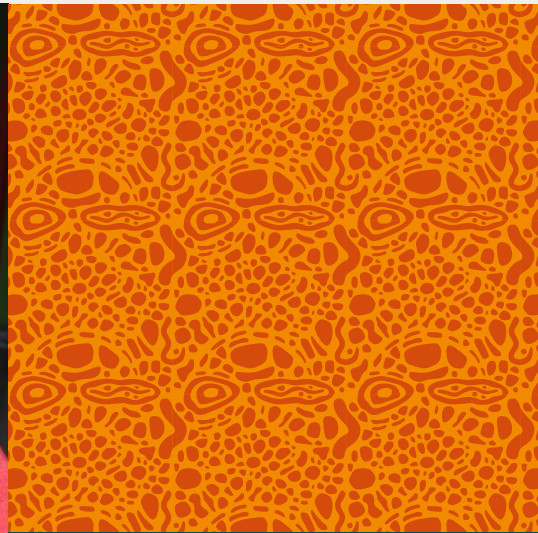
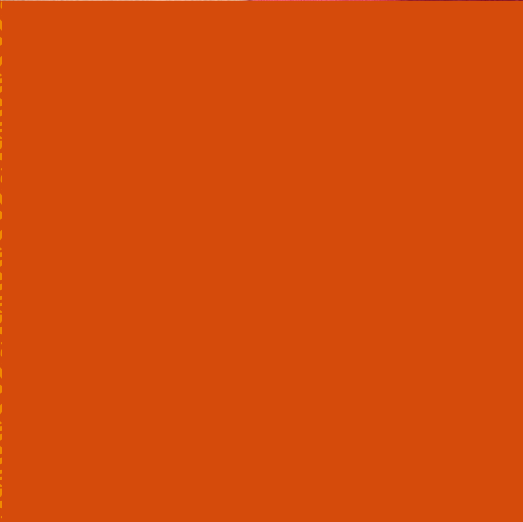


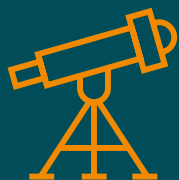
menzies
school of health research



2021 Annual Report



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.



Our vision

To find enduring solutions to health problems that matter.



Our purpose

To achieve sustainable health improvements through excellence and leadership in research, education and capacity development.



Our values

Quality We strive for excellence and rigour in everything we do.

Integrity We are open, honest and transparent, and maintain the highest standards of governance, accountability and ethics.

Relevance We concentrate on solving problems that matter. Our work is informed by the health needs and shared priorities of the people and communities with whom we work.

Partnerships We seek to partner with communities, health and other service providers, policy-makers and other researchers.

Innovation We embrace new approaches and technologies.

Communication We maintain an ongoing dialogue with partners, stakeholders and the local and national community during the research process, from conception through to completion and translation of results.

Accountability We take responsibility for our actions and results.

The graphic pattern featured in the Menzies 2021 Annual Report is from an artwork by artist Cian Mungatj McCue who was born and raised in Darwin. Cian is a descendant of the Larrakia, Yanyuwa and Mulluk-Mulluk people.

The complete artwork is replicated inside the back cover.

< Cover images

Top left Research Nurse Natalina dos Santos taking a blood sample from Pedro Mendonca as part of the ARIA-RISE project in Timor-Leste.

Lower right The Ramaciotti Regional and Remote Health Sciences Training Centre Laboratory Supervisor, Karla Cardenas Gomez.

Find out more at www.menzies.edu.au

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Who we are

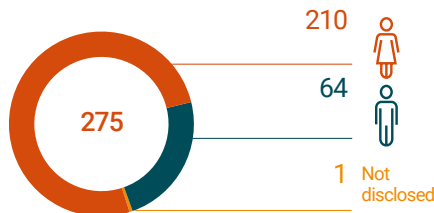
We are one of Australia's leading medical research institutes dedicated to improving the health and wellbeing of Aboriginal and Torres Strait Islander peoples. We are also a leader in global and tropical health research into life-threatening diseases. Through effective partnerships with communities across northern Australia and the Asia-Pacific region, we translate our research into real change.

Our diverse workforce fulfil key roles in health service delivery, research and training throughout Australia and across the region.

Number of staff



Number of students



Number of Aboriginal and/or Torres Strait Islander staff



Number of trainees



Number of Timor-Leste staff



Number of Aboriginal and/or Torres Strait Islander trainees



* Full-time equivalent





Where we work

Our headquarters are in Darwin, with offices in Alice Springs, Brisbane and Dili, Timor-Leste. Our work spans central and northern Australia and countries within our global neighbourhood.

Key

- Countries where we work
- Countries with research collaborations
- Headquarters
- Offices
- 2021 Field sites

* Brisbane office closed October 2021

2021 highlights

February

Her Honour the Honourable Vicki O'Halloran AO officially launched the Ramaciotti Regional and Remote Health Sciences Training Centre to develop a sustainable, local biomedical and health sciences workforce in the Northern Territory (NT). The Centre facilitates biomedical and health sciences career progression for regional and remote youth, with a focus on career development for Aboriginal and Torres Strait Islander youth.

Read more on page 34.



Her Honour the Honourable Vicki O'Halloran AO with Menzies-Ramaciotti Centre Chief Investigators, Mark Mayo, Dr Robyn Marsh, Associate Professor Heidi Smith-Vaughan and Dr Kalinda Griffiths.

March

In collaboration with the Sabah State Health Department, we launched CONTRA-TB, a new innovative application to improve TB case-finding and prevention in Kota Kinabalu, Malaysia. CONTRA-TB was developed to improve communication between TB contact tracers working in the field and nurses and doctors in the TB clinics. CONTRA-TB enables both online and offline digital data-entry and real-time data sharing through the mobile app, with a web-based dashboard for monitoring progress.

Read more on page 28.

May

We hosted the First Nations Language and Health Communications Symposium. Topics included: communication and COVID-19, effective use of interpreters, and culturally safe communication, health literacy; and the development of resources in First Nations languages. There was also a session on role reversal and role play.

Read more on page 46.

June

Our Reconciliation Implementation Group (RIG) committee and the Biyamarr ma team organised events and activities for National Reconciliation Week which included a morning tea and panel discussion and a TEABBA broadcast to highlight our work with Aboriginal and Torres Strait Islander communities around the NT.

Read more on page 46.



Professor Anna Ralph being interviewed by TEABBA radio host, Bernard Namok.

Our interactive HealthLAB travelled to the Barunga Festival held on the Queen's Birthday long weekend in June. The music, arts, sport, and cultural event attracted thousands of people, and the HealthLAB display and activities had many interested and engaged visitors.

Read more on page 46.

July

Our staff participated in the Darwin NAIDOC March as well as a number of other activities organised throughout NAIDOC week. Staff in Alice Springs and Brisbane took part in local events.



Staff during the Darwin NAIDOC March.

August

The 2021 Menzies Youth Health Summit was held to engage young people in conversations about what is important for youth health in the NT and solutions for a better future.

Aboriginal and Torres Strait Islander and non-Indigenous young people aged 16-25 years were involved in consultations, podcasts, panel discussions and workshop sessions throughout the summit.

In response to a snap COVID-19 lockdown, activities were shifted online and a podcast series 'Youth Choices! Youth Voices!' was developed. The series is available on Spotify and YouTube.

Read more on page 45.



Remote scribing digitally captured key discussions to share with the online participants of the Youth Health Summit.

September

We celebrated the second anniversary of establishing an office in Timor-Leste where we are working with the Timor-Leste Government and partners to strengthen health systems for responding to infectious diseases challenges. Our projects in Timor-Leste are designed to build capacity in clinical, surveillance and laboratory settings, emphasising the importance of the health system working together to improve response to infectious diseases at both the individual patient and the public health level.

Read more on page 13 and 14.



Some of the ARIA-RISE team in Dili Timor-Leste.

October

We launched the second biennial Story of Our Children and Young People report (The Story).

In collaboration with the NT Government, The Story presents data and stories about the wellbeing of children and young people in the NT across six domains: being valued, loved and safe; having material basics; being healthy; learning; participating; and having a positive sense of identity and culture.

Read more on page 18.



Members of the Editorial Committee, Chairperson Peter Pangquee, Minister for Children, The Hon Lauren Moss MLA, Menzies Professor Steve Guthridge and John Guenther at the launch.

Professors Ric Price and Louise Maple-Brown were elected as Fellows of the Australian Academy of Health and Medical Sciences.

Read more on page 36.

November

HOT NORTH held its final Annual Scientific Symposium - 'HOT Topics of the NORTH' which attracted a cross-section of health professionals and researchers who spoke passionately about how HOT NORTH was able to help them secure further funding to develop their research careers.

Read more on page 30.



Professor Bart Currie, Sean Rung and Dr Kevin Williams at the HOT NORTH Symposium.

We hosted the COVID-19 Vaccine Workshop - Sharing Success Stories and Smashing Myths. The workshop attracted around 250 people from across the NT and Australia, with the majority joining the discussion online via Zoom. The Sharing Success Stories session provided an opportunity to hear about successful vaccine promotion and uptake activities.

Read more on page 13 and 46.

We launched the Aboriginal and Torres Strait Islander Mental health initiative (AIMhi) Strong Country Strong People app, which is a colourful, user-friendly digital mental health tool developed by Menzies with Australia's First Nations people. Developing the app for smart phones was supported by the INPEX-operated Ichthys LNG joint venture through their community investment funding program.

Read more on page 23.



Left to Right: Professor Alan Cass AO, Professor Tricia Nagel, Brendon Douglas, NT Health Minister Natasha Fyles, Stuart Knowles, Bill Townsend and Tetsu Murayama.

An updated version of the Hep B Story app was launched in five new Aboriginal languages. The Hep B Story app is a visual, interactive app designed for patients living with chronic Hepatitis B, and is also designed for their families. The updated version of the Hep B Story app has been created and translated by community members and health workers across the NT to now be available in English, Yolŋu Matha, Kunwinjku, Tiwi, Arrernte, Warlpiri and Pitjantjatjara.

Read more on page 27.

December

The *Ask the Specialist* podcast team were awarded the 2021 Fitzgerald Social Change Award at the NT Human Rights Awards. The Award recognises a person or organisation living or based in the NT who has contributed significantly to the promotion of social change for human rights and/or equal opportunity. Created on Larrakia country, 'Ask the Specialist: Larrakia, Tiwi and Yolŋu stories to inspire better healthcare' is a diversity training package that consists of a podcast (7 x 20 minutes) and discussion groups.



Ask the Specialist team members, Vicki Kerrigan, Rartjiwuy Melanie Herdman and Aunty Bilawara Lee.

Menzies 2021 Strategic Plan

Launched in 2017, our five-year strategic plan **Menzies 2021** builds on our proud history of achievement and positions our institution as:

- 1 A recognised innovator and leader in Indigenous and tropical health and wellbeing.
- 2 Achieving excellence in research translation and impact.
- 3 A strong and resilient organisation.

We are proud of the following achievements.

>80%
of our strategic plan targets were achieved or significant progress made. A remarkable achievement, especially considering disruption caused by the COVID-19 pandemic.

An independent impact assessment confirmed that the improved health outcomes attributable to Menzies research have a benefit-cost ratio of **\$4.27** meaning that for every \$1.00 invested into Menzies, an economic return of \$4.27 is generated globally.

We continued to grow and support our Aboriginal and Torres Strait Islander workforce. For the fourth year in a row, our employment target was exceeded.

34FTE

\$39.8m
Our external research income continued to support our work in finding enduring solutions to health problems that matter.



We achieved gender equity in percentage of Level D and E academics over the life of Menzies 2021.



Menzies next strategic plan will be launched in 2022.

Director and Chair's message



This year brought new challenges for the Northern Territory (NT). We saw our first cases of community transmission of COVID-19 and were quickly reminded that we were still vulnerable to the risk of infection. Once again, our staff were willing and able to contribute to the NT health response, with staff helping with swabbing, contact tracing, vaccination, primary and hospital care, data management and reporting.

Our staff continued to play central roles in the NT's management of COVID-19. Principal Research Fellow, Associate Professor Jane Davies holds a joint appointment as the Co-Director of Infectious Diseases at Royal Darwin Hospital. Her clinical leadership helped ensure the Territory was well placed to respond. And our Deputy Director Indigenous Leadership and Engagement, Dr Sean Taylor led the Rapid Response Team to the Binjari community, outside Katherine.

In 2021 we co-funded a series of COVID-19 research projects. These included exploration of the impact of quarantine facilities on the broader health services and an investigation into the psychological impact of supervised quarantine. One project involved the development of a series of Aboriginal-led short videos, in English and seven Aboriginal languages, to address community concern and vaccine hesitancy.

In November, we hosted a COVID-19 Vaccine Workshop to help promote vaccine uptake across the NT and

northern Western Australia. People working on the ground across all aspects of the vaccine roll out – Aboriginal Health Practitioners, nurses, GPs and health services staff – came together to discuss strategies, share success stories and bust myths about the virus and the vaccine.

We are committed to improving the health and wellbeing of all Territorians. Our programs of work in Alice Springs continue to grow. In 2021, Dr Supriya Mathew won a citizen science grant to work with community in Central Australia to explore impacts of climate change on health and develop solutions. Professor John Wakerman and his team have expanded research into improving access to sustainable, high quality remote and rural health service, including an evaluation of RFDS evacuation services in Central Australia.

2021 also saw the introduction of our new maternal health program. Led by Drs Kiarna Brown and Holger Unger, this important program of work will see us partner with maternal health services and communities to address priority health issues including very high rates of premature birth affecting women in northern Australia.

Despite massive challenges, including high COVID-19 case numbers, restricted travel and a devastating flood, our office and team in Timor-Leste continue to undertake highly significant work. Our staff are working to build capacity to respond to COVID-19 and tackling key challenges including the growth of antimicrobial resistance.

We are pleased to announce the appointment of Trevor Riley AO QC as Chair of our Board for 2022. Trevor was previously Chief Justice of the Supreme Court of the NT. In 2017 he chaired the review into alcohol harm prevention and management initiatives for the NT Government. We are equally delighted to announce that Leanne Liddle has been appointed as Deputy Chair. Leanne is an Arrernte woman from Central Australia and the 2022 NT Australian of the Year. She is the Director of the Aboriginal Justice Unit and a strong advocate for addressing systemic racism and transforming the way justice services are delivered to improve justice outcomes.

Trish Angus will join the Menzies Board in 2022. Trish is a Jawoyn woman from Katherine who brings a wealth of knowledge gained from her time spent working in the health sector. She has vast experience across a range of sectors including health, child development and Aboriginal tertiary education.

We thank everyone who supported us throughout 2021 and look forward to continuing to work together towards a healthier future.

Director
Professor Alan Cass AO

Chair of the Menzies Board
Peter Plummer AM

Our Board



Peter Plummer AM
Board Chair

Prior to retirement, Peter spent 40 years working in the public service in Papua New Guinea and the Northern Territory.

He was the founding principal of Batchelor College and subsequently deputy secretary of the departments of Primary Industries and Fisheries then Industries and Development. He also held appointments as chief executive officer of Mines and Energy, Health and Community Services, as well as Education.

Peter has also served on many boards and committees including as the Chair of the National Curriculum Corporation, Charles Darwin University (CDU) Council, and CDU Strategic Positioning Project. He has also had significant experience within the government and private sectors of Malaysia, Indonesia, Thailand and the Philippines, in addition to the minerals and energy sectors of the United States of America and France.



Professor Alan Cass AO

Professor Cass has been the Director of Menzies since 2012. Alan currently chairs the National Advisory Committee for the Australia and New Zealand Dialysis and Transplant Registry, is Deputy Chair of the NT Clinical Senate and a council member for the Central Australia Academic Health Science Network.

He is a kidney specialist with a particular interest in the prevention and management of chronic disease and First Nations health.

His research has focused on developing, implementing and evaluating strategies to improve health outcomes.

Alan has been instrumental in leading national and international clinical trials, conducting research to improve access to services and to improve the provision of care to patients with low health literacy, who speak a different language and have different understandings of health and illness from their healthcare providers.



Leanne Liddle

Leanne is the Director of the Aboriginal Justice Unit, Department of the Attorney-General and Justice.

She is an Arrernte woman born and raised in Alice Springs.

She was the first Aboriginal policewoman in South Australia (SA) where she worked for 11 years as a senior constable in remote and Adelaide police stations.

Leanne has held several senior public service roles, including as the manager of Food Security for Aboriginal communities in SA, and the manager of the APY and West Coast regions of SA within the Department of the Premier and Cabinet.

She has also worked on the international circuit; for the United Nations with stints in Geneva, New York and Paris with UNESCO; and as a director for Bush Heritage Australia.

Leanne was the 2022 NT Australian of the Year recipient.



The Hon Trevor Riley AO QC

Prior to retirement in 2016, Trevor was the Chief Justice of the Supreme Court of the NT.

He served on the Supreme Court for 18 years. During his tenure as Chief Justice, he was outspoken about cuts to legal aid, high imprisonment rates and addressing alcohol abuse.

Trevor was appointed as Queen's Counsel in 1989, sworn in as a judge in 1999 and was the president of the NT Bar Association between 1993 and 1997.

His other roles include being a long-term Director of St John Ambulance (NT) and Chair of the AFLNT Appeals Board.



Richard Ryan AO
Board
Co-Treasurer

Richard is director of a number of public and government boards including the NT Treasury, the Australian Government Solicitor's Advisory Board and the Adelaide Festival.

He is the Chair of Editure, Chair of Auspep Holdings Ltd and Deputy Chancellor of CDU.

Richard is a member of the NT Treasury Corporation Advisory Board and the Attorney General's Audit and Risk Management Advisory Board.

A recipient of the Australia Day Honours on three occasions, he was made a member of the Order of Australia in 1989 for Services to the Community and was made an Officer of the Order of Australia in 1998 for Services to Indigenous People.



Rowan Johnston
Board
Co-Treasurer

Rowan is a Sydney-based corporate advisor and is the managing director of C42 Consulting, a private advisory firm.

He previously spent almost 30 years as an investment banker and corporate advisor with Greenhill & Co. Australia (formerly Caliburn) and Deutsche Bank in Australia and Hong Kong.

Rowan continues to advise a range of private and public sector clients on corporate and financial issues, including equity capital markets, and has advised a range of Australian and overseas governments and their agencies on strategic, infrastructure and financial matters.



Ken Davies
PSM

Ken is the CEO of Territory Families and a member of the CDU Council.

He has previously held CEO roles with NT departments of Education; Lands, Planning and Environment; Housing, Local Government and Regional Services, and was the Deputy Chief Executive of the Department of the Chief Minister.

Ken is a former chair of the NT Board of Studies and former NT Principals' Association President.

He has also held appointments to the boards of the Australian Children's Television Foundation, the Waterfront Development Corporation and the Land Development Corporation.



Professor Catherine Stoddart
PSM

Until October 2021

Professor Stoddart is the Deputy Director General, Governance, Integrity and Reform, Department of Communities, Western Australia. From 2017 – 2020 she served as the CEO of the NT Department of Health. Prior to this she was the Deputy Chief Executive and Chief Nurse at Oxford University Hospitals Foundation Trust in the National Health Service in the United Kingdom.

Catherine has held positions across health including Chief Nurse and Midwifery Officer of Western Australia (WA), Regional Director for the Kimberley region, WA Country Health Service, Executive Director nursing and midwifery WACHS, and Director Clinical Reform WA Health.

She was the 2011 Telstra WA Business Woman of the Year. In 2013, she received the Public Service Medal in recognition of her contribution to health.

Our Board



**Professor
Scott Bowman
AO**

Professor Bowman is the Vice-Chancellor and President, CDU.

He joined CDU in 2021 with considerable university leadership experience having served as Vice-Chancellor and President of Central Queensland University (CQU). For over a decade, his vision and leadership helped transform CQU into one of Australia's largest and most engaged regional universities.

He joined Western Sydney University following his retirement as Vice-Chancellor and President of CQ University in 2019. Previous leadership positions include Senior Deputy Vice-Chancellor at Western Sydney University; Deputy Vice-Chancellor (University Services) and Registrar at James Cook University; Foundation Head of the School of Clinical Sciences at Charles Sturt University; and Foundation Dean of the Faculty of Health Science and Community at University College of St Martin (Lancaster University) Lancaster, UK.



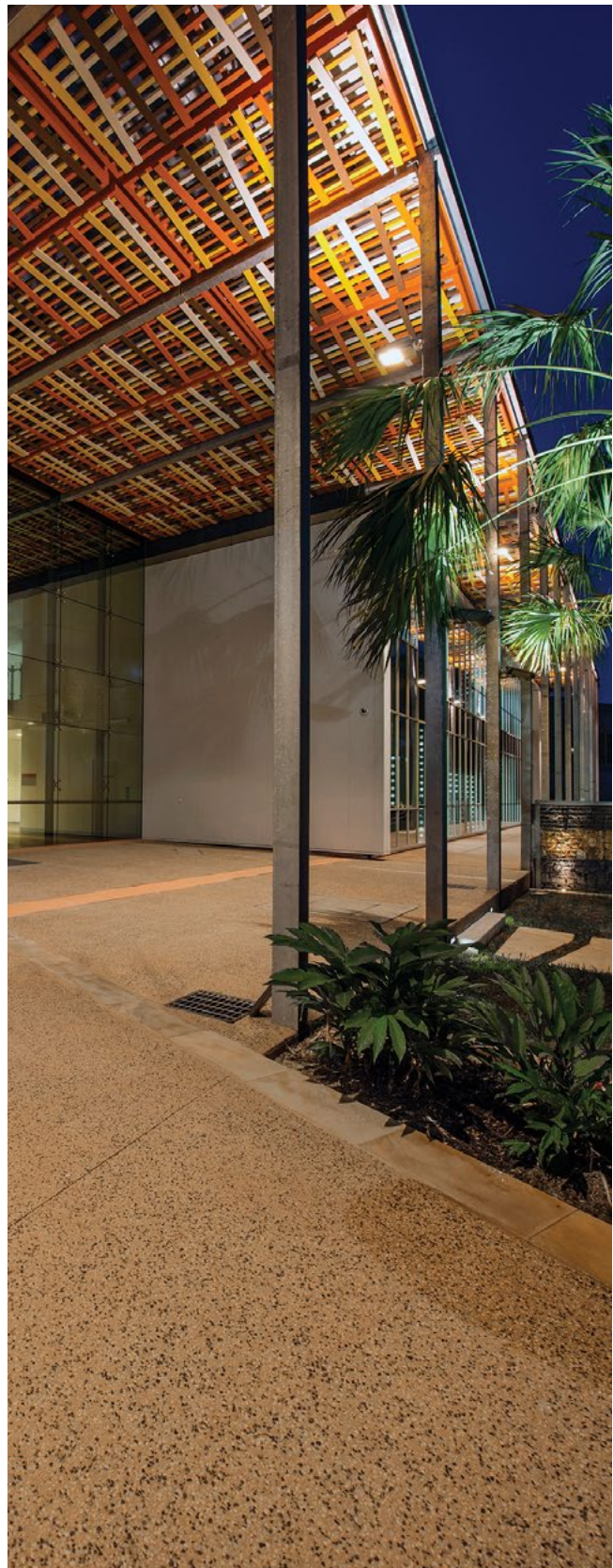
**Ros
Moriarty**

Until November
2021

Ros is a business owner, social investor and author. She is managing director and co-founder of both Balarinji and the Moriarty Foundation.

She was named Winner Business Enterprise in the 2015 Financial Review / Westpac Australian 100 Women of Influence Awards and is an inductee of the Australian Design Institute Hall of Fame and the Australian Businesswomen's Hall of Fame. Her board appointments have included the National Gallery of Australia, Australian Major Events SA and the Australian Academy of Design.

Ros is the author of the memoir *Listening to Country* shortlisted for both The Age 2010 Book of the Year and the Australian Human Rights Commission Literary Award. She has also written eight picture books for children.



Reconciliation Action Plan 2020-2022

60%

of our RAP deliverables have been completed, with the remaining 40% all commenced and with significant progress made.

\$436K

spent with Aboriginal and Torres Strait Islander supplier businesses in the 2021 financial year.

Through extensive consultation and collaboration activities, we have established and embedded strategies to further enhance Aboriginal and Torres Strait Islander employment and career development outcomes.

55

staff participated in and completed cross cultural awareness training in 2021.

Through our work and collaborations we strengthen and form new partnerships with Aboriginal communities and organisations across Northern and Central Australia.

We continue to grow and develop our Aboriginal and Torres Strait Islander workforce, which makes up

16%

of our total staff and trainees.



We have embedded protocols for acknowledgment of Country and pay respect to Aboriginal and Torres Strait Islander communities, Elders and ancestor spirits by opening all official proceedings with Welcome to Country ceremonies.

Melioidosis Research Assistant,
Vanessa Rigas at work in the lab.



Our research impact

Our national COVID-19 engagement

Our researchers were quick to respond and engage in national COVID-19 activities, providing direct clinical care and advice in relation to COVID-19, as well as research, advocacy, and knowledge dissemination.

Professor Josh Davis and Associate Professors Jane Davies and Bridget Barber joined the National COVID-19 Evidence Taskforce, with Prof Davis also serving as co-lead of the ASCOT trial, which generated clinical evidence on treatments for COVID-19, aimed

at quickly analysing and identifying treatments to reduce mortality and the need for mechanical ventilation.

The work done by Menzies Infectious Diseases clinician-researchers, which helped contain the spread of COVID-19 in the NT, was recognised and published in the *Medical Journal of Australia*. It highlighted the success of key clinical features such as stringent infection control policies and genomics data of NT COVID-19 cases.

Second wave swamps Timor-Leste

Menzies was well prepared when the second-wave COVID-19 Delta variant rocked Timor-Leste in August 2021.

At its peak, the Menzies supported network of testing sites was able to process 2,000 tests a day, thanks to a five-year ongoing investment program strengthening laboratory systems, which provided a solid foundation for the rapid scaling up of testing capacity.

The importance of leveraging existing projects and activities to strengthen the COVID-19 response was exemplified by the use of a Laboratory Information Management System (LIMS) to assist with communication of COVID-19 results to clinicians, patients and public health teams.

The LIMS was first established in the National Health Laboratory as part of the Fleming Fund project, to address antimicrobial resistance (AMR), but its broad applicability has seen improvements in the way all laboratory results are communicated across an expanding number of laboratory and clinical sites in Timor-Leste.

The Menzies team also pivoted to assist with the vaccine rollout, supporting the Ministry of Health with technical advice, and rapidly producing community awareness videos in local languages. And as vaccination rates improve, and community transmission eases, Menzies is working with the National Centre for Immunisation Research and Surveillance and the Ministry of Health to determine the seroprevalence of antibodies to COVID-19 and other vaccine preventable diseases, in a large nationwide household serosurveillance study.

Health advice in Language

Doctoral communications researcher Vicki Kerrigan recognised an urgent need for information about COVID-19 and COVID-19 vaccines in Aboriginal languages and facilitated the creation of 22 videos in 10 languages: Arrernte (Eastern and Western), Burarra, English, Kunwinjku, Ngangi'kurunggurr, Murrinh-patha, Warlpiri, Tiwi and Yolngu Matha.

The videos were created through a collaboration with NT Aboriginal leaders, Aboriginal Community Controlled Health Services, Aboriginal Language Centres, NT Health, infectious disease clinicians and Menzies researchers.

Yolngu leader and community health educator Rarrtjiwuy Melanie Herdman, who featured in the Yolngu Matha videos with her grandmother Rosemary Gundjarranbuy said:

“Our diverse languages have to be considered when making COVID-19 resources.”



Behind the scenes producing the Yolngu Matha COVID-19 vaccine information video.

In November, doctoral researcher and vaccine specialist Dr Bianca Middleton convened a northern Australian COVID-19 Vaccine Workshop ‘Sharing Success Stories & Smashing Myths’, bringing together service providers and researchers from northern and central Australia to share inspiring stories of successful community engagement and empowerment to achieve vaccination uptake.

Menzies in Timor-Leste

The health needs in Timor-Leste are large, and pose significant challenges for health professionals and policy makers. Health research is an important part of identifying, understanding and responding to these challenges, and equipping Timorese people with the skills to incorporate research into their practice is a priority for the Menzies Timor-Leste team.

Through our work with the Timor-Leste Government and its partners, Timor-Leste continues to strengthen its ability to respond to outbreaks of infectious diseases, using research as a tool to identify and respond to areas of critical need. Our Dili-based team, which has grown to more than 50 people carries out work across all 13 municipalities of Timor-Leste.

Since the STRONG TL project commenced in 2018, Menzies has focused on building capacity and cohesion across clinical, surveillance and laboratory settings, providing increased ability to better respond to outbreaks of infectious disease, as evidenced when the second wave COVID-19 Delta variant swept across the country in August. Through a program of mentoring, Menzies staff work side by side with Timorese colleagues from the Ministry of Health and the Ministry of Agriculture and Fisheries.



^ Mana Dalila demonstrating blood culture sample processing.



^ Our Timor-Leste team.

In tackling the problem of antimicrobial resistance (AMR) in Timor-Leste through the Fleming Fund project (2019-2022), this one health approach has led to a better understanding of the problem, and the way that antibiotics are used in human health and animal health sectors, providing data that are informing revisions of the national action plan on AMR and national empiric antibiotic prescribing guidelines.

In 2021, we secured additional funding that will be used over the next three years to work with Communicable Disease Control and the National Health Laboratory to address specific needs in the areas of malaria, tuberculosis (TB), COVID-19 and HIV. Among a broad range of planned activities, the MATCH TL project will support the first ever national TB prevalence survey, in a country with one of the highest burdens of TB in the world.

The impact of high-quality health research in Timor-Leste is best evidenced by translation into national guidelines and practice. We have partnered in research on neglected tropical diseases including soil transmitted helminths and scabies, that has influenced the national approach

to mass drug administration and will help to inform future control strategies.

Research into the epidemiology, clinical outcomes and early detection of rheumatic heart disease (RHD) in Timor-Leste culminated in the development of the country's first national guidelines for the prevention and management of acute rheumatic fever and RHD, which were launched in July.

In November, 14 Timorese health professionals completed the final module of the country's first *Structured Operational Research Training Initiative (SORT IT)* course, a two-year program led by Menzies in partnership with the National Institute of Health (INS) in Timor-Leste. Research outputs from the course were part of an excellent program at the first INS Annual Health Scientific Conference, held in Dili in November.

The conference, supported by Menzies and other partners, showcased scientific presentations from across the country and highlighted the opportunities that exist for research to have a significant impact on improving health in Timor-Leste in the future.

P. vivax malaria treatments

Our malaria team has made great progress in developing new treatment strategies for patients with *P. vivax* malaria, a disease that effects an estimated 14 million people each year globally.

The World Health Organization currently recommends a 14-day regimen of primaquine “radical cure” to kill the liver stages of the parasite that reactivate over several months to cause recurrent bouts of malaria (“relapses”). However, patients often stop taking primaquine after 2-3 days when they feel better and incomplete treatment doesn’t prevent relapses.

In collaboration with Dr Rini Poespoprodjo and her team in Papua, Indonesia, 436 patients with malaria were enrolled into the TRIPI trial and treated with either a supervised or unsupervised 14-day primaquine regimen. The risk of recurrent malaria was halved in patients whose

treatment was supervised compared to those with unsupervised treatment.

Importantly primaquine treatment was beneficial in patients presenting with either *P. vivax* or *P. falciparum* malaria, suggesting the use of radical cure could be expanded to patients presenting with malaria due to any species. These important findings were published in *The Lancet*.

Despite the benefits of primaquine in reducing *P. vivax* malaria recurrences, the drug is rarely used in malaria endemic countries due to concerns of drug-induced haemolysis in patients with an inherited condition called G6PD deficiency (present in up to 30 per cent of some populations).

Although patients can be tested for G6PD deficiency, this adds additional costs which are often unaffordable in poorly resourced communities. In a study led by

Dr Angela Devine published in *PLoS Medicine*, the global cost of *P. vivax* malaria was estimated to be US\$359 million.

Investment in screening for G6PD deficiency and provision of supervised primaquine treatment, would cost an additional US\$39 million, but this would reduce household costs by US\$133 million, leading to overall savings, and prevent 6.1 million cases of *P. vivax* malaria each year.

To investigate the relevance of these findings for routine care, a range of studies are underway to compare the effectiveness and feasibility of different treatment strategies. These will take place in a range of malaria-endemic countries, including Indonesia, Bangladesh, Ethiopia, Cambodia, Nepal, Pakistan, and Papua New Guinea.

Discovering a new hidden life cycle of the malaria parasite

Until recently, it was thought that once malaria parasites reached the bloodstream, they circulated and multiplied only in the blood. In a landmark discovery, ground-breaking research, led by Dr Steven Kho and Professor Nick Anstey, with partners in Indonesia and France, found large numbers of live malaria parasites hiding in the human spleen where they actively multiply and thrive in a previously unrecognised life cycle.

Traditionally considered as an organ that destroys malaria parasites and which parasites try to avoid, the spleen astonishingly also provides a welcoming shelter for long-term persistence of parasites.

The unique studies, published in the *New England Journal of Medicine* and *PLoS Medicine*, examined spleens from people in Papua, Indonesia, after undergoing spleen removal following road accidents.

Ninety-five per cent of patients were infected without symptoms, with accumulation of parasites in the spleen seen with both major *Plasmodium* species causing malaria. This was particularly apparent in *Plasmodium vivax*, where over 98 per cent of all the parasites in the body were found to be hiding in this organ.

Further examination revealed splenic trapping of large numbers of young red blood cells, called reticulocytes, which are the only type of red cell that

✓ Dr Steven Kho at work in our laboratory.



Plasmodium vivax can infect, thus, making the spleen a highly favourable location for this species to multiply.

Redefining the malaria life cycle as an infection occurring predominantly in the spleen rather than exclusively in the blood, has now identified the spleen as a major new target for strategies to improve the treatment and elimination of this deadly disease.

Youth-onset type 2 diabetes

The Youth-onset type 2 diabetes in the NT study found an alarmingly high prevalence of type 2 diabetes among First Nations youth in Australia's north, which is likely the highest of any population of young people in the world, and ten times higher than any previous Australian estimate.

Dr Angela Titmuss said the findings raise serious concerns for the future health of young Aboriginal and Torres Strait Islander people.

"Only 14 per cent of young people in our study, defined as before the age of 25 years, had blood glucose levels within recommended targets. For those

falling outside of the target, the risk of developing complications such as kidney damage at a young age is significantly increased," Dr Titmuss said.

Of the 381 people aged 24 years or younger with type 2 diabetes in northern Australia, 68 per cent were female (n=258) and the youngest reported age at diagnosis was 4.4 years.

Co-author, Professor Louise Maple-Brown said the study forms part of the collaborative work already occurring across northern Australia between Aboriginal Community Controlled Health Services, government health services, Menzies and other agencies.

"Developing type 2 diabetes at a young age has implications not only for the young person but for the future of their children, as babies exposed to high blood glucose levels during a pregnancy are at higher risk to develop type 2 diabetes at an even younger age than their mother, which would lead to even higher prevalence rates in the future,"

Prof Maple-Brown said.

Type 2 diabetes after a pregnancy with gestational diabetes

The Type 2 diabetes after a pregnancy with gestational diabetes among First Nations women in Australia: The Pregnancy and Neonatal Diabetes Outcomes in Remote Australia (PANDORA) study found First Nations women in Australia with gestational diabetes (GDM) are at an increased risk of developing type 2 diabetes within a short timeframe after pregnancy, than non-Indigenous women.

Dr Anna Wood said it's the first prospective study on the cumulative incidence of type 2 diabetes among Aboriginal women after a pregnancy with GDM.

"We found that Aboriginal women with GDM had a very high rate of progression to type 2 diabetes (22 per cent) in a very short timeframe after pregnancy (2.5 years) in comparison to there being

zero-number of non-Indigenous women developing diabetes in this timeframe," Dr Wood said.

Co-author, Professor Louise Maple-Brown says the study highlights the importance of early postpartum screening after GDM, prevention programs and a need for systems and social policy change to address the underlying causes of the diabetes epidemic.

"Through our prospective observational birth cohort PANDORA study, we were in a unique position to follow women with and without diabetes in pregnancy. Thus we could assess their diabetes markers two and a half years postpartum as part of Wave 1 follow-up. In Wave 2, five years postpartum we will again be able to see the impact of GDM on diabetes diagnoses in the study cohort," Prof Maple-Brown said.



▲ PANDORA study participant Rebecca Munar from Palumpa, with her family.

Comparing costs of dialysis delivery in the NT

Research into the cost of different models of dialysis delivery to patients living in urban, rural, and remote parts of the NT has for the first time included a comparison of total health care costs associated with treatment unique to the vastly different locations.

The paper, published in *BMC Health Services Research*, compares the costs of all cause hospital admissions, emergency department presentations and maintenance dialysis associated with different dialysis models in urban, rural, and remote areas.

The study by Dr Gillian Gorham undertook a retrospective analysis of total health service activity and expenditure for renal patients in the NT between the years

2008–2014. The analysis was conducted from the payer perspective and included only direct health care costs. A patient's out of pocket expenses, including those associated with medical relocation were not included.

Total health service expenditure was calculated using two approaches: observed all cause hospital admissions costs, based on the Australian Refined Diagnosis-Related Groups (AR-DRG) classification system; and annual per patient maintenance dialysis costs by location and modality (including infrastructure costs) previously published by Dr Gorham.

The study found a strong association between dialysis model of care, dialysis

attendance and hospitalisations, with lower dialysis attendance and higher hospitalisations for relocated patients dialysing in the urban area. While dialysis services in remote areas are more expensive to deliver, the incremental cost differences between the models of care in different settings are significantly reduced when all health service costs are included.

"Dialysis costing studies that do not include all health care costs are potentially flawed. The study demonstrates the importance of understanding and interpreting the full implications of delivering dialysis services in different locations in order to accurately inform policy decisions," Dr Gorham said.

Innovative research incorporates patient perspectives

Research forming part of Dr Gillian Gorham's PhD thesis into the cost of dialysis service delivery in the NT has developed an exciting, innovative method of incorporating patient perspectives into the building of a Value for Money (VfM) framework.

This work stemmed from the low availability of staffed dialysis facilities in remote areas despite high demand from Aboriginal people relocated for treatment. Reluctance of funders to establish dialysis services in remote areas is understandable given issues of cost and sustainability. However dialysis financial models fail to consider the significant downstream healthcare costs or the financial, psychological and cultural cost to the individual and family of those required to relocate.

In recognition that patients and their families have little input into policy decisions that have profound impacts

on their everyday life, the study aims to develop an acceptable approach and process for the incorporation of patient and stakeholder views in service planning decisions.

"A core team of Aboriginal co-researchers and cultural consultants was employed to work with an experienced qualitative researcher on the broader project. It is important to have a shared understanding of the VfM framework and vital that Aboriginal participants were fully engaged in the process from the beginning," Dr Gorham said.

Building a VfM framework was done in a participatory co-design process of engagement incorporating perspectives and world views of policy makers, clinicians, and patients and their carers. All stakeholders agreed on six criteria of importance against which the costs and benefits of the different dialysis services were assessed. These criteria, spanning

quantitative, economic and qualitative data sources, were conceptualised by the Aboriginal co-researchers as the number story, money story and patient stories. Criteria included dialysis attendance, hospital admissions, health outcomes, patient acceptability, support services and health service costs.

A typical matrix format of the VfM framework was developed by policy makers and health professionals while Aboriginal participants articulated their contribution through the culturally significant language of art and drawings.

"The delivery of equitable and accessible dialysis service models requires a holistic approach that incorporates the needs of the patient. This exciting and innovative work delivers a long overdue assessment of the costs and benefits of different dialysis models of care, and critically, one that includes the views of all stakeholders," Dr Gorham said.

The Story of our Children and Young People

The launch of the second Story of our Children and Young People report (The Story) was held at Parliament House on 25 October 2021.

The Story, prepared by Menzies in collaboration with the NT Government, provides a comprehensive picture of the state of health and wellbeing of Northern Territory (NT) children and young people.

The Story is a study of key indicators grouped across six domains: being valued, loved and safe; having material basics; being healthy; learning; participating; and having a positive sense of identity.

The Story content is guided by an independent Editorial Committee and spans the NT's six government regions: Greater Darwin, Top End, East Arnhem,

Big Rivers, Barkly; and Central Australia.

The 2021 Story builds on the first report in 2019 which was also prepared by Menzies and was a recommendation of the NT Government's 2017 Early Childhood Development Plan. The Story has been developed to provide information at local level to inform local services for children and young people.

The trend data suggests a decline in some indicators measured in 2019, however, caution is required when making comparison over a short period and using only two data points. Trend data using multiple data points provides a more reliable assessment of change.

Menzies Professor Steven Guthridge said together with the NT Government and the members of the Editorial Committee,

the Menzies team has developed a comprehensive resource with information across key areas of wellbeing for children and young people.

"The Story builds on the 2019 edition with the development of an online data platform which makes available further information by region, sub-region and Aboriginal status, to support easier access to important data for our children and young people," Prof Guthridge said.

The Story will be reviewed and updated in 2023.

✓ Minister for Children, The Hon Lauren Moss and MLA Mark Monaghan with members of The Story team at the launch.



Bronchiectasis Action Management Plan



The Bronchiectasis Action Management Plan (BAMP) study is a multi-centre, double blind, randomised controlled trial that aims to determine if routine use of a personalised BAMP for children with bronchiectasis (compared to standard care) improves clinical outcomes by 12 months.

With increasing appreciation that mild bronchiectasis can be halted and/or

reversed, optimising the management of bronchiectasis is needed.

The use of written action management plans was also recently highlighted as one of two priority areas from parents and patients from the European Respiratory Society bronchiectasis survey.

Funded by HOT NORTH and Queensland Children's Health, our trial addresses these important research gaps and if

effective will lead to changes in policy and management in children with bronchiectasis.

The trial has finished recruitment with follow up continuing until early 2022.

< Child Health Respiratory Program Leader, Dr Gabrielle McCallum discusses lung health with Mabel Miller and William Hughes.

Aboriginal Birth Cohort Study: Wave 5

The Aboriginal Birth Cohort Study (ABC) is recognised as the largest and longest running Indigenous birth cohort in Australia.

As part of the Life Course Program at Menzies, the main aim of the study is to assess the effect of early life factors, birth, and childhood, on later physical and mental health, and to examine their influence across the life course.

This study seeks to identify those who are most at risk of developing chronic conditions, such as diabetes, heart and kidney disease and mental health problems.

The ABC study was founded by the late Dr Susan Sayers AO with the aim to study outcomes of poor growth in the womb on subsequent growth and development.

Although the ABC cohort was recruited at birth at Royal Darwin Hospital, they now reside in over 40 urban and remote communities across the Top End.

Researchers travel to these communities to conduct regular comprehensive health checks at the place of residence.

The study is currently in its fifth wave, funded by an NHMRC grant.

Bronchiectasis Guidelines Update

Professor Anne Chang AM and Dr Gabrielle McCallum from Menzies are part of the European Respiratory Society Task Force for paediatric bronchiectasis which developed the first international clinical practice guideline for the evidence-based management of bronchiectasis in children/adolescents.

Using the ERS standardised process that included substantial parent/patient input, systematic reviews and application of the GRADE approach, 14 recommendations were formulated.

This guideline addresses the definition, diagnostic approach and antibiotic

treatment of exacerbations, pathogen eradication, long-term antibiotic therapy, asthma-type therapies (inhaled corticosteroids, bronchodilators), mucoactive drugs, airway clearance, investigation of underlying causes of bronchiectasis, disease monitoring, factors to consider before surgical treatment and the reversibility and prevention of bronchiectasis in children and adolescents.

Benchmarking quality of care for children and adolescents with bronchiectasis to improve clinical outcomes and evidence gaps for future research could be based on these recommendations.

Fewer deaths from melioidosis direct result of 30-year study

The Menzies and Royal Darwin Hospital (RDH) Darwin Prospective Melioidosis Study began on 1 October 1989 and continues today. The primary aim has been to decrease mortality from melioidosis in the NT through public and health staff recognition of melioidosis; better and quicker diagnosis; use of newer, better antibiotics; and state-of-the-art hospital care for critically ill patients.

When the study started 32 years ago, over 30 per cent of all cases at RDH died. Today mortality is under five per cent. While the Menzies melioidosis program has driven the research questions and the coordination and publication of new findings in diagnostics and therapy, it is the broad collaboration with hospital

doctors and nurses and the NT Centre for Disease Control (CDC) public health team that has translated the research into best practice.

The 2020 revised Darwin Melioidosis Treatment Guideline is used internationally and has recently been adopted by the USA CDC in its recommendations for therapy of melioidosis.

The Menzies melioidosis program also has a focus on better understanding where and why the melioidosis bacterium *Burkholderia pseudomallei* is present in Australian soils and in which overseas countries it is also present.

The story is both fascinating and rapidly evolving, as we now know that the melioidosis bacterium originally came from central and northern Australia, with

subsequent spread to Southeast Asia during the last ice age and then spread to Africa and from there more recently to the Americas. There is emerging evidence suggesting that soils in southern USA may now harbour the melioidosis bacterium, but definitive proof awaits further studies.

Global collaborations are an exciting part of this work and Menzies has been chosen to host the next (10th) World Melioidosis Congress in Darwin in 2023.

Modelling undertaken by Menzies suggests that increasing rates of diabetes, climate change and landscape disturbance from development of northern Australia will each contribute to growing numbers of melioidosis cases for the foreseeable future.



^ Professor Bart Currie Team leader, Tropical and Emerging Infectious Diseases and Menzies Associate Deputy Director, Indigenous Leadership and Engagement, Laboratory Project Manager and Senior Researcher Mark Mayo with melioidosis samples.

New bacterium named after Senior Researcher Mark Mayo



Description of *Burkholderia mayonis* sp. nov.

Burkholderia mayonis sp. nov. (ma.yo'nis. N.L. gen. n. mayonis), pertaining to Mark Mayo, an experienced and highly respected *Burkholderia* scientist in Australia whose family is linked culturally to Badu Island, an island located in the Torres Strait archipelago of Queensland, Australia, where the first group of members of this species was isolated. Mark Mayo was present on Badu Island when the strain was collected, and he serves as a mentor for local First Nations and non-Indigenous scientists in northern Australia and elsewhere.

The discovery of two novel species of bacteria has led to one of them being named after Menzies Associate Deputy Director, Indigenous Leadership and Engagement, Laboratory Project Manager and Senior Researcher Mark Mayo.

The two new species are part of the group of bacteria called the *Burkholderia pseudomallei* complex, which includes *Burkholderia pseudomallei* which causes the potentially fatal tropical disease melioidosis.

Burkholderia mayonis was discovered on Badu Island in the Torres Strait archipelago of Queensland and was named after Mark Mayo, an experienced and highly respected scientist who has worked on melioidosis at Menzies for 29 years.

Mark and his family have strong cultural links to Badu Island and he was present when the new strain was collected.

The naming of *Burkholderia mayonis* was proposed by his research colleagues in Queensland and the United States and was formally published on 11 January 2022 in the prestigious journal *Applied and Environmental Microbiology*, from the American Society for Microbiology.

Mark started his career in science at Menzies in 1992 and first worked as a laboratory trainee while completing his university studies. He went on to optimise pulsed-field gel electrophoresis typing of the melioidosis bacterium to study clusters of melioidosis cases.

He has subsequently spent the past 21 years as the Program Manager for the Darwin melioidosis team with Professor Bart Currie.

Mark said the naming of the bacterium is an honour and is a part of a larger body of work being conducted by melioidosis researchers worldwide.

“Menzies in Darwin has been a great place to work, study and conduct scientific research, I count myself lucky to be given the opportunity to do so. I have been able to work with staff and researchers at Menzies to conduct world leading research to find ways to improve the health outcomes of people in Australia and other countries. This has been done through team work, partnerships and collaborations to achieve positive health outcomes,”

Mr Mayo said.

Guideline is straight from the heart

Downloaded over 27 000 times in 2021 and over 60 000 times since its launch in 2020, *The 2020 Australian guideline for prevention, diagnosis and management of acute rheumatic fever and rheumatic heart disease (3rd edition)* is the gold standard for clinicians treating people with acute rheumatic fever (ARF) and rheumatic heart disease (RHD) in Australia.

RHD represents the greatest cardiovascular inequality between First Nations and non-Indigenous Australians. From 2013 to 2017, 94 per cent of all new RHD cases were among Aboriginal and Torres Strait Islander people. The third edition of the guideline recognises this disparity and highlights the need for

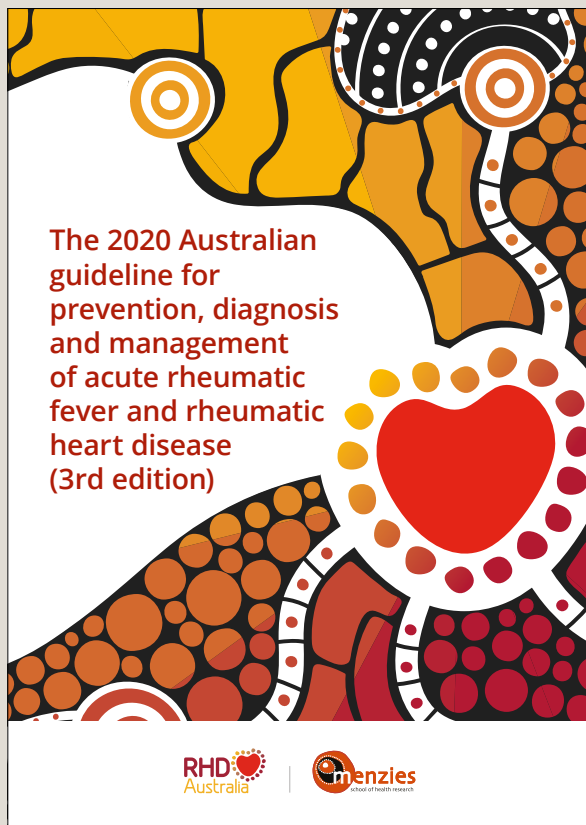
health professionals to place people at the centre of care.

RHDAustralia's Director, Vicki Wade, a respected Noongar woman with more than 30 years of experience working in cardiovascular health, was central in ensuring the new guideline addresses RHD as the leading cause of cardiovascular inequality and provides health professionals with a more holistic model of care.

"By refocusing on people with this disease, this guideline acknowledges Aboriginal and Torres Strait Islander peoples' unique culture, and the social, economic and environmental circumstances in which they live," said Ms Wade.



^ RHDA Director Vicki Wade.



"The updated guideline identifies the systemic factors that drive disparities in best practice care delivery and offers culturally safe solutions. We have come a long way from the first edition, and this journey has culminated in an important balance between cultural and clinical competence."

Written by experts from across the country and developed in collaboration with key stakeholders and an Aboriginal and Torres Strait Islander advisory group, the third edition serves as the definitive guide to current ARF and RHD diagnosis and management in Australia.

Based at Menzies, RHDAustralia supports the control of RHD in Australia and is funded under the Australian Government's Rheumatic Fever Strategy.

AIMhi mental health and wellbeing app now available for smart phones



Left to Right: Menzies Director, Professor Alan Cass AO, Professor Tricia Nagel - Head of Wellbeing Preventable and Chronic Diseases Division, Brendon Douglas - Menzies Deputy Director, NT Health Minister Natasha Fyles, Stuart Knowles - INPEX Manager NT Corporate Office, Bill Townsend - INPEX Vice President, Corporate Coordination and Tetsu Murayama - INPEX Senior Vice President Corporate Coordination.

Northern Territory Minister for Health Natasha Fyles visited Menzies in November to officially launch a new mobile phone app which makes it easier for First Nations people to access mental health and wellbeing support.

The Aboriginal and Islander Mental health initiative (AIMhi) Stay Strong app is a colourful, user-friendly digital mental health tool developed by Menzies with Australian First Nations people.

The app incorporates Pitjantjatjara language and Aboriginal English with plans to include other Aboriginal and Torres Strait Islander languages.

AIMhi Stay Strong supports service providers to have wellbeing conversations with First Nations people in primary care and specialist settings.

The development of the app has been supported by INPEX-operated Ichthys LNG joint venture through their community investment funding program.

Professor Tricia Nagel, Head of Wellbeing Preventable and Chronic Diseases Division at Menzies, says the AIMhi Stay Strong team is excited to be launching the phone app version of this simple and practical self-management care planning tool that began with Aboriginal Mental Health Workers in the NT more than a decade ago.

"The phone app will make the AIMhi Stay Strong approach even more accessible, putting help easily within reach, this tool and the holistic strengths-based approach it brings to mental health is in use in lots of different services across Australia," Prof Nagel said.

"Our many training workshops across Australia tell us that people value what it brings as one of the few tools that can easily bridge the communication divide between First Nations people and wellbeing care providers."

The app, currently available to download for free on Apple and Android tablets, is already being used by a range of social and emotional wellbeing, alcohol and other drug, youth and forensic mental health services across Australia.

For more information about the AIMhi Stay Strong projects visit <https://www.aimhistaystrong.com.au/>.

Review of drink and drug driver education in the NT

A review of drink and drug driver education in the Northern Territory (NT), commissioned by the NT Government and prepared by Menzies, has found that the privatised system of delivery creates and reinforces inequities for people with a low socioeconomic status and those living in remote areas. The project included a systematic review of literature, a desktop review of other programs, quantitative analyses of drink and drug driving convictions data and program completion data as well as qualitative interviews with program participants, course providers and government stakeholders.

The NT has the country's highest road deaths per 100 000 people. In the Territory, a person found guilty of a medium or high range BAC drink or drug driving offence and who has subsequently lost their licence may be required to complete a Drink and Drug Driver Education (DDDE) course in order to reapply for their licence. The NT's only approved DDDE course is the Back on Track program, which is owned by the NT Government and licensed to third-party service providers, who deliver the program in a face-to-face format under a privatised, user-pays scheme. Only 38 per cent of people required to do the course, actually did so in 2018-19.

The aim of the project was to identify potential opportunities and improvements to the course and its accessibility. This was done by investigating program components such as: delivery, program coverage, affordability, content and engagement. Quantitative analyses of drink and drug driving conviction data were completed to identify the target population of the course. The team also provided an expert review of the curriculum content including quality

and effectiveness of messaging and alignment to contemporary evidence.

Overall, the review found significant scope to improve the current program. The researchers recommended using an evidence-based curriculum with a more therapeutic focus due to limitations in the Back on Track course content. They also recommended engaging first-time offenders in a more comprehensive program to reduce rates of recidivism.

The researchers outlined the need for more comprehensive monitoring and evaluation data to be collected and regularly reported so that the government can see what strategies are and are not working to prevent drink and drug driving. Researchers recommended reforming the delivery model so that the government delivers and subsidises the course to increase accessibility, noting the economic benefits of reducing drink

and drug driving given that alcohol-related road accidents currently cost the NT economy \$58 million per year.

The researchers noted that the quantitative and qualitative data showed that great public health gains could be made by working with Aboriginal and Torres Strait Islander communities to address drink and drug driving. The research shows that privatised drink and drug driver education courses and systems of delivery creates and reinforces inequities for Aboriginal and Torres Strait Islander people and others living in remote areas and recommended that prevention responses to drink and drug driving consider how programs can reduce rather than exacerbate inequities.

✓ Dr Cassandra Wright lead author of the review.



Alarming fall in enrolments for training NT General Practitioners



Not enough General Practitioners (GPs) are enrolling to train in the Northern Territory (NT), which could spell disaster for the NT's future GP workforce according to a recent Menzies study.

Menzies Professor of Remote and Rural Health Services Research John Wakerman said the study looked at factors underpinning the decline in GP enrolments in the NT as well as ways to correct them.

"The NT has always struggled to attract and retain GPs, particularly in remote areas, and therefore relies on doctors enrolled in GP training, however between

2016 and 2020 new enrolments in GP training in the NT fell by 50 per cent – this is in stark contrast to the national decline of just 12 per cent," Prof Wakerman said.

Menzies Senior Research Fellow Dr Deb Russell, said the period prior to doctors enrolling in specialty training was deemed the most crucial for attracting them to GP training in the NT.

"We found that the most important phase of training to invest in was the period of time from when medical students graduated to when they first enrolled in a specialty training program, because many are still making up their minds about their career paths," Dr Russell said.

The study acknowledges the complexity of the problem and that there are no easy solutions.

"Solving the problem will need a coordinated response from multiple agencies – including the Australian and NT Government, GP Colleges, Regional Training Organisations such as NTGPE, and primary care services,"

Dr Russell said.

Preterm Birth Alliance

Preterm birth is the single most important cause of perinatal mortality and morbidity in the developed world.

Most recent Australian data demonstrates that 8.7 per cent of babies are born preterm and this rate is slowly increasing over time.

Across the nation, there is variability in the rates of preterm birth, with the highest rates seen in socio-economically disadvantaged groups.

Data from the Northern Territory suggests that while the preterm birth rate for the non-Indigenous population is comparable to the national average, for Aboriginal and Torres Strait Islander babies, the rate is much worse.

Temporal trends of preterm birth in the Top End have not been adequately described previously.

Contemporary knowledge of the burden and associated risk factors is vital to guide future endeavors to prevent preterm birth.

The Trends in Preterm Birth in the Top End study is a retrospective population cohort study examining the trends in preterm birth over a 10-year period from 2008-2017.

This will be the basis of future work to tackle the preterm birth issue locally and particularly for Aboriginal and Torres Strait Islander women.

✓ Todd Daly watches over his son Jack in a neonatal intensive care unit. Photo credit – supplied by the Women and Infants Research Foundation.



^ Liz and Todd Daly watch over their son Jack in a neonatal intensive care unit. Photo credit – supplied by the Women and Infants Research Foundation.

GLU-Pilot Study

Our collaborators at the University of Western Australia (WA) recently patented a novel vaginal microbial DNA test known as the GLU test.

This test was conceived following research into *Ureaplasma*, *Mycoplasma*, *Candida* spp. and PTB in WA women and a subsequent cohort study which looked at these and additional bacterial species. Data from this study have shown that GLU-positive women between 14-22 weeks gestational age have a ~four-fold increased spontaneous preterm birth (sPTB) risk.

As there was low participation of First Nations women in this study it is unknown if the GLU-test is a suitable tool for sPTB prediction in First Nations women, known to be at high risk of suffering a preterm birth.

A clinical trial is now underway in WA to assess whether antibiotic and probiotic treatments provided to GLU-positive women can reduce PTB risk.

The objectives of the Northern Territory (NT) GLU pilot study (prediction of First Nations women at high risk of sPTB using vaginal biomarkers) study are to: a) describe the vaginal microbiota of pregnant First Nations women (<24 gestational weeks) using full-length 16s rRNA gene profiling; b) to ascertain whether the GLU test can predict PTB in NT First Nations women, and if not; c) to identify specific microbial DNA and vaginal cytokine profiles that are predictive of PTB risk in First Nations women.

The study has enrolled 35 women to date. The current work has informed two NHMRC grant applications (under review) that are designed to expand the work already being undertaken in the NT and WA.

Hep B app re-launched

The Northern Territory (NT) has an estimated chronic hepatitis B (CHB) prevalence of three to 12 per cent, meaning the NT has the highest CHB prevalence in Australia at 1.84 per cent. Of those living with CHB, 25 per cent will die from decompensated cirrhosis (liver failure) or hepatocellular carcinoma (HCC - liver cancer). Liver cancer is the fastest growing cause of cancer death in Australia and liver disease is the third most important contributor to the gap in life expectancy between First Nations and non-Indigenous Australians.

The Hep B Story app is an educational tool to increase Hepatitis B health literacy in community, those living with hepatitis B and their healthcare providers.

Hepatitis B health literacy among patients and health care providers has

repeatedly been found to be poor. Having an educational tool in an Aboriginal client's first language is crucial in developing treatment partnerships for patients with CHB.

The app, initially launched in 2014, was developed and launched in partnership with the Galiwin'ku community in North East Arnhem Land, providing access in English and Yolŋu Matha. In collaboration with community-based researchers, community members and translators the app has now been launched in additional five Aboriginal languages, Tiwi, Arrernte, Pitjantjatjara, Warlpiri and Kunwinjku, with five more languages, Kriol, Burarra, Murrinh-Patha, Anindilyakwa and Gurindji, being launched in 2022. This will enable more than 70 per cent of the NT Aboriginal population to access hepatitis B education in their first language.

Our team worked with communities all over the NT to adapt the app, with community involvement being key to the app's development. According to Galiwin'ku community-based researcher, Roslyn Dhurrkay, having a health literacy app in language is imperative to improving outcomes for her people.

"When Balanda tells the story, Yolŋu doesn't understand whole story, they don't know about Hep B, don't hear story right and get confused," she said.

The Hep B Story app will be a crucial tool to assist in the elimination of CHB in the Territory.

The Hep B Story app is free to download from the Apple and Google Play stores.

✓ The new Hep B Story app language recording in progress.



Tuberculosis in the region: pragmatic research to stop TB spread

Tuberculosis (TB) rates are high in south-east Asia and in Northern Territory (NT) Aboriginal communities. Our TB program has been using diverse methods to understand and respond to TB in these different settings.

In Papua Province, Indonesia, children now have access to TB preventive therapy as a result of our work supported by the Australian Government Department of Foreign Affairs and Trade. Before 2017, treatment for children who had been exposed to TB was unavailable in Papua.

PhD student, Dr Trisasi Lestari, undertook a health system strengthening program to rectify this, resulting in upskilling of TB staff, and hundreds of child TB contacts being screened and treated. This program

has been relatively resilient despite the major, tragic impacts of the COVID-19 pandemic in Indonesia.

In Sabah, Malaysia, the process of identifying and screening TB contacts was inefficient. People were missing out on opportunities for early detection or prevention of TB. Genomic sequencing work and epidemiological data analysis revealed gaps and hotspots.

Our TB team implemented a new mobile app called CONTRA TB to improve contact management in Sabah. This supports better real-time, accurate communication between nurses and doctors in the TB clinics, health inspectors working out in the community, and the State Health Department. Evaluation is now underway.



^ PhD student, Dr Trisasi Lestari.



In the NT, doctoral researcher Dr Ella Meumann published the first study to examine the genomic epidemiology of TB in the NT. In good news, she found the rate of TB in Aboriginal people in the NT has dropped an average of five per cent per year. But recent transmission and reactivation of dormant TB are both still occurring, leading to NT TB rates still being far higher than anywhere else in Australia.

Strategies to make TB prevention easier – such as shorter treatment courses – are being investigated by researcher and TB program lead Dr Chris Lowbridge. After several years of work to enable access to long-acting medications which require fewer doses, Territorians are now getting access to this new therapy to prevent TB.

< Doctoral researcher Dr Ella Meumann.

Snakebite is a global public health issue



Each year, around the world, there are an estimated 2.7 million reported cases of snakebite, resulting in the deaths of between 81 000 - 138 000 people.

Snakebite mostly affects people living in low to middle income countries, and especially those living below the World Bank's international extreme poverty line.

Snakebite victims are typically from tropical and sub-tropical rural and remote areas and subsistence farming populations. Of those population groups, the impoverished, the agricultural workforce, and children are disproportionately affected.

Snake venoms also cause many potentially fatal clinical toxin syndromes, which affect the nervous system, musculoskeletal system, and the cardiovascular and blood clotting systems.

^ A highly venomous northern (tropical) brown snake (*Pseudonaja nuchalis*) which bit a patient in Darwin.

Dr Tina Noutsos has been researching snakebite-associated thrombotic microangiopathy (TMA), which is an important complication of snake envenoming.

Snakebite-associated TMA occurs in a subset of patients with the usual bleeding toxicity of snakebite and is recognised in all major global locations where snakebite deaths remain common.

TMA is a disorder marked by the formation of blood clots and blood vessel wall damage in the body's small blood vessels, and it carries a risk of acute kidney organ damage and failure.

Under the supervision of Professor Bart Currie (Menzies and Royal Darwin Hospital), and Professor Geoff Isbister

(University of Newcastle), Dr Noutsos has reported on the largest cohort of patients with snakebite-associated TMA, which has been established globally to date.

Drawing on the Australian Snakebite Project, this research has established TMA's epidemiology, presenting features, diagnostic criteria, outcomes, and effectiveness of treatments including antivenom and therapeutic plasma exchange.

An improved understanding of snakebite-associated TMA and best

treatment approaches allows for the best allocation of resources and interventions, particularly in those parts of the world where the health and economic effects of snakebite are most apparent.

Snakebite was recently added by WHO to the list of Neglected Tropical Diseases and there is increasing momentum globally to address deficiencies in both prevention and treatment of snakebite, with a target 50 per cent reduction in death and disability by 2025.

HOT NORTH points to healthy future

HOT NORTH is a five-year (2017-2021) research program led by Menzies. The program is a multidisciplinary collaboration involving eight of Australia's leading health research organisations. The essence of HOT NORTH is supporting health colleagues across the north in their own professional development and in translating research-to-outputs-to-outcomes, for improved health.

Headquartered in the Northern Territory and covering an area from the Pilbara and Kimberley in Western Australia to Cape York and the Torres Strait Islands in Queensland, HOT NORTH is a health research, translation and capacity building partnership contributing to the healthcare needs of the north. As identified in the Commonwealth's Our North, Our Future: White Paper on Developing Northern Australia, tropical medicine and healthcare services are a key pillar to unlocking the potential of northern Australia.

To date \$4.19 million in funding has been provided to establish 108 pilot/translation projects, individual fellowships, and scholarships. These activities were instrumental in building the capacity of emerging researchers and disseminating evidence-based knowledge across the north. These researchers formed collaborations with 23 additional research organisations across Australia and South-Asia. More than 80 health organisations, including health departments, hospitals and Aboriginal Medical Services also participated in these HOT NORTH projects.

HOT NORTH established an annual series of community engagement workshops in remote towns and cities across northern Australia. By the end of 2021, 22 workshops had been conducted with 2528 participants, and 381 presentations from First Nations and non-Indigenous researchers. These workshops provided opportunities for local health professionals to meet university-based researchers and discuss research ideas

that work towards closing the health gap between First Nations and non-Indigenous Australians.

The HOT NORTH program supports researchers and practitioners working on improving health of all people living in northern Australia, with a strong focus on closing the gap in Aboriginal and Torres Strait Islander health disadvantage. More than two-thirds of HOT NORTH funding awards are to specifically address the main diseases causing Indigenous health disadvantage, such as youth and maternal diabetes, rheumatic heart disease, respiratory infections and skin diseases.

Remaining funding supports research into emerging health threats, such as antimicrobial resistance of tropical diseases, which disproportionately affect Aboriginal and Torres Strait Islander populations.

✓ A HOT NORTH engagement workshop in action.



Hearing for Learning Initiative



The primary aim of the Hearing for Learning Initiative (HfLI) is to reduce the prevalence of ear disease and hearing loss among Aboriginal children in the Northern Territory (NT), thereby enhancing early language development, school readiness, school attendance and performance.

The HfLI is funded jointly over five years by the Commonwealth Department of Health, the NT Government, and lead Philanthropist, The Balnaves Foundation.

The HfLI is supported and guided by an advisory board of First Nations leaders in health and education.

The HfLI is a stepped-wedge cluster randomised controlled trial rolled out across 20 urban, rural and remote communities.

The trial will evaluate an innovative workforce model of on-country training and employment to enhance ear and hearing health care support.

Graduates Casmira Tchiburrurr, Gerrarda Smiler, Jaz Dumoo and Ada Dumoo, pictured above, celebrated their success with the Menzies HfLI team Brinda Rowe, Trent Ward, Jenny Jenkins and Professor Amanda Leach AM.

Three units of competency in Certificate II in Aboriginal Primary Health Care and skills in ear and hearing health checks are delivered on-country over five to six weeks by qualified trainers for local community members.

Graduates transition to employment in the health service as Ear Health Facilitators.

To date, 29 trainees have graduated from seven communities and five trained Ear Health Facilitators have been employed by five health services.

Deadly Ears

Deadly Ears at Discharge is a hospital-based randomised controlled trial of an additional ear and hearing assessment by a trained Aboriginal Health Practitioner to inform discharge planning for Aboriginal children with chronic ear infection.

The trial is funded by the National Health and Medical Research Council.

It will assess the impact of a culturally appropriate intervention on Aboriginal families' satisfaction with the care of their child in hospital, the impact on discharge planning and the accuracy of clinical diagnosis of otitis media in hospital.

The results will be relevant to other culturally diverse populations where health care is predominantly provided by a different cultural group.

Community Engagement Officer, Brian Arley, conducting a Yarning Circle as part of the What Matters study.



Our people

Organisational structure

Senior Executive Team

Professor Alan Cass AO
Director

Brendon Douglas
Deputy Director of Strategy

Tegan Ryan
Chief Operating Officer

Dr Sean Taylor
Deputy Director Indigenous
Leadership and Engagement

Professor Gail Garvey
Associate Deputy Director Indigenous
Leadership and Engagement

Mark Mayo
Associate Deputy Director Indigenous
Leadership and Engagement

Research

Global and Tropical Health
Professor Anna Ralph

Malaria, TB and Other Regional
Endemic Diseases

Regional Health System
Strengthening

Global Women's and
Children's Health

Tropical and Emerging
Infectious Diseases

Viral Hepatitis

RHDAustralia

HOT NORTH

Child Health
Professor Anne Chang AM

Respiratory Health

Maternal Health

Immunisation

Ear Health

Childhood Anaemia

Life Course

Polymicrobial Research

International Child Health

Child Health Laboratory

Housing and Hygiene

Indigenous Medicinal Plants

HealthLAB

**Centre for Child
Development and
Education**

Professor Gary Robinson

Preventing Suicide
and Self-Harm

Evaluation of Child and Family
Health and Social Services

The Child and Youth
Development Research
Partnership

Strong Parents and Children

Resilient Youth

Population Health and Wellbeing

**Wellbeing and Preventable
Chronic Diseases**

Professor David Thomas /
Professor Tricia Nagel

Mental Health and Wellbeing

Tobacco Control

Nutrition

Alcohol and Other Drugs and
Gambling (AODG)

Diabetes

Cancer Epidemiology

Renal

Primary Health

Rural and Remote
Health Services

Education and Training

Higher Degrees by Research

Associate Professor Heidi Smith-Vaughan

Master by Research

Doctor of Philosophy

Honours Program

Postgraduate and VET studies

Dr Sharon Chirgwin

Postgraduate Coursework Programs

Vocational Education and Training

Professional Services

Executive Support

Finance

Human Resources

Legal Services

Development

Biyamarr ma

Work Health and Safety

Facilities and Operations

Research Administration

Communications,
Media and Marketing

Information Technology

Governance and Risk

Data Management

Research Quality

Ethics Office

Laboratory Science

Biostatistics

Biyamarr ma traineeship program



^ 2021 Biyamarr ma trainee graduates Jazlin McIntosh-Dunbar and Naja Dyrting with Lydia Agius.

The Biyamarr ma traineeship program provides a training pathway for Aboriginal and Torres Strait Islander people interested in joining the health workforce in the Northern Territory.

Regular professional development activities are delivered within culturally appropriate programs and services using the Four-H approach: Head, Heart, Hands, and Health.

All Biyamarr ma trainees are mentored in both their academic studies and in personal improvement programs, such as public speaking and career planning.

The Balanced Choice program delivered by Adam Drake, enhances training and development by focusing on social, emotional, psychological and physical wellbeing - helping young people build connections with others and encouraging them to set goals and work towards achieving those goals.

Throughout the year, the Biyamarr ma traineeship program hosted visits from the inaugural CDU Bidjipidji Aboriginal School Camp, the CDU Aspire program, Haileybury Rendall School, and Casuarina Senior College, with the help of Menzies-Ramaciotti Centre and Menzies HealthLAB teams.

The Biyamarr ma trainees shared their stories through yarning circles with the visiting students, to showcase career opportunities in the biomedical and health sciences sector.

Visiting students had the opportunity to tour the laboratory and participate in Menzies HealthLAB activities.

2021 Biyamarr ma graduates:

- Naja Dyrting (Certificate III in Business)
- Jazlin McIntosh-Dunbar (Certificate III in Business)
- Zania Gall (Certificate III in Business)
- Jahdai Vigona (Certificate III in Community Services)

2021 Biyamarr ma trainees:

- Ashanti Berry
- Ethan Woods-Alum
- Jaylene Friel
- Jahdai Vigona
- Naja Dyrting
- Jazlin McIntosh-Dunbar
- Whitney Hoosan
- Zania Gall
- Porsche Cahill - school-based trainee.

The Ramaciotti Regional and Remote Health Sciences Training Centre

The Menzies-Ramaciotti Centre is providing a new pathway into laboratory and health sector careers for young Territorians, with a focus on career development for Aboriginal and Torres Strait Islander youth. Mark Mayo, Associate Deputy Director of Indigenous Engagement and Leadership at Menzies and co-lead of the Centre says that the opportunities provided are in high demand.

“The Centre has partnered with internal and external stakeholders to engage 32 Aboriginal and Torres Strait Islander and non-Indigenous Northern Territory youth in biomedical and health sciences training,” Mark said.

The Centre focuses on delivering high-quality training in order to develop a local biomedical workforce for rural and remote northern Australia. Students benefit from training in the latest technology, industry partnerships, dedicated trainers, mentoring programs, internships across institutions, and access to Menzies researchers and networks.

Students can undertake a range of educational and workplace training experiences, including laboratory techniques, data analysis, computer literacy, literature reviews, coding and bioinformatics, health promotion and allied health.

Examples of laboratory-based training available through the Centre include programs in microbiology, immunology, molecular biology, genomics, microbiomics, bioinformatics and data science. Students also have an opportunity to undertake training in Good Clinical Laboratory Practice which is important to clinical trials.

To find out more about the Centre or study and training opportunities visit <http://www.menzies.edu.au/ramaciotti>

The Ramaciotti Regional and Remote Health Science Training Centre has been established with funding provided by The Clive & Vera Ramaciotti Foundation.

Menzies Future Leaders Fellowship

Our Future Leaders Fellowship initiative has been established to support the next generation of researchers at Menzies to develop and progress their careers. The inaugural Future Leaders Fellowship round provided seven Fellowships, three of which targeted identified priority diversity and leadership areas with one Fellowship awarded to an early-career researcher, one to a female researcher and one to an Aboriginal and/or Torres Strait Islander researcher.

Following a peer review process, the following Menzies staff were awarded a fellowship for 2022:

Dr Michael Binks

Research vision: To lead a collaborative, multidisciplinary research program dedicated to achieving sustainable improvements in the respiratory health of Indigenous and other high-risk children.

Dr Angela Devine

Research vision: To develop a comprehensive research program in economic evaluation that will impact policy decisions, improving health outcomes for populations adversely impacted by infectious diseases and health inequalities.

Dr Matt Grigg

Research vision: To implement a One Health multidisciplinary program over the next five years to detect, treat and control zoonotic malaria transmission in Southeast Asia.

Vicki Kerrigan

Research vision: To promote anti racism in healthcare by supporting NT health providers to communicate in a culturally safe manner with Aboriginal peoples.

Dr Steven Kho

Research vision: To identify novel approaches to detect and overcome splenic parasite survival to reduce global malaria burden.

Mark Mayo

Research vision: To provide a leadership role in melioidosis research and the development of pathway programs for First Nations people and other Australians into the health and biomedical workforce in the NT.

Dr Gabrielle McCallum

Research vision: To lead a collaborative, multidisciplinary research program that improves clinical outcomes for children at-risk of poor lung health, by identifying interventions that improve short and long-term outcomes for children, particularly Australian First Nations children.

Menzies Small Grants

Our Small Grants program is an internal, competitive, peer review program providing seed funding for new ideas and developing projects that will contribute to sustainable research programs at Menzies.

Now in its fifth year, the program has allocated a total of \$940 565.

We are pleased to continue this program into 2022, with the award of seven Menzies Small Grants – the successful applicants and projects are:

Dr Michael Binks - Early life events, the infant gut microbiome and respiratory outcomes in the first year: A pilot study.

Dr Matt Grigg - Characterising the molecular epidemiology of Hepatitis B (HBV) in Sabah, Malaysia.

Dr Robyn Marsh - *Ornithobacterium hominis*: Understanding potential pathobiological mechanisms of a newly described bacterium.

Jemima Beissbarth – Investigating whether *Oligella* species contribute to treatment failure in children with chronic suppurative otitis media (CSOM).

Amy Bleakley - Investigating the effects of vitamin D on immune responses to common paediatric respiratory pathogens.

Dr Steven Kho - Investigating the human spleen as a novel niche for erythropoiesis in vivax malaria.

Mariana Kleinecke - Establish MinION sequencing to identify individuals with Glucose-6-phosphate-dehydrogenase deficiency.

James Marangou - Determining the feasibility, acceptability and impact of performing heart ultrasound scans for pregnant Aboriginal and Torres Strait Islander women living in the NT's Top End.

Hannah O'Farrell - Investigating novel diagnostic biomarker signatures in children with bronchiectasis.

Dr Cassandra Wright - Investigating alcohol and drug use among festival attendees at Bass In The Grass 2022.

Research excellence

At Menzies, we recognise that our people are our greatest asset. We strive to encourage and promote excellence in research, and endeavour to build capacity to enable our people to excel in their chosen field.

Order of Australia Awards

Officer of the Order of Australia (AO)

Professor Alan Cass: For distinguished service to medical research, particularly to the prevention and management of chronic kidney disease, to improved Indigenous clinical care and health outcomes, and as a mentor.

Trevor Riley, QC: For distinguished service to the judiciary as Chief Justice of the Supreme Court of the Northern Territory, to the law, and to the community.

Member of the Order of Australia (AM)

Professor Amanda Leach: For significant service to ear disease research, and to Indigenous child health.



Medal of the Order of Australia (OAM)

Colin Baillie: For service to Indigenous health and education.

^ The Order of Australia Awards at Government House.

Northern Territory Australian of the Year

Board Member Leanne Liddle was selected as the 2022 NT Australian of the Year. Leanne was responsible for driving the NT Aboriginal Justice Agreement which is aimed at reducing Indigenous incarceration rates. Leanne is Director of the Northern Territory Aboriginal Justice Unit.

Senior Research Fellow Dr Josh Francis was a Nominee for NT Australian of the Year and Aunty Bilawara Lee, Chair of the Menzies Child Health Indigenous Reference Group was a Nominee for NT Senior Australian of the Year.

Australasian Society for Infectious Diseases National Mentorship Award

Professor Bart Currie received the 2021 Australasian Society for Infectious Diseases National Mentorship Award.

The Society for Mental Health Research (SMHR)

Bernard Leckning received the SMHR 2020 Best Research Paper Award - PhD Student - Applied research.

Australian Academy of Health and Medical Sciences Fellowships

Professor Louise Maple-Brown was recognised for outstanding contributions in clinical impact and leadership. Her program is the first and largest Australian partnership between researchers, policy makers and health services on intergenerational diabetes, and the largest such program globally for First Nations people.

Professor Ric Price was recognised as a leading authority on multidrug resistant malaria and *Plasmodium vivax* whose research has contributed significantly to international policies and practices, and

has had a substantial impact on health and wellbeing in malaria endemic areas.

Health Services Research Association Australia and New Zealand (HSRAANZ)

Dr Gillian Gorham was the winner of the Professor Margaret Kelaher Best PhD Paper Award – Health Services Research Association Australia and New Zealand for her thesis “Do remote dialysis services really cost more? An economic analysis of hospital and dialysis modality costs associated with dialysis services in urban, rural and remote settings”.

Australian Men's Health Forum NT People's Choice Award winner

Professor James Smith was recognised with the NT People's Choice vote in the 2021 Men's Health Awards. He has worked in the field of men's health for two decades in roles spanning practice, policy and research.

Association of Alcohol and Other Drug Agencies (AADNT)

Professor Peter d'Abbs was recognised with an AADNT award for making a significant contribution to Alcohol and Other Drugs in the NT.

The Alcohol, Other Drugs and Gambling team were awarded the AADANT Excellence in Harm Reduction Award.

Australasian Epidemiological Association (AEA) Life Membership

Professor Joan Cunningham was awarded a life membership in recognition of her outstanding contribution to the AEA and the field of epidemiology.

The Australian Council of Graduate Research

Professor Joan Cunningham was awarded a special commendation in the Australian Council of Graduate Research Award for Excellence in Graduate Research Supervision.

Australasian Professional Society for Alcohol and other Drugs

Dr Cassandra Wright was awarded the 2021 Australasian Professional Society for Alcohol and other Drugs Early Career Researcher Award. The award is for "Excellence in research" awarded to an Early Career Researcher less than five years post PhD. The award was based on her work involving technology for substance use research and interventions.

RACP – Howard Williams Medal

Professor Anne Chang AM was announced as the 2021 Howard Williams Medal winner for her research contributions to evidence-based management and clinical care in the areas of paediatric cough, asthma, bronchiectasis and Indigenous child lung health.

The Australasian Society for Infectious Diseases – Frank Fenner Award

Professor Josh Davis was awarded the 2021 Frank Fenner Award for Advanced Research in Infectious Disease.



^ Associate Professor Nitin Kapur presenting Professor Anne Chang AM with the award.

GTNT Trainee Awards

Jahdai Vigona received both the Aboriginal and Torres Strait Islander Trainee of the Year and the Trainee of the Year at the GTNT Group Awards. Trainee Naja Dyrting was a finalist in the Aboriginal and Torres Strait Islander Trainee of the Year and Jazlin McIntosh-Dunbar a finalist in the Trainee of the Year.

NT Training Awards

Jahdai Vigona received the 2021 Aboriginal and Torres Strait Islander Student of the Year award.



^ Jahdai Vigona at the Aboriginal and Torres Strait Islander Trainee of the Year awards.

Australian and New Zealand Communication Association (ANZCA)

Vicki Kerrigan was awarded the ANZCA 2021 Grant Noble Award for Best Postgraduate Abstract. The Participatory Action Research project examined culturally safe communication practices within a hospital setting. Cultural safety advocates for the improved use of interpreters enabling a transfer of power from hospital based service providers to Aboriginal language speaking patients.

NT Human Rights Awards

The *Ask the Specialist* podcast team were awarded the 2021 Fitzgerald Social Change Award at the NT Human Rights Awards.

The Award recognises a person or organisation living or based in the NT who has contributed significantly to the promotion of social change for human rights and/or equal opportunity.

Internal awards



^ Catherine Martel receiving the Ryan Family Prize from Professor Alan Cass AO.

Program Manager Catherine Martel was recognised with **the 2021 Ryan Family Prize** for her contribution to the growth of the international malaria program. Demonstrating incredible diplomacy and cultural awareness, reliability and efficiency, Catherine goes above and beyond in managing the program across multiple time zones and meeting international deadlines.

The 2021 Val Asche Memorial Prize for Academic Excellence was awarded to Catherine Doidge (Master of Public Health), Corrine Butler (Graduate Diploma of Health Research) and Lori Roberts (Graduate Diploma of Public Health).

Number of publications*

	Peer-reviewed publications	Total publications
2020	391	394
2021	405	405

* preliminary data

Long service awards

Our long service awards provide the opportunity to reflect on the contributions of those who have been instrumental to Menzies' development, growth and success.

Recognised in 2021 for their long-standing contributions were:

25 years

Professor Nick Anstey

20 years

Dr Matt Stevens



15 years

Professor Louise Maple-Brown
and Professor David Thomas

Research Administration Manager Christina Spargo and Research Assistant Vanessa Rigas celebrating 10 years of service with Director Professor Alan Cass AO.

Celebrating 25 years of service

Professor of Global Health and Infectious Disease Physician, Dr Nick Anstey, returned to the Territory in 1996 to establish Menzies' Global Health Program. Prof Anstey was appointed by Menzies inaugural Director Professor John Mathews to a bilateral Northern Territory Government research-fellowship-scheme directed towards improving relationships with Indonesia, to better understand, treat and prevent malaria and tuberculosis.

"On arrival to Darwin in 1996 my instructions were to go to Indonesia, seek out an Indonesian counterpart, and to establish a collaborative research program in malaria and tuberculosis. This was not a small challenge!" Prof Anstey said.

"With Indonesian partners we established Menzies research program in Papua, including a key collaborative malaria and tuberculosis program in Timika in 1999".

This program has grown since then, attracting multiple Menzies and Indonesian partners in studies leading to improved outcomes from malaria and tuberculosis. Ten years later Nick also established a malaria-tuberculosis research collaboration with partners in Sabah, Malaysia, which again led to reduced malaria mortality.

"It is great to have worked with so many wonderful partners and postgraduate students across Menzies, Indonesia and Malaysia."

Establishing and sustaining the research collaboration in Papua, Indonesia was challenging. Paul Kelly, Craig Boutlis, Ric Price, Tsin Yeo and Anna Ralph joining the



▲ Professor Alan Cass AO with Professor Nick Anstey at the long service award presentation.

Menzies team over the first decade made a big difference. Rini Poespoprodjo and Enny Kenangalem in Papua, and Timothy William and Giri Rajahram in Sabah have all been key partners.

Some of Nick's highlights over the last 25 years include studies identifying novel mechanisms underlying severe and fatal malaria, the identification of a new life cycle of the malaria parasite (see page 15), studies showing reduced mortality with use of artesunate for severe disease, and policy-changing clinical trials in the treatment and prevention of each of the major parasite species causing malaria.

Prof Anstey has been recognised globally for his research impact. In 2015 he

was awarded the Australian Academy of Science's inaugural Nossal Award in Global Health and elected a Fellow of the Australian Academy of Health and Medical Sciences. In 2020, he was named as one of the most influential 'Clinical Medicine and Biomedical Research' scientists in the world by PLOS Biology.

"We have major collaborations with partners across the Indo-Pacific and I hope to see these relationships become even stronger, and for Menzies to continue to attract and retain the excellent researchers and postgraduate students who will lead the next 25 years of Menzies' work in global health," Prof Anstey said.



Education and Training

2021 graduates celebrate.



In 2021 as the impacts of the COVID-19 pandemic were being felt in Australia, a total of 275 students enrolled in courses to equip them with the generalist and specialist skills necessary to address both immediate and future, public health challenges.

The interest in postgraduate public health awards delivered by Menzies Education and Training continued to increase, particularly in both the Master and Graduate Diploma of Public Health.

It was the first year where students could enrol in the double masters (Master of Public Health/Master of Health Research), and while this double award was originally designed to attract international students, seven domestic students enrolled.

The Graduate Certificate of Infectious Disease Prevention and Control (which was introduced in 2020 as a COVID-19 training response), also continued to attract steady enrolments with a proportion of graduates from 2020 using it as a pathway into other awards.

Due to COVID-19 restrictions, five of the international students who had enrolled in postgraduate courses in 2020 remained in the NT.

Australia's borders remained closed to new international students, however in 2021, one student from India began her Master of Public Health. This was done online as allowed under the Commonwealth Government's response to COVID-19.

In VET, 10 students continued with the 10815NAT Certificate II in Community Health Research, receiving training to enable them to participate in projects to encourage kidney donation or the varied projects of the Machado Joseph Foundation.



^ Sushila Saud, Jarrah Fowler, Renu Unnikrishnan and Bisal Kadariya celebrate graduation.



^ PhD graduates, Dr Gillian Gorham and Dr Tina Noutsos with Professor Alan Cass AO.

Master of Public Health Graduates completing with a research thesis

Rachel Buckley Strengthening inpatient care for adolescents at Royal Darwin Hospital: A retrospective audit of the coverage and needs identified from specialist in-reach.

Talea Cotte Antenatal Colostrum Expression: A Scoping Review of The Literature.

Adam Delaine Features of Written Submissions Associated with Influencing Government Inquiries.

Gregory Stehle Partners in Justice: Perspectives on making effective Health Justice and Integrated Services partnerships.

HDR graduates

Dr Daniel Cooper (PhD) *Plasmodium knowlesi* malaria: evaluating the burden of disease, and improving outcomes from acute kidney injury.

Dr Adam Thompson (PhD) Traditional Medicinal Washes of Northern Australia with specific reference to Tiwi and Kunwok ethnomedicine.

Dr Danielle Longmore (PhD) Neonatal and infant outcomes of hyperglycaemia in pregnancy in remote Australia.

Dr Sarah Whalan (PhD) Development of a simple and interactive dietary assessment tool for use with Australian Indigenous and non-Indigenous young adults.

Dr Gillian Gorham (PhD) Determining the Costs and Benefits of Dialysis Services in Urban, Rural and Remote Settings: Does Place Matter?

Dr Tina Noutsos (PhD) Snakebite-associated thrombotic microangiopathy: epidemiology, diagnosis, outcomes, and effectiveness of interventions including plasma exchange.

Barbara Klessa (Master by Research) Planned early relocation of pregnant women who live in geographically isolated areas to near major birthing centres - a review of literature.

HDR scholarships announced in 2021

Wicharn (Elm) Boojindasup, PhD Improving the utility and understanding of lung function tests in children. Research Training Program (RTP) Scholarship.

Kian Soon (Ludwig) Hoon, PhD Utility of resolution optimised SNPsets derived from Microbial genome sequences. Charles Darwin International PhD Scholarships (CDIPS).

Jacqui Williamson, PhD NEARER (Non-Expert Acquisition and Remote review of Echocardiography images for Rheumatic Heart Disease). Research Training Program (RTP) Scholarship.

Edith Waugh, PhD Adaptation of Perioperative Models of Care for First Nations Australians. Research Training Program (RTP) Scholarship.

James Marangou, PhD The Two Hearts Beat Study: Determining the benefits and barriers of echocardiographic screening in pregnancy for Indigenous women in the Top End of the Northern Territory. NHMRC Scholarship.

Victoria Cox, PhD Toward a scabies control strategy for northern Australia: Methods to map the burden of scabies and evaluation of a community-wide preventative treatment strategy. Research Training Program (RTP) Scholarship.

Sarah Cassidy-Seymour, PhD Effectiveness and feasibility of different radical cure regimes. Charles Darwin International PhD Scholarships (CDIPS).

Ery Setiawan, PhD The costs due to vivax malaria and methods for estimating productivity losses. Charles Darwin International PhD Scholarships (CDIPS).

Hidayat Trimarsanto, PhD Genetic and genomic epidemiology of malaria: dissecting patterns of transmission and adaptation in Southeast Asia. Charles Darwin International PhD Scholarships (CDIPS).

Jeremy Kok, PhD Hospitalised Pneumonia Extended (HOPE) RCT to reduce the long-term effects of childhood pneumonia. Charles Darwin International PhD Scholarships (CDIPS).

Liony Francisca, PhD Improving the safety and effectiveness of the radical cure of *Plasmodium vivax* in Indonesia. Charles Darwin International PhD Scholarship (CDIPS).

Amy Bleakley, PhD Vitamin D supplementation to promote beneficial immune responses to respiratory pathogens. Research Training Program (RTP).

Muthoni Mwaura, PhD Improve trial results dissemination to patients who participated in clinical studies in resource poor settings. Charles Darwin International PhD Scholarships (CDIPS).

Elvin Lufefe, PhD Kick-start Life (Kikstatim Laip) – Facilitating pre-conception and early pregnancy care to reduce maternal and neonatal adverse outcomes in Papua New Guinea. Charles Darwin International PhD Scholarship (CDIPS).

Dr Gillian Gorham

Dr Gillian Gorham earned her PhD from Charles Darwin University in 2021 for her thesis exploring the concept of 'place' in the delivery of dialysis services in the Northern Territory (NT).

Most dialysis patients in the NT are Aboriginal and live in remote areas. However, most dialysis services are centralised in urban areas, requiring large numbers of Aboriginal patients to relocate to receive treatment. Significant costs are incurred in the process of relocating dialysis patients, including psychological costs and downstream health care costs.

Dr Gorham's analysis compared the uptake of dialysis treatments and subsequent downstream impacts according to where patients receive dialysis care, being either urban, rural, or remote parts of the NT.

Patients, their families and communities have argued that being able to receive dialysis at home or closer to home, is more likely to improve health compared to having to relocate for treatment. Closer access to family and community support is associated with better dialysis attendance leading to fewer health complications and hospitalisations.

The mixed methods study examined health care activity (dialysis treatment and hospitalisations associated with where people receive treatment), total health care costs and patients' views of the different dialysis models in different locations.

Remote staffed facilities are more expensive than those in an urban setting, but financial models based on upfront dialysis treatment costs alone, fail to consider the significant downstream (hospitalisation) costs associated with these facilities. Dr Gorham's analysis found the incremental cost differences associated with models of care in different settings are significantly reduced when all health service costs are included.

A key component of the study was to explore different views from patients,



^ PhD graduate, Dr Gillian Gorham.

clinicians and policy makers regarding the costs and benefits of the different dialysis models of care. A Value for Money framework, developed in a participatory co-design process with these stakeholders, identified six criteria spanning biomedical outcomes, costs of health service delivery, and patient views of what made for a good life on dialysis. Dr Gorham said that integral to these challenges was developing a shared understanding, from multiple stakeholder perspectives, regarding what they saw as important, and ensuring Aboriginal participants were genuinely engaged in the codesign process from the beginning.

“This process delivers a shared understanding and appreciation of what all stakeholders see as important features of a model of care and has implications for how policy decisions are determined in the future.”

Dr Gorham said.

Dr Gorham's PhD was recognised by the Health Services Research Association of Australia and New Zealand HSRAANZ, being awarded the Professor Margaret Kelaher Best PhD Paper Award for her thesis.

A photograph of three children of diverse backgrounds smiling for a photo. They are wearing dark blue baseball caps with the Menzies logo. The child on the left is wearing a grey t-shirt with a circular logo that says 'LOS ANGELES California VENICE'. The child in the middle is wearing a grey t-shirt. The child on the right is wearing a yellow t-shirt with 'MOSSIMO' and 'LOS ANGELES CALIFORNIA' printed on it. In the background, there are dark blue items hanging on a line, including a t-shirt with the number '10' and another Menzies hat. A teal patterned banner is at the top of the page.

In our community

Noah Bartlett, Zaharah Pitt and Israel Kammass dropped into NAIDOC Family Day and visited our Diabetes across the Lifecourse: Northern Australia Partnership stall.

National Reconciliation Week

Our Reconciliation Implementation Group (RIG) committee and the Biyamarrma team organised events and activities for the week which included morning tea and a panel discussion around the theme, 'More than a word: Reconciliation Takes Action'.

The panel discussion featured guest speakers Timmy Duggan, founder of Hoops for Health, Thomas Mayor, Honorary Deputy Branch Secretary Maritime Union of Australia, Sue Roman, local Larrakia Elder and Margaret Niki, Masters Student.



Members of the RIG committee with Thomas Mayor.

NAIDOC Week Darwin Family Day

Menzies Diabetes across the Lifecourse: Northern Australia Partnership's Aboriginal and Torres Strait Islander Advisory Group staff, alongside team members from our PANDORA project (Pregnancy and Neonatal Outcomes in Remote Australia) joined Larrakia Nation and Life Without Barriers with an information stall at the family day at the Jingili Water Gardens.

NT Youth take their message to the top



Youth Committee Members with Ministers Lauren Moss and Eva Lawler at Parliament House.

Youth Committee Members of the 2021 Menzies Youth Health Summit accepted an invitation to meet NT Government Ministers Lauren Moss and Eva Lawler at Parliament House in October.

The round-table discussion covered a range of topics, including concerns over mental health, ensuring easy access to adequate services; and facing the challenges of climate change.

The discussion also covered the importance of young people being supported, informed, and engaged with skilled health workers, teachers, support staff, parents, and carers.

Youth Health Summit project coordinator Josie Povey said it's important that young Territorians have their voices heard.

"We'd like to thank Ministers Lauren Moss and Eva Lawler for inviting our Youth Health Summit – Youth Committee members to Parliament House. It was

great to share and talk about the health priorities and demands identified by young people throughout the summit, these being: mental health, access to health care, sexual health; and the environment," Josie said.

This year's Youth Health Summit was held in August, where panel discussions and workshop sessions took place in online forums because of a snap COVID-19 lockdown.

A series of 15 podcasts were developed and distributed involving young people, health experts, researchers and elders who discussed issues affecting young people in the NT and their hopes for a better future.

The findings of the summit aim to inform researchers, service providers and policy makers about issues important to young Territorians.

TEABBA live broadcast at Menzies

As part of National Reconciliation Week we welcomed Top End Aboriginal Bush Broadcasting Association (TEABBA) to broadcast live from Menzies John Mathews Building foyer with the morning show featuring the work Menzies contributes to health outcomes in Aboriginal and Torres Strait Islander communities around the Top End.



▲ Professor Louise Maple-Brown with TEABBA broadcast host, Kayla Baker.

On the road again

Menzies HealthLAB hit the ground running in 2021 to deliver hands-on health promotion to schools and communities throughout the Northern Territory (NT).

Despite some activities being disrupted due to COVID-19, HealthLAB still engaged with 1,486 participants.

The team visited schools in Darwin, Tennant Creek, Ali Curung, Ti Tree, Borroloola, Robinson River and Wurrumiyanga on Bathurst Island.

HealthLABs were also held for students visiting the Michael Long Learning and Leadership Centre, the CDU Bidjipidji Program, and Menzies School of Health Research.

In late April and early May, HealthLAB engaged with students in Central Australia and by the end of May was in Borroloola promoting the benefits of good health at the local school.

In June, HealthLAB set up a stall at the Barunga Festival, which was attended by thousands of people and the stall attracted many interested visitors.

In August, HealthLAB participated in National Science Week, and spent a day with students at Xavier Catholic College in Wurrumiyanga, who learned about the importance of making healthy lifestyle choices.

This was the final year of a successful collaboration running HealthLABs with John Moriarty Football training coaches in health promotion, and delivering health promotion packages to students.

The HealthLAB program is ongoing and will continue to deliver health promotion to Territorians.

Effective communication in healthcare

The **'COVID-19 Vaccine Workshop: Sharing Success Stories & Smashing Myths'**, November 2021, provided a vital information sharing opportunity at the height of vaccine rollout efforts in the Northern Territory ahead of the major COVID-19 wave a month later.

Convened by Menzies doctoral researcher Dr Bianca Middleton specialising in vaccinology, more than 250 attendees from northern Australia heard about successful vaccine promotion activities from organisations including AMSANT, Central Australian Aboriginal Congress, Danila Dilba Health Service, Mala'la Health Service.

Stories focused on the importance of connecting to people's cultural values, dispelling myths, presenting information



▲ Presenters at the COVID-19 Vaccine Workshop.

in local languages and giving people time to work through vaccine worries and make a decision. Myths were smashed by Q&A panel members

including Dr Lorraine Anderson (Kimberley Aboriginal Medical Service) and Associate Professor Jane Davies (Menzies) who shared expert knowledge on vaccines and community concerns.

The 'First Nations Languages & Health Communication Symposium', May 2021, was a collaboration with Menzies, CDU's Northern Institute and the NT Aboriginal Interpreter Service. The symposium attracted national delegates face-to-face and virtually. Effective communication in healthcare is at the heart of high quality medical practice – yet clinicians struggle to get it right. Research on communication in healthcare across language and cultural divides was showcased, highlighting research from the Menzies Communicate study team.



Diabetes Symposium



^ Alice Springs satellite site symposium attendees.

Diabetes experts and health care professionals from across northern Australia gathered at Menzies and online for the Diabetes across the Lifecourse: Northern Australia Partnership – Annual Educational Symposium, which was held in September.

This was the ninth annual gathering of diabetes researchers, health workers and stakeholders to discuss a 'lifecourse approach' to preventing and managing diabetes.

This year's theme was: Community Leading the Way: Engaging and Guiding Research.

Partnership lead, Professor Louise Maple-Brown said it's crucial that diabetes prevention and management

programs are designed in partnership with Aboriginal and Torres Strait Islander communities and people.

“These partnerships are key to the success of these programs worldwide, and it was great to hear from Aboriginal and Torres Strait Islander researchers and community members about their experiences, learnings and success stories from diabetes prevention and management programs with First Nations people in Australia and First Nations communities in Canada.”

Prof Maple-Brown said.

The symposium featured keynote speakers: Associate Professor Trenea Delormier (Canada Research Chair, McGill University, Canada), Professor Alex Brown and Dr Karla Canuto (South Australian Health & Medical Research Institute, Adelaide, South Australia).

There were more than 230 registrations and the highest number of online attendees to date.

The partnership also hosted two satellite sites: one in Alice Springs and the second in Cairns for local health professionals to attend.

The symposium was supported by the NHMRC and MRFF funding to the Diabetes Lifecourse Partnership and the HOT NORTH program at Menzies.

Joseph Dennis contributing to a short film 'Germs, Black Fella Way, White Fella Way' on traditional and Western medicine, supported by the Bridging the Gap Foundation.



Our donors and supporters



In 2021 Menzies was grateful to be the beneficiary of more than \$617 000 gifted by our donors and supporters. Their support helped us to further our critical research efforts despite the ongoing challenge of a second year working in pandemic conditions.

2021 underscored the importance of our supporter relationships with gifts being made by both new and longstanding donors - in life and after death- and by our corporate, trust and foundation friends with whom we have been working with over many years.

These funds have been used for supporting work in ear health, HealthLAB; community health education, diabetes in pregnancy and to provide scholarships to support Aboriginal and Torres Strait Islander health professionals progress their research in Aboriginal health.

These funds have been used for supporting work in ear health, HealthLAB; community health education, diabetes in pregnancy, traineeships and scholarships.

The traineeships and scholarships are facilitating biomedical and health sciences career progression for regional and remote youth, with a focus on career development for Aboriginal and Torres Strait Islander youth.



▲ Darenika Kidd, Joseph Dennis, Kalisha Dennis and Zoe Fitzpatrick working on the short film 'Germs, Black Fella Way, White Fella Way'. Picture credit: Chris Fitzpatrick.

Scholarship advancing careers and research in Aboriginal and Torres Strait Islander health

In 2021, long standing donors Edwina Menzies and Ian Albrey pledged \$140 000 to establish the Edwina Menzies and Ian Albrey Higher Degree by Research Scholarship.

This Scholarship is for an Aboriginal or Torres Strait Islander candidate to support them to complete their Masters and/or PhD in Research over 3.5 years. It includes the option of a funded Fellowship to follow the HDR Scholarship

should the graduate wish to continue their careers in medical and health research at Menzies.

We are incredibly thankful for the generous support of Edwina and Ian. Opportunities for academic support, career progression and leadership development for our students and staff are pivotal to improving health outcomes in Aboriginal and Torres Strait Islander health and building a

local, sustainable health and research workforce. Also in 2021, Edwina and Ian confirmed that they have left a bequest to Menzies. They have additionally agreed to be founding members of our bequest society contributing leadership and encouragement to other people considering leaving a bequest to Menzies in their Will. We thank them for their ongoing commitment to Menzies.

Medibank supports HealthLAB community health promotion

The Medibank Better Health Foundation generously gave \$50 000 to support the ongoing work of HealthLAB, a co-designed, educational and interactive pop-up laboratory, where participants take their own health measures and learn how to make lifestyle choices to prevent the development of chronic disease later in life or manage current chronic disease.

HealthLAB participants, primarily Aboriginal and Torres Strait Islander community members, are empowered to make lifestyle choices which will improve their health long term. HealthLAB is staffed by Aboriginal and Torres Strait Islander trainees, along with Menzies staff and plays a pivotal role in growing

the next generation of the rural and remote health workforce.

It also encourages HealthLAB participants to consider pathways in health education, facilitating those opportunities through the Ramaciotti Regional and Remote Health Sciences Training Centre based at Menzies.

To date HealthLAB has driven significant behavioural changes amongst First Nations and remote communities across northern and central Australia and has had a statistically significant impact on reducing the early onset of chronic diseases. Medibank's support is critical to the expansion of this program and as leverage for further funding.

Pro Bono Partner Baker McKenzie

Menzies is immensely grateful for the ongoing support of pro bono partner, law firm Baker McKenzie. Baker McKenzie's expertise in healthcare and life sciences provides Menzies with valuable and timely advisory counsel across a wide range of projects. We are grateful for the generosity of their time, expertise and encouragement and look forward to continuing the partnership into the future.

Catalyse Mentorship

Advancing women researchers' careers through mentoring partnerships with national and international mentors

Following a highly successful pilot, the Catalyse Mentorship Program was again made available to 12 women from across the Top End in 2021, with mentees coming from Darwin, Broome, Perth and Brisbane. The participants were mentored by an outstanding range of mentors from both corporate and academic sectors.

Mentees were introduced to a range of personal, professional and leadership development opportunities as well as networked with potential funders, and influential supporters to assist in advancing their careers. Strong ongoing interest from both researchers and mentors underscore both the demand and the value of the program to all participants.

Bridging the Gap Foundation

Bridging the Gap Foundation (The Foundation) was established by Menzies and CDU to fund health and education initiatives to address the gap between Aboriginal and Torres Strait Islander people and non-Indigenous people's health and education opportunities and outcomes.

The Foundation's end of financial year fundraising campaign raised \$35 000 to support remote community visits for HealthLAB whose activities were curtailed due to the impact of COVID-19.

The Foundation had planned to launch the short film by sister and brother team, Zoe (former Menzies trainee) and Chris Fitzpatrick, 'Germs, Black Fella Way, White Fella Way' on traditional and Western

medicine during NAIDOC week and then again in December in Alice Springs and Darwin. Unfortunately, due to the pandemic, both series of events were postponed until 2022.

Support was provided to enable trainee Anna Wommatakammi to return to Menzies to work with the D-kids team on their research project looking at the effects of Vitamin D supplementation on acute respiratory infections in Aboriginal and Torres Strait Islander babies from birth to 12 months.

In addition, the Foundation was pleased to provide funds to support the Youth Health Summit hosted by Menzies in August which brought together key stakeholders in the sector.

Edwina Menzies and Ian Albrey
who established a Higher
Degree by Research Scholarship.



Major donors and partners

We are grateful to the following donors and partners for their generous support in 2021:

Australian Government Department of Health	Commonwealth Government of Australia	Menzies Weathering Well Rural Resilience
Australian Securities Exchange	CSL Behring	nbn
Australian Securities and Investment Commission (ASIC)	Edwina Menzies and Ian Albrey	Northern Territory Department of Health
AGL (Power to Give)	Future Generation Global Investment Company	Optus (yes4good)
Baker McKenzie	Good2Give	Origin Energy Foundation
Belinda Gibson	Graham Blashki	St Thomas Aquinas Springwood Parish
Bridging the Gap Foundation	Maple-Brown Family Charitable Foundation	The Asche Family
Catherine Turner	Medibank Better Health Foundation	The Balnaves Foundation
Charles Darwin University	Megan Duffy	The Ray and Margaret Wilson Foundation

Catalyse Mentors

Anne-Maree Englund	Dr Vicki Krause	Professor David Thomas
Adjunct Associate Professor Dr Lesley Braun	Eloise Newbury	Professor Fiona Stanley AC
Clinical Associate Professor Deborah Lehmann AO	Emma Press	Professor Gail Garvey
Dr Allison Hempenstall	Kate Russell	Professor Maxine Whittaker
Dr Elizabeth Pritchard	Kathy Connell	Professor Roianne West
Dr Jane Andrews	Kathy Hirschfeld AM	Professor Sir Michael Marmot
Dr Kevin Williams	Kris Ashpole	Rebecca McGrath FAICD
Dr Lea-Ann Kirkham	Professor Alex Broom	Roxane Legaie
Dr Michelle Boyle	Professor Alicia Oshlack	Suzanne Hullick
	Professor Anita Heiss	Turia Pitt
	Professor Anna Ralph	

Major contributions*

\$533 482

* Major contributions are recorded as consultancy and contract research in the presentation of Menzies financials

Donations

\$83 733



Our financials

Financial summary

Total revenue

\$ 56 648 923

National Health and Medical Research
\$17 059 472



Investment income
\$194 543



Other Australian Government Agencies
\$6 039 708



Consultancy and contract research
\$12 059 984



NT Government funding
\$6 570 086



Other revenue
\$10 850 923



Fees and charges
\$387 4207



30% National Health and Medical Research Council

19% Other revenue

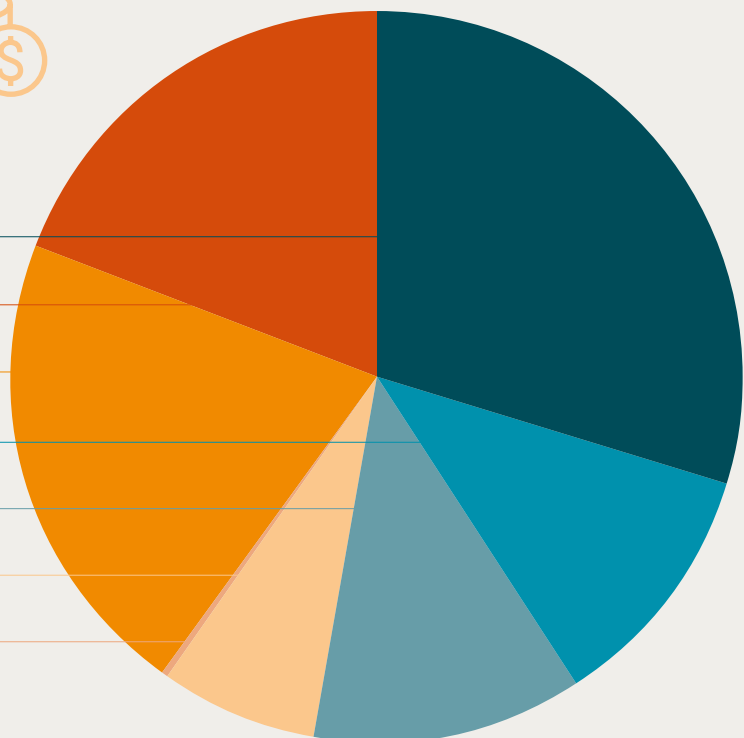
21% Consultancy and contract research

11% Other Australian Government Agencies

12% NT Government Funding

7% Fees and other charges

0.3% Investment income



Total expenses

\$54 386 434

Employee related expense

\$31 558 887



Direct research and other costs

\$21 524 922



Depreciation

\$687 892



Repairs and maintenance

\$614 733

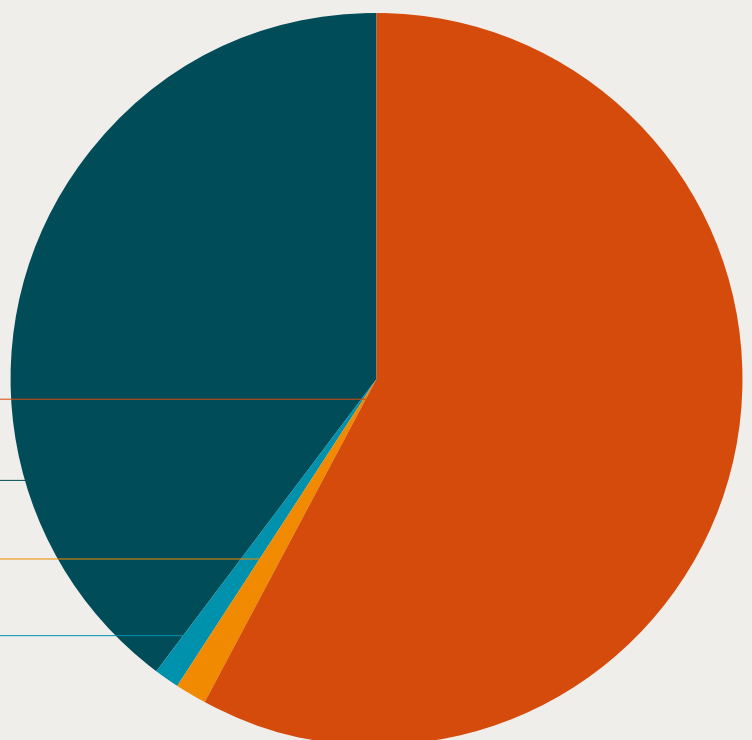


58% Salary and other employment related costs

40% Direct research and other costs

1.3% Depreciation

1.1% Repairs and maintenance





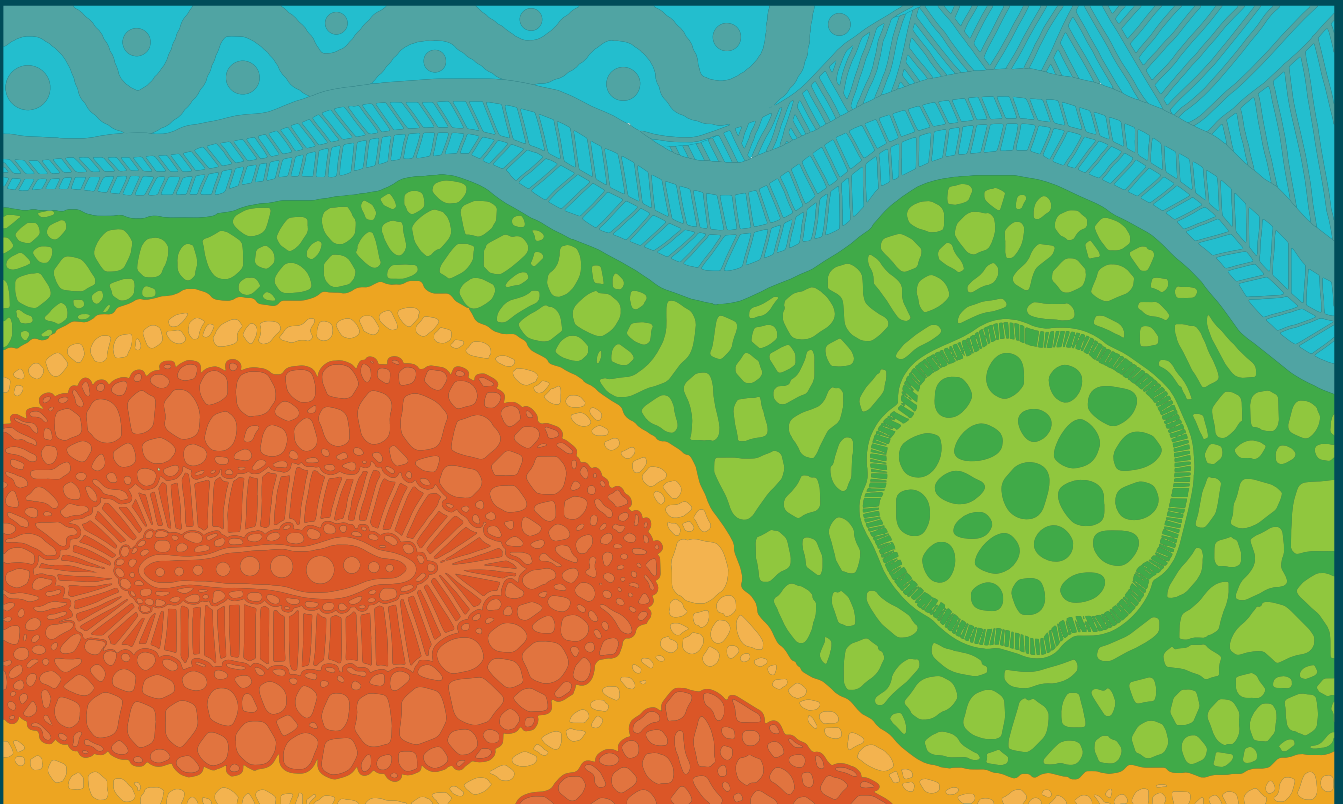
We thank the many individuals and communities who granted permission to use photographic images of themselves and their children throughout this publication.

The graphic pattern featured in the Menzies 2021 Annual Report is from an artwork by artist Cian Mungatj McCue. Born and raised in Darwin, Cian is a descendant of the Larrakia, Yanyuwa and Mulluk-Mulluk people.

This piece symbolises the NT, the different regions, landscapes and people. The top part of the piece represents the Top End and has used linework

reminiscent of artwork from across the Top End. It is blue to represent saltwater. The green part of the piece symbolises savanna, grasslands and freshwater waterways. The big circular element to the right of this section is reminiscent of a dried water lily pod, but has been created in a style to represent human cells. The orange part of the artwork is moving south towards stone and desert

country. The red parts represent the Red Centre and has been created in a style similar to dot art from the region. The orange and red parts of the piece have been created in a style symbolic of blood cells and it also represents the heart of the Territory.



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

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PO Box 41096
Casuarina NT 0811
Australia

John Mathews Building (58)
Royal Darwin Hospital Campus
Rocklands Drive, Tiwi NT 0810

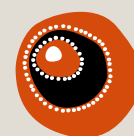
T 08 8946 8600

F 08 8946 8464

E communications@menzies.edu.au

W menzies.edu.au

ABN: 70 413 542 847



menzies
school of health research