

ORGANISING COMMITTEE

The organisation of the 4th Australian Otitis Media Conference has been made possible with thanks to the organising committee:

Associate Professor Kelvin Kong, Conference Chair
Mrs Sharron Hall, Conference Co-ordinator

Committee members;

Dr Hasantha Gunasekera
Dr Christopher Ashhurst-Smith
Dr Ruth Thornton
Professor Amanda Leach

OMOZ SPEAKERS AND PRESENTERS



KELVIN KONG

Associate Professor Kelvin Kong
Conference Chair

Australia's first Indigenous surgeon and proud Worimi man, Associate Professor Kelvin Kong, is the Convener of OMOZ 2016. He is a Fellow of the Royal Australasian College of Surgeons (RACS), specializing in Otolaryngology, Head and Neck Surgery and the Chair of the RACS Indigenous Health Committee.



DR. MAHMOOD BHUTTA

International Guest Speaker

Keynote Speaker, Dr. Mahmood Bhutta, is an ENT surgeon and academic from the UK, with an interest in chronic otitis media. His awards include the European Academy of Otolaryngology & Neuro-otology Award in 2013, and the 2014 Margaret Witt Scholarship for Clinical Excellence from the Royal College of Surgeons of England.



LUKE PEARSON

Guest Speaker for Conference
Function

Luke Pearson is a Gamilaroi man and former primary school teacher. In 2012 he founded the twitter account, @Indigenous X, a phenomenally popular social media platform for sharing stories, opinions, reports and humour about Indigenous life. Currently working as a Senior Digital Producer for NITV, Luke continues to care deeply about the influence of hearing for education and lifelong learning and the importance that health professionals play in community awareness and advocacy.

SPONSORS



HUNTER MEDIA RESEARCH INSTITUTE (HMRI)

HMRI is a world-class health and medical research institute bringing together over 1500 scientists, clinicians and support staff from the University of Newcastle and Hunter New England Health. One patient, one family, one community at a time, it strives to deliver high-quality translational research outcomes and innovations across a multitude of serious illnesses.



UON

The University of Newcastle (UON) is a world class institution which has partnered with the local community, for more than 50 years to deliver innovative solutions to real world problems for business and industry. UON is committed to delivering education and conducting research that will make our region, nation and our world more prosperous, resilient and equitable.



HUNTER NEW ENGLAND LOCAL HEALTH DISTRICT

HNE HealthPathways is a collaboration between Hunter New England Local Health District and the Central Coast Hunter New England Primary Health Network to achieve system change and improve patient access to care. GPs can access current information on how best to assess, manage and refer patients via an online information portal.



CRE_ICHEAR

The NHMRC Centre of Research Excellence in otitis media of Aboriginal and Torres Strait Islander children is a national research collaboration dedicated to improving ear and hearing health of Indigenous children, through high quality innovative research, Indigenous leadership, and more effective and sustainable research translation.



NEWCASTLE PRIVATE HOSPITAL

Newcastle Private Hospital is a provider of extensive private hospital services to the Hunter region and with 174 beds is the largest private hospital in Newcastle, conveniently located on the campus of the John Hunter Hospital, New Lambton Heights.



HUNTER VALLEY PRIVATE HOSPITAL

Hunter Valley Private Hospital is the oldest working private hospital in Hunter area and provides a range of surgical and medical services including rehabilitation, palliative care and pain management. ENT specialty is a particular focus in our theatre and on our nursing wards.



COCHLEAR

As the global leader in implantable hearing solutions, Cochlear is dedicated to bringing the gift of

sound to people with moderate to profound hearing loss. We have helped over 450,000 Cochlear™ recipients of all ages live full and active lives by reconnecting them with family, friends and community.

We give our recipients the best lifelong hearing experience and access to innovative future technologies. For our professional partners, we offer the industry's largest clinical, research and support networks.

That's why more people choose Cochlear than any other hearing implant company.



PORT STEPHENS COUNCIL

Port Stephens Council has positioned itself as one of the premier local government bodies across the Hunter and wider New South Wales.

With a vision of "engaged people, working together, delivering valued services" the organisation has built a partnership with its residents, stimulating growth through investment in key community projects.

Port Stephens Council look forward to welcoming delegates, families and friends for the 2016 OMOZ Conference Dinner.



Royal Institute for Deaf and Blind Children

ROYAL INSTITUTE FOR DEAF AND BLIND CHILDREN

SCIC Cochlear Implant Program, an RIDBC service, is Australia's largest cochlear implant program, delivering care and support at every stage of the cochlear implant journey.



OMOZ 2016 PROGRAM

CONFERENCE DAY 1

Venue: HMRI
Theme: "Grass Roots"

7:50AM Port Stephens Coaches depart to Crowne Plaza Newcastle to HMRI

8:00AM Registration

CHAIR A/P K. KONG

9:00AM Welcome to Country

9:15AM Opening Ceremony

9:30AM **1.** K.Kong

9:50AM **2.** T. Martin - Director, HNE Aboriginal Health

10:10AM **3.** Professor Michael Nilsson, Director HMRI

10:30AM Morning Tea

CHAIR A/P K. KONG

11:00AM **4.** G. Hogarth – Ngiauntha – This is Me

11:20AM **5.** R. Walley / D.Champion My mob Us & OM

11:40AM **6.** M. Douglas Awabakal AMS

11:50AM **7.** H. Gunasekera - OM global overview

12:10AM **8.** M. Bhutta - Cambodia & Nepal

12:40AM **9.** J. Ward - The Kimberley Ear Health Plan

1PM Lunch

CHAIR Dr J. Reath

1:40PM **10.** S. Tyson -That's why you employ us blackfellas

2:00PM **11.** V. Stroud - Prioritising research for prevention of OM

2:15PM **12.** J. Boswell - From do-gooder to doing good

2:30PM **13.** D. Rees - Engaging community in OM education

2:45PM **14.** M. Al-Timimie- Hearing health improvement in remote Aboriginal communities

3:00PM **15.** C. Doidge and C. Barden - Partnerships in remote communities

3:15PM **16.** H. Coates - Ear health traffic light classification system

3:15PM **17.** C. Walsh - Listening to Indigenous voices about ear disease

4:00PM Welcome canapés and drinks @ HMRI

5:15PM Port Stephens Coaches depart HMRI to Crowne Plaza Newcastle





CONFERENCE DAY 2

Venue: Newcastle City Hall
Theme: "Clinical trials/ Clinical practice"

8:00AM Registration

CHAIR Dr H. Gunasekera

8:45AM **18.** J. Stuart - OM history Australia

9:15AM **19.** P. Morris - I hear Beta study

9:30AM **20.** N. Wilson - Carriage and OM ...ALL, NONE or maybe ONE?

9:45AM **21.** J. Reath - Watching and waiting

10:00AM **22.** J. SOMMER - AUSTRALIAN OM GUIDELINES

10:15AM **23.** A. Leach

10:35AM Morning Tea

CHAIR Dr P. Abbott

11:00AM **24.** S. Harkus - Hearing screening in prison

11:15AM **25.** B. Arrowsmith - Hearing assessment in Indigenous infants

11:30AM **26.** K. Tregenza - Apunipima Cape York infant hearing service

11:45AM **27.** C. Watkins - Hear for School

12:00AM **28.** S. Roberts - a regional ENT outreach Service in NSW

12:15PM **29.** HNE Health

12:30PM Light Lunch - Cummings Room

1:00PM Port Stephens Coaches depart Newcastle City Hall to Birubi SLSC

2:00PM MC Welcome
Welcome to country

2:05PM Afternoon tea

2:30PM

- Sand dune bus tour
- Sandboarding (optional)
- Beachcombing
- Networking

4:30PM Arriving back from activity

5:00PM BBQ Dinner
Guest Speaker Luke Pearson

6:45PM Port Stephens Coaches depart Birubi SLSC to Crowne Plaza Newcastle

7:30PM Arrive Crowne Plaza Newcastle



OMOZ 2016 PROGRAM

CONFERENCE DAY 3

Venue: Newcastle City Hall

Theme: "Science/ Research Practice"

8:00AM Registration

CHAIR Dr C. Perry

9:00AM **30.** C. Perry - Steps to a Rational National Aboriginal Ear Disease Program

9:15AM **31.** S. O'Leary

9:35AM **32.** R Eisenberg

9:50AM **33.** M. Bhutta - Genetics of ear disease

10:25AM Morning Tea - Cummings Room

CHAIR Dr C. Meldrum

10:50AM **34.** J. Jervis-Bardy - Microbiome of ear in health

11:10AM **35.** J. Barfield - Sequencing of A.otitidis

11:25AM **36.** H. Sidjabat - H. influenzae and commensal abundance

11:40AM **37.** J. Beissbarth - NTHI prevalence in immunised children

11:55AM **38.** R. Lappan - Microbial protection against AOM

12:10PM **39.** A. Coleman - 1) probiotics in om & 2) bug watch (systematic review)

12:40PM Q&A

TIME PARELLEL SESSION - Mulubinda Room

CHAIR C. Gibson

10:50AM **40.** D. Westphal - OM hospitalizations in WA birth cohort

11:10AM **41.** H. Miller - Ear health of urban Aboriginal children in NSW

11:30AM **42.** M. Brown - Deadly Kids, Deadly Futures: QLD 2016-26

11:50AM **43.** M. Ward - Telefit - co-ordination of services between Deadly Ears and Australian Hearing

12:10PM **44.** M. Allen - Development of data system for Deadly Ears

12:40PM **45.** L. Keogh and L. Weatherall - Reseach practice at Gomerói gaaynggal Centre

1PM Lunch - Cummings Room

CHAIR E/P MAREE GLEESON

1:45PM **46.** R. Thornton - Does Dornase alpha break down the NETS?

2:05PM **47.** I. Peak - The Phasevarion: random gene regulation in bacterial otopathogens affects disease outcomes

2:25PM **48.** L. Kirkham - Immune responses to otopathogens in otitis-prone children

2:50PM Afternoon Tea

CHAIR S. Hall

3:00PM **49.** N. Peter/ P. Abbott - Tympanometry use - WATCH trial

3:20PM **50.** H. Miller - Diagnostic agreement in OM between ENTs and Audiologists

3:40PM **51.** S. Harkus - Outcomes of Rehabilitative hearing services

4:00PM Conference closed



EXHIBITORS

CRE_ICHEAR



The CRE in otitis media will support research and researchers including the following:

- improving the effectiveness of prevention and treatment strategies, to create and evaluate innovative interventions
- innovative teaching and equipment technologies for accurate diagnosis and management of OM.
- reducing risk of OM in infancy - facilitated hand and facial hygiene to stop spread of OM germs
- maintaining healthy homes for healthy kids.

HUNTER NEW ENGLAND LOCAL HEALTH DISTRICT



HNE HealthPathways is a collaboration between Hunter New England Local Health District and the Central Coast Hunter New England Primary Health Network to achieve system change and improve patient access to care. GPs can access current information on how best to assess, manage and refer patients via an online information portal.

COCHLEAR



As the global leader in implantable hearing solutions, Cochlear is dedicated to bringing the gift of sound to people with moderate to profound hearing loss. We have helped over 450,000 Cochlear™ recipients of all ages live full and active lives by reconnecting them with family, friends and community.

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That's why more people choose Cochlear than any other hearing implant company.

ROYAL INSTITUTE FOR DEAF AND BLIND CHILDREN



SCIC Cochlear Implant Program, an RIDBC service, supports people of all ages to access a range of implantable hearing devices according to their needs. The program provides a seamless, end-to-end suite of services, from early intervention and education; through to specialist assessment; surgical liaison and support; and rehabilitation services.

19TH INTERNATIONAL SYMPOSIUM ON RECENT ADVANCES IN OTITIS MEDIA (RAOM 2017)



Join us on the Gold Coast for the 19th international Symposium on Recent Advances in Otitis Media 2017 from 4 – 8 June 2017. The Symposium will bring together international and Australian experts to share knowledge of recent science and clinical practice for otitis media. Delegates will have the opportunity to share recent research, discuss ideas and collaborate with professionals from different fields of otitis media, across the globe. To stay up to date with important information join our mailing list and follow up on Twitter @otitismedia2017.

For more information visit www.otitismedia2017.com or come say Hello at our booth in the exhibition at Newcastle City Hall.

ABSTRACTS

4.

NGIAUNTHA - THIS IS ME

Geraldine Hogarth¹, Ruth Monck², Jeanette Maxfield³, Naomi Sprigg dos Santos¹, Cheryl Cotterill¹, Maurveen Muir¹, Janelle Laidlaw¹ in collaboration with Leonora District High School

¹WA Country Health Service, Goldfields, Leonora Community Health, Leonora, Western Australia

²Telethon Kids Institute, University of Western Australia, Perth, Western Australia

³Leonora District High School, Leonora, Western Australia

Leonora Community Health provides holistic community-based health care including school-based ear health programs. The Aboriginal Health Practitioners (AHPs) and Community Nurses (CNs) are always looking for innovative strategies to improve ear health. At Leonora District High School, catering for children from kindergarten to Year 12, the community health team in partnership with the community and Department of Education (DOE) considered installing mirrors in classrooms not only to implement a holistic health program but also so that children might gain self-confidence and take pride in themselves.

The program was initiated and led by the AHP in Leonora. Mirrors were installed in four primary school classrooms. The children are encouraged to look at themselves in the mirrors whilst ear screening is taking place. Video-otoscopy is performed so people, specifically children, can see inside the ear canal. Alongside the ear health program fun health promotion activities are conducted and health messages are provided. These include: encouraging handwashing, blowing noses, face washing, oral hygiene and hair care. Health messages include: promoting ear health screening and not smoking around children. Parents, community members and siblings are encouraged

to participate in the program. Happy stickers are used to help children express how they feel. Children are all smiles when looking in the mirror “Wiyartu Binna Yurna and Kuru” they say (No runny ears or runny eyes).

To ensure successful and sustainable health programs for Aboriginal children, on going community consultation is vital and the program must be community-driven. Ear health messages need to be holistic, visual, culturally appropriate and creative. This presentation will outline the critical components of developing an ear health program for Aboriginal children.

MY MOB - US & OM

Rosemary Walley¹ and Doreen Champion²

Telethon Kids Institute, the University of Western Australia, Perth, WA

Ngunytju Tjitji Pirni Inc, Kalgoorlie, Western Australia

Kaya, we are Whadjuk Nyoongar women from Perth and our names are Rosemary Walley and Doreen Champion and we are sisters. Doreen moved to Kalgoorlie after marrying a local man and has called Kalgoorlie home for the last twenty year. Rosemary still lives in Perth with her mob.

Rosemary is about to commence a Master's in Otitis Media (OM) from an urban Aboriginal perspective. She has worked at the Telethon Kids Institute in Perth for the last two years as an Aboriginal researcher and was privileged to hear and learn of OM and other research projects undertaken in rural and remote communities of Australia. Whilst there is a great deal of research on OM there is very little research conducted from an Aboriginal or urban perspective.

Doreen is an Aboriginal Health Practitioner who has worked for ear health program in the Goldfields of Western Australia for Ngunytju Tjitji Pirni Inc for ten years and for BEGA Garnbirringu Health Service three

years prior to that, and has a vast amount of knowledge and experience working in rural and remote communities in and around Kalgoorlie.

Together we will both share our family's stories and experiences of ear problems, the difficulties and barriers that our mob face accessing mainstream health service, limited knowledge of OM and the consequences if not detected early in our children.



10.

“THAT’S WHY YOU EMPLOY US BLACKFELLAS”: THE IMPORTANCE OF ABORIGINAL RESEARCH OFFICERS IN CLINICAL TRIALS

Sissy Tyson, Shavaun Chapman, Reeion Murray, Cheryl Woodall, Tallulah Lett, Natasha Peters, Marion Bates, Deborah Askew and Chelsea Bond

INTRODUCTION

Research with Aboriginal and Torres Strait Islander populations requires meaningful engagement with the participating communities. One method of engagement that is often used is the employment of Aboriginal Research Officers (AROs) to act as the conduit between the community and the research. We report here on the many ways that the AROs contribute to the successful functioning of the WATCH trial.

METHODS

We thematically analysed qualitative data collected through the initial interviews of a process evaluation, and during a yarning circle undertaken with the AROs and facilitated by an Aboriginal member of the research team.

RESULTS

The AROs provide an Indigenous model of care, which emphasizes relationships, as well as a holistic understanding of health. AROs are critically cognisant of how the families will perceive the research experience, resulting in parents/carers experiencing follow-up data collections as quality care. The AROs also provide important cultural brokerage. They bridge the divide between clinical and community practice by translating clinical terminology for families and educating clinicians on clinical procedures and how best to engage children and their families. Most importantly, the AROs remain a critical advocate for Aboriginal and Torres Strait Islander people, families and the community.

CONCLUSION

Aboriginal Research Officers are vital and invaluable critical friends to clinical trials, if they are listened to, supported, respected and valued by the study and the health service where they are working.



PRIORITISING RESEARCH FOR PREVENTION OF OTITIS MEDIA AND ITS CONSEQUENCES IN ABORIGINAL CHILDREN

Victoria Stroud⁽¹⁾, Natalie Strobel⁽²⁾, Rose Walley⁽¹⁾, Peter Richmond⁽¹⁾, Karen Edmond⁽²⁾, and Deborah Lehmann⁽¹⁾

¹Telethon Kids Institute, the University of Western Australia, Perth, WA

²School of Paediatrics and Child Health, the University of Western Australia, Perth, WA

Aboriginal children suffer from high rates of Otitis Media (OM) but there is currently a gap in knowledge of ways to prevent OM and improve ear health for Aboriginal children and their families.

We aimed to identify and prioritise research gaps in prevention of OM specific for Aboriginal children.

In order to determine gaps in knowledge and their priorities we took a two-pronged approach. Firstly, we mapped the evidence for prevention of OM included in the current *Recommendations for Clinical Care of OM for Aboriginal and Torres Strait Islanders* (2010). Secondly, we incorporated gaps identified by stakeholders, i.e. community members,

ear health service providers and policy makers. We used the information derived from both of these activities to determine research priorities.

We identified the following gaps:

Effectiveness of influenza and pneumococcal vaccination programs in reducing OM in Aboriginal children

Understanding how cultural values influence environmental and socio-economic risk factors and prevention strategies

Effectiveness of health promotion programmes for primary prevention of OM

And determined the following research priorities:

Addressing what ear disease means at an individual and community level

Determine whether incorporating cultural values into interventions and prevention strategies would assist in reducing prevalence and consequences of OM

Developing culturally valued health promotion, literacy and empowerment programs to address the gaps in prevention

A change in research focus and greater community involvement could improve the impact of ear health initiatives aimed at preventing ear disease in Aboriginal children.

12.

FROM DO-GOODER TO DOING GOOD

Dr Judith Boswell, Clinical Audiologist, Northern Territory Hearing, Darwin NT

INTRODUCTION

My involvement with Indigenous Ear Health started for a number of reasons, both professional and personal, in 1989. Growing up in Melbourne, my contact with Aboriginal Australians had been limited to a short relationship in my teen years with a Warlpiri boy who had come to Melbourne to develop his football skills. Although he had grown up in a remote community, he seemed wise beyond his years in some ways, but unschooled in others.

I knew from the media and from other colleagues that there were high rates of ear disease, therefore lots of hearing loss and its consequences, amongst Aboriginal people, and I wondered if my friend had experienced ear problems which had affected his formal education. Also, a senior colleague had accepted a job with the Menzies School of Health Research in Darwin and he was looking to recruit a research audiologist. Out of these experiences, my interest in and experience of remote Aboriginal health began.

SUMMARY

Initially, I behaved like many other European city-dwellers when they first encounter Aboriginal people in remote communities. I made many mistakes (for which I hope I was forgiven), but I slowly learned through experience how to marry my urban, professional culture with the culture and needs of our Aboriginal brothers and sisters. This paper reveals some of my mistakes and successes and, I hope, encourages the audience to avoid such mistakes by learning to sit alongside their clients, customers, subjects and patients and to see them as individuals.

WORKING AT GRASS ROOTS – ENGAGING COMMUNITY IN EDUCATION AS THE KEY TO ADDRESSING THE WIDE RANGING IMPLICATIONS OF OTITIS MEDIA

Donna Rees

Assistant Principal Teacher of the Deaf, Dubbo, NSW - 1996 +

Founder - Dubbo District Parent Support Group for the Deaf & Hard of Hearing-1997+

Director - Hear Our Heart Ear Bus Project - 2012 - current.

EDSA - (Educators of Deaf Students Association) - Committee

NAATD - National Association of Australian Teachers of the Deaf - Committee

A practical presentation looking at reality!

As a parent and specialist teacher of the deaf, personal experiences have literally placed me into situations where I have seen first-hand the real struggles children with hearing loss and ear health issues of all ages, across all sectors and in all areas (health, education & wellbeing) are dealing with. The issues continue to affect too many children, countless of who don't have a diagnosis, are unsupported with medical/ education/ technological interventions, and have parents/carers, and teachers who are generally unaware of the wide ranging implications associated with the ear disease and or hearing loss.

Comprehensive support for these

children is scarce! Close the gap!
Let's take a serious look at what best practice service provision for all aspects might be!

13.

IMPROVEMENT IN HEARING HEALTH AMONGST SCHOOL AGED CHILDREN LIVING IN REMOTE ABORIGINAL COMMUNITIES IN THE KIMBERLEY REGION OF WESTERN AUSTRALIA

Mohammad Al-Timimie¹, Timothy Silcock¹, Richard Lewis², Stephen Rodrigues², Michael Watson²

¹Kimberley Aboriginal Medical Services

²Children's Equity Ltd

INTRODUCTION

A collaborative ear health program was launched in the Kimberley Region of WA in 2011. This program focused on early diagnosis of middle ear disease, comprehensive follow up, coordination of care, support for training, promoting listening, health promotion, and program evaluation. This presentation details the initial outcomes of the program evaluation.

METHODS

Cross-sectional screening surveys for children aged 3-15 were conducted at the local schools in Bidadanga, Balgo, Billiluna and Mulan communities over the years between 2011-2012 and 2014-2015. Assessments included pneumatic video-otoscopy, tympanometry and pure tone audiometry.

Results of follow up surveys were compared to the baseline surveys conducted at each community. Comparisons between the overall proportions of hearing ears over the years were made using the Fisher's exact test; p value < 0.05 was considered significant.

RESULTS

All four communities showed a significant improvement in the rates of hearing ears (mobile intact drum on pneumatic video-otoscopy and a normal audiogram at some time). Overall, proportions of children with at least one hearing ear increased from 142/241 (58.9%, 95%CI 52.6 to 64.9) in 2011-2012 year to 295/363 (81.2%, 95%CI 76.9 to 84.9) in 2014-2015 year (OR 0.33, 95%CI 0.22 to 0.47, P = 0.001). The proportions of children with bilateral hearing ears increased from 109/241 (45.2%, 95%CI 39 to 51.5) in 2011-2012 year to 241/363 (66.3%, 95%CI 61.3 to 71.0) in 2014-2015 year (OR 0.41, 95%CI 0.29 to 0.58, P = 0.001).

CONCLUSION

Significant improvements in hearing health did occur with the Kimberley ear health program.

14.

A PARTNERSHIP APPROACH FOR IMPROVING THE EAR HEALTH AND EDUCATION OUTCOMES OF ABORIGINAL AND TORRES STRAIT ISLANDER CHILDREN IN REMOTE NT COMMUNITIES: COMMUNITY HEARING WORKERS

Catherine-Anne Doidge and Christine Barden

Northern Territory Department of Health, Hearing Health Program, Darwin

INTRODUCTION

Conductive hearing loss associated with ear disease is preventable and has negative impacts on language and social development, learning and educational outcomes. To address the unacceptably high burden of ear disease and hearing loss in NT Indigenous children an innovative partnership between the Department of Health (DoH) Hearing Health Program and Department of Education (DoE) has been established that targets families of children 0-3 years, using local support structures.

METHODS

A pilot project has been initiated in four remote communities across the NT to deliver culturally appropriate health promoting ear & hearing health messages within an early years services setting. Integral to this, is the employment of local Community Hearing Workers (CHW) within the DoE Family as First Teachers sites. This approach draws on the strengths of existing community structures, respects cultural knowledge and responsibilities and is widely accepted by the community.

RESULTS

The pilot partnership project is currently running over Terms 3 and 4, and will provide an opportunity to evaluate the effectiveness and acceptability of using the CHW partnership approach. It is envisaged that the program will then expand out to other communities, as approval has already been granted to fill ten full time Aboriginal CHW positions.

CONCLUSION

A partnership model between DoE and DoH has provided an opportunity to maximise the health promotion investment of both agencies and integrate expertise. Additionally, the employment of CHW's will result in increased health literacy and strengthen community participation, ultimately leading to an improvement in the ear health of Indigenous children.

A large, bold, black graphic of the number '15' is positioned on the right side of the page. The number is stylized with thick strokes and a white circular cutout in the center of the '5'. To the right of the '5' is a solid black square.

16.

EAR HEALTH KPI REPORTING – PROPOSED TRAFFIC LIGHT CLASSIFICATION SYSTEM

Professor Harvey Coates AQ and Paul Higginbotham, Earbus Foundation of Western Australia Perth, W.A.

INTRODUCTION

Earbus Foundation of WA collects detailed clinical data on each Aboriginal or at-risk child screened, monitored and treated by the Earbus Clinical Team in regional and remote locations across Western Australia. Using aggregated clinical data allows each site visited to be profiled on key performance indicators to show the overall ear health of children in that location.

METHODS

In November 2015 the Clinical Roundtable meeting of Earbus Clinicians (GPs, Nurse Practitioners, Audiologists, ENTs, Nurses) identified Key Performance data necessary to evaluate Earbus program effectiveness. These KPIs have now been developed into a classification system that allows each site to be monitored for improvements against baseline data, compared against other sites in the same region and allocated clinical time and resources based on need.

RESULTS

Earbus Foundation has developed a proposed traffic light classification system using a mixture of outcomes and activity data and WHO benchmarks. “Green” represents a site where ear health is under control. “Amber” depicts a site where ear health is still a work-in-progress and “Red” denotes an ear health hot-spot needing co-ordinated and intense service delivery.

CONCLUSION

Initial comparison of sites using the proposed classification system matches observations and anecdotal understandings of clinicians about the state of ear health in each site. This tool may be useful in summarizing clinical outcomes for whole regions and tracking KPI changes over time.

17.

‘FALLING ON DEAF EARS’: LISTENING TO THE INDIGENOUS VOICES REGARDING EAR DISEASE (OTITIS MEDIA) AND HEARING LOSS

Corinne Walsh, PhD Scholar, National Centre for Indigenous Studies (NCIS), Australian National University, Canberra ACT

INTRODUCTION

What do Indigenous people think of otitis media and hearing loss, and what does this mean for policy and practice?

I am a few months into a PhD, and in this oral presentation I will outline my research plan.

Middle-ear disease (‘otitis media’) and associated hearing loss is one of the most significant health issues facing Indigenous people. While mainstream medicine has made some headway in alleviating infections and improving peoples’ hearing, rates of ear/hearing problems among Indigenous Australians continue to escalate. Research on Indigenous OM has focused primarily on identification and treatment, and very little on prevention. My PhD starts from the premise that ear and hearing issues ought to be addressed at their source, and – to do this – it is crucial that close consideration be given to local circumstances, beliefs, explanations and experiences of the condition.

METHODS

Using an in-depth, ethnographic methodological approach, I will analyse a range of perspectives surrounding OM and hearing impairment – from high-level policy to lived accounts of Indigenous community members themselves. Extensive fieldwork in a remote Australian community is planned, and the research methods used will be largely qualitative and locally determined.

RESULTS & CONCLUSION

Indigenous communities each have unique perceptions and experiences of the body, the ear, hearing, health, and ill health and healing – and there is a pressing need for these to be better understood. While clinical research is essential, cutting-edge interventions for OM and hearing loss will fail to have positive impact if they are not designed and implemented with culturally situated consideration.

I HEAR BETA STUDY DESIGN AND PROGRESS (A RANDOMISED CONTROLLED TRIAL TO DETERMINE IF BETADINE EAR WASH AND ORAL BACTRIM WILL IMPROVE OUTCOMES FOR RUNNY EARS)

Christine Wigger¹, Amanda Leach¹, Ruth Lennox¹, Sandra Nelson³, Hemi Patel², Mark Chatfield¹, Kathy Currie³, Harvey Coates⁴, Keith Edwards³, Peter Morris^{1,2}

¹ Menzies School of Health Research, Darwin

² Royal Darwin Hospital, Darwin

³ Northern Territory Department of Health, Darwin

⁴ University of Western Australia, Perth

BACKGROUND AND PURPOSE

Chronic Suppurative Otitis Media (CSOM) affects around 15% of Indigenous children and is still a major cause for concern due to its high treatment failure (over 70%) and adverse effects on hearing, learning and language. This randomised controlled trial is currently being conducted in the Northern Territory to compare combinations using current recommended treatment (twice daily ear cleaning and ciprofloxacin drops and weekly clinic review) with antiseptic ear washes (Betadine®) and oral antibiotics (ciprofloxacin).

METHODS

The study commenced in mid-2015 and is being conducted in remote Aboriginal communities and urban centres of the Northern Territory over a 2 year period. We aim to randomise 280 consented children (Indigenous and non-Indigenous) with CSOM aged >2 months and <17 years old and they receive one of four treatments. Each regimen includes standard treatment (ciprofloxacin drops) plus one of two topical treatments (Betadine® or no Betadine® ear wash) and one of two oral medication treatments (16 weeks of cotrimoxazole or placebo).

RESULTS

At the time this abstract was written, 125 children have been enrolled from 14 different remote and urban communities. Outcomes are measured at 16 weeks and 12 months following commencement of treatment and include clinical treatment failure (video-otoscopy and tympanometry), microbiology (carriage and resistance) and audiology outcomes. Treatments have generally been well tolerated however uptake thus far is at best 50%. Recruitment, retention and preliminary findings at 4 months and 12 months without blinding will be presented. Microbiology has not yet been analyzed.

CONCLUSION

Often frustrated with the lack of improvement in their children's chronic ear conditions, this study is providing opportunities for families to try some different treatments. Children are tolerating the Betadine® ear washes and cotrimoxazole oral medications better than anticipated. The study's outcomes will contribute important evidence to guide the medical management of CSOM in high-risk children.

19.

CARRIAGE AND OM ... ALL, NONE OR MAYBE ONE?

Nicole Wilson, Beth Arrowsmith, Elissa Rowe, Jodie Howes, Nicola Emmett, Chantelle Dowling, Jemima Beissbarth, Joanna Sen, Peter Morris and Amanda Leach.

Menzies School of Health Research, Child Health Division, Darwin, NT

INTRODUCTION

We are evaluating novel schedules of pneumococcal conjugate vaccines (PCVs) to maximise early protection from two of the pathogens known to cause otitis media. Our hypothesis is that early protection will delay onset and severity of OM and hearing loss.

METHODS

Two trials of Prevenar13 (PCV13) and Synflorix (PHiD-CV10) are underway. Immunogenicity is the primary outcome in both trials; OM and nasopharyngeal carriage are secondary outcomes. For Previc COMBO age of visits is 1, 2, 4, 6, and 7 months. At 2 months of age, nasopharyngeal swabs were analysed for presence of the 3 most common bacteria. In this analysis we compared carriage at 2 months with OM severity category. We included infants seen at 4, 6, and 7 months of age.

RESULTS

At time of writing, 210 infants met our inclusion criteria. At 2 months of age, 192 infants had some form of bacterial carriage in their nasopharynx. 30% of infants were categorised as severe OM and 70% as non-severe. There were no substantial differences between type of bacteria at 2 months and OM severity at 7 months of age however carriage of any non-typeable *Haemophilus Influenza* was associated with more severe OM (Risk Difference 15% [95% Confidence Interval 1 to 29]).

CONCLUSIONS

Ear disease remains a major challenge for 'Closing the Gap' targets. In this cohort, nasopharyngeal carriage was established by age 2 months, well before 3-dose vaccine schedules can offer protection. Early carriage of NTHi is associated with increased risk of recurrent and severe OM.

20.

WATCHING AND WAITING

21.

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INTRODUCTION

The 2010 Darwin Guidelines for management of Acute Otitis Media (AOM) in Aboriginal children recommend Watchful Waiting rather than immediate antibiotics for urban Aboriginal children assumed to be at lower risk of complications. There is no evidence for safety or efficacy using this approach.

METHODS

The WATCH Trial (Watchful Waiting for Aboriginal and Torres Strait Islander Children with AOM without perforation) is a multi-centre open label randomized non-inferiority study to compare the efficacy of antibiotics versus Watchful Waiting

for AOM without perforation in low-risk urban Aboriginal and Torres Strait Islander children. A qualitative research arm including interviews with key stakeholders enhances our understanding of research processes and outcomes.

RESULTS

We have been working with 7 urban Aboriginal Medical Services (AMSs) since October 2014. Positive outcomes include building service and Research Officer (RO) capacity, with ROs and staff valuing training provided and in some cases, ROs taking on wider training roles in their services. Due partly to lower than anticipated AOM presentations; as of June 2016 only 71 of the planned 371 participants

have been recruited. Other challenges include staff and systems changes. We will report on these findings and strategies implemented to improve recruitment.

CONCLUSION

AMSs are key partners in research and enthusiastically engage with research relevant to community needs. Well-trained and supported Aboriginal ROs greatly enhance research and clinical outcomes. Research is sometimes difficult in services whose primary focus is clinical care. Strategies to enhance recruitment should be developed in consultation with AMSs and tailored to their needs and capacity.

AUSTRALIAN OTITIS MEDIA GUIDELINES FOR ABORIGINAL AND TORRES STRAIT ISLANDER CHILDREN

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BACKGROUND

Otitis Media (OM) is an inflammation and infection of the middle ear and tympanic membrane (TM). It can be acute or chronic and with or without perforation of the TM. It is a complex condition associated with illness and hearing loss. OM is a common disease of childhood throughout the world and one of the most common causes of health care presentations, antibiotic prescriptions and hearing impairment in children. The burden of OM in Australian Indigenous children is high, and of major public health concern. Prevalence rates of Chronic Suppurative Otitis Media (CSOM) range from 10.5% to 30%, far in excess of the 4%, which the World Health Organisation specifies as constituting a “massive public health problem”.

METHODS

The information contained within the 2010 update of “Recommendations for clinical care guidelines on the management of Otitis Media in Aboriginal and Torres Strait Islander populations” was reviewed and compared to available new high quality evidence based guidelines, systematic reviews, meta-analyses and primary studies. We searched in PubMed, the Cochrane Database, National Guidelines Clearinghouse, Sum Search and NHMRC Clinical practice guidelines portal. In this guideline we have adopted the GRADE system for reviewing and assessing the evidence for quality and importance. As such

we have reviewed all relevant papers published until June 2016. Where qualified evidence was lacking, an expert consensus based on clinical experience was used.

RESULTS

This Guideline is in the final stages of reviewing evidence and development of recommendations under the guidance of our multi-disciplinary Technical Advisory Group. This update recommends some major and a number of minor changes to the current guideline. Some of these changes include: New criteria for identifying children at high risk of developing CSOM, allowing for risk stratification and guiding medical management of OM, the inclusion of a new section on managing tympanostomy tube otorrhoea (TTO), clear recommendations for referral to ENT, audiology and speech therapy, and minor changes to antibiotic choices and durations of treatment.

CONCLUSION

This updated guideline aims to be a comprehensive guide for the prevention, diagnosis and management of otitis media in Australian Aboriginal and Torres Strait Islander (ATSI) children. It is being developed as part of the effort to address the health burden of OM in ATSI populations, as well as providing an easy to access guideline for practitioners around Australia faced with managing one of the most common childhood diseases. This guideline will be used for developing a Smart Phone App for the management of OM in early 2017.



COLLABORATIVE HEARING SCREENING TRIAL IN A MINIMUM SECURITY PRISON

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Ross Cole, Anyinginyi Aboriginal Health Service, Tennant Creek.

INTRODUCTION

Across Australia hearing loss is over-represented among Aboriginal inmates. The National Disability Insurance Agency Barkly Trial Site, the Barkly Work Camp, Anyinginyi Aboriginal Health Service Tennant Creek, and Australian Hearing are collaborating on a trial to investigate whether providing routine hearing screening at the Barkly Work Camp is better at identifying inmates with disabling hearing impairment than self-report.

METHOD

A senior Aboriginal Health Worker from Anyinginyi Health Service visits the Barkly Work Camp every two-three weeks to screen inmates' hearing using Hear Screen, a South African mobile phone-based hearing screen application. Participation in hearing screening is voluntary. The Barkly Work Camp promotes the hearing screening and encourages all inmates to participate. Purpose-designed test and referral pathways assist with referral decision-making. Pathways include referral back to the Health Centre for treatment or specialist ENT medical referral, or onwards to Australian Hearing.

RESULTS

Results, including sensitivity and specificity of self-report, the number of inmates identified with the target hearing loss and outcomes for those identified will be discussed.

CONCLUSION

It is critical to evaluate procedures that will result in identification of inmates with disabling hearing impairment to reduce the impact of hearing loss the processes of arrest, interview and legal counsel, court appearances, ability to respond to guards' commands, and uptake of support and rehabilitation activities in prison.

24.

HEARING ASSESSMENTS IN INDIGENOUS INFANTS

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INTRODUCTION

Aboriginal children living in remote communities have a high rate of otitis media. Accurate diagnosis, adherence to treatment guidelines and recommended pathways for referral are imperative to their health. The Northern Territory Healthy Under Five Kids (HU5K) program recommends an ear check at each visit and follows the Hearing Health Referral Pathway. The Menzies PREVIX_COMBO and PREVIX_BOOST Trials also adhere to this pathway.

METHOD

A database search was carried out on all Aboriginal infants enrolled in the PREV-IX_COMBO and PREV-IX_BOOST randomized controlled trials (RCTs) using both the Patient Care Information System and the RCTs database. This report presents an analysis of hearing health referrals of Indigenous infants and toddlers from 7-36 months of age and the challenges faced within remote communities of the Northern Territory to service these referrals.

RESULTS

Over 50 children in the PREVIX_COMBO and PREVIX_BOOST Trials between the ages of 7 months to 3 years were referred for an audiology assessment (any bilateral OM for more than 3 months or suspected hearing loss). Some had more than one referral over that period (between one and 3 referrals) before an assessment was carried out. The mean time from the first referral date to the date of audiology assessment is 665.5 days (between 142- 1189 days), although a percentage of these children have yet to be assessed at the time of this report.

CONCLUSION

This report will describe the length of time from referral to assessment of Aboriginal infants and toddlers in the PREVIX_COMBO and PREVIX_BOOST Trials and discuss the barriers that affect timely hearing assessment and subsequent implementation of clinical and social intervention strategies to facilitate and improve hearing outcomes for these children.

25.

APUNIPIMA CAPE YORK HEALTH COUNCIL/ AUSTRALIAN HEARING COLLABORATIVE SERVICE DELIVERY OF INFANT HEARING DIAGNOSIS AND REHABILITATION

Kristen Tregenza, Apunipima, Audiologist, Cairns;

Clare Manhood, Australian Hearing, Audiologist, Sydney

INTRODUCTION

In remote Aboriginal communities many children with otitis media are not identified with hearing loss until they are already attending school. This can often have an ongoing impact on their speech and language development. Apunipima and Australian Hearing are working together to diagnose and fit these children by four years of age to lessen this impact.

METHODS

The Apunipima Audiologist works closely with the local child health staff to help them identify ear disease in infants and small children. The ear checks are normally done as part of the child's regular child health checks. Once these children are identified as having persistent middle ear disease they are referred to Australian Hearing for assessment. The Australian Hearing and Apunipima Audiologists assess these children using modified community-based visual reinforcement audiometry. Based on the results, children identified with conductive hearing loss are fit with bone conductor hearing aids if their family feels this is the right way forward.

RESULTS

In Hope Vale seven children under the age of four have been identified with an aid able conductive hearing loss and four have been fit with bone conductor hearing aids in the last eighteen months. The majority of these children are wearing their devices regularly at day care and kindergarten. We plan to use questionnaires with parents and childcare workers to assess the impact this has on the children's functional hearing.

CONCLUSION

Small children with otitis media, in a remote Aboriginal community, are now being fit with bone conduction hearing aids earlier. This is giving them an improved opportunity to develop normal speech and language.

26.

HEAR FOR SCHOOL: A NEW WAY OF WORKING WITH SCHOOLS IN ABORIGINAL AND TORRES STRAIT ISLANDER COMMUNITIES

Candice Watkins, Australian Hearing, Sydney. Paul Hickey, Australian Hearing, Melbourne.

INTRODUCTION

Australian Hearing remote area Outreach Audiologists spend part of their time in the community working within schools. These services are often focused on the personal amplification needs of students. Activities aimed at strengthening the school's capacity to use and maintain amplification systems and raise staff's awareness of hearing loss and ear disease are often carried out in an ad hoc way. This new program aims to support schools in a more strategic and holistic way to ensure all students are able to hear well, important in an environment of high prevalence and normalisation of ear disease.

METHODS

The Hear for School program focuses on seven key areas that teachers have identified they need support in. These areas were identified through discussions with schools and through data gathered by an Australian Hearing survey of thirty schools carried out in 2015. The program starting point is an annual school self-assessment, designed to analyse strengths and gaps in the school's capacity to enable all children to hear as well as possible. Fact sheets and face-to-face training modules have been developed that address each area. An online component is planned to enable teachers to access elements of the program at any time.

RESULTS

Modules have been trialled in remote schools in NT and QLD. Feedback received has indicated that teaching staff feel better equipped to support the hearing needs of all students.

CONCLUSION

Our early experiences indicate that this is a way of working that better meets the needs of teachers in remote community schools, where a significant proportion of their student cohort experiences otitis media and fluctuating hearing loss at any time.



DEVELOPING A REGIONAL ABORIGINAL ENT OUTREACH CLINIC IN NSW

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²University of Newcastle

INTRODUCTION

Rural and remote populations in Australia and particularly Aboriginal and Torres Strait Islanders demonstrate a disproportionately high prevalence of otitis media and its complications. These include glue ear, chronic suppurative otitis media, and cholesteatoma and are particularly significant given the educational opportunities lost (1). Social, economic and geographical factors contribute to make these conditions particularly challenging to manage. The erosion of screening programs and dilution of the ear health workforce has also contributed to further deterioration in ear health standards.

METHODS

HNEAHS caters for 23% of the NSW Aboriginal and or Torres Strait Islander population and encapsulates a disproportionate number of ear disease within its catchment (2). We are lucky to have a dynamic and multi-disciplined Otolaryngology, Head and Neck Surgery unit. It is however generally acknowledged that ENT services are difficult to access for the broader population, and thus almost impossible for a vulnerable group with inherent difficulties in accessing health care. To overcome this challenge, the Otolaryngology, Head and Neck Department devised an 'outpatients in the community' approach.

RESULTS

The clinics were initially set up to capture Awabakal (Newcastle), Biripi (Taree) and Tobwabba (Forster) and were extremely successful. The service has now been extended to capture the more regional New England area to overcome the paucity of ENT services available to the region.

CONCLUSIONS

Outpatients in the community have been a successful strategy for increasing access to care for our vulnerable population. This paper outlines the challenges, vision and modelling for the setup.

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HNE Closing the Gap Annual Report 2015, Hunter New England Area Health Service. Available from: intranet.hne.health.nsw.gov.au

28.

THE MICROBIOME OF THE MIDDLE EAR IN HEALTHY INDIVIDUALS

Jake Jervis-Bardy, Flinders University, ENT Department, Adelaide SA

Jake Jervis-Bardy, *Lex Leong, Sharad Chawla, Charmaine Woods, Claire Frauenfelder, Geraint Rogers, Eng Ooi.

BACKGROUND

Microbes associated with otitis media have been researched extensively, with *Streptococcus Pneumoniae*, *Haemophilus Influenzae* and *Moraxella Catarrhalis* the most commonly detected bacterial species. Bacterial communities present in the middle ear of individuals without otitis media have not previously been characterised. One previous study used scanning electron microscopy to visualise microbes from middle ear mucosal biopsies obtained during cochlear implantation, without performing species identification. We aimed to investigate the specific composition of microbiota in the middle ear, nasopharynx and external ear canal of healthy individuals, using 16S rRNA gene sequencing.

METHODS

Intraoperative swabs were collected from the middle ear, nasopharynx and external ear canal of patients undergoing surgical procedures where access to a non-contaminated healthy middle ear was established. DNA was extracted directly from the specimens. A region of the 16S rRNA gene was sequenced and analysed using established techniques.

RESULTS

Swabs were collected from 18 adult patients (age range 25-78y) undergoing cochlear implant (16/18), stapedectomy (1/18) or translabyrinthine acoustic neuroma resection (1/18), with no recent history of middle ear disease. Following exclusion of spurious signal amplified in the low biomass middle ear swabs, there was clear evidence of multispecies bacterial communities in the healthy middle ear. The most abundant genera identified in middle ear specimens included *Propionibacterium*, *Staphylococcus*, *Streptococcus*, *Bacteroides*, and *Corynebacterium* sp. Microbiota identified from nasopharyngeal and external ear canal swabs were both associated with the microbial communities of middle ear specimens.

CONCLUSION

To our knowledge, this study is the first to describe the composition of a resident microbiota in the middle ear of healthy individuals. Our study suggests that pathogenic bacteria may exist in stable microbial communities on middle ear mucosa without provoking clinical infection.

34.

WHOLE GENOME SEQUENCING (WGS) OF ALLOIOCOCCUS OTITIDIS: SOLVING THE MYSTERY OF THIS MICRO-ORGANISM AND UNDERSTANDING ITS ROLE IN THE EAR CANAL

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⁶Department of Molecular Medicine Pathology North, Newcastle

Our group has a long term interest in the role of *A. otitidis* in otitis media with effusion (OME) in Indigenous and non-Indigenous communities.¹ Our previous experimental results indicate *A. otitidis* is capable of producing high levels of inflammatory mediators *in vitro* equal to or greater than those elicited by conventional otopathogens; these findings suggest it could contribute to the pathological processes underlying ear disease.^{2,3} Our goal is to fully characterise the genomes of our collection of *A. otitidis* isolates and to explore this organism's pathogenic potential, based on the presence or absence of pathogenic elements in its whole genome. The objective is to gain further insight into the role of this organism in the ear canal. Here we present findings from the analysis of our Whole Genome Sequencing (WGS) data and provide an update of our search for virulence and antibiotic resistance genes. We also present some interesting case studies of *A. otitidis* organisms detected in patients with varied clinical histories.

1. Ashhurst-Smith C, Hall ST, Stuart J, Burns CJ, Liet E, Walker PJ, Dorrington R, Eisenberg R, Robilliard M, Blackwell CC. *Alloiococcus otitidis*: an emerging pathogen in otitis media. *J Infect.* 2012 Feb; 64(2): 233-5.

2. Ashhurst-Smith C, Hall ST, Burns CJ, Stuart J, Blackwell CC. In vitro inflammatory responses elicited by isolates of *Alloiococcus otitidis* obtained from children with otitis media with effusion. *Innate Immun.* 2014 Apr; 20(3): 320-6.

3. Ashhurst-Smith C, Hall ST, Burns CJ, Stuart J, Blackwell CC. Induction of inflammatory responses from THP-1 cells by cell-free filtrates from clinical isolates of *Alloiococcus otitidis*. *Innate Immun.* 2014 Apr; 20(3): 283-9.

35.

DIVERSE MICROBIOTA DOMINATED BY HAEMOPHILUS INFLUENZAE REVERSELY CORRELATED WITH COMMENSAL ABUNDANCE IN AUSTRALIAN INDIGENOUS CHILDREN

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Kyra Cottrell, The University of Queensland, UQ Centre for Clinical Research, Brisbane

Andrea Coleman, The University of Queensland, School of Medicine, Brisbane.

Amanda Woods, Deadly Ears, Queensland Health, Brisbane.

Matthew Brown, Deadly Ears, Queensland Health, Brisbane.

Seweryn Bialasiewicz, Queensland Paediatric Infectious Diseases Laboratory, Centre for Children's Health Research, Children's Health Queensland & Queensland University of Technology, Child Health Research Centre, The University of Queensland, Brisbane.

Anders Cervin, Department of Otolaryngology, Head and Neck Surgery, Royal Brisbane and Women's Hospital, The University of Queensland, School of Medicine, UQ Centre for Clinical Research, Brisbane.

INTRODUCTION

There is a lack of understanding of the role of commensal bacteria in preventing invasion of pathogens causing otitis media, which often colonise the nose. *Corynebacterium* spp. and viridans Streptococci are commensals of nose and oral cavity, respectively. The effect of ear pathogens on the abundance and diversity of commensal bacteria was evaluated.

METHODS

Swabs were taken from the nose, tonsil and buccal mucosa of 62 Australian Indigenous children aged two to seven year. The Microbiota were characterised using a culture-dependent approach on sets of media to capture both commensal and pathogenic bacteria. Up to 20 dominant colonies per swab were identified using MALDI-TOF mass spectrometry.

RESULTS

Eighty- five different species were isolated with the highest bacterial diversity in the oral cavity. *Corynebacterium* spp., mostly *C. pseudodiphtheriticum* colonised the nose of 12 children (19%). In contrast, 33(53%) children were colonised with *H. influenzae* that mainly resided in the nose and throat. *H. parainfluenzae* colonised the throat and/or buccal area of 25 children (40%). *S. pneumoniae* ($n=7$) and *Moraxella* spp. ($n=6$) were occasionally identified in the nose. *Gemella* spp., mostly *G. haemolysans* colonised the buccal area ($n=10$). Of the 14 species of viridans Streptococci, *S.salivarius* and *S. mitis/oralis* were the dominant oral commensals.

CONCLUSION

Depletion of *Corynebacterium* spp. in the nose may allow the dominance of *H. influenzae*. The oral cavity may be a reservoir for *H. influenzae*. *S. salivarius*, *S. mitis/oralis* and other commensals might help to suppress the overgrowth of *H. influenzae* in the oral cavity.

36

NTHI – TRACKING THE PREVALENCE OF HPD-POSITIVE NTHI CARRIAGE IN PCV7-, PHID-CV10- AND PCV13-IMMUNISED PAEDIATRIC POPULATIONS FROM SURVEILLANCE STUDIES AND RANDOMISED CONTROLLED TRIALS.

Jemima Beissbarth, Child Health Division, Menzies School of Health Research, Darwin.

Jemima Beissbarth, Heidi Smith-Vaughan, Amanda Leach

INTRODUCTION

Non- typeable *Haemophilus influenzae* (NTHi) is one of the main respiratory pathogens associated with otitis media and is cultured from around 50% specimens from discharging tympanic membrane perforations in Aboriginal children. Unlike PCV7 and PCV13, PHiD-CV10 utilises *H. influenzae* protein D (HiD), encoded for by the *hpd* gene, as a carrier protein for pneumococcal polysaccharides. This gene was thought to be present in all NTHi, however recent genomic assessment of strains from carriage studies found some isolates lacking the *hpd* gene and thus having the potential to evade PHiD-CV10-induced immune responses. Carriage in this population has remained high, even with the introduction of PHiD-CV10. It is not known if use of this vaccine is selecting for *hpd*-negative NTHi strains.

This study aims to determine the prevalence of *hpd*-positive NTHi isolates from the nasopharynx and the middle ear collected during the PCV7, PHiD-CV10 and PCV13 eras.

METHODS

Isolates confirmed as NTHi from cross sectional studies of children under 3 years of age are being tested for the presence of the *hpd* gene by PCR in 3 groups: PCV7 (A), PHiD-CV10 (B) and PCV13 (C) eras. All available NTHi isolates from ear discharge will be tested.

RESULTS

Preliminary data will be available for the conference, comparing the proportions of *hpd*-positive isolates in the 3 vaccine eras.

CONCLUSIONS

The prevalence of *hpd* among NTHi isolates represents important data for determining the potential efficacy of PHiD-CV for NTHi carriage and disease.

37.

IDENTIFYING MICROBIAL FACTORS PROTECTIVE AGAINST RECURRENT ACUTE OTITIS MEDIA

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INTRODUCTION

Microbiome studies are progressing towards mining the microbiota for novel therapeutics. We aim to explore this in the context of rAOM. Some children who attend day care (a major risk factor) do not develop rAOM. We hypothesised that commensal bacteria in the nasopharynx of these children facilitate their apparent resistance to rAOM. We characterised their nasopharyngeal Microbiome compared to that of children with rAOM to identify microbial factors that may confer this resistance.

METHODS

Nasopharyngeal swabs were collected from children with rAOM undergoing grommet surgery (cases), and from age and season-matched healthy controls attending day care who have experienced no more than one episode of AOM. Middle ear fluid was collected from cases to investigate novel bacterial pathogens. Samples underwent 16S rRNA gene sequencing and were analysed using QIIME.

RESULTS

At genus level, the nasopharyngeal microbiome in both groups is similar, predominantly consisting of *Streptococcus*, *Staphylococcus* and *Haemophilus*. *Alloicoccus* was highly abundant in the middle ear of cases, but was also seen in the nasopharynx of controls at low relative abundance. The genus *Corynebacterium* was prevalent in the majority of healthy control samples, compared to very low abundance in only half of the cases.

CONCLUSIONS

Alloicoccus appears to be living commensally in the nasopharynx of healthy controls, but its high relative abundance in the middle ear of cases suggests potential involvement in AOM. *Corynebacterium* is of interest for further analyses, which may allow species or strain-level taxonomy and potentially the identification of factors involved in competition with other bacteria.

38.

39(1).

TREATING RECURRENT EAR INFECTIONS WITH LIVING BACTERIA. BACKGROUND AND POSSIBILITIES

Anders Cervin, MD, PhD, FRACS (Presented by Dr Andrea Coleman)

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University of Queensland, School of Medicine, Faculty of Medicine and Biomedical Sciences, Senior Staff Specialist, Department of ENT, Head & Neck Surgery,

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Previous research in Indigenous ear health has focused on bacteria causing disease. It is now evident from recent microbiological research that the airways harbour a flora of friendly bacteria, important in maintaining airway health. In collaboration between the University of Queensland Centre for Clinical Research and the Deadly Ears group we have started a research program exploring the normal bacterial flora in the upper airway in the indigenous population and how it contributes to maintain health. The aim is to investigate the possibility of strengthening the defence against recurring acute otitis

media by supplementing the airway with friendly bacteria. I will in this oral presentation, present the current knowledge regarding friendly bacteria and their role in maintaining airway health and the evidence available for treating otitis media with living bacteria. The concept is called bacterial interference, where strains of non-disease causing bacteria can outcompete bacteria causing infections such as otitis media or tonsillitis. We hope that this treatment option in the future can reduce disease burden as well as the use of antibiotics.

“BUG WATCH”: A SYSTEMATIC REVIEW ON THE UPPER RESPIRATORY MICROBIOTIA IN RELATION TO OTITIS MEDIA IN ABORIGINAL AND TORRES STRAIT ISLAND CHILDREN

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Ms Amanda Woods, Queensland Health, Deadly Ears Program, South Brisbane

Dr Seweryn Bialasiewicz, Queensland Paediatric Infectious Diseases Laboratory, Centre for Children's Health Research, Children's Health Queensland & Queensland University of Technology, Child Health Research Centre, The University of Queensland, South Brisbane

Dr Robert Ware, UQ Child Health Research Centre, The University of Queensland, South Brisbane, Australia

Professor Anders Cervin, The University of Queensland, School of Medicine, Royal Brisbane and Women's Hospital, Department of Otolaryngology Head and Neck Surgery, Herston

INTRODUCTION

The pathogenesis of otitis media (OM) is multifactorial however the key-initiating event is the colonization of the nasopharynx (NP) with potential otopathogens. This paper examines the literature exploring upper airway Microbiota in relation to OM in Aboriginal and Torres Strait Island (A&TSI) children.

METHODS

MEDLINE, CINAHL, EMBASE, Cochrane Library, and Informit were searched using key words. Two independent reviewers screened titles, abstracts and then full-text paper against inclusion criteria.

RESULTS

Fifteen papers were included. Combined 87%(199/229) NP samples from children with OM with effusion (OME) were positive for *Haemophilus influenzae*, 89%(165/186) for *Streptococcus pneumoniae*, 96%(178/186) for *Moraxella catarrhalis*. 9%(10/106) of middle

ear (MEE) effusion samples from children with OME were positive for *H. influenzae*, 2%(1/61) *S. pneumoniae*, 4%(4/106) *M. catarrhalis*, 28%(17/61) *Alloiococcus otitidis*, and 2% (3/125) *Pseudomonas aeruginosa*. In children with acute OM 85%(273/321) NP samples were positive for *H. influenzae*, 88%(282/321) *S. pneumoniae*, 96%(307/321) *M. catarrhalis*. 66%(61/93) MME samples were positive for *H. influenzae*, 13%(12/93) *S. pneumoniae*, 37%(34/93) *M. catarrhalis*, and 35%(11/31) *A. otitidis*. The probability of developing OME or acute OM increased colonization with mixed pathogens and *S. pneumoniae* and *H. influenzae* alone compared to *M. catarrhalis* alone.

CONCLUSIONS

OME/acute OM in A&TSI children largely results from mixed bacterial infections. *H. influenzae* and *S. pneumoniae* play a more dominant role than *M. catarrhalis*. Whether *A. otitidis* is pathogenic remains unknown. To understand the pathogenesis of OM, further investigation of the remaining bacterial load, including alterations in commensal bacteria, needs investigation.

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40.

BURDEN OF OTITIS MEDIA HOSPITALISATIONS AND PROCEDURES IN A WESTERN AUSTRALIAN BIRTH COHORT

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INTRODUCTION

Otitis media (OM) is a common childhood infectious disease and myringotomy with ventilation tube insertion (MVTI) is a common related procedure. We aim to describe the burden of hospitalisations and procedures for OM in Western Australian (WA) Aboriginal and non-Aboriginal children.

METHODS

We used linked administrative data of all hospitalisations from a total population birth cohort in WA, 1996-2012. Relevant International Classification of Diseases OM-related diagnosis and procedure codes were used to identify admissions and procedures of interest and we report age-specific rates per 1000 child-years.

RESULTS

We identified 40, 473/568,745 hospitalisations with a primary OM diagnosis and 45, 464 MVTIs. Overall hospitalisation rates for OM were higher for Aboriginal than non-Aboriginal children; 16.8/1000 vs. 11.9/1000 (IRR 1.41, 95%CI 1.36-1.46), while MVTI procedures were less common among Aboriginal children; 9.2/1000 vs. 14.2/1000 (IRR 0.65, 95%CI 0.62-0.68). OM-related hospitalisations decreased among Aboriginal children between 1996 and 2012, except for 2-year-olds and 5-to-9-year-olds; 10.8/1000 in 1998 to 22.9/1000 in 2012 and 13.4/1000 in 2005 to 19.4/1000 in 2012, respectively. Similarly, rates of MVTI increased in Aboriginal children aged 2-years: 4.8/1000 in 1998 vs. 21.3/1000 in 2012; and non-Aboriginal children aged 18-23 months: 23.0/1000 in 1997 to 29.3/1000 in 2012.

CONCLUSION

Despite Aboriginal children experiencing a greater burden of OM-related hospitalisations, a higher proportion of non-Aboriginal children received a MVTI. An increasing trend in some age groups requires investigation of potential risk factors that may contribute to the burden of OM in WA and possible changes in health service delivery.

EAR HEALTH OF URBAN ABORIGINAL CHILDREN IN NSW

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INTRODUCTION

Remote Australian Aboriginal children have some of the highest rates of Otitis Media (OM) and hearing impairment in the world. Despite the majority of the Aboriginal population residing in urban and large regional areas, there is a scarcity of research relating to the extent of OM and possible protective or risk factors in these areas. This paper will determine the prevalence of OM and hearing impairment in an urban cohort, and identify any associated factors.

METHODS

Data for this paper was collected as part of a longitudinal study of urban Aboriginal child health, the Study of Environment on Aboriginal Resilience and Child Health (SEARCH). As part of SEARCH children from four Aboriginal Community Controlled Health Services (ACCHSs) received comprehensive ear health assessments by qualified audiologists and Ear Nose and Throat specialists (ENTs). A range of demographic, socioeconomic, environmental and health-related factors of children was also captured using a questionnaire survey with primary caregivers. We will analyse this data to determine the prevalence of OM and hearing impairment, and use multinomial logistic regression to identify any associated factors.

RESULTS

The prevalence of OM and hearing impairment in the cohort will be reported. Associated factors and significance levels will be presented.

CONCLUSIONS

The results of our analysis will address the scarcity of research of OM in urban Aboriginal children. These findings can be used to inform prevention and treatment initiatives to reduce the occurrence of OM and the factors, which sustain it, and minimise the impacts of OM on hearing.

41.

DEADLY KIDS, DEADLY FUTURES: QUEENSLAND'S ABORIGINALS AND TORRES STRAIT ISLANDER CHILD EAR AND HEARING HEALTH FRAMEWORK 2016-26

Matthew Brown, Director, Deadly Ears Program, Queensland Health
Giovanna Castellani, A/Program Manager, Deadly Ears Program, Queensland Health

Oral Presentation

Category: Recent Innovations and progress in ear health research.

INTRODUCTION

The unacceptably high rates of otitis media and conductive hearing loss in Aboriginal and Torres Strait Islander children are well documented.

In Queensland, a novel approach is delivering significant results. It recognises that tackling otitis media requires coordinated action across the health, early childhood development and education sectors. The Deadly Ears Program leads this multi-agency response across the State. It has ensured coordinated services within communities, and changed systems and procedures, which guide training and practice across the state.

METHOD

Recently, the Queensland Government launched "Deadly Kids, Deadly Futures", a new ten-year framework to continue this work. This presentation explains how Queensland tackles otitis media and associated hearing loss in a coordinated state-wide response, and the significant outcomes, which have resulted. Fundamental to this is the partnership between the Departments of Health and Education, and their collaboration with other critical service providers.

RESULTS

In one example, presentations of children with chronic suppurative otitis media at Deadly Ears clinics have dropped dramatically. In the critical 0-4 year age group, from 2010 to 2015, it has reduced by two-thirds (from 18.6 to 5.8%).

The Deadly Ears Program is now exiting or reducing services to a number of communities because of low rates of otitis media.

A significant contributor to this is 'systems change', where change occurs to relevant state-wide policies and protocols in health and education, supported by the training of health providers and educators, and the development of a cutting edge state-wide data system.

CONCLUSIONS

Coordination, commitment and consistency in Queensland 'closes the gap'.

42.

TELEFIT: CO-ORDINATION OF SERVICES BETWEEN DEADLY EARS AND AUSTRALIAN HEARING

Kylah Johnston. Deadly Ears, Brisbane

Meagan Ward. Australian Hearing, Sydney

INTRODUCTION

Hearing aid demographic data for Aboriginal and Torres Strait Islander children continues to reflect a significant delay in age of first hearing aid fitting. Through the utilisation of tele-health technologies the TeleFIT model of service delivery aims to improve the co-ordination between diagnostic (Deadly Ears) and rehabilitative (Australian Hearing) audiological services.

METHODS

TeleFIT is currently being piloted in three remote Queensland communities. Aboriginal and Torres Strait Islander children who are identified as potential candidates for rehabilitative hearing services during the Deadly Ears ENT outreach visit are linked in with Australian Hearing via video for a rehabilitation consultation, with the view to progress to hearing aid fitting in the consultation if appropriate and desired by the family. Evaluation of the model will be conducted using a combination of qualitative and quantitative measures.

RESULTS

TeleFIT is in its infancy, with the first pilot commencing in February 2016. To date the model has been trialled in two communities. Five children have been referred, have attended and all have progressed to hearing aid fitting.

CONCLUSION

It is intended that TeleFIT will address some current gaps in audiological service provision to Aboriginal communities and introduce new efficiencies to referral of under five year olds for rehabilitative hearing services. The ultimate aim of TeleFIT is to contribute to lowering the peak age of first hearing aid fitting for Aboriginal and Torres Strait Islander children in these communities.

43.

DEVELOPING EFFECTIVE DATA SYSTEMS TO ANALYSE AND SHAPE ENT SERVICE DELIVERY FOR ABORIGINAL AND TORRES STRAIT ISLANDER CHILDREN IN QUEENSLAND.

Maggie Allen & Amanda Wood, Deadly Ears, Children's Health Queensland, Brisbane

Preferred presentation format: oral communication

INTRODUCTION

There are many challenges to supporting Aboriginal and Torres Strait Islander children with conductive hearing loss secondary to otitis media, especially for those living in remote parts of Queensland. This presentation will discuss how the Healthy Hearing database 'QChild' has been customised to support the Deadly Ears Program, and monitor and report on the ear and hearing outcomes of Aboriginal and Torres Strait Islander children who access Deadly Ears' ENT outreach service.

METHOD

Using the QChild database, Deadly Ears and Healthy Hearing have been able to critically review hearing data from both programs to better understand ear and hearing outcomes for Aboriginal and Torres Strait Islander children in Queensland, and identify where gaps in service delivery exist.

RESULTS

The data from the QChild database has highlighted gaps in the coordination of services and continuum of care in the management of hearing loss for children in Queensland. This has led to the strengthening of partnerships with other hearing services, as well as innovative changes being made to service delivery models for Deadly Ears' ENT outreach.

CONCLUSION

The partnership between the Deadly Ears and Healthy Hearing Program in the expansion of the QChild database has helped drive significant changes to protocols and practice for audiology and ENT outreach services. These changes will endeavour to improve the coordination of care for Aboriginal and Torres Strait Islander children with hearing loss in Queensland.



45.

INDIGENOUS RESEARCH PRACTICES AT GOMEROI GAAYNGGAL CENTRE

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⁴Department of Rural Health, University of Newcastle, Tamworth

The Gomeroid gaaynggal Centre hosts a number of unique Indigenous Women's Research Studies and Arts Health Programs in Tamworth, Walgett and Newcastle.

We have a prospective longitudinal cohort of Indigenous women that begins in pregnancy and continues to follow the women and their infants for 5 years after their birth. This cohort is the largest of its kind in the world. The Gomeroid gaaynggal Centre lead collaborations with local, national and international organisations to investigate the cause of renal disease, chronic illnesses and poor mental health within Indigenous populations.

Our research incorporates: -

- Pregnancy ultrasounds
- Surveys relating to demographics, psychosocial health, discrimination, exposure to smoking in the home, maternal nutrition during

pregnancy, maternal and infant nutrition after birth

- Collection of mothers blood, urine and saliva samples
- Collection of babies cord blood and urine samples
- Ethics approval has been given for blood collection from infants but to date we have had almost no consent for these samples to be taken.

Once the data and samples have been collected they are entered into a secure database where information is stored in a restricted access anonymous format for analysis by researchers.

With the large number of participants and vast quantities of data collected for the various studies the Gomeroid gaaynggal Centre has immense experience and expertise in the inception and planning, recruitment and facilitation,

continued growth and improvement of Indigenous research programs.

The team at the Gomeroid gaaynggal Centre have undertaken community consultation, gained ethics approval, created culturally appropriate research sites, developed research protocols and practices that align with the local Aboriginal community, store, audit, analyse and report data in an anonymous culturally respectful forum for all the research programs they are running.

The Gomeroid gaaynggal Centre employs six Aboriginal and two non-Aboriginal women on their staff. Each of these women undertakes professional development through mentoring, training and further education. Work placement for high school and university students are offered regularly to promote pathways to increasing employment and work placement in Indigenous health.

46.

TARGETING BACTERIAL PERSISTENCE MECHANISMS IN OTITIS MEDIA TO IMPROVE TREATMENTS – DOES DORNASE ALFA BREAKDOWN THE NETS?

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INTRODUCTION

Otitis media is the main reason that a child will visit their GP, be prescribed antibiotics or undergo surgery. Infection is usually bacterial, however antimicrobials have limited efficacy in treatment or prevention of chronic or recurrent disease. We have demonstrated that bacteria can evade antimicrobial treatments and the immune response both within biofilms and host cells. Bacteria can also manipulate the immune system to release neutrophilic DNA in the form of neutrophil extracellular traps. This host DNA increases the viscosity of the middle ear effusion and assists in bacterial persistence through the formation of biofilms. These persistence mechanisms represent targets for new treatment or preventative strategies to combat chronic and recurrent OM.

METHODS

Dornase alfa is a DNase used in treating cystic fibrosis and is able to digest the DNA in middle ear effusion *in vitro*. We have established a clinical trial to determine the safety and efficacy of Dornase alfa at the time of ventilation tube insertion (VTI) in children with OM to prevent complications following surgery and reduce the need for repeat surgery.

RESULTS

The Dornase alfa trial is still blinded, as such efficacy is yet been assessed, however direct installation into the middle ear at the time of VTI has been demonstrated to be safe. We hope to have initial efficacy data by the time of presentation.

CONCLUSIONS

Bacterial persistence mechanisms and the contribution of the host and microbe need to be fully understood if effective treatments and preventions are to be developed. Dornase alfa at the time of VTI represents a novel approach that may target underlying persistence mechanisms.

THE PHASEVARION: RANDOM GENE REGULATION IN BACTERIAL OTOPATHOGENS AFFECTS DISEASE OUTCOMES

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The “usual suspects” for bacterial otitis media are *Streptococcus pneumoniae*, *Haemophilus influenzae*, and *Moraxella catarrhalis*. The only host for these organisms is humans. What determines whether an individual will develop pathology following colonisation is a complex and unclear interaction between host and microbial factors. Each of these bacterial species has the capacity to randomly and reversibly switch on and off genes. This switching is called phase variation. Many of the phase variable genes identified to date contribute to expression of surface-exposed proteins or glycans, and this mechanism is thought to contribute to immune evasion and niche adaptation.

Many bacterial species that are colonisers and pathogens of humans contain DNA methylases that exhibit phase variation. Each of these enzymes has a specific DNA recognition domain, and methylates that a specific DNA sequence (1,2). As each methylase is phase varied (switched on and off), daughter cells have different methylation patterns from the parental cell. How this random change in genome methylation helped the microbes to evade immune responses, or to colonise hosts was not at first obvious. Changing methylation leads to changes in expression in a suite of genes. Which gene is regulated depends on the methylation pattern. Thus, random switching on and off leads to changed gene expression of a Phase Variable Regulon: “Phasevarion”, or “Suite of genes regulated by phase variation of that methylase”.

We have investigated all three of the major otopathogens (as well as other human-adapted pathogens) and demonstrated that random switching of methylases leads to altered methylation (3,4,5), and subsequent changes in gene expression. Our studies show that the phasevarions are associated with disease phenotypes, or modulate immune evasion. We also note that some of the vaccine candidates from these pathogens can be regulated by the phasevarion (and therefore may not represent such good vaccine targets).

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48(1)

OTITIS-PRONE CHILDREN PRODUCE FUNCTIONAL ANTIBODIES TO PNEUMOLYSIN AND PNEUMOCOCCAL POLYSACCHARIDES

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BACKGROUND

The pneumococcus is an important cause of otitis media (OM) but data are conflicting on whether otitis-prone children have impaired humoral immunity to pneumococcal antigens. We found similar anti-capsular and anti-protein antibody titres in healthy and otitis-prone children, however functional antibody levels are considered to better correlate with protection. We aimed to determine whether the anti-pneumococcal antibodies produced by otitis-prone children are functional by measuring anti-pneumolysin antibody neutralising titres and polysaccharide-specific opsonising titres. Antibody potency was then compared between otitis-prone and healthy children.

METHODS

The pneumolysin neutralising assay was conducted on cholesterol-depleted complement-inactivated sera from 165 otitis-prone children (cases) and 61 healthy age-matched controls. The multiplexed opsonophagocytosis assay (MOPA) was conducted on sera from 20 cases and 20 controls. Neutralising and opsonising titres were calculated with antigen-specific IgG titres to determine antibody potency for pneumolysin, PCV7 polysaccharides (4, 6B, 14, and 23F) and non-PCV7 polysaccharides (1, 5, 7F and 19A).

RESULTS

There were no significant differences in functional antibody titres nor potency between cases and controls for the antigens tested. Anti-pneumolysin neutralising titres increased with number of episodes of acute OM but antibody potency did not. Pneumolysin antibody potency was lower in children colonised with pneumococci when compared with non-carriers, and this was significant in the otitis-prone group ($p < 0.05$).

CONCLUSIONS

Production of functional anti-pneumococcal antibodies in otitis-prone children demonstrates that they respond to current conjugate vaccines and are likely to respond to pneumolysin-based vaccines as effectively as healthy children. Whether these functional circulating antibodies confer protection against pneumococcal OM requires further investigation.

48(2)

EVIDENCE OF FUNCTIONAL INNATE IMMUNE RESPONSES TO NONTYPEABLE HAEMOPHILUS INFLUENZAE IN OTITIS-PRONE CHILDREN

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INTRODUCTION

It has been postulated that susceptibility to recurrent acute otitis media (OM) results from the inability to mount effective innate immune responses to bacterial pathogens, including the common otopathogens non-typeable *Haemophilus influenzae* (NTHi). We compared 20 otitis-prone children (cases) and 20 age-matched controls to investigate whether OM susceptibility is a result from defective systemic innate immune responses.

METHODS

Peripheral blood mononuclear cells were challenged with NTHi or Staphylococcal enterotoxin B (SEB). Extracellular and intracellular cytokines and cell types were measured by bioplex and flow cytometry.

RESULTS

NTHi stimulated potent and early secretion of pro-inflammatory mediators IL-6, IL-8, and TNF α but not IFN γ , and cytokine levels were similar between cases and controls. Regardless of stimulation, cases had less CD4 T cells and more natural killer (NK) cells ($p \leq 0.01$ and $p \leq 0.05$ respectively). NTHi and SEB stimulation promoted cytotoxic activity of NK cells ($p \leq 0.0001$), with greater numbers of CD107a+ NK cells found in cases than controls ($p \leq 0.01$). Independent of OM status, day-care attendees had more NK cells ($p = 0.04$), particularly cytotoxic NK cells ($p < 0.001$), in comparison with non-attendees. Day-care attendees were also more likely to have NTHi and a respiratory virus isolated from their nasopharynx compared with non-attendees ($p = 0.01$ and $p = 0.03$).

CONCLUSION

This study demonstrates that otitis-prone children mount effective innate and cell-mediated immune responses to NTHi. The elevated numbers of cytotoxic NK cells in otitis-prone children/day-care attendees is likely to be in response to persistent pathogen exposure rather than an inherent immune deficiency.

49.

TYMPANOMETRY USE IN ABORIGINAL HEALTH SERVICES – PERSPECTIVES FROM THE WATCH TRIAL.

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INTRODUCTION

Tympanometry is recommended for accurate diagnosis of otitis media yet uncommonly used by GPs and other clinicians when assessing children's ears. Reasons for this include lack of familiarity with the technique and time pressures. As Indigenous research officers (IROs) and other health care providers working in Aboriginal health services participating in a trial (WATCH) about the management of acute otitis media, we have noted that tympanometry remains underused in this setting.

METHODS

Process evaluation findings have been collected through thematic analysis of minutes and interviews with IROs and health care providers working on the WATCH trial. We will present our perspectives on using tympanometry

to assess children's ears and the benefits and challenges of using tympanometry in the WATCH trial and in the Aboriginal health service setting.

RESULTS

Lessons learnt regarding tympanometry in the trial setting include (1) tympanometry screening of all children attending the service by IROs or other health care providers working on the trial aids recruitment and quality care for children; (2) Interpretation of tympanograms and type B traces can vary, leading to differing opinions about eligibility for recruitment to the WATCH trial; (3) training of clinicians in tympanometry can be supported by the IROs; and (4) printing of the trace can be time consuming and photographs of the screen are an alternative.

CONCLUSION

Tympanometry can be used more effectively in otitis media trials and in clinical care in Aboriginal health services, including through trained IROs.

50.

AGREEMENT OF OTITIS MEDIA DIAGNOSIS BETWEEN AUDIOLOGISTS AND ENTS

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INTRODUCTION

Misdiagnosis of Otitis Media (OM) can lead to inappropriate or delayed treatment, increasing the risk of hearing impairment and other complications. While otolaryngologists (ENTs) are specialised in the diagnosis of ear diseases, children are much more likely to be seen by audiologists who serve as gatekeepers for referral. The accuracy of OM diagnoses made by audiologists remains unknown. This paper will explore the agreement of OM diagnoses of audiologists and ENTs.

METHODS

As part of a large cohort study of Aboriginal child health - The Study of Environment on Aboriginal Resilience and Child Health (SEARCH), children from four Aboriginal Community Controlled Health Services (ACCHSs) received comprehensive ear health assessments. Qualified and trained audiologists (n=4) performed audiometry, video otoscopy and tympanometry before making a diagnosis. Results of the assessment and images/video of the tympanic membrane (but not the diagnosis) were referred to ENTs (n=3) for review and diagnosis. Using ENT as the reference standard Cohen's kappa coefficient and pairwise agreement will be used to determine the inter-rater agreement of diagnoses made by audiologists and ENTs.

RESULTS

The kappa statistic (k) and pairwise agreement for each ear and each child will be presented. Sensitivity, specificity, positive predictive value, and negative predictive values of the audiologist diagnoses will be reported.

CONCLUSIONS

Early detection and treatment initiatives for OM are predicated on accurate diagnosis. Knowledge of the accuracy of audiologists who frequently come into contact with children is essential to ensure children suffering from OM receive timely and effective treatment.

OUTCOMES OF REHABILITATIVE HEARING SERVICES FOR ABORIGINAL AND TORRES STRAIT ISLANDER CLIENTS OF AUSTRALIAN HEARING

Samantha Harkus, Australian Hearing, Aboriginal and Torres Strait Islander Services, Sydney.

INTRODUCTION

Over the past three years, 3-4000 Aboriginal and Torres Strait Islander adults aged over 50 years accessed rehabilitative hearing services annually through Australian Hearing, in Hearing Centres and in urban, rural and remote Outreach locations. Australian Hearing regularly evaluates outcomes of services, however the approaches used have not resulted in a high response rate from Aboriginal and Torres Strait Islander adult clients. Our aim was to develop an outcomes survey that would provide information on usage, satisfaction and benefit that would inform service delivery, using a delivery approach that would result in an acceptable response rate.

METHOD

Factors were identified that were likely to constitute barriers to completion of the survey. These included client language and literacy levels and attendance at follow up appointments. Consideration was also given to mass versus gradual collection approaches, given high levels of client mobility. Finally, ways of delivery that facilitated successful completion of the survey were considered.

RESULTS

First responses were collected to the survey in April 2015. At June 2016, 220 responses had been collected. Delivery and response patterns, topics addressed, answers received and benefits to the clinical interaction and program will be discussed.

CONCLUSION

The design and delivery mode of the questionnaire has resulted in a survey that is delivering data useful to both the individual client interaction and to the Aboriginal and Torres Strait Islander services program.

51.