

## Pina Palya, Pina Kuliliku (good ears, good learning)

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Ruth Monck RM BSc (Nursing) trained as a nurse-midwife in the United Kingdom and has worked in Kalgoorlie, Western Australia, since moving there 14 years ago. Her particular area of interest lies in improving the health of Aboriginal women and children. Ruth believes that the role of empowering women assists in strengthening individuals and families. She is well known to the local Aboriginal community and has developed a strong relationship with many members of the community. Ruth was a research assistant for studies conducted between 1999 and 2005 in Kalgoorlie investigating the epidemiology of otitis media and upper respiratory tract carriage and she is author on three peer-reviewed publications related to that project. She is currently employed by the Telethon Institute for Child Health Research (ICHR) as Field Project Coordinator for a three-year intervention project in the goldfields named 'Pina Palya Pina Kuliliku—Good ears good learning', the aim of which is to get more Aboriginal children hearing well by the time they reach school age. Ruth has been coordinating Minma Birni, which is a self-funded Aboriginal women's group that has been running successfully for over eight years. This project provides an opportunity for Aboriginal women to gather away from their homes, where they often live under very stressful situations, and to learn life skills that can empower them and their families. The group is practical, hands-on and lots of fun. They have received several grants that have enabled them to have artists teach them new skills. They have held several exhibitions and been involved in community art projects. Health professionals are invited along to discuss women's business. To support each other, women attend as a group regular health screening sessions on offer in the community. Skills learnt have been passed on to other family members.

Michelle Forrest is an Aboriginal woman from the Wongutha people of the goldfields. She worked in the Department of Education for a number of years. She is currently working at Western Australia Country Health Service (WACHS) as the Aboriginal Health Promotion/Community Development Worker for the goldfields. She provides support and advice to Aboriginal communities and service providers in regards to public health issues; she supports community development initiatives and assisted in developing the WA cultural awareness training package to be used as professional development for WACHS staff. Currently she is working with a team to improve ear health in the goldfields. The multi-faceted program includes health promotion and regular ear screening for Aboriginal children aged < 5 years. Soap-making and music workshops tell of the impact otitis media (OM) can have on schooling and self-esteem and ways of preventing it. The play gives students self-confidence to perform in front of others and is performed live in front of families and friends. Michelle is involved in the evaluation of the Otitis Media Program. The project has drawn attention of medical staff and families to the importance of good ear health and ways of preventing otitis media.

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### Introduction

Aboriginal children in Australia suffer unacceptably high rates of middle ear disease (otitis media, OM) from early infancy.<sup>1-5</sup> A study undertaken in the Kalgoorlie-Boulder area of Western Australia (WA) between 1999 and 2005 found that OM was present in 50% of clinical examinations in Aboriginal children by the age of 2 years. By the age of 6 months 7% of Aboriginal children had had a tympanic membrane perforation at least once and one-third by age 2 years. One third of Aboriginal children aged >6 months had moderate-severe hearing loss.<sup>6,7</sup>

Impaired hearing can seriously affect early language development, performance at school, and subsequent employment and social integration in adulthood.<sup>2,8</sup> The World Health Organization considers a prevalence of chronic suppurative OM (chronic ear discharge through a tympanic membrane perforation) of more than 4% as indicative of a massive public health problem requiring urgent attention.<sup>9</sup> The rates of chronic serious middle ear disease in Aboriginal Australians far exceed that prevalence. Interventions are therefore urgently needed to improve educational outcomes of Aboriginal children and to break the perpetuation of the cycle of ill health, poverty and social exclusion.

OM is frequently asymptomatic in Aboriginal children until ear discharge is visible<sup>2</sup> and so treatment may not be sought until late in the disease process.<sup>10</sup> Parents and guardians have a limited understanding of OM despite the fact that they are concerned about the serious consequences of OM, especially deafness and

learning difficulties.<sup>10</sup> Currently there is no routine screening for ear health in pre-school age children in WA. Thus, many Aboriginal children reach school age having had recurrent or continuous ear infections with serious consequences, in particular hearing loss and impaired language development.

In our previous Kalgoorlie Otitis Media Research Project<sup>6</sup>, we found that Aboriginal children exposed to environmental tobacco smoke were almost 4 times more likely to suffer from OM than those who were not exposed. Reducing environmental tobacco smoke could reduce the chance of getting OM by 27%.<sup>11</sup>

Early onset of upper respiratory tract bacterial carriage is associated with early onset and persistence of OM.<sup>12</sup> A study in the Northern Territory has also found a high rate of carriage of pneumococci on hands of Aboriginal children.<sup>13</sup> Thus, frequent hand washing should help reduce the transmission of bacteria and risk of OM.

The above findings emphasised the need for early ear screening and an enhanced awareness campaign for prevention of OM. The Pina Palya, Pina Kulilku (Good Ears, Good Learning) project aims to develop a culturally appropriate multi-faceted program that can be introduced throughout the Goldfields and later to other regions of WA. In this paper we describe the project and present some preliminary findings.

## Methods

The Pina Palya, Pina Kulilku (Good Ear, Good Learning) project is an ongoing project which began in 2009 in Kalgoorlie-Boulder and 5 other Aboriginal communities located within 4 hours' drive from Kalgoorlie. There are 3 components to the program: health promotion, regular ear screening and health worker training.

### Health promotion program

The health promotion program aims to create awareness of OM and identify ways of preventing OM in the Goldfields. Consultations with local community members provided information on the types of activities, venues and artists that might be acceptable to the community. Aboriginal members of the project team, members of their extended families, friends and colleagues provided input into the development of the program and they also assisted in running the health promotion activities.

Since the start of the project, health promotion events to promote the 3 key messages (namely, "regular ear checks", "frequent hand washing" and "keep cigarette smoke away from children") were either initiated by the project team or promoted by the project team attending events run by local organisations (e.g. Bega and NTP). Such events included having ear health stalls during Family Weeks, NAIDOC week celebrations, National Aboriginal and Islanders Children's Day, ear health promotion in local parks and soap-making and music workshops.

*Soap-making workshops* Soap-making workshops were held in Kalgoorlie and outlying communities to engage people and promote health messages. They were advertised by word of mouth, emails and posters. At each workshop, the project coordinator introduced the project and provided background information about OM and the health promotion messages. Then she taught the group how to make soaps. The following were needed to make soap: soap flakes, food colouring, hot water, bowls and cutters (to mould shapes).

Video-otoscopy and the "GlitterBug" were used to make the workshops interesting and interactive. The video-otoscope enables the examiner, the person whose ear is being examined and other people to visualise the ear drum on a screen, in our case, on a laptop screen. The "GlitterBug" shows how well hands are washed. The procedure is as follows: 1) put fluorescent lotion on hands 2) shine UV light on hands 3) wash hands 4) shine UV light on hands again to see the remaining areas with fluorescent lotion (which indicates which areas have not been washed properly) (<http://www.glitterbug.com/>). At the end of the workshop, everybody had a good wash of hands after making colourful blocks of soap and refreshments were provided.

*Music workshops* An Aboriginal pianist/composer (BG) was selected as workshop facilitator to work with 4 groups of children to develop a musical that tells of the impact OM can have on schooling and self-esteem and ways of preventing OM. After obtaining the support of school principals and parents, 3 locations were chosen. Group 1 included primary school students at the Christian Aboriginal Parent-Directed School (CAPS) in Coolgardie, group 2 included primary and secondary school students from various schools in Kalgoorlie and groups 3 and 4 included pre-primary and years 1-3 primary school students at East Kalgoorlie Primary School (workshops were held separately for each of the last 2 groups). Groups 1, 3 and 4 had workshops during school

hours. Group 2 students gathered after school at Wongutha Birni Cultural Centre. Transport and refreshments were provided. Workshops for individual groups ran over 2-5 weeks, followed by public performances.

For each group, during the first session, the workshop facilitator taught children about how the ear functions. During the session he used verse (e.g. "outer ear catches waves, middle ear good vibrations, inner ear nerve starts here") and children were taught the "Germ song" (see Appendix) and actions to go with the music. Specific roles were assigned to individuals or groups of children: i.e. teacher, germs, kangaroo with ear infections, kangaroo's mother, a health worker and classmates. The video-otoscope was not only used as an educational tool, but also as a stage prop. The series of workshops culminated in performance of the musical to community members and there was another performance to a wider audience during NAIDOC week.

### **Training and the ear screening program**

A training workshop was held in August 2009 attended by 20 Aboriginal Health Workers, Community Health Nurses and School Nurses. The aim was to empower health professionals to examine ears (by otoscopy and tympanometry) and to treat appropriately. A flowchart for the diagnosis and management of OM was developed in consultation with a senior ear specialist and audiologists. A further training session took place in April 2010.

The ear screening program targets Aboriginal children aged <5 years. The intention was to have routine screening at birth (through the newborn hearing screening program at Kalgoorlie Regional Hospital), at ages 2 and 6 months, thereafter 6-monthly to age 18 months and then annually. It soon became apparent that, rather than having scheduled visits, opportunistic screening was optimal. The project team made regular visits to all participating sites to continue training and to examine children. Children who failed the screening test were treated or referred to a specialist.

### **Data collection for evaluation of the program**

In order to evaluate the impact of the project, questionnaires were developed to document the ear screening results and socio-demographic data including smoking in the household, hygiene practices, availability of water and soap and parents' knowledge about OM. Data were collected from parents of children having ear screening and also from the wider community. Informed written consent was sought from a parent or guardian if people agreed to take part in the ear screening program and before interviewing community members. For the music workshop, separate pre- and post-workshop interviews with open-ended questions were conducted. Students answered questions in groups.

Ethical approval to conduct the study was given by the WA Aboriginal Health Information and Ethics Committee and the WA Country Health Service Ethics Committee.

## **Results**

### **Health promotion program**

*Soap-making workshops* To date 8 soap-making workshops have been held in Kalgoorlie and outlying communities. Between 10 and 20 community members (mainly women) participated in each workshop. Crèches were organised for 3 workshops (to care for participants' children).

Community members were very engaged in the activities. The venues were alive with people exchanging ideas, teaching each other, borrowing materials and laughter. When we projected pictures of ear drums onto the laptop screen through a video-otoscope, people were very surprised. They realised why it is important to have healthy ears. Almost all participants had a history of ear infections and many said they had some degree of hearing loss. They related the ear drum pictures (in particular those with large perforations) to their own experiences and acknowledged the need to take their children to have ears checked out.

The "GlitterBug" was new to all participants. Participants queued up and waited patiently to have the fluorescent lotion put on their hands. One teenage girl saw fluorescent lotion left on her hands after washing, so she washed them again and again until she couldn't see any remaining fluorescent lotion.

Participants "loved making soaps" and were pleased to take home the soaps they had made themselves. Although cutters were provided at the workshops, many people came up with their own soap designs such as

a car, roses and balls on a rope. Participants also commented that “the workshop gets people out of the house and away from drinking” and they “need more those kind of activities”. Participants learnt about ways of preventing OM through the workshop. One lady commented she is going to try not to have smoking in the house; she had not realised it may cause ear infections. The soap workshops also attracted considerable media attention with photos and articles in the Kalgoorlie Miner newspaper and local community newsletters which further promoted the project and spread the health promotion messages to the wider community.

*Music workshops* Eight music workshops were conducted with the children at CAPS school, 6 with each of the 2 groups at East Kalgoorlie Primary School while there were 5 workshops at Wongutha Birni Cultural Centre. An average of 15 students attended the workshops. The number of students attending each workshop was fairly consistent, though some were not always able to attend school and there were also new students who joined classes during the time that workshops were being conducted. Table 1 shows the number of students who participated in the pre- and post-workshop evaluations.

**Table 1 Participants in evaluation of workshops**

	Pre-evaluation	Post-evaluation
Group 1 (CAPS)	14	16
Group 2 (Wongutha Birni)	19	-
Group 3 (East Kalgoorlie, pre-primary)	12	15
Group 4 (East Kalgoorlie, primary)	16	15

The workshops with group 2 students were not evaluated because it was not possible to gather these children who were scattered around Kalgoorlie-Boulder just for an evaluation. Nevertheless, the project team approached students and members of the audiences after the performance at Wongutha Birni and at other events and asked them what they thought about the music workshops.

Between 10 and 40 people attended the public performances by the 4 groups of students. Audiences included school teachers and staff, parents and guardians, family members, health workers and other Aboriginal and non-Aboriginal people. Parents were very proud of their children performing in front of others. One parent was almost in tears after seeing her son performing. Comments from community members about the workshops and related to knowledge and awareness of OM are presented in Table 2.

**Table 2 Comments from community members**

About the workshop	Knowledge and awareness of OM
A school principal said he liked the workshops and performance. He wanted to have them at school every year. He also welcomes us to go to the school at any time. “Kids are not shy anymore”. “The program is really good”.	A father said kids wash hands more at home. He bought soaps for home and took other 2 kids to have ears checked out. Four mothers said children were singing songs at home and taught siblings too.
“Students were really engaged”.	“I don’t need to remind children much about washing hands before meals”.
“Students need to learn knowledge in the interesting way, not sitting in class doing theories all the time”.	A teacher realised if students don’t behave well in class it doesn’t mean they are not good, but they may have an ear infection and cannot hear.
“The project is solid”.	One member of the project team observed a participant picked a piece of rubbish and raced off to the toilet to wash hands!
“Good to have something to do after school”.	“Children were a bit shame but once the confidence was built, the children’s confidence grew”.
Audience said “wow” when they saw ear drums on the laptop screen.	“Children are singing the songs in the playground”.

When students were asked to raise hands if they liked the music workshops, 10/16 (63%) students from group 1, 12/15 (80%) students from group 3 and 14/15 (93%) students from group 4 raised their hands. When we asked what they liked about the workshops, responses included: singing, doing actions, being the health worker and looking into ears, playing on the keyboard and the whole music workshop. Students did not report anything they did not like about the music workshops when asked in the absence of the workshop facilitator. Instead they said they wanted more songs, more dancing and more activities.

In order to find out how effective the workshops might have been in delivering health promotion messages, students were asked what they were doing differently since attending the workshops. Students indicated “use soaps at home”, “wash my hands in the morning”. Out of three groups that completed the post-workshop evaluation, one group of students was able to remember all 3 health promotion messages, and the other two groups remembered that getting ears checked out and not smoking could prevent ear infections.

The following conversation overheard between two children suggests that workshops can make a difference. The conversation happened in the bathroom before having refreshments after their musical performance:

“You should wash your hands before eating!”

“No.”

“Yes, you should! If you don’t, you will get ear infections!”

The next thing was the eavesdropper heard the tap water running!

### **Ear screening program**

From August 2009 to September 2010, 113 children under the age of 5 years were enrolled in the ear screening program (53 females, 60 males). 48 children were enrolled in the Kalgoorlie-Boulder area and 65 in outlying communities. Not all enrolled children had had their ears checked yet as they had been enrolled in a park or during health promotion events when no ear screening facilities were available. However, 107 children had ears checked with 53 children aged <2 years and 54 aged 2–5 years.

A total of 144 ear examinations were performed including some children who had more than one ear screening. A definitive diagnosis could not be made on 43 occasions either because the child became distressed or the tympanometer was not functioning properly or staff were unable to make a diagnosis. Of the remaining 101 examinations, 58 examinations were normal, 43 (43%) had middle ear infections, including 9 with tympanic membrane perforations.

The number of children attending the ear specialist clinic at Bega Garnbirringu Health Services has increased dramatically since the commencement of the project. The project also brought the ear specialist to Leonora, the first time an ear specialist had visited the town in living memory. He saw 25 Aboriginal children 2 of whom required prompt referral to the children’s hospital in Perth for possible surgical intervention to prevent deafness or meningitis. These children’s serious conditions would not otherwise have been detected until more serious complications had developed.

### **Discussion**

We have presented a description of an ongoing health promotion program aimed at reducing the burden of middle ear disease in the Aboriginal population and provided a preliminary report of soap-making and music workshops and ear screening in the Goldfields. The project has drawn attention of medical staff and families to the importance of good ear health and ways of preventing OM. An appropriate and creative health promotion program developed collaboratively with members of the community is the best way to deliver public health messages and can enhance social cohesion and overall health and wellbeing of the people.

The soap-making workshops provided an excellent opportunity for the project team to talk about the project, pass on health promotion messages and work together with local organisations. The workshops were welcomed, because they get people active and it is a holistic approach to improve overall wellbeing and community strength. Since soap-making workshops began, other health agencies have taken up the idea (e.g. Environmental Health staff at Bega and the Population Health trachoma team).

The soap-making idea came from ongoing communication with community members and surveys during the project. We realised that soap is often a luxury good for many Aboriginal people and this is a barrier for good hand washing at home. Consultation and feedback from Aboriginal people to find out what they need is critical to the success of programs as pointed out in our national NHMRC ethical guidelines.<sup>14</sup>

We agree with Eley et al and Perry et al that music workshops are well-received as a means of conducting health promotion in Aboriginal communities.<sup>15, 16</sup> Music is a fun way of learning for students, and parents were in favour of their children having such classes. Unfortunately, many schools in remote areas do not have music teachers. Having the opportunity to learn music may assist in 'Closing the Gap' between Aboriginal and non-Aboriginal children: in this project, not only did children enjoy singing, learning about ears and how to prevent OM, but performing in public gave them self-confidence which is invaluable for life. Many students were very shy at school and reluctant to speak or go in front of the class. Through the music workshop, they overcame barriers and learnt to perform in front of audiences.

Health promotion and research carried out in Aboriginal communities need to have Aboriginal people actively involved for guidance and to engage other people in the community. Aboriginal people prefer to be cared for by people they know well, they like workshops to be held in familiar places, they do not want to be asked too many questions, and they like to have food provided. Non-Aboriginal professionals who have good long-standing relationships with members of the community, who have good knowledge of Aboriginal culture, who are dedicated and seen to be genuine about improving Aboriginal people's health and life are valuable contributors too. It is acknowledged that Aboriginal and non-Aboriginal people need to work together to share knowledge and leadership.<sup>17</sup> Of course, it requires patience and time to develop relationships with and the trust of Aboriginal people.<sup>6</sup>

Video-otoscopy is an excellent educational tool. Health service providers and health promotion personnel working in areas where the prevalence of OM is high should have access to video-otoscopy. The cost of equipment has fallen considerably.

We recommend that a proper ear examination be done every time a health professional sees an Aboriginal child in a clinic (e.g. for immunisations or health checks). Competing demands in Aboriginal people's daily lives and the unpleasant, intensive nature of treatment needed for chronic suppurative OM result in families becoming resigned to a child's condition.<sup>10</sup> It is still difficult to get parents to take children to clinics for an ear check. Therefore, every opportunity should be taken to exam children's ears as the Ear Screening Program has confirmed that almost half of healthy-looking children have ear infections.

In summary, while we have not as yet conducted a formal evaluation, comments by members of the community as well as health and education staff indicate that the health promotion activities have been well received by adults and children alike, that the programs not only address ear health but general wellbeing of individuals and the wider community, and that people now seem to be more concerned about ear health. Hence more are seeking the very limited services available by an ear specialist (4 clinics annually in Kalgoorlie). It is also of note that there is no resident audiologist in the Goldfields. A full evaluation on the effectiveness and sustainability of the project will be conducted at the end of the study in 2012.

## Acknowledgment

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## Appendix    The Germ Song

Composed by Bradley Gilchrist

We're the germs and we're gonna getcha  
Full of disease and I betcha  
We'll soon lay you out on a stretcha  
We're germs and we rule!

We're the germs and we're gonna be mean  
We're viruses, bacteria and we sometimes can't be seen  
Fungi and parasites we don't like it clean  
We're germs and we rule!

I just handled rubbish!  
Yes, yes, yes  
I just touched the dog!  
Yes, yes, yes  
I just coughed!  
Yes, yes, yes  
We haven't washed our hands so you can come in  
You can make our ears quite sickly  
We don't want to use the soap, or the gloves at all  
So you're welcome to come in and make us all quite sickly, quickly,  
Cos we haven't washed our hands, we haven't washed our hands, so  
You're welcome to come in quite quickly.

I just handled the rubbish!  
No, no, no  
I just touched the dog!  
No, no, no  
I just coughed!  
No, no, no  
We have washed our hands, so you can't come in  
You'll never make our ears quite sickly  
We have used the soap, and the gloves as well  
So stay away from us and you germs had better do it quickly  
Cos we have washed our hands, we have washed our hands, so  
You're welcome to buzz off quite quickly.