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For the purposes of this document, 'Indigenous' refers to Australia's Aboriginal and Torres Strait Islander peoples.

In the spirit of respect, Menzies School of Health Research acknowledges the people and elders of the Aboriginal and Torres Strait Islander Nations who are the Traditional Owners of the land and seas of Australia.

Cover photo: Rachel and Zarik Spiller Karpany from Alice Springs







Director and Chairman's message



For over three decades, Menzies has attracted doctors, nurses and researchers to the Northern Territory (NT) with our work having a fundamental impact on health service delivery and the health of the community.

Our 30th anniversary year provided a national platform to share our many research achievements. Our Public Lecture Series, Gala Dinner and Oration were all critical vehicles for showcasing our work. We were able to connect with people who have played a key part in shaping our story and engage new generations of friends and supporters.

Undoubtedly one of the highlights was welcoming Prime Minister Malcolm Turnbull to officially open our new buildings in November. The event was a great success at which the Prime Minister acknowledged the excellence of our work and passion for making a real difference.

Of most importance to the continued growth and diversity of our research, is that our work also improves health outcomes, delivers real economic benefit to health services and government, and increases economic participation.

In 2015, we commissioned Deloitte Access Economics to analyse the social and economic contribution of our work. The report found Menzies to be one of the nation's most cost-effective health research institutes. The release of the Deloitte report provided further momentum for Menzies as we enjoyed another strong showing on the national competitive grant stage. In the 2015 National Health and Medical Research Council (NHMRC) competitive funding round, we were successful with more than 35 per cent of our grant applications; an overall success rate of more than double the national average.

Fundamental to these successes is our most important asset - our human capital. Our dedicated staff continue to demonstrate that world-class research can be developed here in northern Australia. We conduct our work with rigour and the results change how services are delivered to improve health outcomes for those most in need.

Some of our key research projects and highlights delivered in 2015 include:

- Uncovering two new species of the bacterium staphylococcus, commonly known as "Golden Staph". One species we discovered, because it appears silver not gold when grown in the lab, has been officially registered as staphylococcus argenteus, or "Silver Staph". This discovery deepens our understanding of the whole group of bacteria, a major cause of human disease.
- Being contracted by the Federal Government to develop Fetal Alcohol Spectrum Disorder (FASD) Prevention and Health Promotion Resources to prevent and reduce the impacts of FASD on the Aboriginal and Torres Strait Islander population.
- Working with collaborators the Northern Territory Health Department, Aboriginal Medical Services Alliance of the NT (AMSANT), Healthy Living NT and Baker IDI – to carry out a major screening and intervention program to improve care of pregnant women with diabetes.

The expansion of critical partnerships also continues to underpin our capacity to deliver pioneering research. Nowhere is this more evident than our engagement with Charles Darwin University (CDU) and the Northern Territory Government. CDU and Menzies work with communities across northern Australia to discover new knowledge, provide critical education and training services, and play a significant role in Australia's engagement with Asia through practical research, international education, capacity building and exchange.

We look forward to continuing our close work with AMSANT, the NT Government, Top End and Central Australia Area Health Services in 2016/17. If we can embed practical, "real world" research in health delivery, we will contribute directly to high quality and cost-effective care that meets the health, social and cultural needs of the community.

We understand that our success lies in our ability to work in partnership with people from across northern Australia and our Asian neighbours, their communities, health services, policy makers and our highly valued donors and supporters. Together we will shape the next chapters in the Menzies story, advancing access and health outcomes for the rapidly growing population of our region.

We recognise and acknowledge the enthusiasm and commitment of our Board, staff, students and supporters, who remain the key ingredient for success at Menzies.

Director, Professor Alan Cass Chair of the Menzies Board, Peter Plummer



Menzies and its impact

For over 30 years, the Menzies School of Health Research has been a beacon for development, sustainability, health improvement, economic advancement and transformation.

As Australia's leading medical research institute dedicated to improving the health and wellbeing of Indigenous Australians, and a leader in global and tropical research into life-threatening illnesses, Menzies continues to translate its research into effective partnerships and programs in communities across Australia and the Asia-Pacific region.

Areas of research focus include:

- · Cancer
- · Child Development and Education
- · Child Health
- · Chronic Disease
- · Diabetes
- · Health Systems
- · Kidney Disease
- · Lung Disease
- · Malaria, Melioidosis, Tuberculosis
- · Maternal Health
- · Mental Health
- · Nutrition
- · Rheumatic Heart Disease
- · Sexual Health
- · Skin Diseases
- \cdot Smoking

Where we work

Menzies' headquarters are in Darwin, with offices in Alice Springs, Brisbane, Melbourne, Timika (Indonesia) and Kota Kinabalu (Malaysia). Our work spans central and northern Australia and developing countries within our global neighbourhood.

150+research projects & programs

Pioneering global and tropical health work extending into

countries across the Asia-Pacific

60+remote community partnerships across central and northern Australia



Overseas site

• Menzies office

Menzies – a high impact health research institute

In partnership with the Northern Territory Government Department of Treasury and Finance, Menzies commissioned Deloitte Access Economics to analyse the impact of its work. This Report modelled the costs and benefits of Menzies' social and economic contribution to the Northern Territory, Australia and the Asia-Pacific region.

Across the Northern Territory, Australia and the Asia-Pacific, Menzies' activities generated a total benefit of \$1.1 billion, with a net benefit of \$697.9 m, with every dollar spent returning \$2.70 to the economy. This finding reinforces the impact and importance of Menzies' globally-recognised work in eliminating malaria and treating other infectious diseases in the region.

In the Northern Territory alone, Menzies' activities generated a total benefit of \$309.1 million, with a net benefit of \$168.4 million.

It was the Deloitte Report's conclusion that: "Menzies' focus on improving Indigenous health and wellbeing contributes both in economic terms, and in closing the gap in health outcomes for Indigenous people across Australia. Menzies is poised to make a core contribution to the development of Northern Australia and to strengthen educational, health and economic partnerships with Australia's neighbours across the region."

Spotlight on research

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Malaria remains one of the biggest killers in the developing world; affecting nearly 200 million people each year and killing up to 600,000 of them.

The Menzies malaria research program spans a broad range of activities aimed at both prevention and treatment. Malaria rates are going down by as much as 80 per cent in some countries in large part due to the team's efforts on the research, clinical and policy front.

The malaria research program began 20 years ago with a modest grant between the Northern Territory Government and Indonesia. The grant funded two scientists who established a research centre in Papua, Indonesia; an area of huge need where malaria continues to inflict a massive burden.

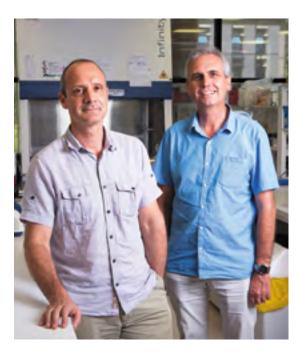
Since the inception of the program, Menzies research has defined optimal treatment strategies for malaria that were then implemented across Indonesia. The impact of these policies has been substantial – a 47 per cent reduction in malaria, threefold decrease in infant mortality, better outcomes in pregnancy, and an increase in birthweight.

Menzies now leads the Vivax Working Group of the Asia Pacific Malaria Elimination Network (APMEN) where it is tasked with building regional capacity and extrapolating our successes in Papua across the malaria endemic countries to our north.

Menzies malaria research program continues to work with over 20 countries ranging from Sudan in the west to Vanuatu in the east, including the powerhouses in the region – India, China, and Indonesia.

Closer to home, Menzies coordinates the largest antimalarial clinical trials network in Australia; generating the evidence to not just treat malaria, but eliminate it completely.

While elimination of one of the worst diseases on earth may sound ambitious, saving lives and reducing suffering is motivation enough for this dedicated team of researchers and clinicians.



Professors Ric Price and Nicholas Anstey lead the Menzies malaria research program. Image provided by Territory Q

Spotlight on research

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Staph discovery has a silver lining

Together with colleagues Assoc Prof Phil Giffard and Dr Deborah Holt, infectious diseases specialist Assoc Prof Steven Tong has recently discovered two new species of *Staphylococcus*; one of which is now known as Silver Staph.

Earning its name because it cannot make the golden pigment of Golden Staph, and instead appears a brilliant silvery white, Assoc Prof Tong explains that, "by identifying this new species as different from standard Golden Staph, researchers and clinicians across the world can now tailor treatments for each specific species, potentially saving lives."

"Officially identified as a new species through genome sequencing, this species has been particularly prevalent in causing skin sores in Aboriginal children,"

Assoc Prof Tong said.



Assoc Prof Steve Tong at work in the Menzies laboratory. Image provided by Territory Q

How you have helped

Our key supporters, and the many people who quietly donate funds to Menzies each year, continue to make an enormous difference to people's lives. Your support is crucial to driving our research and efforts to innovate and respond to major health problems.

Menzies extends its appreciation and gratitude to all of our donors and supporters. Every day you help Indigenous Australians and communities across our region exercise their right to good health.





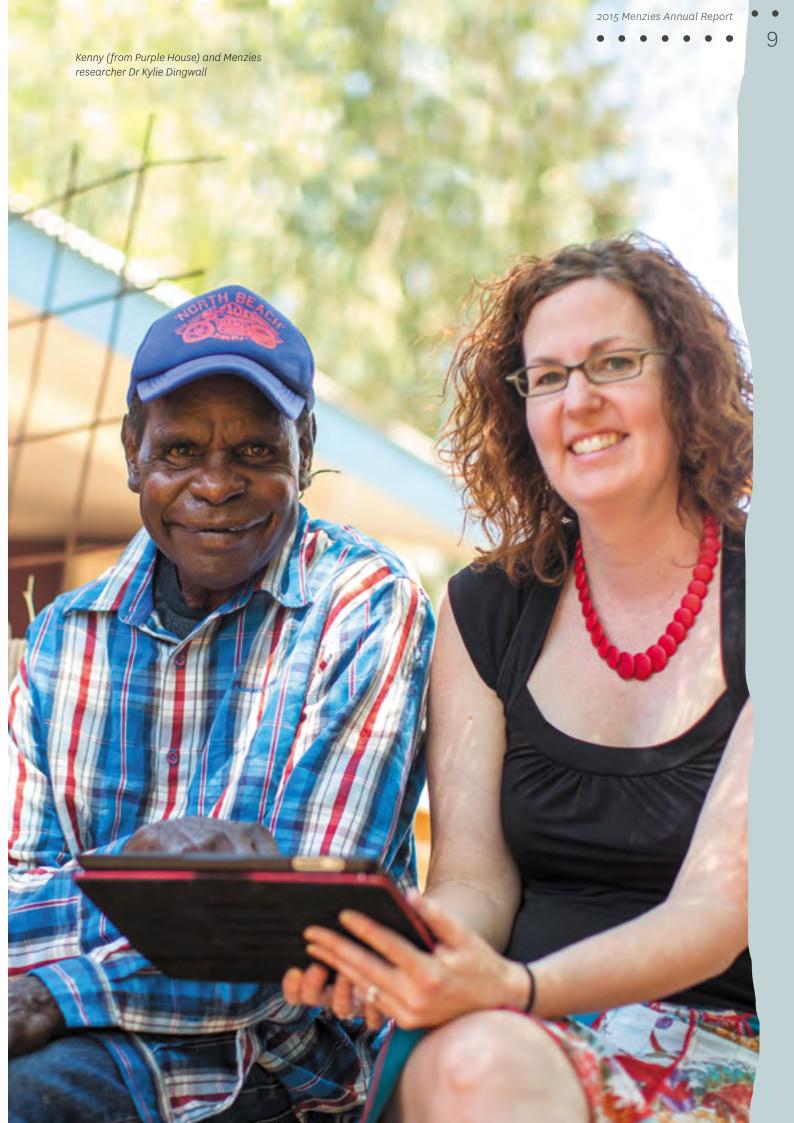
CKD appeal reaches its mark

The 2014/15 CKD (Communicate, Know, Decide) Appeal successfully raised \$52 000 to support critical Menzies chronic kidney disease work.

The Appeal drew on the experience of Ronno Morgan, a young Indigenous man from the Kimberley, who invited Menzies to film and document his real-life journey showing what it means to face kidney failure, the need to travel thousands of kilometres from home to get treatment, and the challenging processes associated with kidney transplantation.

The funds will be used to develop film-media educational resources to assist Aboriginal patients and families better understand the health care needed to treat kidney disease as well as training resources for doctors, nurses and health professional treating Indigenous patients.

The real-life journey of Aboriginal kidney patient, Ronno Morgan is the basis for a new educational resource package



Ambassadors and Patrons Program

A number of inspiring high profile Australians have recently partnered with Menzies to be a part of its newly launched Ambassadors and Patrons Program.

"We are excited to have an amazing mix of people on board who will become advocates for Menzies' work in closing the gap in health inequalities for Aboriginal and Torres Strait Islanders," said Menzies Director, Prof Alan Cass.

High-achieving and highly respected political and corporate figures, sporting heroes and social entrepreneurs, have been united by their commitment to improving the health of disadvantaged communities in our region.

The Menzies Ambassadors are:

Dr Brendon Carp
The Hon Helen Coonan
John Cossons
Jason Eades
Belinda Gibson
Danny Gilbert
Suzi Hullick
Ian Kew
Charlie King OAM
Rebecca McGrath
Bronwyn Pike
Dean Rioli
Les Trudzik
Allan Vidor

The Menzies Patrons are:

Susan Alberti AO
Dr Lesley Braun
Prof Rosemary Calder AM
Mark Carnegie
Maryjane Crabtree
His Honour, the Hon John Hardy OAM
Michele Levine
Simon McKeon AO
Michael Rose
Kate Russell
Dr Richard Russell

MENZIES

The 30 year celebration of the Menzies School of Health Research also marked a significant milestone for the Menzies Foundation, which has a very proud history supporting the work of the Menzies team. Over the years, the Menzies Foundation has provided over \$3 million in support of Menzies.

In line with the early priorities of the Menzies
Foundation, funding and initial assistance was provided
for administration and part of the salary of the founding
Director of Menzies School of Health Research way
back in 1985.

In fact the early idea for the School was generated from the first Menzies National Conference in Melbourne in 1980, where Mr Harry Giese AM MBE, put the issue of Aboriginal health and nutrition firmly on the agenda.

Over 30 years supporting Menzies

In 2015, the Menzies Foundation continued its support of the four Menzies health and medical research institutes around Australia and contributed an untied grant of \$75 000 to Menzies. Menzies Foundation CEO, Sarah Hardy, was on hand to congratulate Menzies on 30 years of outstanding contributions during the anniversary celebrations.

The Foundation is very proud of the significant role Menzies plays in improving health outcomes for Indigenous Australians and extending its research and work into global and tropical health issues across the Asia-Pacific.

The involvement of Menzies Scholar in Law, Belinda Gibson, as a Menzies Ambassador, and Menzies Scholar in Medicine, Professor Simon Maddocks, as a Board member, only strengthens the relationship between the two organisations.





30th anniversary in review Menzies marks major milestone



Foundation staff, Patrons, Members of Parliament, Indigenous leaders and the Governor General were just some the dignitaries which gathered for Menzies' 30th Anniversary Gala Dinner.

Held at Menzies new John Mathews Building, the dinner provided an opportunity to celebrate and reflect on three decades of research, education and engagement with communities, governments and key partners.

Almost 100 people attended the flagship anniversary event which featured ARIA award winner, Gurrumul.

"So much has been achieved since we were established in 1985, and this special event is a chance for all who have been involved to revisit the amazing research, people and endeavour that have underpinned our many successes," Menzies Director, Prof Alan Cass said.

Anniversary Public Lecture Series

The Northern Territory's role in the global health spectrum, the need for early life health interventions, and the intrinsic link between chronic diseases and effective research translation; these were just some of the topics covered as part of Menzies' Anniversary Public Lecture Series.

The Lecture Series provided a platform for some of Menzies', and the NT's, leading researchers, academics and authorities to discuss issues most pertinent to Indigenous and global and tropical health and capacity building.

Hundreds of health professionals, researchers, students and members of the public attended across the five part lecture series held at its newly opened auditorium on the Royal Darwin Hospital campus.



Prof Gary Robinson presents as part of the child health public lecture

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30th anniversary in review Prime Minister opens iconic new buildings

On the 20th of November 2015, Menzies had the pleasure of welcoming Prime Minister Malcolm Turnbull to officially open its new buildings.

The project encompasses a new research and administration building on Charles Darwin University's Casuarina campus with teaching facilities, clinical space, a conference room and offices as well as significant works carried out at the John Mathews Building, including the expansion of the research laboratory and new office accommodation.

In speaking about the increased capacity for Menzies to continue its vital work into the future, Prime Minister Turnbull said, "I was so impressed to see the young researchers you have here. You have really inspired young people."

"I cannot commend you enough for the great work you are doing and I look forward to supporting you in the future."

Echoing the Prime Minister's comments, Menzies Director Prof Alan Cass said the new facilities supported the Australian Government's objective of providing world-class research facilities that integrate with improved clinical and health workforce education and training.

"The new facilities will give Menzies a solid foundation to continue to expand our multidisciplinary research teams.

"They will provide research students with new technology in a stimulating environment that fosters a culture of collaboration," Prof Cass said.

The project was jointly funded by the Australian Government, the Northern Territory Government and Charles Darwin University.



From left: Menzies Director Prof Alan Cass, CDU Vice-Chancellor, Prof Simon Maddocks, NT Attorney-General, John Elferink and Prime Minister Malcolm Turnbull



Research Highlights Child Health

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Menzies child health research continues to investigate strategies to improve the health of Indigenous children. Illnesses in their earliest years not only impact on a child's health, but also affect their ability to grow, develop and learn.

New research to improve paediatric pneumonia treatment

In 2016, the Menzies Child Health Respiratory Team will lead a bi-national clinical trial which is set to achieve sustainable improvement in the treatment of paediatric pneumonia. The study is in collaboration with three Malaysian research-clinician groups.

The team was awarded a \$2.16 million grant from the National Health and Medical Research Council (NHMRC) to conduct a multi-centre, double blind, randomised controlled trial to compare a longer course to a short course of antibiotics. The trial aims to determine improvement of clinical outcomes of children hospitalised with severe community-acquired pneumonia and the effect of antibiotic duration upon time to next respiratory-based hospitalisation.

The trial has implications for recurrent hospitalisation for respiratory illness and future adult lung health, especially in high-risk Indigenous children. Conclusive results would lead to changes in national and international guidelines.

World first study to improve nose and lung health

The Menzies Child Health Laboratory Team was successful in the recent NHMRC project grant round to the tune of \$743,000 to identify distinct variations of Streptococcus pneumoniae in the nose and lungs of children with prolonged bacterial bronchitis and bronchiectasis. The study will also identify Streptococcus pneumoniae and nontypeable Haemophilus influenzae genes associated with infection and antibiotic resistance.

The study, the first of its kind, will draw on a collection of nose swabs and lung fluid specimens from nearly 500 children.

Findings will inform vaccine schedules and antibiotic treatment guidelines as well as the design of future vaccine formulations that can effectively prevent similar infections in children.

Ear and hearing centre of excellence unveiled

The launch of a new Centre for Research Excellence dedicated to improving ear and hearing health of Indigenous children achieved a number of key outcomes in 2015.

Through high quality innovative research, Indigenous leadership, and more effective and sustainable research translation, the NHMRC funded CRE_ICHEAR will address rates of otitis media in Indigenous children; the highest reported rates in the world.

The key collaborating institutions include: Menzies, The University of Western Australia and Western Sydney University.

More than 60 delegates from around the country joined Indigenous researchers from Queensland, New South Wales, Western Australian and the Northern Territory for the CRE launch in April 2015. A number of high profile researchers and medical practitioners have since joined its governance structures.

In November 2015, through a competitive application process, the CRE_ICHEAR selected its first round of funded projects, including a Western Australian Indigenous Masters student, a cadet in research administration and a Papua New Guinean PhD student, to commence from January 2016.

Scabies and strongyloidiasis under the microscope

Scabies and strongyloidiasis are infectious skin and gastrointestinal diseases that affects up to 50 per cent of people in some Indigenous communities.

In close collaboration with community and health service partners, Menzies assessed the long-term impact of two mass drug administrations delivered in 2010 and 2011 to combat scabies and strongyloidiasis prevalence amongst children aged 0-15 years in a remote Northern Territory community.

The Channel 7 funded study screened 146 children, of whom 41 (28 per cent) had scabies. Among 81 children tested for strongyloidiasis, 18 (22 per cent) were positive.

LOTUS Study takes aim at respiratory health

"Detecting lung disease in Indigenous children as early as possible and even being able to prevent it completely is a constant motivation for our team," Clinical Research Nursing Manager and Senior Research Officer of Menzies' Respiratory Program, Dr Gabrielle McCallum explains.

The Long Term Follow Up Respiratory Outcomes (LOTUS) study aims to identify interventional targets that can improve lung health and the management of respiratory diseases in Indigenous children.

This study encompasses extensions of our previous bronchiolitis and chronic suppurative lung disease (including non-cystic fibrosis bronchiectasis) studies in the Northern Territory and South Australia.

"In addition to informing future interventions and management pathways, the study will endeavour to work closely with families and health departments to translate the research findings into meaningful outcomes which include the development of evidence-based guidelines and culturally appropriate educational resources," Dr McCallum said.

Indigenous reference group facilitates research excellence

The Menzies Child Health Indigenous Reference Group ensures child health research is undertaken in a culturally appropriate manner.

Head of the Child Health division, Prof Anne Chang points to the Group as playing a pivotal role in providing high level strategic advice that oversees, informs, guides and safeguards high quality research protocols in a culturally and ethically appropriate framework.

"It protects and serves
NT communities through
knowledge translation
from research to policy,
procedures and guidelines."

A key stakeholder in the development of Menzies' Reconciliation Action Plan, the Group also participates in strategic planning, disseminates research findings to community groups and forums, and outlines pathways for community feedback of issues or concerns.



Madison Martin undergoes a respiratory check-up



The Menzies Child Health Division Indigenous Reference Group. From Left: Prof Anne Chang, Linda Quall, Bilawara Lee, Lesley Versteegh, Loyla Leysley, Pirrawayingi Puruntatameri, Doogety Campbell, and Mark Mayo

Research Highlights Centre for Child Development and Education

Launched in 2011, the Menzies Centre for Child Development and Education (CCDE) strives to conduct research designed to improve the health, wellbeing and education of children, particularly Indigenous children, in the Northern Territory and beyond.

During 2015, under the direction of Professor Gary Robinson, the Centre continued to establish itself in new and innovative areas of research, and to forge connections with new partners.

CCDE names its new patron

The Centre for Child Development and Education was pleased to formally appoint Dr Marion Scrymgour as co-patron of the Centre in April 2015.

A pioneer in politics, policy and health, Dr Scrymgour has held a number of senior positions across Aboriginal health organisations and the Northern Territory Government, culminating in her appointment as Deputy Chief Minister.

Centre Director, Prof Gary Robinson said that Dr Scrymgour's integrity and credibility in the fields of both education and health, would make her an enormous asset to Menzies and the Centre.

"Dr Scrymgour will bring the passion and commitment that characterised her trailblazing political career to the Centre's work in Aboriginal and Torres Strait Islander child development and education" said Prof Robinson.

Data Linkage

The Centre continues to ramp up its involvement in the ground-breaking work of analysing linked data to help better understand the nature of childhood disadvantage.

Critically important data has already been collected by a range of government agencies, including the departments of Health, Education, and Children and Families, and agencies such as police and corrections. The skilled analysis of this data is a cost-effective way to develop insightful modifications to public policy, which in turn, will produce improved outcomes in health, education, and general quality of life.

Speaking in relation to the release of a recent Commonwealth report on the use of linked public sector data to make government more efficient and productive, and Menzies' proven capacity as a key player, Prof Robinson said, "it was a clear demonstration of the growing importance of data linkage, and the capacity of CCDE to contribute to discovery through this work."

Skills for Life

Skills for Life is a rigorously designed social-emotional learning curriculum that has been developed for middle year students in remote Indigenous communities.

Funded by the National Health and Medical Research Council, the project is supported by the NT Department of Education in a collaborative partnership to ensure that a high quality evidence-based life skills program can be made available for remote schools and students.

The project has been developed and piloted in Maningrida with the generous support of Maningrida College. In 2016, the project will be progressively expanded to include schools in Gunbalanya, Katherine, and other remote communities, as well as Kormilda College in Darwin.



Research in Translation RHDAustralia

Acute Rheumatic Fever (ARF) and Rheumatic Heart Disease (RHD) are 100 per cent preventable.

Despite this, Australia has the highest recorded rate in the world. There are more than 6000 people on RHD registers across Australia almost all of whom are Indigenous. Of all cases in the Northern Territory, 58 per cent are children aged between 5-14 years old.

RHD Australia is the National Coordination Unit for the Australian Government's Rheumatic Fever Strategy. It aims to prevent and reduce acute rheumatic fever and rheumatic heart disease in Australia though education, access and use of quality data and national engagement. RHDAustralia works with partners to translate research findings into evidence-based policy.

App improves ARF and RHD detection and management

Timely and accurate diagnosis is a key factor in improving outcomes for those living with ARF. However, disease identification can be problematic for health professionals with little previous exposure to, or knowledge of, the illnesses

In response to data and feedback from clinicians, RHDAustralia released the ARF diagnosis calculator to assist clinicians with this complex diagnosis. The calculator is an update to the existing App version of the 'Australian Guideline for Prevention, Diagnosis and Management of ARF/RHD' (2nd Edition).

RHDAustralia Clinical Director, Dr Anna Ralph said that due to the difficulty in diagnosis and disease awareness, many cases can potentially be under-diagnosed.

"This ultimately means that patients who should be referred for specialist investigation can potentially be sent home," Dr Ralph explains.

"The thing about ARF diagnosis is that there is no definitive diagnostic test. The only way to diagnose ARF is to put together a whole constellation of signs and symptoms to see if a patient has the disease."

The free RHDAustralia Diagnosis App represents a key tool for clinicians to promptly and accurately diagnose ARF. The App can be downloaded at www.rhdaustralia.org.au

Colloquium to improve RHD outcomes

The majority of patients living with ARF and RHD in Australia are Aboriginal and Torres Strait Islander people living in rural and remote areas where high population mobility, poor living conditions, low health literacy and high health practitioner turnover are all factors. These factors, coupled with limited community knowledge of the disease, significantly contribute to delays and deficiencies in health service delivery, and ultimately, to the burden of disease

Convened by RHDAustralia, the National RHD Colloquium brought together stakeholders from policy, clinical practice and research to discuss the development of a framework for a patient-centred model of care for ARF and RHD in an Australian context. This included: an assessment of the current national and jurisdictional policy environments, an analysis of gaps within service delivery, and a review of international experience and recommendations for the control of RHD.

The Colloquium discussion enabled a consensus view in the identification of six national priorities for ARF and RHD prevention and management in Australia, and demonstrated how collaboration may proceed to influence national policy.

The ARF/RHD Colloquium was the first of its kind in Australia, and provided a valuable opportunity to build relationships with, and amongst, key stakeholders, to identify current issues and gaps in service delivery, and prioritise further action required to address these gaps. Outcomes have informed recommendations for potential reorientation of health services and systemic changes to improve outcomes and reduce the incidence of ARF/RHD.



2015 Menzies Annual Repor

Research Highlights Wellbeing and Preventable Chronic Diseases

Menzies Wellbeing and Preventable Chronic Disease division seeks to advance the health and wellbeing of Indigenous Australians by researching the causes, prevention and treatment of chronic disease and translating the results into practical solutions.

Evaluating dialysis models of care

Kidney disease, which has a devastating impact on Indigenous communities, is fast becoming one of the most significant burdens on the health system in the Northern Territory.

The Dialysis Models of Care Evaluation aims to determine the most cost-effective model of dialysis treatment.

The three year National Health and Medical Research Council partnership funded evaluation will take into account the cost to the health system as well as the health, social and economic impact on the patient, their family and community when relocating for treatment.

The project will provide an evidence base for a more patient-centred approach to health service planning and the research team is committed to building the capacity of the patient reference groups with which they are working.

Community acceptability of salt-reduced foods

Processed food products are a major source of dietary sodium which significantly contributes to preventable chronic diseases such as cardiovascular and renal diseases.

Reformulating food products to reduce salt is one of several globally recommended strategies to reduce population sodium intake. Consumer acceptability of this change remains a key determining factor for manufacturers.

A systematic review and meta-analysis of 50 studies, investigating consumer acceptability of salt reduced products, revealed that salt could be reduced by up to 40 per cent in breads and 70 per cent in processed meats without impacting consumer acceptability.

This provides empirical evidence that can encourage manufacturers to consider greater salt reductions when reformulating their products, thereby impacting on population health.

Evaluating alcohol initiatives in our communities

Alcohol misuse has long had devastating effects on health and wellbeing in rural and remote communities in Australia. Being able to monitor changes in community health and wellbeing is central to supporting Indigenous communities in their management of alcohol-related problems.

Menzies is working with Governments and communities to develop and streamline processes for collating and reporting administrative and locally collected data.

The framework will generate community, regional and Territory-wide annual data reports which will assist communities to monitor and evaluate local alcohol harm-reduction initiatives.

Brain function tests across cultures: A pilot study

With most cognitive tests being developed outside of Indigenous cultures, the reliability and appropriateness of such tests for Indigenous Australians largely remains a grey area.

The Thiamine Pilot Study has considered Indigenous participants' perspectives on cognitive test acceptability, and measured reliability, to aid test selection for a randomised controlled trial monitoring response to thiamine treatment.

Conducted at Alice Springs Hospital, the study demonstrated a range of challenges with assessing brain function cross culturally, including issues of language and familiarity with content and processes.

Overall, the tests were viewed as a positive challenge and an opportunity to learn about the brain, with adequate reliability obtained for the three tests chosen for the main trial.

Anne Dairiyi and Renee Modikan conducting an in-store demonstration as part of the SHOP@RIC nutrition education strategy



Showing the way to reduce Indigenous smoking

A landmark series of 15 scientific papers from a national smoking research project has shown that reducing Indigenous smoking is achievable, how this is happening now, and why continued government investment is justified.

The papers from The Talking About The Smokes project have also revealed high proportions of Indigenous Australians who were regular smokers wanted to quit, had made an attempt to quit in the past year, and had lived in smoke-free homes. Most also knew about the most harmful health effects of smoking.

CEO of the National Aboriginal Community Controlled Health Organisation (NACCHO), Lisa Briggs said the project was:



The Hon Sussan Ley, Minister of Health, and Lisa Briggs (CEO of NACCHO), at the launch of the Talking About The Smokes special supplement at Parliament House with Project Leader, Assoc Prof David Thomas

"a model for how to do a large national epidemiological project in partnership with Aboriginal communities, the National Aboriginal Community Controlled Health Organisation (NACCHO) and the Aboriginal communitycontrolled health service (ACCHS) sector."

Healthy eating strategies in our communities

"This study is one of four worldwide aiming to provide evidence that price discounts can help improve diet. It is also the first to show this in a real world setting and among a population with concentrated social-disadvantage," principal research fellow, Assoc Prof Julie Brimblecombe explains.

Conducted in collaboration with store boards and two major store associations, the SHOP@RIC study has provided much needed empirical evidence to inform food pricing policy and improve diet in remote communities.

The study has also allowed the Menzies' nutrition team to describe population level diet for communities across the NT using store sales data and has highlighted the important of traditional food for food security.

2015 Menzies Annual Report

Research Highlights **Epidemiology and Health Systems**

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Menzies Division of Epidemiology and Health Systems brings together researchers, health professionals and consumer advocacy groups from across Australia to address major areas of health inequity and reduce the burden of chronic disease for Aboriginal and Torres Strait Islander people.

New funding enhances research efforts

Securing funding to translate research knowledge into health policy and practice is a key imperative. In 2015, the division was awarded two major research translation tenders.

Firstly, developing Australia's first National Aboriginal and Torres Strait Islander Cancer Framework, in partnership with Cancer Australia. The Framework provides priorities and guidance for the many individuals, communities, health professionals, organisations and governments whose combined efforts are needed to address disparities and improve Indigenous cancer outcomes.

Secondly, preparation for a national pilot of an alternate screening pathway for the National Bowel Cancer Screening Program for Indigenous Australians. This Commonwealth Department of Health funded project will produce training and resources for use by primary health care professionals to promote bowel screening by Indigenous people. Phases one and two of the project will conclude in June 2016.

Telling stories of cancer survival

The people best placed to help Indigenous communities are community members themselves. In recognising this cultural dynamic, the Division has delivered an exciting new project designed to enable Indigenous people to take control, make their own decisions and live strong.

In partnership with Oxfam, the Division conducted and delivered the Stories of Survival project; an initiative which hopes to increase our understanding of the cancer experiences of Indigenous men.

The men's survival stories, through recorded interviews, are being produced into radio, print and social media which will be distributed over 110 national, regional, local and remote radio stations across Australia.

Centre of excellence breaks new ground

2015 saw the Division achieve a number of key deliverables through its Centre of Research Excellence (CRE) for Integrated Quality Improvement in Indigenous Primary Health Care.

The CRE established its research program collaborating with key stakeholders and community groups to develop flagship and emerging new projects which will add to the growing body of evidence to further understand continuous quality improvement by strengthening community led partnerships.

The research capacity building program, a key focus of the CRE, will provide opportunities for people working in service, management, policy, research and other relevant roles to share knowledge and experiences reflected in the moto 'All teach, all learn'.



David Copley shares his story with Menzies Brian Arley

Refining tools to achieve optimal health outcomes

Significant resources have been invested in producing guidelines and frameworks as tools to improve Indigenous health promotion programs. However, if poorly implemented, these tools will have limited scope to achieve their intended impact and potentially represent poor use of valuable resources.

With support from a Lowitja Institute grant, the Division has developed The Indigenous Health Promotion Tool Implementation Model to explain how health promotion tools are implemented and the conditions that influence these actions.

Findings suggest that rather than developing additional tools, sustained investment in creating conditions to support implementation processes are required to maximise the benefits of existing health promotion tools.

Roundtable to improve cancer futures

Some of the country's leading authorities on cancer recently gathered for a national research roundtable to maximise the impact of current and future research on the care of Aboriginal and Torres Strait Islander people with cancer.

A number of experts presented current research on Indigenous patients, carers' experiences of the diagnosis and treatment of cancer, and new innovative models of care.

By sharing research outcomes and building a collaborative research effort, the delegates were able to identify a number of priorities with a project team already working on developing pilot studies and future grant applications.



Delegates of the national cancer roundtable

Putting the spotlight on health promotion

"Health promotion is vital to equip people with the knowledge and resources to take care of their own health and lower the risk of developing chronic diseases," Research Fellow Dr Nicole Percival explains.

Recommendations from Menzies Health Promotion Continuous Quality Improvement (HPCQI) research have been incorporated into a number of key government documents, including the Northern Territory-wide implementation plan for quality improvement in Indigenous health promotion.

"High-level examples of our active health promotion footprint include the healthy community days organised as part of the Commonwealth Government's Close the Gap campaign, and tobacco action initiatives to help people give up smoking," Dr Percival said.

The development of the Northern Territory HPCQI implementation plan is a collaborative effort between Menzies researchers and NT Department of Health, made possible with research funding from the Lowitja Institute.

Research Highlights Global and Tropical Health

Menzies Global and Tropical Health Division works with health research organisations and institutions across the Asia-Pacific to improve the research, skills, and governance capacity of regional partners. A major focus of this work is optimising the prevention and clinical management of malaria, tuberculosis, pneumococcal disease, rheumatic fever, rheumatic heart disease, and melioidosis.

In tropical northern Australia, the focus is on melioidosis, Staphylococcus aureus and Streptococcus pyogenes, bacteria that cause skin disease, scabies, rheumatic fever and rheumatic heart disease, and other infectious diseases including, influenza, hepatitis B and Acinetobacter.

Global and tropical health research areas and partners



Afghanistan Bangladesh Bhutan Cambodia China Ethiopia Indonesia Lao People's Democratic Republic Malaysia Myanmar Nepal Philippines Republic of Korea Solomon Islands Sri Lanka Tanzania Thailand Timor Leste Vanuatu Vietnam

Optimising malaria treatment regimes

With a dormant liver stage, *Plasmodium vivax*, one of the five species of the *Plasmodium* parasite that cause human malaria, continues to pose a major challenge to malaria elimination in the Asia-Pacific.

In 2015, a large treatment trial of *P. vivax* was completed in Ethiopia which highlighted the importance of prescribing primaquine to eradicate the dormant latent stages in the liver. In Malaysia, the Malaria team identified a high rate of chloroquine resistance in *P. vivax* and showed artemisinin combination treatment achieved superior cure rates to standard chloroquine therapy.

The research team also found patients with *P. vivax* to have a hidden reservoir of parasites in other organs, posing an additional challenge to elimination, and that severe disease may be caused by abnormal small blood-vessel function. These studies are changing policy in both Ethiopia and Malaysia.

Retracing Melioidosis' footprint since the last Ice Age

Whole genome sequencing technology used by Menzies researchers has tracked the movement of the melioidosis bacterium (*Burkholderia pseudomallei*) across the globe since it first left Australia for Asia during the last Ice Age.

Working with researchers from Madagascar, France and Belgium, the genomes of *B. pseudomallei* obtained from Australia, Asia, Africa, and South America have been compared to identify how this pathogen has moved between continents.

Led by Professor Bart Currie, the Melioidosis team has identified that *B. pseudomallei* has only recently been introduced into Africa from Southeast Asia, most likely unintentionally during the first human settlement of Madagascar approximately 2,000 years ago. Since then, the bacterium has followed human movement across Africa, arriving in the Americas sometime during the Transatlantic Slave Trade.

This research is critical in increasing melioidosis awareness and improving treatment in regions previously not considered endemic for this potentially deadly pathogen.



Melioidosis culture

New treatments for antibiotic resistant Staph

New research led by Menzies Associate Professors Josh Davis and Steven Tong have sought to optimise the treatment and management of a bacterium responsible for several difficult-to-treat human infections.

Staphylococcus aureus typically sits harmlessly in the nose, frequently causes skin infections, but occasionally invades into the bloodstream with high rates of mortality. MRSA refers to antibiotic resistant forms of *S. aureus*.

"Treatment of invasive MRSA infections is difficult, partly due to the poor efficacy of vancomycin, the standard drug used to treat such infections," Assoc Prof Tong said.

Findings from the multi-centre pilot have shown that adding a simple penicillin-like drug (flucloxacillin) to vancomycin reduced the duration of MRSA surviving in the bloodstream.

"This study has led to National Health and Medical Research Council funding for a larger study across more than 25 sites in Australia, New Zealand, Singapore, and Israel to determine if adding flucloxacillin will reduce mortality," Assoc Prof Davis said.

The pair have also led a review article of *Staphylococcus aureus* infections that will be a reference standard for clinicians around the world for years to come.

Malaria research leads to WHO policy change

Plasmodium falciparum remains the most prevalent cause of fatal malaria. As part of a worldwide network dedicated to better understanding and improving malaria treatments, the Menzies Malaria team have identified the need for higher dosing when using artemisinin combination treatments in children, leading to policy change from the World Health Organization.

Previously, adults with severe malaria were at risk of fatal fluid leak in their lungs, worsened by commonly used liberal fluid treatment. In Myanmar, the team showed that a conservative intravenous fluid replacement regimen was safe in adults hospitalised with falciparum malaria.

The team have also identified excessive oxidative damage in severe disease and completed a clinical trial of arginine therapy aimed at improving blood vessel function in severe malaria.

Unearthing melioidosis' true prevalence

Using whole genome sequencing, researchers from the Melioidosis team have found samples taken from central Australia in 2011 to be unique strains of the bacterium.

Endemic to Southeast Asia and northern Australia, and now increasingly recognised in other locations, Melioidosis is a tropical disease caused by the bacterium *Burkholderia pseudomallei*.

After heavy rains and flooding in the normally arid interior of Australia during early 2011, melioidosis was diagnosed in six people over a four month period.

Although the precise global distribution of *B. pseudomallei* remains to be determined, this research demonstrates that the organism can clearly survive in harsh, and even desert environments, outside the wet tropics.

Ongoing research is underway to better define the presence of *B. pseudomallei* in central Australia and other Australian locations, and assess the relationships between *B. pseudomallei* from locations across Australia and globally.



Mark Mayo undertakes melioidosis sampling in central Australia



An interactive RHD education session with students

Collaborative approaches to increase awareness of RHD

Despite being preventable, Australia has the highest recorded rate of Rheumatic Heart Disease (RHD) in the world. Part of this stems from a lack of awareness and understanding about the underlying causes of RHD.

In 2015, the RHD Secondary Prophylaxis project team supported several community health services to develop education and training initiatives aimed at increasing knowledge and awareness of Acute Rheumatic Fever and RHD.

As part of National Heart Week, Menzies project staff and the RHD Control program collaborated with a NT Health service to organise a RHD Health Promotion and Awareness stall at a local shopping centre.

The project team also assisted staff at another NT Health service to deliver an interactive RHD education session to student residents and their house parents at a local hostel.

Both outreach initiatives were well attended and created much needed awareness among the community about RHD, its diagnosis, treatment, and prevention.

Menzies research at a glance

Menzies has again achieved a remarkable outcome in the Australian competitive grants space. 2015 saw Menzies achieve more than double the national average with our National Health and Medical Research Council applications and an outstanding result for project grants - 47.1 per cent compared to the national average of 13.7 per cent.

NHMRC Project and Fellowships 2015

Project grants

Professor Nick Anstey – Targeting microvascular dysfunction in severe malaria.

Professor Anne Chang – A multi-centre double-blind RCT on community-acquired pneumonia in Indigenous children and a developing country: Improving clinical outcomes and identifying systemic biomarkers.

Professor Bart Currie – Darwin Prospective Melioidosis Study: Years 27 – 31.

Dr Kylie Dingwall – Wellbeing for Chronic Kidney Disease (WICKD): A Trial of the Aboriginal and Islander Mental Health Initiative Stay Strong App.

Dr Kim Hare – Understanding the role of the two major bacterial pathogens in the upper and lower airways of Indigenous children with chronic lung disease.

Dr Selma Liberato – Assessing the impact of a multicomponent intervention to improve dietary intake of Indigenous Australian children and their families living in remote communities.

Assoc Prof David Thomas – Social media to enhance Indigenous tobacco control.

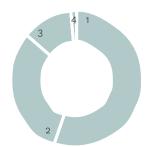
Assoc Prof Steve Tong – Optimising intervention strategies to reduce the burden of Group A Streptococcus in Aboriginal Communities.

Assoc Prof Louise Maple-Brown: Global Alliance for Chronic Disease Grant – Improving the management of Diabetes in Pregnancy in Remote Australia.

Menzies research income by funding source category 2015

Funding Source Category Research income \$ (AUD millions)

- 1. Category 1 \$14.420m
- Australian Competitive Grants
- 2. Category 2 \$8.123m
- Other public sector income, including grants, tenders and contracts



- 3. Category 3 \$3.231m Australian contracts, donations, international competitive grants and consultancies
- 4. Other Income \$0.121m Cooperative Research Centres

This graph does not include other income: tenders and consultancies, infrastructure grants, other Australian and overseas grants.

Fellowship

TRIP Fellowship

Dr Anna Ralph – in this Fellowship, Anna will address strategies to translate Rheumatic Fever prevention strategies into practice in Australia. Anna is the first to be awarded this prestigious fellowship in the Northern Territory.

Early Career Fellowships

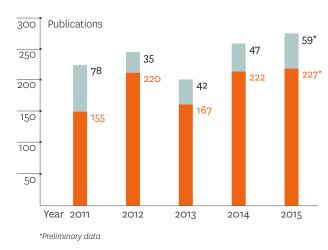
Assoc Prof Gail Garvey – this fellowship will support Gail to continue her research on improving health outcomes for Aboriginal and Torres Strait Islander Australians with cancer.

Dr Gabrielle McCallum – in the fellowship Gabrielle will continue to look at improving lung health of Indigenous children, through identifying interventional targets from long-term follow-up studies and preventive strategies.

Dr Janya McCalman – in this fellowship, Janya will work with health services in far north Queensland to develop a toolkit to assist in enhanced quality of adolescent mental health services.

Dr Susan Pizzutto – in her fellowship, Susan will focus her research on understanding the causes of the ever increasing number of children with chronic respiratory disorders.

Publications authored by Menzies researchers, 2011-2015



Peer-reviewed publications

All other publications

Research translation

Beyond its commitment to research excellence, Menzies sets its sights on solutions – using our research findings to kick-start and sustain positive change.

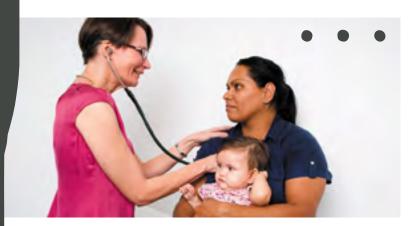
We are committed to ensuring that the research we do is put into practice and policy by health care providers, governments and other key stakeholders to achieve practical and tangible health outcomes.

A holistic approach to improving diabetes in pregnancy

A longitudinal study to improve the care and outcomes for women with diabetes in pregnancy and their babies has been embraced by health professionals across the Northern Territory.

The NT Diabetes in Pregnancy Partnership brings together researchers, clinicians, policy makers and health service providers to discuss how best to transform and translate latest evidence on the management of diabetes in pregnancy into clinical practice, from tertiary hospitals to remote clinics.

Forums have provided an evidence-based platform to facilitate effective and robust communication, education and an enhanced understanding of a woman's journey through the local health system.



Assoc Prof Louise Maple-Brown gives Shannon Daly and her baby Ruby a health check. Image provided by Territory Q

Landmark studies enshrined in NT history

The Life Course team has spent the past three decades studying the earliest signs of chronic disease to establish the age of onset of these signs.

The well-established Aboriginal Birth Cohort (ABC) Study is the largest and longest running study of Indigenous people in Australia with participants scattered across more than 40 remote and urban Top End communities. Along with the Darwin-based Top End Cohort (TEC), an age matched non-Indigenous cohort, these longitudinal studies provide a valuable resource to study the course of health and disease across an individual's life course.

Underpinning the success of the respective studies has been the extremely strong participant retention rates (71 per cent of ABC and 60 per cent of TEC original participants) over a long period of time. These young adults have recently completed an extensive health check as part of the fourth wave of data collection. Analyses of the relationship between early life factors and current health are underway.

Developing new tools in the fight against cancer

The evaluation of an assessment tool specifically designed for Indigenous Australians with cancer is hoping to improve outcomes for patients and health professionals.

This project found preliminary evidence of acceptability and feasibility of the Supportive Care Needs Tool for Indigenous People (SCNAT-IP), an unmet needs assessment tool specifically designed for Indigenous Australians with cancer.

This study was conducted in diverse cancer care settings across New South Wales, Victoria and the Northern Territory. Importantly, the results demonstrated that the tool is acceptable to both Indigenous cancer patients and clinical staff.

In 2015, the project team received the Harry Christian Giese Research Into Action Award which will be targeted at modifying the existing SCNAT-IP training manual into an interactive online format and aid in the development of supporting materials, including short instructional videos.

Menzies research underpins malaria breakthrough

In a world first, a clinical trial of people diagnosed with monkey malaria has been the precursor to an important national treatment policy change.

The Malaysian trial, a partnership between Menzies' Global and Tropical Health Division and the Infectious Diseases Society of Kota Kinabalu, Sabah (IDSKKS), has shown that a key combination of antimalarial drugs works well in curing the infection.

The monkey parasite, an emerging infection called *Plasmodium knowlesi*, has become the most common cause of human malaria in Malaysia and is also found throughout Southeast Asia.

Menzies clinical researcher, Dr Matthew Grigg said that while a number of different drugs have been used to treat this infection, this was the first randomised controlled trial to be conducted for uncomplicated knowlesi malaria to define optimal treatment.

"We compared an artemisinin-combination therapy (ACT) called artesunate-mefloquine against chloroquine to see how quickly they clear parasites in the blood. We showed that while both drugs were able to cure the infection, ACT was able to clear parasites and fever faster, allowing earlier hospital discharge and reduced risk of anaemia," Dr Grigg explained.

Showing that monkey malaria responds better to ACT is important. It reduces the likelihood that this type of malaria, or other types which are usually chloroquine resistant, if misdiagnosed as monkey malaria, will be treated ineffectively.

"As these other parasites are usually resistant to chloroquine, treating them with chloroquine as though they were monkey malaria can have dangerous consequences," said Malaysian Principal Investigator, Dr Timothy William.

"These findings are groundbreaking and will be disseminated to inform knowlesi malaria treatment policy in this region."



015 Menzies Annual Repo

Award winners Emerging Health Researcher of the Year

Dr Gabrielle McCallum

"The burden of lung conditions remains high among Indigenous children in the Northern Territory. I'm really passionate about finding different ways to treat and help manage these lung conditions so we can prevent this for generations to come," says Dr Gabrielle McCallum, winner of the 2015 Bupa Health Foundation Emerging Health Researcher of the Year.

In addition to her focus on improving clinical care and contributing factors such as overcrowding and socio-economic impacts, Dr McCallum's research is also seeking to raise awareness of a key respiratory condition in disadvantaged communities.

"Often our parents aren't good at picking up if their child has a wet cough. We see this often when we are doing an examination. The child has a wet cough but mum doesn't pick it up and says that's a normal cough."

"We're trying to encourage people to develop an awareness of cough because that's where damage in the airway is happening"



Award winners

Menzies Long Service Awards

Assoc Prof Heidi Smith-Vaughan

As part of its 2015 Long Service Awards, Menzies was proud to recognise Assoc Prof Heidi Smith-Vaughan for her incredible 25 years of service to the organisation.

"Since first beginning with Menzies in 1990, Heidi has displayed an unwavering commitment to excellence in all of her research, capacity building and community engagement endeavours. As head of Child Health Laboratory Research and a NHMRC Career Development Fellow, Heidi continues to represent the best of Menzies on the national and international stage," Menzies Director, Prof Alan Cass said.

The Awards provide an opportunity to recognise and record the valued contribution of staff members to Menzies over a long period. Other recipients recognised at the event were:

5 year long service award recipients

Sanjay Gurung
Gary Robinson
Sarah Auburn
Ella Curry
Anna Ralph
Bonita Moss
Heather D'Antoine
Carolin Stock
Vanya Hampton
Kristy Coulston
David Blair
Colette Maddison
Yomei Jones

Steve Tong
Suzanne Belton
Selma Liberato
Lesley Versteegh
Josh Davis
Clare McKay
Jodie Bailie
Elizabeth Hammond
Matthew Hughes
Megan Ferguson
Jodie Ellis
Kylie Dingwall

10 year long service award recipients

Gabrielle McCallum Tonia Woodberry

15 year long service award recipients

Joanne Bex Joan Cunningham Jemima Beissbarth Catherine Wilson Kim Hare

Internal awards

- Assoc Prof Gail Garvey has been named as the recipient
 of the 2015 Harry Christian Giese Research into
 Action Award to put her research in psycho-oncology,
 understanding and treating the social, psychological,
 emotional and spiritual aspects of cancer, from prevention
 to bereavement, into action.
- In recognition of her extraordinary leadership to eliminate infectious diseases across northern Australia through clinical guidelines, policy and population health, Dr Vicki Krause was named the recipient of the 2015 Menzies Medallion.
- The 2015 Val Asche Prize was awarded to Josie Povey (Master of Public Health) and Alexis Harper (Graduate Diploma in Public Health) for academic excellence.
- The 2015 Ryan Family Prize was awarded to Galiwin'ku community-based staff, Roslyn Dhurrkay, George Gurruwiwi and Bundhala Dhurrkay (deceased).



From left: Kristy Coulston, David Blair, Matt Hughes, Heather D'Antoine and Sanjay Gurung



Capacity building

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In addition to its cutting-edge laboratory-based and biomedical research, Menzies also strives to increase the capacity of communities, health service providers, Indigenous health workers, professionals and researchers – to help them deliver better services based on evidence about what works, and what doesn't.

HealthLAB empowers healthier, more informed Territorians

Launched in 2014, HealthLAB is a mobile pop-up laboratory that allows participants to assess their health using modern technology. HealthLAB aims to empower community members to own their health and make positive lifestyle choices for themselves and their families.

HealthLAB visits schools, remote communities and shopping centres around the Territory, and is a regular event at the Michael Long Learning and Leadership Centre. In 2015, the Rotary Club of Darwin held the inaugural Darwin Ladies Long Lunch to raise funds for HealthLAB to support ongoing events to engage Territorians to prevent chronic disease, and to improve the health of the next generation.

Empowering our communities to tackle FASD

In 2015, the Australian Government, Department of Health contracted Menzies to develop and implement a comprehensive resource package to reduce the impact of Fetal Alcohol Spectrum Disorder (FASD) on the Aboriginal and Torres Strait Islander population.

The flexible, modular package of FASD Prevention and Health Promotion Resources is set to significantly enhance the critical work already being done by The Centre for Child Development and Education FASD project led by Professor Sven Silburn.

In partnership with National Aboriginal Community
Controlled Health Organisation and Telethon Kids Institute,
Menzies is using a 'train-the-trainer' approach to enable
services to make the self-assessments needed in tailoring
the resources for local circumstances, particularly
community needs and local workforce capacity.



A Michael Long Learning and Leadership Centre student gets put through his HealthLAB paces

New app to improve RHD treatment

An innovative smartphone app developed in close partnership with Indigenous people is hoping to improve prevention of a leading chronic, disabling, and fatal disease.

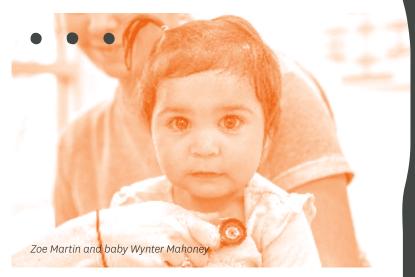
Nurse and Menzies PhD student, Alice Mitchell spent several weeks in a remote east Arnhem Land community collecting data for the 'Improving Secondary Prophylaxis for Rheumatic Heart Disease trial' and her related doctoral research into the "lived experience" of ARF/RHD.

"Regular penicillin injections reduce the risk of acute rheumatic fever (ARF) attacks in children and young adults living with ARF/RHD, but there are many challenges in adhering to this treatment," Alice explains.

"My discussions about ARF/RHD led to a high level of community interest and engagement, including elders and staff at the clinic and school."

Funded by the community clinic, the 'Take Heart' App allows user to track their own injections and receive reminders when needles are due.







From left: Emma Budgen, Lindy Sweet, Annette McCarthy and Kenny

Indigenous capacity building

The Menzies Indigenous Capacity Building Unit (ICBU) aims to build and sustain a highly-skilled Indigenous workforce through employment, training and professional development opportunities which welcome, value and provide a safe environment for Indigenous staff.

Key ICBU activities for 2015 included: the Pathways Program, the Indigenous Staff Network Forum, and the establishment of the Indigenous Traineeships Program funded by the Indigenous Advancement Strategy, Prime Minister and Cabinet.

The continued implementation of the Menzies Reconciliation Action Plan was another of the Unit's notable outcomes, as was the delivery of two cross cultural training workshops in Darwin.

Indigenous Staff Network Forum

In October 2015, Indigenous employees from all of Menzies' offices came together to attend and participate in the first Indigenous Staff Network Forum.

Held in Darwin, the three day event included workshops on exploring career options, current Menzies programs, and the Aboriginal and Torres Strait Islander Employment and Development Strategy evaluation. Staff delivered presentations on a variety of topics including ethics and research grant writing, and concluded with an interactive panel discussion.

Menzies celebrates NAIDOC

'We all walk on sacred ground' was the theme for the 2015 National Aborigines and Islanders Day Observance Committee (NAIDOC) celebrations.

Menzies celebrated NAIDOC with a formal presentation by Prof Alan Cass and Heather D'Antoine which was followed by a traditional Larrakia smoking ceremony of its John Mathews Building.

NAIDOC celebrates Aboriginal and Torres Strait Islander history, culture and achievements and is an opportunity to recognise the contributions that Indigenous Australians make to our country and society.



Members of the Menzies Indigenous Staff Network (ISN) at the ISN Forum in Darwin



Victor Williams, Larrakia Nation, preforms the Smoking Ceremony of the new John Mathews Building

Youth Engagement Strategy

The Menzies Youth Engagement Strategy (YES) is designed to attract more young people to consider a career in health, science and research. This was achieved through the provision of programs and activities designed to enhance interactions for young Territorians with Menzies staff through a number of programs and activities. These include: Gap traineeships, Indigenous traineeships, Indigenous cadetships, Pathways Program, school student visits, career expos and Science Sesh.



The mobile outreach program, HealthLAB played a key role in the Pathways Program

Menzies Pathways Program

The 2015 Menzies Pathways Program provided a group of Indigenous high school students information and exposure to help them consider pursuing a career in the health and sciences.

Twelve Indigenous secondary high school students from remote NT communities travelled to Darwin to gain valuable experience and insight into the diverse range of employment opportunities available at Menzies, Charles Darwin University (CDU), Flinders University and Royal Darwin Hospital.

Feedback from the program showed that students were not only inspired to complete their secondary school education, but were also considering a tertiary education and career in health or science.

Funding for the 2015 Pathways Program was provided by Collier Charitable Fund and CDU.

Menzies Traineeships

In 2015, Menzies built upon its partnership with Group Training Northern Territory to provide a Gap traineeship opportunity for a school leaver. The key deliverables for this position included a range of activities to facilitate Menzies' engagement with youth, science and schools.

As part of a competitive process, Shae Tozer was selected as the successful Gap trainee and thereafter enrolled in the Certificate III Laboratory Skills.

An Indigenous traineeship was also offered in the Menzies Brisbane office with Shanai Chenery named the successful applicant. This position included a range of administration functions which also saw Shanai enrol in the Certificate III Business Administration. Both trainees have successfully completed their courses.



Students from Galiwin'ku, Tennant Creek, Alice Springs and Kormilda College attended the inaugural Pathways Program in Darwin

Education and Training

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2015 saw the Education and Training team consolidate a number of major programs and initiatives and implement mechanisms to ensure its continued growth and diversity.

The teaching program continued to strengthen with student numbers increasing across the Master of Public Health and the Graduate Diplomas in Public Health and Health Research. Many research methods units in these awards are now being picked up as cross-award specialist electives by other Charles Darwin University faculties, increasing the diversity in the student cohort. There was also an increase in coursework graduates in 2015.

A concentrated effort was made to broaden domestic marketing activities around the Graduate Diplomas in Health Research and Public Health, Master of Public Health and Higher Degrees by Research (HDR). Increasing the number of marketing channels has been pivotal to building brand awareness and promoting the standing and reputation of Menzies' postgraduate courses.

Responding to growth targets for coursework and HDR students as outlined in the 2015-16 Menzies Strategic Plan, the Master of Public Health will be opened to international students from 2017.

After extensive work and development, the Certificate II in Community Health Research (105103NAT) received national accreditation and will be delivered from 2016.

The accreditation is a key outcome in the push to improve educational pathways for Menzies Indigenous community-based researchers. Designed for Indigenous health research organisations, the course aims to build skills and knowledge in ethical conduct of research, engaging in community consultation and data collection from community members.

Menzies research academics continue to supervise an exceptional group of HDR students with a strong completion and scholarship success record. In July 2015, the Education and Training team ran its first HDR Conference, providing Menzies PhD students the opportunity to present research, improve presentation skills, network and share connections, and engage with experienced researchers in discussions around research journeys.

The 2015 Menzies PhD graduates were representative of the diverse range of student research topics which included: child development, infectious diseases, epidemiology and health promotion.

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HDR and Coursework student numbers (2010-2015)

			PROFESSIONAL DOCTORATE	
YEAR	HDR STUDENTS ENROLMENTS	HDR GRADUATES	EQUIVALENT FULL TIME STUDENT LOAD (EFTSL)	COURSEWORK GRADUATES
2010	52	5	26.7	20
2011	53	9	31	21
2012	66	4	32.125	32
2013	71	6	29.75	32
2014	64	7	39.75	15
2015	58	8	46.875	26

Master of Public Health Graduates completing with a research thesis

- Camilla Feeney: Anthropometric and biochemical indicators of nutrition status in Indigenous Australians in The eGFR Study
- Josie Povey: Acceptability of mental health apps for Aboriginal and Torres Strait Islander Australians: a qualitative study
- Heather Wallace: Understanding Family Planning and Contraceptive Choices in Timor Leste. An exploration of perception, misconceptions and realities.

Higher Degree Research (HRD) graduates in 2015

- Michael Binks (PhD): Prevention of acute respiratory infections among indigenous infants of the Northern Territory
- Asha Bowen (PhD): The Skin Sore Trial: Exploring a better treatment option for impetigo in remote Indigenous children
- Samantha Colquhoun (PhD): Epidemiology, prevention and control of rheumatic heart disease in the Pacific region
- Gabrielle McCallum (PhD): Improving the management of children (especially Indigenous children) hospitalised with bronchiolitis
- Susan McMullan (PhD): Growing up fast the sexual and reproductive health of young women in a remote Aboriginal township
- Jacklyn Ng (PhD): Characterisation of a novel Staphylococcus aureus lineage: Clonal Complex 75 (CC75), Staphylococcus argenteus
- Susan Pizzutto (PhD): The immunopathology of chronic suppurative lung disease in Northern Territory children
- Yuwana Podin (PhD): The epidemiology and molecular characterization of Burkholderia pseudomallei in Malaysian Borneo.

HDR scholarships success in 2015

- Belinda Davison (PhD): The impact of stress on emotional status in Indigenous and non-Indigenous young adults: An exploration of environmental, psychological and biological markers. Australian Postgraduate Award
- Byron Wilson (PhD): The Relationships between Education and Wellbeing for Aboriginal and Torres Strait Islander people from Remote Communities. Australian Postgraduate Award
- Lisa McHugh (PhD): Birth outcomes following receipt of maternal vaccinations in pregnancy. Australian Postgraduate Award
- Teresa Cunningham (PhD): Risk and Resilience: individual and social context determinants and their impact on the offending or desistance of offending of Indigenous youth in the Northern Territory. Australian Postgraduate Award



From left: Dr Michael Binks, Dr Susan Pizzutto, Dr Asha Bowen and Dr Gabrielle McCallum at the 2015 Charles Darwin University graduation ceremony

- Robert Commons (PhD): Primaquine radical cure of Plasmodium vivax malaria: a risk-benefit analysis.
 National Health and Medical Research Council. Dr Commons was also awarded a prestigious RACP (Royal Australian College of Physicians) NHMRC Kincaid-Smith Scholarship for 2016 in additional support of his studies.
- Ella Meumann (PhD): Molecular epidemiology of tuberculosis in the Northern Territory, Australia. National Health and Medical Research Council
- Ammar Aziz (PhD): Investigate the Biology of Haemophilus influenzae (NTHi) and *Burkholderia pseudomallei* using transcriptomics. Australian Postgraduate Award
- Steven Kho (PhD): Pathophysiological characterisation of the human spleen and platelets during Malaria infection. Australian Postgraduate Award
- Damian Oyong (PhD): Role and mechanism of complement activation in protective malaria immunity and pathogenesis of anaemia. Charles Darwin International PhD Scholarship
- Audrey Rachlin (PhD): Tracking the evolving story of melioidosis in northern Australia. Charles Darwin International PhD Scholarship
- Daniel Cooper (PhD): Kidney injury in severe Malaria:
 Pathophysiology and prevention. University Postgraduate
 Research Scholarship and International Postgraduate
 Research Scholarship
- Angela Titmuss (PhD): Pandora Wave1: Assessment of the impact of maternal diabetes on growth and nutritional indicators, cardio-metabolic risk factors and developmental risk of pre-school aged children living in the Northern Territory. National Health and Medical Research Council. Dr Titmuss was also awarded a prestigious RACP (Royal Australian College of Physicians) NHMRC Woolcock Scholarship for 2016 for further support in her studies.

Menzies in the community

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Menzies features at Ladies Long Lunch

The Rotary Club of Darwin, in support of Menzies, hosted its inaugural Ladies Long Lunch on 29 May 2015.

Former Cabinet Minister Amanda Vanstone headlined the event which named the educational health outreach project, HealthLAB as its 2015 beneficiary.

As part of the networking and charity event, Assoc Prof Heidi Smith-Vaughan outlined Menzies' critical research and capacity building efforts across north and central Australia.

In total, The Rotary Club of Darwin raised more than \$100 000 to ensure the continued rollout of HealthLAB to students, communities and organisations across the Territory.



The late Assoc Prof Sue Sayers was the driving force behind the inaugural Ladies Long Lunch

Professor Anne Kelso delivers Menzies Oration

Newly appointed CEO of the National Health and Medical Research Council, Prof Anne Kelso delivered a much anticipated presentation as part of the 2015 Menzies Oration.

Prof Kelso's presentation, Medical research funding: an investment in the future, took an in-depth look at the future of Australian health and medical research and explored stresses, challenges and opportunities for researchers and research organisations.

Each year, Menzies hold its Oration as a public lecture to stimulate and challenge the Australian public on a topic which is related to our work in Indigenous and Global and Tropical Health.

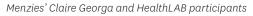
HealthLAB joins Michael Long Learning and Leadership Centre

With football as the vehicle, the Menzies HealthLAB played a key role in hosting the inaugural group of students to visit the Michael Long Learning and Leadership Centre.

HealthLAB staff engaged the students from remote communities around the Top End to conduct their own health tests and find out what the results mean for their general wellbeing.

"We're talking through healthy body weight, healthy body fat and how that relates to their sugar intake," Menzies dietician Claire Georga said.

The Centre features accommodation for up to 60 students, a gym, pool and classrooms where the 'football-themed' health and education programs take place.





Prof Anne Kelso speaks at the 2015 Oration



30th anniversary reunion party

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Over 150 past and present staff enjoyed an evening at Eva's Café located in the picturesque George Brown Botanic Gardens, to celebrate 30 years of Menzies School of Health Research.



Donors and supporters

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Private and philanthropic support is becoming increasingly important in extending our national and international research impact and translating our research findings for the benefit of individuals and communities across our region.

Throughout the year, our engagement with business and philanthropic leaders across Australia has identified a number of exciting opportunities for Menzies to work in partnership to apply a new interdisciplinary 'whole of community' approach towards addressing complex health disparities within Indigenous communities.

This approach enables community owned and driven initiatives to tackle multiple, interrelated health issues that are informed and facilitated by Menzies. It also provides real opportunities for powerful cross-sector collaboration between Menzies, government, business, philanthropy and the community to achieve a larger scale, measurable impact.

In mid-2015, Menzies' inaugural Ambassadors and Patrons Program was launched to celebrate key champions and advocates who have played a role in supporting Menzies and to leverage their combined influence and endorsement to promote our work amongst their peers and networks.

Four engagement events were sponsored and hosted for Menzies during the year in Melbourne, Sydney and Darwin, providing an opportunity for business and philanthropic leaders to hear first-hand from researchers and Menzies staff working at the coal face. We are immensely grateful to our hosts: Susan Alberti AC; Jason Eades (CEO PwC Indigenous Consulting) & Luke Sayers (CEO PwC Australia & Vice-Chairman PwC Asia); Michael Rose (Chief Executive Partner, Allens Linklaters, recently retired) and Suzi Hullick (State General Manager, Commercial Business SA/NT/Tas and National Head of Indigenous Banking).

May 2015 saw the Rotary Club of Darwin host its inaugural Ladies Long Lunch, at which it selected Menzies' HealthLAB to be the recipient of its biggest single fundraiser. We are delighted to have received over \$100 000 for the health education outreach program and would also like to thank EPAC Solutions who made a significant contribution to the project.

We would particularly like to acknowledge individual donors, Ian Albrey and Edwina Menzies who pledged ongoing support to the PANDORA project and Menzies' nutrition work.

Significant contributions made by McArthur River Mine and donors Rob and Dulcie Andrew were also integral to the success of the 2014/15 CKD (Communicate, Know, Decide) Appeal which raised critical funds to support critical Menzies chronic kidney disease work.

In acknowledging the Menzies Development Committee, who give many hours of their strategic advice and time each year to the Executive and Development Team, we would like to thank the Honourable Clare Martin (Chair), Richard Ryan AO, Rowan Johnston, Dr Richard Russell, Kate Russell, Simon Schwarz and Suzi Hullick.

We extend our sincere appreciation and gratitude to all of our donors and supporters.



The 30th Anniversary Gala Dinner provided an opportunity to thank and reconnect with many of Menzies' long-term supporters

Major donors and partners

Menzies is grateful to the following donors and partners for their generous support in 2015:

Alex D	avis
	w Israel
Ann C	ole
Dr Anı	na Ralph
Belind	la Gibson
Chris	and John Collingwood
Mrano	d Mrs David Boyle
Diana	and Richard Giese
Dr Bra	ındon Carp and Nicky Carp
Elaine	Chang
	m Blashki and Evelyn nberg
	orey and Edwina Menzies emory of Irene (Sue) Albrey)
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James	s Hogben
Jenny	Anderson
Kate R	tussell
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Dr Nic	holas Ferris
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Royal Adelaide Hospital SA Department of Nephrology Seattle Children's Hospital Shoklo Malaria Research Unit, Tak Province, Thailand South Australian Health & Medical Research Institute St Vincent's Hospital Melbourne Starship Children's Hospital, New Zealand Sunrise Health Tangentyere Council Telethon Kids Institute TGen North, USA The Black Dog Institute The Clive and Vera Ramaciotti Foundation The Fred Hollows Foundation The Lowitja Institute The Prince Charles Hospital Chermside QLD The Regents of the University of California, USA Townsville Aboriginal and Islander Health Service

Tropical Public Health Services - Cairns UK Medical Research Council United States Department of Universiti Malaysia Sarawak University Centre of Rural Health University Malaya Medical Centre University of Adelaide University of California USA University of Gadjah Mada. Yogyakarta, Indonesia University of Khartoum, Sudan University of Melbourne University of Nevada, USA University of New South Wales University of Newcastle University of Oxford University of Queensland University of South Australia

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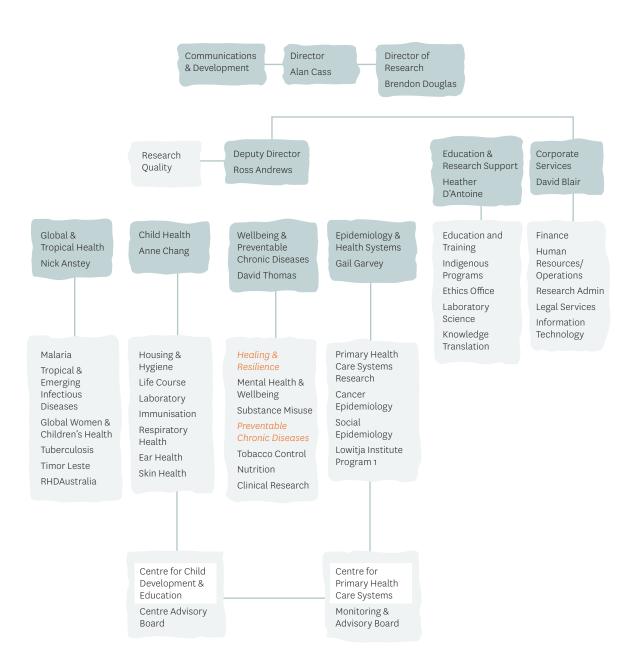
Wuchopperen Health Service Ltd Wurli Wurlinjang Health Service Yalu Marngithinyaraw

Yayasan Pengembangan Kesehatan Dan Masyarakat Papua, Timika Indonesia

Menzies extends a special thank you to its many Aboriginal Health Organisation partners.

Organisation structure

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Board

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The Menzies School of Health Research (Menzies) is an independent body corporate under the control of a governing board. Menzies is also a controlled entity of Charles Darwin University (CDU).

Menzies is required to furnish an annual report and audited financial statements to an annual general meeting, with financial results consolidated within those of CDU.

Menzies financial statements are subject to audit by the Auditor-General of the Northern Territory.



MR PETER PLUMMER (CHAIR)



MR RICHARD RYAN AO (TREASURER)



PROFESSOR ALAN CASS



THE HON CLARE MARTIN (DEPUTY CHAIR)



PROFESSOR SHARON BELL



DR LEN NOTARAS



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THE HON JUSTICE HILARY HANNAM



PROFESSOR DAVID CELERMAJER



MR ROBERT WELLS



PROFESSOR SIMON MADDOCKS



MS DONNA AH CHEE
From June 2015

Featured publications

Maple-Brown L, Hughes J, Chatfield M, Ward LC, Piers LS, Jones GD, Lawton P, Ellis AE, Cass A, Hoy W, O'Dea K, MacIsaac R and Jerums G. 2015. Adding Measures of Body Composition to the CKD-EPI GFR Estimating Equation in Indigenous Australians: The eGFR Study. American Journal of Kidney Diseases, 65(4):632-4.

A key research question of this study was to assess whether the accuracy of the standard equation used to measure kidney function could be improved by the inclusion of a measure of body composition in the equation. The study reported that the addition of fat free mass in the equation to measure kidney function does not materially improve the estimation of kidney function in high-risk Aboriginal and Torres Strait Islander peoples, and that the equation currently used in routine clinical practice remains the preferred equation.

Dingwall K M, Puszka S, Sweet M and Nagel, T. 2015.

"Like drawing into sand": Acceptability, feasibility and appropriateness of a new e-mental health resource for service providers working with Aboriginal and Torres Strait Islander people. Australian Psychologist, 50, 60-69.

This is one of the first studies to demonstrate the acceptability of e-mental health approaches for Aboriginal people among the remote health workforce. It considers barriers and enablers for e-mental health implementation within the remote Indigenous health service setting. The results suggest that e-mental health interventions are likely to make an important contribution to overcoming the burden of poor service access for remote Aboriginal and Torres Strait Islander clients and provide new ways of delivering health care in remote regions.

Thomas DP, Davey ME, Briggs VL and Borland R. 2015. Talking About The Smokes: summary and key findings. *Medical* Journal of Australia, 202(10):S3-4.

This paper summarises the results from 15 papers in a special supplement which show what is working now in Indigenous tobacco control, countering the pessimism that nothing is working to reduce the national Indigenous daily smoking prevalence from 42%; 2.6 times that of other Australians. Health staff can advise about quitting with confidence that their message will be understood and welcomed, and policy-makers can justify continuing to invest in Indigenous tobacco control because we have shown that improvement is clearly possible.

Lawton PD, Cunningham J, Zhao Y, Gray N, Chatfield MD, Baade P, Murali KM andJose MD. (2015). Survival of Indigenous Australians on Renal Replacement Therapy: Closing the Gap? Medical Journal of Australia, 202(4): 200-204.

This paper demonstrates that while survival on renal replacement therapy (dialysis or kidney transplant for end-stage kidney disease) has improved significantly for both non-Indigenous and Indigenous Australian patients over the past 20 years, Indigenous patients still have a 40% increased risk of death. This is largely due to low rates of transplantation for Indigenous patients.

Brimblecombe J, van den Boogaard C, Wood B, Liberato S, Brown J, Barnes A, Rogers A, Coveney J, Ritchie J and Bailie R. 2015. Development of the good food planning tool: A food system approach to food security in indigenous Australian remote communities. *Health & Place*, ;34:54-62.

Food systems that provide enough quality, affordable and nutritious foods to meet everyone's needs and preferences involve many different players. This paper describes the development of a Good Food Planning Tool to assist stakeholders in remote communities to collectively appraise and improve their local food system. A diverse range of 148 stakeholders, of whom more than half were Indigenous, had input into its development.

Moore SP, Antoni S, Colquhoun A, Healy B, Ellison-Loschmann L, Potter JD, Garvey G and Bray F. 2015. Cancer incidence in indigenous people in Australia, New Zealand, Canada, and the USA: a comparative population-based study. *Lancet Oncology*, 16(15):1483-92.

This paper highlights the higher rates of largely preventable cancers, including lung and cervical cancer, among Indigenous people in four high-income countries (Australia, New Zealand, Canada and the USA). These findings strengthen the argument for a strategic focus on the burden of cancer in Indigenous people and the development of interventions that address the factors that drive cancer inequities.

Diaz A, Moore SP, Martin JH, Green AC, Garvey G and Valery PC. 2015. Factors associated with cancer-specific and overall survival among Indigenous and non-Indigenous gynecologic cancer patients in Queensland, Australia: a matched cohort study. International Journal of Gynecological Cancer, 25(3):542-7.

Existing evidence on the impact of rurality on cancer outcomes for Indigenous peoples is limited. This study showed that Indigenous cancer patients in rural/remote Queensland were diagnosed with more advanced cancer, less likely to receive treatment, and had poorer survival outcomes than Indigenous patients living in urban/inner regional Queensland.

Garvey G, Beesley VL, Janda M, O'Rourke PK, He VYF, Hawkes AL, Elston JK, Green AC, Cunningham J and Valery PC. 2015. Psychometric properties of an Australian supportive care needs assessment tool for Indigenous patients with cancer. *Cancer*, 121:3018–3026.

Identifying the unmet supportive care needs of Indigenous Australians with cancer is imperative to improve their cancer care. The purpose of this study was to test the psychometric properties of a supportive cancer care needs assessment tool for Indigenous people (SCNAT-IP) with cancer, and provide support for this tool.

Bailie J, Schierhout G, Laycock A, Kelaher M, Percival N, O'Donoghue L, McNeair T andBailie R. 2015. Determinants of access to chronic illness care – a mixed-methods evaluation of a national multifaceted chronic disease package for Indigenous Australians. *BMJ Open*, 5.

This paper examines how a national multicomponent programme aimed at improving prevention and management of chronic disease among Australian Indigenous people addressed various dimensions of access. Strategies to improve access to chronic illness care for this population need to be tailored to local circumstances and address the range of dimensions of access on both the demand and supply sides, highlighting the importance of flexibility in national programme guidelines to support locally determined strategies.

Gausia K, Thompson S, Nagel T, Schierhout G, Matthews V and Bailie R. 2015. Risk of antenatal distress in indigenous women and its management at primary health care centres in Australia. Elsevier, General Hospital Psychiatry, 37, 335-339.

This study explored the risk of antenatal psychosocial distress (APD) and associated potential factors and examined management aspects of risk of APD in women attending Aboriginal primary health care services in Australia. The higher risk of APD associated with women's life style behaviour indicates that the better understanding of mental health in its cultural context is essential.

Chang AB, Van Asperen P, Glasgow N, Robertson CF, Mellis CM, Masters IB, Landau L, Teoh L, Tjhung I and Petsky H. 2015. Children with chronic cough: when is watchful waiting appropriate? Development of likelihood ratios for assessing children with chronic cough. *Chest Journal*, 147(3):745-753. doi:10.1378/chest.14-2155.

Children with chronic dry cough without any cough pointers can be safely managed using the watchful waiting approach. The high pretest probability and high positive LRs of cough pointers support the use of individual cough pointers to identify high risk of specific cough in paediatric chronic cough guidelines.

Leach AJ, Mulholland EK, Santosham M, Torzillo PJ, Brown NJ, McIntyre P, Smith-Vaughan H, Skull S, Balloch A, Andrews RM, Carapetis J, McDonnell J, Krause V and Morris PS. 2015. Pneumococcal conjugate vaccines PREVenar13 and SynflorIX in sequence or alone in high-risk Indigenous infants (PREV-IX_COMBO): protocol of a randomised controlled trial. *BMJ Open*, ;4:e007247. doi:10.1136/bmjopen-2014-007247.

This study addresses an important health and social issue for Australian Indigenous children who live in the only western country named by the WHO as being in the highest category (>6%) of chronic suppurative otitis media (CSOM) prevalence.

Juonala M, Singh G, Davison B, Burgner D and Sayers S. 2015. Childhood metabolic syndrome, inflammation and carotid intima-media thickness. The Aboriginal Birth Cohort Study. International Journal of Cardiology. Accepted Oct 2015.

Metabolic Syndrome in childhood is associated with subclinical atherosclerosis in an Australian Aboriginal population and the effects appear to be mediated by increased inflammation. The extent of atherosclerosis was partially reduced if metabolic status improved during the follow-up.

McDonald E, Cunningham T and Slavin N. 2015. Evaluating a handwashing with soap program in Australian remote Aboriginal communities: a pre and post intervention study design. *BMC Public Health*, 15:1188 DOI 10.1186/s12889-015-2503.

This trial of a theory informed evaluation design allowed for new and rich information to be obtained about community members' beliefs, attitudes and intentions towards teaching and assisting children so safe hygiene behaviours become habit. Findings will support an evidence-based approach is taken to plan future NGoM program activities

McCallum GB, Morris PS, Grimwood K, Maclennan C, White AV, Chatfield MD, Sloots TP, Mackay IM, Smith-Vaughan H, Mckay CC, Versteegh LA, Jacobsen N, Mobberley C, Byrnes CA andChang AB. 2015. Three-weekly doses of azithromycin for Indigenous infants hospitalised with bronchiolitis: A multicentre, randomised, placebo-controlled trial. Frontiers in Pediatrics, 3.

This study found that despite reducing nasopharyngeal bacterial carriage, three large once-weekly doses of azithromycin did not confer any benefit over placebo during the bronchiolitis illness or six months post hospitalisation. Azithromycin should not be used routinely to treat infants hospitalised with bronchiolitis.

Barber BE, William T, Grigg MJ, Parameswaran U, Piera KA, Price RN, Yeo TW and Anstey NM. 2015. Parasite Biomass-Related Inflammation, Endothelial Activation, Microvascular Dysfunction and Disease Severity in Vivax Malaria. *PLoS Pathogens*, 11 (1): e1004558.

This paper identified new mechanisms underlying the pathogenesis of severe disease in patients with vivax malaria, including evidence of a hidden parasite biomass and vascular dysfunction.

Grigg MJ, William T, Menon J, Dhanaraj P, Barber BE, Wilkes CS, von Seidlein L, Rajahram GS, Pasay C, McCarthy JS, Price RN, Anstey NM and Yeo TW. 2015. A randomized open-label clinical trial of artesunate-mefloquine versus chloroquine for the treatment of uncomplicated *Plasmodium knowlesi* malaria in Sabah, Malaysia (ACT KNOW trial). Lancet Infect Diseases. In this first ever randomized controlled trial in human malaria from the monkey parasite, P. knowlesi, artemisinin combination therapy (ACT) was efficacious for all malaria species, reducing hospital stay and anaemia in knowlesi and vivax malaria. Findings informed 2015 WHO and national policy change, with adoption of a unified ACT

regimen for all malaria species in this region.

Davis JS, Sud A, O'Sullivan MV, Robinson JO, Ferguson PE, Foo H, van Hal SJ, Ralph AP, Howden BP, Binks PM, Kirby A and Tong SY. 2015. Combination of vancomycin and -lactam therapy for methicillin-resistant Staphylococcus aureus bacteremia: A pilot multicenter randomized controlled trial. Combination Antibiotics for Methicillin Resistant Staphylococcus Aureus (CAMERA) study group; Australasian Society for Infectious Diseases Clinical Research Network; Combination Antibiotics for Methicillin Resistant Staphylococcus Aureus CAMERA study group. Clinical Infectious Diseases.

MRSA (antibiotic resistant golden Staph) infections are difficult to treat, and carry a 20% risk of death. In this pilot randomised trial in 60 patients with MRSA blood stream infection, we compared combination antibiotic therapy against standard therapy with one antibiotic. The patients in the combination therapy group recovered more quickly. This has led to a larger, NHMRC-funded, 4 country clinical trial comparing these two strategies in 440 people with MRSA blood stream infection over the next 4 years.

Langford S, Douglas NM, Lampah DA, Simpson JA, Kenangalem E, Sugiarto P, Anstey NM, Poespoprodjo JR and Price RN.2015. Plasmodium malariae infection associated with a high burden of anemia: a hospital-based surveillance study. PLoS Neglected Tropical Diseases, 9(12): e0004195.

This epidemiology study is the largest to date on the neglected parasite, Plasmodium malariae. It highlights an association between the parasite and a significant burden of anaemia, particularly in infected adults. Elimination strategies will need to target all the non-falciparum species.

Lucia R, Whitfeld M, Koroivueta J, Kama M, Wand H,
Tikoduadua L,Tuicakau M, Koroi A, Andrews R, Kaldor J, and
Steer A. Mass Drug Administration to Control Scabies in a
Highly Endemic Population. N Engl J Med, 2015, 373:2305-2313.
A world-first study successfully demonstrating treatment of a whole community with ivermectin virtually eliminated scabies - 94 per cent reduction in scabies prevalence.

Kaestli M, Mayo M, Harrington G, Chatfield MD, Harrington I, Hill A, Munksgaard N, Gibb K and Currie BJ. 2015. What drives the occurrence of the melioidosis bacterium Burkholderia pseudomallei in domestic gardens? PloS Neglected Tropical Diseases,9(3):e0003635.doi:10.1371/journal.pntd.0003635. Based on interventional and microcosm studies, this paper provides novel insights into the occurrence of Burkholderia pseudomallei in gardens in the Darwin region.

Currie BJ, Price EP, Mayo M, Kaestli M, Theobald V, Harrington I, Harrington G and Sarovich DS. 2015. Use of whole genome sequencing to link *Burkholderia pseudomallei* from air sampling to mediastinal melioidosis, Australia. *Emerging Infectious Diseases*, 21:2052-2054.

This is the first linking of natural aerosols of environmental Burkholderia pseudomallei to a clinical case of melioidosis, with global implications for epidemiology and biosecurity.

Summary Financial Statements

INCOME STATEMENT

NoTE 2015 2014 S	Menzies School of Health Research				
Australian Government financial assistance National Health & Medical Research Council 2 12,451,542 11,088,447 Other Government Agencies 2 4,899,826 10,159,253 NT Government Agencies 3 4,640,060 4,340,423 Fees and charges 4 3,916,103 2,931,803 Investment income 5 706,971 1,062,378 Consultancy and contract research 6 6,668,651 9,629,081 Other revenue 7 3,491,095 4,111,925 Total revenue from continuing operations 36,774,248 43,323,310 Gain on disposal of assets 8 8,901,734 (3,821,386) Total income from continuing operations Employee related expense 9 22,584,392 23,338,819 Depreciation and amortisation 10 2,366,005 638,343 Repairs and maintenance 11 1,122,791 717,858 Other expenses from continuing operations Total expenses from continuing operations 7,945,846 1,598,299				-	
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NT Government financial assistance 3 4,640,060 4,340,423 Fees and charges 4 3,916,103 2,931,803 Investment income 5 706,971 1,062,378 Consultancy and contract research 6 6,668,651 9,629,081 Other revenue 7 3,491,095 4,111,925 Total revenue from continuing operations 36,774,248 43,323,310 Gain on disposal of assets 8 8,901,734 (3,821,386) Total income from continuing operations 45,675,982 39,501,924 Expenses from continuing operations 9 22,584,392 23,338,819 Depreciation and amortisation 10 2,366,005 638,343 Repairs and maintenance 11 1,122,791 717,858 Other expenses 12 11,656,948 13,208,605 Total expenses from continuing operations 37,730,136 37,903,625 Operating result from continuing operations 7,945,846 1,598,299	National Health & Medical Research Council	2	12,451,542	11,088,447	
Fees and charges 4 3,916,103 2,931,803 Investment income 5 706,971 1,062,378 Consultancy and contract research 6 6,668,651 9,629,081 Other revenue 7 3,491,095 4,111,925 Total revenue from continuing operations 36,774,248 43,323,310 Gain on disposal of assets 8 8,901,734 (3,821,386) Total income from continuing operations 45,675,982 39,501,924 Expenses from continuing operations 9 22,584,392 23,338,819 Depreciation and amortisation 10 2,366,005 638,343 Repairs and maintenance 11 1,122,791 717,858 Other expenses 12 11,656,948 13,208,605 Total expenses from continuing operations 37,730,136 37,903,625 Operating result from continuing operations 7,945,846 1,598,299	Other Government Agencies	2	4,899,826	10,159,253	
Investment income 5 706,971 1,062,378 Consultancy and contract research 6 6,668,651 9,629,081 Other revenue 7 3,491,095 4,111,925 Total revenue from continuing operations 36,774,248 43,323,310 Gain on disposal of assets 8 8,901,734 (3,821,386) Total income from continuing operations 45,675,982 39,501,924 Expenses from continuing operations 9 22,584,392 23,338,819 Depreciation and amortisation 10 2,366,005 638,343 Repairs and maintenance 11 1,122,791 717,858 Other expenses 12 11,656,948 13,208,605 Total expenses from continuing operations 37,730,136 37,903,625 Operating result from continuing operations 7,945,846 1,598,299	NT Government financial assistance	3	4,640,060	4,340,423	
Consultancy and contract research 6 6,668,651 9,629,081 Other revenue 7 3,491,095 4,111,925 Total revenue from continuing operations 36,774,248 43,323,310 Gain on disposal of assets 8 8,901,734 (3,821,386) Total income from continuing operations 45,675,982 39,501,924 Expenses from continuing operations 9 22,584,392 23,338,819 Depreciation and amortisation 10 2,366,005 638,343 Repairs and maintenance 11 1,122,791 717,858 Other expenses 12 11,656,948 13,208,605 Total expenses from continuing operations 37,730,136 37,903,625 Operating result from continuing operations 7,945,846 1,598,299	Fees and charges	4	3,916,103	2,931,803	
Other revenue 7 3,491,095 4,111,925 Total revenue from continuing operations 36,774,248 43.323,310 Gain on disposal of assets 8 8,901,734 (3,821,386) Total income from continuing operations 45,675,982 39.501,924 Expenses from continuing operations 9 22,584,392 23,338,819 Depreciation and amortisation 10 2,366,005 638,343 Repairs and maintenance 11 1,122,791 717,858 Other expenses 12 11,656,948 13,208,605 Total expenses from continuing operations 37,730,136 37,903,625 Operating result from continuing operations 7,945,846 1,598,299	Investment income	5	706,971	1,062,378	
Total revenue from continuing operations 36,774,248 43,323,310 Gain on disposal of assets 8 8,901,734 (3,821,386) Total income from continuing operations 45,675,982 39,501,924 Expenses from continuing operations 9 22,584,392 23,338,819 Depreciation and amortisation 10 2,366,005 638,343 Repairs and maintenance 11 1,122,791 717,858 Other expenses 12 11,656,948 13,208,605 Total expenses from continuing operations 37,730,136 37,903,625 Operating result from continuing operations 7,945,846 1,598,299	Consultancy and contract research	6	6,668,651	9,629,081	
Gain on disposal of assets 8 8,901,734 (3,821,386) Total income from continuing operations 45,675,982 39,501,924 Expenses from continuing operations Employee related expense 9 22,584,392 23,338,819 Depreciation and amortisation 10 2,366,005 638,343 Repairs and maintenance 11 1,122,791 717,858 Other expenses 12 11,656,948 13,208,605 Total expenses from continuing operations 37,730,136 37,903,625 Operating result from continuing operations 7,945,846 1,598,299	Other revenue	7	3,491,095	4,111,925	
Total income from continuing operations 45,675,982 39,501,924 Expenses from continuing operations 9 22,584,392 23,338,819 Employee related expense 9 22,584,392 23,338,819 Depreciation and amortisation 10 2,366,005 638,343 Repairs and maintenance 11 1,122,791 717,858 Other expenses 12 11,656,948 13,208,605 Total expenses from continuing operations 37,730,136 37,903,625 Operating result from continuing operations 7,945,846 1,598,299	Total revenue from continuing operations		36,774,248	43,323,310	
Total income from continuing operations 45,675,982 39,501,924 Expenses from continuing operations 9 22,584,392 23,338,819 Employee related expense 9 22,584,392 23,338,819 Depreciation and amortisation 10 2,366,005 638,343 Repairs and maintenance 11 1,122,791 717,858 Other expenses 12 11,656,948 13,208,605 Total expenses from continuing operations 37,730,136 37,903,625 Operating result from continuing operations 7,945,846 1,598,299					
Expenses from continuing operations Employee related expense 9 22,584,392 23,338,819 Depreciation and amortisation 10 2,366,005 638,343 Repairs and maintenance 11 1,122,791 717,858 Other expenses 12 11,656,948 13,208,605 Total expenses from continuing operations 37,730,136 37,903,625 Operating result from continuing operations 7,945,846 1,598,299	Gain on disposal of assets	8	8,901,734	(3,821,386)	
Employee related expense 9 22,584,392 23,338,819 Depreciation and amortisation 10 2,366,005 638,343 Repairs and maintenance 11 1,122,791 717,858 Other expenses 12 11,656,948 13,208,605 Total expenses from continuing operations 37,730,136 37,903,625 Operating result from continuing operations 7,945,846 1,598,299	Total income from continuing operations		45,675,982	39,501,924	
Employee related expense 9 22,584,392 23,338,819 Depreciation and amortisation 10 2,366,005 638,343 Repairs and maintenance 11 1,122,791 717,858 Other expenses 12 11,656,948 13,208,605 Total expenses from continuing operations 37,730,136 37,903,625 Operating result from continuing operations 7,945,846 1,598,299					
Depreciation and amortisation 10 2,366,005 638,343 Repairs and maintenance 11 1,122,791 717,858 Other expenses 12 11,656,948 13,208,605 Total expenses from continuing operations 37,730,136 37,903,625 Operating result from continuing operations 7,945,846 1,598,299	Expenses from continuing operations				
Repairs and maintenance 11 1,122,791 717,858 Other expenses 12 11,656,948 13,208,605 Total expenses from continuing operations 37,730,136 37,903,625 Operating result from continuing operations 7,945,846 1,598,299	Employee related expense	9	22,584,392	23,338,819	
Other expenses 12 11,656,948 13,208,605 Total expenses from continuing operations 37,730,136 37,903,625 Operating result from continuing operations 7,945,846 1,598,299	Depreciation and amortisation	10	2,366,005	638,343	
Total expenses from continuing operations37,730,13637,903,625Operating result from continuing operations7,945,8461,598,299	Repairs and maintenance	11	1,122,791	717,858	
Operating result from continuing operations 7,945,846 1,598,299	Other expenses	12	11,656,948	13,208,605	
	Total expenses from continuing operations		37,730,136	37,903,625	
Operating result attributable to members 7,945,846 1,598,299	Operating result from continuing operations		7,945,846	1,598,299	
	Operating result attributable to members		7,945,846	1,598,299	

STATEMENT OF COMPREHENSIVE INCOME

Menzies School of Health Research

	NOTE	2015 \$	2014 \$
Operating result for the year		7,945,846	1,598,299
Revaluation of investment	22	5,003	(1,604)
Total Comprehensive Income		7,950,850	1,596,695
Total Comprehensive Income attributable to members		7,950,850	1,596,695

^{*}To be read in conjunction with the Notes to the Financial Statements

STATEMENT OF FINANCIAL POSITION

Menzies	School	of Health	Research
MEHZICS	3611001	or rieditii	Nescuicii

Menzies School of Health Research				
	NOTE	2015 \$	2014 \$	
Current Assets				
Cash and cash equivalents	13	5,526,088	28,974,181	
Trade and other receivables	14	1,285,006	4,040,212	
Other financial assets	15	22,747,637	1,208,822	
Other non-financial assets	16	211,197	263,509	
Total Current Assets		29,769,929	34,486,724	
Non-Current Assets				
Property, plant and equipment	18	2,905,960	10,359,614	
Intangible assets	17	31,717,832	15,866,301	
Other financial assets	15	27,745	22,742	
Total Non-Current Assets		34,651,537	26,248,657	
Total Assets		64,421,466	60,735,381	
Current Liabilities				
Trade and other payables	19	559,977	5,163,856	
Provisions	20	3,463,251	3,256,453	
Other liabilities	21	363,184	263,600	
Total Current Liabilities		4,386,413	8,683,909	
Non-Current Liabilities				
Provisions	20	481,104	306,938	
Total Non-Current Liabilities		481,104	306,938	
Total Liabilities		4,867,516	8,990,847	
Net Assets		59,553,950	51,744,534	
Equity				
Reserves	22	6,077,224	6,814,786	
Retained earnings	23	53,476,726	44,929,748	
Total Equity		59,553,950	51,744,534	

^{*}To be read in conjunction with the Notes to the Financial Statements

2015 Menzies Annual Report

Summary Financial Statements

STATEMENT OF CHANGES IN EQUITY

Menzies School of Health Research

Menzies School of Health Research			RETAINED	
	NOTE	RESERVES NOTE 22 \$	SURPLUS NOTE 23	TOTAL
Balance at 1 January 2014		9,992,081	56,073,776	66,065,857
Operating result for the year			1,598,299	1,598,299
Net Revaluation gain on investments	22	(1,604)		(1,604)
Total Comprehensive Income		9,990,477	57,672,075	67,662,552
Transfer to/(from) Revaluation Reserves			(15,918,018)	(15,918,018)
Transfers	23	(3,175,690)	3,175,690	
Balance at 31 December 2014		6,814,786	44,929,748	51,744,534
Balance at 1 January 2015		6,814,786	44,929,748	51,744,534
Operating result for the year	23.1		7,945,846	7,945,846
Net Revaluation gain on investments	22	5,003		5,003
Total Comprehensive Income		6,819,789	52,875,594	59,695,384
Distribution to Owners	23		(141,434)	(141,434)
Transfers	23	(742,565)	742,565	
Balance at 31 December 2015		6,077,225	53,476,726	59,553,950

STATEMENT OF CASH FLOWS

Menzies School of Health Research			
	NOTE	2015 \$	2014 \$
Cash flows from operating activities			
Australian Government grants		20,190,631	18,708,953
NT Government funding		4,640,060	4,395,982
Receipts from Student Fees		3,916,103	3,010,133
Interest received		706,971	1,062,378
Consultancies and Contract research		6,668,651	10,212,880
Other receipts		4,656,188	3,879,620
Payments to suppliers		(17,292,687)	(10,562,138)
Payments to employees		(22,203,428)	(23,228,380)
Net cash provided by operating activities	28	1,282,490	7,479,428
Cash flows from investing activities			
Charles Darwin University - Menzies investments funds		(22,727,000)	
Proceeds from sale of plant and equipment		500	19,273
Payments for property, plant and equipment		(2,004,082)	(11,615,822)
Net cash outflow from investing activities		(24,730,582)	(11,596,549)
Net decrease in cash and cash equivalents		(23,448,093)	(4,117,121)
Cash and cash equivalents at the beginning of the year		28,974,181	33,091,302
Cash and cash equivalents at end of the year	13	5,526,088	28,974,181

ANALYSIS OF NET SURPLUS

The surplus for the year ending 31 December 2015 includes revenue received for research projects that have a life beyond the end of the financial year. Revenue received for these projects is recognised in the year of receipt. Future commitments for these projects will extend beyond the year the income was received for those projects.

The gain on disposal of assets is mainly due to the difference between the costs associated with the building on the RDH Campus refurbished at Menzies cost and transferred to the Northern Territory Government Department of Health at a carrying amount of \$8.4m; and the recognition of an intangible asset at fair value of \$17.3m. The intangible asset is the right granted to Menzies to use the refurbished building at a peppercorn rent of \$1.00 per annum. The value of the intangible asset has been calculated as the present value of future fair value lease payments based on market valuation of the property as determined on 31 December 2015.

	2015 \$	2014 \$
Reconciliation of Total Net (Deficit)Surplus	7,945,846	1,598,299
Represented by: Capital Funding (Buildings)		
NTG Department of Health	-	6 ,840,000
Charles Darwin University	-	800,000
Interest earned	20,355	115,468
Total capital funding	20,355	7 ,755,468
Plus/(Minus)		
Research and Education surplus	1 ,716,083	(1,246,583)
Non-research deficit	(326,321)	(450,857)
Depreciation and amortisation	(2,366,005)	(683,343)
Gain on disposal of assets	8 ,901,734	(3,821,386)
	7,945,846	1,598,299

^{*}To be read in conjunction with the Notes to the Financial Statements

Menzies 2015/16 Appeal Help us beat Indigenous cancer

Cancer is the second leading cause of death among Indigenous Australians



Indigenous Australians are more likely to be diagnosed with cancer and 50 per cent are more likely to die from cancer than non-Indigenous Australians.

This may be due to a lack of open discussion and general awareness about cancer among the Indigenous population, lower participation in screening programs, late diagnosis, lack of access to appropriate services and reduced likelihood of receiving and completing appropriate treatment.

Menzies is driving the Centre for Research Excellence DISCOVER-TT; a multi-disciplinary centre which strives to build an evidence base to reduce disparities in the treatment and survival of Indigenous Australians with cancer. However much work remains to Close the Gap in Indigenous cancer outcomes.

Your support, which is crucial to driving our research, can be made at www.menzies.edu.au/page/support_us



Menzies wishes to thank the many individuals and communities who granted permission to use photographic images of themselves and their children throughout this publication.

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Celebrating years

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