

11th National Aboriginal and Torres Strait Islander Environmental Health Conference, Queensland 2017

'Dugong, Clamshells and Sea Urchin' appears courtesy of the artist Patricia Singleton



'Torres Strait Partnership' appears courtesy of the artist Mario Assan

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Connecting environmental health through partnerships - a grassroots approach



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Conference artwork

The conference artwork is comprised of two paintings by local Aboriginal and Torres Strait Islanders artists.



The painting titled "Dugong, Clamshells and Sea Urchin" appears courtesy of the artist, Patricia Singleton.



The painting titled "Torres Strait Partnership" appears courtesy of the artist, Mario Assan.

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Preface	1
Acknowledgments	1
Conference Organising Group and WGATSIEH Members	2
Keynote Presenters	3
Introduction from enHealth, WGATSIEH and EHA	5
Day 1 - Official Opening, Monday 4 September 2017	6
Keynote Address.	6
<i>Professor Gracelyn Smallwood AO, Central Queensland University, QLD</i>	
The Wujal Wujal environmental health story	7
<i>Brandon Zysk, Wujal Wujal Aboriginal Shire Council, and Clayton Abreu, Cairns Public Health Unit, QLD</i>	
“You gotta wash ya face to come to my place” community project	8
<i>Sonny McKay, Shire of Derby/West Kimberley and Iris Prouse, Kimberley Population Health Unit, WA</i>	
Tackling waste management in communities: a collaborative approach.	13
<i>Liam Harte, Big Rivers Region Waste Management Working Group, NT</i>	
Day 2 - Tuesday 5 September 2017	16
enHealth Address	16
<i>Associate Professor Sophie Dwyer, Chair, enHealth</i>	
Keynote Address.	17
<i>Dr Jeannette Young, Chief Health Officer and Deputy Director-General, Prevention Division, Department of Health, QLD</i>	
Keynote Address: Collaborating with communities to achieve biosecurity outcomes	19
<i>Dr Beth Woods, Director-General, Department of Agriculture and Fisheries, QLD</i>	
Lessons learnt from participation in a large Indigenous community event	23
<i>Jason May, Central Coast Public Health Unit, NSW</i>	
The value of the Australian Indigenous HealthInfoNet	26
<i>Millie Harford-Mills, Australian Indigenous HealthInfoNet</i>	
Environmental health response to a significant community flooding event. Case study: Kintore community	28
<i>Aaron Clifford, Environmental Health Central Australia, NT</i>	
The 2016 Cherbourg Dog Management Program: a story of collaborative success	31
<i>Stephen Hill, Cherbourg Aboriginal Shire Council, QLD, Dr Bonny Cumming, Animal Management in Rural and Remote Indigenous Communities, NT, Amanda Hutchings, Darling Downs Public Health Unit, and Dr Greg Simmons, University of Queensland School of Veterinary Science, QLD</i>	
Torres Strait Island Regional Council training and development	34
<i>Philomena David and Bert Matysek, Torres Strait Island Regional Council</i>	
Germinator - Classroom Smart Board Program.	35
<i>Robert Barnett, NSW Health and Cindy Gliddon, Hunter New England Population Health, NSW</i>	
Cleaning made easy	36
<i>Steven Kelly, Bundiyarra Aboriginal Community Aboriginal Corporation, WA</i>	
Improved waste management with the Waste and Litter Management App.	40
<i>Michael Davis and Edan Baxter, Central Australian Remote Waste Management Program, NT</i>	
Environmental health in SA: what’s happening and where to next	42
<i>Phillip Graham, Department for Health and Ageing, SA</i>	
Public health programs in the top western Torres Strait	43
<i>Tanaio Anau, Bob Modee, Conwell Tabuai, Mildred Lowatta and Crossfield Manuel, Torres Strait Island Regional Council</i>	
Day 3 - Wednesday 6 September 2017	45
Keynote Address.	45
<i>Tammy Williams, Deputy Director-General, Department of Aboriginal and Torres Strait Islander Partnerships, QLD</i>	
The development and implementation of an environmental health clinic referral system in WA	46
<i>Sonny McKay, Shire Of Derby/West Kimberley, WA</i>	
Environmental health response to acute rheumatic fever and rheumatic heart disease in NSW	48
<i>Dr Angela Pitts, NSW Health, NSW</i>	
Squeaky Clean Kids - making a difference	52
<i>Dr Melissa Stoneham, Public Health Advocacy Institute of WA, Jim Dodds, WA Health and Chicky Clements, Nirrumbuk Aboriginal Corporation, WA</i>	
Developing sustainable E (environmental health) practices in ‘SAFE’	55
<i>Matthew Lester, WA Health, Chicky Clements, Nirrumbuk Environmental Health, WA</i>	
Bringing environmental health into the home	57
<i>Matthew Lester, WA Health, WA</i>	

Day 4 - Thursday 7 September 2017	58
Keynote Address.	58
<i>Mayor Fred Gela, Mayor, Torres Strait Island Regional Council, QLD</i>	
Trial solid waste management and pest control projects in southern NSW	59
<i>Tim Short, SEC Health, Lisa Motbey and James Allwood, NSW Health, NSW</i>	
Local and innovative partnering in addressing large-scale, chronic community water usage issues	62
<i>Robert Mullane, Department of Health, WA</i>	
Techniques employed during the Aedes Aegypti eradication program in Tennant Creek.	65
<i>Ryan McLean and Scott Spurling, Department of Health, NT</i>	
Is there a need for companion animal health programs in western NSW?	70
<i>Taylor Smith, Western New South Wales Local Health District, and Jessica Spencer, Health Protection, NSW</i>	
Community-Led Change	74
<i>Janine Morton, Dayna Namaryilk and Martina Balmana, Children's Ground Ltd, NT</i>	
Three environmental programs from the Eastern Goldfields, WA	75
<i>Cody Winter and Darren Indich, Bega Garbarringu Health Service, WA</i>	
Young Doctors Program	76
<i>Don Palmer, Malpa Project, NSW</i>	
Engaging Aboriginal Shire Councils in supportive environment approaches to health.	79
<i>Dr Simone Nalatu, Gillian Myers, Prevention Division, Queensland Health, Tiffany Williams and Cara Laws, Apunipima Cape York Health Council, QLD</i>	
A partnership approach: utilising environmental health workers to deliver health messages.	82
<i>Melinda Edmunds and Dr Melissa Stoneham, Public Health Advocacy Institute of Western Australia; Chicky Clements and Ray Christophers, Nirrumbuk Aboriginal Corporation, WA</i>	
Health hardware case study: Utopia Homelands.	83
<i>Aaron Clifford, Environmental Health Central Australia, NT</i>	
Poster Sessions	86
Household waste disposal (value adding project) in Western Sydney.	86
<i>Trent Auld and Helen Noonan, Western Sydney Local Health District, NSW</i>	
Cleaning up country: tackling waste through partnerships, connection and collaboration	88
<i>Danyelle Carter and Tash Morton, NSW EPA, Salome Green, Muli Muli Local Aboriginal Land Council</i>	
The health of native food and native food for health	89
<i>Sharon Dennis, University of Tasmania, TAS</i>	
Outcomes of trachoma screening in the Torres Strait: lessons for trachoma control	90
<i>Kate Lynch, Queensland Health, QLD</i>	
Improving community health when returning safely to country	91
<i>Amanda McKenna, Bega Valley Shire Council, NSW</i>	
enHealth Working Group on Aboriginal and Torres Strait Islander Environmental Health Awards	92
Award for Leadership in Environmental Health.	92
Award for Fostering partnerships of excellence in Environmental Health	93
11 th NATSIEH Conference group photograph	94
Glossary	95
Conference supporters.	95

This conference monograph has been produced by the enHealth Working Group on Aboriginal and Torres Strait Islander Environmental Health (WGATSIEH), and details the proceedings of the 11th National Aboriginal and Torres Strait Islander Environmental Health (NATSIEH) Conference, which was held at the Pullman Cairns International Hotel, Cairns, Queensland, on 4-7 September 2017.

The inaugural NATSIEH Conference was held in Cairns in 1998. Conferences are currently held on a biennial basis and provide environmental health practitioners with a unique opportunity to showcase their projects, build professional networks, and learn from one another. Previous conferences have been held in the following Australian locations:

Cairns 1998
 Broome 1999
 Alice Springs 2000
 Adelaide 2002
 Terrigal 2004
 Cairns 2007
 Kalgoorlie 2009
 Darwin 2011
 Adelaide 2013
 Coffs Harbour 2015

The aim of these national conferences is to increase the understanding and awareness of environmental health issues in Aboriginal and Torres Strait Islander communities, with a key focus on Aboriginal and Torres Strait Islander environmental health practitioners.

The conference provided delegates with the opportunity to hear and view presentations, from a variety of environmental health practitioners from across Australia, that highlight the programs and activities being undertaken in their own settings and the challenges faced in striving to achieve the conference theme: *Connecting environmental health through partnerships - a grassroots approach*.

The next NATSIEH Conference is scheduled to be held in Western Australia in 2019.

The WGATSIEH is grateful for the financial support provided by the following organisations to meet the costs of running the 11th National Aboriginal and Torres Strait Islander Environmental Health Conference.

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 Environmental Health Australia
 Garrards Pty Ltd
 Department of Energy and Water Supply, Queensland
 Department of Health, Queensland
 Department of Housing and Public Works, Queensland
 Health Protection, New South Wales
 Indigenous Eye Health Unit, University of Melbourne

Special thanks to those who planned, organised and made the Cairns Conference successful.

Mr Jeff Standen, (Chair), Manager, Aboriginal Environmental Health, NSW Health. Jurisdiction: New South Wales.

Mr Phillip Graham, (Deputy Chair), Coordinator, Aboriginal Environmental Health, SA Department for Health and Ageing. Jurisdiction: South Australia.

Mr Shane Nichols, (Deputy Chair), Manager, Aboriginal Sport and Recreation, Sport and Recreation Victoria, Department of Health and Human Services. Jurisdiction: Victoria.

Ms Liz Cheah, (Secretariat), Health Protection Policy Section, Health Protection Policy Branch, Office of Health Protection, Department of Health. Jurisdiction: Australian Government.

Mr Robert Barnett and **Jessica Spencer**, NSW Health Aboriginal Environmental Health Unit. Jurisdiction: New South Wales.

Mr Chicky Clements, Manager Environmental Health Operations, Nirrumbuk Aboriginal Corporation. Jurisdiction: Western Australia.

Mr Ewan Gunn, Manager, Environment and Health, Torres Strait Island Regional Council. Jurisdiction: Queensland.

Ms Nicola Slavin, Senior Policy Officer, Environmental Health, Department of Health. Jurisdiction: Northern Territory.

Ms Elva Gela, Environmental Health Officer, Department of Health. Jurisdiction: Northern Territory.

Ms Uma Rajappa, Director, Environmental Hazards Unit, Queensland Health. Jurisdiction: Queensland.

Mr Nick Baker, Group Manager Operations, SA Department for Health and Ageing. Jurisdiction: South Australia.

Mr Paul Hunt, State Manager, Environmental Health Services, Department of Health and Human Services. Jurisdiction: Tasmania.

Mr Matthew Lester, Manager, Science and Policy, Environmental Health Directorate, Public Health Division, Health Department of Western Australia. Jurisdiction: Western Australia.

Ms Uma Rajappa, (Chair), Director, Environmental Hazards Unit, Queensland Health

Mr Clayton Abreu, Indigenous Environmental Health Program Officer, Cairns Public Health Unit, Queensland Health

Mr Eddie Bobongie, Environmental Health Worker Coordinator, Torres and Cape Health Service, Queensland Health

Mr Peter Boland, Manager, Environmental Health, Darling Downs Public Health Unit, Queensland Health

Mr Damien Farrington, Manager, Environmental Health, Townsville Public Health Unit, Queensland Health

Mr Paul Florian, Manager, Environmental Health, Central Queensland Public Health Unit, Queensland Health

Mr Ewan Gunn, Manager Environment and Health, Torres Strait Island Regional Council

Ms Amanda Hutchings, Senior Environmental Health Officer, Darling Downs Public Health Unit, Queensland Health

Mr Brad Milligan, Manager Environmental Health, Cairns Public Health Unit, Queensland Health

Ms Rebecca Richardson, Senior Environmental Health Scientist, Queensland Health

Ms Ursula Sabatino, Environmental Health Program Coordinator, Torres and Cape Hospital and Health Service Queensland Health

Ms Patricia Wandrey, Environmental Health Officer, Queensland Health

Professor Gracelyn Smallwood AO
Central Queensland University | Monday 4 September



Professor Gracelyn Smallwood AO is Professor of Nursing at Central Queensland University and Adjunct Professor at the Division of Tropical Health and Medicine at James Cook University (JCU), Townsville, Queensland.



Queensland Government

She is a Birrigubba, Kalkadoon and South-Sea Islander woman born in Townsville in 1951. She grew up in a condemned house with a dirt floor with 18 siblings (14 in one family, five more when her father remarried), of whom she is the third eldest. In 1972, she became a registered nurse and used her qualifications to work in communities such as Alice Springs, Palm Island, remote Western Australia and South Australia. She was a volunteer member of the Townsville Aboriginal and Islander Health service in 1974, and worked as a volunteer Registered Nurse with two volunteer doctors. Later she became a registered midwife.

She was awarded the Queensland Aboriginal of the Year in 1986 and an Order of Australia in 1992 for service to public health, particularly HIV-AIDS education. In 1993, she was the first Indigenous Australian to receive a Masters of Science in Public Health (JCU) for her work on HIV education in North Queensland Indigenous communities. She has been employed as an advisor to the World Health Organization on HIV-AIDS and Indigenous communities, and by the Queensland Health Minister, Ken McElligott, and Queensland Minister for Family Services, Ann Warner, because of my expertise on health and domestic violence inequalities.

In 2007 she had one of my greatest achievements, the Deadly Award for Outstanding Lifetime Achievement in Indigenous Health. I was especially delighted with this award, as it is peer and community judged. In 2011, I completed my PhD thesis Human Rights and First Australians Well-being.

In October 2013 I was awarded the United Nations Association of Australia Queensland Community Award - Individual, in recognition of service to public health, in particular HIV/AIDS, contribution to Australian universities, and consultation to the World Health Organization. In 2014, she received the prestigious award of NAIDOC Person of the Year.

In 2015 she was appointed Member, The Harvard FXB Health and Human Rights Consortium.

Dr Jeannette Young, Chief Health Officer and Deputy Director-General, Prevention Division, Department of Health, QLD | Tuesday 5 September



Dr Young has been the Queensland Chief Health Officer since 2005. Previously she worked in a range of positions in Queensland and Sydney. She has specialist qualifications as a Fellow of the Royal Australasian College of Medical Administrators and as a Fellow by Distinction of the Faculty of Public Health of the Royal College of Physicians of the United Kingdom.

Her role as Chief Health Officer and Deputy Director-General includes responsibility for health disaster planning and response; aero-medical retrieval services; licensing of private hospitals; and policy regarding organ and tissue donation; blood, poisons and medicines; cancer screening; communicable diseases; environmental health; preventive health; and medical workforce planning and leadership.

Dr Beth Woods, Director-General, Department of Agriculture and Fisheries, QLD | Tuesday 5 September



Beth Woods completed her DPhil in Agricultural Economics as a Rhodes Scholar at Oxford University. She is currently Director-General of the Department of Agriculture and Fisheries. She has served on committees of the Grains R&D Corporation, the Policy Advisory Council of the Australian

Centre for International Agricultural Research (ACIAR), the CSIRO Board, the Gatton College Council and the Rural Adjustment Scheme Advisory Council. She has chaired the RIRDC, ACIAR, and the National Drought Policy Review in 2004, and the International Rice Research Institute from 2008 to 2010. She is currently a Director of the QRAA, and Chair of WorldFish, headquartered in Penang.

Tammy Williams, Deputy Director-General, Department of Aboriginal and Torres Strait Islander Partnerships, QLD | Wednesday 6 September



Ms Williams, a Murri woman, was admitted as a Barrister in the Supreme Court of Queensland and High Court in Australia in 2002 and has more than 18 years of professional and pro-bono experience working in the field of human rights, with a focus on Indigenous and children's rights.

She was delighted to join the leadership team of DATSIP and continue serving the community by developing social policy to improve life outcomes for children, young people and their families.

Alongside her departmental colleague, Deputy Director-General for Culture and Economic Participation, Helena Wright, Tammy's appointment as Deputy Director-General for Policy jointly represents the highest position currently held by Indigenous women within this department and the Queensland Government public sector.

Ms Williams was awarded her law degree in 2001 from the Queensland University of Technology and was admitted as a Barrister to the High Court of Australia and Supreme Court of Queensland the following year. She has made significant contributions to Queensland Civil and Administrative Tribunal's jurisprudence presiding of matters across the Human Rights Divisions specialising in children and anti-discrimination matters.

She was a member of the National Human Rights Consultation Committee, which analysed Commonwealth and state human rights laws and policies, and comparative international laws and parliamentary mechanisms. The committee has been credited with undertaking the most comprehensive public consultation of its type in the nation's history. She is a former member of the National Indigenous Council, a peak advisory body that advised the Australian Government on matters relating to Indigenous policy. Ms Williams co-authored an award-winning book, *Not Just Black and White*, which tells the story of her mother, Lesley Williams', research and international campaign for the return of Indigenous Queenslanders' wages and savings; and she was featured in the book *The Power of 100*, which profiles 100 women who have shaped Australia.

Mayor Fred Gela Torres Strait Regional Council | Thursday 7 September



Mayor Gela's strong vision for the region is founded in his deep commitment for his people.

Serving his third term, Mayor Gela is committed to improving essential services, ensuring Council's sustainability, rehabilitation of failing infrastructure and developing economic opportunities and he has a strong vision for greater autonomy through Regional Governance Reform.

Mayor Gela believes the 21st century is the time of innovation, when we must embrace new ideas and forge new partnerships, while maintaining faith with the communities we serve.

Mayor Gela is a returning member of the Local Government Association of Queensland Policy Executive and is the Deputy Chair of the newly established Community Enterprise Queensland Board.



We are pleased to present the proceedings of the 11th National Aboriginal and Torres Strait Islander Environmental Health (NATSIEH) Conference, held in Cairns, Queensland on 4-7 September 2017. The conference was a collaborative effort between enHealth, led by enHealth's Working Group on Aboriginal and Torres Strait Islander Environmental Health (WGATSIEH), and Environmental Health Australia (EHA). enHealth is the Australian Health Protection Principal Committee's Environmental Health Standing Committee.

enHealth and EHA acknowledge the Yirrganydji people, the original custodians of the land on which the conference was held, and pay our respects to Elders past, present and emerging.

We would also like to acknowledge and thank the 11th NATSIEH Queensland Conference Organising Group; Mr Adam Druce, Conference Management Solutions; and the Queensland Government for their tremendous support in helping to organise this conference.

The enHealth *National Environmental Health Strategy* and associated annual workplan identify key national environmental health issues and provides the framework for the important work to be undertaken by WGATSIEH and its subcommittees. This work contributes to the enHealth vision, that *Aboriginal and Torres Strait Islander people have a standard of environmental health that supports quality health outcomes.*

Organisation of the national conference and provision of feedback to key stakeholders on national Aboriginal and Torres Strait Islander environmental health policies, initiatives and issues remain key priorities of enHealth and WGATSIEH.

The five priority areas being addressed by WGATSIEH are:

- effective and sustainable environmental health programs in Aboriginal and Torres Strait Islander communities.
- an effective and stable Aboriginal and Torres Strait Islander environmental health workforce.
- safe and healthy living environments for Aboriginal and Torres Strait Islander people.
- targeted initiatives to address the increased vulnerability of Aboriginal and Torres Strait Islander children to poor environmental health conditions.
- an improved evidence base that informs environmental health practice.

A/Prof Sophie Dwyer
Chair, enHealth

Jeff Standen
Chair, WGATSIEH

Vince Stephens
EHA National President

Since our last conference, in Coffs Harbour in 2015, WGATSIEH has worked together to continue **connecting environmental health through partnerships** - the theme of this conference in Cairns.

This conference continued to showcase the impressive responses by environmental health practitioners to ongoing changes and challenges to '*Connecting environmental health through partnerships - a grassroots approach*' and providing better health outcomes for Aboriginal and Torres Strait Islander people.

The presentations in this monograph highlight current, new and planned Aboriginal and Torres Strait Islander environmental health projects and programs. They includes initiatives that target improved Indigenous housing, infrastructure and health hardware; environmental health education, training and workforce development; partnerships and community engagement; disease prevention, food safety and nutrition; hygiene and sanitation; water and waste management; emergency management; and energy savings.

enhealth and EHA would like to thank all of the conference sponsors, as this successful conference would not have been possible without their ongoing support and contributions. The keynote speakers made a tremendous contribution by sharing their journey, experience and inspiration at the conference. We would also like to thank all of the presenters for contributing high-quality presentations as part of an engaging and comprehensive program that highlighted the many positive actions occurring in Aboriginal and Torres Strait Islander communities. Finally, thank you to all the conference delegates who helped make the conference a success.

We look forward to our involvement in '*Connecting environmental health through partnerships - a grassroots approach*' and working together to achieve better Aboriginal and Torres Strait Islander environmental health outcomes.

Keynote Address

Professor Gracelyn Smallwood AO, Central Queensland University, QLD

Presentation article not supplied by author.

The Wujal Wujal environmental health story

Brandon Zysk, Wujal Wujal Aboriginal Shire Council, and
Clayton Abreu, Cairns Public Health Unit, QLD

Wujal Wujal Aboriginal Community is located in the Bloomfield Valley inside the World Heritage Area some 170km to the north of Cairns and 70km south of Cooktown. The Wujal Wujal Aboriginal Shire Council is funded by Queensland Health to employ an Environmental Health Worker and Animal Management Worker to deliver Environmental Health programs/services. The successful programs delivered in the community are: Housing Survey; Pest Control; and Animal Management.

Housing Survey

The Council's Management and Mayor wanted to know the housing conditions in the community. The housing survey was conducted by the Environmental Health Worker and Animal Management Worker with support from the Queensland Health Indigenous Environmental Health Program Officer. The survey tool was a housing check list which focused on health hardware in the houses. The survey findings were sent through to the Department of Housing for work orders to fix the issues identified in the survey.

Pest Control

The Environmental Health Worker and Animal Management Worker are licenced pest management technicians, who conduct pest management activities on the behalf of Council and the Department of Housing. The benefits of their activities, save Council on funding and reduce public health risks with pests.

Animal Management

All dogs and cats in Wujal Wujal are registered with the Council and are scabies and mange free. The program is the most successful in Queensland's Environmental Health Worker and Animal Management funding.

For more information

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“You gotta wash ya face to come to my place” community project

Sonny McKay, Shire of Derby/West Kimberley and Iris Prouse, Kimberley Population Health Unit, WA

Good afternoon everyone. In keeping with the conference theme “Connecting environmental health through partnerships - a grassroots approach”, we would like to present on a community event that took place in a remote Aboriginal community in the Kimberley Region of WA.

Your presenters are myself, Iris Prouse, Manager Aboriginal Environmental Health, Population Health Unit, Western Australia Country Health Service (WACHS) Kimberley, and Sonny McKay, Environmental Health Officer (EHO) for Indigenous Communities, Shire of Derby/West Kimberley (SDWK).

“You gotta wash ya face to come to my place” - An environmental health promotion initiative

First and foremost, I would like to acknowledge the Yirrganydji Elders and the people of this country on whose land we stand here today and pay our respects to the Elders past and present and to our future emerging leaders. I would also extend my appreciation and a “big thank you” to Aunty Jeanette Singleton for your warm welcome to country.

So, welcome to our presentation, “You gotta wash ya face to come to my place”. Our presentation will cover:

- background to the event - how it was planned;
- aims of the event - why it was important;
- details of the event - what happened; and
- after the event - feedback; learnings and next steps.

To begin with, I would like to announce that:

The community council has given permission and agreed to be named as Kalumburu Aboriginal Community, confirmed at a meeting held in Kalumburu, December 2016. Consent has been obtained for most if not all photos used in this presentation over the course of the Kalumburu event.

Sonny McKay will present on how all this happened.

Background to this event

Thankyou Iris. Hi everyone.

In 2016, the WA Health Department recognised the need for some basic health promotion training for its service providers to be able to better engage our Aboriginal communities. With the enlisted help of Melissa Stoneham and Melinda Edmunds from Public Health Advocacy Institute, Western Australia (PHAIWA) and Nirrumbuk Aboriginal Corporation, two short courses were run in Broome and Halls Creek.

Health Promotion short course - Halls Creek

I was one of a big group that attended the Halls Creek short course, which is where this project was born. The group that attended was a diverse mix of environmental health (EH) workers from several EH service providers including Halls Creek Shire, Nirrumbuk, Population Health and the SDWK. After a well-run introduction on the principles of health promotion, we split into smaller groups - each having members from different service providers. Our task was to identify an EH topic, start the planning process and ultimately to make the idea happen. Collaboration in this way is very valuable as it encourages brainstorming, sharing of knowledge

and experience, encourages teamwork and gets different agencies working together in partnerships to better serve the communities we work with. But I think the best thing about getting people from different areas together is the unique and sometimes quirky ideas that flow out of the mix.

4-Part Key Messages

There are four key parts to any successful message: the facts, the story, your aim and your message.

The facts are usually where you start - what are the issues? We identified and knew that the community of Kalumburu had a history of skin sores and scabies, which can cause serious infections like Group A streptococcus and acute post-streptococcal glomerulonephritis (APSGN), which, as we now know, can lead to kidney and heart failure. There were also high levels of STI's in the community which needed attention.

Our story was one of remoteness, of limited services, overcrowding and poor house maintenance; but our personal story was really to improve individual appeal and pride in the community members of Kalumburu.

You need an aim, what you are trying to achieve - our project focused on improving personal hygiene and we identified that the 16 to 40 age group where the generations we had the hardest time engaging.

Your message is your title or what I call your brand. This is where you give your project an identity, and this is where it gets exciting because you can start to put together a whole package.

4 Part Key Message

Umbrella statement (aim)

- Improve personal hygiene
- (target 16 – 40 age groups)

The facts (evidence)

- Observational –
 - Skin sores
 - Kidney/ heart disease
 - Scabies
 - STI's

Data - EH Referrals

Story/needs

- Overcrowding
- House hardware/maintenance
- 16 – 40's hard to engage
- Health promotion needs to be targeted towards personal appeal/pride

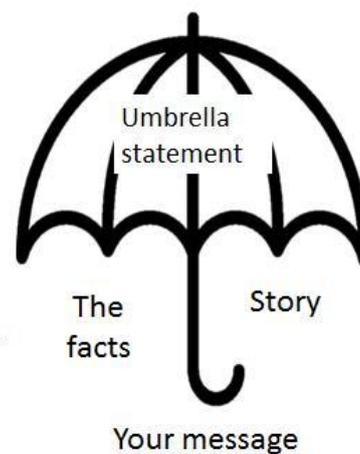


Figure 1. Template of 4-part key message template used for any successful message

Your key messages

Our message - “You Gotta Wash Your Face To Come To My Place” - was realised. We believe that this project would support the community to be proud of their hard work in ‘scrubbing up’ and would demonstrate to young people that keeping clean and looking good will help them stay healthy, as well as promote personal appeal and self-esteem.

Workshop Matrix

Now before we all rushed off, we needed to set some real timeframes in place and identify some tasks. The best way to do this is in a matrix format; it is pretty straight forward and clearly outlines our strategies, partnerships, actions, timeframes and measures of success. I won't focus on this matrix too much, as there is much more planning to come.

Strategies	Partners	Actions	Time frame	Measures
Engage community	<ul style="list-style-type: none"> Chair people Directors CEO 	<ul style="list-style-type: none"> Contact CEO Arrange community meeting 	2-3 weeks	<ul style="list-style-type: none"> Meeting minutes Permission
Funding and Quotes	<ul style="list-style-type: none"> Health Department Company support Other funding bodies e.g. Lotteries West Crowd funding 	<ul style="list-style-type: none"> Contact Health Department (Rob) Apply to funding bodies Approach companies for donations 	2 months	Receive funding
Identify partnerships	<ul style="list-style-type: none"> Chair/Directors, Clinic, shop, school, Housing Department, in-home tenancy support, CRC. 	Contact all and get support	1 month	All bodies offering support
TV ad Radio ad	<ul style="list-style-type: none"> Production company Radio station 	<ul style="list-style-type: none"> Organise dates/travel Identify actors 	2 months	<ul style="list-style-type: none"> Produce ad Talk on radio
Posters Pamphlets	<ul style="list-style-type: none"> Supporting agencies (in house) 	<ul style="list-style-type: none"> Identify people to work on poster production 	2 months	
Events	<ul style="list-style-type: none"> Education Make overs/styling Sporting Ball/dance (inc band) 	<ul style="list-style-type: none"> Identify donated trades (hairdresser etc.) Contact possible health hygiene companies for donations Food catering/event 	1 month (after community engagement)	<ul style="list-style-type: none"> Secure providers Secure donations Secure events Secure supplies
Community Laundry Artwork	<ul style="list-style-type: none"> Community artists 	<ul style="list-style-type: none"> Contact artists 	1 month	<ul style="list-style-type: none"> Artwork painted 1 week before event week

Figure 2. Workshop matrix designed to set some real timeframes

Kalumburu Community - a long way to travel

But wow! Kalumburu is remote and, logistically, how are we going to get everyone and everything up there for this project? A lot of organising!

We had the Kimberley Population Health staff travel from Broome to Kununurra to Kalumburu by plane and from Kununurra to Kalumburu by 4WD on some pretty demanding dirt roads. We had the Nirrumbuk Aboriginal Corporation team travel from Kununurra as well. We had the SDWK Environmental Health team drive up to Kalumburu via the infamous Gibb River Road. We had the Public Health Advocacy Institute team, Melissa Stoneham and Melinda Edmunds, fly from Perth and charter across to Kalumburu. On top of this, we had three pallets of donated health hygiene products and one very heavy inflatable bouncy castle taken in by car and trailer, two hairdressers, one professional photographer, three band members plus their sound gear, food and one MC; all were flown in for the big event.

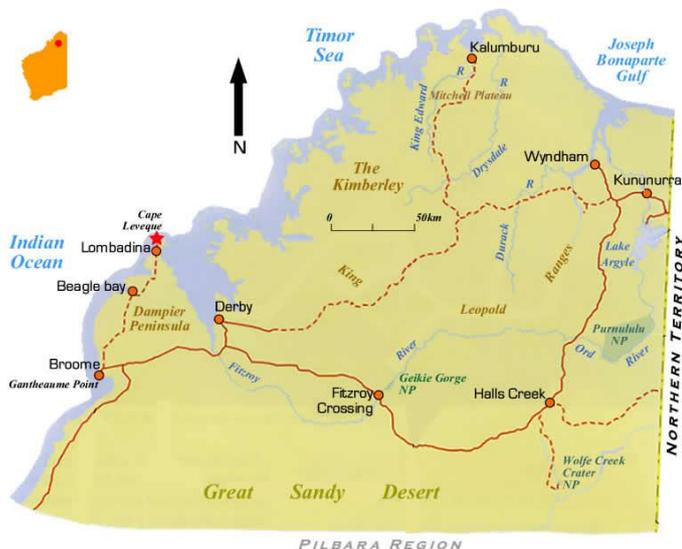


Figure 3. Map of Kimberley, Western Australia, showing location of Kalumburu Aboriginal Community

To anyone but the capable staff at Population Health..... It was by all accounts a logistical nightmare!

Kalumburu Community

So where is Kalumburu? Kalumburu - meaning 'Path by the River or River Crossing' - is the most northerly Aboriginal community in Western Australia and is situated on the banks of the King

Edward River, beside a long, deep billabong. Traditionally this has been home to two distinct Aboriginal language groups, the Kwini (Kuini) and Kulari. In recent years, other groups have moved into the area. The nearest townships to Kalumburu are Kununurra (565 kms southeast), Wyndham (560 kms southeast) and Derby (650 kms. west) Access to the region is available by sea, air from Kununurra, Wyndham and Derby/Broome and by unsealed road depending on seasonal conditions. The Community of Kalumburu currently numbers around 600 people. It is serviced by the school, community clinic, community store including takeaway, and administration office providing postal, banking and Centrelink services. The climate is monsoon tropical with a protracted dry season and cyclonic wet season. The Kalumburu Road is usually closed from November 1st through to April 1st each year due to washaways and general road erosion. The community is serviced by an all-weather airstrip with night landing facilities. Kalumburu is a community which is managed off site.

Thank you, and I will hand you back to Iris.

Back in 2014 - 2015

Thanks Sonny, I would like to give some history leading up to this event:

In 2014 - 2015, Kalumburu experienced an outbreak of APSGN, a rare condition in developed countries; however, like rheumatic heart disease and trachoma, one that is prevalent in remote Aboriginal communities. As a result of this outbreak, an effort to educate the community about health risks and the importance of preventative measures such as hygiene and environmental factors took place over a 5-month period. The Kimberley Population Health Unit (KPHU) EH team completed over 40 housing assessments and, through a key partnership with Community Housing Ltd, the EH team were able to follow up on these assessments. The result of this initiative was a reduction in one major skin infection (scabies) in children, from 9.5% to 2.2%, as recorded by clinic presentations and published in APSGN outbreak, Scabies, MRSA, *Australian Indigenous Health Bulletin* Vol 16 No 4, October - December 2016.

In 2015, whilst educating children and parents during this outbreak, it was evident that falling through the gaps was the key demographic of 15 to 35 year olds. A presentation covering the APSGN outbreak was delivered at the 10th NATSIEH Conference, Coffs Harbour, by Georgina Kelly and Tim Bond, titled "Loving them up strong and walking towards healthy skin".

2016 - 2017

Now, in 2016 - 2017, as a result of a workshop held in Halls Creek as mentioned in previous slides by Sonny McKay, an innovative approach was designed to engage this group, typically not well engaged with health care, with the *You gotta wash ya face to come to my place initiative*. The concept of this project became a reality at the Kimberley Pilbara Aboriginal Environmental Health Working Group Forum, November 2016, in Broome. So, in early 2017, a submission was pulled together and in March a letter of notification was received that KPHU were successful in securing an \$18k grant from WA Primary Health Alliance.

Aims of this event

With funding secured, in planning this event, the aims were:

- to lower the rates of skin and related infections such as skin sores, scabies, head lice, and the potential seriousness resulting in chronic conditions such as kidney damage and rheumatic heart disease;
- to increase dental hygiene, personal hygiene; and washing of clothes and bed linen to decrease the rates of above infections

and potential resultant chronic health conditions;

- to support the community and its leadership (including the school, clinic, Kalumburu Mission, police, Shire and other key services) in coming together for a positive event and to facilitate a 'good news story' for Kalumburu;
- the KPHU also wanted to acknowledge the efforts and contribution that the community gave in response to the skin and kidney infections that occurred in late 2014, and for supporting KPHU staff to come into the community over the past couple of years to follow up on important skin and home checks.; and
- IT WAS TIME TO GIVE BACK TO THE COMMUNITY!!!!

Planning

And so began the planning, planning and more planning. All this started to take place from June 2016 to June 2017, through a series of video conferencing, telephone conferencing, "unsuccessful" desktop scopia and face-to-face meetings. Kununurra, Derby, Broome and Perth were all dialled in to participate.

- Thanks to Pippa Broughton, our Health Promotion Project Officer, who co-ordinated an event planning and responsibilities schedule that kept everyone on track.
- Pippa also brought together a Schedule of Events, which prompted us as to who the lead agencies were.
- A travel schedule and accommodation list were drafted to track everyone's movements for the week of the event. A suite of 14 rooms were booked at Kalumburu Mission in March to lock in accommodation.
- Apologies - of course we are all familiar with this. This was ongoing involving availability of staff, agencies, priorities and the last-minute changes.

A comprehensive matrix was developed to track our progress and meet deadlines.

Project Milestone	Time frame	Action
Conceptualisation	May 2016	Group activity to develop and implement effective environmental health promotion projects in community with a strong focus on working effectively in partnerships as part of a 2 day workshop
Working Group	July – November 2016	Regular meetings to develop the project and commence consultation and logistics
Community Consultation	October and December 2016	Consultation with Kalumburu Community members and key stakeholders. Two trips to Kalumburu for community discussion and phone/Vc consultation with key stakeholders
Source Funding	January 2017	WAPHA Innovation and Collaboration Small Grant Application
Source suppliers, donations and volunteers	September 2016 ongoing	Contact key stakeholders for commitment of time and/or resources/donations
Media contact	November 2016 ongoing	Request commitment of time and equipment to develop short film as requested by community to highlight project events, key messages and individual and community outcomes
Invitations and advertisements	April – June 2017	Fliers, posters and invitations designed and distributed to community
Finalise project details	April – June 2017	Community visit with Project Manager and working group members to finalise project details.
Debrief and Evaluation	Submitted by 20 th July 2017	Evaluation as detailed in this application conducted. WAPHA templates finalised and submitted.

Figure 4. Matrix for tracking project progress and deadlines

Pre-events

In the planning, events organised in advance included commencement of mural painting by Kalumburu artists on the community laundry. Kalumburu School were given notice of a poster competition around healthy lifestyles to complete their entries. Registration forms were sent out to the community for distribution for participation of community members. Confirmation of venues - the women's centre and Home and Community Care (HACC) building were locked in. Numbers for catering purposes with the women's centre, and catering for lunches and ordering of food from Kununurra to be flown in was organised. The Police were notified about the influx of people coming into the community and the planned event. The Community Clinic was notified in preparation for staff checking emails and follow up on work load.

KPHU staff and the EH team arrived the day before the event to start unpacking and putting together the gift packs.

KPHU staff arrive in community

And so, the KPHU staff arrive in Kalumburu via a 9-seater charter flight from Broome, and EH 4WD's from Kununurra and Derby. We collect our keys and check out our donga style accommodation. A quick lunch was magically produced by Sarah, our Public Health Manager and then it was off to the HACC building to unpack and start setting up. The SDWK EH team - Sonny McKay and Isaac Buckle - arrived later in the afternoon.

Unpacking and setting up

There were all hands on deck to start making up packs with donations from "Share the Dignity" into bags from the "Shire Derby/ West Kimberley EH Team". The basketballs and footballs from the Environmental Health Directorate/Aboriginal Health Staff were inflated and sorted for distribution. In total, there were over 100 bags to be gifted to community participants with donated hygiene products.

Kalumburu Community Event

So, finally, the Kalumburu event begins. This project ran over the next 4 days, with key events such as completion of mural paintings by Kalumburu artists on the newly commissioned community laundry; school children designing posters around personal hygiene and happy healthy homes, with the winner announced at the dinner, and children further engaged with a bouncy castle over several days.

For the target audience of 15-35 year olds, young people were invited to participate in a week-long program of haircuts, beauty and make-up sessions, beard trimming and foot spas. Head lice treatments and skin checks were offered and gift bags containing hygiene products were presented. There were donated free clothes, shoes and accessories for the celebration event offered to participants. On offer, were sessions targeting men's health; sexual health education; mental health and wellbeing education; personal hygiene; and a men's fishing trip.

The week culminated with a community dinner provided by the Strong Women's Centre, with emphasis on healthy food and allowing the community to all come together. The evening featured a local reggae band; a high-profile Master of Ceremonies, Ningali Lawford; celebration of project participants' achievements throughout the week; display of artwork by the school children; and a dance-off from the kids - very entertaining.



Figure 5. Serving up at the Kalumburu Community dinner catered for by the Strong Women's Centre

Community Commissioned Laundry

I would like to talk specifically about the community laundry. The completion of the mural paintings by Kalumburu artists involved the Unghango and Djanghara families. These families worked into the evening to have the building completed on time, with the Kimberley Job Pathways providing paints and scaffolding for artists through the Community Employment Program. At the community and council's request, token-operated machines were installed so it could maintain itself. These tokens can be purchased from the community store. Local students were shown how to operate the machines, as well as interested community members. This newly commissioned building was gifted and fully fitted out by the WACHS, Kimberley to the community as part of the APSGN outbreak 2014-2015.



Figure 6. Kalumburu Laundry commissioned in December 2016

Debrief Sessions

Of course, after the event, came the debrief session:

The Planning (working group, communication, coordination and workload)

- More East Kimberley service providers wanted to be involved. Testimony to the project's success that more people want to be involved.
- Involve participants/volunteers much more in the planning and delivery of any event activities that they can run instead of being in the main working group.
- EH team to travel to the community earlier to begin preparations for the week.
- Media coverage (e.g. Koori Mail could do a good news story with community consent). PHAIWA may be able to assist.
- Factor in funding for additional expense of bringing in more volunteers.
- Get the donations/supplies delivered earlier so they get to the community beforehand.

Community Event (program coordination and communication and workload:

- Catering for haircuts and pampering sessions to be improved (e.g. a healthy cook-up was a suggestion).
- Give the store notice for preparation that the community will have extra people in town wanting fresh food and supplies.
- ATM facilities ran out of money that week for the community.
- Education missed the mark a bit with the fishing trip. Need to target the men during the fishing trip with more sexual health, mental health and AOD specialist workers.
- Haircuts were outstanding but need more hairdressers next time. More volunteers for other pampering, such as nail painting, make-up artistry.
- Dinner - next time make more out of the participants showcasing clothing and styles etc. Catwalk parade. Ningali

Lawford (our celebrity for the Gala Event) happy to support this.

- EH staff capacity at their limits with work during the week so not able to focus on any EH referrals at the time.
- Have some more evaluation undertaken throughout the week rather than chasing it all up later on. This could include: statements by participants in a short film
- Mirror the RHD "Heart on your sleeve" campaign and set up a manned booth throughout the week.

So what worked and what didn't work?

Haircuts and beard trimming were a highlight. Clothing preferences were denim and sparkles. No white clothes, more accessories, and men were easier to please with clothes.

Teenage girls from the school and young men needed more opportunities to engage and get the pampering and haircut sessions. Workload busy but everyone was happy with how it went.

Outcomes and follow-up

There have been positive responses to the event: CDC conference presentation, Indigenous Health *InfoNet* piece and lots of talk about the project are happening. Next community is to be chosen in the West Kimberley. Still waiting on letters of support to be received for feedback and evaluation. Sending out letters of thanks to all partners, volunteers and support agencies. Finally, evaluation to be completed.

- A big thank you to everyone
- Kalumburu Strong Women's Centre
- Kimberley Job Pathways
- HACC (Home and Community Care)
- Kalumburu Remote Community School
- Kalumburu Artists Unghango & Djanghara families
- Kalumburu Remote Clinic
- Reggae Band - Archie, Dave and Tyson
- WAPHA (WA Primary Health Alliance)
- SDWK / EH Team
- Share the Dignity
- Black Opal
- EHD / Aboriginal Health
- PHAIWA (Public Health Advocacy Institute of WA)
- WACHS (WA Country Health Service) - Kimberley Population Health team; Mental Health & Drug Services; Kimberley Community Alcohol and Drug Service (KCADS); Kimberley Aged and Community Services (KACS)
- Our amazing volunteers
 - Rachael the photographer
 - Jaz & Abi from Jasmin Lee's Hair, Broome
 - Our MC, Kimberley Aboriginal Celebrity, Ningali Lawford
- Nirrumbuk Aboriginal Corporation
- Kalumburu Mission
- Kalumburu Aboriginal Corporation

Recognition of companies, organisations, agencies and amazing volunteers who participated and contributed to this event must be acknowledged because, without you all, this special Kalumburu event would not have been possible.



Acknowledgements to...



Figure 7. Showcasing logos of companies; organisations and agencies who made this event possible

The grand finale was the community dinner and award presentations - what a night. Over 200 people attended and were catered for. Almost everyone came: the clinic staff, police, school teachers, mission volunteers, community members and families. The night was MC'd by local Kimberley celebrity Ningali Lawford, with a slide show of the week's events, followed by speeches and a request from the Chairperson and Women's Centre to come back again next year. A reggie band concluded the night with their entertainment.

So thank you Kalumburu, you were worth it!

For more information

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Tackling waste management in communities: a collaborative approach

Liam Harte, Big Rivers Region Waste Management Working Group, NT

Good evening to all attendees. Thank you for inviting me to speak to you tonight. I'm here to talk about solid waste management in remote communities and how an ongoing collaboration between regional councils aims to improve environmental health outcomes by creating constructive partnerships. In keeping with the theme of this conference, the steps taken and progress made is the result of many partners that have all had a hand in making the Big Rivers Region Waste Management Working Group (BRRWMWG) work.

Waste and landfill management in remote communities

Waste management in communities is a bit of a mixed bag. Most, if not all, have mobile garbage bins with lids that are collected on a regular basis for each property by compactor trucks, and many also have public bins set up in high-traffic areas. However, littering is still a major issue, especially when bins are knocked over and dogs scavenge in them for scraps.

Generally speaking, the disposal of waste is well below the Northern Territory Environment Protection Authority (NTEPA) guidelines. Straight-walled, unlined trenches are widely used, and limited or no waste separation occurs, with hazardous and toxic wastes often ending up mixed in. Burning of waste is common, either intentionally or by arson, and a lack of fencing results in open access to the public and feral animals and further increases litter issues when waste remains unburied.

Limited to no recycling occurs, with the most common initiative being the Container Deposit Scheme (CDS) implemented in the Territory in 2012.



Figure 1. A straight-walled trench with hazardous waste mixed in and evidence of uncontrolled incineration



Figure 2. Mixed waste pushed into a shallow pit with evidence of groundwater intrusion

Consequences

Poor waste management creates a number of environmental issues which can lead to significant health problems in the community. Unburied waste attracts vermin and insects, which are vectors for disease. It can also cause infections of the skin, eye and ear, tetanus, diarrhoea and viruses when handled without proper hygiene practices. Burning of hazardous wastes, rubbers and plastics produces a toxic smoke that, if inhaled, could lead to lung disease and cancer, while pollutants leaching from the landfill have the potential to contaminate water sources.

Barriers to improvement

Generally speaking, waste management options are reduced and costs inflate the further you are located from major urban centres. This is due to a number of factors, including reduced competition, increased travel costs, an inability to access to global markets and poorer economies of scale. Remote communities in the NT are among the most isolated in Australia, and difficulties with waste management are compounded by an undeveloped waste industry in Darwin. This leads to the interstate transport of some recyclable wastes, and further costs.

Regional councils struggle with a low ratepayer base and most of their income, such as funding from grants, is tied. The management of multiple small communities, each requiring their own landfill and associated waste management resources, means that this funding is stretched across huge distances rather than concentrated in one area.

Waste collaboration in the Big Rivers Region

The BRRWMWG was formed following the successful implementation of a similar working group in Central Australia and is comprised of three regional councils (Roper Gulf, Victoria Daly and West Daly), Katherine Town Council, the Local Government Association of the Northern Territory and representatives from the Department of Health (DoH), the NTEPA and the Department of Housing and Community Development.

The group meets every two months to discuss waste management issues in the region, develop solutions, identify potential areas of collaboration and communicate with representatives from interested government departments.

Since its inception, this collaboration has had a number of positive outcomes in the region, including; increased sharing of regional resources, improving economies of scale, creating a region-wide voice and providing for further collaboration between regions. Over the following slides, I'll be providing more detail about these benefits and going into a few specific examples.

Pooling regional resources

Funding and resources are precious commodities, however in certain circumstances pooling them can be advantageous. Regional grants can be more attractive and obtain higher levels of funding. This has been the case for the BRRWMWG, where funding was provided to allow works staff to obtain waste handling related training.

Money isn't the only resource worth pooling; knowledge and experiences are valuable when it comes to effective waste management strategies. An example of this has been the trial of a spring device for garbage bins that keeps the lid from falling open when the bin is pushed over. The spring still allows for the bin to be emptied and doesn't require a stand. Following a successful trial the same strategy was implemented in another community with similar animal scavenging issues.

The Big Rivers Coordinator role was the result of a need for waste management-specific knowledge without the required resources within each regional council to support their own positions. For the past year and a half, the regional councils have combined with the DoH to support a Regional Waste Coordinator position.

Coordinator's role

Apart from coordinating all group meetings and activities, one of the key outcomes from the DoH perspective is improving the landfill facilities in three communities to a standard where they would be able to obtain an Environmental Protection Licence from the NTEPA. After an audit, the three communities, one from each regional council, were chosen based on population size and the state of the landfill facilities. They are Wadeye, Ngukurr and Kalkarindji.

Specifically, the role of the coordinator entails providing advice and support to the regional councils to achieve improvements to the waste management facilities in these communities.

Coordinator's progress

Since commencing in the role of coordinator, I have travelled to 15 communities within the Big Rivers Region and provided advice on improved management of waste at a local scale. One of the side benefits that I didn't see coming was the regular calls and emails I get, asking very specific waste management questions.

Roper Gulf Regional Council recently went out to tender for works at a number of landfills, including Ngukurr, based on recommendations and reports I have prepared as part of my position. Their aim is to provide the region with a network of landfills that have no deleterious effect on the environment.

The development of Environmental Management and Emergency Response Plans for the target landfills was an important step towards licensing. The plans provide a simple and easy to follow approach to managing the site, the environment and emergency situations. Along with the management plans, I have developed reporting and recording documents which provide an easy way to manage the compliance side of licensing.

Improving economies of scale

The second major benefit of collaboration in the group is the ability to improve the economies of scale. By this I mean that, although the waste generation in each community is quite small, if we can combine some aspects of that waste generation over the whole region, we can improve the viability of management options that aren't about throwing it in a hole and forgetting about it.

For example, one of the major fillers of space in a community landfill is scrap metal and particularly old vehicles. Historically we have struggled to find buyers for this resource, or even takers, especially in the case of communities which are further off the major highways and along gravel roads. Following a presentation by myself at the Waste Recycling Industry of the Northern Territory Conference earlier this year, we received feedback from a number of scrap metal recyclers that a milk-run style collection could be feasible if enough communities got involved. Since then, the group has worked on a 'whole of region' scrap metal collection expression of interest document, which includes data on the scrap metal available in 21 towns and communities. It is open for responses, closing later this week.

As the major business and population centre for the region, Katherine has an important part to play in improving economies of scale for the surrounding communities. A small recyclables transport policy has been developed as a solution to concentrate recyclable wastes in Katherine from community landfills and is currently being considered. Katherine Town Council has also started to broaden the number of recycling services it offers by utilising Product Stewardship Schemes.

On a more local scale, one community is overcoming the tyranny of distance and economies of scale by itself - by crushing lots and lots of cans.

Recycling cans in Kalkarindji

Kalkarindji has a population of approximately 550 and is located 450km southwest of Katherine, in the Victoria Daly Regional Council. Large numbers of aluminium cans were ending up in the landfill, with the local social club, which is a licensed venue, identified as the main source. As no recycling was taking place, the club was approached and agreed to separate the cans, which were then deposited at the council depot in bulka bags.

In 2016 the council purchased a can crushing machine, as the bulka bags were not financially viable to transport via truck. The council negotiated with a CDS depot in Darwin to accept the crushed cans at the 10 cent rate, which had previously been a sticking point for CDS collectors. Crushed cans are stacked on a pallet and back-loaded to Darwin on trucks, servicing the community when full. Further modifications to the can crushing machine, including a sorting tray and bale tray, have increased the baling rate to 10,000 cans per hour.

Since beginning operations, approximately 100,000 cans have been diverted from landfill. The money collected from this process is invested back into projects that benefit the community. Investments in caged pallets are being investigated by the council to further reduce the waste generated. The council is also looking at how to best capture the rest of the containers in the community, which includes plastic containers from sales at the general store.

A region-wide voice

As shown in the scrap metal example earlier, as a group we are better able to attract industry to our region. Apart from making a dollar, businesses are most attracted to stability, and region-wide strategies and approaches provide more stability than everyone doing their own thing.

As a whole, the group covers approximately 10% of the Northern Territory population and about 25% of its landmass. When it comes to political attention and government grants, having a sizeable chunk of the Territory on the same page helps, and we have already seen the benefits of this.

A bigger picture

Finally, as the BRRWMWG, we can form partnerships with other waste management groups. Earlier this year, we had our first joint group meeting between the BRRWMWG and the Central Australia Waste Management Working Group in Darwin. As part of this meeting, we discussed areas of collaboration between the groups.

What are we trying to achieve?

Just to wrap up, I thought I would go over what we would like to achieve in the long term. There are four major areas that we are trying to focus on: upgrading landfill facilities and procedures; creating recycling facilities and opportunities; improving staff training; and promoting waste education and litter programs. This should lead to an overall improvement in waste management and a greater awareness of waste issues in the community, leading to improved health outcomes.

For more information

Contact the Katherine Town Council
(08) 8972 5500

enHealth Address

Associate Professor Sophie Dwyer, Chair, enHealth

I would like to acknowledge the traditional owners of this country, the Yirrganydji Nation, and pay my respects to Elders past and present. I would also like to welcome all attendees and participants here at today's conference.

I am very pleased to be here as the Chair of the Environmental Health Standing Committee (enHealth)

You might be wondering what enHealth is, and what does this national committee of environmental health directors from across the country have to do with me and my work on the ground. The theme of this year's conference, *Connecting environmental health through partnerships - a grassroots approach*, is an excellent way in which to consider this question.

Starting with your work in the community, enHealth recognises that improvements in the health and wellbeing of Aboriginal and Torres Strait Islander people will come from your work on the ground addressing environmental health risks. I am sure you will acknowledge that you need partners in this journey.

The state health agencies, through public health units and state environmental health branches, are there to support your work. As state directors of environmental health programs, enHealth members recognise their role in providing you with this support. In Queensland, I would like to acknowledge the support of Dr Jeannette Young, the Chief Health Officer of Queensland and Deputy Director-General of the Prevention Division. The advocacy of Dr Jeannette Young at the highest levels around the country is critical to ensuring support of the environmental health worker (EHW) programs continues.

But your partners are not limited to departments of health alone. Environmental health needs to work with partners from other agencies, such as environmental, agricultural, water resources, and education departments. I particularly wish to acknowledge the support of Dr Beth Woods, Director-General of the Department of Agriculture and Fisheries, with whom we work on animal management. Not only has she made the time to come and speak to us, but her department has also contributed to the Queensland Government sponsorship of this conference.

Environmental health directors in state health agencies also need support and collaboration, which enHealth provides as a national effort.

enHealth is a standing committee of the Australian Health Protection Principal Committee. enHealth provides environmental health policy advice, implementation of the National Environmental Health Strategy, consultation with key stakeholders, and the development and coordination of research, information and practical resources.

enHealth is committed to addressing inequalities in health status due to environmental factors, particularly in Aboriginal and Torres Strait Islander communities. Environmental health plays an important role in closing the gap in health status for Aboriginal and Torres Strait Islander people. Good environmental health conditions are an essential

requirement for maintaining and improving the health of Aboriginal and Torres Strait Islander communities.

enHealth aims to:

1. Enhance environmental conditions, by providing advice on management of environmental risks relevant to Aboriginal and Torres Strait Islander initiatives.
2. Provide intelligence on environmental health conditions in communities by developing national reports based on data generated by jurisdictions.
3. Improve networking and professional development of the Aboriginal and environmental health workforce through initiatives such as this conference, publications, and by sponsorship of the Indigenous Environmental Health Practitioners (IEHPs) portal and Yarning Place HealthInfoNet.

The Indigenous Environmental Health Practitioners' (IEHPs) portal on the Australian Indigenous Health/InfoNet web resource provides IEHPs with access to the evidence base required to carry out their role. HealthInfoNet is contracted to update and maintain the IEHPs portal for three financial years (2015-2018). It's a plain language portal, so is easily accessible by everyone, which is particularly important for IEHPs who may speak English as a second or third language. It's also a yarning place that allows IEHPs to network with other workers.

The portal and yarning place are an important part of Indigenous environmental health infrastructure and they support IEHPs in their work to close the gap.

enHealth regularly reviews and updates publications to ensure the most up-to-date and scientifically accurate advice is provided. The latest publication to be updated was the Health Impact Assessment Guidelines. These remain the only nationally endorsed guidelines for assessing environmental determinants of health.

enHealth has been developing emergency management publications for environmental health professionals. A monograph on disaster management for environmental health professionals assists with disasters with a local impact. This monograph fills a knowledge gap and improves the skill base of environmental health practitioners involved in counter-disaster planning and responses to non-catastrophic disasters.

enHealth, through its subcommittee WGATSIEH, sees this conference as an important way of also supporting and strengthening your on-the-ground work by facilitating a sharing of ideas.

This year we welcome a new partner, Environmental Health Australia, as the professional organisation of environmental health practitioners.

I would also like to thank all the conference sponsors, without whose support this conference would not have been possible, the organisers, the local organising committee and Queensland Health for their work in putting this conference together today.

Keynote Address

Dr Jeannette Young, Chief Health Officer and Deputy Director-General, Prevention Division, Department of Health, QLD

I would like to acknowledge the traditional owners on whose land we meet today, the Yirrganydji people and any Elders of the people who lived here.

I also recognise those whose ongoing effort to protect and promote Aboriginal and Torres Strait Islander cultures will leave a lasting legacy for future Elders and leaders.

I would also like to acknowledge our upcoming keynote speaker, Dr Beth Woods, Director-General, Department of Agriculture and Fisheries, Queensland, who will be presenting later today.

Distinguished guests, ladies and gentlemen, good morning. It is wonderful to see so many familiar faces here today. I can also see many new faces too, and I am looking forward to meeting as many of you as possible during my time here.

I would like to start with some acknowledgements. Firstly, of course, I would like to respectfully acknowledge the traditional owners on whose land we meet today and their Elders, past and present.

I would also like to acknowledge my colleague Dr Beth Woods, the Director-General of the Department of Agriculture and Fisheries. Our two departments have been collaborating on a number of projects, particularly animal management projects, to bring about positive outcomes in environmental health in Indigenous communities.

I am delighted to be here today representing the Queensland Minister for Health, the Honourable Cameron Dick. Minister Dick sends his apologies; he is unable to join us because Parliament is sitting and he needs to be in Brisbane for that responsibility.

As Chief Health Officer for Queensland, one of my primary objectives is to continue to improve the health of all Queenslanders.

In 2016, my Division published the sixth report of the Chief Health Officer Queensland. I am pleased to report that we found there have been small but meaningful improvements in the health of Indigenous Queenslanders over the past decade - the life expectancy gap appears to have narrowed by one year, and declining death rates for diabetes, injuries and cardiovascular disease, in particular, are contributing to better outcomes.

However, I am sure it will come as no surprise to you that there are still significant inequities in the health status of Indigenous and non-Indigenous Queenslanders.

In 2014, there was a 21-year difference in the median age of death between Indigenous and non-Indigenous Queenslanders. In that year, there were 688 deaths of Indigenous Queenslanders. After adjusting for differences in age structure, this death rate was 54% higher than the non-Indigenous rate.

Coronary heart disease accounted for 83 deaths, a rate 50% higher than the non-Indigenous rate; diabetes accounted for 57 deaths, 5.2 times the non-Indigenous rate; and chronic lower respiratory disease accounted for 45 deaths, 2.9 times the non-Indigenous rate. Sadly, the leading causes of these deaths were largely preventable; for example, smoking.

Among Indigenous Queenslanders, smoking rates are more than double those of non-Indigenous Queenslanders, and maternal smoking rates are more than triple.

Queensland Health has introduced a number of programs to address smoking, such as B.Strong - an Indigenous Brief Intervention Training Program aimed at building the capacity, skills and confidence of Queensland's Indigenous health workers and other health and community professionals to deliver brief smoking, nutrition and physical activity interventions to Aboriginal and Torres Strait Islander clients.

However, the sixth report of the Chief Health Officer highlighted that, although tobacco smoking has diminished a little for Indigenous Queenslanders in some communities, the decreases are not widespread.

Statistics such as these highlight the need for action and this is where environmental health plays a role.

We have long since established the links between the burden of illness and disease in Aboriginal and Torres Strait Islander people and poor environmental health conditions.

Factors beyond the clinical setting, such as the provision of environmental health infrastructure, housing, sewerage and waste disposal facilities, safe water and food supply and air quality, all play a critical role in the health of both individuals and communities.

It is an unfortunate reality that residents of many Queensland rural and remote communities do not have the essential infrastructure and services required to support healthy living conditions and to facilitate community members choosing healthy lifestyle options. One of our ongoing challenges is making sure we target resources in order to improve health among such disadvantaged populations.

I believe we have made great inroads in managing mange in the dog population. Work in this area has greatly reduced (and, in the case of Wujal Wujal, eliminated) the main route of potential scabies exposure in the community.

I'm sure Dr Beth Woods will talk more about her department's involvement in this initiative, but I particularly wanted to highlight the achievements from a health perspective.

Positive outcomes such as these have led to increased partnerships and collaboration with other Queensland government agencies, such as the Department of Agriculture and Fisheries (DAF) and the Department of Housing and Public Works (DHPW).

Future work will include joint projects for healthy housing, such as good hygiene practices within the home that include the safe storage of food and basic hygiene to prevent cross contamination.

The theme for this conference is *Connecting environmental health through partnerships – a grassroots approach*. This theme contains two important elements. The first is the about creating partnerships and working together to make real changes in environmental health. The second element is to create these partnerships at a grassroots level. This means getting the resources, training, skills and education to the people, thereby supporting them to make a difference.

This is an approach that Queensland adopts because we know that it works.

For more than ten years, Queensland Health has had significant involvement in environmental health in remote Indigenous communities through the Aboriginal and Torres Strait Islander Public Health Program.

This program supports 16 Aboriginal and Torres Strait Islander local governments to improve environmental conditions in their communities, by providing resources and support and highlighting the relationship between environmental factors and health outcomes. The key focus of this program is to support and empower the local governments to deliver on their public health legislative obligations, in turn contributing to a reduction in the burden of disease within communities.

We recently secured funding to the value of \$24 million to ensure that the program continues for another five years. This is pivotal in allowing for the continued development and implementation of successful environmental health programs.

Another project I want to mention is the collaboration between Queensland Health, the Torres Strait Island Regional Council and the Department of Energy and Water Supply (DEWS) to improve drinking water quality in the Torres Strait Island Regional Council area under a pilot project.

Maintaining a safe and suitable supply of water is fundamental to environmental health practice and the overall health of a community.

The pilot project is focused on three Torres Strait island communities (Warraber Island, Poruma and Hammond Island) and has incorporated improvements to drinking water infrastructure and a significant skills and capacity building program for water treatment plant operators.

The skills and capacity building program has been delivered by Tropical Public Health Services within the Cairns and Hinterland Hospital and Health Service. It included the production of 15 training videos featuring employees of the Torres Strait Island Regional Council and six weeks of intensive onsite mentoring.

A key aim of the project is to build the capacity of Indigenous local government water treatment plant operators to sustainably operate water treatment plants to reduce health risks posed to their communities and to increase compliance with legislative requirements.

During 2017-18, the pilot project is to be expanded to other Torres Strait island and mainland Cape York communities and will also involve the Queensland Department of Infrastructure, Local Government and Planning.

Another successful collaboration in Torres Strait Islander communities involves the 'Asian Tiger Mosquito', *Aedes albopictus*, a notorious pest mosquito and a major vector of dengue and chikungunya viruses.

It is a highly invasive species and was first recognised in Australia in 2005, when established populations were discovered on some of the Torres Strait islands.

In response to this alarming discovery, the Commonwealth Government Department of Health and Ageing funds vector suppression program through Tropical Public Health Services (Cairns) Queensland Health, to eradicate *Aedes albopictus*.

But we still have more to achieve at both a local and national level.

Establishing and maintaining partnerships is the key to improving environmental conditions that have an impact on human health.

I understand that many of you have travelled from interstate, and I welcome you to our beautiful state here in Queensland. I hope you will have the opportunity to enjoy some of what our state has to offer. I can highly recommend a trip out to the Great Barrier Reef if you have time, or perhaps a trip to Kuranda via the scenic railway.

I'm sure that you will all have a fantastic time during the conference, and the knowledge you gain and contacts you make will help you in continuing to address your community's needs.

Keynote Address: Collaborating with communities to achieve biosecurity outcomes

Dr Beth Woods, Director-General, Department of Agriculture and Fisheries, QLD

I acknowledge the traditional owners of the land where we gather today and pay my respects to Elders past, present and emerging.

It gives me great pleasure to be a part of this conference and to continue the important conversations on environmental health within Queensland's communities and Australia more broadly.

Environmental health is concerned with all aspects of the natural or built environment that may affect human health.

Our environment has the potential to impact positively or negatively on our health. The water we drink, our access to safe and clean food, and our relative safety from harmful pests and diseases are critical to our wellbeing.

There is no doubt that the globalisation of our populations, changes in the way we live, and the increasing demand for resources are putting pressure on governments and communities to think and act smarter to preserve and improve the health, longevity and quality of life of their citizens.

While environmental health concerns affect communities across the country, there is no denying that Australia's Aboriginal and Torres Strait Islander communities face a number of unique and complex challenges.

The remote and discrete location of many of these communities across the country presents a number of distinct considerations in terms of geographical isolation, access to services and resourcing.

For example, here in North Queensland, our communities face challenges associated with the incursion of tropical pests and diseases, proximity to our northern neighbours and, as a popular tourist destination, increasing exposure to transient populations.

The focus of my address today will be on improving environmental health through collaborations between governments and communities to achieve key mutually beneficial outcomes, particularly in terms of biosecurity.

I will address the following topics:

- Current biosecurity work undertaken by the Queensland Department of Agriculture and Fisheries (DAF) in the biosecurity sphere and how it intersects with work of other Queensland Government agencies,
- Joint state and federal initiatives, and
- The Queensland Government Champion's program.

Environmental health is a shared responsibility, with collaboration being the key to achieving desired outcomes. Being proactive in terms of identifying and mitigating risks, promoting best practice and driving innovation to break down barriers to effective prevention and control is crucial to the ongoing future health and amenity of our communities and our people.

DAF and interagency collaboration

At a local, state and federal level, good biosecurity practices and management have the effect of providing the following outcomes:

- keeping farms, gardens and regional communities alive

- better yields through lower damage to produce from pests and diseases
- more sustainable and lower costs of production
- greater access to new markets through greater biosecurity assurance
- less chance of disruption and quicker recovery from outbreaks, incursions and suspension of trade to other countries
- saving money and safeguarding our environment and outdoor enjoyment
- keeping our homes, families and communities safe, and
- preserving Australia for future generations.

Biosecurity Queensland, a business group within DAF, is the Queensland Government's lead agency for biosecurity management and control.

Biosecurity Queensland has jurisdiction over a number of intersecting subject areas, including animal and plant biosecurity, invasive plants and animals, biosecurity science, animal welfare, product integrity and administration of the Biosecurity Queensland Control Centre.

Much of the work undertaken by Biosecurity Queensland relies on the collaboration and partnership of other agencies and stakeholders, including key partnerships with Aboriginal and Torres Strait Islander communities.

A notable example project is DAF's partnership with two Indigenous Land and Sea Ranger groups, the Gimuy Yidinji (pronounced GOOM-EYE YIDINJI) and the Yirrganydji (pronounced IRRIKANDJI) peoples, as part of the National Electric Ant Eradication Program. Through this partnership, these two Indigenous groups draw on their key geographical and cultural knowledge of the area to survey on country for the electric ant, an environmentally damaging pest.

Electric ants are a highly invasive species and can have particularly adverse effects on human health and lifestyle. They can blind pets, damage the environment and have the potential to severely affect agricultural industries.

It has been estimated that, without a national eradication program, the potential economic impact of electric ants on Australia over 30 years would be about \$78 million. The ant, which is native to Central and South America, has had severe impacts on fruit picking in agricultural industries in those regions due to the severity of stings to local fruit pickers.

These Indigenous Land and Sea Ranger personnel, who are staff members with the Department of Environment and Heritage Protection, were trained in surveillance techniques and field diagnostics, and now survey at-risk creek systems running through the suburbs of Smithfield, Whitfield and Manoora, which are not too far away from where we are today.

This important surveillance work has increased confidence that all electric ant infestations have been fully delineated, and that the program is on course to eradicate this pest from Far North Queensland. The program is looking to continue the partnerships into 2017-18, subject to funding considerations.

DAF also interacts with other Queensland Government agencies through other programs, projects and policies that further aim to improve and develop capacity within communities to prepare for, and respond to, environmental health and biosecurity concerns. Queensland Health plays a large part in providing regulation, advice

and administration for areas such as food safety, environmental hazards and toxicology, water and waste, drugs and poisons, and Indigenous environmental health, among others.

DAF, through its statutory body, Safe Food Production Queensland, works with Queensland Health on a number of issues, particularly with regard to potential threats to the integrity of food and the food supply chain. Improperly produced or processed food has the potential to have serious health consequences for communities across Queensland, and a strong stance on food safety ensures that all Queenslanders have access to safe and healthy food.

Fisheries Queensland, within DAF, interacts with Maritime Safety Queensland, the Queensland Water Police, the Great Barrier Reef Marine Park Authority, the Torres Strait Protected Zone Joint Authority and others, to ensure effective compliance with relevant legislation designed to protect fish stocks, prohibit activities that endanger marine health, and flag potential biosecurity risks.

Other programs with direct, positive environmental health and biosecurity outcomes include:

- the Queensland Parks and Wildlife Service's Ranger Program
- the Department of Environment and Heritage Protection's waste management and recycling work, and
- the Department of Energy and Water Supply's investment and work in clean water and infrastructure, particularly in the north.

Collectively, these efforts by DAF and other Queensland Government agencies, working with local governments, industry and communities, ensure that Queensland is on the front foot for biosecurity management and response.

By way of example, the image before you depicts the stomach contents of a feral pig in Far North Queensland, with the autopsy finding at least 30 dead turtle hatchlings. Unfortunately, this outcome is all too common, with feral pigs having significant and widespread environmental and agricultural impacts.

Past experience has proven that a collective control effort is the only way to properly manage feral pigs, and DAF supports landholders, local governments and Indigenous ranger groups, where possible, with effective control methods.

DAF, together with other government agencies, industry and community partners, has also developed a draft Biosecurity Strategy that aims to protect Queensland's ecosystems, our industries and our way of life; maintain Queensland's national and international reputation for product safety and integrity; and ensure ongoing market access for our commodities.

The effects of a widespread outbreak could have devastating consequences for communities across a large portfolio of industries, and would potentially decimate those communities that are ill-equipped or unprepared for such an incursion.

One event which highlighted the lack of preparedness and the repercussions of poor on-farm practice was the catastrophic outbreak of foot and mouth disease in the UK in 2001.

From a biosecurity perspective, the problem began with the risky practice of swill feeding, which is the feeding of particular food scraps, or swill, to pigs. Swill may contain viruses that cause serious diseases that can be passed on to pigs. All Australian states and territories have legislated to make swill feeding to pigs illegal. It is believed that this practice caused the outbreak of foot and

mouth disease in the UK in 2001. As a result of the outbreak, approximately 6.5 million animals were slaughtered – 4 million of which were for disease control and 2.5 million for animal welfare concerns.

Carcass disposal was the greatest operational issue to be managed by the UK Government, with on-farm burial and burning, supplemented by rendering, failing to keep up with the number of animals slaughtered.

Other issues encountered during the response phase included:

- Pyre burning, which was used at the outset of the outbreak, caused increased public, scientific and political concern about health risks from smoke and emissions.
- Disposal was only finally managed by mass burial in engineered sites, with five sites in England, one in Wales and one in Scotland - these sites contained multiple pits, with each capable of holding between 10,000 and 60,000 carcasses.
- With approximately 80,000 - 93,000 animals per week being destroyed, the UK Ministry of Agriculture, Fisheries and Food was assisted by units from the British Army.
- There was huge controversy regarding the policy decision not to implement emergency vaccination.

By the time the disease was halted, the crisis was estimated to have cost the UK £8 billion (or the equivalent of about A\$16 billion at the time).

To draw parallels to how such a catastrophe could affect Queensland or Australia, swill feeding is considered the most likely way that foot and mouth disease would be introduced to Australian livestock.

Queensland currently has about 16.2 million commercial livestock which are susceptible to foot and mouth disease. If an outbreak were to occur, it is anticipated that carcass disposal would be the most significant operational issue to be managed. Vaccination of livestock would likely be used as a significant disease control strategy, in conjunction with stamping out.

Modelling by the Australian Bureau of Agricultural and Resource Economics has identified that a small outbreak of foot and mouth disease in North Queensland would likely result in revenue losses of between \$5.64 billion and \$5.96 billion over 10 years. For a large multi-state outbreak, this could surge to \$52 billion in revenue losses over 10 years.

Such a disaster demonstrates the crucial need for governments, industries and communities to work together toward positive biosecurity outcomes. An outbreak of foot and mouth disease, or any other dangerous biosecurity threat, could have devastating consequences for local communities and economies.

State and federal collaboration

As well as other states and territories, Queensland collaborates with the federal Department of Agriculture and Water Resources on a number of biosecurity projects and programs, particularly in North and Far North Queensland.

Northern Australia is a critical biosecurity 'buffer' for Australia. Its unique environment and growing source of agricultural wealth must be protected from damaging pests and diseases carried by the wind, sea, animals and humans.

Over the past few years, governments across northern Australia have worked together to improve Australia's biosecurity, with a focus on:

- expanding the biosecurity work of Indigenous rangers
- increasing community engagement
- expanding aquatic, marine, plant and animal biosecurity surveillance
- modernising tropical biosecurity diagnostic services, and
- improving biosecurity data collection and use.

These northern Australia biosecurity projects are practical and cooperative, actively involving communities, all tiers of government, agricultural producers and local communities. These projects are making a difference to help 'grow the north'.

The Northern Australia Biosecurity Surveillance Program, the Torres Strait and Northern Peninsula Area Biosecurity Strategy, and the Northern Australia Quarantine Strategy are three examples of this positive working relationship.

Northern Australia Biosecurity Surveillance Program

In 2015, the federal Agricultural Competitiveness White Paper committed \$7.06 million (excluding GST) to enhancing Australia's animal health, aquatic animal health and marine pest onshore surveillance system.

A Northern Australia Biosecurity Surveillance (NABS) working group was formed in 2016 with representatives from the animal and plant health divisions of the federal, Queensland, Western Australia and Northern Territory governments.

A NABS work plan was drawn up in early 2017 for seven activities to be conducted by Queensland, WA and the NT. Grant agreements were further signed between DAF and the federal Department of Agriculture and Water Resources for projects under the work plan.

These included the NABS program for animal health, and the Improving Northern Australian Surveillance and Diagnostic Capability for Priority Exotic Animal Diseases.

Torres Strait and Northern Peninsula Area Biosecurity Strategy

DAF is also part of a working group that has recently developed a draft Torres Strait and Northern Peninsula Area Biosecurity Strategy. This overarching strategy is the first of its kind developed for the region and recognises that a new approach is required for biosecurity to be meaningful for all stakeholders, particularly residents in the area.

The working group was established in late 2016 to develop a collaborative framework for the delivery of enhanced, coordinated biosecurity activity in the Torres Strait and Northern Peninsula Area.

The working group includes representatives from Biosecurity Queensland, the Department of Environment and Heritage Protection, Queensland Health, the federal Department of Agriculture and Water Resources, the federal Department of Environment and Energy, the Torres Shire Council, Northern Peninsula Area Regional Council, Torres Strait Regional Authority, and the Torres Strait Island Regional Council.

It has been rewarding to hear reports from DAF biosecurity officers in the area that local community members are showing great enthusiasm for the program and work undertaken by the working group.

While the Torres Strait and Northern Peninsula Area Biosecurity

Strategy is an important overarching strategy for biosecurity in the area, it is essential that DAF continues to actively engage with the community, as it is likely that there will be synergies between the strategy and actions that will be delivered by those people and organisations involved in environmental health.

Northern Australia Quarantine Strategy

DAF also supports the federal Northern Australia Quarantine Strategy (NAQS), which was established in 1989 as a means to monitor our borders, to assist states and territories to eradicate threats and to help nearby countries eliminate or contain pests and diseases before they leave their borders.

Since then, there have been many key achievements, including the establishment of the most extensive quarantine zone inside Australia, and the development of strong community partnerships that underpin the program.

Today, NAQS operates across almost 10,000 km of coastline, river mouths and islands, stretching from Broome in WA to Cairns in Queensland, including the Torres Strait.

NAQS has a highly trained and dedicated workforce, comprising veterinarians, botanists, plant pathologists, entomologists, community liaison officers and biosecurity officers.

The program is a major employer of Aboriginal and Torres Strait Islander people within the region and also contracts numerous Indigenous ranger groups to assist with biosecurity work in some of the more remote, but high-risk, areas of northern Australia.

NAQS works with people from more than 85 language groups in the NT, Queensland and WA, and delivers a high proportion of its work on traditional lands of both Aboriginal and Torres Strait Islander peoples.

NAQS has three core activities:

- scientific monitoring for the presence of exotic pests and diseases across northern Australia
- conducting public awareness activities with local communities, businesses, government agencies and visitors (such as the 'Keep a Top Watch' campaign), and
- managing quarantine for traditional visitors from Papua New Guinea and southward movements between legislated zones in the Torres Strait to the mainland.

These activities contribute to Australia's overall prevention, preparedness, and response capability for exotic pests, diseases and weeds.

The program also has a role in assisting state and territory agencies in responding to pest and disease incursions in Australia's northern region by helping to conduct surveillance that supports containment and eradication efforts.

Two examples of particular threats of relevance for North Queensland are Japanese encephalitis, due to its annual risk in the Torres Strait, and rabies, due to its proximal risk of entry from Australia's northern neighbours.

NAQS is a remarkable demonstration of the interconnected nature of the work of those at federal, state and local levels, and these agencies continue to work together in this space to promote best practice, mitigate transmission of diseases and pests and reduce the possibility of their introduction from the illegal entry of infected animals.

Government Champions Program

The Queensland Government is committed to increasing the capability of government to deliver innovative, efficient, effective and integrated services for Aboriginal and Torres Strait Islander people across Queensland. Stemming from this commitment is the Government Champions Program, which brings together the Directors-General of Queensland Government agencies and Ministers to partner with individual communities in a collaborative partnership.

I am proud to be the Government Champion for the Northern Peninsula Area at the tip of Cape York, and I am privileged to work alongside the Mayor, councillors and other community members of the Northern Peninsula Area on driving key outcomes and making positive impacts for the community.

Through my role as Government Champion, I have seen first-hand the impacts of environmental health problems on the community. I have also seen some remarkable work undertaken in addressing these issues, which have had positive lasting effects within the community.

The Northern Peninsula Area is located at the very tip of Cape York and is comprised of five Aboriginal and Torres Strait Islander communities. The geographic location of the Northern Peninsula Area means that it faces unique biosecurity and environmental health challenges.

The Northern Peninsula Area and Torres Strait present a significant risk pathway for the movement of pests and diseases into Australia, and the area is of strategic importance when considering measures to protect the mainland from biosecurity threats that are present in countries to our north.

As well as these international biosecurity threats, the region is also threatened by pests, diseases and weeds that may already be present in mainland Australia.

Biosecurity Trainees

In early 2017, DAF and the federal Department of Agriculture and Water Resources jointly provided five traineeships to recent school leavers in the Northern Peninsula Area and Thursday Island.

These trainees are being introduced to biosecurity regulation, government processes and community leadership.

This traineeship program is a positive step in building capacity and capability in the region for the community to become more actively involved in protecting the lands on which they live. It is anticipated that the skills developed and knowledge acquired by these trainees will be passed on and will encourage and foster a culture of vigilance and best practice for those moving about in the region.

The program also provides a means for school leavers in the community to gain formal employment and meaningful skills and support economic development within their communities.

During my trips to the Northern Peninsula Area, it has been encouraging to hear the level of interest for those finishing school to become involved in the biosecurity and similar ranger programs.

Queensland Health Vet Service

The Government Champions program is a truly cross-agency collaboration, and it is rewarding to be able to draw on the

resources and expertise of other Queensland Government agencies to provide a benefit for the Northern Peninsula Area community.

One example is the work by Queensland Health to partner with local environmental health officers, as well as a local Cape York vet who frequently visits the Northern Peninsula Area to care for the needs of the community's animals. The community has a strong affinity for their dogs and horses, and this collaboration between Queensland Health and a local vet has meant that the community's animals are receiving proper care, including much needed vaccination and desexing services.

As mentioned earlier, rabies and other zoonotic diseases carried by animals have extremely dangerous human health risks, and this vet program is but one example of being proactive in safeguarding community health.

Conclusion

Biosecurity, and environmental health more generally, is a collective and shared responsibility. Effective partnerships and connections between government, industry, non-government organisations and community are critical to providing meaningful change for achieving positive environmental health and biosecurity outcomes.

My address today has focused on three key topics:

- the collaborations between DAF and other Queensland Government agencies
- the projects and programs undertaken jointly by DAF and the federal Department of Agriculture and Water Resources, and
- the Queensland Government Champions program and how it has facilitated positive biosecurity and community outcomes through cross-agency programs.

I am privileged to have had the opportunity to share with you these examples of biosecurity projects and programs and how they contribute to the overall environmental health of our communities.

The National Aboriginal and Torres Strait Islander Environmental Health Conference has provided a valuable opportunity for key players in the environmental health space to network and share their knowledge, history and expertise.

I encourage you to continue these important conversations on biosecurity and environmental health, and I look forward to the exciting and meaningful outcomes that will no doubt arise from this week's conference.

Lessons learnt from participation in a large Indigenous community event

Jason May, Central Coast Public Health Unit, NSW

Good morning everyone. Firstly, I would like to acknowledge the traditional custodians of the lands we are on today and pay my respects to Elders past, present and future. My name is Jason May and today I will be presenting on the lessons learnt from the participation of the Aboriginal Environmental Health Promotion Working Group in a large Indigenous community event, being the New South Wales Aboriginal Rugby League Knockout 2016.

Firstly, some background about me. I am a 31-year-old Wiradjuri man, with my mob from Wellington NSW. In this photo Wellington is identified with the black star. It's about 50km east of Dubbo.

I am married with three beautiful young children.

I live on the Central Coast of NSW. The Central Coast is identified with the black star and is half way between Sydney and Newcastle in NSW. I have been working for the Central Coast Local Health District Public Health Unit for seven years, firstly as a trainee Environmental Health Officer and now as a graduate Environmental Health Officer. This presentation will address the working group's ideas on how to get involved in a large community event, including how to effectively work in conjunction with other organisations. I will give some background on the working group and the Koori Knockout, and talk about the activities we performed. I will also mention how the activities we performed worked and/or did not work and the lessons we learnt from tailoring environmental health promotion activities to a large community event.

The working group formed in June 2016 after a NSW Health Aboriginal Environmental Health Officer Network meeting, where it was identified there was a need to implement environmental health education activities at grassroots level, with the aim to reduce environmentally contracted diseases. Before the formation of the working group, there was little coordination between Public Health Units when delivering environmental health education activities. As a result, one of the aims of the working group is to develop a standardised process that supports the effective and efficient delivery of environmental health messages at community events, and in particular, Aboriginal community events. The working group saw the Koori Knockout as a great opportunity to develop and trial standardised environmental health activities. The Koori Knockout also presented a great opportunity to collaborate with other health organisations and engage with a large percentage of the NSW Indigenous community. The working group consisted of members from the NSW Aboriginal Environmental Health Unit and trainees of the NSW Health Aboriginal Environmental Health Officer Training Program who had past experience in working at community events.

The Koori Knockout is a rugby league event which is held on the Labour Day long weekend, which is the first weekend of October each year. It is commonly referred to as a modern-day corroboree for Aboriginal people in NSW, as it's a chance for the 'mob' to get together in a positive setting. The Knockout starts on the Friday, with the kids' and women's game, and runs until Monday, when the final of the men's tournament is held. The first Koori Knockout was held in 1971 with eight teams participating and has now grown to around 130 teams competing across under 12, 15, 17, women's and men's teams. The Koori Knockout is one of the biggest Indigenous gatherings in Australia, attracting tens of thousands of people. The

location of the event can change regularly, due to the winning team hosting the next year's tournament. The Redfern All Blacks were the hosts of the 2016 Koori Knockout which was held at Leichhardt Oval, Lilyfield NSW.

Although all members of the working group had experience in presenting environmental health activities at community events, none of the members had participated in a community event of this size, so there were some initial challenges faced. One of the first challenges we came across was time restraints. The working group only had two to three months to identify and make contact with the organising committee, apply for a tent space, develop appropriate environmental health activities and arrange a workforce to carry out the activities.

The working group was unsure of where to start and who to contact first. As there were a large number of organisations involved initially, identifying and contacting the correct organising committee was a challenge. Another challenge for the working group was, as mentioned, the fact that the Koori Knockout changes location regularly due to the winning team hosting the next year's tournament, so it was a new event to the area and for a lot of organisations involved, including us. After some investigative work, which included plenty of phone calls and emails, we were able to get hold of the appropriate people. Once we had made contact with the appropriate people, they were included in the meeting which discussed planning for the health expo section of the Koori Knockout. The meeting also included site visits, which we found very beneficial as it gave the working group an idea of which activities would best suit the site and amenities available. Being involved in the meetings also helped a lot because we were able to get in touch with the Wellington Aboriginal Medical Service (AMS) who were generous enough to lend us tent space.

From there, now having been involved in some meetings and site visits, the working group were able to start planning the activities we would like to present. The working group delivered two environmental health activities which were targeted at children. These two activities were the Mister Germ Hand Hygiene activity and Waste Management Education activity. The Mister Germ Hand Hygiene activity consisted of children participating in an interactive activity in which they applied glow-in-the-dark hand gel to their hands to replicate germs and then place their hands under a UV light to demonstrate how we cannot see germs. We then showed the children the correct hand washing techniques which will help remove germs. Members of the working group also dressed up in the mascot outfits of Mister Germ and the Germinator so children could meet and interact with them.

The Waste Management Education activity was an interactive activity in which children placed plastic toy items which resemble rubbish and little bean bag type toys with a picture of rubbish on them, into the correct wooden bins on the table. It provided children with education around the different uses of the general, recycling and green waste bins. The children participating received a gift once they had participated in both activities.

The working group made some adjustments to the environmental health awareness activities based on feedback from previous events so they would be more suited to the Koori Knockout. The availability of resources and funding were also factors in the modification of the activities. One of the adjustments made was a portable hand washing station that was rented for the Mister Germ activity, which made washing the participants' hands much easier. Once the working group had developed the environmental health

awareness activities, we were able to work out the number of workers that would be needed during the Knockout. An expression of interest seeking volunteers to participate at the Koori Knockout was also sent out among the NSW Health Public Health network.

Now that we had been able to liaise with the Knockout committee, negotiate the use of a tent, modify our environmental health awareness activities and arranged the workforce, it was time for the event. We set our tent up early on the Friday morning next to the Wellington AMS section within the mini health expo. Throughout the long weekend, the mini health expo had a constant flow of adults and children viewing and taking part in all the activities on show. The Mister Germ and Waste Management activities were well received by all the community members. We saw this by the involvement of the kids and adults and also in the fact that they would usually return with another friend or family member. Members of the working group dressed in the Mister Germ and Germinator costumes interacted with the community, which attracted more interest to the tent as well.

The working group had designed an evaluation form but was unfortunately unable to conduct the evaluation during the Knockout. The evaluation form was hoped to be completed by children, with the aim of finding out if kids under 10 understood the hand hygiene messages delivered through the Mister Germ Hand Hygiene activity. As you can see here, the evaluation template was fairly simple. We wanted to ask the children seven questions: had they been to the stall, did they understand how germs are transferred, do they understand how to get rid of germs, what they thought of Mister germ and Gerry the germ head, where they viewed their hands, and their age and sex. Once the dust had settled after the Knockout, we held a debrief to discuss the outcomes of our involvement. During the debrief, we started from the beginning, looking at our initial involvement with the organising committee through to the environmental health activities performed.

The debrief was beneficial as it identified a number of lessons learnt from our involvement in the Koori Knockout. Firstly, early interaction with the event committee and tent organisers is paramount to establishing good communication among the organisations. As mentioned, there were some initial difficulties around engaging with the appropriate people, which made planning and organising the environmental health activities difficult. For future events, making sure there is early, constant and concise communication with all organisations, which ensures the needs of the working group are known and understood, could result in better positioning of the tent, resulting in greater participation from the community. With better positioning of the tent, the activities could have also been carried out more effectively. The Mister Germ Hand Hygiene activity required used water to be disposed of and then refilled with fresh water. The positioning of the tent made this difficult and time consuming, as there was a fair distance between where we needed to dispose of the water and refill the water. The Mister Germ activity also required electricity, for the UV lamp. There was no onsite electricity so a generator was supplied for everyone to use. The working group had to dangerously join two, quite long, extension cords reaching between the tent and generator, along the grass, which could have been avoided by repositioning the tent. Also, by repositioning the tent, the synergy of the surrounding activities could have been improved. As the working group's activities were focused on waste management and hand hygiene, placing the activities next to similar activities or tents which required hand washing facilities would have helped promote the messages the group were hoping to get across.

Although the implementation of the Mister Germ and Waste Management activities was successful, as shown by community members revisiting the stall and bringing others with them, there were areas of the activities which the debrief identified could be improved for future events. One area is participation handouts and gifts. When modifying the project proposal for future events having a greater understanding of the audience will be important when developing participation gifts. Even though the activities were targeted at children 10 years and younger, there was interaction with a very broad range of ages, from kids to adults. We had a lot of promotional slap bands and stickers as the participation gifts. It was noticed that the 'no germs on me' and did 'ya wash your hands' stickers were not as well received by the older children as were the slap bands. We also missed the opportunity to promote our messages to the adults, as we did not design any appropriate gifts. Altering the participation gifts to be more environmentally friendly was also a discussion point from the debrief. Fruit has been suggested as a participation gift, as it would reduce landfill and also tie in with the promotional messages of washing your hands before eating food and correctly disposing of rubbish.

Storage was also a factor which restricted the types of resources and participation gifts we could supply. The only storage facility available was located at the Ministry of Health office in North Sydney, as there was no storage available on site for us to use. The storage at the Ministry of Health was not an adequate amount in relation to the size of the event, which we believe possibly hindered the effectiveness of the activities. As the resources and gifts were not able to be kept on site, there was also some difficulty in the transportation each day, which required a group member to drive to the Ministry of Health, pick up the equipment and then drive to the Knockout at Lilyfield, which is 11km's from the Ministry of Health, through heavy traffic. Another difficulty was the limited parking at the Knockout. This picture shows Leichhardt Oval, which is the main oval with a grandstand and its surroundings. The grass area along the water's edge and the little strip of road in the red square, is where the mini health expo was held, and the parking area for stall and tent holders. As you can see, overall there is not a lot of parking for an event which held ten's of thousands of participants and spectators. Touching back on communication, next time having early and more detailed communication with the Koori Knockout organising committee would help prepare the working group for the parking and transporting requirements. Early communication could also result in the Knockout committee understanding the needs of storage and parking for the working group's activities.

One final outcome which the working group is working on is developing a calendar of Indigenous and non-Indigenous community days and events throughout New South Wales. The calendar of events will give the working group the opportunity to promote environmental health promotion activities to a much broader audience. As the working group had learnt from the Koori Knockout, early communication with the organising committees is extremely important to developing quality activities. Along with the already developed project proposals, the calendar will give the working group the opportunity to be proactive by planning for upcoming events and making early contact with the organising committees. The calendar will be a live document to accommodate new events and changes to existing events.

In conclusion, some of the lessons learnt by the working group primarily revolved around early interaction and preparation, and early, constant and concise communication. Having early and

joint communication with all the organisations involved is very important in establishing partnerships, sharing information and coordinating the arrangement of the health stalls. For future events, the working group will try to establish greater communication earlier in the planning phases in the hope of avoiding similar issues around stall location, stall synergy, activities performed, delivery of the activities, storage and parking. Developing a project proposal early, which is tailored to the target audience and environment of the event, is important. It is also important to have a solid project proposal developed when contacting event committees, as this is your sales pitch to be involved in their event. The working group enjoyed participating in the Koori Knockout and overall believe their involvement was successful.

I would like to thank Hopi Yip, Robert Barnett, Taylor Smith and Trent Auld for their involvement in the Aboriginal Environmental Health Promotion Working Group and for their contributions to this presentation, and also Wellington AMS for their generosity at the Koori Knockout.

Thank you, any questions?

For more information

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The value of the Australian Indigenous HealthInfoNet

Millie Harford-Mills, Australian Indigenous HealthInfoNet

Good morning, thank you for having me here to speak to you today. Before I begin my presentation, I would first like to pay my respects to the Traditional Owners of the land we are meeting on today, the Yirriyangji people, and pay my respects to Elders past, present and emerging.

Today I'm going to give you a brief introduction, or reintroduction for some of you, to the Indigenous environmental health practitioners portal on the Australian Indigenous HealthInfoNet. I'll be showing you how the portal can be a useful tool for you in your day-to-day work and the ways in which you can use the portal for sharing your information with other people in the sector. Lastly, I will also be talking about the future of the portal, as we have some exciting new developments in the works.

The Indigenous environmental health practitioners portal sits on the Australian Indigenous HealthInfoNet website. The HealthInfoNet was established in 1997 by the late Professor Neil Thomson, to make research and knowledge about Aboriginal and Torres Strait Islander health easily accessible by anyone working or studying in this field. HealthInfoNet is funded by the Department of Health, and based at Edith Cowan University at Mt Lawley, in Perth, WA. Some of you may have seen the HealthInfoNet, and use the environmental health portal in your work already. WGATSIEH originally recognised the need for a hub for information on Aboriginal and Torres Strait Islander environmental health quite a few years ago now, and out of this, the environmental health portal was born. We have been funded by enHealth since 2009, and we're grateful for their support.

You can see on the slide here the home page of the environmental health portal. The current design of this portal came from feedback provided by delegates at the 2009 NATSIEH conference, some of whom might be in the audience with us today. These same delegates also identified the key sub-topics for this portal, which include:

- Water supply
- Waste management
- Housing and community
- Food safety
- Personal hygiene
- Communicable diseases
- Animal management
- Caring for country
- Emergency management.

To show you how the content for each topic is laid out, I'll take you briefly through one topic section, housing and community. The housing and community section covers lots of different kinds of information including housing maintenance, overcrowding, plumbing, asbestos control, and more. There are seven main navigation points highlighted in the yellow box. The structure of each sub-topic for the portal is identical, so once you know how to get around one section, you should be confident using them all. I won't discuss all seven sections, will show you some of the key areas you might be interested in.

The key facts section is one of our most popular areas on the portal. The key facts are written in plain language, and aim to provide an easy to understand background to the topic. Key information covered in the housing and community key facts includes:

- the needs of Aboriginal and Torres Strait Islander people in

terms of housing and communities

- types of housing
- role of Indigenous environmental health practitioners in housing and communities
- healthy living practices.

The programs and projects section is a collection of programs that explore housing and community among Aboriginal and Torres Strait Islander people. Each entry contains information about what the program aimed to do, any outcomes, contact details, related or evaluated publications if available, and links to further information. We hope that the programs and projects section can provide a starting point for those looking to implement a program or project in their local community.

The section on health promotion resources lists resources on housing and community relevant to Aboriginal and Torres Strait Islander people. The home page will take you directly to a list of resources, which includes content such as leaflets, posters, videos, comics and more. These resources are aimed at the general public and can be used by environmental health practitioners when working with communities and families.

We also collect health practice resources, such as guidelines, toolkits, manuals and other resources. These are designed to up-skill or support practitioners when working in the area of environmental health.

Under publications, you will find a list of publications which look at housing and community among Aboriginal and Torres Strait Islander people. These are divided into general and specific topics, and include articles, reports and other literature. At the moment, we have around 1,400 publications on Indigenous environmental health on our site.

The workforce section provides workforce-related information for all of the environmental health topics (water, waste, animal management etc), including:

- Courses and training
- Job opportunities
- Funding
- Conferences, workshops and events
- Professional associations, and
- Related publications.

As part of the work we do on the portal, we also distribute a monthly environmental health newsletter. These contain information about what is new on the website, including news, job opportunities, publications and resources, and programs. If you'd like to sign up, come and see me at the HealthInfoNet exhibition booth; it only takes 2 minutes.

Now I'd like to talk about the future of the environmental health portal.

Recently, the HealthInfoNet team have been moving towards making our website responsive. This means that it will be much easier to use on a tablet or a phone, because it will adjust to fit the screens of those devices.

As part of this process, we've also been working on improving some of the other features of our website, such as the search feature, and the ways in which you can get around the website. We're hoping to have this ready for launch by January next year.

Please note that the screenshots you see on the next few slides are a work in progress - and the design and layout of these haven't been finalised yet. These images are there to show the changes in how you use it.

On the main *HealthInfoNet* site, we are changing the way you can get around it, so it's easier to work out where you can find content relevant for you. There will be five key navigation sections, which are:

- Search
- Learn
- Promote and practice
- Connect and engage, and
- About us.

Not all the sections are available yet. Environmental health will sit in the learn section, under determinants.

One of the key sections I mentioned is search. The search feature on the new website will allow you to search across the range of our publications, resources, programs, and other content on the site, and find content you are looking for much more easily, with more options for finding specific content. For example, if you wanted to find content on the *HealthInfoNet* site that was about dog health in Queensland, at the moment, there is no option to do that easily. On the new site, there will be ways of cross-searching all of the content we currently have.

What we've also been working on to help improve the way you can find your way through the pages of the portal is adding some pre-set content breakdowns. Here you can see some of the content breakdowns for the publications section of the housing and community section in the new portal, which are:

- Home safety
- Infrastructure and maintenance
- Overcrowding, and
- Power supply.

Clicking on these headings will filter out the content in each publications list, to make it easier to find things which are relevant to you. These can then be further filtered by things like state or document type.

In addition to the changes I've mentioned, as part of the portal re-launch, we'll be including a new section on climate change. There has been a lot of information coming out recently about the impact that climate change will have on Aboriginal and Torres Strait Islander communities, and this section will aim to capture that information. If you are aware of any organisation doing work in this area, then we'd love to hear about it.

There are also a number of other changes you might see when the new website goes live. We're hoping overall that these changes really enhances the experience for our users, and makes the website a much better resource for you to use. It might take a little time to get used to the changes; however, we'll be on hand to answer any questions you might have, and we'll also be running a series of webinars to guide people through the new site.

Thanks for listening to me today. Before I finish, I'd like to emphasise the importance of communication between you and the *HealthInfoNet*. We love to hear from people across the country about what you're doing in your communities, and we're very happy to promote your work, job opportunities, or resources. If you'd like to get in touch with me to share any information, then please check out my details on the slide here.

We also have an exhibition booth, so if you'd like further information, or just to have a chat, then please come and say hello!

For more information

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Environmental health response to a significant community flooding event. Case study: Kintore community

Aaron Clifford, Environmental Health Central Australia, NT

Before I commence, I would like to acknowledge the Traditional Owners of the land on which we are meeting. I pay my respects to their Elders, past and present, and the Elders from other communities who may be here today.

Good morning, my name is Aaron Clifford; I am the Acting Coordinator with the Environmental Health team in Central Australia. Today I am going to talk about a flash flood that occurred in the very remote Indigenous community of Kintore, also known as Walungurru.

In the context of emergency management Australia-wide, the flood and its impacts on Kintore might be considered small scale. However, due to its very remote location, there were some very significant logistical constraints. This impacted how and when Government and trades persons government and tradespeople community. This also provided greater impacts to remediating critical health infrastructure.

The management of these constraints was provided initially through the local MacDonnell Regional Council in response to the flood and then by the Northern Territory Emergency Service (NTES) during the recovery process. The recovery process involved a multidisciplinary response achieved through the Emergency Operations Centre and involving all levels of government. Therefore, the purpose of this presentation is to highlight Environmental Health's role in responding to the floods; and those areas of public health that required monitoring, advice, and direct physical involvement.

My presentation today discussing Environmental Health responses to the floods at Kintore will involve a brief overview of the community, the land it resides within, and the local community people. I will then provide a brief overview of the flooding event and some immediate impacts that occurred and subsequent constraints for emergency management. This will then lead into a discussion regarding those collaborative responses by Environmental Health involving an advisory capacity, onsite investigation; and responsive works. Importantly, this presentation aims to discuss Environmental Health's place in the broader operations undertaken by a large array of government and non-government professionals.

Kintore, aka Walungurru, is situated 530km west of Alice Springs in the Pintupi Homelands; lying 34km east of the WA/NT border. Importantly, the community forms part of the Luritja Pintubi Ward and is serviced the MacDonnell Regional Council.

Geographically, you will find a semi-arid climate, which can be quite striking as you drive either through the West MacDonnell Ranges or part of the Mereenie Loop. Most services come from Alice Springs, and travel from here does come with some significant constraints; due to the vast distances, most of which are on unsealed roads. Consequently, most travel must be undertaken by 4WD or light aircraft.

From Alice Springs follow Larapinta Drive for about 50km to the Namatjira Kintore Link (200km) and then onto Kintore Rd, which is about 270km. In this direction you will pass either through or near

the communities of Haasts Bluff, which is 290km from Kintore, and Pupunya, which is 30km away from Haasts Bluff.

Once you leave Larapinta Road, the roads are unsealed, leaving over 450km of unsealed road to drive on. Alternatively, from Alice Springs you could drive 127km up the Larapinta Drive to Hermannsburg community and, about 80km from there, follow the Namatjira Kintore Link and Kintore Rd for a further 431km.

I'll just give you a brief snapshot of the community now. Kintore lies at the base of culturally important hills, Pulikatjara, meaning two hills; and we can see those in the background in the video.

The population of Kintore varies depending upon cultural requirements and numbers vary between 300 and 600 Aboriginal people; however, the usual population is around 400. Kintore is made up of Pintupi people with a small population of Walpiri people. The main language spoken is Pintupi/Luritja, with other languages such as Warlpiri, Arranda and Pitjantjatjara also spoken.

The local Australian rules football team is the Walungurru Hawks. Yellow and brown paint, also the colours of Hawthorn AFL team, feature heavily on the houses and businesses in the community. This community also has its place in popular culture; in the Midnight Oil song 'Beds are Burning', it is sung that "Four wheels scare the cockatoos/From Kintore east to Yuendumu".

Often English is a third or fourth language of a community member. There is also an average of about 20 non-Indigenous people living in the community. Most work at the Pintupi Homelands Health Service, renal dialysis health unit, Walungurru School, Yirara College, Community Council, Papunya Tula (Art Centre), the Police Station, the Women's Centre, and the public swimming pool.

It's safe to say at this point that Christmas Day in Kintore was unpleasant. They received a rare 1 in 50 year rain event where just over 321mm of rain fell over 2hrs. This caused flash flooding and 40% of all homes were damaged. These homes had their power isolated ahead of a safety assessment undertaken by police. Subsequently 25 homes - or one in five homes in Kintore were evacuated. This meant that 85 people spent that night in the Kintore School and 11 others spent the night at relatives' homes.

In very simple terms, the severity of the flash flooding was increased because of several reasons. The increased rainfall was caused by a deep low pressure system which was moving slowly south-eastwards across the far southwest of the Northern Territory. While understanding weather patterns is fairly complex, every farmer knows that as a rule of thumb, high pressure means clear skies and low pressure systems bring clouds and rain.

In short, low pressure systems can form when air rises as it's warmed over a huge, hot landmass such as those found around Kintore and its surrounding Pintupi Homelands. The low pressure system caused some significant rainfall on 2 days previous to the flood with 43 mm and 55mm being recorded by the Bureau of Meteorology

This heavy rainfall had already started to waterlog the ground. Then, on Christmas Day, a deluge of 230mm that fell in 2 hours hit the water logged ground, causing water to pool and cause water to rise and flow from high ground nearer to the base of Pulikatjara hills towards lower ground. As a consequence, those houses that were within the lower reaching areas of the community were the worst affected.

Importantly, the low pressure system affected many parts of Central Australia. Due to the heavy rainfall, all access via the Namatjira Kintore Link was closed. Kintore road is significantly flooded. Also, due to the time of year some staff in the community had taken leave. Subsequently, access to the community could only occur via air craft. Therefore, initial efforts to address the impacts of the flooding involved the MacDonnell Regional Council Civil Works Team removing debris from the near-by landing strip. In a rare event, at one stage there were 10 light aircraft parked alongside the airstrip.

There were three police and two NTES volunteers involved in the initial response after the flooding. They assisted with going door to door and communication with community residents and ensured that those who needed it were evacuated to the emergency shelter at the school. They also communicated with various stake-holders back in Alice Springs, guided the Civil Works team on the ground; and ensured that critical health infrastructure was assessed.

The ESO provided checks on the water and power infrastructure, ensuring all generators were functioning and bores were still operating and assessed the sewage ponds for structural integrity and flooding.

The Department of Housing and Infrastructure began housing assessments. Particularly important was providing electrical contractors to address housing. Another issue was that mud and water had inundated the houses, and these homes needed to be properly sanitised. MacDonnell Regional Council had their staff working overtime. They also provided electrical contractors and began assessing the structural integrity of structures and prioritising repairs. Another important factor, due to the closed roads was assessing roads, and endeavouring to have those traversable as soon as possible.

The Department of the Chief Minister coordinated the response via the WebEOC incident management system and numerous face to face multidisciplinary meetings. Within this context, there was an initial response coordinator who hands off to the recovery coordinator. Environmental Health and the Centre for Disease Control (CDC) became involved within the recovery response under the Public Health Group (Area). Collaboration within this group included the: Pintubi Health Services, Territory Families, Department of Housing and Community Development, MacDonnell Regional Council, Central Australia Health Service and Power and Water.

Environmental Health's initial response was to provide advice and fact sheets to the Emergency Operations Centre for dissemination. General advice was provided in regard to: critical health infrastructure relating to power, potable water, sewage, and solid waste control; food safety; entomology; general pest control and skin hygiene. Fact sheets related to: food safety; on-site waste water systems and power outages; personal safety during floods; floods and household safety; general hygiene; contaminated drinking water; potable water supplies; and mosquito repellents.

On January 6, In collaboration with the Emergency Operations Centre, the Environmental Health manager flew to Kintore with the Area Supervisor from MacDonnell Regional Council. This trip was undertaken to observe the impact of the floods, observe the works being undertaken on the ground; and provide an additional scope of works.

This visit included liaising with managers from the clinic, aged care; and store to determine how Environmental Health could work in collaboration with their ongoing arrangements; and to provide health promotion resources. The Environmental Health manager also visited various infrastructures to observe damage caused by the floods to the power and water stations, sewage ponds; and solid waste management, and housing.

The information provided through WebEOC and from the visit demonstrated that, while a significant scope of works was still required, various government departments were responding well to the emergency and resources were being staged towards the large scope of issues relevant to Environmental Health concerns.

A follow-up visit was undertaken in Kintore from the 11th to the 13th of January by vehicle. This was undertaken by the Environmental Health Coordinator, an Environmental Health Officer, and a Nurse from the CDC. This visit significantly focused on pest control and entomological control. Here, Environmental Health staff provided methoprene pellets and briquettes for ponding water and Bestox barrier spraying to buildings and houses.

While onsite, inspections were undertaken of the vulnerable-population facilities involving aged and child care, and also the community store. It was identified during this trip that there was a significant pest control problem. This caused concerns regarding poor skin sanitation and the potential for communicable diseases. Also, significant plumbing issues were observed. On the following slides, I will discuss those Environmental Health concerns and some of the responses provided to address these.

Obviously, food safety; and skin sanitation were important factors. Three flights were provided by Chartair between the 25th and 30th of January, carrying loads between 600kg and 1720kg each. These flights were funded by the: Northern Territory Department of Infrastructure, Planning and Logistics; and Outback stores.

Items provided to the community included camp beds, replacement clothing, blankets and sheets, nappies, and medicated soaps. Pallets of staple foods were also provided, consisting of fruit and vegetables, frozen goods, milk and bread, drinks, baby food and toilet paper. A large 8-wheel drive – all terrain vehicle was able to be driven to the community from Alice Springs on 31 January.

The waste management facility was flooded; however the water was receding at least 15 to 20mm per day. A temporary dump was provided until the existing dump was again able to be used. Approval was given for the civil works team to burn the rubbish to prevent vermin and other pests.

Ongoing daily waste management services were provided within the community for all waste associated with building remediation. However there were several other concerns regarding the waste management facility. These included, the potential for mosquito harbourage from the ponding water; and as such Methoprene briquettes were provided by Environmental Health. There was also an important need for ongoing slashing to prevent harbourage of pests and vermin and, as such, the Civil Works teams were slashing grass around the community.

Other important factors included keeping rodents and pests, such as dogs and donkeys, from scavenging within the facility; therefore any damaged fencing was organised to be repaired. There were risks associated with leaches and run-off from toxic substances stored within the waste management facility; as such, Environmental

Health provided a brief inspection and discussed the risks with the Civil Works staff. There was a lack of community awareness regarding the risks from the facility after the flooding event; and in this instance, some advice was provided by Environmental Health.

The power facility was generally in good condition. While one generator did go offline, the back-up generator could sufficiently maintain the required power to the community. Also, there were 6 weeks of fuel for diesel generation.

The water treatment facilities fared less well. Significant damage had occurred to the fencing, and this was being addressed by the Council. Also, very significant erosion had occurred surrounding the facility, inhibiting vehicular activity. Some mosquito harbourage was identified onsite within conduits located on the outside of the facility. Rather than treat these conduits with methoprene it was organised for them to be drained of water. There were some river type beds located near the drinking water facility which had some algae present, and tadpoles. However, no mosquito harbourage was identified. Overall, the bores were operating and water quality was able to be maintained within the Australian Drinking Water Guidelines.

Luckily, due to the loamy soils, water was receding within and surrounding the community. However, as discussed, mosquito harbourage was considered a significant issue, and treatment was undertaken by Environmental Health within several areas. These included: using methoprene pellets and briquettes for ponding water on the Kintore access road, within spoon drains and beside raised road beds, at the waste management facility, and some ponding water within the community; and barrier spraying of homes and facilities (focusing on those housing vulnerable populations).

Other important activities included: going house to house and removing water from receptacles such as bins, tyres, drums, plastic containers, and tarpaulins; and educating community members about mosquito harbourage.

While many, organisations organised ongoing actions, the main concerns monitored by Environmental Health within the Public Health Group during the floods can be boiled down to three issues: skin sanitation; food safety; and pest control.

In regard to skin sanitation, by 30 June, the Emergency Management Committee had organised for all residential properties inundated by the flood event to be checked by electrical contractors to ensure they were safe to reoccupy. This allowed residents access to hot water. Houses that were inundated were also professionally cleaned by cleaning contractors with specialist cleaning equipment including pressure cleaners and disinfectant. Also, a quantity of hoses, squeegees, mops, buckets and brooms were sent out on 30 December for the six worst affected properties. To keep residents off the ground, 70 camp beds had also been sent out. Also, a large quantity of replacement clothing, blankets, sheets, nappies, and medicated soap was sent out.

While many washing machines in the community were inoperable, 14 washing machines were being trucked out. However, there were also indications that residents were using the two large industrial washing machines at the aged care facility to clean their own linen, plus the blankets that were supplied.

Ensuring the appropriate cooking of foods and food temperature was also an issue. However, 19 stoves were replaced shortly after

houses were cleaned and residents moved back in. Electric frypans and kettles were provided as an initial, emergency measure prior to the stoves being replaced. Eleven fridges, three freezers and two bar fridges were provided to homes which were inundated by flood waters.

There was still some significant concern regarding reports that houses were overrun with vermin - cockroaches, scabies, mites, mice and snakes. While many inundated homes had been cleaned, there was a need for a whole-of-community pest control regime. However, the roads were required to open up before the pest control professionals would travel to Kintore.

In the interim, Council ensured all infested household items were removed from homes, the CDEP were slashing grass surrounding homes and Environmental Health Officers had provided some Bestox spraying. However, even after the large scope of works, there were some concerns because 14 homes were uninhabitable, but families have taken up residence anyway.

The final visit to Kintore by two Environmental Health Officers occurred from the 20th to 23rd of February. At this stage houses were still inundated with a large array of pests, including significant amounts of cockroaches. Therefore, the trip was organised to assist the professional pest controllers who had arrived in the community to provide community-wide pest treatment. In this instance Environmental Health visited community residents at 18 houses. This included educating residents about pest control; and the poisons and assisting residents in removing their belongings prior to pest treatment.

The pest control professionals were able to treat every facility in the community. While in the community, some health promotion activities were provided at the school to inform school children about skin sanitation. While much of the pooling water in the community had been absorbed into the ground there were still some methoprene pellets provided for some remaining standing water, including at the water management facility. Also, inspections were provided at the vulnerable population's facilities such as the aged care and child care facilities, and an inspection was undertaken of the community food store.

Thank you. That is the end of this presentation. Are there any questions?

For more information

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The 2016 Cherbourg Dog Management Program: a story of collaborative success

Stephen Hill, Cherbourg Aboriginal Shire Council, QLD, **Dr Bonny Cumming**, Animal Management in Rural and Remote Indigenous Communities, NT, **Amanda Hutchings**, Darling Downs Public Health Unit, and **Dr Greg Simmons**, University of Queensland School of Veterinary Science, QLD

Cherbourg is an Aboriginal community in South East Queensland, 3 hours north west of Brisbane. It is on land that is the home of the Wakka Wakka people and is surrounded by cattle properties and a large area of state forest and national park. The rural community has around 1500 residents who, as a result of the relocation of Indigenous people under past government policies, have connections to many tribal groups throughout Queensland.

We'll be speaking about the 2016 Cherbourg Dog Management Program and how collaboration resulted in its success; but firstly, we'd like to play a video that shows the community perceptions of the program.

Link to 2016 Cherbourg Dog Management Program; Community Perceptions Video: <https://youtu.be/My18uVDojY>

Stephen Hill, Environmental Health Worker, Cherbourg Aboriginal Shire Council

The Cherbourg Community needed a vet program as we have never had anything like it before. With a lot of meetings between Animal Management in Rural and Remote Indigenous Communities (AMRRIC), Queensland Health Darling Downs Public Health Unit (DDPHU), University of Queensland School of Veterinary Science (UQSVS) and Cherbourg Aboriginal Shire Council (CASC), we got things going forward after Council received a lot of complaints about dogs knocking bins over, noise from dogs fighting and barking at all hours and also dogs attacking kids at school. The CEO and councillors at Cherbourg were only too happy to be on board and get this vet visit up and running. As with a lot of other communities there is a lot of work to be done in reducing dog numbers, as well as educating residents about caring for and making their animals healthier. We put messages up around the community, on our radio station Us Mob FM, and Council's Facebook page letting residents know that we had visiting vets coming in October, then word of mouth got out about it, and more and more residents got dogs registered. The Animal Control Workers and I were only too happy to be involved, helping the vets, but most of all helping our community to be a healthy one. Most residents in our community care about their animals; some do treat them as family. With more numbers this year in dog registrations, the visiting vets are back again in October for three weeks in 2017.

I would like to thank all those wonderful people who were involved in working to make it all possible.

Amanda Hutchings, Senior Environmental Health Officer, DDPHU

In 2014, animal management within CASC consisted of:

- two Animal Management Workers, one Environmental Health Worker (EHW), one Environmental Health consultant,
- a pound which need some work and was not operating
- local laws which had not been implemented,
- no baseline data on animals within councils, numbers of animals being put down, data on the health of animals or data on animal management issues (such as dog attacks),
- no visiting vet program in the community, and
- no dog registration in placed.

In late 2014/early 2015, concerns were being raised from community members during our community visits, and with CASC EHW and other government agencies, and it was clear that there were a number of animal management issues in the community. Concerns included public health and safety (e.g. workers being bitten by dogs, school children having lunch snatched from their hands, issues at school bus stops), zoonotic disease concerns (i.e. potential transmission of diseases from animals to people) and animal management issues (e.g. dogs knocking over bins, nuisance from dogs barking and fighting at night time, dogs scavenging at the tip). CASC was unsure of how best to humanely and sustainably address the community's dog management concerns, and realised they required the assistance of external organisations to achieve this aim.

CASC initially consulted with both DDPHU and AMRRIC to seek assistance in developing an appropriate and effective dog management solution. Our unit already had an existing relationship with CASC as a result of the Queensland Health Aboriginal and Torres Strait Islander Public Health Program, and CASC requested assistance from AMRRIC following a recommendation from Biosecurity Queensland. Upon initial discussions, it was clear that CASC required the services of a local veterinary provider that had the capacity to deliver a high-quality but low-cost veterinary service within the community. To meet this need, AMRRIC invited UQSVS to join the stakeholder group. Over the following 18 months, staff from these organisations worked together to develop an effective dog management program for Cherbourg that benefitted all involved.

UQSVS's involvement with the Cherbourg Dog Management Plan presents a mutually beneficial arrangement; for example:

- UQSVS students gain a better appreciation of life in an Aboriginal community and are given the opportunity to communicate and develop relationships with Aboriginal community members;
- UQSVS gains access to large numbers of entire animals that need desexing, thus giving students the opportunity to be involved in a large-scale desexing program; an opportunity that would otherwise not occur;
- CASC receives a low-cost veterinary service;
- CASC and animal-owning community members are assured of a high-standard veterinary service where highly qualified
- UQSVS veterinarians and vet nurses supervise all aspects of student involvement; and
- UQSVS (and the University of Queensland generally) is able to demonstrate and publicise its commitment to community development and support of Aboriginal and Torres Strait Islander peoples.

Once the stakeholders were connected, the group evolved to make the best use of the widely varying experience and scope of practice of each of the key stakeholder groups. For example, AMRRIC's experience and knowledge positions it as a valuable source of advice relating to animal management activities in rural and remote Indigenous communities; UQSVS is a highly regarded veterinary facility and research institute, capable of delivering high-quality services grounded on evidence-based best practice; DDPHU, through its work supporting EHWs, has an in-depth understanding of legislative requirements relating to Cherbourg's animal management; and CASC has intimate knowledge of the Cherbourg community and its needs and likely responses to any proposed solutions.

Through regular meetings and communication, the stakeholders assisted CASC to identify community concerns and dog management requirements. This process included articulating and documenting clear short and long term goals for the program; developing a broad dog management framework; planning, so that when the implementation of the program occurred, roll-out happened smoothly with few setbacks; ongoing communication and intentional monitoring of stakeholder attitudes towards the program design process (enabling the program to naturally evolve and strengthen); and, conducting a designated evaluation to allow all stakeholders involved to reflect on the development process and implemented program, and consider how they would like to improve both in subsequent years.

From the start of this process, there was a clear understanding amongst the group that the aim was to have sustainability in the animal management program, and that it was to be driven by CASC and community member desires. To achieve the goal it would take time (5 years minimum). All the stakeholders also recognised that the visiting vet program is only one element of CASC's broader animal management program.

Bonny Cumming, Veterinarian & Project Officer, AMRRIC

The 2016 program included the establishment of a registration system for dogs, veterinary program and education program. Registrations opened in April and, by October, when the vet and education program was delivered, there were well over 180 dogs registered. The veterinary program ran for two weeks in October; the education program ran during the first week, and a community dog health day was held on the Wednesday of the first week of the program.

Funding for the program was shared across the various collaborators. The total value of the program was estimated to be around \$30,000, including actual and in-kind costs. Thanks to in-kind contributions from each of the collaborators, the actual costs for the program totalled \$13,132 and included items such as veterinary supplies, travel and accommodation. CASC contributed \$5000 towards the actual costs associated with the veterinary and education programs; the remaining costs were absorbed by AMRRIC, UQSVS, DDPHU and CASC. Generous sponsorship from veterinary wholesaler CH2 and pharmaceutical company Merial considerably boosted the program's budget.

The two-week long veterinary program was delivered by UQSVS staff and students; the team consisted of two experienced vets, one vet nurse and three final-year vet students. Available treatments/procedures on offer included: general health checks; education about animal health, disease prevention and responsible pet ownership; surgical desexing of dogs; microchipping; parasite treatments; emergency treatments to address animal welfare concerns; and euthanasia (only with full and informed consent of animal's owner). The team brought all necessary equipment and consumables and set up a field veterinary hospital within the CASC pound. Throughout the program, CASC environmental health and animal control staff liaised with community members and transported animals to and from the temporary veterinary clinic. AMRRIC and Queensland Health staff provided additional coordination and logistical support, and AMRRIC's app was used to record dog population and treatment data. Community members were overwhelmingly supportive of the program, with a number of owners making dedicated trips to the pound facility to ensure their dogs were treated. Households that had large numbers of entire animals, and those identified as being a regular source of puppies were strategically targeted in an effort to reduce the number of unwanted litters being born in the community.

The education program was delivered concurrently in the first week of the veterinary program, and in addition to spreading messages of responsible pet ownership, was utilised to build momentum and awareness for the veterinary services on offer. AMRRIC's Education Officer worked with the CASC EHW and Animal Control Officers, training them in the use of AMRRIC's Education Kit and delivery of education lessons to school classes and community groups. A total of 131 school students readily participated in responsible pet ownership lessons, and local radio announcements helped to spread awareness of the program.

Education programs such as that delivered at Cherbourg provide a learning experience for students to develop: empathy for dogs' feelings; an understanding of dogs' needs and behaviours; safe personal behaviours around dogs; knowledge of the relationship between dog and human health (personal hygiene); an increased understanding of owner responsibilities that contribute to the wellbeing of dogs; increased community awareness about responsible pet ownership, dog management programs, and the links between animal and human health; and self-pride and an increase in the value of the EHW and Animal Control Officer roles within the community.

A well-attended community dog health BBQ was a chance for the community members to meet the veterinary team, receive free parasite treatments (donated by Merial), and seek advice from the vet team about their pets. Staff from the University of Queensland's Aboriginal and Torres Strait Islander Studies Unit also attended the day, meeting community members and exploring the rich history on display at Cherbourg's Ration Shed Museum.

The outcomes for the dog management program have made CASC, the collaborators and the community proud. In total, 59 dogs were surgically desexed (which, at that time, represented approximately 31% of the registered dog population). Eleven of the 37 female dogs that were desexed were pregnant, so by desexing them, the team prevented 72 puppies entering the dog population. Eight dogs were treated for various injuries and four were euthanased due to health or behavioural issues. Additional registrations were received during the community health day and throughout the program; by the end of October, 215 dogs were registered with CASC.

Throughout the program, thanks largely to the development of strong working relationships, both the individuals and organisations involved as key stakeholders benefitted enormously from the collaboration. Beyond the anticipated dog population management outcomes, reciprocal learning gave stakeholders a better understanding of the Cherbourg community and its history, of effective collaboration and its prerequisites, and of the process and importance of establishing, nurturing and maintaining relationships and trust between disparate organisations. For the veterinary students, the program provided an opportunity for cross-cultural exchange and personal growth: "During the two weeks at Cherbourg, we had a lot of opportunity to communicate with the local residents and look after a number of dogs. We not only learnt about veterinary science, but also about the history and culture of Cherbourg. This furthered our understanding and appreciation of the interactions between animals and human kind. Our horizon was widened in this journey." Final Year Veterinary Students Shirley Lee, Danielle Hindmarsh and Caroline Edgehill

Certainly, the program's success can be attributed to the effective collaboration between all of the stakeholders. Upon reflection, the keys to the collaboration's success have been: identifying all the

relevant stakeholders; reaching mutual agreement on the issues; clearly identified goals of the program; collaboratively planning; clearly understanding each stakeholder's role and responsibilities; and regular face-to-face and email/phone communication to ensure good relationships were maintained.

While 2016 was the inaugural program, we all have a long-term view for animal management in Cherbourg, and so the collaborative team has been busy planning the 2017 program. CASC has undertaken some great infrastructure works to improve the pound facility; due to high demand, the veterinary program will be extended to three weeks (instead of two) and veterinary treatments will be offered to cats in addition to dogs. Building on last year's training, AMRRIC's education officer will deliver further training to CASC as well as UQSVS staff in education program design and delivery. With community consent, the stakeholders are looking to undertake some studies: one on students' perceptions of the impact of the program; and another taking blood and faecal samples from the animals to investigate parasite loads, including those of zoonotic concern.

Thanks to strong relationships and effective collaboration, the future for animal management at Cherbourg is certainly bright!

For more information

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Torres Strait Island Regional Council training and development

Philomena David and Bert Matysek, Torres Strait Island Regional Council

Presentation article not supplied by author.

Germinator - Classroom Smart Board Program

Robert Barnett, NSW Health and Cindy Gliddon, Hunter New England Population Health, NSW

Nationally recognised hand hygiene programs "Mister Germ and "No Germs on Me" are delivered to NSW early child care centres, at large community events such as NAIDOC, NSW Koori Knockout and are incorporated into primary school health and wellbeing programs, such as the Young Doctor Program coordinated by Malpa and Shake a Leg Program delivered by NSW Hunter New England Local Health District. Capacity to implement "Mister Germ" and "No Germs on Me" programs is dependent on access to the program's physical resources, availability of staff to deliver the resource and provide training to teachers in remote communities, and the schools' capacity to take on a new program. There remain many primary schools in NSW that have not had the opportunity to access the program resources. However, the classroom "smart board" provides a solution.

"Smart boards" are a modern aid within school classrooms that enhances teaching and learning experience, provides flexibility, and promote interaction and discussion on a topic. The "smart board" is connected to the internet, therefore teachers have access to additional online information to support them and to enhance the learning experience.

NSW Aboriginal Environmental Health Unit and Hunter New England Public Health Unit engaged a graphic designer to develop a smart board program application building upon the already successfully "Mister Germ" and "No Germs On Me" programs. The program supports teachers to engage with their students to teach them what germs are, how easily they can be spread, how they can make us sick and how they can be prevented, with a particular focus on hand hygiene. The program is fun, interactive and includes animation and hands-on activities. The "Germinator", now a key character in the national hygiene promotion scene, takes on a lead role in the smart board program. The technology supports animation and items to be moved around on the screen, making it more appealing to a generation who are skilled and accepting of computer software technology.

The "Germinator - Classroom Smart Board Program" provides an easily accessible resource that can be used at the school teacher's convenience. The application will be designed to run from a thumb drive via the classroom smart board.

For more information

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Cleaning made easy

Steven Kelly, Bundiyarra Aboriginal Community Aboriginal Corporation, WA

Introduction by **Marchelle Rettalack**, CEO, Bundiyarra Aboriginal Corporation, WA

Good afternoon environmental health supporters.

How lucky are we all for being away from our desks and putting our heads together to recognise issues and solutions to further improve the services we are delivering to Aboriginal and Torres Strait Islander people, in sunny Cairns.

On behalf of Bundiyarra, we wish to respectfully acknowledge the Yirrganydji people on whose land we are today, and we pay our respects to their Ancestors past and present.

Before I introduce Steven Kelly to the microphone, we wanted to take the opportunity to share with you what Bundiyarra does, to assist people like Steven find a place within today's society.

Bundiyarra was established on 1 May 1998, and is situated on 4.98 hectares of Reserve land which is currently being created into an Aboriginal cultural complex.

Bundiyarra was one of the first Aboriginal Corporations in Western Australia to have obtained a land management order through state and federal government. We are now in the process of working with the Department of Land to have the Reserve transferred to freehold.

Bundiyarra has provided environmental health services to remote communities including Pia, Kardaloo and Barrel Well and to Geraldton suburbs for the past fifteen years.

Since 2014, Bundiyarra has doubled in size and now employs 22 staff.

In addition to environmental health services, Bundiyarra operates the Irra Wangga Language Centre, administration and accounting services, marketing and IT services and Work for the Dole Jobactive programs.

In 2015, Bundiyarra, through community consultation, wrote a pre-training, training, education to employment program called the Learning Journey.

It is a dual highway approach that will bring greater community together, by allowing Aboriginal people to engage in a range of programs and activities, while having the opportunity to recognise and learn more about their history and culture;.

It will increase the number of Aboriginal events and activities on Aboriginal land and allow greater community benefit by being immersed in Aboriginal culture.

Since February 2016, Bundiyarra has assisted more than 100 Aboriginal and non-Aboriginal people receiving Centrelink benefits, through our Jobactive and Learning Journey programs. Seventeen program participants have secured part-time work at Bundiyarra in environmental health services, reception, marketing, book keeping and supervisor roles. Three have secured employment with outside agencies.

Steven is a golden gem who has come through the Jobactive

program and now has secured employment as an environmental health practitioner. He is dedicated and passionate.

What Steven is going to share with us today is not new. It has been used by people for a long period of time. Its benefits are already well known.

Probably because of the appearance of the different and modern things that we have right now, the uses of products like bi-carb, vinegar, Bosistos, tea tree, lavender, cloves and many other basic ingredients have been pushed to the side. People have become more accustomed to using modern products.

These new products may seem effective in the beginning because they usually work fast, but this is because of the chemicals that are also included along with other natural items used in creating the products.

Perhaps now is the time when you should look away from this merchandise and check out the forgotten home remedies that are still as effective today as they were a long time ago. They are easy to use, accessible to buy, they are affordable and they work.

Steven's passion and understanding of his people is the driving force behind the success of this program. It is still in the development phase, but I must say we look forward to seeing you all in 2019 to share the success and provide evidence of the improvements occurring in Aboriginal and Torres Strait Islander communities throughout the Mid West, Murchison and Gascoyne regions.

I have great pleasure in introducing Steven Kelly to the stage.

Hello everyone!

As Marchelle mentioned, I am an environmental health practitioner from Bundiyarra Aboriginal Corporation in Geraldton, Western Australia.

I, too, would like to welcome you to the Aboriginal and Torres Strait Islander Environmental Health Conference here in Cairns and pay my respects to the Yirrganydji people.

I would like to tell you a little bit about myself so you can get a better understanding of who I am. I was born in a small town called Mullewa, just east of Geraldton in Western Australia, in December 1990. From a young age, I've always travelled and lived in many towns, such as Darwin, Broome, Katherine, Karratha, Carnarvon, Mullewa, Northampton and Perth, and in a small remote community called Pia Wajarri. But no matter where I went, I would always end up back in Geraldton where my family and friends are. I also met my partner of 7 years in Geraldton and we now have three beautiful children and couldn't be happier.

For me, employment opportunities usually involved hard labour, and it wasn't very stimulating. I was out of work for about 2 years before joining the Work for the Dole program at Bundiyarra in March 2016. When I first started, I was very shy and didn't talk much (although now I'm the main one talking). I would come in, do the work and go home. It wasn't until Matt, one of the supervisors, saw I had a good work ethic and asked if I would like to help out on a few extra jobs around the yard that this changed. This helped me get to know the boys around the yard a lot better, and I eventually started to talk more. Getting to know everyone allowed me to be able to work in a comfortable environment.

In August 2016, I finished my Work for the Dole contract. I didn't want to leave so decided to volunteer at Bundiyarra. Six months later, in January 2017, after showing initiative and determination, I found myself employed by Bundiyarra in the Environmental Health Services Team.

In January 2017, my partner Bonnie and I became stressed over an upcoming house inspection. If we spent \$20 on cleaning products, we would be left with no money to buy staple food items for our children. That \$20 would allow us to buy items such as bread, milk, butter and cold meat for sandwiches. Bonnie also found it difficult to use the products as they were strong in smell and often left her feeling unwell.

My CEO, Marchelle, recognised I had something on my mind and I explained the situation to her. She asked if I had ever used bi-carb soda and vinegar for cleaning. She explained a few things she cleans with the products and suggested that we give it a go.

I soon learnt that these two simple items can be purchased for no more than \$4! When bi-carb and vinegar are used together, they can do wonders in your home. It's something we now try to promote as much as possible, as the number of things it can be used for is incredible. You can use it for all types of things, such as removing grime and stains from your stove top and inside of your stove. To do this, sprinkle a little bi-carb on the stained area on your stove top, pour a small amount of vinegar on the bi-carb and allow the vinegar and bi-carb to react with each other, fizzing up. The reaction loosens the grime and stains, allowing you to wipe it off with ease. This works on stainless-steel basins and coffee and other hard to remove stains from ceramic cups.

Another use for bi-carb and vinegar is your laundry washing. Having three young kids, we do a lot of washing through the week, and our washing powder never seems to last, so to tackle this problem we wash our clothes with bi-carb soda and vinegar. Add 2 tablespoons of bi-carb and half a cup of vinegar to your load, along with a quarter of the amount of washing powder you would normally use. Vinegar acts as a natural fabric softener so your clothes will come out clean and soft.

Bi-carb and vinegar can be used to clean your toilet too, it helps remove those nasty stains. Pour half a cup of vinegar into the toilet along with 2 tablespoons of bi-carb, let sit for around half an hour and then flush. This will help keep your toilet fresh and clean. It is also a simple solution for cleaning tile floors and removing erosion and build up from showers and taps.

Best of all, we now know that we can clean our whole house for approximately \$150 for the whole year!

My partner and I were happy with the results of the bi-carb, and there was no aroma to leave the house smelling fresh. So we decided to research other natural ingredients that could be added and provide more hygiene benefits. I took some of the made-up products into Bundiyarra and my work mates were impressed.

I spoke with my Coordinator, Janine Wellington, who then suggested we create a natural cleaning range. I put my hand up and said yeah, I can do that, not knowing just what I got myself into and how big this would get. At first, I just saw it as a job, but when I started interacting with community and saw first-hand what a few little home remedies could do for someone struggling, and how appreciative and grateful some people were, it changed my thinking.

I had a lady in a remote community say she was so grateful that a stranger like me would even care to help someone like her, and that made me feel really positive about things. This is when I started getting passionate about the natural products and solutions, and Buuju thanu, Bundiyarra Natural Cleaning Range was born. Buuju thanu are Wajarri words which mean, from bush, I thank my pop for helping me to establish an appropriate language name.

As Marchelle mentioned, the concept is not new, it has been around for many years. However, it is time for service providers of Environmental Health Services like Bundiyarra, to promote these products into the community as a natural, cheaper alternative to merchandise products. By combining different natural products, many home cleaning remedies and pest control solutions can be made.

The main range we are delivering into homes and community are a multi-purpose spray, air freshener, mould remover and carpet deodoriser. We will make these together in a short while.

As part of the development, we researched merchandise products and consulted with our Jobactive team for their opinions and suggestions on what they would find useful to use in their own homes.

We priced the same merchandise that we wanted to make from natural products which would cost approximately \$20. After speaking with Robert Mullane yesterday, he informed us that to purchase these products in a remote community, the cost would be approximately \$32.

We were amazed to discover the types of chemicals in store-bought cleaning products and the health risks associated with them. It was interesting to find that store-bought products do not list their ingredients - and don't have to.

Let me share this quote from the ecologist.org: "Not all labels are easy to look behind. Household products such as cleaners, polishes and air fresheners are not obliged to list their ingredients and from a health perspective this may be a costly omission. In spite of their name, air fresheners do not freshen the air. Instead strong long-lasting perfumes mask odours while other chemical ingredients alter your sense of smell making it less acute."

Let's take a quick look at what these store-bought products state in terms of health risks associated with them.

- "Intentional misuse by deliberately concentrating and inhaling the contents can be harmful or fatal. Help stop inhalation use"
- "Avoid contact with skin and eyes. For advice contact a Poisons Information Centre or doctor."
- From productreview.com: "Disappointing lemon scent. It was so unpleasant that I added some bi-carb soda to it in the attempt to make it better. I managed to finish the bottle but I will not purchase this again."
- "This mould killer may produce severe burns. Attacks skin and eyes. Wear eye protection and gloves when using."
- From productreview.com: "It really gets rid of mould but the fume is terrible. I got sick after using it due to heavy fume that can damage your skin and throat."

Now you probably understand a little better why bi-carb and vinegar are a great alternative to use in and around your home!

When you mix bi-carb and vinegar, the bi-carb acts as a base, and takes a proton from vinegar, which is an acid. The reaction releases gas because when the bi-carb soda receives the proton, it transforms into water and carbon dioxide. This reaction is brilliant for cleaning toilet bowls and drains.

Our focus is on promoting natural solutions and products, to educate the community that there are cheaper and much safer alternatives to help keep your home pest-free and clean. The added bonus is that you can make these solutions and products in the comfort of your own home. The products have been selected to cater to the needs of the community.

I first demonstrated the natural cleaning products at the February Mid West Health Forum in front of Western Australian State Health and other environmental health providers. It was during this forum that our team came to understand how many Aboriginal people are suffering from trachoma, skin diseases and gastro. The City of Greater Geraldton only supplies residents with one bin per household and few recycling facilities, commenced paid tip fees and removed verge-side collection. This has had a massive impact on community. Many Aboriginal homes in the Mid West suffer from overcrowding, leading to more rubbish build-up. The constant build-up of rubbish in homes brings infestations of vermin and debris, both major causes of health effects. The natural cleaning products being explored will provide huge results with little effort required to make them. With that, our environmental health services team are saving huge dollars in people's cleaning bills and costs that should be being met by local and state government. They planted the seed to apply to present at this National Conference, so here we are today!

In June, we went on a trip to a small remote community called Pia Wajarri in the Murchison region of Western Australia. For me, the trip was really exciting because I had lived in Pia as a child for around six months with my nan and pop so to be going back as an environmental health practitioner made me very proud that I would be helping my people clean the community up.

When we got there, we went to the school where we cooked a big BBQ for the whole community, which everyone enjoyed. This gave us the opportunity to talk to the community about their needs for the future. We also gave each of the ladies a natural cleaning pack and a demonstration on how to use and make the products. We gave the kids a demonstration on hand and face washing to show the importance of hygiene and health, which the kids had a lot of fun doing. We also gave a natural cleaning solution pack to each household.

Pia residents were very grateful for these packs as living on a remote community without a general store can be hard when it comes to running out of your general cleaning products and the next town is around 300km away.

In July, Bundiyarra hosted a NAIDOC family day and the environmental health services team set up a promotional stand and delivered product demos throughout the day. WA Minister for Agriculture, Food, Jobs and Trade, Alannah MacTiernan, attended and praised the project and the desired outcomes. The NAIDOC day was attended by approximately 500 community members. Offering the product demonstrations at this event gave me the opportunity to consult with community and talk to them further about health issues in their homes and whether they would take the time to make and use the products to help elevate health effects. The common response was YES!

The squeaky-clean kids program, delivered through WA Country Health Services, supplied a pallet of soap for distribution to communities at risk of trachoma or trachoma resurgence.

We saw an opportunity to pair the soap with a hand towel, a loofah, some face tissues and also a hand sanitiser, creating a hand and face hygiene pack for the kids. We also have some fun stickers to educate and teach kids that hand and face hygiene is important and can be fun.

The Bundiyarra environmental health team created a second pack, with the help of several local dentists who came on board to help make up health and hygiene packages by donating toothbrushes and toothpaste. We have paired the toothbrushes and toothpaste with a hair brush, hair lackeys, a nit comb and two bottles of nit solution. We also make the nit solution at Bundiyarra. It contains conditioner, 2 drops of tea tree oil and 2 drops of coconut oil. When put together, the tea tree oil and coconut oil helps to repel and suffocate the nits, making it easy for you to comb out the remainder. Regular use and brushing will result in having a nit-free head.

Now I've talked about the benefits of bi-carb and vinegar, we'll do a few demonstrations as a group to show how the natural products are made. So let's get started.

Everything you need is either in the paper bag in front of you or in the middle of the table to share with your group. We have filled the bottles with the required amount of water to save time. The first product is a natural all-purpose spray and wipe. You can use this product for your kitchen benches, the kitchen table, your coffee table or pretty much anything wooden or vinyl.

To make this product, you will need your all-purpose spray bottle, and an eye dropper. The ingredients we use are: 750ml of water; now add 2 drops of lavender oil and 2 drops of eucalyptus oil. Once you have added those together, shake well.

It's that fast and simple. The lavender oil is for the pleasant smell and the eucalyptus oil kills germs, being a natural antiseptic. Give it a spray and smell the freshness.

The second product is the air freshener. The air freshener is great for when you want to air out your house and want it smelling good. Take the air freshener bottle from the bag and, again, everything you need is on your table. Simply add 2 drops of tea tree oil and now add 2 drops of lavender oil. Shake well and spray for testing. The lavender oil is for smell and you can use any natural oil or essence of your choice if you don't like the smell of lavender. The tea tree is to eliminate odours in the air and is also a natural antiseptic, which helps with germs in the area.

Our third product is a carpet deodoriser. Simply sprinkle some on your indoor carpets or in your car. It can either be vacuumed up or you can sprinkle and leave it and have your carpets smelling great. It's really useful, too, if you have a cat or dog that's not toilet trained. The deodoriser eliminates odours immediately, as if the smell was never there.

Take the carpet deodoriser container from your bag. Add 250g of bi-carb soda to your container; this is also in your bag. Follow with 2 teaspoons of ground cinnamon and 2 teaspoons of ground cloves. Give it a good shake and that one is done; open it for a smell. At home, we also add a quarter of a cup of dry lavender and a quarter of a cup of dry rosemary. This gives the product extra aroma for longer lasting benefits.

As you can see, the solutions are quick and easy to make. The dry lavender, dry rosemary, ground cinnamon and ground cloves all have their own strong smell but when mixed together give a nice mellow smell. The bi-carb soda helps pick up all the bacteria and dust mites that can be found in your carpet when vacuuming.

The last natural cleaning product we have today is probably the easiest and quickest solution, but is also the most effective, and that's a mould remover. This solution can be used in all the wet areas around your home, so if you have mould growing in your kitchen, bathroom, toilet or laundry, this solution will be great for you. Take the mould remover container from your bag. Using an eye dropper, add 1 drop of oil of cloves. I know 1 drop doesn't sound like much, but oil of cloves is very strong and kills mould. It's important not to put more than 1 drop of oil of cloves. That's it, your products are made and ready for use!

All the products and solutions have been trialled by my family, a few of my work colleagues and a small group within the community, and we have gotten nothing but good feedback.

I have tried to identify the most effective and easy-to-make alternative solutions that suit the needs of parents, people with allergies, children and the elderly, or if you just want a cheaper non-toxic natural solution for your home.

So why are we doing this?

As an environmental health practitioner, we go to homes on daily basis doing pest control treatment, providing easy ways to remove excess rubbish from in and around the home, and conducting plumbing and bathroom assessments. It became evident that, like me, many Aboriginal families are suffering many health effects caused by living in poorly cleaned homes. Why? because, like me, they can't afford to purchase store-bought cleaning products.

Our team provides product demonstrations to educate community on how they can maintain healthy clean living, using non-toxic products which are a lot cheaper than store-bought products, and assists in reducing and removing health issues caused in and around the home.

We believe our solution will see reductions in the number of Aboriginal people suffering with illnesses such as respiratory issues, trachoma, skin diseases and gastro.

As for myself, I've never felt a greater feeling in life than when I'm helping and working for community. I look forward to continuing my work with the environmental health services Team at Bundiyarra. We endeavor to find the relevant partners to make Buuju thanu a sought-after natural cleaning range for our communities.

Thank you for taking the time to make our products, and we look forward to receiving your feedback. This can be done by emailing our marketing coordinator: marketing@bundiyarra.org.au.

For more information

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Improved waste management with the Waste and Litter Management App

Michael Davis and Edan Baxter, Central Australian Remote Waste Management Program, NT

I would like to thank you for the opportunity to speak at this conference today.

I'm Michael Davis, the Regional Waste Coordinator for the Central Australian Remote Waste Management Program in the Northern Territory.

This is Edan Baxter, the Director of Spinifex Valley, a digital technology company based in Alice Springs.

Today we will speak about how the regional councils in Central Australia are creating a healthier environment in remote communities and how we are auditing our deliverables using a Waste and Litter Management App.

Overview

This presentation will discuss the following:

- The Central Australian Remote Waste Management Program
- Developing waste management best practice
- Developing and implementing new procedures, guidelines and plans to improve waste and litter management., and
- Waste and Litter Management App.

The Central Australian Remote Waste Management Working Group

The working group commenced operation in 2012. Members include: Barkly Regional Council, Central Desert Regional Council, MacDonnell Regional Council, NT Department of Environmental Health Branch, Northern Territory Environment Protection Authority (NTEPA), Department of Housing and Community Development, NT Worksafe and the Local Government Association of Northern Territory.

The aim of the group is to work together to discuss regional waste management and environmental health issues, along with developing sustainable and best practice waste management for remote communities in the Central Australia Region.

Central Australia

Community populations in Central Australian start from 100 to 200 people for small communities, with larger communities consisting of approximately 1000 people. Most of the communities have been in existence since the 1950's. Central Australia covers a vast area of approximately 1 million square kilometres.

Developing waste management best practice

As a group, we are trying to develop waste management best Practice! What is waste management best practise?

Well, "environmental sustainability" is met when:

- Resource recovery is maximised and waste to landfill is minimised
- Occupants' service requirements are met satisfactorily, and
- Statutory obligations of any predicted waste stream are met.

Waste management best practice in remote communities is achieving the above, with "what you have" and "where you are", the best you can and constantly striving for improvements.

How are we achieving best practice?

We are working towards achieving best practice by:

- Upgrading procedures
- Improving staff training
- Updating facilities
- Maximising resource recovery, and
- The completion of waste and litter projects.

Updating Procedures

The group has developed and implemented procedures, guidelines and plans to improve waste and litter management, including:

- Central Australian Landfill Operating Manual
- Environmental Management Plans
- Guidelines for the Closure of Legacy Waste Sites
- Community Litter Action Plans, and
- Asbestos Management Plans.

Providing staff training

Each community has a copy of these documents and training is ongoing. These include:

- Central Australian Landfill Operating Manual
- Environmental Management Plans
- Guidelines for the Closure of Legacy Waste Sites, and
- Community Litter Action Plans.

Updating facilities

We are updating all of our facilities by:

- Fencing around the compound
- Improving signage
- Installing public drop-off bays
- Maximising resource recovery with improved waste separation and better managed facilities with order and clean stockpiles, and
- Restricting access to the council compound and improving efficiencies. The public help with the separation in drop-off bays, and contamination is removed prior to stockpiling.

Including pit design

The trend design has been replaced with the new pit design, which includes:

- Stepped sides for safety
- Bund walls to control ground water
- Ramped entrance for access, and
- Clean fill for cover and capping.

The new design reduces the need to burn the waste to maximise space; it redirects surface water from the pits; and the ample coverage and capping material maximises compaction, reduces odour, vermin and the spread the of disease and provides a better work environment.

Maximising resource recovery

We have erected a standardised landfill signage package at the majority of our landfill sites. We are "maximising resource recovery" by improving the separation of waste when it is received, by:

- Installing public drop-off bays and stockpiling recyclable material
- Installing a standardised signage package including colour, pictures and wording. Replicating the design will spread the message throughout Central Australia of how waste should be dealt with (best practice)
- Using large pictorial and coloured signs for the community public drop-off area, and street design signs are for use in the council compound.

Colour is used to identify waste streams and, matched with the pictures and words, the package helps to teach staff and community members how waste streams are treated, including:

- Red: Waste for land application
- Yellow: Recoverable material
- Blues: Cardboard (at this time burnt, however can be recycled)
- Green: Green waste (at this time burnt, however can be mulched with the purchase of the right equipment).

Waste and litter reduction projects

The group continues to implement projects to improve waste and litter reduction within communities, including the following projects:

- Community Hot Spots (where bins are placed at sites identified around communities as litter hot spots)
- Community Litter Management (where community clean-up days are organised and include community participation)
- Schools education programs (speaking with classes about how we create healthier communities with litter reduction)
- Community litter education programs
- Implementing "Litter Management Plans" designed for each individual community, and
- Tidy Towns participation

Achievements (separation of waste)

We have come a long way in 5 years with receiving and separating waste as it arrives at the landfill. With the introduction of public drop-off bays, recyclables are separated from general waste and diverted from landfill.

Achievements (stockpiling recyclable materials)

Recyclables are now being stockpiled in an orderly manner with minimal contamination and are awaiting removal from the community landfill. There is an income in recoverable material and redirecting waste from landfill (saving of approx. \$200 m3), which can be redirected and invested back into waste activities.

Achievements (community litter reduction)

Improvements have been made in litter management within our communities. It must be said that litter management continues to be an issue; however, the "public place bins", the "container deposit scheme", "clean-up days" projects and "Community Litter Management Plans" are all helping to achieve environmental health improvements.

Waste and Litter Management App

In 2015, a waste-auditing tool funded by the NTEPA called the "Waste Management App" was developed by the Centre for Appropriate Technology, Spinifex Valley IT Solutions and the Central Australian Remote Waste Management Program. The app was designed specifically to aid the Council to maintain its current landfill by helping audit key performance areas. The spoken and pictorial design enables Council to involve staff with low literacy in the waste auditing process.

Stage 1 the initial "Waste Management App" was a basic auditing tool with a very limited reporting function. The app reported on sections of the landfill and its condition by scoring each section with a:

- Green for "good"
- Orange for "OK", and
- Red for "non-existing or in a poor state".

The reporting function of this app provided a screen shot report with no other detail available.

Development of the app

We plan to develop the app further to include:

- litter management
- waste volumes, and
- Site remediation estimating.

Including litter management

Stage 2, to include litter management, is now in operation as of July 2017. It provides a more detailed waste management audit, including:

- An audit for all 13 separate public drop-off bays, and
- A separate council compound audit including fencing, road condition, pits and all stockpiles.

The new litter management function includes:

- Yearly community household bin condition audit
- Waste plant serviceability audit
- Community litter hot spot audit
- Reportable Tidy Towns locations audit in and around the community

The new app provides a detailed report, including:

- Historical information
- Percentage of Green, Orange and Red ratings for each key area and community.

Waste volume

- Stage 3 is currently in the planning stage and will require additional funding to complete.
- The app will audit Environmental Protection Licence reportable information.
- The data will help future planning and budgeting for landfills.

Volumes including the following will be recorded:

- General waste
- Cardboard
- Metals
- Construction demolition waste, and
- Hazardous waste

If funding is available, at this next stage the app will have the ability to include other streams, depending on licensing requirements.

Remediation legacy waste

This is also in the planning stage and will require further funding. This stage will not progress until stage 3 is complete and functioning. It will include functions such as:

- Key stakeholders
- Site history
- Planning and cost estimation for site remediation
- Implementation of closure plan, and
- Post-closure management

Thank you.

For more information

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Environmental health in SA: what's happening and where to next

Phillip Graham, Department for Health and Ageing, SA

This presentation is about Aboriginal environmental health in SA. We have existing Aboriginal Environmental Health Workers (AEHWs) working for our Aboriginal community controlled organisations (ACCOs). However, a number of our workers have now got substantive employment through our regional Aboriginal organisations, which leads me to look at future training of AEHWs for SA remote and rural communities.

AEHW strategy

AEHWs are identified and employed by local ACCO's to engage with the Community in promoting environmental health practices. SA Health maintains AEHWs in all participating communities in order to provide services such as maintenance and education in:

- Safe water
- Food safety
- Pest control
- Waste management
- Household hardware maintenance
- Effluent disposal
- Dog control
- Promoting the broad environmental health positives across communities

Locations and organisations

AEHWs are currently working in:

- Scotdesco Aboriginal Community (Penong)
- Ceduna Koonibba Aboriginal Service Aboriginal Corporation
- Pika Wiya Aboriginal Health Service Aboriginal Corporation (Port Augusta)

Pika Wiya covers a large area from Port Augusta up through the Flinders Ranges - Maree, Copley, Nepabunna Iga Warta, Hawker, Quorn, and Roxby Downs.

- Nuyara Aboriginal Health Service (Whyalla)
- APY Lands

Other Aboriginal communities receiving Aboriginal environmental health services and/or resources:

- Umoona Tjutagku (Coober Pedy)
- Moorundi ACCHS (Murray Bridge)
- Point Pearce Aboriginal Community (Yorke Peninsula)
- Barmera/Berri Aboriginal Health Service
- Gerard Aboriginal Community (Berri Riverland)
- Oodnadatta Dunjbar Aboriginal Community

Seeking support for AEHW training for the future, 2018-2019, from:

- Oodnadatta Dunjbar Aboriginal Community
- Umoona Tjutagku (Coober Pedy)
- Port Lincoln Aboriginal Health Service
- Barmera/Berri Aboriginal Health Service

Partners who assist our AEHWs are:

- Aboriginal Community Controlled Organisations
- SA Health employees working within the Aboriginal and Torres Strait Islander Primary Health Care areas and other relevant areas
- Housing SA employees
- Regional and Remote SA Human Services and Family and Children's service provider staff

A current project 2016-19

Training of AEHWs is a work in progress and we are seeking to have a Registered Training Organisation here in South Australia to put the training on Scope as training modules that can be utilised by other states.

We are planning to deliver Indigenous Environmental Health Certificate II and Certificate III for existing SA Health employees across our regions to strengthen their current knowledge within their roles.

Both Certificate II and III are being contextualised to ensure that learning is supported by applying relevant and current local issues to each cohort.

What's in it for the participants?

Elevated skills and knowledge relevant to the work of environmental/community health care practitioners.

- Frame the structure for career/educational pathways for employees
- Peer to peer relationships between workers via collaboration, networking and sharing knowledge with each other.

What will it achieve?

- Transition awareness of environmental health across communities and broader acknowledgement of the importance of environmental health
- Take-up of strategies that deal with resolving place based environmental health issues will result in healthier and safer communities
- Benefits to other service providers in terms of alleviating issues from lack of environmental health strategies

Participants take away

- Builds individual participant capacity and workforce development within the environmental health arena
- Supports SA Health program providers to strengthen their commitment to environmental health within their geographical areas
- Supports and promotes accountability
- Focuses on and works towards sustainability
- Addresses the identified needs specific to an Indigenous cohort.

My presentation then showed photos of AEHWs at work in their communities, and photos of No Germs On Me resources.

The No Germs On Me program has been promoted throughout South Australia as part of a national environmental health program, which is also delivered in other states and territories. This program has been well received in South Australia, to encourage youngsters to wash their hands and faces. It is an ongoing program to improve Aboriginal health in our regional and remote communities.

For more information

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Public health programs in the top western Torres Strait

Tanaio Anau, Bob Modee, Conwell Tabuai, Mildred Lowatta and Crossfield Manuel, Torres Strait Island Regional Council

Good afternoon ladies and gentlemen, host committee and special delegates. First and foremost, I would like to take this opportunity to acknowledge our God for His wisdom, knowledge and guidance. And, secondly, I would like to acknowledge and pay my respect to Elders both past and present on whose land I speak today. My name is Tanaio Anau; I'm from Boigu Island community, which is in the top western cluster of the Torres Strait region. I've been working as a full time environmental health worker (EHW) since 2014, and today I will be presenting along with four of my work colleagues.

The following topics that were chosen are based on the work that we do on ground, and these are some of the potential issues and challenges that can and have impacted on our service delivery.

Our region

The Torres Strait Islands are scattered between the tip of Queensland, Cape York Peninsula and Papua New Guinea. We are one of the two local councils found in the Torres Strait region. Our Council is made up of a Mayor and 15 Councillors who are elected to represent our 15 outer island communities. In 2008 as part of the state government's amalgamation policy, 15 island councils were amalgamated to form what is now the Torres Strait Island Regional Council. Since then, it has been our leaders' vision to empower our people, in our decisions, in our culture, for our future.

Our Environment and Health Section is made up of the following team. At the top, we have our Executive Manager for Community Services, Mr David Abednego, who is with us during this conference; our Manager for Environment and Health, Mr Ewan Gunn; our Admin support, Ms Kerrie Stanley, based in the Cairns office; Miss Philomena David, the Co-ordinator/mentor EHW based on Iama community; and we have 12 full-time EHW's based on each island division along with three part-time EHWs on Dauan and Warraber Island communities.

I will now hand over to Bob to share about the Mentoring Programs and awareness.

Mentoring Program

Good afternoon ladies and gentlemen. My name is Bob Modee. I'm from Ugar Island community. I started working as a full-time EHW in 2014. I have just recently been appointed as a Senior EHW. I look after 4 Communities in the Torres Strait - Dauan, Kubin, Saibai and St Pauls - delivering Mentoring Programs to each community, and also dealing with health issues on the ground.

The Mentoring Program gives me the opportunity to assist the EHWs that I look after in:

- Identifying and providing the appropriate response to environmental health issues in each of the communities I work with;
- Creating awareness of environmental Health matters with Community residents;
- Encouraging of community participation in addressing and promoting environmental health;
- Monitoring and enforcing of the Council's Local Law as Authorised Persons;
- Developing of a cooperative working relationship with the

Divisional Managers, Divisional Engineering Officers and other stakeholders, including community residents, rangers and police, and

- Liaising regularly with Queensland Health Staff within the community.

Part of my role is to do community awareness.

Spraying was done by Rob Malone from Queensland Health; he sprays areas that we treated with ProLink pellets, also spraying inside old tanks, tyres, black plastic and dark areas where the dengue mosquito (*Aedes Albopictus*) loves to hide.

Rob also did perimeter or boundary spraying around each house in the community. The boundary spraying targets mosquitos that harbour in the bush or shrub, stopping them flying into yards to feed on its blood meal.

Spraying into the bushes and shrubs from bottom to top, allows the insecticide to sit under the foliage of the leaves (not on top), where the mosquito comes to rest or sit.

Community awareness

While doing the yard inspections, I also carry with me dengue information factsheets, pamphlets, flyers etc.. They have facts about minimising breeding sites for mosquitoes and how to prevent the disease from spreading by wearing light-coloured loose-fitting clothing, applying repellent every 4 hours and burning mosquito coil around the house etc.

We also do presentations at school three times a year, educating kids and community members, doing awareness programs on the environment and health issues that we face on ground: the three main issues are:

- Animal Care - Looking after your pet.
- Hygiene - making sure wash your hands after using toilets etc.
- Vector Control - prevention of mosquitoes breeding.

These three issues are very important to our health and well-being and how we deal with these issues on a day-to-day basis.

I will now hand over to Mildred, to talk about the potential issues that they face on Boigu, Saibai and Dauan.

Environmental health issues - top Western Cluster

Thank you Bob. Hello everyone, my name is Mildred Lowatta from Dauan Island community. I have been working as an EHW for 4 years.

The top western cluster represents Boigu, Saibai and Dauan Island Communities. Each community lies approximately 5-6 kilometres away from the shoreline of Papua New Guinea coastal villages. The combined population of these islands is approximately 811 people, with 87% of the population being of Indigenous descent. There are also other government agencies such as Primary Health Clinics, Australian Border Force, Biosecurity, local primary schools and My Pathway job network that work in partnership with the local council.

Movement between the top western islands and the coastal villages of Papua New Guinea is closely monitored and inspected by the Australian Border Force Officers. Under the border treaty agreement that was signed between the Australian and Papua New Guinean governments, traditional visitors now use a Traditional Pass system instead of the passport system. Upon arrival, the

Traditional Pass is signed by the Australian Border Force Officer in charge. They are taken through an inspection and induction process which then allows the traditional visitors to do barter and trade within a limited time frame before they head back to their villages on the PNG coastline.

Some of the cross-border medical health issues that are common are tuberculosis, maternal and child health and emergency medical evacuations. Access to public toilets is limited in the township area for the visitors to use. It is the responsibility of the host tenant in the community for the usage of social housing toilets.

I will now hand it back over to Tanaio to talk about food safety.

Food safety

Food safety awareness is very important to help protect both the customers and ourselves from potential food borne illness. Food sales and fundraiser activities are very popular in our communities. Therefore, as an Authorised Person for the Council, our role is to liaise and speak with all food handlers and other community stakeholders prior to any sales. Council requires that all food sales must be recorded and signed on the food register sheet for each month.

Food safety awareness is then conducted on the following:

- Food handling and hygiene
- Home preparation (cooking, storage, transport and preparation)
- Personal hygiene
- Temperature control
- Food protection
- Purchasing (use-by date and best-before date)

I will now hand it over to Conwell to share about animal management.

Animal management

Good afternoon ladies and gentlemen, my name is Conwell Tabuai. I'm from Saibai Island community and I've been working as an EHW since 2014. Animal management is important for the health of our communities. A dog relies on us for its health and well-being; if neglected, it can impact our own health, especially children at a young age. Part of my role as an Animal Worker on the ground is to control and monitor the animal numbers, making sure that each pet owner is compliant with the local law requirements.

Council requires:

- All animals to be registered at the council
- All animals must be desexed before the age of 3 months and when the vet visits
- They must wear a collar and be on a leash.

Council provides free vet visits twice a year for the 15 island divisions. I do awareness by putting up notices and speaking directly to pet owners and getting all the consent forms signed before the vet comes. In my community, the total number of animals is 45. From the total, there are 37 dogs, of which 29 are male and 8 are female. Five female dogs are desexed and three intact. For male dogs, we have 24 desexed and five intact. Total number for cats is eight, of which four female cats are desexed, three males are desexed and one male intact.

I will now hand over to my colleague Crossfield to talk about local law and L.O.R.E.

In the performance of our duties as EHW/Animal Management Worker/Authorised Person we are always mindful of the two laws that govern how, when and why we do things. The local law {Local Government Act 2009} gives us processes bound by legislation. However our Traditional Lore which stipulates protocols and practices pertaining to cultural social roles and structures. For example, the dog is a totem to some families on various islands and not on others. EHWs working on these islands with the dog as totems need to be mindful and sensitive to their approach when dealing with animal management issues.

Figure 1 shows the two genders as they climb. The climbing is the teaching of the meaning of respect by the Elders. The core represents the respect and the teaching of lores at different stages by Elders. They use age old-life situations that have occurred through time.



Fig.1.

The teaching of the meaning of respect is done by both male and female Elders with the male Elder having to make the final decision. These Elders are found at each stage of the teaching and they are specific to their roles only. An Elder that teaches an Initiate cannot teach a child or infant. There is another Elder who performs that role.

In summarising our presentation, what makes us successful EHWs is the ability to sometimes not only speak our languages but also understanding the connections between the cultural lores and the local laws of the community that we grew up in. The English language in some communities is our 3rd or 4th language. As a result of intermarriages, part of our cultural inheritance allows us to grow into excellent multilingual speaking people with exceptional mediation skills by showing respect for all languages and cultural ties.

For more information

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Keynote Address

Tammy Williams, Deputy Director-General, Department of Aboriginal and Torres Strait Islander Partnerships, QLD

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The development and implementation of an environmental health clinic referral system in WA

Sonny McKay, Shire Of Derby/West Kimberley, WA

Why do we need a clinic referral system?

Why? Why do we need a clinic referral system in place? If a patient is diagnosed with a condition, it will fall into one of two groups, notifiable or non-notifiable. Notifiable diseases are sent through to an environmental health officer (EHO), who through investigation can find out how the disease started, how it was spread, who is at risk and more importantly how to stop it in the future. They do this by disease tracking, providing education and, if they are successful, they might even change patients' habits.

This does not happen for non-notifiable diseases. These disease can slip by without any committed intervention; even if these diseases are preventable, life-changing or just as contagious as any notifiable disease, they are not investigated. Some of these non-notifiable diseases include conditions like acute post-streptococcal glomerulonephritis (APSGN), methicillin-resistant *Staphylococcus aureus* (MRSA), scabies and Group A streptococcus, which are all very serious diseases that can lead to life-changing and lifelong conditions, so we knew we needed a system in place to catch and address these serious health issues.

Where to start? Well, first we needed a referral form, which is easy enough to create, but how do we get the form in place and ultimately used? We needed to make contact with our local medical service staff to let them know the environmental health support is available, and we needed to sell the idea, which through trial and error we did, and we did this in a presentation format not unlike this one. We wanted to have the referral form accessible in both the MMEx and Communicare data bases.

Our clinic referral system is voluntary and must be signed by the patient or by the parent or guardian. We are dealing with sensitive information and we are literally knocking on doors, so it is a must to have permission.

Where to start?

We had to create some basic supporting forms which we use to document, educate, inspect, refer and provide feedback with. These are all important to use in building a case file, and we have designed them so any one in our team at any stage can look it up and see where we are in the referral process. We recognised the importance of feedback early on; this way, everyone that was involved could now see the process and the outcomes, and they could see the benefits in engaging our team.

SMART goals

Our SMART goals are probably our most important educational piece. This is left with the client to work with, and the goals are targeted at specific conditions like APSGN and skin sores and include actions the client can do before our next visit. We work with the client to identify these goals and, importantly, we are allowing the client to choose and have control over what they can do.

Four key principles

Throughout our development and implementation, we have identified four key principles we consider vital in the success of a clinic referral system:

1. Being part of the treatment process
2. Having great rapport

3. Collaboration with other service providers
4. Changing people's habits.

Part of the treatment process

Having a good relationship with your medical service providers is a must. You need to work hard on liaising with your local doctors and nurses, and it's even better if you can work hard enough to be thought of as part of the treatment process, right up there with the prescribed pills and bandages. You need to be proactive and continue this relationship building because staff don't tend to stay forever in the Kimberley. So many doctors and nurses come and go, it's just the nature of working remotely. Feedback, as I have touched on before, is so important, it's part of the relationship building.

Rapport

Respect and space are important. Our first visit is purely focused on rapport building and if you are intrusive and commanding, people will just close up. We recognise referrals are personal matters and have found people will generally not open up on the first visit unless they already know you. While we acknowledge the importance of getting in quick to stop the further spread of disease, we have found through trial and error we have more success in client participation if we slow the process down a little. However, if there is an immediate issue that needs addressing, you will act straight away. This is just a guide and every referral will be different depending on the client and the circumstances.

So after introductions, we explain why we are there and show them the referral form they have signed. We talk about what we hope to achieve in working with the client and we issue them with a cleaning pack. This cleaning pack, with some simple SMART goals to start doing, can then start the change. Before leaving, we make a date and time for our next visit; we have found 1 week is a good time for the next visit. Too soon and the client can feel trapped, and too long and people tend to forget or slip in achieving their SMART goals.

Collaboration

It's also vital to identify partnerships in your area you can utilise; be resourceful. Don't wait for other service providers to approach you, use your liaising skills again to build and maintain these important relationships. The silo mentality is changing, organisations are starting to encourage collaboration to initiate different and more exciting ways of service delivery.

A benefit of collaboration is the sharing of resources. Through our partnerships, we can rely on our strengths and help each other where we can. We consider one of our key strengths is education, through our presentations, posters and programs, so we often help other service providers in this space if they need any materials. We work closely with Nindilingarri Cultural Health Services, the Department of Housing, Ngunga Womens Resource Centre, Emama Nguda and Marra Worra Worra; these are invaluable partnerships.

Changing habits

But our ultimate goal is to change the way people live their lives; we want to empower people to make changes to better not only their own health habits but their families' around them. Sometimes you have to engage other family members to support your client in their strive for change. You have to be resourceful in the methods you use; what works for one client won't necessarily work for another. Never leave without change, and never leave without improving your client's understanding of why they need to change.

Case study

We received a referral from DAHS concerning a young boy who had presented with recurring scabies and skin sores.

Visit 1. No phone number was supplied, so a house visit was required to make initial contact. The mother was welcoming and happy to sit down and talk to us. During the conversation, we were made aware that the young boy was currently sharing a bed with other boys in the household; this was a concern and an immediate response was needed. Pulling on our resources, we provided the family with new linen, mattresses and towels for not only the client but all the siblings in the house, which we hoped would stop the sharing of high-risk personal items that could spread the scabies mite. All the old items were taken and disposed of at the local land fill. We identified some SMART goals and arranged a date and time for our second visit.

Visit 2. Client and mother were not home.

Visit 3. Returned the next day and made contact with the mother of our client. The mother was happy for us to complete our inspection/questionnaire. Our inspection highlighted several issues that had the potential to contribute to the spread of scabies and skin sores. These included:

1. Not enough bedding for everyone in the household
2. The shower rose was not working effectively due to the calcium build-up
3. Hot water running out quickly and the booster not working
4. The washing machine was broken; they were able to get access to one but it was at a relative's and hard to access on a regular basis
5. The mother's sisters were staying in the house until they could get their own place
6. There was no evidence of soap in the kitchen or bathroom
7. There was evidence of a cockroach problem.

A matrix is always good to have to identify the risks, log our response, commit to timeframes and when complete demonstrate our outcomes. A matrix will help you keep track of your progress and will ensure you do not miss any of your targets.

Issue	Response	Time frame	Outcome
Not enough bedding	SDWK - resources	Immediate	Bedding and linen supplied
Shower not working effectively – calcium build-up on shower rose.	Department of Housing referral	1 week	A new shower head was supplied/fitted by visit 4.
Little/no hot water – booster button faulty.	Department of Housing referral	1 week	Booster button/switch was replaced by visit 4 (reminder after visit 3).
No working washing machine – uses other house/family's machine.	SDWK education. In-home tenancy support (nils loans)	2-3 weeks	Nils loan applied for/approved and new machine received within 2 weeks.
Washing done monthly.	SDWK - education	Immediately	Client aims to do washing weekly.
9 people living in the house (4 adults/5 children).	Department of Housing referral/CEO (waiting list)	2-3 weeks	CEO aware of situation. Tenants were already on waiting list, new housing available after wet season refurbishments planned for this 2018.
No soap in the bathroom.	SDWK - education	Immediately	Client will buy soap. In home tenancy support can offer support if needed.
Cockroach infestation.	Department of Housing referral.	2-3 weeks	DOH not responsible for cockroach spray, however due to health implications made exception.

Table 1. Response matrix

Visit 4. At the end of our fourth visit, we had addressed most of our targets. All of the house maintenance issues, including the shower rose and the hot water, had been repaired or replaced. We had worked with the client's mother and engaged money management to get a NILS loan applied for and approved. A new washing machine had been delivered and installed. client's mother had agreed to wash the clothes and bedding weekly and had also committed to buying soap for the kitchen and bathroom. She had also agreed to sign up for in-home tenancy support for ongoing help if needed.

Visit 5. Being able to document several improvements, the SDWK AEH team could now close the referral and provide feedback to the doctor or nurse.

Where to from now?

We have already identified some considerations and improvements and we can work on to better our health referral system. We would like to one day redesign our referral form to include traditional language, we can even create specific language group forms that can be used to break down the barriers of understanding. Recently in WA, environmental health workers have been given permission to once again undertake some minor plumbing work in communities; this will have a direct impact on our ability to get results quickly, cutting down the sometimes lengthy waiting times endured to get much-needed repairs. We are also already starting to think about creating a short promotional video on our referral process that doctors and nurses can use in the treatment process.

Conclusion

Non-notifiable diseases are not required to be followed up by an EHO, so these diseases can slip by without any committed intervention. We saw the need for a system to be set in place to catch and address these serious health issues.

To start, you need to create or acquire some basic supporting forms which can be used to document, educate, inspect, refer and provide feedback with. These are all important to use in building a case file.

It is vital to make contact with your local medical service staff to let them know the environmental health support is available, and you need to sell the idea. You need to be proactive and continue this relationship building because staff don't tend to stay in one spot forever. Remember, feedback is important, it's part of the relationship building.

Work hard on our four key principles: be recognised as part of the treatment process; have great rapport with both your clients and your medical service staff; collaboration with other service providers makes your job easier and gets better outcomes for your clients; and, finally, never leave without changing people's habits, that's why you're there.

Respect and space are important; you need to recognise that referrals are personal matters and we have found people will generally not open up on the first visit unless they already know you. While we acknowledge the importance of getting in quick to stop the further spread of disease, we have found through trial and error that we have more success in client participation if we slow the process down a little.

The process is never perfect; it is always evolving and for good reason. No referral is the same and you need to tailor your response to each referral.

For more information

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Environmental health response to acute rheumatic fever and rheumatic heart disease in NSW

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Overview

NSW Health has developed an acute rheumatic fever (ARF) and rheumatic heart disease (RHD) response protocol considering how to improve environmental living conditions in Aboriginal communities and raise awareness of the disease.

A pilot Environmental Health (EH) Response is currently being implemented in NSW. It is guided by the *Housing for Health* (HfH) Survey Fix model, which aims to ensure the house supports healthy living practices and reduces the risk of disease transmission to other family members.

We are in the early stages of piloting the implementation of a NSW-wide EH Response to ARF/RHD notification by the EH Network. This presentation will look at the process and delivery of the pilot EH Response, the challenges and barriers, and the breakthroughs.

What are ARF and RHD?

So what are ARF and RHD?

The disease starts in children as an infection from a common sore throat and possibly infected skin sores. ARF is a rare but serious complication of an untreated throat or skin infection from group A streptococcus (GAS) bacteria, also known as streptococcal disease (strep).

Episodes of ARF can cause permanent damage to the heart valves leading to RHD. RHD can affect the heart valves, the heart muscle and its lining, and the connective tissue throughout the body.

It can end in open heart surgery, stroke, heart failure or premature death. RHD progressively gets worse, stays with those who have it for life and can end their lives. The disease is completely preventable and it has been virtually eliminated in most other developed countries.

RHD is one of the top 3 third world diseases in Australia (the other two are trachoma and otitis media), with rates in Australia among the highest in the world.¹ Aboriginal children and young adults are most affected by this disease. It is most common in 5-15-yr-olds, rarely occurring in those more than 35 years or less than 4 years old.²

National data indicates Aboriginal people are consistently over-represented in the ARF and RHD notification data. Aboriginal communities are suffering from shockingly high levels of RHD and early death from heart disease.³ Aboriginal people are 122 times more likely to live with the life-threatening RHD than their non-Aboriginal peers.⁴

ARF is significantly under-diagnosed in Aboriginal communities due to the difficulty of diagnosis – multiple clinical and lab results, failure to recognise ARF and poor awareness of the disease.⁵

People diagnosed with ARF require long-term follow-up - including administration of benzathine penicillin G every 21-28 days for a minimum of 10 years to prevent repeat infections of strep which may lead to repeat episodes of ARF and worsening heart disease.

Take Heart has a number of Youtube videos and short films on RHD (see Take Heart video link: <https://www.youtube.com/watch?v=Prl7t8e8tKM>). Also, RHD Australia has educational resources for people with RHD, health workers and practitioners, as well as literature on the disease (refer to RHD Australia [Online]: <http://www.rhdaustralia.org.au>).

Housing and environmental factors

It has been well established since the 1950s that a strong correlation exists between incidence of ARF and environmental disadvantage, such as poor housing, poor living conditions, inadequate infrastructure, water supplies, washing facilities, sanitation and overcrowding.⁶

So if socioeconomic and environmental disadvantage, in association with household overcrowding and limited access to adequate infrastructure to maintain hygiene, are the predominant drivers of ARF and RHD, the incidence of ARF may be reduced by measures that alleviate poverty and overcrowding. The causal pathway in this primordial prevention is associated with improved environmental conditions.

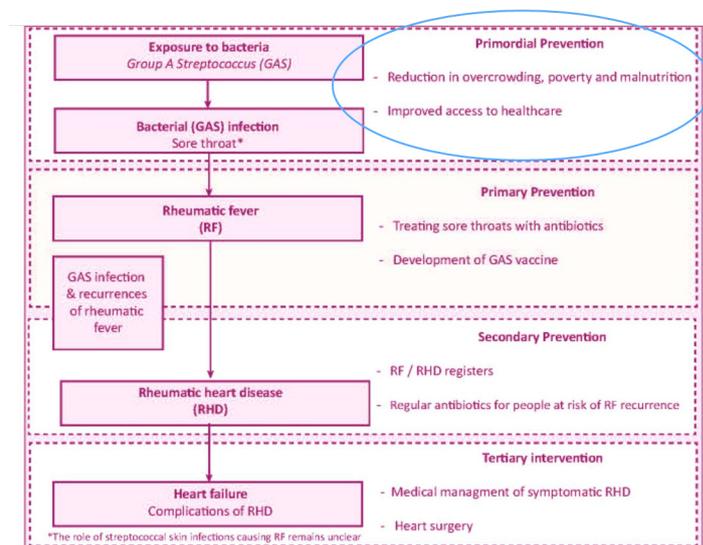


Figure 1. Causal pathway of ARF and RHD and opportunities for intervention. (Source: Wyber et al., 2014)

ARF/RHD in NSW

In October 2015, ARF/RHD became a notifiable condition in NSW. NSW Health has established a register-based control program to enhance the clinical and public health management of ARF/RHD. The NSW Health Control Guidelines for Public Health Units (PHUs) acknowledge the need for an environmental response, stating that: "the PHU should consider involvement of the environmental health team, particularly if more than one case has occurred in a community. The environmental health team should seek to identify rectifiable environmental factors predisposing to GAS infection, and discuss the potential for a, HfH or other community-level initiative with the AEHU (if an Aboriginal community) or local council, housing provider/manager, relevant community leaders or other relevant stakeholders/service providers."⁷

¹ Australian Institute of Health and Welfare 2013; HICKIE, M. 2011.

² Australian Institute of Health and Welfare 2013.

³ GRAY, C. & THOMSON, N. 2013.

⁴ Australian Institute of Health and Welfare 2013

⁵ CURRIE B. J. & CARAPETIS, J. R. 2001.

⁶ HOLMES, M. & RUBBO, S. 1953; TORZILLO, P., PHOLEROS P, et. al, 2008; BAILIE, R. S. & WAYTE, K. J. 2006.

So the planning and preparation for the EH Response began, which is a collaboration between the NSW Health Aboriginal Environmental Health Unit, local health district environmental health officers and infectious disease specialists, NSW Health Communicable Disease Branch and Office of the Chief Health Officer.

We give updates and seek advice from the RHD Network (which includes local health district (LHD) RHD Coordinators, clinicians, infectious disease specialists, etc) and the Better Cardiac Care Aboriginal Advisory Group. We also seek advice from Healthabitat, which holds the license to and gives us permission to use the HfH methodology.

Rates of ARF/RHD in NSW

In NSW, the Rheumatic Heart Disease Co-ordinator at Health Protection NSW estimates 25-30 new cases per year, with about 50% being Aboriginal patients.

In NSW, higher rates of ARF and RHD occur in people from what are considered high-risk populations, including Aboriginal and Torres Strait Islander people, Maori and Pacific Islanders peoples and people born outside of Australia, particularly migrants from South-East Asia and Africa. Higher rates are also seen in women and in people living in disadvantaged conditions.⁸

Figure 2 shows data from the NSW patient data collection on ARF - between 2003-2012, the highest numbers were in the age group 5-15 years.

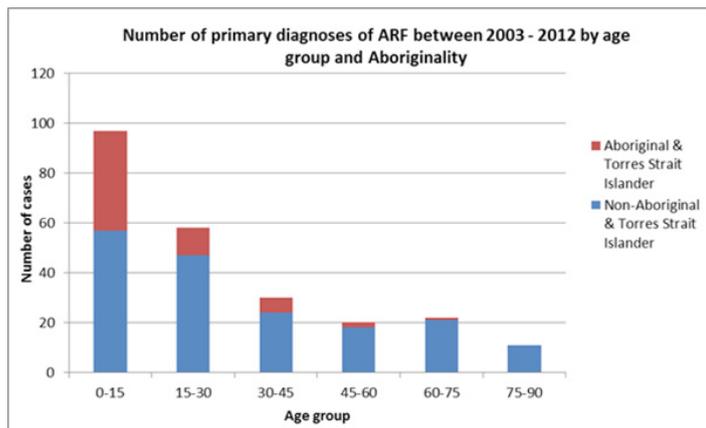


Figure 2. Data from the NSW Hospital Admitted Patient Data Collection on ARF. (Source: Health Protection NSW, 2014)

Figure 3 shows ARF/RHD notifications by age group from 2015 to 2017 and similarly shows that the highest numbers were in the age group 5-14 years.

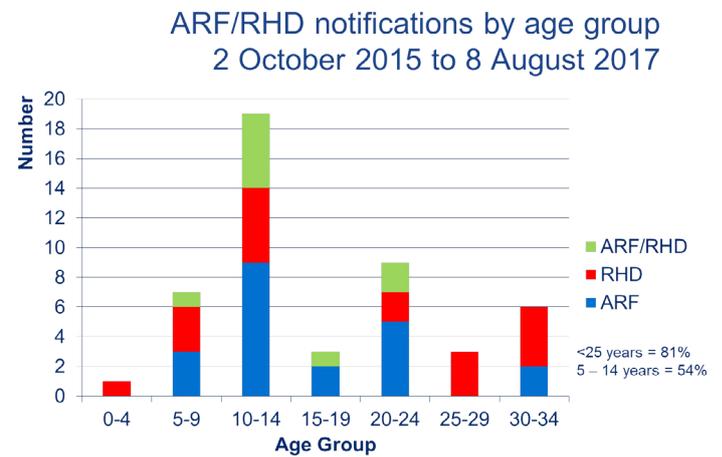


Figure 3. ARF/RHD notifications by age group - 2 October 2015 to 8 August 2017. (Source: Health Protection NSW, 2017)

Figure 4 shows that majority of cases in NSW between 2003 and 2012 by LHD were in Western NSW, Hunter New England, Western Sydney and South West Sydney.

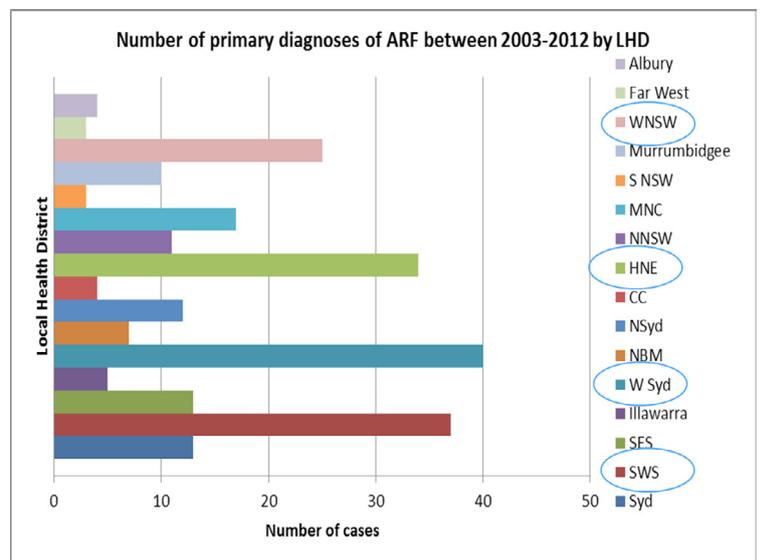


Figure 4. ARF cases by Local Health District 2003-2012 (Source: Health Protection NSW, 2014)

Figure 5 shows that, since notification, the majority of cases in NSW by LHD similarly were in Western NSW, Western Sydney and South West Sydney, but also shows a higher annual crude rate in Mid-North Coast, but four fewer cases in Hunter New England.

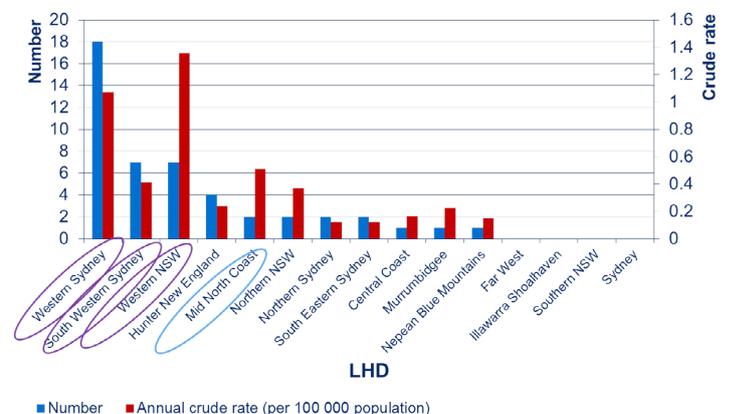


Figure 5. ARF/RHD cases by Local Health District - 2 October 2015 to 8 August 2017. (Source: Health Protection NSW, 2017)

⁷ Acute Rheumatic Fever and Rheumatic Heart Disease: Control Guideline for Public Health Units, 2016.

⁸ RHD Australia (ARF/RHD Writing Group) 2012.

Pilot ARF/RHD Environmental Health Response

The pilot EH Response includes an HfH Survey Fix called a Home Assessment and Fix in the home of the patient in response to each diagnosis. Targeting EH responses, such as an HfH Survey Fix in the home of the patient will ensure the house supports healthy living practices and reduce the risk of disease transmission to other family members.

In speaking with the stakeholders to help explain the EH program, an Environmental Health Officer (EHO) has made the analogy of this EH program to that of home modification for people with physical disabilities - by adding rails, ramps and handles to bathrooms and doorways in a home modification program, which should prevent falls by providing items for the person to hang on to. By reviewing and fixing taps, showers and laundries in an EH program, we should prevent further illness by ensuring hygiene-related fixtures work to allow the person to use good hygiene practices. This analogy seems to help explain what and why quite well.⁹

The EH Response is designed to be carried out by a local EHO accompanied by a case manager and/or culturally appropriate health workers.

Resources have been developed to support the program, including participant information and consent forms, health education materials, health packs, and a flip chart describing the process with photos of what will be fixed. Resources also includes health promotion and education to Aboriginal health workers and the broader community.

We are in the very early stages of piloting the ARF/RHD EH Response at four sites in Far West NSW, Mid North Coast, Hunter New England and Western Sydney LHDs, starting in June/July 2017.

The NSW Health Aboriginal Environmental Health Unit runs the HfH program, which aims to improve the health status of Aboriginal people, in particular children aged 0-5 years.

HfH is an evidence-based program which has demonstrated, over a 10-year period, a 40% reduction in infectious diseases for people living in the houses that received the healthy housing intervention.¹⁰ (hospital separation data only).¹⁰

The HfH program is a community-led project run for only the residents of Local Aboriginal Land Councils (LALCs) and Aboriginal Corporations (ACs) across NSW.

However, we are proposing to use the same HfH methodology; with the program to be carried out on a case-by-case basis and offered to all people with ARF/RHD, not just Aboriginal people.

Home Assessment & Fix is based on the *Housing for Health* methodology

Home Assessment & Fix is based on the HfH Survey Fix, which is a set of standard repeatable tests to assess the safety and function of housing, focusing on repairs that will maximise health gains, particularly for children under 5 years old. It uses evidence-based health priorities called Healthy Living Practices (HLPs).

The program is a basic safety and health focussed repair program for Aboriginal housing. The program ensures houses are safe (in terms of electricity, fire, gas and sewerage), and that basic infrastructure is available to allow healthy living practices to be carried out, in particular being able to wash people (especially children), wash clothes and bedding, remove waste (i.e. a working

toilet), and being able to prepare and cook food at home. Targeting repairs to health hardware and improving the ability of the house to support healthy living practices will contribute to a reduction in the spread of infectious disease.

These are the nine HLPs the project addresses, in order of priority:

- a) Safety first
 - Electrical, fire, gas, structural
- b) Providing a healthy living environment
 1. Ability to wash people (especially children)
 2. Ability to wash clothes/bedding
 3. Removing waste
 4. Improving nutrition and food safety
 5. Reducing impact of crowding
 6. Reducing impact of pests, animals & vermin
 7. Controlling dust
 8. Temperature control
 9. Reducing trauma

} Critical

} Important

EH Response Home Assessment & Fix priorities

The Home Assessment and Fix component of the EH Response will prioritise works as follows:

- Ability to wash people (especially children) - Being able to use functioning washing facilities reduces the spread of diseases, including, diarrhoeal disease, respiratory disease, hepatitis, and infections.
- Ability to wash clothes/bedding - Being able to regularly wash clothes and bedding can help reduce the incidence of infectious diseases, such as ARF, respiratory infections, scabies and other skin infections.
- Removing waste - Disease-causing bacteria can be transmitted if people or animals come into direct contact with wastewater or if the drinking water supply is contaminated with wastewater.
- Improving nutrition and food safety - Poor nutrition is one factor contributing to Indigenous people having high rates of obesity, diabetes, cardiovascular disease and renal disease. Poor nutrition is also a major cause of infectious diseases in children.
- Reducing impact of crowding - Crowded living conditions increase the risk of the spread of infectious diseases, such as meningococcal disease, rheumatic fever, tuberculosis and respiratory infections. In a crowded house, it can also be more difficult to access health hardware, such as a working shower, toilet, hot water and washing machines.

Additional Home Assessment & Fix priorities

In addition to the critical HLPs, an EHO may make notes on the survey sheets to help prioritise the Home Assessment and Fix works - this could be on a case-by-case basis and may include:

- Overcrowding - look at alleviating impact of overcrowding (i.e. capacity of HWS)
- Dampness and mould - if there are issues with mould, HfH fix works may include mould removal service
- Bathroom ventilation - fixing faulty extractor fans, ensuring windows function
- Clothesline, clothes hooks, towel rails - fixing faulty/broken clothesline
- Pests and vermin - may provide pest control treatment(s)
- EHOs to leave health education materials (may include

⁹ LAWRENCE, KERRY N 2017. Email correspondence.

¹⁰ NSW DEPARTMENT OF HEALTH 2010.

brochures, giveaways, healthy home kits) on: bed sharing, towel sharing, general hygiene, companion animals, smoke-free homes.

- The healthy homes kits may include the following:
 - healthy skin and hygiene packs with information about looking after skin, washing clothes, sheets and towels and the benefits of drying items in the sun
 - healthy skin packs could be taken out on surveys with the tool kit; the packs contain items to help maintain skin hygiene, such as bath towels, face washer, shower and hand wash
 - information about looking after skin, washing clothes, sheets and towels and the benefits of drying items in the sun (and fridge magnet).
 - household clean-up kits for general hygiene measures (may include dishwashing liquid, scrubber, cloths, spray and wipes, as well as general waste bin, garbage bags, dust pan, broom, bucket).

Also, each PHU has developed varied resources for healthy homes messages.

The EH Response will need to be assessed on a case-by-case basis. The EH Response will include all social housing, not just Aboriginal housing providers (LALC/AC), as well as private rental or privately owned houses. The EH Response will address all people with ARF/RHD (both Aboriginal and non-Aboriginal).

Pilot EH Response challenges and barriers

The pilot EH Response challenges and barriers to date include:

- In one pilot area, the person with ARF/RHD (case) is transient. The family moved to three different towns/homes in 3 months since notification. At this time, we are unable to determine which house to offer the Home Assessment and Fix works.
- We may have issues with getting consent from the housing provider in another pilot area because the house in which the case is living has been condemned by the community housing provider, who no longer provides repair and maintenance. Advice is to establish stronger links with the community.
- The Case Manager/RHD Coordinator in another area is unwilling to offer support until they can establish a stronger relationship with the case and family.

Pilot EH Response breakthroughs - early days

Some breakthroughs have happened with the pilot case in the Mid-North Coast. The visit to the RHD case/family went well and they have consented to proceed with the EH Response program. Also, the housing provider has been positive and supportive and has given verbal approval. We are now waiting on the formal consent letter from the housing provider before the next stage of undertaking the Home Assessment and Fix works.

Hopefully, by our next NATSIEH conference, we will have made stronger links between housing and environmental conditions and ARF/RHD and will have helped reduce the occurrences of ARF/RHD.

Thanks!

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Squeaky Clean Kids - making a difference

Dr Melissa Stoneham, Public Health Advocacy Institute of WA,
Jim Dodds, WA Health and Chicky Clements, Nirrumbuk
Aboriginal Corporation, WA

This paper describes a trachoma prevention project being run in remote Aboriginal communities in WA. Yet, the key message is that without the support and input from the Aboriginal Environmental Health Workers (AEHWs), this project would not be the success it has been.

Trachoma, an eye infection affecting both eyes, is the world's leading cause of preventable blindness (WHO 2015). It is caused by a bacterium called *Chlamydia trachomatis* and is completely preventable. Trachoma is spread through direct personal contact, shared towels and clothes, and flies that have come in contact with the eyes or nose of an infected person. Sadly, Australia is the only first-world country that still has this disease, but we are a signatory to the WHO target to eliminate trachoma by 2020.

Repeated infections can, over years, eventually lead to scarring that causes the margin of the eyelid to turn inwards. The eyelashes become inverted and rub on the clear cornea, painfully scratching it and causing damage. This eventually results in opaque, scarred corneas and distressingly uncomfortable eyes. It can cause blindness. It is also called scratchy eye, as it feels like there is sand in the eye. If trachoma progresses to this stage, the only solution is surgery.

The SCK project has three main strategies:

1. The provision of soap to homes and community facilities in remote communities
2. The provision of health education and health promotion key messages to both school students and adults
3. The improvement of bathrooms in people's homes to ensure they have functioning hardware.

The soap that is being provided free to communities is donated by SoapAid, a not-for-profit organisation founded in Australia. They aim to save and improve the lives of children in disadvantaged communities through the facilitation of improved hygiene practices around the use of soap and to contribute to a reduction in environmental degradation through soap recycling.

In the SCK program, all homes in participating communities, will receive free bar soap, and community facilities such as schools or clinics, can have either bar soap or liquid soap in a dispenser.

In relation to education, the school students will receive hand and face washing education. However, to ensure they have the hardware in their homes to ensure good personal hygiene and to encourage role modelling by their carers, the SCK program also includes some key messages for the adults who live in the community.

The AEHWs' role in SCK is to be the "go to people" in communities and:

- provide advice on where the soap should be stored
- provide advice on where the soap should be distributed
- provide advice on how much soap is being provided to the community
- support the installation of soap dispensers, and
- conduct bathroom audits and provide basic maintenance.

A range of existing resources have been identified, and all regions implementing SCKs have been requested to use these. This will allow a consistent message to be disseminated to all communities and will make it easier to evaluate the education components of the program.

These include:

- The Milpa resources
- The No Germs on Me resources

We have developed a new sticker to ensure that we cover both hand and face washing within the SCK program.

Practitioners are also encouraged to use the Mister Germ activity, which uses UV light to show up germs on hands.

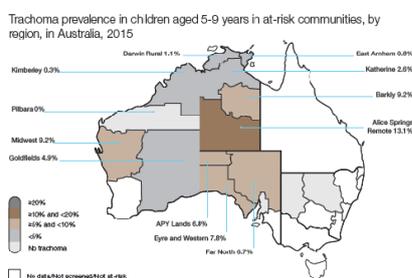
Some specific SCKs resources have been developed by the Aboriginal Health Council of WA. In addition, some of the regions have developed resources to suit their communities, which is great provided they stick with the key messages.

The AEHWs' role varies with the health promotion but may include:

- assisting with the school education sessions
- displaying posters and leaflets in the community
- creating home care packages, such as this one shown from Bundiyarra Aboriginal Corporation
- having conversations with adults about how and when to wash their hands and face, during the bathroom audits.



Trachoma prevalence in children aged 5-9 years in at-risk communities in Australia 2014



Citation: Australian Trachoma Surveillance Report 2014. The Kirby Institute for infection and immunity in society, The University of New South Wales, NSW.

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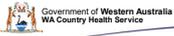
This map shows the 2014 prevalence data for trachoma in screened children throughout Australia. The grey areas indicate those with the highest incidence, which indicate that WA and NT are the states with the greatest need.

The WHO has a trachoma strategy which has four steps - the "SAFE strategy", comprising: Surgery for trachomatous trichiasis; Antibiotics to clear ocular *C. trachomatis* infection; and Facial cleanliness and Environmental improvement (particularly improved access to water and sanitation) to reduce *C. trachomatis* transmission.

In Australia, we have been vigilant at the S and the A steps, but have often neglected the F and the E steps.

The Squeaky Clean Kids (SCK) program specifically focuses on the facial cleanliness and environmental improvements in bathrooms in an effort to provide a comprehensive approach to the elimination of trachoma.

We also have some innovations within the SCK program. The figure below shows the bucket sink, which is easy to transport and allows people to wash their hands anywhere there is water provided.



SCK Resources



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The team has also adapted local resources to use in the schools as a tool to evaluate the education sessions that the kids are receiving. As shown here, the students have to put the photographs in the correct order for washing their hands following the education session.



EHWs Role

- Bathroom audit once every 3 months
- At that audit:
 - Give out 2 bars of soap
 - Provide & install a soap holder &/or soap sock
 - Clean wall and stick on a No Germs on Me hand and face washing sticker
 - Have a conversation about how to wash your hands & why



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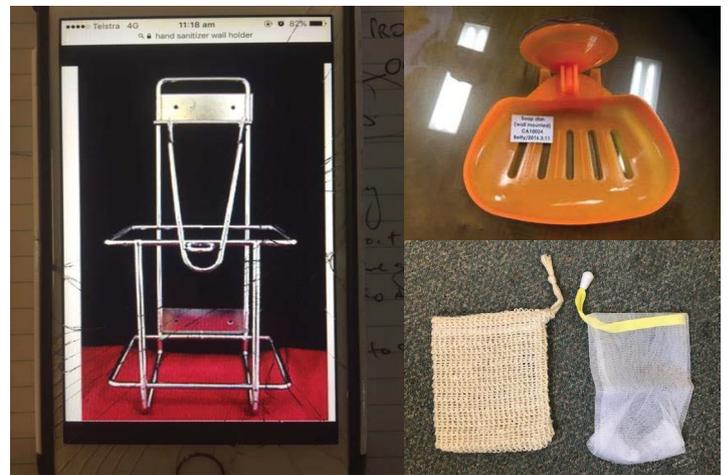
The slide above reinforces the important role of the AEHWs.

The bathroom audit is a critical component of the SCK program. The AEHWs have been asked to try to get to every home once in a 3-month period. At this audit, they will:

- Give out at least two bars of soap
- Provide and install a soap holder and/or soap sock
- Conduct any minor repairs
- Clean the wall about the wash hand basin and stick on the hand and face washing sticker
- Have a conversation with the adults about how, when and why to wash their hands and face.

Training on this process and the health promotion messages has been provided by the SCK team.

So far, we have delivered 11 remote workshops and trained over 60 AEHWs. We are yet to deliver these workshops to the Kimberley.



Liquid soap for community facilities

Soap holders = 2 per house

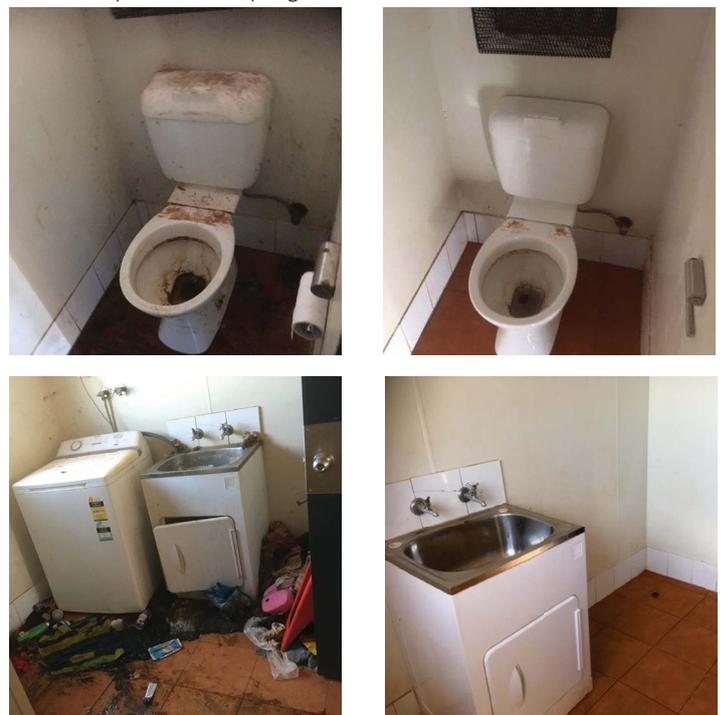
This figure shows the liquid soap dispenser and the soap dishes and soap socks available in the SCK program.

BATHROOM AUDITS



This photo shows the state of some of the bathrooms in remote communities and reinforces the importance of the E (environmental changes) in the WHO SAFE trachoma strategy.

Below are before and after shots of some of the bathrooms already cleaned up in the SCK program.



We have developed a bathroom assessment form which will be used by all AEHWs. The data will be entered and analysed and we will be able to see changes in individual communities and (de-identified) houses over time. Another evaluation measure will be a comparison of clinic data before and after the program.



This figure demonstrates the "bathroom kit" which is being used by the AEHWs.

In conclusion, the SCK program is aiming to reduce and, if possible, eliminate trachoma from remote Aboriginal communities in WA by working in a holistic manner and integrating health promotion and bathroom audits and repairs as critical components.

For more information

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Developing sustainable E (environmental health) practices in 'SAFE' - the commitment to eliminate trachoma in Australia

Matthew Lester, WA Health, Chicky Clements, Nirrumbuk Environmental Health, WA

Trachoma is a blinding eye infection spread between children by infected eye and nose secretions. Repeated episodes of infection cause increasing damage, which can lead to blindness. Trachoma is a condition which was prevalent in Australia 150 years ago, but has disappeared from most of our population through the provision of adequate housing and sanitation.

Trachoma remains endemic, however, in Aboriginal and Torres Strait Islander communities – in particular in remote communities. Australia is the only high-income nation to still have trachoma.

The National Trachoma Surveillance Control Reference Group (NTSCRG) is composed of jurisdictional representatives and medical experts, supported by the Commonwealth Department of Health and Ageing, who are committed to the elimination of trachoma as a public health issue in Australia by 2020 in line with World Health Organization intent. Australia follows the WHO 'SAFE' Strategy for trachoma elimination (Surgery, Antibiotics, Facial cleanliness and Environmental health).

The past 10 years have focused on surgery (S) and antibiotic (A) administration, combined with a comprehensive screening process for children. This has resulted in a significant reduction in community numbers and populations with endemic trachoma in Australia; rates in children in endemic areas have fallen from 21% in 2008 to 4.6% in 2015. As the prevalence has been driven to historically low numbers, there is a recognised need for effective implementation and management of the 'F' and 'E' components (Facial cleanliness and Environmental health) to sustain trachoma elimination as a public health issue and prevent any resurgence.

Facial cleanliness and environmental health improvement are the focus for the NTSCRG to keep trachoma prevalence down in the future. Having access to soap and water and the associated 'health hardware' is crucial to ensuring people have the ability to wash hands and faces to prevent trachoma transmission. Instilling the understanding in communities that a child's dirty face is unacceptable because of the potential for trachoma transmission is an integral health promotion message ('health software').

Environmental health is the part of health that consistently engages with the water, sanitation and housing (WASH) sector in Australia. It is the part of health that is most able to influence the performance of this sector and to insist on minimum standards to apply to community infrastructure, operation and housing quality and maintenance. This influence varies by jurisdiction and region, but is based on ensuring public health standards manage environmental health risks in Aboriginal and Torres Strait Islander communities.

The most effective environmental health intervention is that which is directed at the home environment and the conditions that support the ability of people to maintain hygiene and prevent illness. Aboriginal and Torres Strait Islander environmental health programs support the Healthy Living Practices, the first of which is the ability of people (especially children) to wash safely in their home environment.

In the interests of meeting the validation requirements for elimination of trachoma as a public health issue in Australia and effectively preventing the resurgence of trachoma prevalence rates from their historically lowest point, a more concerted effort has been applied to environmental health activities in the form of the Safe Bathrooms program.

Safe Bathrooms, as the name suggests, is a process of assessing bathrooms to determine their capacity to allow people to wash safely. This program is being introduced in 'at-risk' remote communities where trachoma has been identified with a recent prevalence.

This program has started in WA and will be run to see what difference it can make in sustainably reducing prevalence rates of trachoma in WA communities. There are 41 at-risk communities in WA, and the Safe Bathrooms program will be offered in each of these.

There are two recent developments in WA which will be tied in with the Safe Bathrooms project and augment what this might do:

1. There is a program already up and running in communities, called Squeaky Clean Kids. This is a widespread program across the four outback health regions which offers soap and soap dispensers to schools, and soap and soap containers to households.
2. Plumbing regulatory changes – a recent change to plumbing law in WA allows environmental health workers to attend to basic plumbing repairs in remote Aboriginal communities.

The Safe Bathrooms checklist was developed from an NT Housing form which numbered each item on a drawing. Using a range of assessment processes, a checklist was developed that reflected what is looked at and what can influence the integrity of a Safe Bathroom.

Basically, the assessor works through the checklist, which has individual health hardware diagrams against each item. Each bathroom component is checked against the list and, where it is found to be missing or faulty, is repaired on the spot (where that person has the ability and capacity to do the job) or referred to the housing maintenance agency. At the time of the assessment, if it is determined that there is a health software need (health promotion), then this is offered similarly either directly by the environmental health worker (with the right knowledge and training) or referred to the community health service.

WA Health is keeping a record of all assessments and the program aims to deliver these in a repeated manner. The Housing Authority in WA has been approached and has written a letter of support for the program to all environmental health service providers. The effect of this letter is strong – it validates the purpose of the program, it recognises the important role of environmental health workers in communities, welcomes their participation and provides an additional audit for the house maintenance program.

It's early days yet, but the whole program's rollout is possible only because environmental health workers see it as important, the communities recognise the benefits and there is the start of a fundamental shift in finally addressing the E component of SAFE, instead of tepid academic support and an expectation that someone else is doing this.

Elimination of trachoma in Australia will be achieved through the concerted efforts of screening and mass drug administration. It will only be sustainably eliminated with the appropriate environmental health measures in place - those measures that actively support the Healthy Living Practices with suitable functioning health hardware and the understanding of all people of their importance in keeping people healthy and protected.

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Bringing environmental health into the home

Matthew Lester, WA Health, WA

A first-time event was trialled at the Cairns conference. This was a forum which was delivered as an interactive session as the last formal presentation on Day 3 of the conference.

Chairing the session was Matthew Lester from the Environmental Health Directorate in WA Health. The forum was called 'Bringing Environmental Health into the Home'.

A panel was invited to sit on the podium. The panel consisted of people whose work in environmental health has included strong and effective interaction with Aboriginal people to assess conditions in Indigenous households and to improve them.

The panel consisted of:

- Iris Prouse - Manager Aboriginal Environmental Health, Kimberley Population Health Unit, WA Country Health (WA - Kimberley region)
- Sonny McKay - Environmental Health Officer, Shire of Derby/West Kimberley (WA - Kimberley region)
- Chicky Clements - Environmental Health Coordinator, Nirrumbuk Environmental Health (WA - Kimberley region)
- Cody Winter - Environmental Health Coordinator, Bega Garnbirringu Health Service (WA-Goldfields region)
- Jessica Spencer - Regional Project Officer, Dubbo, Health Protection NSW

The forum opened with a short presentation about the importance of bringing environmental health into the home. Reference was made to 11 conference presentations where this was an integral part of the program, from each state and territory.

The forum was guided through the processes that have been developed in response to providing some type of in-home assessment in response to specific triggers.

In WA, there are the clinic referrals where an Aboriginal Medical Service or other community clinic can offer a patient an environmental health referral in response to the diagnosis of a persistent and preventable condition, such as scabies, head lice, impetigo or community-acquired MRSA.

In NSW, a pilot program has been established to offer environmental health assessment of the home environment following diagnosis of acute rheumatic fever. While still in the early days, the process of referral and an environmental health response is very similar.

Additionally, the focus of eliminating trachoma as a public health issue in Australia by 2020 has spurred the establishment of a 'Safe Bathrooms' program. This is a sustained assessment and repair/referral process of bathrooms in remote Indigenous communities considered 'at-risk' of trachoma (either recently or currently).

In all these programs, a referral for environmental health intervention is offered to the patient or family of the patient. How this happens is dependent upon the level of trust a household has for the environmental health worker and the need for assistance.

The environmental health worker has that trust and working relationship with many community members, and getting access to homes is part of their daily activities. The referral and assessment process, and Safe Bathrooms, is a more focused action with the

potential to provide solutions for the large range of preventable illnesses typically present in remote communities.

Once in the home, assessment includes the health hardware - all the fixtures and fittings in a home that support Healthy Living Practices - and health software - the knowledge about why the Healthy Living Practices are important for health.

Getting access to homes is unusual for health workers. Clinicians typically operate from a location within the community and wait for the sick and ill to come to them. Environmental health has the ability to access homes and therefore can provide that link between the diagnosis of a preventable medical condition and the home environment that might be responsible, in part or fully so. The most influential environmental health program is one where the home environment is assessed and, where deficient, fixed so that it provides the ability of residents to observe the Healthy Living Practices.

There are a number of diseases (acute and chronic) that should not be prevalent in a developed nation like Australia at the rates that they are in remote communities - diseases like trachoma, acute rheumatic fever/rheumatic heart disease, end-stage renal disease, community-acquired MRSA, acute post-streptococcal glomerulonephritis - and parasitic conditions such as scabies.

Primary care treatment should include environmental health referral as a crucial element in the management of community illnesses. The role of environmental health here is pivotal to effecting the elimination of preventable medical conditions.

The forum provided a strong discussion about many of these issues and the panel provided their insight into how barriers could be overcome. They represented people who are doing in-home assessments, providing assistance and real improvements to health hardware, and working with community controlled health services to promote the Healthy Living Practices.

For more information

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Keynote Address

Mayor Fred Gela, Mayor, Torres Strait Island Regional Council, QLD

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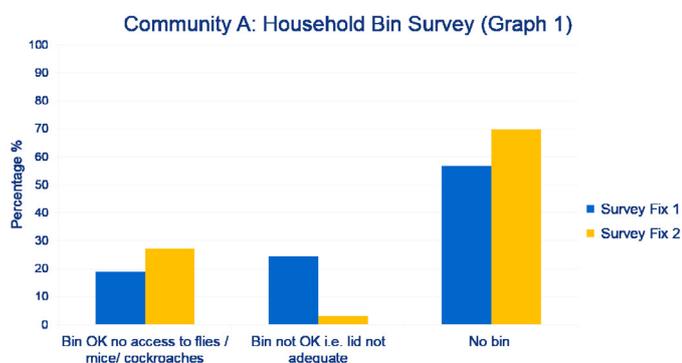
Trial solid waste management and pest control projects in southern NSW

Tim Short, SEC Health, Lisa Motbey and James Allwood, NSW Health, NSW

Background

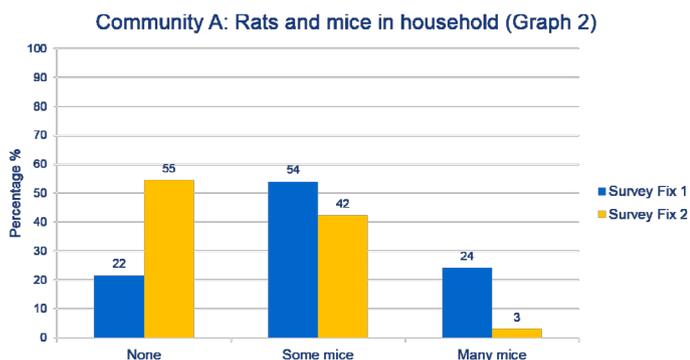
The NSW Ministry of Health funds Housing for Health (HfH) projects for Aboriginal communities in NSW. Pests were identified as an ongoing problem in some communities, potentially linked to ongoing issues around solid waste management. This presentation is the story of the pest and waste projects trialled in two southern NSW communities (Community A & B), built on the identified needs arising from HfH project data and through consultation with the Local Aboriginal Land Councils (LALCs) and respective communities.

Using Community A as an example, the HfH data on the presence and adequacy of household bins in Graph 1 demonstrates a large percentage of homes either had no bin or a bin that was not adequate (i.e. no lid, or too small).



Graph 1.

In Graph 2, the HfH data also demonstrates a large percentage of households either have the presence of some mice or have many mice in their homes.



Graph 2.

Community A also has an unmanned landfill located in close proximity to the community, as seen in the image below, which is considered a contributor to the numbers of rats and mice.



With the HfH data and community consultation in mind, the aims of the pest and waste projects were formulated. The aim of the projects was to remove harbourage/breeding sites and food sources for pests in and around the homes, improve how waste is managed in the communities and hopefully reduce the number of pests.

In the early stages of any project, a good process to go through is to project some of the outcomes you hope to achieve. This can often provide focus when considering the project steps or stages needed to deliver these outcomes. What did we hope the project would achieve?

The projected public and environmental health outcomes were a reduction in the potential for illness and disease caused through exposure to pests, reduction in the potential for house fires caused through rodent activity, and the reduction in the number of pests in the community.

The partners involved in the projects included LALCs (contribution to community employment, employment administration), Ministry of Health - Aboriginal Environmental Health Unit (funding, project design and management), Murrumbidgee Local Health District - Public Health Unit (project design, support and ongoing liaison), Murray River Council (Community A - contributing costs of community clean-up, landfill design support and ongoing management), Eurobodalla Shire Council (Community B - project support) and each of the communities.

Evaluation is an important component of any project. We used three processes of evaluation for these projects to determine the effectiveness and sustainability of the projects. Firstly, we did a qualitative assessment of pest and solid waste management before and after community clean-up and pest control/treatment via a survey of residents. The second was a quantitative assessment of waste (i.e. volume of waste removed from community through clean-up). The third was the quantitative assessment of type and number of pests in households via glue boards (130mm x 70mm) before and after community clean-up/pest control.

The key stages of the projects were:

- Consultation with the LALC, community and local Councils (A&B)
- Community involvement in all project stages, from project design to clean-up and evaluation. In both communities, this was achieved through a project working group involving regular meetings with all partners and members of the community (A&B)
- Resident pest and waste survey and quantitative pest assessment. Both the survey and assessment were conducted before and after the community clean-up and pest control (A&B)
- Community clean-up including houses, yards, footpath verges and local landfill. Members of the community were employed to assist in the clean-up. Household clean-up kits to residents (A&B)
- Slashing and mowing lawns and footpath verges to eliminate harbourage areas for pests around homes (A&B)
- Elimination of access points for pests to get into and around the home (A&B)
- Pest control, including an education component - providing information on ongoing treatment, potential for fire, and spread of disease risks associated with pests (A&B)
- Joint funding submission from project partners for sustainable ongoing management of the community landfill (A)

Project implementation

Meeting with community at all key stages throughout the project was important. Tim chatted with the communities about who was going to be involved in the project working group and who was going to be a part of the program and have the pest control done on their home.

To make things easier for the working groups, a kit was allocated to each team, so each team had one of these kits to help lift the heavy furniture (the trolley was very helpful for this) a wheelbarrow to make it easier to take out large amounts at a time, dust masks, heavy duty garbage bags, a shovel and a metal rake to make cleaning easier.

Residents placed waste out on the verge and projects working groups loaded it into a trailer and it was taken to a skip bin and recyclables were recovered and stored. Some of the residents were not able to lift some of the heavy stuff, and the workers helped with that, going inside and carrying furniture out, loading the waste into the trailer and sorting out the recyclables.

We filled 12 cubic metre skip bins three times over three days in the smaller community which involved eight houses. We also had some space left over in the skip bin at the end of clean-up, and some of the working groups cleaned up their own waste and filled the skip bin.

Various information was handed out at key stages of the project which explained what was happening next. The three main cockroaches we have a problem with are the German, American and smokeybrown cockroaches. They live in old rubbish piles, unused cars and anywhere that's dark, moist and has a food supply. Once they get inside the house and start to breed, they can be very hard to eradicate.

We gave out clean-up kits to each household in readiness for pest control, and an important part of this kit was the bin with the lid, to keep pests out of the food scraps in the kitchen.

Pest control was done inside and outside the houses to eliminate cockroaches, ants, spiders, flies and wasps. The home owners left their home for a few hours while this was undertaken and they were required to clear out cupboards and cover food stuff.

Contractors were engaged to slash and mow the properties to remove harbourage sites.

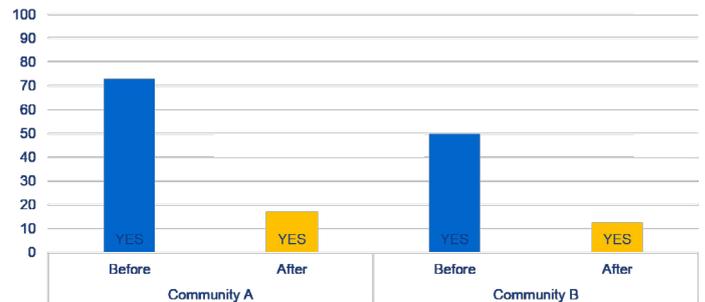
Contractors were also engaged to eliminate access points, including behind the stove, which was then covered by fibrous cement sheeting to stop pests gaining access, as well as sealing gaps in shelving where cockroaches like to hide.

Results

Results from the survey showed 59% in Community A used a kitchen bin with a lid, and 88% in Community B. Community A had 89% with Council waste services, community B 100%. 35% of community used the local tip.

Results for both communities were varied, as shown by Graph 3, with over 70% in Community A having a problem with cockroaches and only 16% after treatment in Community B, 55% had problems before treatment and only 10% after.

Q. Are cockroaches a problem for you or your family? (Graph 3)



Graph 3.

80 percent of Community A was aware that cockroaches spread germs and after treatment the survey showed a drop in awareness, which was unusual and possibly due to a different person in the house being surveyed from the first survey. Seventy-five per cent of residents surveyed at Community B were aware that they were a problem, and after treatment this was 100%.

Before treatment, 41% of Community A said they had a problem with cockroaches getting into their food, and after treatment only 10% reported a problem. In Community B, 12% reported a problem with them getting into food, and none had a problem after treatment.

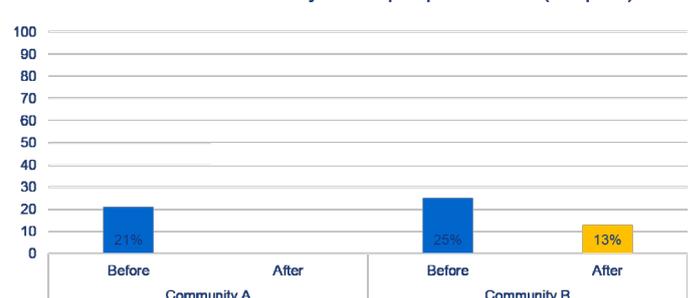
Clean-up from Community A was undertaken on 32 houses with 17 workers from the local community, and they filled 12 skip bins with 28.38 tonnes of waste. Eight houses in Community B had eight workers from the community who worked to fill three skip bins with 4.11 tonnes of waste.

A total of 27 properties in Community A had slashing and mowing done, with 26 houses receiving sealing up and elimination of access points, and 25 houses had pest control treatment. In Community B, eight properties had slashing and mowing, eight had elimination of access points and harbourage areas, and 25 had pest control treatment.

Before clean-up, Community A had 24 houses with glue traps installed, with 92% having cockroaches caught, and of those 21% had over 100 caught. Community B had glue traps installed in eight houses, with 38% of those having cockroaches caught and 25% with more than 100 caught.

Of the houses in Community A, Graph 4 shows 21% had more than 100 cockroaches before clean-up and pest control, and the same after. Before treatment, Community B had 25% with more than 100 cockroaches and only 13% had more than 100 caught after treatment. I think this was because there was one house that did not want any chemical treatment inside the house, and the breeding cycle continued.

Houses with >100 cockroaches before/after community cleanup & pest control (Graph 7)



Graph 4.

The glue traps were a good way to get a count of the actual problem; they were placed under the sink, stove, fridge and washing machine, and we noticed a few were going missing. We found one with mouse fur on it and noticed they must have become stuck and ran off with the traps.



Pest numbers after the clean-up was done showed Community A had 10 glue traps installed, with 40% having cockroaches caught and zero of those houses with more than 100. In Community B's eight houses, 63% had cockroaches caught and only 13% (one house) had more than 100.

Conclusion

These projects provided some valuable lessons in what we might do differently if we were to run either a small-scale project (eight houses or less) or a large-scale project (whole of community) in the future. With the large Community A (32 houses), where accessing all houses to set and read glue traps became an issue, we would still set the traps but instead of the project working group members reading the traps we would get the pest controller to read the traps, while he is carrying out treatment, as this would require one less visit to each of the properties. At Community B, where there were only eight houses, we had no such problem as all houses were more engaged with the project, having volunteered to participate. We would also have instigated a sign up process for households in the larger community when household clean-up kits were being distributed, to clearly identify and quantify support by these households for the entirety of the project and this sustainable approach to eliminating pests and keeping them out of the house. Some houses (even though they had a serious problem with pests and wanted the clean-up and pest control services) did not see this program as priority for them (i.e., perhaps other issues were more important at this time).

Also, in Community B, where we only had funding for eight houses out of 31 in the community, the potential participants had to attend a briefing session. We had seven participants and they decided that rather than not utilise all funding available, they nominated a house to be included where they knew there was a problem with pests. Anecdotal observations of the conditions in this house and behaviour of residents indicated no behavioural change after the clean-up, pest treatment, mowing of lawns and sealing access and harbourage points. The glue trap results for this house supported our observations. So, without 'buy-in' by the residents, even a systematic approach to eliminating pests will not solve the pest problem over the longer term.

At each community, we set up a PWG that included members from different families and factions in each community. PWG members were paid from project funds to attend meetings at all stages and assisted with consultation, selecting workers for the clean-up, accessing houses, filling in surveys, setting and reading glue traps

and handing out and explaining educational resources. The PWG members became extremely knowledgeable about all matters to do with pests in their communities, so we believe we did leave a legacy of knowledge at both communities. The glue trap results clearly showed these community members that it is possible to 'kick' pests out of your house and keep them out.

If a community housing provider or manager is intending to treat for pests in the houses on behalf of residents, then our results would indicate that, to make it sustainable and to maximise the effectiveness of pest treatment, the following should occur:

1. Buy-in from the householder, with some form of sign up process
2. Removal of clutter from the house and yard
3. Slashing and mowing of lawns
4. Sealing of access and harbourage points
5. Ensuring there is a kitchen bin with a lid and a household bin
6. Treatment for pests as required
7. Ongoing education about residents of what to do when the pests come back (i.e. use of readily available knock down and surface sprays to prevent the breeding cycle from starting again).

For more information

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Local and innovative partnering in addressing large-scale, chronic community water usage issues

Robert Mullane, Department of Health, WA

Firstly, let me acknowledge the Yirrganydji people, the local traditional owners of the place in which we meet today. I also acknowledge the Elders past and present and acknowledge their leadership and wisdom.

Thank you for the opportunity to speak with you today regarding the topic of my presentation, which is 'Local innovative partnering in addressing large-scale chronic, community water usage issues'.

This project came about as a result of at least eight different groups and agencies acknowledging a pressing and chronic need and coming together to find a way to meet that need for the sake of people living in remote communities.

I'm am going to tell the story by describing:

- the situation,
- who the players were, and
- the outcome, or what happened.

The story is about a small remote town-based community called Irrungadji. Irrungadji is located next to a small Pilbara town in the Shire of East Pilbara, which is the largest local government area in Australia. Irrungadji has less than 60 people living there. It has a total of 17 houses, at least two of which are not occupied. The housing is self-managed by the community.



The community:

- has its water supplied from the nearby town's water supply, which is managed by WA's Water Corporation, and there was a single master water meter in place for the entire community
- had historically high water consumption patterns, especially over the period 2012/13 to 2015/16
- has 2015/16 water consumption that was almost double that of the previous year and was about 70% higher than the total water consumption of the nearby town of Nullagine for the same period

The Water Corporation had installed water data loggers in 2015 to establish a 'water use profile' for each house. In April 2016, Empower Education, a Registered Training Organisation (RTO), was engaged by Ashburton Aboriginal Corporation, the local and regionally based Community Development Program (CDP) provider, to deliver a 10-week Certificate II Aboriginal Environmental Health training course based in Irrungadji. Irrungadji had an existing significant and rising debt to Water Corporation for the supply of its water

It is important to note that this project demonstrated that water meters have benefits. Before the meters were installed, no-one knew what was happening in terms of water usage patterns. Meters and associated data loggers can help identify where and how much of a problem there is, which helps then in identifying potential solutions. It is important to recognise that meters are not just about charging for water consumption. Water, especially in remote communities, is a precious resource that is not to be wasted. It needs to be managed properly, due also to its role as a potential vector and transmitter of disease.

The Western Australian Plumbing Regulations had not been changed at the time of this project. However, the dramatic and successful outcome of this project may have contributed to the eventual changes that came into being in December 2016.

The partnerships in this project included at least eight different groups of people and agencies. They were:

1. Ashburton Aboriginal Corporation - CDP
2. Pilbara Meta Maya Region Aboriginal Corporation – Department of Health contracted Aboriginal Environmental Health Service Provider
3. Empower Education - RTO
4. Irrungadji community members
5. Trainees
6. Plumber
7. Water Corporation, and
8. WA Health Department's Environmental Health Directorate.

The RTO was one of the key players in this project. Having Empower Education based in the community and delivering the Certificate II course helped put a spotlight on Irrungadji's water and plumbing-related issues and provided an effective rallying point that brought together the various project partners, which in turn led, over a short period of 4-6 weeks, to an improvement in the community's situation.

For the number of people living in Irrungadji, the water consumption rates were historically high - see Figure 1 below. Data loggers confirmed multiple major leaks, some of which were greater than 20 litres/minute. The average community water consumption was 87,312 litres per day. Water consumption in 2015/16 increased dramatically by about 70% more than the previous already high average rates.

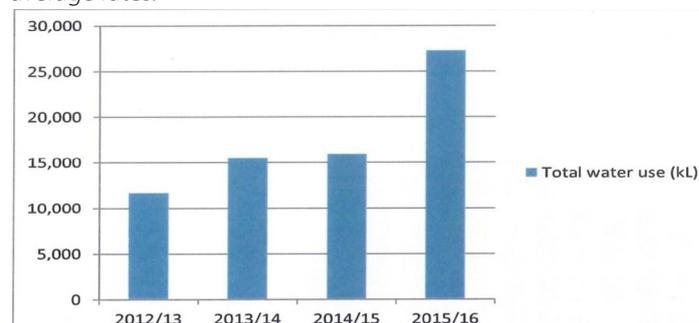


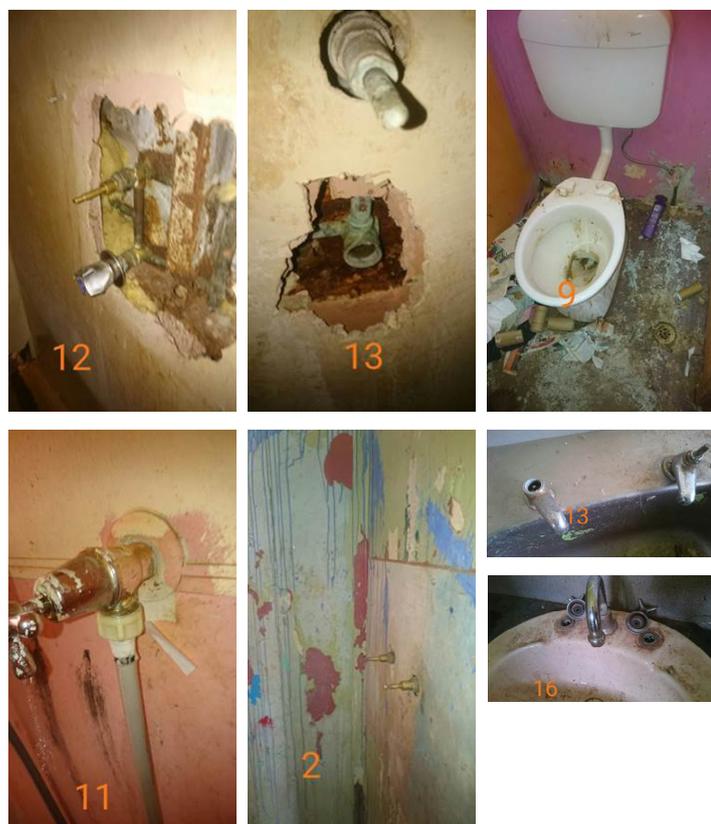
Figure 1. Historic water consumption at Irrungadji

For context and comparison, the daily use for one person in WA is approximately 340 litres, or 900 litres per household per day. Given the totals in Figure 1 are for a total of about 15 occupied houses in Irrungadji, this means that the average water consumption for the whole community should or could have been closer to about 13,500 litres per day (i.e. 900 litres/day x 15 houses = 13,500 litres per day). Irrungadji's water consumption rate was in fact about 6 ½ times the WA state average. Irrungadji's water consumption was high because of multiple major plumbing problems that were not going to be fixed anytime soon. The community was already in major debt to the Water Corporation and there was no chance of it being paid down in either the short or medium term.

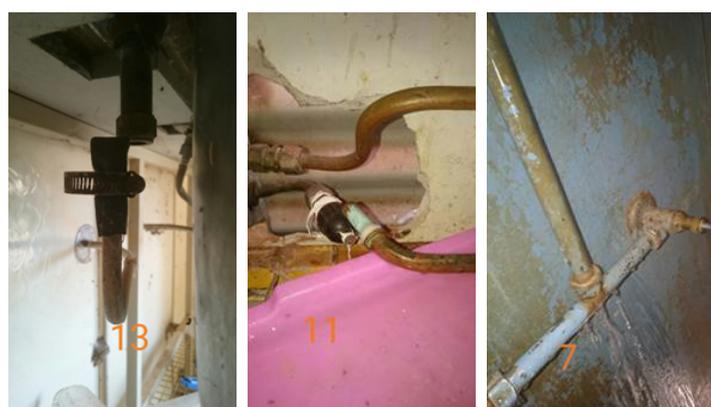
Empower Education (Greg McConkey is the Director and sole trainer in this RTO) identified that there were two types of plumbing issues:

1. Issues that his trainees could fix as part of their training, and
2. Issues that were plumber-only repairs because of the complexity and technical difficulty.

Examples of plumbing jobs that could be completed by Aboriginal environmental health trainees are shown below.



Examples of plumber-only repairs.



At the time of the project, WA's Plumbing Regulations did not allow trained Aboriginal Environmental Health Workers (EHWs) to undertake any plumbing repairs. That situation changed in December 2016. In short, EHWs that are now employed by an agency contracted to the Department of Health, and who have completed a Certificate II in Aboriginal Environmental Health (including the requisite plumbing and water units), can perform a limited number of 'permitted' basic and emergency works in nominated remote Aboriginal communities.

The water units in the Certificate II qualification cover the following:

- provide basic repairs and maintenance to health hardware and fixtures
- monitor and maintain sewage systems
- monitor and maintain water supply
- monitor and maintain septic on-site systems.

'Permitted Work' includes:

- replacing leaking tap washers, spindles, handles and shower roses (except where additional plumbing is required)
- replacing P-trap's and S traps in readily accessible locations (i.e. sinks, basins, troughs)
- replacing leaking hose taps and hose vacuum breakers
- replacing leaking cistern inlet and outlet washes and valves
- capping a burst water main, damaged waste pipe or sanitary drain for the purpose of preventing a risk to human health or safety or significant waste of water
- replacing general covers (e.g. missing or broken inspection mounds, gully mounds, grates and vent cowls)
- clearing blocked waste pipes and drains by the use of plungers, flexible hand rods or handheld water hoses only
- unblocking toilets, showers, basins, troughs, sinks and baths by the use of plungers, flexible hand rods or hand-held water hoses only
- other work approved by the Plumbers Licensing Board (WA).

Below is an example pictorial story of the work carried out by the trainees as part of their training and this project.

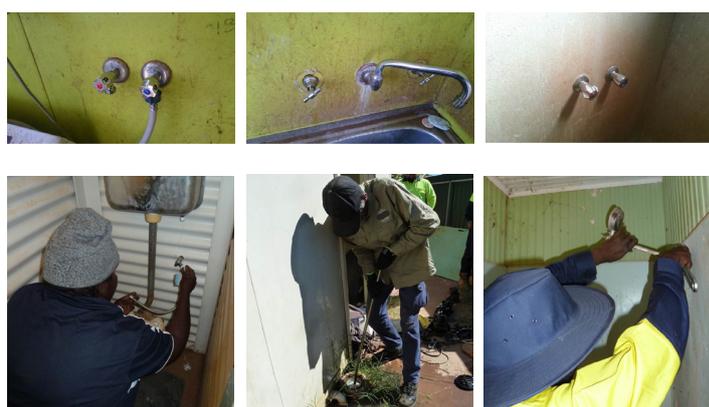


Figure 2 below shows water consumption (blue bars) and flow rate (blue line) for the 21-day period before and just after the project's plumbing intervention.

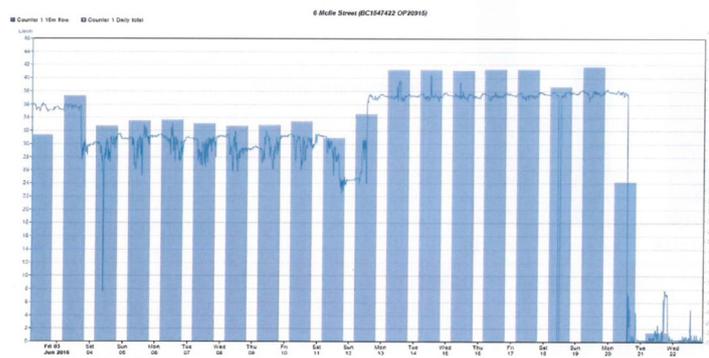


Figure 2.

Data logger installed on house number 6 at Irrungadji Community

The third last bar on the right represents the date of the intervention and shows a dramatic reduction in water use. Note the bars before and after and especially immediately after.

Table 1 below shows daily use rates for whole of the community before and after the intervention.

	Before	After
Overall Water Use		
Average Daily Use (L/day)	87,312	10,672
Maximum Daily Use (L/day)	160,000	16,000
Minimum Daily Use (L/day)	30,000	10,000
Sites with leak identified		
Number of Sites with major leaks (>3L/minute)	5	0
Average Leak (L/minute)	20L/minute	0

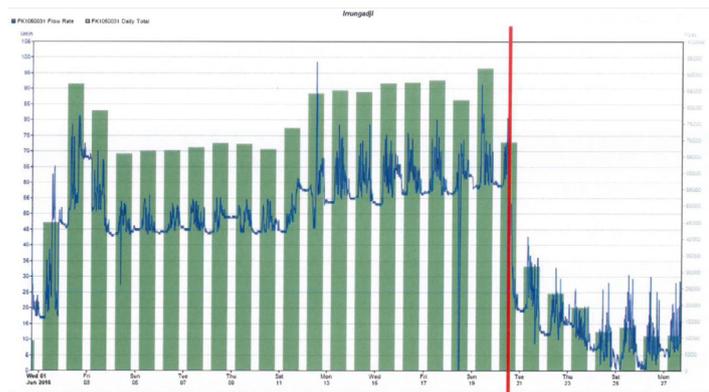
Table 2: Water use before and after plumbing repairs

Table 1.

Water use before and after plumbing repairs

It shows that there was a dramatic ~90% reduction in water usage from 87,000 to 10,700 litres per day.

The water usage rates dropped dramatically on 20 June 2016 (Figure 3) and continued to drop over the next 4-5 days of work undertaken by the Aboriginal Environmental Health trainees and the plumber who was supervising them.



Note: Daily water use and flow rate before and after plumbing repairs (indicated by the red line)

Irrungadji is considered a Class 5 community for the purposes of water costs and charging and, as such, was being charged \$7.434 for each kilolitre of water consumed over 750kL. The reduction of 76,640 litres measured by data loggers meant a saving on their water bill of:

- \$540 per day
- \$3780 per week, and
- \$16,200 per month.

It should be noted that the Department of Health's Environmental Health Directorate's investment of \$12,000 (towards the cost of the plumber and plumbing consumables) was more than recouped by the community in savings in their water usage charges in a period of less than 23 days.

The other important outcome of this project was that there was an 'eight-way win':

1. A win for the householders and tenants
2. A win for community
3. A win for the trainees in attainment of new skills and confidence in applying those skills, combined with huge local kudos and credibility
4. A win for Empower Education (the RTO)
5. A win for the plumber and his relationship with the community
6. A win for the Ashburton Aboriginal Corporation (CDP) in the successful training of participants
7. A win for the Department of Health and in particular the Environmental Health Directorate - we got a good positive result and great outcome for the community, including a marked immediate improvement in the water-related health risks in and around community members' homes, and
8. A win for the Water Corporation in some of the debt issues being dealt with and less water being wasted.

The shared good news is that even if a community is not on the list of communities whose plumbing is able to be serviced by Aboriginal EHWs, they can still work with and under plumbers to achieve a similar result.

The lesson here for everyone, including other states and territories, where plumbing regulations do not allow non-plumbers to do plumbing-related work, is that they too can add value to and multiply a plumber's availability by working with and under them.

Thank you.

For more information

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Techniques employed during the Aedes Aegypti eradication program in Tennant Creek

Ryan McLean and Scott Spurling, Department of Health, NT

Overview

This is an overview of what we'll be talking about today. First, a bit about Tennant Creek and this history of *Ae. aegypti* incursions. Then a bit about the eradication program and the methods that were undertaken to remove the breeding populations from the Tennant Creek area. This will be an overview of more of the practical things in the eradication program and the ongoing work that is being undertaken to monitor the populations and ensure that any populations that establish are found as soon as possible.

Tennant Creek

Tennant Creek is a small town about 4.5 hours north of Alice Springs along the Stuart Highway, and about a 10 minute drive south of the Barkly Highway which leads straight into Queensland. Being on a three-way junction, Tennant Creek gets a lot of traffic coming from all directions.

Tennant Creek is the largest town centre in the Barkly, and Barkly is the second largest local government area in Australia. Our population in town is approximately 3,600, with the rest of the Barkly population living in remote areas. The area of the Barkly region is about 322,000 km², which is 42% larger than Victoria and translates to about 39 km² per person.

Almost two-thirds of the Barkly population are Indigenous; within the town area, we have seven town camps (Karguru, Tingkarli, Wuppa, Marla Marla, Village Camp, Munji-Marla, and Ngarpa Ngarpa), which originally were the campsites for the numerous language groups of the Barkly region when they came into town. Some of the language groups are Warumungu, Warlmanpa, Warlpiri, Jingili, Garawa, Mudburra, Kaytetye, Alyawarr and Anmatyerre. Barkly has seven remote communities and 70 family outstations. The town of Tennant Creek resides in the Warumungu nation, whose borders go as far north as Renner Springs, and as far south as the Devils Marbles. Bit of trivia: the Warramunga people have a battle ship named after them.

Before 1950

From the 1950s, there hasn't been an endemic population of the dengue mosquito in the NT. *Ae. aegypti* seemed to die out before the 1950s. No one can really say why this may have happened; however, there are several things that may have had an impact:

- Removal of the railway
- Reticulation of town water supplies
- Removal of septic tanks
- Removal of rainwater tanks

It is also interesting to note that the NT is one of the few tropical jurisdictions in the world that are dengue mosquito free.

Surveys

Surveys and trapping for exotic mosquitoes have been taking place regularly since 1975.

Incursions

In 2004, *Ae. aegypti* was found in Tennant Creek, and a program was instigated to eradicate this mosquito over the next two years. The one that we'll be talking about today is the eradication program of 2011. A larva was initially found in an ovitrap, which is used as part of the routine surveillance. What happened over the next two

years, and since, is what we'll be talking about today.

When conducting an inspection on a property, both treatment and data collection are done simultaneously. Each inspection team is equipped with GPS to record the lot number of a property and a survey form is completed, as follows:

Vial	Container Description	Location	Water Present (L)	Treatment:	Larvae/dip
1	type	Inside / Outside/ shaded	<1, 5, 10, 30+	α-cyprer-S-meth.Cf	<5, 10, 20, 30+
2	dog bucket	Inside / Outside/ shaded	<1, 5, 10, 30+	α-cyprer-S-meth.Cf	<5, 10, 20, 30+
3	compost bin	Inside / Outside/ shaded	<1, 5, 10, 30+	α-cyprer-S-meth.Cf	<5, 10, 20, 30+
4		Inside / Outside/ shaded	<1, 5, 10, 30+	α-cyprer-S-meth.Cf	<5, 10, 20, 30+
5		Inside / Outside/ shaded	<1, 5, 10, 30+	α-cyprer-S-meth.Cf	<5, 10, 20, 30+
6		Inside / Outside/ shaded	<1, 5, 10, 30+	α-cyprer-S-meth.Cf	<5, 10, 20, 30+
7		Inside / Outside/ shaded	<1, 5, 10, 30+	α-cyprer-S-meth.Cf	<5, 10, 20, 30+
8		Inside / Outside/ shaded	<1, 5, 10, 30+	α-cyprer-S-meth.Cf	<5, 10, 20, 30+
9		Inside / Outside/ shaded	<1, 5, 10, 30+	α-cyprer-S-meth.Cf	<5, 10, 20, 30+

Comments: Check on permission granted. Has barking dog? dangerous
prone to spray

Figure 1. Inspection Form

Property details: name and phone number of property owner/tenant. What kind of property/is it a vacant lot, residential, industrial? Is there a dangerous dog? Permission for re-entry granted? Has the property owner given permission for technical officers to gain entry in any follow-up rounds?

Water tank: is there a rain water tank on the property and has it been sealed or does it need to be sealed?

Receptacles: approximate number of wet and dry receptacles in the property.

Survey duration: how long did it take to conduct the survey? When it's near the end of the day and you have time for a short inspection, you want to choose a property that would take 10 minutes, not 30.

List of receptacles: all receptacles, swimming pools, evaporative air cons, birdbaths, and fish ponds on the property, both wet and dry, are recorded. This helps with the data collection to indicate which type of receptacles are more prone to breeding. Also what to expect on a property; sometimes containers and wheelbarrows get moved around and you might otherwise miss it on a follow-up inspection without a list to remind you. Roof gutters are an easy one to miss without a list to remind you.

Larvae: for any larvae that are found on the property, data that is recorded is a description of the receptacle they were found in, and whether the breeding site was indoors or outdoors. Was the receptacle shaded or non-shaded? What water levels;

approximately how many litres? Treatment: how did you treat the breeding site - i.e. pellets, or spray? How many larvae per dip(10, 20, 30)?

The majority of larvae were found during the first round in containers (shell baths, plastic containers, bins, eskies, etc) and ornaments (bird baths, plant pots). The larvae were found throughout the town. Being a container breeder, it breeds in small amounts of water and these containers can typically be found in backyards, whether the containers are garden ornaments, dog bowls, baths, pools, rubbish or any number of other types of container.



Figure 2. Dipper

Figure 2 shows the kind of dipper that was generally used. It's like a soup ladle on a stick. Please note that this photograph is not *Ae. aegypti* but a sample from the local sewage ponds. These ones shown are most likely *Cx. annulirostris*.

Trapping and monitoring

The mosquito traps are a vital tool for the monitoring of vector carrying insects and pinpointing possible breeding sites.

Having traps spread out in evenly spaced intervals throughout the town, helps to give a wide reading, and indicate which properties to focus on.

Carbon dioxide EVS; The EVS traps are primarily used for monitoring the sewage ponds, with water all year round, and all sewage pipes leading to the one area. The sewage ponds are a great spot for a complete overview of the town. The trap consists of a billy can, PVC pipe, a fan (powered by D-sized batteries), and a catch container. It is used with either dry-ice or a CO₂ bottle.



Figure 3. EVS Trap

traps. Designed to mimic convection currents created by the human body, it also employs visual cues that attract mosquitoes that breed in receptacles and tree hollows (white cover and black cone, meant to replicate dark holes and receptacles). The fan which holds the mosquitoes in the catch container is either powered by a 12 volt battery or connected directly into a power supply.



Figure 4. Sentinel Trap



Figure 5. Lethal Fly Trap

Lethal trap: These are usually set in a fixed position. A bunch of rimless car tyres are chained together to a tree and filled with water to attract breeding adults, but they are all chemically treated with surface spray and pellets which regulate the larval growth.

Any present samples are taken for identification and the water levels are replenished and sprayed again with surface/knockdown spray.



Figure 6. Ovitrap

BG Sentinel: This is one of the better all-round mosquito

Ovitrap, also known as egg traps are designed to attract container breeding mosquitoes. This is pretty much a jar filled with water and an object in it for adults to lay their eggs along.

Sample preparation

Larvae samples are collected and then prepared for identification by removing the water and placing the sample in 70% ethanol. Once the larvae have stopped wriggling, they it can easily be moved to see the features of the larvae.

Adults are collected through traps. The catch containers are then placed in a freezer to kill them prior to identification.

Identification method

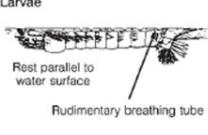
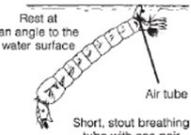
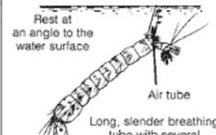
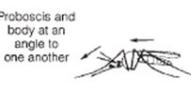
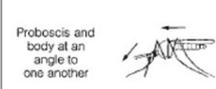
ANOPHELES	CULEX	AEDES
Larvae  <p>Rest parallel to water surface Rudimentary breathing tube</p>	 <p>Rest at an angle to the water surface Air tube Short, stout breathing tube with one pair of hair tufts</p>	 <p>Rest at an angle to the water surface Air tube Long, slender breathing tube with several pairs of hair tufts</p>
Pupae (differ only slightly) 		
Adult  <p>Proboscis and body in same straight line</p>	 <p>Proboscis and body at an angle to one another</p>	 <p>Proboscis and body at an angle to one another</p>

Figure 7. Identification of Genus Table

Genus identification can be done immediately by an experienced technical officer through the general look of the larvae or how the larvae sits in the water, while species identification is generally done through the use of a dissection microscope. Of course, it must be said that under a microscope is the best way to identify the species, and all samples were checked under a microscope to ensure the identification was correct.

Reasons for identification

By identifying certain species in certain areas, it can benefit the program. For example, if a certain type of mosquito is located in a specific area, then the further investigation can be targeted searching for breeding sites or locations where adults are harbouring to ensure that the treatment can be provided to best effect.

Identifying features

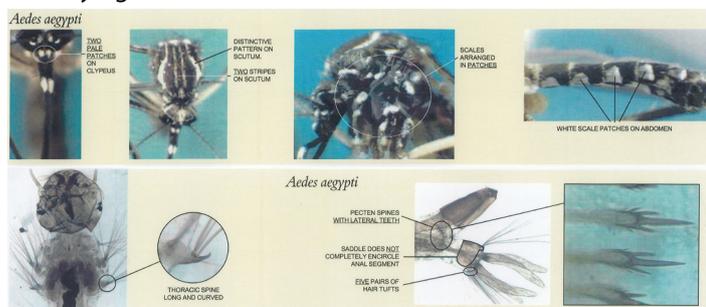


Figure 8. *Aedes aegypti* Identification Table

The species in question, *Ae. aegypti*, has several identifying features that assist in its identification under the microscope. For the larva, the hair tufts and pecten spines are looked at, as well as the thoracic spine. For adults, you look for the lyre pattern on the thorax as well as patches on the abdomen.

Using a key

A key can also be used to find out what mosquito it is. The key can cover all the types of mosquitoes in an area. Using the key, you look at features which the particular mosquito has. Slowly you rule some out and others in. At the end of the key, if followed correctly, it will show you the type of mosquito that you have in front of you. While keys were used, an experienced person was always available to assist with or check the identification.

Damage and storage of specimens

Ensuring the specimen being identified is not damaged and in good condition can assist greatly with the identification. If some scales are missing or part of the sample is damaged, then a misidentification may occur. Therefore, it is important to ensure that samples are adequately looked after and protected. Generally this is done with the adults by providing padding in the container, such as a tissue. It's surprising how fragile samples can be.

Tipping out water

Overall, the physical treatments were the ones that were most used. Habitat modification is generally the most effective way to prevent mosquito breeding. This includes removing areas where mosquitoes can breed. For the dengue mosquito, as it is a container breeder, this included the removal of items that can hold water - such as tarpaulins, buckets, frying pans, tyres and any other water-holding containers from yards. Assistance was also provided in some cases to remove rubbish and other items from yards in order to cut down on possible breeding sites.

Educating home owners

There was also a lot of discussion with community members and home owners. We spoke with them regarding how they could remove potential breeding areas from their yards, workplaces and other areas. Once you started to speak to the home owners about why you were there, they were generally happy to get involved. By the end of the program, there was a good amount of knowledge throughout the community across all levels regarding mosquito breeding and prevention. People knew the 'Mozzie Mob' and knew what we were doing. They would come up to us and talk about what they were doing to stop mozzie breeding in their yards.

There were several different chemicals used throughout the eradication program. Each one used was dependent on many factors.

Bestox

The main chemical that was used was Bestox. Bestox is also good at killing pests such as cockroaches, flies and spiders, and of course mosquitoes on contact, so households were also getting a pest treatment around their house.

The active ingredient in this, alpha-cypermethrin, is highly toxic to fish and other aquatic life. Therefore, we had to ensure that this chemical was not sprayed anywhere near fish tanks, ponds or any other area or pet that may potentially assist in the spread of this chemical. In these areas, other chemicals or treatments were used. If the water could be removed, then this was always the preferred option, along with habitat modification (such as turning over the container so that it couldn't collect water).

Egg killing

Bleach with detergent were used to clean out dog bowls, shell baths or other items that are used for pets or wildlife. This killed any mosquito eggs that were present so when it was filled up with water again, any eggs present would not hatch.

Methoprene

Methoprene was used in areas such as ponds, bird baths, plant pots and other areas that may come into contact with wildlife. Methoprene has been shown to be safe to use around birds, reptiles and other animals, and even humans where it was also used in rainwater tanks. Methoprene is a growth regulator that can stop the larvae becoming adults. Using methoprene pellets or briquettes also provided a residual effect meaning the product would keep having an effect on any mosquito larvae for up to a month with the pellets and three months using the briquettes.

Aquatain

The water surface treatment was used in areas such as disused swimming pools. This disrupts the surface tension of the water and does not allow the larvae to put their breathing siphons through to the air outside. This can be quite effective for treating larger areas.

With treatment and community education, the mosquito numbers, especially *Ae. aegypti*, started to decrease significantly.

Steps to eradication



Figure 9. Positive Identifications in Town

These images of the town show how the numbers of positive properties for *Ae. aegypti* larvae decreased.

The initial survey of Tennant Creek from 23 to 26 November 2011 found *Ae. aegypti* infestation to be widespread, with approximately 160 premises positive. The intensive control program commenced in early December 2011 to mid-March 2012, utilising existing Department of Health staff and some volunteers. There were two rounds of survey and insecticide treatment in 13 weeks of visits.

As shown after the first round the number of premises where *Ae. aegypti* larvae were found decreased. By the third round, only one location was positive for *Ae. aegypti* larvae. After the first treatment, the populations were shown to be significantly reduced, with a marked decrease until only irregular samples were found.

The eradication treatments were done over a two-year period. It needed to go across a second wet season to make sure there were no dormant eggs hatching.

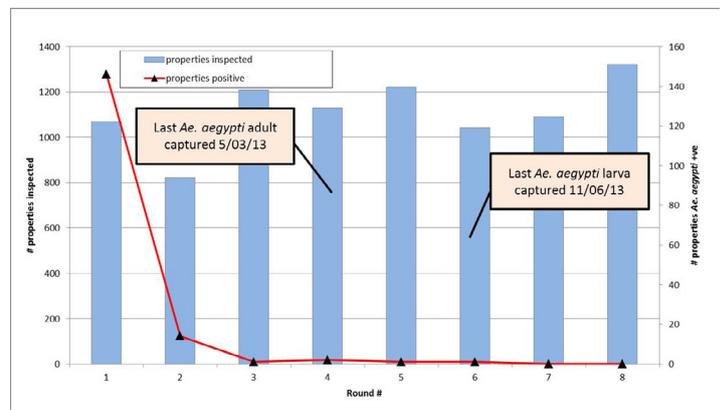


Figure 10. Graph of Treatment and Properties Surveyed

After the first two rounds of treatment, the numbers of *Ae. aegypti* dropped dramatically until it was only one or two premises with larvae detected. The last *Ae. aegypti* larva was found in round 6 and in rounds 7 and 8 no properties were found positive with *Ae. aegypti* larvae.

Weekly monitoring

Weekly monitoring of the mosquito populations in Tennant Creek is conducted using ovitraps, BG traps and EVS traps. The various locations cover from the south to the north and bits in-between.

Yearly survey

Once a year, a property survey is conducted on the ground, with officers visually inspecting and sampling the mosquitoes that are found in the town, with the assistance of both home and business owners for access to their properties. The collected samples are then identified to determine the types of mosquitoes that are in the town.

Positive working relationship

Ensuring a positive relationship with the community is essential in getting their support to carry out this kind of program. Every business, home, park and other place in the town was inspected and treated. Yearly surveys are also conducted to ensure that there are no further incursions of exotic mosquitoes.

This type of program could not have been successful without buy-in from the community of Tennant Creek. Through the adverts in the local papers, posters and information provided, as well as the staff themselves and their interaction with the community, the program was able to present a friendly and dedicated service to the town. The Barkly Regional Council, Power and Water and other stakeholders were involved with improving some of the infrastructure around the town to remove mosquito breeding areas, such as around properties that have many outside storage containers, the town's drains and sewage ponds.

Since that initial program, each year exotic mosquito surveys have been conducted throughout the town, and people still remember the Mozzie Mob. In speaking to those in the town, many still understand how to stop mozzies breeding in their backyard. Continuing that relationship with the community is an important way to keep mosquitos on the agenda and ensure that people are aware of where they breed and how to stop them.

With ongoing surveillance now taking place, and looking back at the program, what can be concluded from this program?

First of all, *Ae. aegypti* was successfully eradicated from Tennant Creek. This was done through targeted insecticide treatment

combined with habitat modifications. Therefore, the current NT surveillance program for exotic *Aedes* sp. can be seen as effective in detecting introductions.

Finally, during an elimination program, every property needs to be deliberately and systematically targeted for larval survey and insecticide treatment in every round of inspection. Here, having a positive relationship with the community and other stakeholders is invaluable in ensuring that each property is fully inspected and treated.

For more information

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Is there a need for companion animal health programs in western NSW?

Taylor Smith, Western New South Wales Local Health District, and Jessica Spencer, Health Protection, NSW

Project Aims

The aim of the companion animal health projects was to improve the overall health of the animal population within communities, which would in turn create a healthier human population. The project aim was achieved by decreasing the number of unwanted animals in the community, improving awareness around the shared environment between humans and animals, and reducing the risk of zoonotic disease transfer between animals and humans.



Healthy Animals =
Healthy People



Stakeholder Roles and
Responsibilities

In each of the communities, a community meeting was used to clearly define what roles and responsibilities would be adopted by the various stakeholders. The main stakeholders involved in the delivery of the projects were: Aboriginal Affairs (AA) Bourke, Royal Society for the Prevention of Cruelty to Animals (RSPCA), Aboriginal Environmental Health Unit (AEHU), Western New South Wales Local Health District (WNSWLHD), Brewarrina Shire Council, Ngemba community working party and the Weilmoringle and Goodooga Local Aboriginal Land Councils. The RSPCA's roles and responsibilities included; assessing the suitability of a premise and submitting the application to approve the location of the temporary veterinary clinic, and providing all clinical veterinary services on the day the clinics were running. The RSPCA was responsible for all surgical, medical and health procedures on the animals. They provided all medical equipment and educational displays for the duration of the clinics, as well as providing phone advice for the environmental health (EH) staff conducting follow-up visits.

AA provided on-the-ground support for all stakeholders and communities. They were responsible for the introductions of the various agencies to the Aboriginal Community Working Party and Local Aboriginal Land Councils, as well as ensuring all relevant stakeholders in the community were notified of the project and provided with a clear, transparent community consultation process. AA consistently liaised with the community working party to ensure local people were engaged and employed for the life of the project.

The AEHU and WNSWLHD's main role was to provide education to pet owners and community members around the public health messaging. This was done by showing pet owners the educational material provided by the RSPCA, as well as one-on-one interaction with pet owners around yard maintenance and animals and the environment. The EH staff provided an interactive hand hygiene program to three local public schools incorporating an animal health message. The EH staff attended the community working party and addressed the public health importance of companion

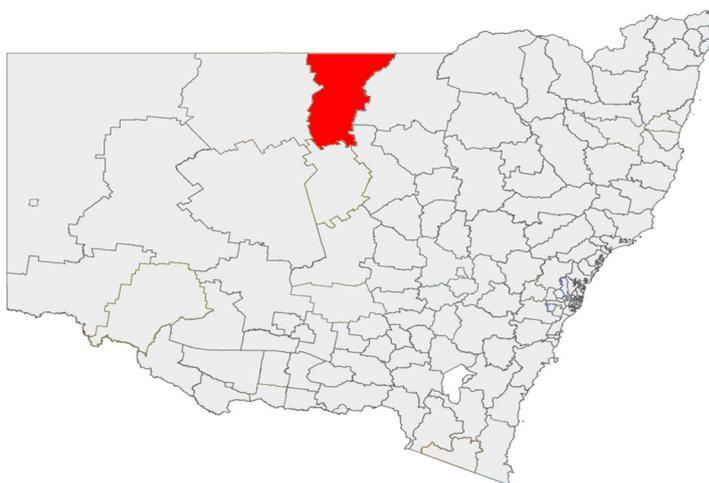
animal health programs. EH staff conducted follow-up visits to dogs that were de-sexed during the project and used this as an opportunity to complete a follow-up evaluation; this also included producing the report.

Brewarrina Shire Council provided rangers employed by the shire to perform functions and assist with the running of the program. This included transporting animals, locating animals and providing experience and knowledge on animals that previously displayed anti-social behaviour.

The Ngemba community working party, as well as the Weilmoringle and Goodooga Local Aboriginal Land Councils, assisted with finding suitable community members to employ over the week of the program and a facility to house the veterinary clinic.

Community chosen

Selection criteria were identified by RSPCA and AA, based on the established criteria the RSPCA must meet before they can deliver an animal health project.



Map Outlining Brewarrina Shire

Brewarrina, Weilmoringle and Goodooga

Brewarrina Shire is located in northwestern NSW. The shire is reported to be one of the most disadvantaged communities in NSW, with entrenched disadvantage shown in 21 indicators including, internet access, income, education, literacy, long-term unemployment, unskilled workers, domestic violence, juvenile offending and criminal convictions. The shire covers an area of 19,155 square kilometres. The population of the shire is about 18,000. This includes Brewarrina, Weilmoringle and Goodooga. Weilmoringle is approx. 100kms from Brewarrina and has about 20 houses. Goodooga is about 120kms from Brewarrina and has an approximate population of 330. All three communities are predominantly Aboriginal communities.



Image 1



Image 2



Image 3

Image 1: Weilmoringle Public School sign

Image 2: Welcome to Brewarrina sign

Image 3: Goodooga sign

Community consultation phase

The focus of the community meetings was to clearly define who was eligible to access the project, get the community's estimation of how many pets would access the service, identify any suitable community members as who would be interested in casual employment on the clinic days of the projects, establish roles and responsibilities of each agency, and discuss the advertising of the project to the target population. In addition, the community meetings provided an opportunity for the RSPCA to conduct site suitability inspections for setting up temporary veterinary clinics. Prior to any animal health project being established and delivered, the RSPCA are required to submit documentation against a set of criteria to ensure the project is suitable for the location and will not impact on existing veterinary services within the area.



Flyer produced to promote program



Entry into one of the communities

Veterinary services – health checks, surgery and recovery

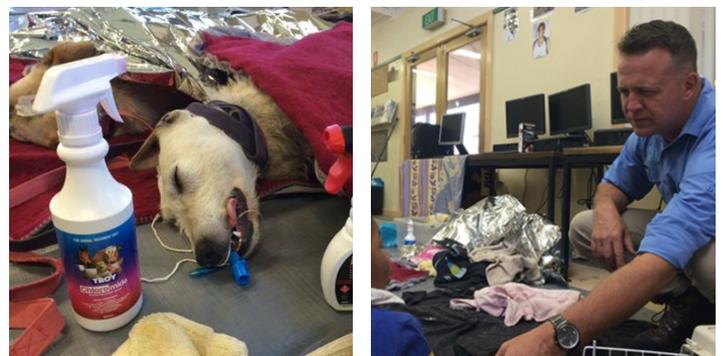
The clinic days provided veterinary services but also the opportunity to educate the community on responsible pet ownership. Veterinary services offered by the RSPCA on the clinic days were; de-sexing, ivermectin treatment (ticks), worming tablets, flea treatment, health checks and microchipping. The clinic was established for 3 days in Brewarrina, 1 day in Goodooga and 1 day in Weilmoringle. Community members and children were encouraged to view the surgical procedures undertaken.



Animals on the days of the clinic (health checks)



Animals on the days of the clinic (surgery)



Animals on the days of the clinic (recovery)

Clinic week - environmental health role

Our main role as EH role was to provide education around pet ownership and public health importance, as well as provide support to the RSPCA and liaise with communities. We tried to have a discussion with each pet owner about important public health

messages in relation to pet ownership. These messages included: keeping sand pits covered when not used and regularly cleaned, picking up and disposing of dog and cat faeces, and washing your hands after handling animals and/or cleaning up of faeces. Yard maintenance and waste removal was also discussed as part of the project and coincided with a rare rain event and a sudden increase in mosquitoes and sand flies. We attended three primary schools to deliver an interactive hand hygiene project known as Mister Germ. We also incorporated an animal health message similar to the public health education provided to the pet owners; this included what is involved in responsible pet ownership and an interactive demonstration of how our animals can transfer germs to us and our home environments.



Mister Germ delivery at one of the local public schools

Results of clinic week

RSPCA carried out 103 health checks on dogs and cats and 118 dogs and cats were de-sexed. This was roughly the same numbers estimated in the community consultation.

An educational display was provided at each of the temporary clinics by the RSPCA. The display included jars of preserved intestinal worms and ticks. RSPCA vets and other stakeholders, such as, EH and the animal control officer from Brewarrina Shire, discussed with individuals how to care for animals and the potential human health hazards from pets.

As a large amount of parvovirus was identified in the communities, education specifically related to parvo and making pet owners aware that it lasts in the environment for a lengthy period of time, and encouraging pet owners to change bedding, bowls etc.

Post-clinic follow-up

Animal health projects have been run previously in the area without strong involvement from EH. These were the first animal health projects delivered in NSW where a follow-up home visit has occurred post surgery. A methodology for the follow-up visits was adopted. Two staff sorted surgery forms provided by the RSPCA. EH staff made three attempts to gain access to each of the addresses of the de-sexed dogs. If owners were unable to be contacted during the follow-up visits, one attempt to telephone the pet owner was made using the phone number provided during the clinic days. If unsuccessful, no further attempts were made. Follow-up visits occurred approximately 10-14 days after surgery.



Environmental health Staff engaging with pet owner around Public Health Messaging

The evaluation was carried out to determine if:

- Pet owners were satisfied with the treatment provided to the pets,
- Pet owners would have their pets de-sexed without the program, and
- Pet owners were able to interpret and follow animal care advice given by RSPCA veterinary staff.

Results of follow-up

In total, there were 84 dogs de-sexed across three sites over the five-day period. Twenty-six per cent (22/84) of all dogs de-sexed over the five days of the projects were followed up by two EH staff.

Only 26% of the animals that had been de-sexed were in their yards at the time of the follow-up home visit. Of the dogs that were in the yards and seen on follow-up visits, approximately 80% required assistance to remove their sutures.

Only one person said they would have had their dog de-sexed. This correlates with observational and learned experiences from clinic days, where a number of people claimed they would not have been able to endure the financial cost of taking their animal in the car to the next town (100kms) to have their pet de-sexed.

The majority of pet owners (85%) stated that they had understood the care instructions they had taken home from the clinic; however, these results did not correlate with the percentage of pet owners who had not yet removed sutures as the care instructions said to remove sutures after 7 days. This could be a result of people being reluctant to truthfully answer this question if they had low literacy levels.

Public health messaging around yard maintenance was best achieved at individual houses during the post-surgery visits to some of the animals that had been de-sexed. We believe that the evaluation provided accurate feedback and all pet owners that participated were really open and willing. This was mainly due to the ongoing community consultation and engagement.

Public health importance

The companion animal health project provided an opportunity for a PhD student employed by the RSPCA to complete swabbing, collection of ticks and serology testing for a range of zoonotic diseases, including MRSA and Q fever. The RSPCA found a prevalence of MRSA of 2.3% in dogs and cats. This prevalence is among the highest that has been reported. The MRSA isolates from these results confirmed they were all human community-associated strains. A high seroprevalence of Q fever was noted in the dogs sampled. Animals become infected with organisms when they ingest bodily fluids, tissues or diseased carcasses. It is assumed the prevalence of Q fever was higher than usual as kangaroo, emu and wild goats are used as a major food source for companion animals.



Dog eating raw emu leg

Challenges

The biggest challenge in regards to the project was ensuring the services were delivered to the target niche group. As mentioned in previously the target audience was Aboriginal people, with a residence in the community and those who hold a concession or pension card. It was observed over the days of the project that the RSPCA veterinary staff turned away a number of non-Aboriginal pet owners. On some occasions, people who did not identify as Aboriginal but obtained a concession card were asked to come back later in the day. Some property owners accessed the project ;however, they were only allocated space once the target audience needs were met.

During the evaluation and follow-up process, we encountered a few challenges. Time limitation was one of the major challenges faced due to the long distance from the office to these communities. As a result of the time limitations, our evaluation only focused on dogs that were de-sexed and didn't include cats; however, if cats were home and the owner required assistance with suture removal, we were happy to assist. It also meant that we could only make a few attempts to contact the pet owners, which meant some pet owners didn't complete the evaluation. A large number of animals were not home at the time we visited. Our limited experience in dealing with large and anti social dogs made it difficult to remove sutures. If we encountered any problems, the closest vet, who is about 100km away, provided her contact details and was happy to be contacted if anyone had issues or concerns with their pets post-surgery.



Kamilaroi Highway sign

Recommendations

Our recommendations are that Public Health continues to see value in small companion animal health projects and participates in the capacity of community education around zoonotic illness and other more well-known skin infections, such as staphylococcus and fungal infections. As a result of the high percentage of animals that were not home we recommend the education include an aspect of responsible pet ownership and the importance of keeping your dog enclosed in the yard to prevent car accidents, dog bites, etc. Over the duration of the program, we were able to see the people of the community engaging and observing the veterinary service. We recommend including the schools and providing an opportunity for students to be involved and encouraged in career paths in veterinary service. As the community employment was an essential aspect of the project, we recommend that future projects support opportunities for local employment over the life of the project, inclusive of advertising to the niche community, the clinic days and the follow-up of animals post-surgery. During the course of the evaluation follow-up, we were able to note the pet

owners' appreciation and the benefit to our relationship with the community. Thus we recommend future projects follow the same method of delivery and incorporate the follow-up visits to the home. As it was difficult to keep the project for the target audience, we suggest recording aboriginality on the paperwork completed by the RSPCA on the clinic day.

The future

The future of companion animal health projects in NSW will include seven animal health projects in the 2017/18 financial year in towns with similar demographics, and including some towns included in the 2016 animal health projects. Pet owners who attended the animal health project in 2016 will receive recall notices in the mail to encourage an annual check-up of pets. As a result of the companion animal health projects, our relationship with RSPCA has strengthened; this provides an opportunity for disease data collected to be shared and in turn provides adequate evidence for environmental interventions to the home/yard environment and to underline the importance of public health messaging.

The companion animal health projects in the Brewarrina Shire were well attended by the targeted communities. The success of the project can be attributed to the community involvement from commencement of the project. Information obtained during the initial community meeting regarding the estimated numbers of animals was essential to planning veterinary days in the community. This information was used to ensure there were enough surgical supplies and staff to provide all planned animal health services.

Acknowledgements

The AEHU and the WNSWLHD would like to thank the RSPCA, Animal Management in Rural & Remote Indigenous Communities, NSW AA (Bourke), Brewarrina Shire Council and the Brewarrina, Goolooga and Weilmoringle communities for their collaborative support, resulting in the success of this program.

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Community-Led Change

Janine Morton, Dayna Namaryilk and Martina Balmana, Children's Ground Ltd, NT

Presentation article not supplied by author.

Three environmental programs from the Eastern Goldfields, WA

Cody Winter and Darren Indich, Bega Garnbirringu Health Service, WA

Firstly, I would like to respectfully acknowledge the Yirrganydji people, who are the Traditional Custodians and First People of the land on which we meet/stand. I would like to pay my respects to the Elders past and present and I would like to extend my respect to the Aboriginal people, colleagues, staff and students who are present today.

Our presentation is on what we have been doing and a couple of our programs.

Dog sterilisation program

We are lucky enough to be able to have worked along-side some great vets. Recently it was with a bloke called Pete and his offsider, Sal. They were from the Katherine vets service. I call him the John Travolta of the vets, as he flies in his own planes to communities to do de-sexing sterilisation. Pete and Sal were really great, as he comes rough and ready. We had a few vets but Pete is the quickest as he would shoot the tranquiliser gun to drop a dog, we would grab it and he would de-sex the dog before the tranquiliser wears off.

House hygiene inspections

We will go in and check all house hardware and report on things that need to be fixed (windows, doors, fans, hot water, taps etc. if in our scope, we will do repairs - thanks to the WA Plumbers Licensing Board, who have given us licences to carry out minor plumbing issues in communities as we all know how much it costs to get a plumber out - then the issues that came with it (taps, toilets, minor plumbing, walls and doors repairs). Anything major we send to the Housing Department, and if not done in a timely manner, we re-do the inspection and send to the Health Department.

Sustainable gardens

Our CEO at Bega was at a conference when he saw these and asked if it would be something we could or would be interested in doing. It comes from a man named David De Vries from the NT; he made these sustainable gardens in these blue barrels, so we gave it a go. They were very easy to make and look after and were a lot of fun; the school loved it and also the clients. The idea behind this is quite simple, yet wonderful. If you put this garden somewhere that the client sits, they can watch it grow, which makes them want to look after it.

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Young Doctors Program

Don Palmer, Malpa Project, NSW

I respectfully acknowledge the Traditional Owners - the Yirrganydji people, and their Elders past and present.

My central connection to Indigenous Australia - Warlpiri and Pintupi - taught me what I needed to know. We run projects with Yuin, Dhungutti, Ngunnawal, Wurundjeri, Kurna, Gamilaroi and beyond.

It's a privilege to stand before - so many people with a passion to make this nation the country it can and should be.

About the time I was born, Albert Namatjira said "Why don't they just kill us all? That's what they want!" Two weeks ago, Gillian Triggs said of the NT Intervention, which is metastasising across our nation, that it's "A chilling act of political cynicism".

So in my lifetime - in your lifetime - almost nothing has changed for many Indigenous Australians. And yet the latest Closing the Gap Report starts with these words: *This ninth Closing the Gap report showcases real successes being achieved across the country. Was anyone else angry when they read that? "Real successes"? What would failure look like?*

A long time ago, a wise man said "Hope has two beautiful daughters - and their names are Anger and Courage. Anger at the way things are. And Courage to make sure things do not remain the way they are." In the next few minutes, I want to touch on some of the problems - but then spend most of the time on a concrete, proven solution: our Young Doctor - Child Doctor - projects, which are part of an emerging pattern of solutions.

We have only one value in our Malpa charter. It is this: No gammin. No bullshit, as Fred Hollows might say.

I have some things I feel compelled to say, but my observations give me no pleasure. You may be aware of them. If you are, then you will be aware that they are often only whispered or referred to in euphemisms or redacted from official reports. Having unburdened myself of these, I want to speak about a concrete part of the solution. Something that I hope you may find constructive for your work.

I am a whitefella in blackfella business. I am very conscious of what that means. And it requires that I walk this journey with humility.

Before founding Malpa I was a television producer, and everywhere I went in Aboriginal Australia I saw suffering. The spirit - the *kurunpa* - has been bruised, sometimes broken.

In the deserts and town camps of Central Australia, in the lush beauty of Arnhem Land, in the back streets of Kempsey. Suffering is everywhere. A kind of trans generational post-traumatic stress disorder. The common agency was and is government. The common thread was and is disempowerment. And so I honour the motto of the Larrakia Nation - culture empowering community! Remove the capacity for people to name their own destiny, and then blame them for sitting down. But my Warlpiri and Pintupi friends gave me a golden key to understand and to act. I shall come to that in a moment.

Sarah Hudson from the Centre for Independent Studies examined 1,100 projects working in Indigenous disadvantage. She concluded

that five were effective. She also proved that government policy is not based on evidence. The pattern she found is that governments fund projects that are known not to work, and they de-fund projects that actually work. So if you think all your research will make a difference - look at the evidence.

A classic example: after spending more than \$1 billion on income management trials - and despite six evaluations showing that compulsory quarantining of welfare payments has no impact on behaviour - the government simply rolls out even more trials. What do they think will change? When do they say, "Well this was a dud. Let's divert funding to programs and ways of working that make a difference."

Last week I enquired of Minister Wyatt what he proposes to do about addressing the renal health issues which are wiping out our First Nations people in some communities. I first asked him about this ten years ago, and proposed a range of proven solutions. Last week's reply from his executive assistant was this: *Unfortunately, I am unable to disclose what the Minister is proposing at this stage. Your understanding is appreciated. Minister, I do not understand. And my dying Aboriginal friends across Australia do not "understand".*

And there are many gaps in Indigenous health that are NOT being measured in Closing the Gap - otitis media (glue ear), for example. Glue ear. The World Health Organization says that any incidence over 4% is a "massive public health problem requiring urgent attention". But we have 58%! Can't hear, can't learn, can't earn, can get into trouble with the law, can contract a raft of chronic illnesses, can die young. Of Aboriginal men in NSW jails, 83% are deaf; and 91% of the kids in Don Dale Detention centre - deaf. If this were happening for children in Sydney - among children in a place like The King's School in Sydney, where the biggest issue is where they will hang the next helicopter (by the way, in the foyer of their new Science Learning Centre is a helicopter suspended from the ceiling) - there would be screaming from the roof. But listen you will hear nothing.... the facts are too uncomfortable.

"Don," he Elder quietly said to me, looking out to the hills, "The government does have a plan. The plan is not to have a plan."

Around Kempsey, for example, where we have run Young Doctor projects for years, so many are so disheartened that they vandalise and burn down their own houses using urine-soaked mattresses as fire-starters. We know of at least 250 kids needing hearing services - today. There is government funding to treat just eight. Eight. We have advised the minister and offered solutions. Silence. Tin ears.

So what if kids knew and made smart choices and took control of their future? What if they were empowered? So today in the face of all this - and a whole lot more - I want to tell you a story of hope. You may find some useful things in it for your work.

At the end of the day, we all must deal with the reality of what is in front of us. That's why we have each taken the trouble to be here today. We are all in this together. And whether we believe this can be solved, or whether we don't, we are probably right. I chose to believe that justice will be done - and that we are here believing that together a change is going to come. That together we can help make this nation the country it can be, and ought to be. Indeed, Australian Hearing - the Commonwealth-funded body charged with this issue - reports that it has "no strategic plan for Indigenous hearing health". Uncle Jimmy is right. It seems it is not only the children who are deaf.

But our story - the story of the Malpa Institute - shows it doesn't have to be like this. It started about five years ago in a squalid town camp on the fringes of Alice Springs, called the Warlpiri Town Camp. I'm sure I don't need to paint a picture - tin shelters, filthy mattresses, smouldering camp fire, rubbish, fourth world - we probably all know the images of squalor and deprivation.

There I was, sitting around a low burning fire with the locals, as the camp dogs snuffled around looking for scraps and the kids laughed and played in the dirt. One of the women - was she twenty, or fifty? - pushed her baby into my arms. The kid's clothes were soaked in urine. Err. Her face was awash with green snot. She says "I don't know what to do. Help me". What would you do? Confused and wrong-sided, I asked one of the Elders, Rex Japanangka, "Why are the kids all sick? Why does nothing work?". He drew a long, deep breath, looked out to the night sky and quietly said "Two reasons. Government men, they never do things OUR way, Aboriginal way. And never seriously involve us". Hmmm. "Can you help me understand your way?".

And that was when he gave me the key. The golden key that has made everything that our organisation now does with Aboriginal communities succeed. This is what he said: "I want to tell you about the Ngangkari - the traditional doctors, the healers. It starts when they are children. Sometimes four, sometimes ten." He explained that young children were chosen for the work because the older doctors agreed that they seemed very intelligent and seemed to care about other people. There have been young doctors - child doctors - for more than forty thousand years.

They had to gain knowledge and wisdom, Rex said. They were taught everything they needed to know to heal their people. They became healers whose job was to look after their mob.

"So, I asked Rex, "if the kids are deaf and the cavalry aren't coming in their white government cars, why don't we just get on with things together?".

"What if we helped communities choose children to be young doctors with traditional and modern knowledge?".

"Palya linko", he said. That's good.

And so it began: Malpa - that's a Pintupi word meaning "friends on the journey". "That's the word you should use", he said.

The concept is simple, but only because it embraces all the complexity of culture and history. We work with Indigenous communities to use their ancient paradigm of health service delivery, where they train "child doctors" and raise them to be health leaders and carers to their people. Each community asks itself, "What do our kids need to know to lead strong and healthy lives?". Every community has a different answer. They decide.

The children - always Indigenous and non-Indigenous together - are taught the ancient medical knowledge and western knowledge (supported by the Australian Indigenous Doctors Association). They learn that the bush can be their pharmacy and their super-market. They learn that there is also a pharmacy down the street and that some parts of our supermarket are better for us than others.

So what of otitis media - the glue ear? The Young Doctors learn about blowing their noses, washing their faces, eating good food and much more. Their world turns from a dull fog into technicolour. They can breathe. They can hear and they don't fall asleep on their

school desks by ten in the morning. They learn lots of stuff and, every bit as importantly, the kids share what they know - they are so excited that they can't help it. They are dynamic health leaders.

And they tackle all sorts of things. In one small community, the Young Doctors - on their own initiative - wiped out hair nits in the school community. Not too shabby. In another community they chose to become accredited practitioners of CPR. These kids are amazing.

One of the Young Doctors said, "These are the best days of my life". Another said, "My favourite part is learning about everything". An Elder commented, "We have been waiting for this".

Malpa has supported communities to train more than 800 ten-year old children as Young Doctors in the NT, ACT, SA, Vic and NSW. This year we are training over 400 more.

Here's a snapshot of some of what's happening this week. Today the Namadgi Doctors south of Canberra are in the bush learning how the land is their pharmacy and their supermarket. In Dala Mala Malung Doctors in Gippsland are at the Victorian Ambulance training centre, learning CPR. In Kempsey, the Dhalayi Doctors are learning about hearing health how the ear works and how to care for their hearing and their siblings' hearing. The Bubup Doctors in Melbourne are listening to stories of resilience and well-being from the Elders. The Ngargin Doctors in Yuin country are at the chemists learning about medication, while nearby the Boori Doctors are at the local AMS doing sessions on oral hygiene.

The Young Doctor approach is transforming everything from education - school attendance rates have risen to about 98% in some projects - to health leadership, environmental health, health literacy, diet and the all-important hygiene. And on top of all this, we try to create career pathways for the Young Doctors and our community leaders. Next year we plan to train more than 700 Young Doctors.

We get no government funding. The government, it would seem, doesn't have much of an appetite for doing much about ear health, for example, or much to support Indigenous children.

So what have we at Malpa learnt on this journey? It is simple really. And powerful.

- Use the time-honoured Aboriginal ways - experienced healers teaching children to be doctors.
- There is no one size fits all approach.
- Local people must devise and deliver the project. Honour their capacity.
- Indigenous and non-Indigenous kids must learn together as malpas; "Indigenous only" projects just entrench jealousy and resentment.
- Honour the traditional knowledge but also teach the western ways.
- Elders and culture must be respected.
- Build the local leadership and support them through the storms that inevitably lash communities.

Not all that hard, really. You see, this is not bleeding hearts. This is all bleeding obvious. Meanwhile the neglect by government - state and federal - is needlessly condemning children, particularly Indigenous children - to a miserable life. Just one in ten Aboriginal kids have normal hearing. Shame.

One wise Elder, actor, musician and advocate, Uncle Jack Charles, looks the kids in the eyes and says to these Young Doctors:

This will help you choose to live a long and healthy life. But even more importantly you will learn things that will let you help other people have long and healthy lives - to have clear heads and strong hearts. And I hope you will use your knowledge wisely and be a great blessing to your brothers and sisters, to your parents and Uncles and Aunties and all your mob.

The best innovation turns out to be, ironically, simply to reach back to the past and be humble enough to learn from it. Who'd have thought?

Uncle Jack finishes by saying: "And you Young Doctors will bring great pride to the Aboriginal people of this land - and to all Australians." Hmmm. Young Doctors. Clear heads. Strong hearts. Long lives.

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Engaging Aboriginal Shire Councils in supportive environment approaches to health: - learnings from the Healthy Indigenous Communities Project

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Creating supportive environments for health - why local governments are important

Creating supportive environments for health can offer people protection from factors that can threaten good health. Supportive environments refers to both the physical and social aspects of community where people, live, work, learn and play. These environments support healthy choices to be made easily by either increasing the availability of factors (such as smoke-free places) or decreasing the availability of factors (such as sugar-sweetened drinks).

Local governments play a role in shaping local environments through their work in planning and development. Evidence has demonstrated that strategies that influence the social and physical environments within communities are more likely to be sustainable. In Queensland, previous work has been conducted with local government councils to influence food and physical activity environments. However, engagement with Queensland Aboriginal and Torres Strait Islander Shire Councils regarding healthy food and drinks and smoke-free environments has been limited.

Why influencing food & drink and smoke-free environments is important

The Health of Queenslanders 2016 report¹, demonstrated high smoking rates and high consumption of sugar-sweetened drinks in Aboriginal and Torres Strait Islander Queenslanders. The report showed that 45% of Indigenous Queenslander adults smoked daily (2012/13), which was 2.5 times higher than the non-Indigenous Queensland rate after adjusting for age differences. Although smoking rates have decreased by 13% among Indigenous Australians since 2001 (28% reduction for non-Indigenous), gains were only evident for Indigenous Australians living in non-remote areas, with no change for those living in remote areas. In addition, Indigenous children living in remote areas were 30% more likely to be living in a household with a smoker than those in cities (32% compared with 25% in 2015/16). Therefore, smoking rates in remote Indigenous communities are high.

When considering the consumption of sugar sweetened drinks, the Health of Queenslanders 2016 report¹ indicates that 50% of Indigenous Australians aged 2 years and older consumed sugar-sweetened drinks daily in 2012/2013 (compared with 34% for non-Indigenous Australians). The peak consumption among Indigenous Australians was between 4 and 30 years, with 60% of the community consuming sugar-sweetened drinks daily.

Queensland tobacco laws

In Queensland, tobacco laws exist that ban smoking in indoor and outdoor public places – including smoke-free areas on some council land; for example, public swimming pools, grounds where sports are played, skate parks and public transport waiting points. Smoking reduction strategies in Queensland are designed to protect people from the harmful effects of tobacco smoke. They focus on three areas:

1. Creating smoke-free environments to reduce exposure to

- second-hand smoke,
- 2. Empowering smokers to quit, and
- 3. Discouraging people from starting to smoke.

Healthy Indigenous Communities Project

The Healthy Indigenous Communities (HIC) pilot project is being trialled in three Aboriginal and Torres Strait Islander Shire Councils – Mapoon, Napranum and Wujal Wujal. The project is being led by Apunipima Cape York Health Council. Apunipima is a community-controlled health organisation that delivers comprehensive primary health care services to 11 communities in Cape York, Queensland. In addition to clinical services, Apunipima focuses on prevention and building local capacity to support health and wellbeing. They also have a dedicated project team that is working alongside their Tackling Indigenous Smoking Team and Apunipima regional staff.

The primary aim of the project is to engage with Councils and communities to develop and implement strategies around the reduction of sugary sweetened drinks in community and increasing smoke-free places. The project is funded by Queensland Health and the North Queensland Primary Health Network (PHN).

Project learnings to date

As part of the learning of the HIC so far, there are two stories to share: the water story and the smoking story. These stories represent a range of experiences across all three pilot communities that the project team has achieved so far, including who they have engaged with to influence environments that support reduced sugary drink consumption and increase smoke-free places and spaces.

Water story

Pre-project consultations revealed a number of reasons that people in Cape York might choose not to drink water. These include:

- Not liking the taste
- Feeling that water at the store is too expensive
- Taste preference for other drinks, such as tea, coffee and sugary drinks - “water is boring”
- Personal preference for filtered water
- Having to boil then cool drinking water due to uncertainty about quality of the water.

Through these conversations, it was found that people in the community knew sugary drinks were “bad” but they didn’t really know why. The communities also wanted more education and resources related to how sugary drinks contribute to chronic diseases like diabetes.

In order to respond to the community’s needs, the HIC project team developed a social marketing campaign specifically for Cape York communities, with the key message of “Sugary Drinks Proper No Good: Drink More Water Youfla” (which is local slang for you fellas). The HIC team engaged pilot communities in the campaign through education sessions at schools and PCYCs, information stalls at community events and kids’ artwork competitions to develop local images to support the campaign.

In order to improve drink environment in communities, the HIC project team has undertaken a number of steps, including:

- Trialling a modified Community Readiness Tool (CRT) to talk with Council, other stakeholders and community leaders about the issue of unhealthy drink environments in their community,
- Establishing and facilitating Local Working Groups in each pilot community using a supportive environments approach.

This does not mean taking away freedom of choice, but changing the environment to increase the availability of water and decrease exposure to sugary drinks, and

- Developing Community Action Plans using an action research approach, which involves repeated cycles of reflecting, planning, taking action, observing and modifying plans for ongoing implementation.

Another important aspect of working together has been linking with similar projects and initiatives. The HIC team has worked alongside Torres & Cape Hospital and Health Service to implement the Queensland Government's Healthier Drinks for Healthcare Facilities: Best Practice Guide.

The six pilot sites for this activity included the three HIC pilot communities of Mapoon, Napranum and Wujal Wujal. Some findings from this initiative relevant to the HIC work included:

- Staff and visitors' survey results indicated that 88% of people strongly agreed with the statement 'sugary drinks are a problem in my community', and
- Concerns were raised about the access to safe, clean drinking water on the outer islands of the Torres Strait.

The key learnings from the water story so far have emphasised the important role everyone has in remote communities in supporting and promoting water consumption, from Councils to Environmental Health to Indigenous Health workers to the store owner, and so on.

For water consumption to increase, communities must have access to safe drinking water at all times. This then must be promoted to communities to ensure community members are aware. Once this occurs, the benefits of drinking water instead of sugary drinks can be further promoted. This will be supported by the installation and maintenance of infrastructure that encourages water consumption; for example, a water bubbler to provide access to free, chilled drinking water.

Smoking story

Initial project consultations revealed a number of barriers to maintaining smoke-free spaces in Cape York communities. These included:

- Not enough "no smoking" signs,
- People in community being used to smoking anywhere they want to,
- People, particularly service providers and businesses, feeling uncomfortable asking smokers to move,
- Lack of understanding of tobacco laws,
- Not many designated smoking areas.

As part of the HIC Project, the project team has:

- Leveraged discussions and momentum off the national 'Don't Make Smokes Your Story' and local 'What's Your Story Cape York' campaigns at a local community level, and
- Worked alongside the Apunipima Tackling Indigenous Smoking Team and local health workers.

In order to increase smoke-free places and spaces in communities, the HIC project team has undertaken a number of steps, including:

- Trialling a modified CRT to talk with Council, other stakeholders and community leaders about the lack of smoke-free spaces in their community,
- Establishing and facilitating a Local Working Group to discuss possible changes in each pilot community using a supportive environments approach. This includes creating more smoke

-free spaces, policies and events, and

- Development of Community action plans using an Action Research approach, which involves repeated cycles of reflecting, planning, taking action, observing, and modifying plans for ongoing implementation.

The experience of this project so far indicates that different sectors at a community level play an important role in supporting and promoting smoke-free spaces, including those who are responsible for community gathering places (e.g. store owner), Council, organisations that can support efforts such as the local employment agency, health workers and environmental health officers.

HIC project evaluation

Although the project is still in the implementation phase, there is a rigorous evaluation framework to support this project. A number of tools are being used at different time points, and have relevance to both community consultation and project evaluation. These include:

- Modified CRT - looking at community's readiness for change around the issues of unhealthy drink environments and lack of smoke free spaces,
- Geographic information system mapping - development of a multi-layer electronic map which will show changes to the physical and policy environments,
- Modified Healthy Store Environment Tool - to monitor the availability of water, healthier options and sugary drinks at the local store,
- Store sales data - proxy measure of sugary drink and water consumption,
- Community Member Survey - which measures exposure to Drink More Water Youfla social marketing campaign, knowledge of environmental changes and self-reported drink consumption, and
- Community Working Group and Project Team reflections on the process of engaging with Councils around supportive environments.

It is anticipated that the project results will be available in late 2018 or early 2019, and the project is planning to publish in the academic literature.

Next steps for the HIC

As mentioned, the HIC is still in the implementation phase; however, there are a number of steps planned in the immediate future. The first includes the roll-out of the local social marketing campaign 'Sugary Drinks Proper No Good: Drink More Water Youfla' and 'Don't Make Smokes Your Story' campaign activities. Secondly, the continued effort to facilitate ongoing engagement with Councils and community leaders to inform a cycle of reflecting → planning → acting → observing until the end of the implementation phase of the project will continue. This will be followed by post-implementation data collection in early 2018. Finally, the project team will prepare case studies to guide future efforts to engage Aboriginal Shire Councils in creating supportive environments for health.

Future directions - the bigger picture

Moving forward, the HIC has highlighted that inter-sectoral collaboration is vital to progress the healthy environments agenda in Aboriginal and Torres Strait Islander Shire Councils, as everyone has an important role to play, whether big or small. Where possible, work that emphasises the co-benefits of working together will encourage these partnerships and collaborations.

The project has also highlighted the crucial role environmental health plays in chronic disease prevention, as access to safe drinking water and smoke-free places is essential to help communities make easy, healthy choices in efforts to help 'Close the Gap'.

Acknowledgements

The HIC project could not occur without the commitment and involvement of the three pilot communities and councils of Mapoon, Napranum and Wujal Wujal. The authors acknowledge the expertise of the HIC project team, including Cara Laws, Kiarah Cuthbert, Kani Thompson and Melinda Hammond. The authors also acknowledge the contribution of the Queensland Health team of Gillian Myers and Dru Armstrong. Finally, the authors acknowledge the financial support of Queensland Health and the North Queensland PHN.

To keep up-to-date with project activities and resources:

- Facebook: <https://www.facebook.com/Apunipima/>
- Twitter: @Apunipima
- Website: <http://www.apunipima.org.au/services>
- Rethink Sugary Drink Alliance: <http://www.rethinksugarydrink.org.au/>

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A partnership approach: utilising environmental health workers to deliver health messages

Melinda Edmunds and Dr Melissa Stoneham, Public Health Advocacy Institute of Western Australia; Chicky Clements and Ray Christophers, Nirrumbuk Aboriginal Corporation, WA

An introduction to the project

Getting Your Messages Out to Remote Communities was a workshop program for Aboriginal Environmental Health Workers (AEHWs) in Western Australia, which aimed to transfer a range of skills and strategies needed to deliver environmental and public health messages to community members and organisations. Environmental Health Workers (EHWs) are critical to effective community-based environmental health programs in many regional and remote communities.

The partnership

The program was a joint initiative between Nirrumbuk Aboriginal Corporation, which is based in Broome, and the Public Health Advocacy Institute of WA (PHAIWA). PHAIWA and Nirrumbuk had worked together on previous projects and were able to utilise each other's strengths.

PHAIWA's role was to develop the content and deliver the courses in conjunction with a Senior EHW from Nirrumbuk, Chicky Clements. PHAIWA has expertise in developing key messages, delivering health education and evaluating message retention and behaviour change.

Nirrumbuk has expertise in Aboriginal environmental health, Indigenous mentoring, health promotion, successful project delivery, securing community engagement and participation, community-based partnership development, the cultural significance of messages for Aboriginal people, and ensuring the cultural security of transferring knowledge. With the expertise of these two organisations combined, it proved to be a very successful partnership.

The workshops

Initially, a two-day workshop was offered to every AEHW in Western Australia. This was followed up six months later by a one-day workshop which reinforced the key themes from the initial workshop, allowed participants to discuss how they applied their learnings in the field and provided additional information to assist with message evaluation.

The workshop was piloted in Broome and, after some amendments based on feedback, the workshops were then facilitated in the following locations:

- Kalgoorlie
- Geraldton
- Port Hedland
- Warakurna
- Halls Creek.

A total of 52 AEHWs and Aboriginal Health Workers attended the workshops.

In all cases, small groups were formed around the key messages, to then spend almost one day planning out the community project that would wrap around the key message. A simplistic program planning guide was provided to assist with this planning exercise, and the workshop facilitators once again assisted all groups to complete this process.

Environmental Health Workers

The overall philosophy of the workshops was, encourage AEHWs to think differently about their jobs. These key workers are often caught up in the cycle of providing services for their communities, instead of with their communities. The AEHWs provide services above and beyond their core business, with a common example being the repeated clean-up of people's private yards. The workshops aimed to provide the AEHWs with the skills and knowledge to frame and deliver messages that are relevant to their issue and target audience, to encourage community members to take more responsibility for their own health and wellbeing, which would then allow the EHWs to work at a more strategic level.

It was important that the workshops considered health within a broader context (e.g. inclusive of housing, education) and linked the message and project development with local Environmental Health Action Plans. Another objective of the workshops was the strengthening of collaborative partnerships to enhance coordinated and integrated approaches to engaging communities and implementing community-based projects.

So did it work?

An outcome from each workshop was the preparation of at least one environmental health project that pushed beyond the boundaries of their everyday work. The following project proposals were developed as part of the workshop series:

- dog health in Kalgoorlie
- cockroach eradication in Geraldton
- community clean-up in Bidyadanga
- car body clean-up in Cheeditha
- smoking and children in Warburton
- development of environmental health promotion resources for state-wide use
- yard clean-ups in Warakurna (locals taking control)
- trachoma prevention for young adults in Kalumburu
- aluminium can collection in Halls Creek
- car body clean-up in Balgo
- development of PowerPoint presentations (general) in Newman
- clean up in Billiluna.

The six-month follow-up workshops identified a number of challenges in implementing these project plans. However, we had eight projects commenced, five completed, a number of PowerPoint presentations developed by AEHWs for the first time, and the remainder of the projects are continuing.

Conclusion

This workshop series recognised the critical role that remote Aboriginal Environmental Health Practitioners play in maintaining and improving the community's health under extremely difficult circumstances. These workers possess skills and knowledge that are critical to any program that aims to close the gap.

For more information

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Health hardware case study: Utopia Homelands

Aaron Clifford, Environmental Health Central Australia, NT

Before I commence, I would like to acknowledge the Traditional Owners of the land on which we are meeting. I pay my respects to their Elders, past and present, and the Elders from other communities who may be here today.

Good afternoon, my name is Aaron Clifford, and as discussed in my previous presentation, I am the Acting Coordinator with the Environmental Health team in Central Australia. Today, I am going to talk about project management in Central Australia using a case study regarding the remediation of endemic plumbing failure in the Utopia Homelands.

To begin my presentation, I would like to discuss those considerable constraints associated with the multitude of Indigenous communities in Central Australia affected by significant remoteness, limited human and financial resource availability, and the constant deterioration of community assets. Following on from this, I would like to talk about investment and evaluation within these communities and then communicate these issues to the target region of this case study, the Utopia Homelands. An example of asset deterioration will include discussion of endemic plumbing failure within Utopia. Then, Environmental Health's response to the issue will be highlighted, including a multidisciplinary collaboration by government and non-government organisations to sustainably improve conditions within the region.

So, as you can imagine, within remote Indigenous communities, there are considerable constraints associated with vast distances, harsh remote environments, limited human and financial resource availability, and the constant deterioration of community assets; and obviously these constraints require a large amount of investment.

Just to put this investment into context, an estimated annual investment of more than \$3 billion is allocated to remote and very remote Indigenous communities. Obviously, working within the constraints of remote environments requires considerable collaboration with a range of stakeholders.

The finance and management of resources has always occurred through three major stakeholders: the Commonwealth Government, the Northern Territory Government and local government councils. Cross-pollination between them has always been and continues to be complex. Of fundamental consideration is local governance. This involves Aboriginal communities that lie on 'Aboriginal land'. In the Northern Territory, this can mean different things. For example, the term is most generally used to describe freehold land granted under the Aboriginal Land Rights Act. However, there are also areas titled 'Community Living Areas' which are excised from pastoral leases.

In each instance, it is legislated that within Aboriginal communities (lands), there must be an emphasis on local governance. Importantly, this understanding provides a component of environmental health consultation. In January 2014, the NT Government changed the Local Government Act to introduce Local Authorities across all major communities. These local boards have been established to support local governance and leadership by local community members. Among a range of considerations, this includes ensuring: inclusivity with the decision making process, through an awareness of what is happening and planned for their

community; and ensuring having input into planning within communities, such as delivery plans, Shire Plans and Regional Management Plans. This is also true of Environmental Health's role within the public health spectrum, which ensures that local governance is empowered.

Understanding processes of local governance is essential, because within Indigenous communities, one of the first things Environmental Health Officers endeavour to achieve is to undertake a profile of community infrastructure, key services and the stakeholders who facilitate these services.

Like all towns they have infrastructure requirements, relating to providing roads, power, water, sewerage, education, primary health care access, employment opportunities, and recreational opportunities. Typical to Environmental Health, our team, looks at key infrastructure within our legislative boundaries (i.e. through our various legislation such as the Public Health and Environment Act and Regulations, and various infrastructure-related guidelines and Codes).

As you can imagine, public health issues are related to solid waste, sewage, potable water, housing for health, food, dust mitigation, storm water mitigation and so on. Importantly, we work to reduce risk, and due to the constraints of Indigenous environments we form collaborative approaches through building strong relationships with each community.

Naturally, Environmental Health works with the community Shire Services Manager and their operations staff, such as Essential Service Officers and municipal workers, to gather information. Environmental Health also works with other public health agencies in regard to the provision of health promotion activities. Significantly, we also endeavour to understand the cultural systems, ensuring that the Environmental Health service is culturally competent.

Therefore, it is essential to establish relationships with local leaders, such as Traditional Owners, Elders and other members of the community. Part of this process involves attending and presenting at Local Authority meetings, where environmental health items can be recorded within minutes and voted upon by key Indigenous leaders.

Obviously, the process of local governance and participatory processes are essential. For instance, Aboriginal residents occupy 80 of the 100 houses; and only 10.2% of people speak English at home.

It is also important to understand those transportation constraints that affect service delivery. Utopia is located along the Sandover Highway. The Sandover consists of 545 km of rough, corrugated dirt roads only accessible by 4WD. In summer, temperatures reach above 40°C and the Sandover is impassable after relatively small amounts of rain. Water build-up can provide significant travel constraints. Part of preparation for working out bush is the need to monitor the Road Report Website and Bureau of Meteorology. Also, service providers cannot drive at night due to a large population of feral horses, donkeys, dogs, camels, kangaroos and dingoes. Accessibility issues also cause trades professionals to charge \$2 to \$6 per km travelled in addition to their hourly rates.

These constraints require massive funding, and subsequently the local Council has a \$2.3 million deficit. Therefore, in regard to project development, there are numerous organisations competing for funding. Partly, this is available through the

Indigenous Advancement Strategy investment of \$5.9 billion, just over half of which is allocated towards remote Australian communities. However, there is now a strong focus on 'Return for Investment' where continuous quality improvement is properly measured through adequate needs assessment processes and key performance indicator design.

The paper titled 'Mapping the Indigenous program and funding maze' provided by the 'Centre of Independent Studies' identifies that significant improvement is required regarding the administration of Indigenous programs and funding. Particularly, it indicates that less than 10% of the current 1082 programs are being properly evaluated. Subsequently, there is a lack of comparative performance data and over-reliance on anecdotal evidence; and most importantly, it found that there is limited Indigenous input into program design and delivery.

Enter the Health Community Assessment Tool. This tool, aka HCAT, was originally developed by Dr Elizabeth McDonald from the Menzies School of Health Research. It was developed for those involved in planning, service provision and more generally promoting improvements in community social determinants of health.

HCAT is a tool to measure, monitor and evaluate key social determinants of health at a community level in Australian rural and remote communities. The key here is the participatory consultative process with community members and key stakeholders. Its assessment process allocates considerations associated with the social determinants of health and through the use of measurable indicators, its process is designed to support potential continuous quality improvement programs. Importantly, HCAT provides focus on critical health infrastructure, and this partly inspired the focus on plumbing issues in Utopia by the Environmental Health Program.

The focus communities of this presentation are those of Utopia. Utopia lies within the Barkly region on Aboriginal-owned land called Urupuntja. It is approximately 3 hours' drive from Alice Springs and, as 90% of the population of 483 people are Indigenous, its local governance is supported through the Urupuntja Aboriginal Corporation.

Utopia comprises of a larger community, Arlparra, with a population of 483 people, and 16 homeland communities with populations that range from 20 to 50 people who reside in 91 Aboriginal houses. Anmatyerre and Alyawarra are the most common languages spoken in this area. Currently, Utopia's municipal services are funded by the Department of Local Government & Community Services, who contracts to service providers that are currently operated by Central Desert Regional Council. However, at the time of this presentation's project focus, the contractor was Urupuntja Aboriginal Corporation, with whom Environmental Health significantly collaborated.

The size and scope of service delivery requirements in Utopia have made service provision particularly challenging; and this was reflected through Environmental Health, which found systemic failure of plumbing systems across all 16 homelands.

The plumbing systems in the homelands use water from onsite bore systems. Waste water is treated by onsite septic systems, typically involving Atlantis absorption trenches.

The geographical location across Utopia, the limited access to funding, very poor maintenance schedules and lack of maintenance program in Utopia created many barriers to basic

plumbing maintenance being undertaken in a timely manner. Chiefly, this resulted in numerous minor issues across 91 homes progressing into larger, more costly items, and created high risks of infection and disease due to the length of time they remained unresolved. So, these findings by Environmental Health naturally followed onto specifically looking at what quality control and maintenance programs were available in Utopia. We also looked at aspects associated within the Housing for Health spectrum.

Within the investigation, Environmental Health started promoting to Urupuntja Corporation aspects associated with the Housing for Health spectrum, such as components associated with access to adequate water supplies and sanitary drainage; including access to bathing, washing clothes and removing waste water. As Urupuntja Aboriginal Corporation were contracted by the Barkly Regional Council to provide services they agreed to fund thorough investigations across all 91 homes utilising the services of a plumbing company.

To support ongoing processes, the Environmental Health team began to establish a working group, facilitated by myself. The initial process involved meetings with the Service Coordinator for Urupuntja Aboriginal Corporation, Director of Infrastructure and Grants Manager from Barkly Regional Council; and the Coordinator and Manager from Environmental Health. Through this process, we were able to establish input from the local traditional owners of each homeland.

The initial consultative stage involved Environmental Health reports, which indicated the initial findings of failing systems, the associated health risks and the legislative ramifications. Through this initial consultative process, Urupuntja did provide funding to employ a plumbing business to provide a complete audit of the homelands.

The audits were thorough and, at great expense, took several months. During this process simple plumbing fixes occurred, such as swapping out toilets and shower heads, unblocking drains, and simple connections to water. The initial plumbing reports from the homelands identified endemic plumbing issues, a poor history of maintenance follow-up, very poor Code compliance and in many cases failure of even the most basic plumbing set-ups. Joint inspections were also undertaken by Environmental Health to assist with regulatory understanding and to reinforce the need to reinstate Code compliance. So let's take a look at some of the issues found through the audit process.

One of the main issues with the plumbing across all homelands was very poor maintenance schedules, greatly affected by a lack of funding. However, this was made substantially worse by the installation of inappropriate plumbing systems, very poor Code compliance; and continuing endemic failure of sewage treatment systems.

There were other contributing factors as well, such as: a large amount of vandalism; significant damage to external plumbing by increased numbers of feral horses and donkeys sourcing water; the installation of plumbing systems by private organisations, who at various stages no longer took responsibility for plumbing upkeep; and several homes which were located next to large trees with root systems that had compromised plumbing systems.

Another important factor was the poor education and limited self-efficacy of the local populations. Many foreign objects, such as shoes, car parts, sanitary items, phones and all manner of items, were found

in septic tanks, distribution boxes, I/O's and drains. Trench systems had been, in many cases, crushed by cars driving over them.

Another issues, involved the hardness of the water, as most potable water in Central Australia and the Barkly region comprises of high calcium levels. Subsequent calcium deposits, quickly provides significant wear and tear to health hardware. So, overall, we found complete plumbing systems that needed replacement.

So, as discussed within this presentation so far, there are numerous constraints associated with financing infrastructure on Indigenous communities. I'll just remind you at this point that the Barkly region is 20% larger than Victoria; and before any contractor can step foot on a community, there is a \$2-\$6 per km fee per vehicle, and hourly fees for each contractor who attends onsite. Also, health hardware is constantly in a poor state of repair due to limited self-efficacy of local populations, which as discussed is constantly influenced by a lack of access to the social determinants of health.

Also, due to the high costs and constant need to replace eroding assets, the Barkly Regional Council Plan and Budget for 2015/2016 forecasts a deficit position of \$2.9 million. You might be able to appreciate, with those expanses of land and conditions found on remote communities, that this deficit reflects the difference between operating revenue and expenses. Therefore, there is no funding in Council to undertake all of the consulting and structural works provided through this project. However, there is a plethora of grant opportunities, which are provided to support initiatives such as discussed for the Alpururulam waste management.

For these reasons, Environmental Health reporting was required to be detailed; not just in a regulatory capacity but also in a capacity that succinctly describes those conditions associated with public health.

Ultimately, those audits undertaken by the plumber and subsequent Environmental Health reporting supported the Barkly Regional Council Grants Manager in their application for access to \$2 million.

The outcome of the working group also allowed a To Do, which highlights: what has occurred; and what still needs to occur.

After the identification of the waste management issues, a 47-page report was written, in the context of Housing for Health and in line with legislative requirements, describing the endemic nature of all plumbing issues found. The report coincided with a large swag of quotes provided throughout the entire Utopia region that identified that \$2 million would be needed to address the items that were identified.

The report was provided by Environmental Health to the Barkly Regional Council's Director of Infrastructure, Director of Housing, Operations Manager, and Grants Manager. The report was also sent by the Urapuntja Service Coordinator to the Director of the Office for Homelands, Outstations and Town Camps from the Department of Local Government and Communities, and the Minister for Local Government and Community Services.

Over a series of meetings, the working group reached agreements with the Barkly Regional Council to fund the \$2 million required to address the plumbing issues. Again, as there was no allocated funding in the Barkly Regional Council's funding, all costings must occur through those grant arrangements available for Indigenous communities.

In the meantime, the plumbers would continue to provide basic maintenance works on a priority basis until the funding was sourced. So most of the funding required addressed those plumbing issues provided within Environmental Health reporting. However, while some funding was dedicated to remediating the plumbing issues, it arose through functions outside of the working group.

Before being awarded any funding, for the project, the Barkly Regional Councils 'service contract' had expired; and this was subsequently awarded to a new service provider, operated by private contractors. Also, as the Barkly Regional Council was no longer the service provider, Urapuntja service delivery was subsequently discontinued.

However, as the Department of Local Government and Communities provides funding to the Utopia Homelands on behalf of the NT Government, their Director of Homelands, Outstations and Town Camps allocated up to \$1.2 million in funding (\$500,000 of which was additional prioritised funding) towards addressing those items provided within the Environmental Health and plumbing reports. Subsequently, ownership of the program was able to be handed over to the Office for Homelands, Outstations and Town Camps.

However, monitoring continues to be undertaken by Environmental Health through a consultative and regulatory capacity. This includes the application and notification process involved with altering or installing systems and through ongoing meetings, and an agreed reporting format developed specifically pertaining to the original Environmental Health report.

As such dedicated plumbers provided full-time plumbing works for over 9 weeks undertaking a fix and make safe program. Also, they continue to re-establish complete new plumbing systems. Importantly, the sustainability of the program is contributed to through ongoing prioritising of Municipal and Essential Services funding. Therefore, it is hoped that these mechanisms will contribute to sustainable plumbing programs.

Thank you. That is the end of this presentation. Are there any questions?

For more information

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Household waste disposal (value adding project) in Western Sydney

Trent Auld and Helen Noonan, Western Sydney Local Health District, NSW

In February 2015, the Centre for Population Health, in partnership with the local Aboriginal Medical Service and NSW Housing, conducted a pilot of the Housing for Health (H4H) program in Western Sydney, the first for the Local Health District.

During this project, a number of problems were identified by residents. This included the occurrence of pests, such as cockroaches and rodents. Storage of household waste was identified as a possible contributing factor, with 66% of households not having a functional kitchen bin.

This project aim was to introduce an integrated pest management approach to help reduce pests in the household, by improving how waste was stored and by providing general cleaning products to assist in household cleaning.

Participants were provided with a household waste (clean-up) kit and asked some questions about how they managed waste in the home.

A follow-up survey via telephone was conducted 6 months later, asking about usefulness of the kit and other feedback.

Integrated pest management is a recognised approach which aims to reduce exposure to both pests and pesticides. It incorporates an holistic approach to pest management by recommending:

1. Inspection and monitoring to identify areas in the home that might provide pests with food, water, or shelter
2. Identification of the type of pests (if present) to allow a targeted response. (minimising pest treatment with chemicals if required)
3. Comparison of pest numbers to action thresholds (is there a tolerable level of pests that do not impact on health?)
4. Limiting access to food, water, and shelter; good maintenance and housekeeping are the first line of defence in integrated pest management
5. Evaluation of effectiveness of implemented actions. (Maley et al, 2014).

Most (93%) of the respondents advised that the bins provided were still being utilised, and most of these still had functioning lids to prevent the entry of pests.

All of the households indicated that they were separating waste into different types: general waste and recycling. One household was also composting in their backyard. Some households were using the recycling bucket provided, five households indicated that it was either used for another purpose or lost.

All the respondents indicated that the clean-up kits were great and that the items included for general cleaning were useful, and six, (43%) noticed fewer pests around the home.

The use of an integrated pest management approach is an accepted and relatively easy strategy to assist households in controlling household pest occurrence, thereby minimising exposure to pesticides.

Reference

Maley et al, (2014). Integrated Pest Management: A Guide for Affordable Housing, available online at <http://www.stoppests.org/> (accessed 11/8/17).

For more information

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Household Waste Disposal Project

Western Sydney, NSW

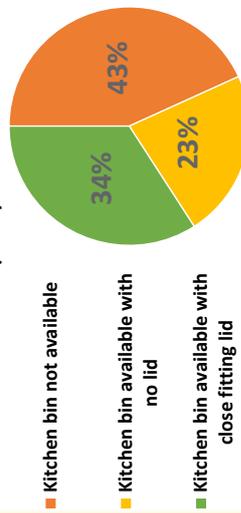
Trent Auld and Helen Noonan | Centre for Population Health | Western Sydney Local Health District

Introduction

In February 2015 the Centre for Population Health in partnership with the local Aboriginal Medical Service and NSW Housing conducted a pilot of the Housing for Health (H4H) program in Western Sydney, the first for the Local Health District.

During this project, a number of problems were identified by residents. This included the occurrence of pests such as cockroaches and rodents. Storage of household waste was identified as a possible contributing factor with 66% of households not having a functional kitchen bin.

Household Bin Survey (Independent H4H survey) (n=44)



Aim

This project aim was to introduce an Integrated Pest Management approach to help reduce pests in the household by; improving how waste was stored and by providing general cleaning products to assist in household cleaning.

Methods

Participants were provided with a household waste (clean-up) kit and asked some questions about how they managed waste in the home.

A follow up survey via telephone was conducted 6 months later asking about usefulness of the kit and other feedback.

Integrated Pest Management (IPM)

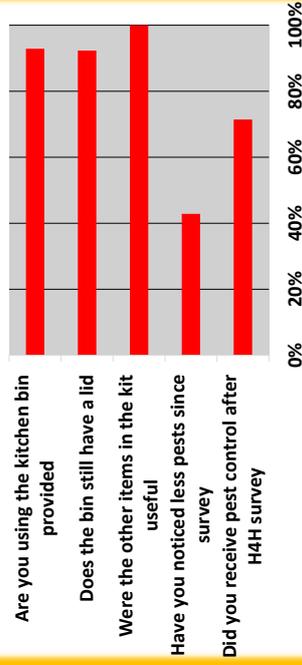
Integrated pest management is a recognised approach which aims to reduce exposure to both pests and pesticides. It incorporates an holistic approach to pest management by recommending:

1. Inspection and monitoring to identify areas in the home that might provide pests with food, water, or shelter.
2. Identification of the type of pests (if present) to allow a targeted response. (minimising pest treatment with chemicals if required).
3. Compare pest numbers to action thresholds (is there a tolerable level of pests that do not impact on health).
4. Limiting access to food, water, and shelter. Good maintenance and housekeeping are the first line of defence in IPM.
5. Evaluate effectiveness of implemented actions.

Malley et al. (2014) *Integrated Pest Management: A Guide for Affordable Housing*, available online at <http://www.stoppests.org/>, accessed 11/8/17.



Results of Follow Up Household Survey (n=14)



Respondents who answered 'Yes'

Results

Thirteen (93%) of the respondents advised that the bins provided were still being utilised.

Thirteen (93%) of the participants preferred to use the bin provided and 92% (12/13) of these still had functioning lids to prevent the entry of pests.

All of the households indicated that they were separating waste into different types, general waste and recycling. One household was also composting in their backyard.

Some households were using the recycling bucket provided, five households indicated that it was either used for another purpose or lost.

All the respondents indicated that the clean-up kits were great and that the items included for general cleaning were useful.

Six (43%) of respondents noticed less pests.

Conclusion

The use of an Integrated Pest Management approach is an accepted and relatively easy strategy to assist households in controlling household pest occurrence, thereby minimising exposure to pesticides.

CLEAN UP COUNTRY

Creating cleaner, healthier communities through waste management improvements and partnerships

CULTURE

Respect for Country

Our own land is to look after Country. We have to look after the Earth, so we come from the earth. We care for our country. If we keep putting rubbish on our land, we are taking away from our country. We are trying to look through this project to see how we can help our country. We are talking to the community about the poisons in the land. After we clean it up, we are going to plant it with the community.

In the project we worked with local Aboriginal artists to create art that tells our story. We use words and images that identify who we are as a people.

COMMUNITY

Family & Opportunity

Through the project we met local health members to be part of the Community Engagement Advice (CEA). The CEA has kept the community informed, as well as seeking feedback from the community. We are planning to do a plan and will be turning the educational activities with the community to improve recycling. We have a plan to do a community clean up. We are going to use and are going to part our bins with animal bottles for each house.

Working with Desert Pea Media (DPM) to develop a rap about the project. We are going to use the rap to reach the wider community and engage them in the story.

"Breaking Habits" brought young people's voice to the project. It was a great idea to have a rap about the project. Top it together, it's magic, it's a challenge."

RECYCLE

Re-use it, Sort it

We are getting ready for the new 650 sorted bins for recycling and how to recycle. We are starting up our own recycling program. We are starting up our own recycling program. We are starting up our own recycling program. We are starting up our own recycling program.

With money from the project we have been able to purchase bins for inside and outside the house, a trailer and a truck. We are going to use the money to purchase the materials or recycling because it reduces the need to mine more material from the earth.

We also talk to the mob about the burning of plastics and the importance of recycling. We are going to use the money to purchase the materials or recycling because it reduces the need to mine more material from the earth.

We are excited about the opportunity to earn some money.

TOGETHER

Collaboration & Mutual Respect

We have developed good partners in the project that has supported us in our vision. North East Waste (the regional waste group) secured the funding for the project and the NSW EPA. The NSW EPA has provided the funding as a pilot program to inform their new Aboriginal Community Waste Management Program.

We are going to use the money to purchase the materials or recycling because it reduces the need to mine more material from the earth.

Together these organisations have met fortnightly to discuss the project and to ensure that the project is on track. We are going to use the money to purchase the materials or recycling because it reduces the need to mine more material from the earth.

We are excited about the opportunity to earn some money.

FUTURE

Healthy Clean Community

The project has a vision to create a model garden in the paddock below the tip. We are working with the Gumbul Rangers (a local Aboriginal owned business) to revegetate the paddock with native plants and trees. We are going to use the land to grow crops.

When the tip is cleaned up, the fresh water spring will be used to water the crops. We are going to use the money to purchase the materials or recycling because it reduces the need to mine more material from the earth.

When we burn our loved ones in our cemetery above the tip site, we will no longer feel shame about the rubbish. It will be a beautiful place to visit and by them to rest.

Photo credit: Desert Pea Media & Waste Aid

This program is supported by the NSW EPA Waste Less, Recycle More initiative funded from the waste levy

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The health of native food and native food for health

Sharon Dennis, University of Tasmania, TAS

The Health of Native Food and Native Food for Health

Sharon Dennis, Natural Environment and Wilderness Studies, University of Tasmania

An investigation of consuming native food for one month in Tasmania, as an Aboriginal researcher, has instigated a grassroots approach in education about native food and the omission of native food in the consciousness when consuming food. Sharing the positive health benefits of eating native food, physical and mental, provided a foundation of learning igniting an interest to develop partnerships. However, access to Tasmanian native food is limited with many constraints. Introduced food dominates the food market and landscape. Native food is absent in policies compared to introduced food allowing the destruction of food ecosystems. The choice to consume native food as a complete diet is thus becoming more constrained.

Questions

1. What is the confusion about Tasmanian food?
2. Why am I not eating native food?
3. Is it possible to consume native food?

Project Overview

- Identify the native food in Tasmania
- Research the colonial overlay, impact, omissions and prejudice about native food and native food security.
- Eat native food for a month as an experiential participatory learning case study including the health markers related to medical records.

Preparation

- Ethics and Medical
- Licences and Permission
- Native Food Location/Resources
- Pre consumption Processes
- Indigenous Rights/Intellectual
- Season and Weather

Participatory Research

- Eating Native Food
- Journal
- Photos
- Documentation/Language



Photos: Sharon Dennis, Top of Table Cape, Wynyard
Cleared land for colonial agriculture. Aboriginal site and fish traps at base of hill.



ORCID: 0000-0002-7650-1500



Photo: Sharon Dennis
Table of Tasmanian native food



Photo: Sharon Dennis
Examples of the photos of the Tasmanian native food meals included in the daily journal and diary collection over a period of one month.



Photo: Sharon Dennis

Journal Entry Day 18

"I have found that I am after different tastes during the day, and I enjoy the collection and combination of the native foods. I am growing in confidence and comfort in what I eat. I am still cautious, and I read what I can first, but I think the skill of being self-sufficient and less reliant and manipulated by food that is not native and processed is liberating."



Photo: Sharon Dennis
Lunch pack for work



Photo: Sharon Dennis
City of Devonport, Mersey River, Tasmania.
Coastal vegetation dominated by development

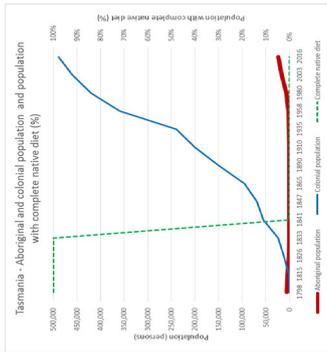


Photo: Sharon Dennis
Tasmania promoted as the 'Apple Isle'

Results

- #### Health
- Connection with food - thinking more about it as a long term survival resource.
 - Mood improvement
 - Improved body movement/weight loss
 - Improved taste
 - No Sugar or processed foods
 - Seasonal preparation
 - Family connections and identity Research
 - Understanding the layers of colonisation
 - Colonial food, transported food, comfort food, considered 'safe food', introduced food, foreign food and the written knowledge of food.
 - Tasmanian time line of population and the time period of solely consuming native food
 - Tasmanian Aboriginal cultural roles and food security. Continuation of culture.
 - Introduction of educational presentations, partnerships and programs
 - Access to Food
 - Food regulations
 - Ownership of native food
 - Disconnection of generations
 - Preservation of native food
 - The more I have to find native food the more I notice its absence

Food Consumed; table to the right. Table includes the day, the food eaten and in order including water intake, the Tasmanian native food name documented early 1800's and the palawa karni name. Other information collected, but not included in this table, are the amount and types of exercise, the source or location of the native food, the costs associated with purchase or collection and the use of native medicine when required.



Tasmanian Native Food Consumption and Tasmanian Aboriginal and Colonial Population. *lutruwita*, Tasmania. First Nations People 40,000 prior to 1798 of colonial occupation. Graph indicates approximate First Nations, *palawa*, population and colonial occupation from 1798. The decrease in First Nations people and the increase in the colonial population have an impact on the time line of history and the percentage of consuming a complete diet of native food.

Day	Time	Weather	Temperature	Humidity	Wind	Water Intake	Food Consumed	Palawa Name
1	08:00	Sunny	18°C	65%	10 km/h	1.5L	Breakfast: 1 x Kani (native bread), 1 x Kani (native bread), 1 x Kani (native bread)	Kani
2	08:00	Sunny	18°C	65%	10 km/h	1.5L	Breakfast: 1 x Kani (native bread), 1 x Kani (native bread), 1 x Kani (native bread)	Kani
3	08:00	Sunny	18°C	65%	10 km/h	1.5L	Breakfast: 1 x Kani (native bread), 1 x Kani (native bread), 1 x Kani (native bread)	Kani
4	08:00	Sunny	18°C	65%	10 km/h	1.5L	Breakfast: 1 x Kani (native bread), 1 x Kani (native bread), 1 x Kani (native bread)	Kani
5	08:00	Sunny	18°C	65%	10 km/h	1.5L	Breakfast: 1 x Kani (native bread), 1 x Kani (native bread), 1 x Kani (native bread)	Kani
6	08:00	Sunny	18°C	65%	10 km/h	1.5L	Breakfast: 1 x Kani (native bread), 1 x Kani (native bread), 1 x Kani (native bread)	Kani
7	08:00	Sunny	18°C	65%	10 km/h	1.5L	Breakfast: 1 x Kani (native bread), 1 x Kani (native bread), 1 x Kani (native bread)	Kani
8	08:00	Sunny	18°C	65%	10 km/h	1.5L	Breakfast: 1 x Kani (native bread), 1 x Kani (native bread), 1 x Kani (native bread)	Kani
9	08:00	Sunny	18°C	65%	10 km/h	1.5L	Breakfast: 1 x Kani (native bread), 1 x Kani (native bread), 1 x Kani (native bread)	Kani
10	08:00	Sunny	18°C	65%	10 km/h	1.5L	Breakfast: 1 x Kani (native bread), 1 x Kani (native bread), 1 x Kani (native bread)	Kani

Photo: Sharon Dennis
Food Consumed

For more information

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Outcomes of trachoma screening in the Torres Strait: lessons for trachoma control

Kate Lynch, Queensland Health, QLD

Outcomes of trachoma screening in the Torres Strait: lessons for trachoma control

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BACKGROUND

Trachoma is a disease caused by chlamydia infections of the eye. Overtime, repeated infections can lead to severe eye disease and blindness¹.

Trachoma generally occurs in dry and dusty environments where personal and community hygiene is difficult to maintain, and is associated with overcrowding and reduced access to or use of water^{1,2}.

Trachoma is spread by infected eye and nasal discharge that is passed between young kids. Maintenance of facial cleanliness is fundamental to preventing infection².

Prior to 2008 it was believed that trachoma had been eliminated from Queensland. However, since then, a limited number of screening exercises have found follicles consistent with a diagnosis of active trachoma in children residing in the Torres Strait Islands.

Despite these findings there is a lack of objective evidence to either prove or disprove that trachoma associated chlamydia are causing eye infections in the Torres Strait. Further, there is no evidence that this is causing visual impairment in the Torres Strait.

METHODS

In 2016 and 2017 Queensland Health undertook a trachoma mapping exercises in three communities in the Torres Strait Islands identified as being potentially at risk of trachoma.

This consisted of examining and classifying eyes according to the WHO simplified grading tool. The ophthalmologist performing the screen also conducted a more detailed eye examination which included checking each child for pannus and Herbert's pits.

Conjunctival swabs for chlamydia polymerase chain reaction testing were collected from each child found to have five or more follicles consistent with the WHO criteria for trachomatous inflammation – follicular.

Clean face prevalence was assessed in all three communities.

TRACHOMA GRADING CARD

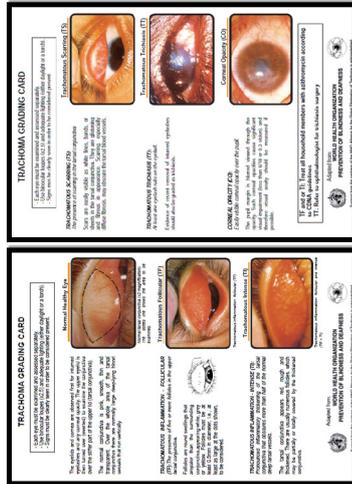


Figure 1. WHO simplified trachoma grading scheme³

RESULTS / DISCUSSION

Population coverage:
 In 2016 and 2017, 99% (153/165) and 89% (135/151) of Aboriginal and Torres Strait Islander children aged 5-9 who were present in the community during the trachoma team's visit were screened for trachoma.

Active trachoma:
 In 2016, 9% (14/153) and in 2017, 8% (11/135) of children who were screened were found to have signs consistent with a clinical diagnosis of active trachoma according to the WHO simplified grading system. No other features characteristic of trachoma (e.g. pannus or Herbert's pits) were identified in these children. No child was diagnosed as having active trachoma in 2016 or 2017.

PCR results:

All swabs were negative for *C. trachomatis*. Further testing for viral and bacterial causes of follicular eye disease was performed. The majority of these tests were negative and did not explain the clinical findings across the three communities

Clean face prevalence:

100% of children screened for trachoma were also screened for clean face. In 2016, 92% (141/153) and in 2017 90% (121/135) of children had clean faces

SAFE STRATEGY

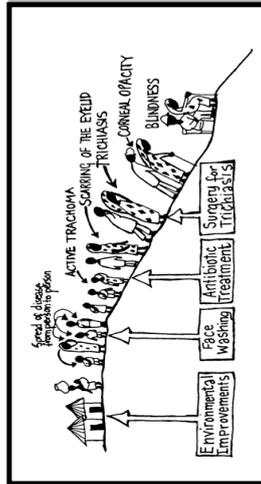


Figure 2. SAFE strategy for preventing blindness from trachoma⁴

CONCLUSIONS / IMPLICATIONS

- Trachoma is not considered to be a public health problem in Queensland
- Kids in the Torres Strait Islands are keeping their faces clean
- In the Torres Strait, believed to be a low prevalence setting for trachoma, detailed eye examinations by an ophthalmologist in children who met the definition for trachoma using the simplified grading tool, did not identify active trachoma
- In low prevalence settings, continued use of a simplified tool may lead to over diagnosis of trachoma, resulting in unnecessary individual or community treatment and drive unwarranted future screening exercises

References

1. World Health Organization. Trachoma. <https://www.who.int/news-room/fact-sheets/detail/trachoma>. 2018. 2. World Health Organization. Trachoma. <https://www.who.int/news-room/fact-sheets/detail/trachoma>. 2018. 3. World Health Organization. Trachoma. <https://www.who.int/news-room/fact-sheets/detail/trachoma>. 2018. 4. World Health Organization. Trachoma. <https://www.who.int/news-room/fact-sheets/detail/trachoma>. 2018.

Acknowledgments

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Background:

Camping plays a major role in the lives of Aboriginal people, throughout much of the twentieth century communities have camped along the New South Wales coast on a seasonal basis. Families stayed at these campsites during holidays, in between work and during particular fishing seasons, these camps provided opportunities to reconnect with each other, friends and country.

Today communities continue to gather at the campsites, with some choosing to remain permanently for a variety of reasons. *The Camping for Health: Improving Community Health when Returning Safely to Country project* looks at how we can improve sanitation methods on a campsite in Wallagoot, NSW.

The Bega Local Aboriginal Land Council (BLALC) has developed a Master Plan for the site encompassing future projects based on:

- Tackling homelessness in the Community by providing a safe and secure site for emergency temporary housing,
- Providing cultural education programs,
- Supporting current work training programs onsite (Cultural burning programs etc.), and
- Providing for an Aboriginal community campground.



Consultation with BLALC - Left –Right: Donna Aldridge (Chairperson for BLALC) Amanda McKenna (EHO Cadet BVSC) and Glenn Wilcox (BLALC CEO)

Working within the framework of the Master Plan, Bega Valley Shire Council's (BVSC) Environmental Health Officer Cadet proposed a joint pilot project to improve sanitation outcomes by constructing toilet facilities at the campsite.

Where basic sanitation facilities are missing health of the community can suffer. By providing suitable amenities the risk of exposure to raw sewage will be reduced. This is important to reduce/prevent potential infections including diarrhoea, gastroenteritis and hepatitis A. Inadequate hand washing can lead to a number of infectious diseases that can be spread from one person to another. These diseases include gastrointestinal infections, for example; salmonella, and respiratory infections, like influenza. Washing hands properly can help prevent the spread of germs (bacteria and viruses) that cause these diseases (Health, B 2017).

The purpose of sanitation is to provide a healthy living environment for everyone, to protect the natural resources (such as surface water, groundwater, soil), and to provide safety, security and dignity for people when they defecate or urinate (BMC 2008). This pilot project will reduce the potential for local pollution of the land and water at Wallagoot.

Project aims:

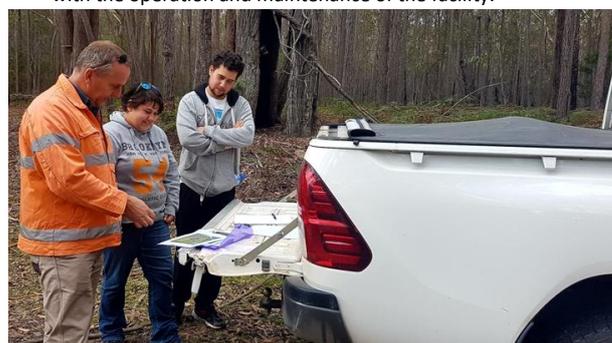
- Protect and promote healthy living practices on a 44.32Ha parcel of BLALC community land at Wallagoot.
- Construction and installation of suitable sanitation facilities [accessible toilet and capacity for hand washing] achieving critical healthy living practice 3 "Removing waste safely" from the nine Healthy Living Practices – Housing for Health.
- Protect the natural environment through the installation of a toileting system specifically designed to protect groundwater and surface water from contamination. [The site is located adjacent to a sensitive coastal lake system and a National Park].
- Establish and build on relationships with community members, creating strong pathways for mutual knowledge-sharing and further shared projects to improve health outcomes.
- Improve the working knowledge of the community's living, health and environment conditions.
- Strengthen opportunities for collaboration between LALC and BVSC and other stakeholders.

Phase 1: Community Engagement and consultation:

Since 2015 BLALC has undertaken significant community consultation with the local community as part of the development of the Master Plan for development of the site. In discussions with the BLALC CEO and Board it was confirmed that this pilot project is consistent with the Master Plan.

Consultation and engagement with the community associated with this project will primarily focus on:

- Identifying a suitable site on the land for the facility
- Supporting the development of skills and knowledge associated with the operation and maintenance of the facility.



Discussing the area and choosing the location for the pit toilet

The National Aboriginal and Torres Strait Islander Environmental Health Awards were established in 2009 to recognise the exceptional efforts of Aboriginal, Torres Strait Islander and non-Indigenous individuals, and organisations working in the area of Aboriginal and Torres Strait Islander environmental health. Award recipients are nominated by WGATSIEH members and endorsed by enHealth and the Australian Health Protection Committee.

enHealth Working Group on Aboriginal and Torres Strait Islander Environmental Health Award for Leadership in Environmental Health was awarded posthumously to the late Paul Pholeros AM.

Mr Paul Pholeros was a courageous and compassionate advocate for improving the environmental and health outcomes of Aboriginal and Torres Strait Islander people. For over 30 years, Paul devoted his time and expertise to improving housing design and functionality to suit Aboriginal and Torres Strait Islander (Indigenous) people across Australia. Affectionately known as PP, he was also a good friend to many.

PP fought furiously and morally with all levels of government against the social injustice faced by Indigenous people in housing, health and education. He believed, and I quote, that "People are not the problem. We've never found that. The problem is poor living environment, poor housing and the bugs that do people harm. None of those are limited by geography, by skin colour or by religion. The common link between all the work we've had to do is one thing, and that's poverty."



Anyone who heard PP speak could not help but be moved and changed in some fundamental way. In 2015, PP was a Keynote Speaker at the NATSIEH Conference in Coffs Harbour, talking about one of his passions - Housing for Health. PP described how it all started in 1985 when he visited Aboriginal communities in Central Australia and was asked to be involved in finding a way to 'stop people getting sick'. Using the methodology developed by PP and his team, over 264,460 items have been inspected or fixed in more than 8,460 houses across Australia in 18 years. To date, over 58,500 people across Australia have benefited from Housing for Health projects.

The numbers keep going up! PP used the methodology to collect evidence to support the argument for funding and better health outcomes. In 2010, a 10-year evaluation of the Housing for Health Program in NSW demonstrated a 40% reduction in hospital separations for infectious diseases. The program continues to make significant improvements in the health and safety of tenants by reducing the risk of disease and injury.

PP was a gentle, unassuming and humble man. His tireless effort in making a difference in Indigenous environmental health and health outcomes has not gone unnoticed. Among his accolades, PP was awarded an Order of Australia medal in 2007, for his work in "Improving the living conditions and health of Indigenous communities". He was a Life Fellow of the Australian Institute of Architects, receiving the Institute's Leadership in Sustainability Prize and the President's Award for the publication "Housing for Health: Towards

an Improved Living Environment for Aboriginal Australians". In 2011, PP and Healthabitat won the United Nations Habitat and Building and Social Housing Foundation's World Habitat Award.

PP sadly passed away in February 2016, aged 62. His legacy lives on through the works of Healthabitat and everyone involved in Housing for Health. PP is a deserving recipient of the Outstanding Award in Leadership 2017 for his lifelong achievements in making a difference in Aboriginal and Torres Strait Islander communities.



Jeff Standen receiving the Award for the late Paul Pholeros AM, on behalf of Paul's wife Sandra Meihubers and family.

enHealth Working Group on Aboriginal and Torres Strait Islander Environmental Health Award for Fostering partnerships of excellence in Environmental Health was awarded to Eddie Bobongie.

Eddie was brought up on Hammond Island in the Torres Strait. Eddie has fond memories of his childhood growing up in the straits and often talks about his childhood learnings in the region. Eddie attended high school in Mackay and went on to work in the construction industry.

Eddie commenced working in water and sewerage operations on Thursday Island and later moved to Lockhart River during the 1980's. Eddie was identified as quite a high achiever, during this time being awarded QBuild Apprentice Plumber of the Year.

Eddie moved into public health in the late 1990s/early 2000, where he found his niche as an Environmental Health Worker (EHW).

As most of you probably know, Eddie has a team approach to everything he undertakes and family comes first. Eddie and his lifelong partner Anna have a strong family network, where together they have brought up their three boys and two girls, who have all moved onto successful careers and having families of their own. Eddie is the proud grandfather of nearly a full tribe of grand kids. Further to this, it's the extended network of adopted family to Anna and Eddie who have also benefited from Eddie's wisdom and guidance in life.

Eddie loves all things in nature, and loves going out for a camp in the scrub, fishing on his mothership or dingy, or just chasing the odd pig with family and friends. He is infamous for going for walks and catching the biggest and most pigs around Weipa, and if anyone is interested, just ask him to tag along for an afternoon. But please be aware, it will be a very long afternoon as it's not unusual to cover 10-15km in a session, walking through the scrub in stifling heat and humidity!

Eddie has been living and working in the Weipa community and surrounds for over 20 years and is well known and liked by all. It's not unusual to travel with Eddie to any community where he is greeted with hugs and hand shakes from all ages; the elderly to the very young all know and respect Eddie. The ability to connect with all people throughout Cape York is what really sets Eddie up

for the building of partnerships and fostering the relationships that arise. He is a man of his word; he holds his family, his culture and his mob in the highest regard and is always striving to improve health outcomes of all Indigenous people wherever he goes.

Eddie is a long serving environmental health practitioner who has diligently served the Aboriginal and Torres Strait Islander Public Health Program throughout the mainland of Cape York peninsula. Eddie has been instrumental in the development of multiple sustainable environmental health and animal management programs throughout the Cape. These programs have included:

- Waste management
- Food safety inspection programs
- Animal management
- Mosquito surveillance and control
- Communicable disease outbreak control
- Water verification monitoring.

Through developing these programs, Eddie has maintained a focus on developing and sustaining partnerships to enhance skill sets and support across all communities in the Cape. Eddie is experienced, has been recognised as a mentor and go-to person for EHW's, Aboriginal medical workers and CEOs in the community and cherishes the family/teambuilding, while maintaining cultural standards in the approach to all of his work.

Eddie's strengths in this area have been recognised, and his support has been requested to assist in the development of programs outside of his direct service area.

Eddie is considered to be the cornerstone of environmental health in the Cape area, and without his expertise and ability to build relationships and foster partnerships, the achievements and workforce stability in these areas would not have occurred.

In short, Eddie bridges gaps and fosters partnerships to achieve real outcomes across the workforce, communities and government agencies.



Eddie Bobongie receiving the Award for Fostering partnerships of excellence in Environmental Health.

11th NATSIEH Conference delegates



AA	Aboriginal Affairs	NATSIEH	National Aboriginal and Torres Strait Islander Environmental Health
AC	Aboriginal Corporation		
ACCCHS	Aboriginal community controlled health service	NAQS	Northern Australia Quarantine Strategy
		NILS	No Interest Loan Scheme
ACCO	Aboriginal community controlled organisation	NTEPA	Northern Territory Environment Protection Authority
ACIAR	Australian Centre for International Agricultural Research	NTES	Northern Territory Emergency Service
		NTSCRG	National Trachoma Surveillance Control Reference Group
AEH	Aboriginal environmental health		
AEHU	Aboriginal Environmental Health Unit	PCYC	Police-Citizens Youth Club
AEHW	Aboriginal environmental health worker	PHAIWA	Public Health Advocacy Institute of Western Australia
AOD	alcohol and other drugs		
AMRRIC	Animal Management in Rural and Remote Indigenous Communities	PHN	Primary Health Network
		PHU	Public Health Unit
AMS	Aboriginal Medical Service	PNG	Papua New Guinea
APSGN	acute post-streptococcal glomerulonephritis	PP	Paul Pholeros
		PWG	project working group
ARF	acute rheumatic fever	RHD	rheumatic heart disease
BRRWMWG	Big River Region Waste Management Working Group	RIRDC	Rural Industries Research and Development Corporation
CASC	Cherbourg Aboriginal Shire Council	RTO	Registered Training Organisation
CDC	Centre for Disease Control	SAFE	Surgery, antibiotics, facial cleanliness, environmental improvement
CDEP	Community Development Employment Program		
		SCK	Squeaky Clean Kids
CDP	Community Development Program	STI	sexually transmitted infection
CDS	Container Deposit Scheme	SDWK	Shire of Derby/West Kimberley
CO ₂	carbon dioxide	UQSVS	University of Queensland School of Veterinary Science
CPR	cardiopulmonary resuscitation		
CRT	Community Readiness Tool	WACHS	Western Australian Country Health Service
DAF	Department of Agriculture and Fisheries		
DAHS	Derby Aboriginal Health Service	WASH	water, sanitation and housing
DATSIP	Department of Aboriginal and Torres Strait Islander Partnerships	WNSWLHD	Western New South Wales Local Health District
DDPHU	Darling Downs Public Health Unit	WGATSIEH	Working Group on Aboriginal and Torres Strait Islander Environmental Health
DoH	Department of Health		
EH	environmental health	WHO	World Health Organization
EHA	Environmental Health Australia		
EHO	environmental health officer		
EHW	environmental health worker		
EVS	encephalitis virus surveillance		
enHealth	Environmental Health Standing Committee		
ESO	essential services officer		
H4H	Housing for Health		
HACC	Home and Community Care		
HCAT	Health Community Assessment Tool		
HfH	Housing for Health		
HIC	Healthy Indigenous Communities		
HLP	Healthy Living Practice		
HWS	hot water system		
IEHP	Indigenous environmental health practitioner		
JCU	James Cook University		
KPHU	Kimberley Population Health Unit		
LALC	Local Aboriginal Land Council		
LHD	local health district		
MRSA	methicillin-resistant <i>Staphylococcus aureus</i>		
NABS	Northern Australia Biosecurity Surveillance		
NAIDOC	National Aborigines and Islanders Day Observance Committee		
NTEPA	Northern Territory Environment Protection Authority		

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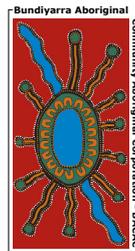


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