2016
ANNUAL REPORT
NO. 103

arc
australian respiratory council
prevention and cure of respiratory illness

ARC confirms that in the pursuit of its mission and vision it has no tobacco exposure in regard to direct stocks or managed funds exposures held within its' Investment Portfolio.

ARC welcomes feedback. Please send any feedback or complaints to arc@thearc.org.au or write to the Executive Director, Australian Respiratory Council, GPO Box 102 Sydney, NSW 2001.

ARC confirms its commitment to full adherence to the ACFID Code of Conduct. Complaints relating to a breach of the ACFID Code can be made to the ACFID Code of Conduct Committee www.acfid.asn.au

ACFID MEMBER

Australian Respiratory Council (ARC) is a member of the Australian Council for International Development (ACFID) and is a signatory to the ACFID Code of Conduct. The Code requires members to meet high standards of corporate governance, public accountability and financial management.

The Union
International Union Against Tuberculosis and Lung Disease
Health solutions for the poor

Australian Respiratory Council (ARC) is a Constituent Member of the International Union Against Tuberculosis and Lung Disease (IUATLD). The mission of the Union is to bring innovation, expertise, solutions and support to address health challenges in low and middle income populations.

REGISTERED CHARITY
acnc.gov.au/charityregister

The Registered Charity Tick is a way for registered charities to easily show the public that they are registered with the ACNC, and it will also help members of the public find information about the charity on the Charity Register. The ACNC encourages members of the public to use the information on the Charity Register to make informed giving decisions.

arc australian respiratory council
prevention and cure of respiratory illness

Our Vision

A global community with universal and high quality management of respiratory diseases.

Our Mission

The ARC is a Charitable, Non-Government Organisation that continues to build expertise and sustainable capacity in respiratory health by:

- Fostering innovative research to promote respiratory health
- Improving lung health in communities with an emphasis on disadvantaged groups and Indigenous people
- Actively seeking sustainable solutions through partnerships with like organisations such as the Australian Lung Health Alliance, World Health Organisation, the Stop TB Partnership, Secretariat of the Pacific Community and the US Centers for Disease Control and Prevention
- Bringing focus to and investment in TB and respiratory health
- Respecting relationships with and the contributions of stakeholders and staff.

Our Patrons

His Excellency General The Honourable David Hurley AC DSC (Ret'd) Governor of New South Wales and Mrs Linda Hurley

PRESIDENT'S REPORT

I am pleased to report on the activities and outcomes of the Australian Respiratory Council (ARC) in 2016. From this report you will see that there has been a significant amount of work undertaken by our organisation, our project partners and funding recipients over the past twelve months.

Finances

Once again in 2016, our Finance team, led by, Robert Horsell OAM and supported by Peter Gianoutsos, Robyn Johnson, David Macintosh AM and the staff of the ARC worked to ensure the wise investment and continuation of funding for operational, research and project activities. I would like to acknowledge the diligence and commitment of the Finance team, your work and contribution is greatly appreciated.

In summary, ARC recorded a loss of $232,224 in 2016 (compared to a profit of $14,668 in 2015). In 2015, the profit was achieved due to the revaluation figure of $339,000 for ARC's O'Connell Street property. In 2016, ARC had an operational loss of $193,512 (against a projected loss of $387,157) and an asset revaluation loss of $38,712 (compared to a loss of $96,124 in 2015).

Further information on ARCs financial statements are detailed on pages 39 to 56 of this report.

Solomon Islands Project

The project "Supporting TB treatment supporters Solomon's style" continued in 2016. The project was undertaken in the remote East Kwaio area on the island of Malaita in the Solomon Islands. This area has one of the highest rates of TB in the Pacific, outside of Papua New Guinea. The aims of the project were to listen to women and community leaders; and develop a DVD that shows stories and information about better supporting women. The project brought individuals, families, communities, churches, and health services together to help fight TB.

I am pleased to report that the project has been very successful. The project not only developed strategies, tools and resources for supporting TB treatment in women, it has led to a change in how TB is managed to enable a greater focus on women and their role in treatment and support for people with TB in their families and communities.

A more detailed report has been provided by Dr Peter Massey and Rowena Asugeni on pages 13 to 14 of this report.

Building health system research capacity in Vietnam, Cambodia and Laos

In 2016, ARC funded for the sixth year the Methods in Epidemiological, Clinical and Operational Research (MECOR) Program. The MECOR Program led by Professor Guy Marks was held in Southern Vietnam in March, 2016. Participants from Vietnam, Cambodia and Laos attended the program.

This project involves a partnership approach between the Ministry of Health and National TB Programs in each country, the Woolcock Institute, the American Thoracic Society, the Vietnam Lung Association against Tuberculosis and Lung Diseases and the Vietnam National Lung Hospital.

The primary objective of the MECOR project is to develop capacity in future leaders in respiratory public health. This capacity will include the ability to interpret and use published evidence to guide policy development and disease management and generate research ideas and to design and implement studies to investigate these ideas.

A more detailed report has been provided by Professor Marks on pages 11 to 12 of this report.

Nursing Education Project

This year, work continued on the project Establishing an Education Framework for Australian Specialist TB Nurses. This project is being led by ARC's Nurse Consultants Group and undertaken in collaboration with representatives from each of the states and territories.

Highly trained health professionals have historically had an important role in providing TB prevention and care services; this role continues to be important as national TB control efforts in Australia are currently being oriented towards TB elimination. The development of a nursing TB education framework will allow for a structured and recognised approach to TB nursing in Australia, better equipping the nursing workforce to manage TB and move Australia towards TB elimination.

The work this year has focused on exploring with training providers and collaborators the opportunities for developing a post-graduate education

pathway that meets the specialist training and workforce needs of the Australian TB Program. The group has met with international colleagues, nursing academics and universities to discuss educational frameworks and pathways, course structure and options, curriculum development, intellectual property, and course sustainability.

A detailed report on this project is provided on page 16 of this report.

ARC Nurse Consultants activities within the Region

Work continues by ARC's Nurse Consultants Group in the provision of training and technical support, clinical mentoring, the development of educational tools and resources for nurses and related workers within the Pacific Island Countries and Territories. This work is undertaken in collaboration with the US Center for Disease Control and Prevention and program staff from the respective countries and territories. Building the capacity and skill levels for the nurses within these programs is important in the fight to eliminate TB.

I would like to thank ARC's Nurse Consultants Group; Pam Banner, Kerrie Shaw and Amanda Christensen for their ongoing commitment over the past decade to provide technical support, mentoring and capacity building for the Pacific Island Countries and Territories.

Research funding and activities

I am pleased to advise that ARC is committed to continue funding research activities in TB and respiratory disease. In 2016, funding of $150,000 was awarded under the Harry Windsor Research Grant Scheme. The first grant was awarded to Professor Ian Yang from the University of Queensland. Professor Yang's research project was on "Using the lung microbiome to predict response to continuous antibiotics". The second research grant was awarded to Laureate Professor Paul Foster from the University of Newcastle. Professor Foster's research project was on "Understanding the role of the newly discovered CD4 T helper (Th)-22 cell subset in models of respiratory infection and inflammation". The final grant was awarded to Dr Graeme Zosky from the University of Tasmania. Dr Zosky's research project was on "Iron laden particulate matter enhances bacterial growth in the lung".

On behalf of ARC's Board of Directors I extend my congratulations to each of our researchers. They and their research teams have used the seed funding provided by ARC through the research grants to generate results and data to support grant applications to continue their respiratory research work and activities.

Professor Yang and his team were awarded a 3 year research grant for $666,052 to continue their work on "Testing the lung microbiome to predict risk of frequent exacerbations in COPD". Professor Foster and colleagues were awarded a four year grant for $870,476 for their work on "Understanding the role of Th22 cells in regulating respiratory immune responses in health and disease". I am also pleased to report that Associate Professor Graeme Zosky has been appointed to the role of Chief Investigator on a recently successful NHMRC Centre of Research Excellence six year grant to examine the health effects of air pollution ("Energy transitions, air pollution and health in Australia").

Funding continued for the research project titled "Australia's Lyme-Like Illness: a focus on north-eastern NSW and south-eastern Queensland". The project is in its second year of funding as part of a five year grant generously provided by the Twin Towns Services Community Foundation Limited.

Lyme-Like Illness is a problem growing in prevalence in and around the Queensland/New South Wales border regions. The funding provided by the Twin Towns Services Community Foundation Limited is supporting researchers to undertake important work that is improving the understanding of the diagnosis and treatment for people affected by Lyme-Like illness.

A detailed report on these research projects are included in the annual report on pages 21 to 29.

Relocation of ARC's Offices

In December this year, we moved our offices to be co-located with the Woolcock Institute of Medical Research in Glebe, NSW. This move will be extremely positive for ARC as it will allow us to enjoy a greater collaboration with our partners at the Woolcock Institute, and through rental of our premises in O'Connell Street, Sydney we will be able to utilise the income stream for funding project and research activities. We look forward to working in partnership with the Woolcock Institute in the coming years.

PRESIDENT'S REPORT

Acknowledgement and thanks

A continued strength of the ARC is the contribution that our Directors each make. We have a long serving, and loyal Board of Directors who continue to dedicate their time and expertise in a voluntary capacity to ARC. I extend my personal thanks to each Director for their contribution to the success of the organisation.

Thank you to the staff of ARC, Amanda Christensen, Judy Begnell and Miranda Juhl for your continued commitment and enthusiasm to the work of our organisation over the past year. For a small organisation our achievements are significant.

On behalf of Professor Iven Young AM, Chair of ARC's Research Committee, I would like to acknowledge the contribution of the Research Committee. Thank you for your support and time in assisting ARC to achieve our research goals.

I would also like to acknowledge the outstanding contribution that ARC's Nurse Consultants Group has made to TB prevention and care within the region over the past decade. The expertise and ongoing commitment demonstrated by Pam Banner, Kerrie Shaw and Amanda Christensen to ARC, our partners and projects is appreciated and valued by many.

In addition, my thanks and those of the Board are extended to Heath McLaren and his team at Macquarie Bank for their financial guidance in 2016 and to David Conroy and Roy Chong for their expertise and assistance in meeting our annual auditing responsibilities.

Finally, I extend my sincere thanks and gratitude to ARC's donors without whom we would not be able to continue our work. The loyalty and generosity of our donors, many of whom have been supporting our work for many years, is greatly valued by everyone involved with our organisation as well as the recipients of our research and project funding. I hope through this report, our publications and website we can share with you how your donations contribute to respiratory health and the work of ARC.

The year ahead

In 2017, through the Harry Windsor Research Grant Scheme ARC will support two research projects. The first grant has been awarded to Professor Michael Berk from Deakin University, Victoria. Professor Berk and his team will undertake a research project on "Reducing tobacco smoking using N-acetylcysteine as a cessation treatment". The second grant has been awarded to Dr Greg Fox from the Woolcock Institute, NSW. Dr Fox and his colleagues will undertake their research on "New digital strategies to enhance tuberculosis treatment adherence in Vietnam". I wish both groups success in their work.

Over the next five years, ARC is pleased to be engaged in and funding an exciting new research collaboration, the Australasian Clinical Tuberculosis Network (ACTnet). The intention of the network is to engage the peak professional bodies, clinicians and researchers across Australia and New Zealand to conduct high-quality innovative research that contributes to the goal of global elimination of TB. The ARC looks forward to working with the ACTnet partners and members over the coming years to progress the research agenda for TB.

Some of the project work ARC will be undertaking and/or supporting this year includes:

- Continued funding for MECOR and training for nurses working within the TB Programs of the Northern Pacific

- The development of information, education and communication resources for Australian Aboriginal and Indigenous communities to raise awareness about TB prevention, management and treatment

- The development of a regional directory of services to promote the continuation of care and treatment for people with TB who move between countries and programs within the region.

My sincere thanks to the many people that will be involved with ARC in 2017. I look forward to my continued relationship with you all in the coming year.

Emeritus Professor J Paul Seale AM
MB BS, PhD, FRACP
President

PRESIDENTS AND LIFE GOVERNORS

The National Association for the Prevention and Cure of Consumption

Year	President
1913 - 1917	Sir Phillip Sydney Jones
1918 - 1922	Dr Frederick Sobieski Vladimir Zlotkowski
1922 - 1928	Hon. George Frederick Earp MLC
1929 - 1930	Thomas Ernest Rofe

Anti-Tuberculosis Association of NSW (from 1931)

Year	President
1931 - 1934	Thomas Ernest Rofe
1935 - 1941	William Grazebrook Layton CBE
1941 - 1942	Phillip Lazarus JP
1942 - 1944	Sir Ernest Thomas Fisk
1944 - 1953	Zade Lazarus
1954 - 1955	Hon. Justice Edward Parnell Kinsella CBE
1955 - 1959	Ebenezer Richard Bagery-Parker
1959 - 1960	Harold Bruce Gibson
1960 - 1967	Hon. Justice Edward Parnell Kinsella CBE
1967 - 1972	Professor Noel Desmond Martin AM

Community Health and Anti - Tuberculosis Association (from 1973)

Year	President
1973 - 1994	Professor Noel Desmond Martin AM
1995 - 1999	Professor Ann J Woolcock AO
1999 - 2000	Dr Gregory Joseph Stewart
2000 - 2001	David Hugh Macintosh AM

Community Health and Tuberculosis Australia (from 2001)

Year	President
2001 - 2006	David Hugh Macintosh AM

Australian Respiratory Council (from 2006)

Year	President
2006 - 2013	David Hugh Macintosh AM
2013 - Present	Emeritus Professor J. Paul Seale AM

Year	Life Governors
1932	Honourable George Frederick Earp MLC, CBE (C)
1934	Sir John Sulman
1934	Sir Kelso King and Lady King
1966	Sir Harry Wyatt Wunderly
1996	Dr Keith Wellington Hills Harris AM
2003	Professor Noel Desmond Martin AM
2003	Clinical Professor Iven Young AM
2003	Emeritus Professor Ian W Webster AO
2007	Emeritus Professor Charles Baldwin Kerr AM
2007	Emeritus Professor J Paul Seale AM
2009	David Hugh Macintosh AM
2011	Amanda Christensen
2011	Professor Gavin Frost
2012	Robert Horsell OAM
2012	Clinical Associate Professor Peter Gianoutsos

GOVERNANCE

BOARD OF DIRECTORS

AMANDA CHRISTENSEN

Dip Nursing

NSW TB Program Manager 1997- 2013; various positions in public health for over twenty years including; clinical nurse consultant in public health Corrections Health Service and tuberculosis control for the NSW Ministry of Health. Appointed to the Board in 2001. Elected as a Life Governor in 2011. Employed as the ARC Executive Director from April 2008 to May 2009 and April 2013 – Present. Elected as Treasurer for the Union Asia Pacific Region 2016 to 2020.

CLINICAL ASSOCIATE PROFESSOR PETER GIANOUTSOS

MB, ChB (Univ of Otago), FRACP, FCCP

Appointed Emeritus Consultant Physician RPAH, 1 January 2014; Senior Consultant Thoracic Physician (VMO) Dept of Thoracic Medicine RPAH 1971-2013; Member TSANZ, ATS, ACCP, BTS, ALF, MLS (NSW); Chairman RPA Medical Board 1989-1991; Member of Medical Board of NSW 1978-1982; Chairman UMPS Medical Expert Panel 2002 – 2007; Member of Board of Directors UMP 2000-2003. Appointed to the Board of ARC in 2006. Vice President 2008 - Present. Elected Life Governor of ARC in 2012.

ROBERT HORSELL OAM

CPA

Medal of the Order of Australia 2012; Proprietor, R E Horsell & Co Public Accountants 1978 - Present; Former Director, Cricket Australia 1997-2004, 2005-2008; Former Chairman, Cricket NSW 1997-2008; Former Director, Bradman Foundation 1999-2005. Appointed to the Board of ARC in 1999; Chair of Finance Committee. Elected Life Governor of ARC in 2012.

ROBYN JOHNSON

GAICD

Robyn Johnson is the Chief Executive Officer of Meetings & Events Australia that is a not for profit organisation representing 600 members in the events sector. Meetings and Events Australia offers professional development and educational programs, accreditation and recognition. It provides a forum for members to discuss current issues to improve the delivery of events.

Prior to this role Robyn was the Managing Director of an event management company that organised international and national conferences for the association, government and corporate sectors

Robyn is a graduate of the Australian Institute of Company Directors and has a solid background in developing and implementing business strategies for organisations.

DAVID MACINTOSH AM

BBS (UTS), FCA

Member of the Order of Australia 2011, awarded National Medal for Service 2014, Chairman, The Macintosh Foundation, Macintosh Chair of Paediatric Respiratory Medicine - Endowed Chair 29 November 2005 in perpetuity; Founder since 2013 and Benefactor since 2007, Royal Alexandra Hospital for Children - The Children's Hospital at Westmead; Member of Board of Governors and Chairman of the Finance Committee, Woolcock Institute of Medical Research 2000-2011; Director, The Australian Lung Foundation 1994-2013; Managing Director, Paynter Dixon Construction Group 2001-2016; Director, Ainsworth Game Technology Limited 2013–2015. Director of numerous private companies; thirty five years of senior management and director level in the transport and construction industries in Australia and Europe; Chairman, actively involved in the Surf Life Saving movement for over fifty years; Life Member, Long Reef Surf Life Saving Club Inc.; Distinguished Service Member and Chairman of the Expenditure Review Committee, Collaroy Surf Life Saving Club Inc. Appointed to the Board of ARC in 1997; President 2000-2013. Vice President 2013 - Present; Elected Life Governor of ARC in 2009.

IAN W. RAMSAY

LL.B (Syd.)

Solicitor, Supreme Court of NSW; General Manager and Board Director, WorkCover NSW (1988-1997); Chairman, Dust Disease Board of NSW (1988-1997); Member, National Occupational Health and Safety Commission (1988-1997); Chairman, Sporting Injuries Committee (1988-1997); Member, Joint Coal Board Health and Safety Trust (1993-1997). Appointed to the Board of ARC in November 2008 - November 2011. Chair, of Centenary Celebration Committee. Reappointed to the Board of ARC in February 2012.

EMERITUS PROFESSOR J PAUL SEALE AM

MB BS, PhD, FRACP

Member of the Order of Australia, 2014. Professor of Clinical Pharmacology, University of Sydney 1992- 2014; Pro-Dean, Faculty of Medicine, University of Sydney 1997-2003; Consultant Physician, Royal Prince Alfred Hospital 1980-2013; Deputy Director, Woolcock Institute of Medical Research; Member 2003-2012, former member, Australasian Society for Clinical and Experimental Pharmacologists and Toxicologists; Past President, Thoracic Society of Australia and New Zealand; former Congress President, Asia Pacific Society of Respirology; former Chairman, NSW Therapeutics Advisory Group; former Chair TB Committee, Sydney South West Area Health Service; former Member of NSW Health TB Advisory Committee, Appointed to the Board of ARC in 1997; Vice-President 2003 - 2012. President 2013 - Present; Elected Life Governor of ARC in 2007.

RESEARCH COMMITTEE

KERRIE SHAW

Dip Nursing

TB Coordinator South Eastern Sydney Local Health District (Northern Sector) 2013 - Present; Executive Officer Australian Respiratory Council 2009-2013; Manager Department of Respiratory Medicine, TB Coordinator, TB and Respiratory Clinical Nurse Consultant 1998-2009; Asthma Coordinator and TB Clinical Nurse Specialist South Eastern Sydney and Illawarra Area Health Service (Southern Sector) 1992-1998; Chair and Program Secretary, Nurses and Allied Health Subsection International Union Against TB and Lung Disease 2009-2013; Appointed to the National Asthma Expert Advisory Group 2006; Appointed to the Board Asthma Educators Association (NSW) 1992 and Board Australian Asthma and Respiratory Educators Association 2006, Life Member 2011; Appointed to Board of ARC in 2013.

CLINICAL PROFESSOR IVEN YOUNG AM

BSc (Med), MB BS, PhD FRACP

Senior Physician, Department of Respiratory and Sleep Medicine, Royal Prince Alfred Hospital (RPAH) 1991- 2009; Visiting Medical Officer, RPAH 1979-1985; Senior Staff Specialist in Respiratory Medicine, RPAH 1985-; Post Doctoral Fellow, University of California, San Diego 1976-1978; Research Fellow, University of Sydney 1974-1976; Respiratory Physician 1975 - Present; Member, Thoracic Society of Australia and New Zealand; Member, American Thoracic Society; Member, European Respiratory Society; Senior Examiner, Australian Medical Council 1997- Present; elected to the Adult Medicine Division, Royal Australasian College of Physicians 2000-2001; Chairman, Division of Medicine, RPAH 2001-2009; Chair, Physicians Training Council, HETI 2010 - Present. Appointed to the Board of ARC in 1998. Elected Life Governor of ARC in 2003. Chair of Research Committee. Awarded the Society Medal of the Thoracic Society of Australia and New Zealand at the Perth Annual Scientific Meeting, April 2016. Appointed a Member of the Order of Australia on 13 June 2016 "For significant service to respiratory and sleep medicine."

Clinical Professor Iven Young AM (Chair)

Chair, Physicians Training Council.

Professor Carol Armour

Executive Director, Woolcock Institute of Medical Research
Professor of Pharmacology & Associate Dean (Career Development & Research), Sydney University.

Professor Judith Black AO

Research Adviser Health & Medical, Sydney University,
Woolcock Institute of Medical Research.

Dr Greg Fox

Senior Lecturer in Respiratory Medicine, CJ Martin Fellow Medicine, Central Clinical School, Sydney University.

Professor Peter Gibson

Senior staff specialist & Director of Ambulatory Care & Sleep Medicine at the John Hunter Hospital, Conjoint Professor of Medicine in Faculty of Health, Newcastle University, Co-Director of the VIVA Programme, Hunter Medical Research Institute. President of Thoracic Society of Australia and New Zealand (TSANZ).

Emeritus Professor J Paul Seale AM

ARC President (ex officio).

SUPPORTERS OF ARC

BREATH OF LIFE

A Bequest to ARC provides a way to continue a lifetime of generous giving

> ***"Charitable giving is not only for the wealthy!"***

Ordinary people are showing extraordinary generosity by leaving legacy gifts to charity in their wills and estate plans. These gifts show that kindness is evident in people from all walks of life – with different income levels, professions, and passions.

During its'104 years of service, ARC has relied on the generosity of everyday people who have become extremely loyal donors. These donors are so important as ARC does not receive government funding. Without financial support from our donors – including charitable gifts in wills – the vital funding of research, project work and development of educational resources that ARC undertakes each year simply would not happen.

The generous supporters who leave a bequest to ARC help ensure the work towards ensuring a global community with universal and high quality management of respiratory diseases will continue long into the future.

It does not matter how large or small your estate, the value of a bequests is immeasurable. All gifts large and small are important and greatly received. All gifts will help make a difference.

If you would like to consider leaving a Bequest to ARC, please contact us for a copy of our Bequest booklet "Your Security, Your Future".

PROJECT FEEDBACK

PROFESSOR GUY MARKS

Training doctors and public health professionals in research methods for lung health

Once again in 2016, the Australian Respiratory Council (ARC) continued to support Professor Guy Marks and his team by contributing funds towards the annual Methods in Epidemiological, Clinical and Operational Research (MECOR) course.

The MECOR course was held in Nha Trang, Vietnam in March 2016. There were 20 participants in the Level 1 Course (including 12 women), nine participants in the Level 2 Course (including 8 women) and four participants in Level 3 (including three women). The majority of participants were from Vietnam, there were four participants from Laos and three participants from Cambodia attending the course. The participants included people working in hospitals, in the TB Programs in the respective countries, in diagnostic and reference laboratories, and in the Woolcock Vietnam's research team. The participants range from early career to mid-career in seniority.

The course is an intensive one week residential activity in which participants:

- were given lectures on topics in research design and analysis
- participated in small group discussions
- prepared research protocols on topics relevant to lung health problems in Vietnam, Cambodia and Laos
- practised presentation skills
- networked and formed collaborations with colleagues from across the region
- presented the protocols in a formal session.

Participants were assessed by their Faculty mentors at the end of the program. All participants met the teaching objectives for the course and were awarded graduation certificates. Based on their performance this year, some participants will be invited to return for the 2017 course.

At the completion of the one week intensive training course, all students;

- have learnt to develop a testable research question
- understand the various study design options for finding the answers to these research questions
- learnt to set up studies and develop an understanding of introductory statistics
- have developed a research proposal and in some cases the proposals are ready to be implemented.

Following completion of the training course, participating students will continue to consolidate their research proposal with their mentors.

Those students who completed the Level 1 course are encouraged to work towards developing their own research proposal. This is one of the eligibility requirements if they wish to proceed to the Level 2 MECOR course.

PROJECT FEEDBACK

For students completing the Level 3 course there is the opportunity to participate in a fortnightly journal club moderated by Professor Guy Marks. Other activities are held on occasions during the year in Ha Noi and Ho Chi Min City.

The MECOR course continues to be monitored by a committee including representatives from; the American Thoracic, the Woolcock Institute of Medical Research and the respective National TB Programs. The outcomes of the course are evaluated through the number of completed research proposals presented during the course.

The course highlights the importance of high quality research to solve the many problems in lung health faced by people in the region. These problems include; TB, chronic lung disease, pneumonia, air pollution, smoking and lung cancer. Capacity building is key to conducting high quality research and this course continues to play an important role in building research capacity in the lung health workforce.

The MECOR course receives strong organisational support from National TB Programs. The National TB Programs provide experienced staff to participate in the course as teachers and mentors and share the research findings among their programs.

A strong partnership between the Woolcock and the National TB Programs has developed over time, with the MECOR course being an integral part of this relationship.

The ARC is one of the key donors providing ongoing financial support for the course. We intend to apply for ARC funding annually for this course.

Recognition of the important funding support received from ARC is highlighted by the use of ARC's logo on all training material including presentations, banners and certificates. During the opening reception, the Course Coordinator gave a short presentation regarding support received from ARC.

PROJECT FEEDBACK

DR PETER MASSEY AND ROWENA ASUGENI

Supporting TB treatment supporters Solomon's style

Tuberculosis (TB) continues to be an important global health problem. More than 10 million cases and about 1.8 million deaths are estimated to occur annually - more than 50% of the global burden in the Asia Pacific Region. Women and men have different combinations of risk factors for TB and follow different pathways to seek diagnosis and treatment. The organisation of TB treatment services is a major factor in how people decide to seek care and follow treatment plans. How services connect with people, communities and culture impacts how effective the services are. In many settings, health services have not been designed with community needs as the focus, and as a result TB is not able to be controlled. Thankfully the work undertaken in East Kwaio, Solomon Islands, supported by the ARC, is redressing this inequity.

TB mainly affects women when they are economically and reproductively active, while the impact of the disease is felt by their children and families. Because women have an integral role in health of families in many settings, especially in East Kwaio, Solomon Islands, it is essential that TB issues are seen through the eyes of the women it affects, and that the voices of women and their stories are valued.

In Kwaio society, caring is one of the most important roles for women. Women care for their husbands, children, household, animals, family members, communities and the society as a whole. Women do gardening work like slash and burn, planting, weeding, digging and collecting root crops for household consumption. Women's household duties include preparing food for the family, cleaning in and around the house, bathing the children and washing clothes. Many Kwaio women are also responsible for feeding the animals and cleaning animal waste. TB in the family therefore can be a significant extra burden for women.

The Atoifi Adventist Hospital (AAH) has been leading an ARC - supported project along with the Atoifi Health Research Group, Hunter New England Health, James Cook University, Central Queensland University, and Tropical Health Solutions, to further develop TB services, approaches and resources to better support women. AAH is the only hospital in the Eastern region of Malaita and it provides health services to the whole of Eastern region people which includes Kwaio, Kwara'ae, Are'are and Fataleka. TB services include diagnostic tests for TB, case finding, follow ups, contact tracing and TB awareness. The Hospital has an old TB ward with 6 beds and a new culturally safer TB Ward that is near to the "bush".

The project was focused in the remote East Kwaio area on the island of Malaita in Solomon Islands. This area has one of the highest rates of TB in the Pacific, outside of PNG. The aims of the project were to listen to women and community leaders; and develop a DVD that shows stories and information about better supporting women. The project brought individuals, families, communities, churches, and health services together to help fight and control TB disease.

The team was led by Chief John Wakageni, RN, Coordinator for Women and TB project. The team also includes Chief Esau Kekeubata, Dorothy Esau and Grace Alaka (both TB Community Officers) and Tommy Esau

(Research Worker). The TB team worked with villages known as "TB hotspots" including Jordan in the Kwaibaita Valley and Kwainaa 'isi and Kafurum villages in the East Kwaio mountains.

The project was based with the community and women were integral in the project's development and success. A news story posted by the Atoifi Health Research Group highlights the "new start" that communities were calling for: http://www.atoifiresearch.org.sb/node/119

The DVD content was developed through workshops and discussions and then recorded, edited and produced locally. The resource was pilot tested with families and communities and adjustments were made. The DVD resource and the new approach of supporting women are now being implemented at AAH by the Primary Health Care team, and the TB nurses at the Hospital.

Early results of the project were presented at the International Union Against TB & Lung Disease Asia Pacific Region Conference in Sept 2015 and at a National Health Research conference in Solomon Islands. As a result of the ARC support for the AAH Director of Nursing and TB Project

PROJECT FEEDBACK

Manager, Rowena Asugeni, to attend the IUTLD conference further collaborations were established. These new collaborations have resulted in a publication advocating for a greater focus on gender in TB:

• Sex, Gender and Tuberculosis in the Asia-Pacific. Mason P, Asugeni R, Massey PD, Snow K, Viney K. Australian New Zealand Journal of Public Health. 2016. doi: 10.1111/1753-6405.12619 https://www.ncbi.nlm.nih.gov/pubmed/?term=sex+gender+and+tuberculosis+in+the+Asia-pacific

In the village-level discussions, families and communities identified the following challenges: long distances to clinics and Hospital, not enough support and care from the community, husbands and family not happy with women being away from home (for treatment), cultural taboos around menstruation and food security. Cultural and financial barriers can also act as major obstacles for women seeking care resulting in delayed presentation and more severe illness. If TB services and communities can better support women who then in turn support their families, it is possible that TB control can be improved.

The project was very successful. The project not only has developed a very useful DVD for supporting TB treatment in women, it has started change in how TB is managed to enable a greater focus on women.

Many people expressed positive feedback to the TB team. A group from Jordan community have committed to a "New Start" to support individual and families with TB. The leader of the community, Mr Isafi, challenged everyone by saying, "that in order to help fight TB in East Kwaio, the health services, communities, church leaders, chiefs, families and individuals need to work closely together." He went on to say that people with a chronic cough need to come and get checked at the clinic, and have their sputum tested.

The development and the use of the DVDs has raised awareness of the importance of supporting women in relation to TB. TB cases admitted and treated through AAH have again increased during 2016 showing that the TB service is becoming more appropriate for the setting.

Most women in the community have supported the development of this project, which will help the communities to come to some common understanding that it is the responsibility of everybody to help and assist. And by doing this, it will help the family members who are affected by TB disease and reduce the effects of TB in this remote part of the Pacific.

The ARC and other groups working towards TB control and elimination would benefit from closely considering the role that gender has in TB. In areas such as East Kwaio, where gender has a significant impact on access to health services because of socio-cultural reasons, considering gender when promoting TB prevention and treatment is of primary importance.

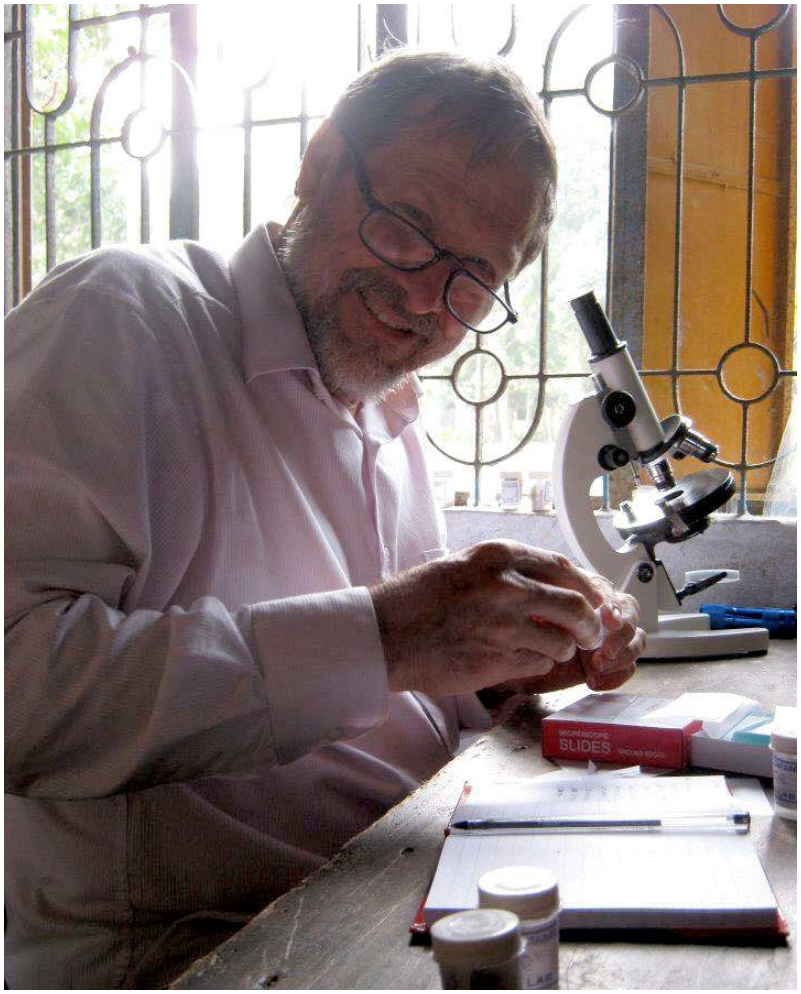
AAH continues to have a strong relationship with Hunter New England Population Health, James Cook University and Central Queensland University. The group also really appreciate the strength of the partnership with the ARC that has developed since 2013 and a number of important projects. The seeds that have been planted through these projects are starting to grow and mature.

VALE EMERITUS PROFESSOR RICK SPEARE AM

Emeritus Professor Rick Speare AM, at the time of his passing in June 2016, was an active member of the Solomon Islands Project Team. The team were devastated at the sudden loss of their friend, collegue and mentor. The work of the project team continues in honour of Professor Speare. We would like to share an extract from the tribute for Professor Emeritus Speare posted on the James Cook Univesity website.

"This is a sad time as we honour the passing of a great researcher, teacher and humanitarian, a person who made an important contribution to the health of people and wildlife in the tropical world and beyond as well as to James Cook University (JCU).

Emeritus Professor Rick Speare AM obtained honours degrees in veterinary medicine and human medicine and worked as a clinician in both fields. He was awarded a PhD by JCU for work on the human gut parasite strongyloides, a neglected tropical disease that particularly affects remote Aboriginal communities. He was a specialist public health physician and became an internationally recognised leader in neglected tropical diseases among humans. Equally, he made important contributions to wildlife health. His higher doctorate of veterinary science was awarded by the University of Queensland for his research on amphibian disease.



Rick commenced at JCU in 1988 as a Research Fellow, before his appointment as an Associate Professor in 1991, when he took up the role of Director of the Anton Breini Centre for Tropical Health and Medicine. He went on to serve the Univesity in various capacities, including as Deputy Director of the Department of Public Health and Tropical Medicine and later as Head of the then School of Public Health, Tropical Medicine and Rehabilitation Sciences. Rick played a pivotal role in the establishment at JCU of the WHO Collaboration Centre for the Control of Lymphatic Filariasis in 1996.

At JCU, Rick made a seminal contribution to workforce development in public health and tropical medicine. He taught and supervised thousands of masters and doctoral students at JCU, as well as training hundreds through capacity building workshops in low income settings. He not only formed professional partnerships with the people with whom he worked, but enduring friendships among many. Rick had the ability to see potential in people and supported them to realise their potential.

His research work spanned many countries, most notably Papua New Guinea, the Solomon Islands and the wider Pacific, South East Asia and South Africa. He played a key role in high-level responses to various emerging pandemic threats, as well as broader parasitic, ectoparasitic and infectious diseases over many years.

Rick retired from JCU in 2012 and was awarded the title of Emeritus Professor for his long and distinguished career in multiple fields of endeavour. He continued to teach and consult widely including with the World Health Organisation. His recent focus has been on building research capacity strengthening at Atoifi Adventist Hospital, Malaita, in the Solomon Islands.

Rick was much loved and is survived by his wife Kerry, three sons, two daughters and five grandchildren. Our thoughts are with them".

PROJECT FEEDBACK

AUSTRALIAN RESPIRATORY COUNCIL NURSE CONSUTANTS GROUP

Establishing an Education Framework for Australian Specialist TB Nurses

Work continued this year on the project Establishing an Education Framework for Australian Specialist TB Nurses. This project is being led by ARC's Nurse Consultants Group and undertaken in collaboration with representatives from each of the states and territories.

TB remains a disease of global public health significance. Whilst Australia enjoys a low burden of disease, achieved through the successes of the TB Control Program, TB remains an ongoing public health challenge with countries in close proximity to Australia and within our region accounting for a significant proportion of the global burden of TB.

Highly trained health professionals have historically had an important role in providing TB prevention and care; this role continues to be important as national TB control efforts in Australia are currently being oriented towards TB elimination, which is defined as less than one case per million population. Intensified efforts to move Australia towards TB elimination will demand the involvement of a skilled and knowledgeable health care workforce. Nurses will play an important role in these efforts. The development of a nursing TB education framework will allow for a structured and recognised approach to TB nursing in Australia, better equipping the nursing workforce to manage TB and move Australia towards TB elimination.

The outcomes from the 2015 Nursing Education project provided a description of the Australian TB nursing workforce, data on workforce training needs and information on the current national and international educational courses available for TB nurses. The need to progress an approach to education for TB Nurses that is qualification based, internationally recognised and accessible was clearly demonstrated.

On the basis of these findings, the work this year has focused on exploring with training providers and collaborators the opportunities for developing a post-graduate education pathway that meets the specialist training and workforce needs of the Australian TB Program. The group has met with nursing academics and two Sydney based universities to discuss educational frameworks and pathways, course structure and options, curriculum development, intellectual property, and course sustainability.

The group met with the International Council of Nurses, The Union and the United States National TB Controllers Association to discuss the approach in the US to develop and implement credentialing and certification for TB Nurses within the US TB Program. Each of these groups are interested in the outcomes of the Australian project and exploring the future potential for collaboration.

Additionally, the group evaluated the format and structure of a TB/HIV Diploma currently offered through the Desmond Tutu Centre and Cape Town University. Looking at this diploma as a potential educational platform, the group worked with a nursing academic to assess the course content and relevance to Australian educational standards. Unfortunately, this course was determined to not meet the educational needs for Australian TB nurses.

For the year ahead, further meetings and work are planned to progress the development of an educational framework. One of the significant activities to progress in the coming year will be looking at the feasibility of setting up a professional body for Australian TB Nurses.

PROJECT FEEDBACK

Training for TB Nurses in the Northern Pacific

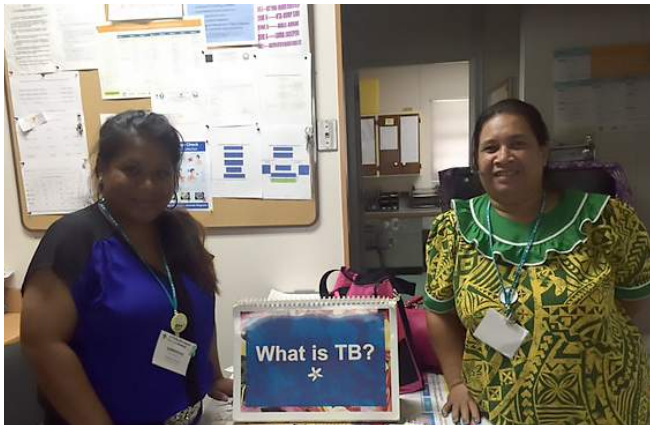
This year, the ARC Nurse Consultants Group was invited by the United States Centres for Disease Control to attend the 2nd Pacific Island Program Collaboration Service Integration (PICSI) Conference held in the Marshall Islands from the 11th to the 15th July, 2016.

Nurses attending the PCSI Training Workshop

Amanda Christensen, ARC's Executive Director, attended the meeting to facilitate and deliver training for nurses and related workers from the Tuberculosis (TB) Programs of the Northern Pacific.

The ARC Nurse Consultants Group has been involved in providing specialist training, technical assistance, clinical support and the development of educational resources for nurses working within the Northern Pacific for over a decade. Building the capacity and skill levels for the nurses within these programs is important in the fight to eliminate TB.

The focus of the nurses training workshop this year was; preventing further transmission of TB through identifying, screening and treating people exposed to infectious TB; and improving the treatment journey and outcomes for people with active TB by using a Case Management approach. We were fortunate to have thirty participants representing a range of countries attending the training activity. A notable highlight of working in the Pacific is the enthusiasm and willingness that the participants have for attending training activities, learning new skills and sharing their experiences and knowledge.



Risa Bukbuk (R) with a staff member

A feature of the PICSI Conference was the trip to Arno, a remote island 15 kms from the main island of Majuro. Arno is an island paradise with a community of about 2,000 people who live without hot water, electric lights or refrigeration. Conference delegates were welcomed to Arno and invited to observe the delivery of childhood immunisation, dental and TB screening and treatment services. Staff providing these services travel by boat to the island, transport and weather permitting every two to three months.

While in Majuro, Amanda Christensen was invited to visit the TB Clinic and local hospital to see how services were provided for TB patients. During this visit, Amanda was able to work with the TB Program Manager, Risa Bukbuk to identify infection control practices to minimise the potential for transmission of TB to staff and patients within the hospital and clinic.

Arno harbour

While in the clinic it was pleasing to see ARC's educational resources in use. Amanda was advised that the flipcharts, posters and Nurses Training Modules were used frequently by the TB Program staff.

PROJECT FEEDBACK

THE ESTABLISHMENT OF THE AUSTRALASIAN CLINICAL TUBERCULOSIS NETWORK (ACTnet)

Tuberculosis (TB) remains the leading infectious cause of death worldwide, and a significant public health issue in the Western Pacific Region. In response to the 2015 WHO "End TB Strategy", the Australian government has committed to the global elimination of TB by the middle of this century. However, achieving this ambitious goal will require the development of innovative new strategies with national and international reach. Such strategies must be based upon high-quality research, which engages clinical and public health practitioners across the country.

The Australian Respiratory Council (ARC) was approached by Dr Greg Fox to support the development of a network of clinical research across Australia and New Zealand: the Australasian Clinical Tuberculosis Network (ACTnet). The intention of the network is to engage clinicians and researchers across the two countries to conduct high-quality research of national and international significance. It will provide a platform for individual investigators, within infectious disease, respiratory, public health and other disciplines, to propose and implement multi-centre studies and laboratory collaborations, share proposals, data and outcomes.

The research conducted by ACTnet will be conducted in Australia and New Zealand, with the potential for developing partnerships with networks in other countries occurring over time.

Partners in this endeavor are the two peak clinical professional bodies, the Australasian Society for Infectious Diseases (ASID), the Thoracic Society of Australia and New Zealand (TSANZ), the ARC and clinicians. Engaging ASID and TSANZ is essential, given the translational nature of the proposed research. ACTnet will also seek to work closely with the National Tuberculosis Advisory Committee (NTAC), the Communicable Diseases Network Australia and TB control bodies in each jurisdiction.

In December, 2016 Elyse Guevara-Rattray was employed as the ACTnet Network Support Officer. Elyse will be working with the Steering Committee to establish ACTnet and will provide administrative and technical support in the development of research and ethics proposals, collating the research outcomes and data resulting from the work of the network.

Currently, the network is forming a Steering Committee with representatives from ASID, ARC, NTAC and TSANZ joining the committee. Once appointed, the Steering Committee will develop a governance structure (constitution, organisational structure and reporting process) and identify research priorities.

The ARC looks forward to working with the ACTnet partners and members over the coming years to progress the research agenda for TB nationally and internationally. To support the network ARC has committed funding of $60,000 over the next five years to ACTnet.

Dr Greg Fox and Elyse Guevara - Rattray

VALE EMERITUS PROFESSOR CHARLES RUTHVEN BICKERTON BLACKBURN AC

The passing of Emeritus Professor Charles Ruthven Bickerton Blackburn, who died just before his 103rd birthday this year, marked the end of an extraordinary life spent in the service of medicine and of his country.

Professor Blackburn attended the Kings School in Sydney, entered medicine after a year of arts and was an outstanding medical student, gaining the major academic prize in his final year in 1936 prior to residency at Royal Prince Alfred Hospital in 1937. He submitted his MD thesis in 1939 on a fatal blood disorder, multiple myeloma.

After six years of military service Professor Blackburn returned to Sydney in 1946 to resume his career in medicine at the University of Sydney and at Royal Prince Alfred Hospital. He won a Rockefeller Fellowship to study in New York, expanding his connections and research interests, and it was from there that he applied for and was accepted into the post of head of the Clinical Research Unit at Royal Prince Alfred Hospital, which he held from 1949-1956.

Under his guidance as Bosch Professor of Medicine the medical school made significant advances in the fields of respiratory medicine (particularly asthma), immunology, metabolic diseases and community medicine. The Clinical Research Unit he created became a centre of cutting-edge work in blood diseases, liver disorders and clinical biochemistry.

What was unquestionably his most unique and lasting contribution to Australian medicine, however, was the extraordinary number of young people whom he trained or influenced significantly and who have now become leading figures in Australia and overseas. Of these, 38 have become professors, 16 heads of clinical departments, and 15 directors or deputy directors of research centres.

In 1968, after the passing of his first wife, he married Professor Ann Woolcock, an internationally renowned researcher. Professor Woolcock served as a President of ARC and was actively involved in the work of the organisation over many years until her passing in 2001. At this time Professor Blackburn wrote to ARC's then President, David Macintosh. In the letter he stated that Professor Woolcock always considered the organisations role was to provide the best standards of respiratory health to the community – to the individuals in it – and to play a role in the elimination of TB. Professor Woolcock believed that more emphasis and action needed to be taken to control TB. These words remain true and provide the direction for ARC some 15 years later.

9 March 2001

Dear David,

Simon, Angus and I thank you for your kind letter and expressions of sympathy from CHATA, they were appreciated by us as you are well aware and had a lasting interest in CHATA and had worked hard to make it as efficient as possible in serving the community. She always considered that it's important role was to provide the best standards of respiratory health to the community – to the individuals in it – and to play a role in the elimination of tuberculosis. She thought tuberculosis was being somewhat neglected in some affluent Western societies and the extent of the cause of death and ill-health in the world needed more emphasis and more action should be taken to control it.

With our good wishes

Ruthven Blackburn

Professor Blackburn's lifelong contributions to Australia were recognised by the highest civilian award, the Companion of the Order of Australia (AC) in 2006.

Professor Blackburn is survived by children Sandra, Angus and Simon, seven grandchildren and three great-grandchildren.

Professor Blackburn's obituary has been compiled from an article published online in the Sydney Morning Herald, 27th May, 2016.

INVESTING IN THE FUTURE THROUGH RESEARCH

ANN WOOLCOCK FELLOWSHIP

This award was established in 2004 and is named in honour of the late Professor Ann Woolcock AO, former head of the Institute of Respiratory Medicine at the University of Sydney and Royal Prince Alfred Hospital. Professor Woolcock was a strong supporter of trainee scientists and physicians.

This is a 4 year full time postdoctoral fellowship in biomedical, clinical or public health research and is valued at approximately $100,000 per year. The Fellowship aims to encourage people of outstanding ability to develop research as a significant component of their career.

The Fellowship supports research relating to tuberculosis, respiratory diseases due to other infections, or respiratory diseases related to tobacco use, community issues or the health of disadvantaged groups.

Ann Woolcock Fellowship

2005 - 2009

The genetic influences on causal pathways of acute lower respiratory tract infections (ALRIs) in highly susceptible infants in PNG

Dr Ingrid Laing
Telethon Institute for Child Health Research, WA

2010 - 2014

Characterisation and treatment of innate immune dysfunction in older people with obstructive airway disease

Dr Jodie Simpson
University of Newcastle, NSW

HARRY WINDSOR RESEARCH GRANTS SCHEME

These grants are named in honour of the late Dr Harry Windsor, a leading Australian heart surgeon who played a key role in ARC for many years.

Dr Windsor performed the first heart transplant operation in Australia and was a prominent cardiothoracic surgeon at Sydney's St Vincent's Hospital.

He was actively involved with ARC and its Board from 1955 until his death in 1987.

These awards are being offered nationally to support research in:

- Tuberculosis
- Respiratory diseases related to other infections
- Smoking-related respiratory diseases

Research which also address community issues or the health of disadvantaged groups are particularly encouraged.

Grants of approximately $50,000 are offered each year. Grants are available for projects submitted to the National Health and Medical Research Council (NHMRC) which are considered fundable but which do not reach the cut-off mark for funding in any one year. An information sheet and grant conditions can be found and downloaded from ARC's website: www.thearc.org.au

Harry Windsor Research Grants

2016 Recipients

2016

Iron laden particulate matter enchances bacterial growth in the lung.
Dr Graeme Zosky, The University of Tasmania

Understanding the role of the newly discovered CD4 T helper (TH)–22 cell subset in models of respiratory infection and inflammation.
Laureate Professor Paul Foster, The University of Newcastle, NSW

Using the lung microbiome to predict responses to continuous antibiotics in COPD.
Professor Ian Yang, The University of Queensland

ASSOCIATE PROFESSOR HARIN KARUNAJEEWA

The Walter and Eliza Institute, Victoria

Getting the dose right In tuberculosis: using pharmacokinetics to improve outcomes in Victorian migrants with tuberculosis

The clinical study phase of this project has now been successfully completed, including participant enrolment, follow-up and sample collection. We now have approximately 90 paired samples (ie a dried blood spot and a paired venous blood sample taken at the same time) that we can use to validate the dried blood spot assay approach.

Successful implementation of the study was bolstered by appointment on February 22nd 2016 at WEHI of a dedicated study clinician, Dr Robert James, who supervised clinical study activities at Western Health. This involved the complex logistics of taking blood samples at six time-points over a 24-hour period, including Robert visiting participants in their own homes at all hours of the day and night to collect specimens and then transport them back to the hospital laboratory for secure storage. This process was demanding not only on our clinical research staff but also on participants themselves.

Sample collection was completed in 2016 and all samples have now been sent to Curtin University/ University of Western Australia for assaying under a sub-contract agreement with WEHI. Unfortunately, due to the delays in generating samples and to capacity issues at Curtin (that are beyond the control of the PI), Curtin will not be able to process these samples within the 6-month time-frame specified in this contract. The University of Western Australia has therefore requested a 1 year extension on this contract, which we have granted. Assay technology here is now up and running well and the first dried spot assay (Rifampicin) methodology has now been published by this group: Knippenberg B, Page-Sharp M, Salman S, Clark B, Dyer J, Batty KT, Davis TM, Manning L. Validation and Application of a Dried Blood Spot Assay for Biofilm-Active Antibiotics Commonly Used for Treatment of Prosthetic Implant Infections. Antimicrob Agents Chemother. 2016 Jul 22;60(8):4940-55. Assay performance is excellent (based on sensitivity, accuracy and reproducibility compared with conventional methodology).

The ARC Harry Windsor Research Grant has provided us with the means to leverage further funding to continue to pursue this research idea. As well as a further $50,000 provided by the John Burge Foundation (State Trustees, Victoria) to support the current study, a collaboration with the Australian Institute of Tropical Medicine Health and Medicine (AITHM)/ James Cook University (JCU), Townsville has successfully raised $100,000 in internal grant funding from AITHM/JCU to perform a parallel pharmacokinetic study in Papua New Guinean patients with tuberculosis. This study will use the current Melbourne study design as the template. This study has now received ethical approval from relevant bodies in PNG. The PI will shortly travel to Port Moresby to meet with PNG collaborators. Working in Port Moresby, which has an annual caseload of >10,000 cases, will hopefully enable us to implement this study on a much larger scale in the future.

Lessons Learnt

Performing this small, investigator-lead clinical trial presented us with many difficult challenges which we had to work very hard to overcome. In particular, we've learnt that in the current era, negotiating intra-institutional agreements is a highly time-consuming process that makes it very difficult to institute collaborative multi-institutional clinical research projects in a timely fashion. Unfortunately, because of these issues we had to shift to another clinical site (from Royal Melbourne Hospital to Western Health – see previous progress report), which ended up delaying the project by at least a year.

We have also learnt that migrant and refugee populations (the demographic affected by tuberculosis in Australia) are extremely difficult to enroll into clinical trials. Although we did our best to address language issues, by use of interpreters and translation of information and consent forms, we found that many patients in this group were very resistant to participating (refusal rate was approximately 70%). We feel that conventional informed consent processes (including lengthy patient information consent forms and requirements for signatures – as mandated by our supervising HREC) induce suspicion from many people, especially when they may have previously fled autocratic political systems and therefore have an intrinsic mistrust of authority. Our study involved minimal risk to participants, but it did require a significant commitment of their time. So more than physical risk or discomfort, inconvenience seemed to be a very strong disincentive to participation. Although we offered retail vouchers to compensate participants for time, for ethical reasons we had to be sure that the amounts disbursed were not so much that they could represent an "inducement" to participate. There is no easy answer as to how to address these issues. However future studies in this population probably need a more nuanced and comprehensive approach to cross-cultural engagement. If this is to be done across a number of ethnic groups, it is likely to require significant resources.

ASSOCIATE PROFESSOR GRAEME ZOSKY

The University of Tasmania

Iron laden particulate matter enhances bacterial growth in the lung

There is no doubt that exposure to high levels of airborne particles has a detrimental impact on respiratory health. Particulate matter (PM) has been shown to cause respiratory disease, exacerbate existing respiratory disease and reduce life expectancy. In order to mitigate the harm associated with PM exposure, government agencies have developed air quality guidelines based on the plethora of studies that have examined the link between PM exposure and respiratory health. However, there is a problem - the data that has been used to set these guidelines is based on studies in urban centres where PM is almost entirely from combustion sources (e.g. cars, coal burning); this ignores the fact that many regional and remote communities around Australia are exposed to PM that is primarily earth-derived (geogenic). Our group, and others, have shown that geogenic particles have a detrimental impact on the lung; in particular, geogenic particles increase the severity of respiratory infections.

It is important to understand which physical and chemical characteristics of geogenic PM (Figure 1) have the biggest impact on respiratory health, so that we can identify communities that are at the greatest risk of harm. We have fully characterised the physical and chemical characteristics of community sampled PM and found that iron oxide is a key component of geogenic PM. Given that the species of bacteria that typically infect the respiratory tract have an absolute requirement for iron to replicate, we sought to examine 1) the effect of iron oxide particles on the inflammatory response in airway epithelial cells (the first point of contact for inhaled PM) and 2) how these particles influence bacterial growth. These studies will help us to understand the contribution of iron laden geogenic particles to the development of chronic bacterial disease in people, particularly Aboriginal children, living in remote communities Australia.

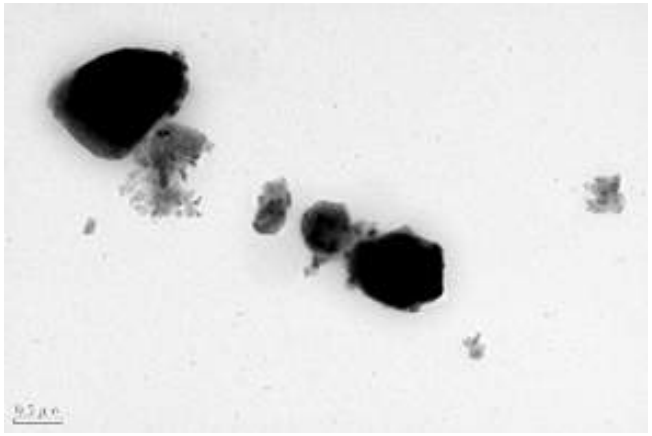


Figure 1. Electron microscope image of geogenic PM sampled from a regional community in Western Australia showing the complex physico-chemical characteristics of the particles.

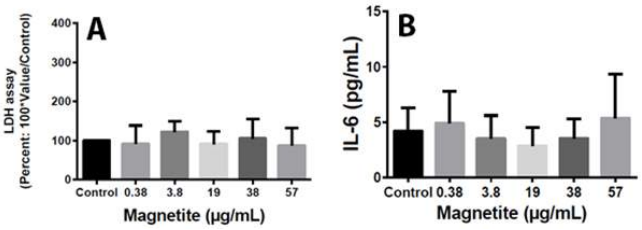
Progress to date

Overall, we have made significant progress towards achieving the aims of our project. Firstly, we employed a Research Assistant to run the laboratory experiments – this was a key step to ensure that we had the capacity to run the project. We then established the experimental systems necessary to conduct the experiments required for the project.

The host response

In the first series of studies we sought to examine the effect of iron oxide particles on the "host" response; in other words, do the particles cause direct injury to the lung? We chose to focus on airway epithelial cells as they are the first point of contact for inhaled particles and are a key cell in the response to other particles that are known to cause lung injury (e.g. silica). We exposed BEAS-2B (airway epithelial cell line) cells to varying concentrations of iron oxide in the form of haematite (Fe3O4) or magnetite (Fe2O3) which have different oxidative states and are commonly found in the Australian environment. 4 and 24 hours after exposure, we assessed cell viability and cytokine production. Overall, magnetite and haematite (data not shown) had no effect on cell viability (Figure 2A) and caused no increase in inflammatory cytokine production (Figure 2B).

In follow up experiments we found that iron oxide particles had no effect on the inflammatory response induced by silica. We also assessed



expression of the NLRP3 inflammasome, a key damage response pathway that is upregulated by silica in the airway epithelium, and found that iron oxide had no effect on this pathway. Collectively these data suggest that iron oxide does not cause direct damage to the airway epithelium.

The bacterial response

For these experiments we chose to focus on non-typeable Haemophilus influenzae for several reasons. Firstly, this species of bacteria has an absolute requirement for iron. Secondly, this species of bacteria is commonly isolated in the lungs of Aboriginal children living in remote communities across Australia, where exposure to iron laden particles is high, and is associated with severe chronic lung disease.

One of the challenges with working with NTHi (or any bacteria) is the significant between strain variation in pathogenicity and growth

potential. In order to address this, through a collaboration with Dr Stephen Tristram at the University of Tasmania, we selected a variety of community NTHi strains based on their potential to infect epithelial cells with a focus on strains isolated from the upper and lower airway. By selecting a variety of strains we will be able to characterise the variability in the response to exogenous iron particles. In initial experiments we established baseline growth characteristics and found substantial variability in growth rates with some strains showing rapid growth (e.g. strain L341) and others showing limited growth

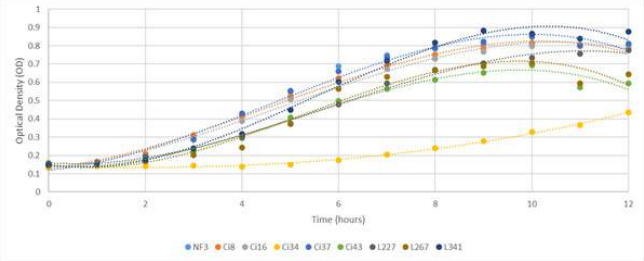


Figure 3. Bacterial growth (optical density; OD) for 9 strains of NTHi over a 12-hour growth period. There was considerable variability in growth rates between strains.

We then conducted a series of manipulation experiments whereby strains were assessed for their iron sensitivity by restricting heme and iron availability in the growth medium. Based on these data we identified strain Ci37 for use in subsequent experiments. We grew the Ci37 strain under four conditions: 1) control, 2) heme low, 3) heme and iron low and 4) heme and iron low in the presence of 57 µg/mL of haematite. As expected growth was restricted under heme low conditions and was almost absent in heme and iron low conditions (Figure 4). Importantly, the presence of haematite (iron oxide particles) partly recovered the growth potential of Ci37 under heme and iron low conditions. To our knowledge, this is the first evidence that NTHi has the capacity to use insoluble iron oxide particles as a source of iron to facilitate growth. This observation provides critical proof-of-concept data for our overarching hypothesis that inhalation of high levels of iron laden geogenic PM facilitates bacterial growth in the lung. We are currently probing this response further by examining between strain variation in response to iron oxide particles by assessing expression of known iron responsive genes in the bacteria.

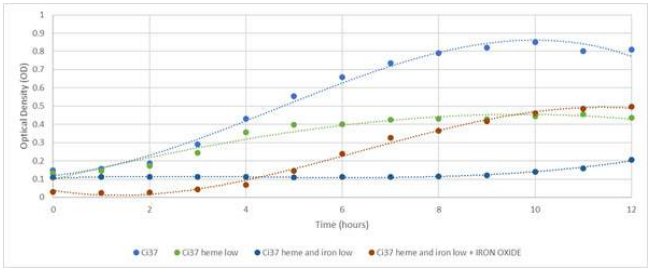


Figure 4. Bacterial growth (optical density; OD) for the Ci37 NTHi strain under control, heme low, heme and iron low conditions. The addition of iron oxide particles (haematite; 57 µg/mL) partly recovered the growth potential under heme and iron low conditions

These data will form the basis of future Category 1 grant applications and are likely to make a significant contribution to our understanding of the environmental factors that influence the development of chronic bacterial lung disease; particularly in the most vulnerable populations in the community. This grant not only funded the work of our group, it also contributed to A/Prof Zosky's track record which assisted in leveraging a position as a Chief Investigator on a recently successful NHMRC Centre of Research Excellence (2017-2022) to examine the health effects of air pollution (CIA Marks: "Energy transitions, air pollution and health in Australia")

(L to R) Dr Ellen Bennett, A/Prof Graeme Zosky, Lewis Williams, Dr Ling Chen

We were fortunate enough to receive funding from the Australian Respiratory Council (Harry Windsor Grant) to support this work. In the current climate of limited funding to support medical research, these funds were critical in maintaining the continuity of funding for our group and allowed us to generate the necessary preliminary data to support further grant applications. We are extremely grateful for the funding we received from this scheme and think that ongoing financial support in this field is essential to reduce the burden of respiratory disease in the community.

LAUREATE PROFESOR PAUL FOSTER

The University of Newcastle

Understanding the role of the newly discovered CD4 T helper (Th)-22 cell subset in models of respiratory infection and inflammation

We are pleased to state the support from the ARC Harry Windsor Research Grants Scheme provided assistance in enabling us to complete a substantial body of work addressing the role of a new CD4+ T helper lymphocyte subset designated Th22 cells in the pathogenesis of respiratory infections to bacteria and viruses. This has led to one publication and a generation of new preliminary data that was used to support an NHMRC application, which was successful.

Key outcomes include demonstration of the role of Th22 cells in respiratory infection with influenza. We demonstrated that Th22 cells recruited to the site of influenza A infection transition to a Th1-like cell characterized by IFN-γ production. This is an exciting finding as it demonstrates that under some conditions Th22 cells are plastic and may help reinforce the host response. The data is very novel and has been published in the Journal of Immunology, March 1, 2017 Th22 Cells form a distinct Th lineage from Th 17 cells in vitro with unique transcriptional properties and Tbet-dependent Th1 plasticity, Maximillan W Plank, Gerard E Kaiko, Steven Maltby, Jessica Weaver, Hock L Tay, Wei Shen, Mark S Wilson, Scott K Durum and Paul S Foster. We are still exploring the potential role of Th22 cells in the regulation of inflammation in cystic fibrosis and hope data accumulated will facilitate a further NHMRC application. We have demonstrated that Th22 cells are present in a number of bacterial respiratory infection models and are now actively investigating whether Th22 cells control inflammation, host defence and/or contribute to tissue repair in these models. Currently, we know that these Th22 cells regulate the recruitment neutrophils to the lung, and neutrophils play a significant role host defence against pathogens (clearing infection).

Most importantly, we also successfully generated more preliminary data, on the function of Th22 in vivo in our infection models, which was used for a new project grant submission to NHMRC for further funding. We are very pleased to report that this was successful and the grant obtained was for four years funding (Understanding the role of Th22 cells in regulating respiratory immune responses in health and disease, APP1120448, $870,476).

Again, I would like to thank the ARC for supporting our research with the Harry Windsor Research Grants Scheme. It has been invaluable in keeping us going between funding, and my research team and I are sincerely grateful.

PROFESSOR IAN YANG

The University of Queensland

Using the lung microbiome to predict responses to continuous antibiotics in COPD

Purpose of research project

Chronic obstructive pulmonary disease (COPD) is a disease of global importance. Exacerbations, mostly due to respiratory infection, are complications that lead to significant illness. This study has characterised the communities of microbes in the lung, in patients with exacerbations and during the stable state. This information provides the necessary background for further microbiome analysis of COPD patients, to predict future risk of exacerbations and understand which patients may benefit from long term antibiotics.

Outcomes achieved

Our UQ Thoracic Research Centre at The Prince Charles Hospital has pleasure in providing this final report on the project, which is generously supported by Australian Respiratory Council Harry Windsor Research Grant scheme. The study commenced on 1 January 2016.

The project has been completed, and we would like to report on the final results of the study:

Results

(Abstract from Hannah O'Farrell's BSc Honours thesis, awarded First Class Honours in 2016 by The University of Queensland)

Background

Chronic obstructive pulmonary disease (COPD) is chronic airflow limitation and lung inflammation caused by cigarette smoking and other exposures, and is one of the leading causes of morbidity and mortality world-wide. Symptoms characteristic of COPD include exertional breathlessness, chronic cough, sputum production and acute exacerbations of COPD (AECOPD). An AECOPD is an acute worsening of symptoms, often requiring 2 pharmacological treatment and/or hospitalisation. Bacterial infections are the major cause of infections in AECOPD.

Aims

The aims of this project were to identify the bacterial and fungal load of specific pathogens in sputum during exacerbation, and compare this to stable state, using both traditional culture-dependent and novel culture independent methods, as well as identify associations between clinical and sputum characteristics, inflammatory markers and disease severity in COPD.

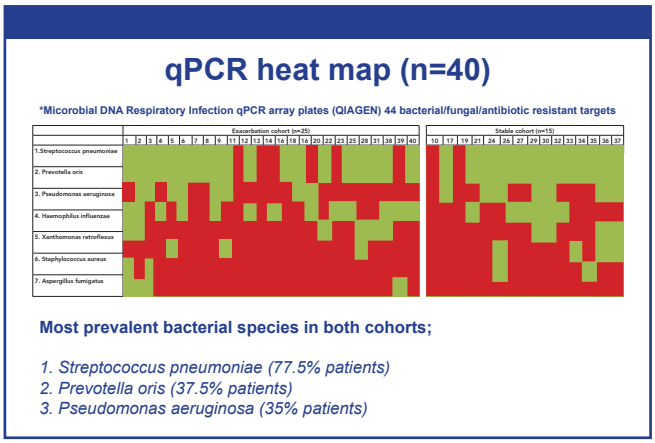
Methods

40 COPD patients (21 females, 19 males: mean age 72y) at The Prince Charles Hospital provided sputum and blood samples during exacerbation (n=24 patients) and stable (n=16) patients. Sputum was selected for plugs, assessed for sputum quality and live cell counts extracted for nucleic acids and tested using the Microbial DNA Respiratory qPCR array (Qiagen) for 16S rRNA of 47 bacterial and 18S rRNA fungal pathogens. Matched sputum samples from seven exacerbation patients who returned when recovered were tested with qPCR, microbiome 16S rRNA analysis and ELISA for 12 inflammatory cytokines. Blood samples for routine inflammatory markers were analysed by the hospital pathology service.

Results

In the exacerbation (n=24) and stable (n=16) patients, all were able to produce sputum samples, of which 28 (70%) were considered of optimal quality based on nucleic acid concentration, and 38 samples (95%) were subsequently successfully assayed with qPCR. Sputum purulence was associated with increased sputum weight, total cell count, cell viability, HS-CRP levels and nucleic acid concentration. No significant differences in sputum characteristics were observed between exacerbation and stable patients.

qPCR detected bacteria and fungal pathogens in 38 (95%) of the 40 sputum samples, and was more sensitive than culture, which was positive for bacterial species only in 11 (35%) of the 31 samples sent for culture. The most prevalent bacterial species detected by qPCR were Streptococcus pneumoniae (80%), Pseudomonas aeruginosa (47%), Prevotella oris (37%) and Haemophilus influenzae (25%). In 11/36 sputum samples, qPCR detected all of the pathogens 3 identified in the cultures, whereas 25/36 samples that underwent qPCR, additional bacterial pathogens were detected that were not present in the cultures. Mean bacterial 16S copies and numbers of bacterial species detected by qPCR were similar during exacerbation and stability. No statistically significant correlation was observed between total 16S bacterial copy number/ mL sputum and smoking status or disease severity based on lung function impairment.



In the 7 patients with matched samples during exacerbation and recovery, sputum weight reduced significantly in recovery. The numbers of bacterial and fungal species detected by qPCR were not statistically different between exacerbation and recovery samples, although some pathogens changed in their prevalence between these states. IL-12 was significantly present in exacerbation, and absent in recovery;

there were no other differences observed in inflammatory cytokine concentrations. Preliminary results indicate a large number of bacterial OTUs identified in matched exacerbation and recovery samples, mostly in low abundance. 31 out of 157 (19.7%) different bacterial OTUs were identified by 16S rRNA sequencing with more than 1% prevalence in both exacerbation and recovery samples.

Conclusions

This study has shown that the use of a comprehensive qPCR array is feasible in being a more sensitive measure of sputum pathogens, in both exacerbation and stable patients compared to traditional culture methods. Implementation of qPCR in clinical practice for pathogen detection in sputum needs further investigation, as its potential use could ensure better diagnostic treatment and management strategies for COPD. Further research is needed to draw conclusions on what role the lung microbiome plays in exacerbation and the stable state of COPD, in order to improve health outcomes for these patients.

Publications

A manuscript is in preparation, for submission to a peer-reviewed journal.

Presentations

Work from this project has been presented at the international Asian Pacific Society of Respirology, Bangkok, November 2016, by Hannah O'Farrell, as a first author oral presentation:

Hannah E. O'Farrell, Janet G. Shaw, Felicia Goh, Rayleen V. Bowman, Kwun M. Fong, Ian A. Yang. Detection of microbial pathogens using a multiple target quantitative polymerase chain reaction (qPCR) array in patients with acute exacerbations of chronic obstructive pulmonary disease. Respirology 2016;21(Suppl 3):52.

Grant applications

Work from this project was included in an NHMRC grant application in the 2016 round. This grant was awarded to our group, and will commence in 2017:

NHMRC project grant APP1121740. Testing the lung microbiome to predict risk of frequent exacerbations in COPD. Yang, Reid, Simpson, Krause. $666,052 2017-2019, 3 yr.

Postgraduate research students

This project is part of Janet Shaw's PhD and Hannah O'Farrell's BSc Honours program (awarded First Class Honours in 2016) with The University of Queensland.

We thank the Australian Respiratory Council for its generous support of this project.

Staff and students of the UQ Thoracic Research Centre

DR ANN MITROVIC
The University of Sydney

Australia's Lyme-Like Illness: A focus on North-Eastern NSW and South-Eastern Queensland

Background

Tick bites in Australia particularly from the paralysis tick are increasingly causing concern, mainly due to possible infection and also acute allergic reactions following tick bites, occasionally requiring hospitalisation. Also a delayed allergic reaction to red-meat associated with a prior tick bite has been described (Van Nunen et al., 2009).

A tick bite-related syndrome has been described since 1982 (Stewart et al., 1982) where multiple non-specific systemic symptoms develop usually beginning as a flu-like illness. Since the syndrome has many similarities with the northern hemisphere Lyme disease it is referred to as an Australian Lyme-like illness, but the causative agent/s has not yet been identified. Based on exposure to tick bite and clinical presentation we have identified clusters of this illness, which are mainly on the east coast of Australia. One of the clusters is located in north-eastern NSW & south-eastern Queensland and this region is the focus of the Australian Respiratory Council grant, which forms part of a greater national study.

Recent publications from Murdoch University identified DNA consistent with a relapsing fever Borrelia bacteria from a paralysis tick (Ixodes holocyclus) (Gofton 2015) and echidna ticks (Bothriocroton concolor) (Loh et al., 2016). Further work is required to clarify the exact species of Borrelia and whether this may be involved with Australian Lyme-like illness.

Aims of the ARC funded study

Our research aims to identify the causative agent of this Lyme-like illness and further to develop sensitive and specific diagnostic tests to detect Australians with the illness. We are using different methods to investigate whether the causative agent is a Borrelia species:

1. DNA technology to detect the presence of Borrelia DNA, in ticks to identify possible pathogens and in clinical samples as evidence of a current or recent exposure to Borrelia species that may explain the clinical presentation;

2. diagnostic blood tests to detect antibodies against borrelial proteins in clinical patient samples and

3. culture of salivary glands and mid-gut contents of ticks to isolate spirochetal bacteria;

These techniques are also employed to investigate other micro-organisms by DNA technology and serology for a possible role in Australian Lyme - like illness (eg. Babesia andTheileria).

Progress

Aim 1: Detection of Borrelia DNA in ticks

Since our last report Oliver Creagh (PhD student) has validated qPCR multiplex panels with a focus on Borrelia. This technique has greatly increased the sensitivity of detection in tick samples allowing us to detect the Australian Borrelia first identified by the Murdoch study (Gofton et al., 2015; Loh et al., 2016). Ten echidna ticks (Bothriocroton concolor) have been identified by the qPCR method detecting both 16s rRNA gene and 23S rRNA gene. These ticks have been further characterised using the nested PCR approach which is the method our group initially employed to detect Borrelia DNA. The nested PCR approach detects bacteria down to a very low number and also gives much longer DNA sequences, which helps to genetically differentiate and identify between different Borrelia. Our results have corroborated the Murdoch University publication for the rRNA and flagellin genes and we have expanded the characterisation of the Australian Borrelia to include another gene 23S rRNA to assist in phylogenetic analysis. Interestingly, we have identified significant DNA sequence differences between the flagellin gene in the Australian Borrelia detected in the Murdoch publication. The Borrelia flagellin gene identified in our research has regions of the gene that are homologous to the Lyme disease group of Borrelia and which are not found in the flagellin DNA sequences identified in the Murdoch University or relapsing fever group.

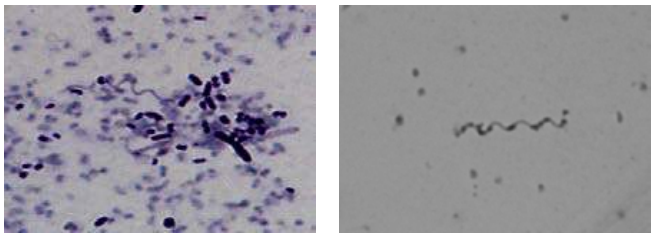
The echidna ticks containing the Australian Borrelia were from three previously unidentified regions Newcastle, Southern Sydney and the South Coast of NSW. We have focussed our efforts on ticks from this region as well as northern NSW and south-eastern Queensland totalling 180 ticks tested; this study is ongoing.

Currently we are using qPCR to investigate our clinical samples for evidence of DNA that is consistent with the Australian Borrelia or other known or novel Borrelia.

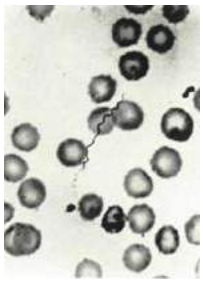
Tick culture

To progress our understanding of whether the Australian Borrelia causes a clinical syndrome and to investigate its pathogenicity as well as develop specific and sensitive diagnostic tests it is essential to have a pure isolate. We currently have 55 tick dissections in culture from two of the regions identified to have Australian Borrelia. The Australian Borrelia has been detected by both qPCR and nested PCR from one tick dissection of both salivary gland and midgut tick culture so far. These cultures are currently contaminated with other bacteria from either the midgut or salivary gland dissections, so we are currently undertaking a process of both liquid and solid phase subculture to obtain a pure isolate. This mixed culture has been stained with Giemsa and we have been able to observe a spiral micro-organism that has morphology consistent with a Borrelia species. Below are two images of the Australian Borrelia cultured from an Echidna tick (Bothriocroton concolor)

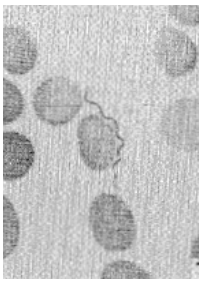
and for comparison images taken from two prior publications identifying Borrelia in Rattus villosissimus in Qld (Carley & Pope 1962), a bandicoot and eastern-grey kangaroo (Mackerras, 1959) are also shown.



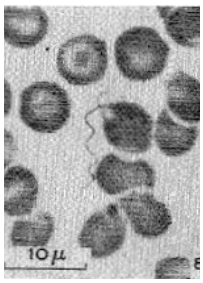
Our cultures from an Echidna tick: Giemsa stained thick (left) and thin (right) film. Images taken on Zeiss Deconvolution microscope 63x oil objective.



Borrelia queenslandica Rattus villosissimus Carley & Pope, 1962



Borrelia from Bandicoot Mackerras, 1959



Borrelia from Kangaroo Mackerras, 1959

Once the Australian Borrelia is isolated we will sequence the whole genome to assist in understanding the pathogenicity of this organism and to allow development of sensitive and specific DNA based diagnostic tests. Sero-prevelance studies will also be undertaken as explained below with our clinical cohort. Whole animal infection experiments are essential to determine pathogenicity of the organism to fulfil Koch's postulate. Further, it is important to determine whether the pathogenicity observed in whole animals is consistent with the clinical syndrome observed in people detected to have an infection with this organism. If the organism is indeed found to be pathogenic, trials with antibiotics are critical to ascertain the most sensitive treatments for the Australian Borrelia.

Borrelia Sero-prevalence study

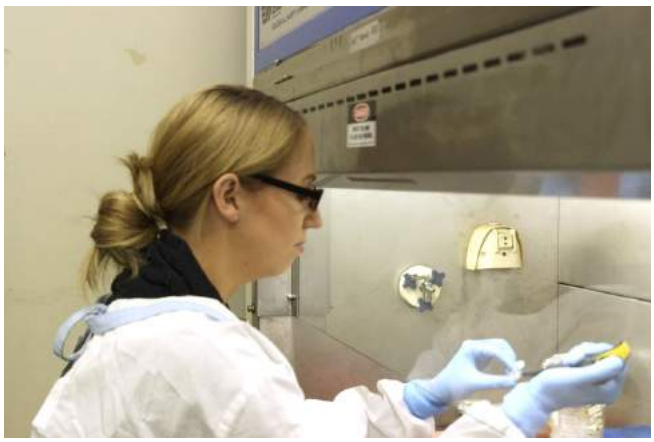
A sero-prevalence study was undertaken to better define exposure to a Borrelia species by measuring both IgG and IgM immunoglobulins in a cohort of Australians diagnosed with a Lyme-like illness.

Mr Will Shirvington (PhD Student) has now completed the sero-prevalence study which employed commercial ELISA and western blot kits used to diagnose Lyme disease in USA (proteins from Borrelia burgdorferi sensu stricto main infecting species in the USA)and borreliosis in Europe (B. afzelii) or Eurasia (B. garinii). Although sero-reactivity was found in a number of participants for one or more borrelial

antigens no participant reached the positive criteria used in Australia of five sero-reactive bands. In light of the discovery of a unique Australian Borrelia that is more closely related to the relapsing fever group of Borrelia than Lyme Borrelia we are currently investigating methods to detect relapsing fever Borrelia while awaiting isolation of the Australian Borrelia from our cultures. There are no commercial western blot kits available for any of the relapsing fever Borrelia and we will need to develop recombinant protein assays which Will is working on currently. Once we have an Australian Borrelia isolate, western blot analysis based on proteins from the Australian Borrelia will also be conducted on all our clinical serum samples to detect IgM or IgG antibodies binding to Australian Borrelia proteins.

Other Tick-borne pathogens - A PCR Study

Other micro-organisms that are present in Australian ticks may contribute to the symptoms of the Australian Lyme-like illness. Ms Brooke Storey-Lewis (PhD student) is investigating Babesia, a tick transmitted micro-organism which causes serious illness in USA and Europe and which may also contribute to the symptoms of Australian Lyme-like illness. The first reported Australian case of babesiosis believed to be acquired in Australia was published in 2012 (Senanyake et al 2012). There is also the possibility of Australians returning from overseas with babesiosis acquired in an endemic region.



Brooke has tested 1218 ticks with nested PCR, 849 from NSW, 170 from QLD, 9 from VIC, 13 from TAS, 14 from WA, 124 from NT, 39 from unknown locations.

85 ticks were positive following preliminary screening for unique Australian Babesia or Theileria (closely related) species using PCR:

- 33 confirmed with sequencing to contain Babesia spp., 31 from NSW (Ixodes and Haemaphysalis ticks) and 2 from NT (Rhipicephalus ticks)
- 18 confirmed with sequencing to contain Theileria spp., 17 from NSW (Ixodes, Haemaphysalis and Bothriocroton ticks) and 1 from QLD
- 34 yet to be confirmed with sequencing

Range of reported hosts from positive samples includes dog, cow, horse, ringtail possum, red-necked wallaby, eastern-grey kangaroo and bandicoot.

Once the tick results are finished Brooke will focus on the clinical samples to investigate them by PCR for Babesia or Theileria DNA.

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Mackerras MJ (1959), The haematozoa of Australian mammals. Aust J Zool. 7: 105-135

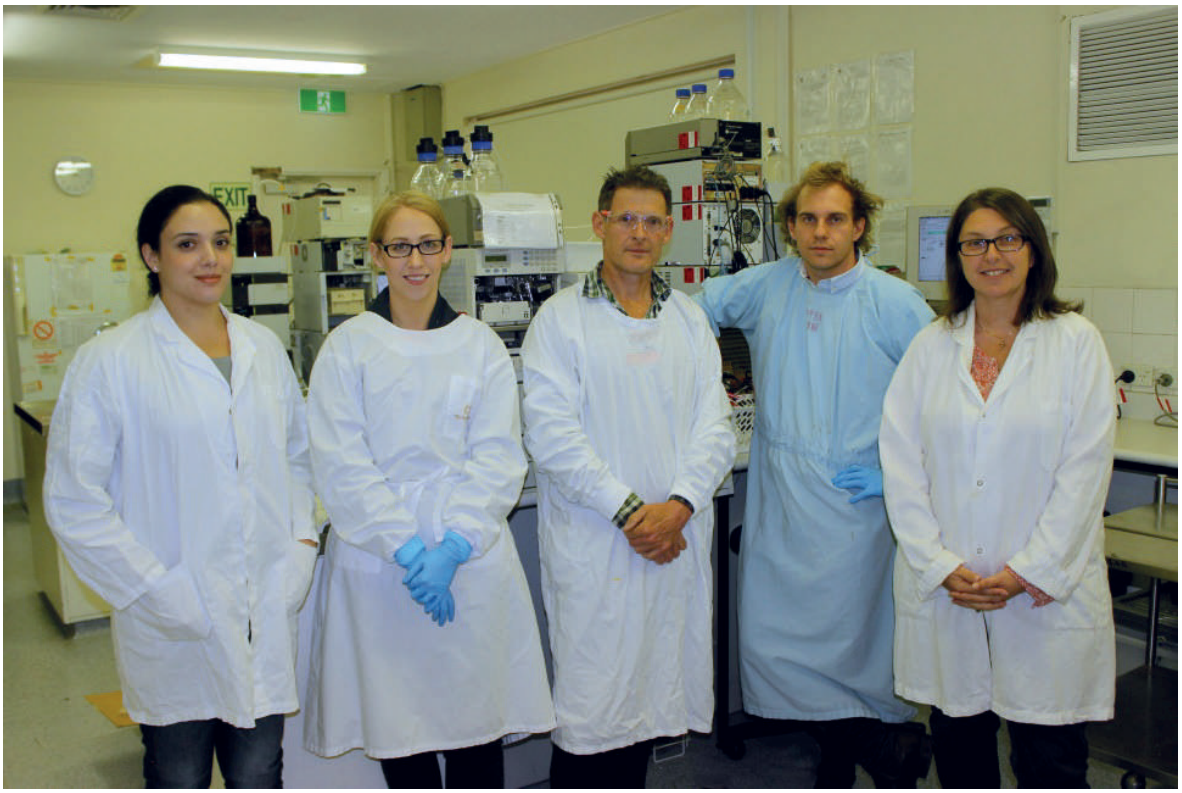
Senanyake SN, Paparini A, Latimer M, Andriolo K et al., (2012) First report of human babesiosis in Australia Med. J. Aust. 196 (5): 350-352.

Stewart A, Glass J, Patel A, et al., (1982) Lyme arthritis in the Hunter Valley. Med. J. Aust. 1(3); 139

Van Nunen S, O'Connor KS, Clarke LR, et al (2009) An association between tick bite reactions and red meat allergy in humans. Med. J. Aust. 190(9); 510-511

Acknowledgement:

ARC is able to provide funding for this project as a result of a generous donation from the Twin Towns Community Services Foundation Limited.



FUNDING THE DISCOVERY OF NEW KNOWLEDGE

PUBLICATION OF ARC'S RESEARCH FUNDING HISTORY 1986 TO 2015

The Australian Respiratory Council is a Charitable, Non-Government Organisation supporting prevention, treatment and research into tuberculosis and respiratory disease at a national and international level.

The history of the Australian Respiratory Council began a century ago when tuberculosis was a much feared disease and a common cause of illness and death in Australia. The organisation, known then as the National Association for the Prevention and Cure of Consumption, was founded in 1913 to address the prevention and control of tuberculosis. Over the past century the organisation has changed its name to reflect an evolving emphasis in its activities but it has never lost sight of the focus on tuberculosis and respiratory health.

The Australian Respiratory Council has a distinguished history as an advocate and champion for public health initiatives. Throughout the last century, the Australian Respiratory Council has established a role and profile as an organisation that has successfully engaged civil society, academics, researchers, government and industry to bring focus to investment in tuberculosis and respiratory health in Australia.

Over the past thirty years the Australian Respiratory Council has been committed to building expertise and sustainable capacity in respiratory health by fostering innovative research to promote respiratory health. Our organisation will continue to contribute to the discovery of new knowledge and enhance scientific understanding in the field of respiratory health through our Research Grants and Fellowship Program.

In 1986, in honour of the late Emeritus Consultant Dr Harry Windsor research grants were initiated to acknowledge Dr Windsor's long and distinguished service to the organisation. Dr Windsor was actively involved in the work of the organisation for over thirty years, from 1955 to the time of his death in 1987.

In the early 90's a decision was made to increase research funding, expanding the original grant scheme to a program of Scholarships and Research Grants.

In 2002, the Scholarship Grants were renamed in honour of the late Professor Ann Woolcock AO, former head of the Institute of Respiratory Medicine at the University of Sydney and Royal Prince Alfred Hospital. Professor Woolcock was a strong supporter of trainee scientists and physicians. Professor Woolcock was a long time member and actively involved in the work of the Australian Respiratory Council.

In 2004, the Scholarship Grants were replaced with the Ann Woolcock Fellowship Program.

The funding provided through these Research Grants, Scholarships and Fellowship Programs have become recognised as a significant source of research funds in Australia. To date, the Australian Respiratory Council has contributed approximately $4.5 million in funding for research projects.

Funding is awarded for researchers and scholars undertaking research activities relating to tuberculosis and respiratory illness in; basic science, clinical research and public health. Many eminent leaders in the field of respiratory and public health have undertaken valuable research as recipients of these grants. The seed funding provided through the Australian Respiratory Council's grants has made a significant impact on the research landscape in Australia as the outcome of the research undertaken with these grants has enabled many researchers to obtain the data required to apply for larger National Health and Medical Research Council grants for the continuation of their research work.

The publication of ARC's research funding is a compilation of reports submitted by the grant receipients or as presented in the Australian Respiratory Council's Annual Reports for the period 1986-2015.

Acknowledgements

In compiling and reviewing the research projects ARC has funded over the past thirty years, it is important to note the significant contribution that the researchers and their projects have made to respiratory health in Australia.

In addition, the Australian Respiratory Council would like to thank the Chair of the Australian Respiratory Council's Research Committee, Clinical Professor Iven Young AM, who with the assistance of the Research Committee members has provided leadership and direction for ARC's research activities.

The ARC Board of Directors would like to thank David Macintosh AM for his contribution to documenting the history of research funding provided by ARC. David was responsible for initiating the proposal to compile ARC's research history and has generously funded the publication.

Further information on the publication and scope of ARC's research funding can be obtained by contacting ARC's Executive Director Amanda Christensen.

ADVOCACY

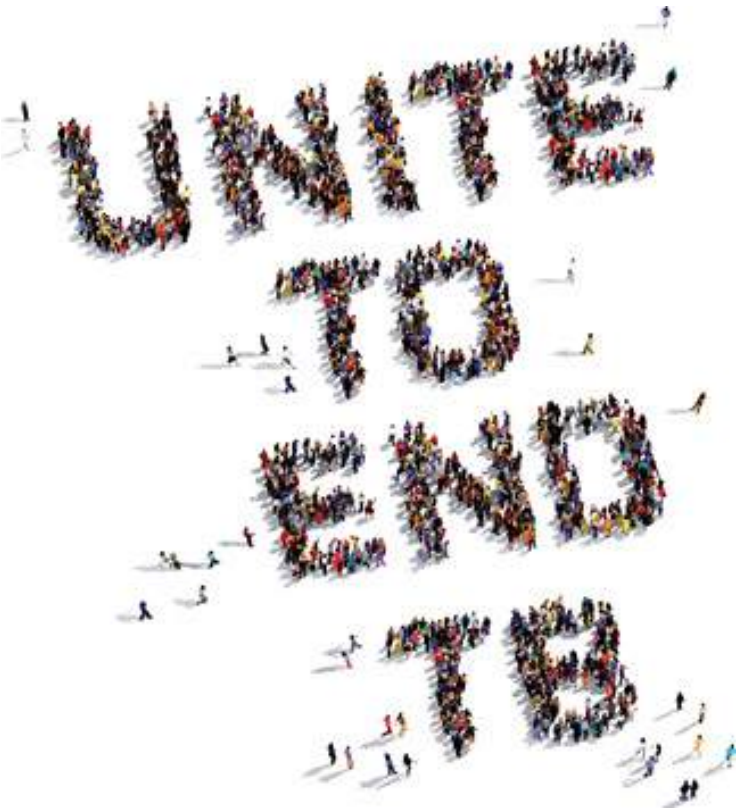
WORLD TB DAY 2016

World TB Day, falling on March 24th each year, is designed to build public awareness that TB today remains an epidemic in much of the world, causing the deaths of nearly one-and-a-half million people each year, mostly in developing countries. It commemorates the day in 1882 when Dr Robert Koch astounded the scientific community by announcing that he had discovered the cause of TB, the TB bacillus. At the time of Koch's announcement in Berlin, TB was raging through Europe and the Americas, causing the death of one out of every seven people. Koch's discovery opened the way towards diagnosing and curing TB.

In 2016, Unite to End TB must be more than just a slogan!

While there has been significant progress in the fight against TB, with 43 million lives saved since 2000, the battle is only half-won: over 4,000 people lose their lives each day to this disease. Many of the communities that are most burdened by TB are those that are poor, vulnerable and marginalised.

Ending TB will only be achieved with greater collaboration within and across governments, between researchers, the private sector and development agencies and with partners from civil society and the affected communities. This means taking a whole-of-society and multidisciplinary approach, in the context of universal health coverage.



Key TB Facts

- TB ranks alongside HIV/AIDS the world's top infectious disease killer
- In 2014, 9.6 million people fell ill with TB and 1.5 million died from the disease, including 380,000 deaths among people living with HIV
- More than 95% of TB deaths occur in low and middle-income countries, and TB is among the top 5 causes of death for women aged 15 to 44
- In 2014, an estimated 1 million children became ill with TB and 140 000 children died from the disease
- TB is a leading killer of HIV-positive people: in 2014, 1 in 3 HIV deaths was due to TB
- Globally, in 2015, an estimated 480 000 people developed multi-drug resistant TB (MDR-TB)
- The TB death rate dropped by 47% between 1990 and 2015
- The WHO End TB Strategy aims to reduce TB deaths by 90% and to cut new cases by 80% between 2015 and 2030, and to ensure that no TB-affected family faces catastrophic costs due to TB.

SCHOLARSHIPS, FELLOWSHIPS

ARC Ann Woolcock Fellowship Awards (2005 - 2014)

Date	Recipient	Subject	Award
2010-2014	Jodie Simpson *Newcastle University, NSW*	Characterisation and treatment of innate immune dysfunction in older people with obstructive airway disease	$258,763
2005-2009	Ingrid Laing *Telethon Institute for Child Research, Perth,WA*	Genetic Influences on causal pathways of ALRIs in highly susceptible infants	$285,000

ARC Ann Woolcock Biomedical and Postgraduate Research Scholarship Awards (2002 - 2004)

Date	Recipient	Subject	Award
2003-2004	Corrina Parker *Australian National University, Canberra, ACT*	Detection, isolation and characterisation of novel anti-effective agents from cultured micro-fungi	$40,143
2003-2004	Kylie Turner *University of Sydney, NSW*	Investigation of the structure of cryptococcal phospholipases	$40,143
2002- 2004	Zoe Barker-Whittle (McKeough) *Royal Prince Alfred Hospital, Sydney, NSW*	Evaluation of lung volume reduction surgery in patients with chronic airflow limitation	$59,214
2002-2003	Shoma Dutt *Westmead Hospital, Sydney, NSW*	Biliary lipids in liver disease and interstitial phospholipid metabolism in children with cystic fibrosis	$41,793
2002-2003	Rita Machaalani *University of Sydney, NSW*	Neurone receptor systems in sudden infant death and piglets exposed to hypercapnic-hypoxia	$29,214
2002- 2003	Anup Desai *University of Sydney, NSW*	The contribution of obstructive sleep apnoea to driver fatigue in transport drivers	$55,793

ARC Harry Windsor Biomedical and Postgraduate Research Scholarship Awards (1999 - 2001)

Date	Recipient	Subject	Award
2001	Anup Desai *University of Sydney, NSW*	Interaction of mild obstructive sleep apnoea, sleep deprivation and circadian factors in cognitive function	$27,793
2000-2001	Shoma Dutt *Westmead Hospital, Sydney, NSW*	Biliary lipids in liver disease and interstitial phospholipid metabolism in children with cystic fibrosis	$40,311
2000-2001	Rita Machaalani *University of Sydney, NSW*	Neurone receptor systems in sudden infant death and piglets exposed to hypercapnic-hypoxia	$37,454
1999-2001	Anna Hansen *University of Sydney, NSW*	The role of cytokines in the immunity and pathology of malaria	$56,703
1999-2001	Rosemary Santangelo *Westmead Hospital, Sydney, NSW*	Phospholipases of Cryptococcus neoformans	$63,498
1999-2001	George Latouche *University of Sydney, NSW*	Phopholipases as potential virulence factors of Cryptococcus neoformans variety Gattii	$55, 089

RESEARCH GRANTS

A HISTORY

ARC Harry Windsor Medical Research Grants (1999 - Present)

Date	Recipient	Subject	Award
2016	Dr Graeme Zosky *University of Tasmania*	Iron laden particulate matter enhances bacterial growth in the lung	$50,000
2016	Laureate Professor Foster *University of Newcastle, NSW*	Understanding the role of the newly discovered 2D4 T helper(TH) - 22 cell subset in models of respiratory infection and inflammation	$50,000
2016	Professor Ian Yang *University of Queensland*	Using the lung microbiome to predict responses to continuous antibiotics in COPD	$50,000
2015	Brian Oliver, *The Woolcock Institute and The University Of Technology, NSW*	Understanding the aetiology of small airway fibrosis in COPD	$50,000
2015	Harin Karunajeewa *The Walter and Eliza Institute, VIC*	Getting the dose right in Tuberculosis: Pharmacokinetics to improve outcomes in Tuberculosis	$50,000
2014	Daniel Chambers *The Prince Charles Hospital, Qld* *Lung Transplant Service, Qld*	Disease tolerance and transplant tolerance – two sides of the same coin?	$50,000
2013	Brian Oliver *University of Sydney, NSW*	Why do fibroblasts from people with COPD produce extracellular matrix proteins in response to ciagraette smoke?	$50,000
2012	Bernadette Saunders *Centenary Institute, Sydney, NSW*	Microparticles and microRNA as biomarkers of TB disease	$50,000
2011	Ross Coppel, Paul Crellin et al *Monash University, Melbourne*	Identification of inhibitors of PimA, a new target for tuberculosis therapy	$50,000
2010	Peter Bye *Royal Prince Alfred Hospital, Sydney, NSW*	Novel interventions for the diverse population of Australia with bronchiectasis	$50,000
2009	Sandra Hodge *Hanson Institute, Adelaide, SA*	Investigation of macrophage function as a therapeutic target in chronic obstructive pulmonary disease/emphysema (COPD)	$50,000
2008	Jenny Alison *University of Sydney, NSW*	Optimising mucus clearance with exercise in cystic fibrosis	$50,000
2008	Stephen Stick, Anthony Kicic & Siobhan Brennan *University of WA, Perth, WA*	A randomised controlled trial of L-arginnine or vitamin D to improve outcomes in pulmonary tuberculosis	$50,000
2007	Siobhain Brennan and Anthony J Kettle *Telethon Institute for Child Health Research, Perth, WA*	Investigating markers of oxidative stress in young children with cystic fibrosis: a driving mechanism of pulmonary investigation	$50,000
2007	Stephen Bozinovski and Ross Vlahos *University of Melbourne, Melbourne, VIC*	Cigarette smoke chemically modifies and inactivates lung innate immunity mediated by the bacterial receptor, TLR4	$50,000
2006	Paul Kelly, Graeme Maguire, Peter Morris, Ivan Bastian & Nicholas Anstey *Menzies School of Health Research, Darwin, NT*	Nutritional intervention to improve tuberculosis treatment outcome in Timika, Indonesia: the NUTTS study	$50,000
2006	David Jans *Monash University, Melbourne, VIC*	Role of phosphorylation in regulating nuclear trafficking during infection of respiratory syncitial virus matrix protein	$50,000
2006	Robert Capon *University of Queensland*	A new non-toxic approach to controlling bacterial infection	$49,000
2005	Paul Reynolds, Gregory Hodge, Sandra Hodge, Mark Holmes *Royal Adelaide Hospital, Adelaide, SA*	Infection versus rejection in lung transplant related bronchiolitis obliterans syndrome: can intracellular cytokines help?	$50,000

Date	Recipient	Subject	Award
2005	Kwung Fong & Annalese Semmler *Prince Charles Hospital*	Novel methylated genes in lung cancer	$52,250
2004	Warwick Britton, Guy Marks and Bernadette Saunders *Centenary Institute of Cancer Medicine & Cell Biology , Sydney, NSW*	Evaluation of genetic and environment risk factors for progression to active tuberculosis in the Liverpool cohort	$44,701
2004	Paul Kelly, Nick Anstey, Graeme Maguire et al *Menzies School of Health Research, Darwin, NT*	Pulmonary Function in Tuberculosis patients in Timika District, Papua Province, Indonesia	$43,267
2002 -2003	James Triccas & Warwick Britton *Centenary Institute of Cancer Medicine & Cell Biology, Sydney, NSW*	New strategies to vaccinate against Mycobacterium tuberculosis	$112,588
2002	Amanda Leach, Heidi Smith-Vaughan Marius Puruntamerri, Ross Baillie & Peter Morris *Menzies School of Health Research*	Improved hygiene measures for reduced infection in Australian Aboriginal Children: a randomised controlled trial	$48,424
2002	Evangelia Daviskas, Sandra Anderson & Iven Young *Royal Prince Alfred Hospital*	Effect of mannitol on the clearance of mucus in patients with COPD	$38,593
2001	Amanda Baker and Vaughan Carr *University of Newcastle*	Randomised controlled trial of a smoking cessation intervention among people with a mental illness	$63,370
2001	Terence Amis and John Wheatley *Westmead Hospital*	The role of snoring and obstructive sleep apnoea in the pathogenesis of hypertension	$45,665
2001	James Wiley and Tania Sorrell *University of Sydney, NSW*	The monocyte-macrophage P2x7 receptor and susceptibility to tuberculosis	$45,000
2000-2001	John Wiggers, Afaf Girgis, Robyn Considine, Jenny Bowman *University of Newcastle*	Preventing infant exposure to tobacco smoke: evaluation of an early childhood intervention	$53,006
2000	Peter Bye, Iven Young, Jenny Alison and Marney Isedale *Royal Prince Alfred Hospital*	Evaluation of lung volume reduction surgery in patients with chronic airflow limitation	$38,000
2000	Warwick Britton and James Triccas *Centenary Institute of Cancer Medicine & Cell Biology*	Interlukin-18 as an adjuvant for DNA Immunisation against Tuberculosis	$26,500
2000	Peter Gibson *John Hunter Hospital*	Quality of Life in Chronic Cough	$25,500
1999	Guy Marks *Institute of Respiratory Medicine*	Does BCG vaccination in infancy prevent allergy	$5,000
1999	Graeme Maguire, Norma Benger and Bart Currie *Menzies School of Health Research*	Chronic Lung Disease in Aboriginal Australians: factors in aetiology and treatment	$69,136
1999	Bernadette Saunders and Helen Briscoe *Centenary Institute of Cancer Medicine & Cell Biology*	Apoptosis in the control of Mycobacterial infection	$38,000
1999	Peter Bye, Stefan Eberl and Jenny Alison *University of Sydney, NSW*	Pharmacological and Physical Therapies to enhance mucociliary clearance in chronic lung disease and mucus hypersecretion	$39,000
1999	Evangelica Daviskas *Royal Prince Alfred Hospital*	Effects of beta2-adrenceptor agonists on mucociliary clearance in persons with asthma	$5,000
1999	Karen Waters *University of Sydney, NSW*	Potential neurotoxicity of repetitive hypercapnic hypoxia during early treatment	$10,000
1999	Ronald Grunstein *Royal Prince Alfred Hospital*	Sleep Apnoea and Cytokines	$22,000

PROJECTS

A HISTORY

ARC Project Awards (1999 - Present)

Date	Recipient/Project	Award
2015-2016	Australia Establishing a framework for nursing education in Australia	$29,283
2013-2016	Solomon Islands Improving TB control in remote area of Solomon Islands	$64,744
2012	Bangladesh Bangladesh MDR-TB Project, an investigation into risk factors for MDR-TB in communities in Bangladesh	$10,000
2011	Kimberley Aboriginal Medical Services Council (KAMSC) Cultural exchange of Be Our Ally Beat Smoking Study (BOABS) workers to visit Maori Tobacco Control Programs in New Zealand	$10,000
2011-2016	Vietnam MECOR Course - Level 1, Level 2 and Level 3 workshops	$70,000
2010	Secretariat of Pacific Community Evaluation of the effectiveness of the Community Component of the Kiribati Quality TB Epidemic Control Project	$4,800
2010	Menzies School of Health Research Development of educational resources, 3 Talking posters and 3 flipcharts on pneumonia, bronchiolitis and bronchiectasis	$35,000
2009	Federated States of Micronesia Capacity Building for TB nurses and related health workers in the Federated States of Micronesia (FSM) A partnership with Eli Lilly	$31,424
2009-2012	Cambodian Anti-Tuberculosis Association Cambodia: TB control in elderly and vulnerable groups and in factories	$110,637
2008-2009	Secretariat of Pacific Community TB Drama Video Production in Kiribati	$35,000
2008-2009	Federated States of Micronesia (Chuuk) Support of a tutor and education materials for children for MDRTB	$5,537
2007-2009	Aboriginal Health Council of Western Australia (AHCWA) Beyond the Big Smoke: a clear vision for Aboriginal tobacco control in Western Australia	$200,000
2007-2009	Aboriginal Health and Medical Research Council (AH&MRC) BREATHE: Project. This project aims to reduce smoking-related disease and morbidity for Aboriginal people in NSW communities	$490,200
2007-2008	Secretariat of Pacific Community Enhancing Community involvement in TB control through Theatre in Kiribati	$40, 926
2006-2016	PITCA - Pacific Island TB Controllers Association Training of nurses and related workers in the Northern Pacific Funding	$126,216
2006	TB Nurse Training in Kiribati	$41,699
2006	Building of TB Laboratory at Tunguru Hospital Kiribati	$30,000

Date	Recipient/Project	Award
2005	Maningrida Lung Health Community Awareness Raising Pilot Project Funding (James N Kirby Foundation $12,000)	$20,000
2002 - 2005	TB laboratory Training Tonga, Samoa, Kiribati and the Cook Islands	$189,231
2001	Distribution of books: Clinical Tuberculosis and Tobacco or Health: A Global Threat through Teaching Aids at Low Cost.	$2,000
2000	Sponsored Professor Don Enarson, Scientific Director of IUATLD, to be guest speaker at the NSW Health Department TB Nurses Conference	$3,000
2000	Participation in the WHO, "First Stop TB Meeting in the Pacific Islands" in Noumea	$4,000
1999	Provided funding for the translation of "Tobacco or health: A Global Threat" through Teaching Aids at Low Cost	$3,000
1999	Visit to Port Moresby and Lae to evaluate the DOTS TB Programme	$4,000
1999	Funded purchase of course textbooks for Epidemiology Workshop in Port Moresby	$1,000

2016 FINANCIALS AND ACFID SUMMARY FINANCIALS

DIRECTORS' REPORT

Your Directors present their report on the Company for the financial year ended 31 December 2016.

Australian Respiratory Council
(A Company Limited by Guarantee)
A.B.N. 11 883 368 767

Directors

The Directors at any time during or since the end of the financial period are:

Name and Qualifications Experience and Special Responsibilities

Amanda Julie Christenen
Dip Nursing
Appointed to the Board on 22 January 2001. Executive Director
Interests in contracts: Nil

Clinical Associate Professor Peter Gianoutsos
MB CHB (Univ of Otago), FRACP FCCP
Appointed to the Board on 15 May 2006. Vice President
Interest in contracts: Nil

Robert Eric Horsell OAM
CPA
Appointed to the Board 24 June 1999. Finance Director
Interest in contracts: Nil

Robyn Johnson
GAICD
Appointed to the Board on 5 November 2012
Interest in contracts: Nil

David Macintosh AM
BBS (UTS), FCA
Appointed to the Board 19 June 1997. Vice President
Interest in contracts: Nil

Ian W Ramsay
LL.B (Syd.)
Board member 2008 - February 2012
Reappointed to the Board 5 November 2012
Interest in contracts: Nil

Emeritus Professor J Paul Seale AM
MB BS, PhD, FRACP
Appointed to the Board 19 June 1997. President
Interest in contracts: Nil

Kerrie Shaw
Dip Nursing
Appointed to the Board 4 February 2013. Chair of the Projects Committee.
Interest in contracts: Nil

Professor Iven Young AM
BSc(Med), MB BS, Phd, FRACP
Appointed to the Board 6 August 1998. Chair of the Research Committee.
Interest in contracts: Nil

Meetings of Directors

The number of Directors' meetings held during the financial period and the number of meetings attended by each Director were:

Name Of Director	Number Held while in Office	Number Attended
Amanda Julie Christensen	5	5
Peter Gianoutsos	5	4
Robert Eric Horsell	5	5
Robyn Johnson	5	4
David Hugh Macintosh	5	4
Ian Ramsay	5	4
John Paul Seale	5	5
Kerrie Shaw	5	4
Iven Hunter Young	5	2

Principal Activities

The principal activity of the Company during the financial year was to provide funding and expertise of research and projects aimed at improving lung health.

The Company's short term objectives are to:

i) continue to build expertise in respiratory health
ii) foster innovation in respiratory health research
iii) deliver and measure positive impacts to communities and research
iv) enhance ARC's role in the country as a unique non-government organisation in the area of lung health
v) advocate to improve respiratory health, particularly in relation to TB and smoking at state, national and international levels.

The Company's long term objectives are to:

i) develop and support innovative and effective approaches to research and development in lung health.
ii) to improve lung health in communities, with an emphasis on disadvantaged groups.

To achieve these objectives, the Company has adopted the following Strategies:

i) the Board strives to attract sustainable partnerships
ii) the Board undertakes fundraising
iii) the Board actively seeks funding.

The Company is incorporated under the Corporations Act 2001 and is a Company limited by guarantee. If the Company is wound up, the Constitution states that each member is required to contribute a maximum of $1.00 towards meeting any outstanding obligations of the Company. At 31 December 2016 the collective liability of members was $42 (2015:$52).

AUDITOR'S INDEPENDENCE DECLARATION UNDER SECTION 307C OF THE CORPORATION ACT 2001

A copy of the Auditor's Independence Declaration follows this Directors' Report.

Signed in accordance with a resolution of the Board of Directors:

Emeritus Professor J Paul Seale AM
Director
Sydney, 4 April 2017

David Macintosh AM
Director
Sydney, 4 April 2017

Auditor's Independence Declaration Under Section 307C of the Corporations Act 2001 to the Directors of Australian Respiratory Council

I declare that, to the best of my knowledge and belief, during the year ended 31 December 2016 there have been:

i) no contraventions of the Auditor independence requirements as set out in the Corporations Act 2001 in relation to the audit; and
ii) no contraventions of any applicable code of professional conduct in relation to the audit.

BRYAN RUSH & COMPANY
Chartered Accountants

D R Conroy FCA
Principal
Auditor No: 2251
Sydney, 4 April 2017

STATEMENT OF PROFIT OR LOSS AND OTHER COMPREHENSIVE INCOME
For the Year Ended 31 December 2016

	Note	2016 $	2015 $
Revenue	2	486,279	505,928
Depreciation and amortisation expense	3	(11,997)	(11,825)
Research grants, fellowships and scholarships		(165,574)	(100,000)
Project funding		(36,678)	(54,794)
Investment expense		(13,276)	(14,498)
Consultancy fees - Project		-	(17,728)
Employee benefits expense		(218,807)	(245,732)
Other expenses		(233,459)	(289,559)
Loss before income tax		(193,512)	(228,208)
Income tax expense	1	-	-
Loss for the year		(193,512)	(228,208)
Other comprehensive income after tax:			
Net gain on revaluation of investment property		-	339,000
Net gain/loss on revaluation of financial assets		(38,712)	(96,124)
Other comprehensive income for the year net of tax		(38,712)	242,876
Total comprehensive income for the year		(232,224)	14,668

STATEMENT OF FINANCIAL POSITION
As At 31 December 2016

	Note	2016 $	2015 $
ASSETS			
Current Assets			
Cash and cash equivalents	5	243,954	458,094
Trade and other receivables	6	55,114	42,415
Other current assets	7	8,199	7,729
Total Current Assets		**307,267**	**508,238**
Non-Current Assets			
Financial assets	8	2,271,636	2,310,348
Property, plant and equipment	9	53,551	44,500
Investment property	10	1,939,000	1,939,000
Total Non-Current Assets		**4,264,187**	**4,293,848**
TOTAL ASSETS		**4,571,454**	**4,802,086**
LIABILITIES			
Current Liabilities			
Trade and other payables	11	71,664	76,575
Employee Entitlements	12	48,249	41,746
Total Current Liabilities		**119,913**	**118,321**
TOTAL LIABILITIES		**119,913**	**118,321**
NET ASSETS		**4,451,541**	**4,683,765**
EQUITY			
Reserves	13	3,591,918	3,203,629
Retained earnings		859,623	1,480,136
TOTAL EQUITY		**4,451,541**	**4,683,765**

STATEMENT OF CHANGES IN EQUITY
For The Year Ended 31 December 2016

	Capital Profits Reserves $	Asset Revaluation Reserves $	Retained Earnings/ (Accumulated Losses) $	Total $
Balance at 1 January 2015	2,411,980	469,403	1,787,714	4,669,097
Loss attributable to members	-	-	(228,208)	(228,208)
Total comprehensive income for the year	-	242,876	-	242,876
Transfers on sale of assets	-	79,370	(79,370)	-
Balance at 31 December 2015	**2,411,980**	**791,649**	**1,480,136**	**4,683,765**
Loss attributable to members	-	-	(193,512)	(193,512)
Total comprehensive income for the year	-	(38,712)	-	(38,712)
Transfers on sale of assets	-	427,001	(427,001)	-
Balance at 31 December 2016	**2,411,980**	**1,179,938**	**859,623**	**4,451,541**

STATEMENT OF CASH FLOWS
For The Year Ended 31 December 2016

	Note	2016 $	2015 $
Cash Flows From Operating Activities			
Receipts from customers		305,251	294,568
Payments to suppliers and employees		(687,154)	(680,018)
Interest received		7,587	12,427
Distributions received		181,224	220,325
Net cash provided by (used in) operating activities	17	**(193,092)**	**(152,698)**
Cash Flows From Investing Activities			
Proceeds from sale of available-for-sale investments		-	622,266
Payment for property, plant and equipment		(21,048)	(7,487)
Payment for available-for-sale investments		-	(501,257)
Net cash provided by (used in) investing activities		**(21,048)**	**113,522**
Net Increase/(Decrease) in Cash Held		(214,140)	(39,176)
Cash at beginning of financial year		458,094	497,270
Cash at end of financial year	17	**243,954**	**458,094**

NOTES TO AND FORMING PART OF THE ACCOUNTS
For The Year Ended 31 December 2016

Note 1 - Statement of Significant Accounting Policies

Basis of Preparation

Australian Respiratory Council applies Australian Accounting Standards – Reduced Disclosure Requirements as set out in AASB 1053: Application of Tiers of Australian Accounting Standards and AASB 2010–2: Amendments to Australian Accounting Standards arising from Reduced Disclosure Requirements.

The financial statements are general purpose financial statements that have been prepared in accordance with Australian Accounting Standards – Reduced Disclosure Requirements of the Australian Accounting Standards Board (AASB) and the Corporations Act 2001. The Company is a not-for-profit entity for financial reporting purposes under Australian Accounting Standards.

Australian Accounting Standards set out accounting policies that the AASB has concluded would result in financial statements containing relevant and reliable information about transactions, events and conditions. Material accounting policies adopted in the preparation of these financial statements are presented below and have been consistently applied unless stated otherwise.

The financial statements, except for the cash flow information, have been prepared on an accruals basis and are based on historical costs, modified, where applicable, by the measurement at fair value of selected non-current assets, financial assets and financial liabilities. The amounts presented in the financial statements have been rounded to the nearest dollar.

Revenue

Revenues are recognised at fair value of the consideration received net of the amount of goods and services tax (GST) payable to the taxation authority. Exchanges of goods or services of the same nature and value without any cash consideration are not recognised as revenues. Dividend revenue is recognised when the right to receive a dividend has been established. Interest revenue is recognised on a proportional basis taking into account the interest rates applicable to the financial assets. Revenue from investment properties is recognised on an accruals basis in accordance with lease agreements. Donations and bequests are recognised as revenue when received. Income from other sources is recognised when the fee in respect of other products or services provided is receivable.

Income Tax

The Company is registered as a charity and is not subject to income tax. Continued exemption for income tax is subject to the requirements for non profit organisations.

Property, Plant and Equipment

Each class of property, plant and equipment is carried at cost less, where applicable, any accumulated depreciation and impairment losses.

Plant and Equipment

Plant and equipment are measured on the cost basis and are therefore carried at cost less accumulated depreciation and any accumulated impairment losses. In the event the carrying amount of plant and equipment is greater than its estimated recoverable amount, the carrying amount is written down immediately to its estimated recoverable amount and impairment losses are recognised either in profit or loss or as a revaluation decrease if the impairment losses relate to a revalued asset. A formal assessment of recoverable amount is made when impairment indicators are present.
Plant and equipment that have been contributed at no cost, or for nominal cost, are valued and recognised at the fair value of the asset at the date it is acquired.

Depreciation

The depreciable amount of all fixed assets, including buildings and capitalised lease assets, but excluding freehold land, is depreciated on a straight line basis and diminishing value basis over their useful lives to the Company commencing from the time the asset is held ready for use.

The depreciation rates used for each class of depreciable assets are:

Class of Fixed Asset	Depreciation Rate
Plant and Equipment	7.5% - 50%

The assets' residual values and useful lives are reviewed, and adjusted if appropriate, at each balance sheet date. An asset's carrying amount is written down immediately to its recoverable amount if the asset's carrying amount is greater than its estimated recoverable amount. Gains and losses on disposals are determined by comparing proceeds with the carrying amount. These gains or losses are included in the statement of comprehensive income. When revalued assets are sold, amounts included in the revaluation surplus relating to that asset are transferred to retained earnings.

Impairment of Assets

At each reporting date, the Company reviews the carrying values of its tangible assets to determine whether there is any indication that those assets have been impaired. If such an indication exists, the recoverable amount of the asset, being the higher of the asset's fair value less costs to sell and value in use, is compared to the asset's carrying value. Any excess of the asset's carrying value over it's recoverable amount is expensed to the income statement.

Employee Benefits

Provision is made for the Company's liability for employee benefits arising from services rendered by employees to balance date. Employee benefits expected to be settled within one year together with benefits arising from wages and salaries, annual leave and sick leave which will be settled after one year, have been measured at the amounts expected to be paid when the liability is settled plus related on-costs. Other employee benefits payable later than one year have been measured at the present value of the estimated future cash outflows to be made for those benefits.

NOTES TO THE FINANCIAL STATEMENTS
For The Year Ended 31 December 2016

Contributions are made by the Company to employee superannuation funds and are charged as expenses when incurred.

Goods and Services Tax (GST)
Revenues, expenses and assets are recognised net of the amount of GST, except where the amount of GST incurred is not recoverable from the Australian Tax Office. In these circumstances the GST is recognised as part of the cost of acquisition of the asset or as part of an item of the expense. Receivables and payables in the statement of financial position are shown inclusive of GST.

Cash and Cash Equivalents
For the purposes of the cash flows statement, cash includes cash on hand and at call deposits with banks or financial institutions, investments in money market instruments maturing within less than two months and net of bank overdrafts.

Comparative Figures
Where required by Accounting Standards comparative figures have been adjusted to conform with changes in presentation for the current financial year.

Financial Instruments
Recognition and initial measurement
Financial instruments, incorporating financial assets and financial liabilities, are recognised when the entity becomes a party to the contractual provisions of the instrument. Trade date accounting is adopted for financial assets that are delivered within timeframes established by marketplace convention.

Financial instruments are initially measured at cost plus transactions cost where the instrument is not classified as at fair value through profit or loss. Transaction costs related to instruments classified as at fair value through profit or loss are expensed to profit or loss immediately. Financial instruments are classified and measured as set out below.

1. Fair value estimation
   The fair value of financial assets and financial liabilities must be estimated for recognition and measurement or for disclosure purposes.

   The fair value of financial instruments traded in active markets such as trading and available-for-sale securities is based on quoted market prices at the balance sheet date. The quoted market price used for financial assets held by the Company is the current bid price; the appropriate quoted market price for financial liabilities is current ask price.

2. Loans and receivables
   Loans and receivables are non-derivative financial assets with fixed or determinable payments that are not quoted in an active market and are subsequently measured at amortised cost using the effective interest rate method.

3. Held to maturity investments
   Held to maturity investments are non-derivative financial assets with fixed maturities and fixed or determinable payments, and it is the entity's intention to hold these investments to maturity. They are subsequently measured at amortised cost using the effective interest rate method.

4. Available for sale financial assets
   Available for sale financial assets are non-derivative financial assets that are either designated as such or that are not classified in any of the other categories. They comprise investments in the equity of other entities where there is neither a fixed maturity nor fixed or determinable payments.

5. Financial Liabilities
   Non-derivative financial liabilities (excluding financial guarantees) are subsequently measured at amortised cost using the effective interest rate method.

Critical Accounting Estimates and Judgments
The Directors evaluate estimates and judgements incorporated into the financial report based on historical knowledge and best available current information. Estimates assume a reasonable expectation of future events and are based on current trends and economical data, obtained both externally and within the group.

Key Estimates - Impairment
The Company assesses impairment at each reporting date by evaluating conditions specific to the Company that may lead to impairment of assets. Where an impairment trigger exists, the recoverable amount of the assets is determined.

Value in use calculations performed in assessing recoverable amounts incorporated a number of key estimates.

Key Judgments - Provision for Impairment of Receivables
The Directors believe that the amount included in accounts receivable is recoverable and non provision for impairment has been made at the end of the financial year.

NOTES TO THE FINANCIAL STATEMENTS
For The Year Ended 31 December 2016

	2016 $	2015 $
2. Revenue		
Operating Activities		
Appeals	99,070	71,495
APR 2015 Conference	245	134,993
Net profit/(loss) on sale of investments	10,220	(52,195)
Rental revenue for property investment	54,905	50,697
Interest received	7,587	12,427
Fund distributions from investments	140,428	182,962
Legacies & donations	94,854	27,716
Member subscriptions	909	1,045
Miscellaneous income	2,328	5,559
Refund of franking credits	40,796	37,363
Sundry income	34,937	33,866
Total Revenue	486,279	505,928
3. Profit From Ordinary Activities		
Expenses		
Depreciation of Non-Current Assets:		
Plant and equipment	11,997	11,825
4. Auditor's Remuneration		
Remuneration of the Auditor of the Company for:		
- Auditing the Financial Report	13,300	12,800
5. Cash and Cash Equivalents		
Cash on hand	-	1,180
Cash at bank	243,954	456,914
	243,954	458,094
6. Trade and Other Receivables		
Trade debtors	9,160	3,424
Other debtors	45,954	38,991
	55,114	42,415
7. Other Current Assets		
Prepayments	8,199	7,729

NOTES TO THE FINANCIAL STATEMENTS
For The Year Ended 31 December 2016

	2016 $	2015 $
8. Financial Assets		
Non Current		
Listed shares - at fair value	1,604,002	1,627,671
Managed funds - at fair value	667,634	682,677
Total financial assets	**2,271,636**	**2,310,348**
9. Property, Plant & Equipment		
Non Current		
Plant & equipment at cost	116,691	112,706
Less: accumulated depreciation and impairment	(63,140)	(68,206)
Total property, plant and equipment	**53,551**	**44,500**

Movements in Carrying Amounts

Movement in the carrying amounts for each class of property, plant and equipment between the beginning and the end of the current financial year:

	Plant and Equipment $	Total $
Balance at the beginning of year	44,500	44,500
Additions	21,048	21,048
Disposals	(7,746)	(7,746)
Depreciation expense	(4,251)	(4,251)
Full depreciation for assets under $200	-	-
Carrying amount at the end of year	53,551	53,551

10. Investment Property		
Non Current		
Investment property - at fair value directors' valuation	1,939,000	1,939,000
Total	**1,939,000**	**1,939,000**

Investment Property Revaluations

At 31 December 2015, the Directors have performed a Directors' valuation on the investment porperty. The Directors have reviewed the market data reports and believed the carrying amount of the property correctly reflects the fair value less costs of disposal at 31 December 2015.

NOTES TO THE FINANCIAL STATEMENTS
For The Year Ended 31 December 2016

		2016 $	2015 $
11.	**Trade and Other Payables**		
	Unsecured liabilities		
	Trade payables	10,271	15,223
	Sundry payables and accrued expenses	61,393	61,352
	Total	**71,664**	**76,575**
12.	**Employee Entitlements**		
	Provision for annual leave	32,003	27,810
	Provision for long service leave	16,246	13,936
	Total	**48,249**	**41,746**
	Number of employees		
	Number of employees at year end	3	3
13.	**Reserves**		
	Capital profits reserve	2,411,980	2,411,980
	Asset revaluation reserve	1,179,938	791,649
	Total	3,591,918	3,203,629
	Nature and purpose of reserves		
	(a) Capital Profits		
	The capital profits reserve is used to accumulate realised capital profits		
	Balance at end of year	2,411,980	2,411,980
	(b) Asset revaluation		
	The asset revaluation reserve is used to record increments and decrements in the value of non current assets		
	Balance at beginning of year	791,649	469,403
	Revaluation increment/(decrement)	(38,712)	242,876
	Transfers	427,001	79,370
	Balance at end of year	**1,179,938**	**791,649**

14. Members' Guarantee

The Company is limited by guarantee. If the Company is wound up, the Constitution states that each member is required to contribute a maximum of $1 each towards meeting any outstanding obligations of the Company. At 31 December 2016 the number of members was 42 (2015:52).

NOTES TO THE FINANCIAL STATEMENTS
For The Year Ended 31 December 2016

15. Financial Risk Management

(a) Interest Rate Risk

The Company's financial instruments consist mainly of deposits with banks, local money market instruments, short-term investments, accounts receivable and payable, and investment available for sale.

The carrying amounts for each category of financial instruments, measured in accordance with AASB 139 as detailed in the accounting policies to these financial statements, are as follows:

	2016 $	2015 $
Financial assets		
Cash and cash equivalents	243,954	458,094
Trade and other receivables	55,114	42,415
Other current assets	8,199	7,729
Financial assets at fair value through profit or loss	2,271,636	2,310,348
Total financial assets	**2,578,903**	**2,818,586**
Financial liabilities at amortised cost:		
– trade and other payables	71,664	76,575
Total financial liabilities	**71,664**	**76,575**

Net Fair Values

(i) For listed available-for-sale financial assets and financial assets at fair value through profit or loss the fair values have been based on closing quoted bid prices at the end of the reporting period.

In determining the fair values of the unlisted available-for-sale financial assets, the Directors have used inputs that are observable either directly (as prices) or indirectly (derived from prices).

(ii) Fair values of held-to-maturity investments are based on quoted market prices at the ending of the reporting period.

16. Key Management Personnel

Any person(s) having authority and responsibility for planning, directing and controlling the activities of the entity, directly or indirectly, including any Director (whether executive or otherwise) of that entity is considered key management personnel.

The totals of remuneration paid to key management personnel (KMP) of the Company during the year are as follows:

	2016 $	2015 $
Key management personnel compensation	131,119	139,127

NOTES TO THE FINANCIAL STATEMENTS
For The Year Ended 31 December 2016

	2016 $	2015 $

17. Cash Flows Information

(a) Cash at the end of the financial year as shown in the cash flow statement is reconciled to items in the balance sheet as follows:

Cash and cash equivalents	**243,954**	**458,094**

(b) Reconciliation of Cash Flow from Operations with Profit after Income Tax

Net income/loss for the period	(193,512)	(228,208)
Cash flows excluded from profit attributable to operating activities		
Non cash flows in profit		
Depreciation	11,997	11,825
Net (gain)/loss on disposal of investments	-	-
Changes in assets and liabilities, net of the effects of purchase and disposal of subsidiaries		
(Increase)/decrease in trade and term receivables	(12,699)	51,364
(Increase)/decrease in prepayments	(470)	122
Increase/(decrease) in trade payables and accruals	(4,911)	787
Increase/(decrease) in provision for employee benefits	6,503	11,412
Net cash inflow/(outflow) from operating activities	**(193,092)**	**(152,698)**

Information and declarations to be furnished under the Charitable Fundraising Act 1991, Section 23

(a) Details of aggregate gross income and total expenses of fundraising appeals

Gross proceeds from fundraising appeals	193,924	99,211
Less: Total direct costs of fundraising	25,911	31,987
Net surplus from fundraising activities	**168,013**	**67,224**

(b) Statement showing how funds received were applied to charitable purposes

This surplus is used for research grants, fellowships, scholarships and projects.

(c) Fundraising appeals conducted during the financial period

Appeals only

(d) Comparisons

Total cost of fundraising/gross income from fundraising	13%	32%
Net surplus from fundraising/gross income from fundraising	87%	68%
Total cost of services/total expenditure	100%	100%
Total cost of services/total income received	13%	32%

SUMMARY FINANCIAL REPORT - INCOME STATEMENT
For the year ended 31 December 2016

	2016 $	2015 $
REVENUE		
Donation and Gifts - Monetary & Non monetary	99,070	71,495
Bequests and Legacies	94,854	27,716
Grants		
AusAid	-	-
Other Australian	20,000	20,000
Other overseas	3,855	-
Investment Income	253,937	238,571
Other Income	14,563	148,146
TOTAL REVENUE	**486,279**	**505,928**
EXPENDITURE		
International Aid and Development		
International programs		
Funds to international projects	21,683	47,209
Program Support Costs	7,540	15,735
Community education	6,582	5,763
Fundraising Costs		
Public	25,911	31,987
Government, multilateral and private	-	-
Accountability and Administration	419,802	480,430
Non - Monetary Expenditure	-	-
Total International Aid and Development Programs Expenditure	**481,518**	**581,124**
Domestic projects	198,273	153,012
TOTAL EXPENDITURE	**679,791**	**734,136**
EXCESS/(SHORTFALL) OF REVENUE OVER EXPENDITURE	(193,512)	(228,208)
Net gain/(loss) on revaluation of financial assets and investment property	(38,712)	242,876
EXCESS/(SHORTFALL) OF REVENUE OVER EXPENDITURE	(232,224)	(14,668)

During the financial year the Australian Respiratory Council had no transactions in the Revenue or Expenditure for International Political or Religious Adherence Promotion Program categories.

The above disclosures are prepared in accordance with the requirements set out in the ACFID Code of Conduct.

SUMMARY FINANCIAL REPORT

ARC's Table of Cash Movements for Designated Purposes for the year ended 31 December 2016

Total for	Cash available at the beginning of the financial period $	Cash raised during the financial period $	Cash disbursed during the financial period $	Cash available at the end of the financial period $
Australian Research Grants & Fellowships	(200,239)	94,854	(165,574)	(270,959)
Australian Projects	51,767	90,231	(32,700)	109,298
International Projects	(229,298)	32,713	(29,223)	(225,808)
Community Education	(28,495)	-	(6,582)	(35,077)
Other Purposes	864,359	276,264	(474,123)	666,500
Total	**458,094**	**494,062**	**(708,202)**	**243,954**

NOTE: In the year ended 31 December 2016, the Board allocated an amount for international projects. The shortfall in cash reserves is compensated by cash raised from investment activities.

STATEMENT OF CHANGES IN EQUITY

For The Year Ended 31 December 2016

	Capital profits Reserves $	Asset Revaluation Reserves $	Retained Earnings/ (accumulated losses) $	Total $
Balance at 1 January 2015	2,411,980	469,408	1,787,714	4,669,097
Excess of revenue over expense	-	-	(228,208)	(228,208)
Total comprehensive income for the year	-	242,876	-	242,876
Transfers on sale of assets	-	79,370	(79,370)	-
Balance at 31 December 2015	2,411,980	791,649	1,480,136	4,683,765
Excess of revenue over expense	-	-	(193,512)	(193,512)
Total comprehensive income for the year	-	(38,712)	-	(38,712)
Transfers on sale of assets	-	427,001	(427,001)	-
Balance at 31 December 2016	**2,411,980**	**1,179,938**	**859,623**	**4,451,541**

The above disclosures are prepared in accordance with the requirements set out in the ACFID Code of Conduct.

SUMMARY FINANCIAL REPORT - BALANCE SHEET
As At 31 December 2016

	Note	2016 $	2015 $
ASSETS			
Current Assets			
Cash and cash equivalents	5	243,954	458,094
Trade and other receivables	6	55,114	42,415
Other current assets	7	8,199	7,729
Total Current Assets		**307,267**	**508,238**
Non-Current Assets			
Financial assets	8	2,271,636	2,310,348
Property, plant and equipment	9	53,551	44,500
Investment property	10	1,939,000	1,939,000
Total Non-Current Assets		**4,264,187**	**4,293,848**
TOTAL ASSETS		**4,571,454**	**4,802,086**
LIABILITIES			
Current Liabilities			
Trade and other payables	11	57,792	64,292
Borrowings	11	1,926	337
Provisions	12	48,249	41,746
Other financial liabilities	11	11,946	11,946
Total Current Liabilities		**119,913**	**118,321**
TOTAL LIABILITIES		**119,913**	**118,321**
NET ASSETS		**4,451,541**	**4,683,765**
EQUITY			
Reserves	13	3,591,918	3,203,629
Retained earnings		859,623	1,480,136
TOTAL EQUITY		**4,451,541**	**4,683,765**

At the end of the financial year the Australian Respiratory Council had no balances in the Inventories, Assets held for sale, Non current Trade and other receivables, Intangibiles, Current tax liabilities and Non Current Liabilities categories.

The above disclosures are prepared in accordance with the requirements set out in the ACFID Code of Conduct.

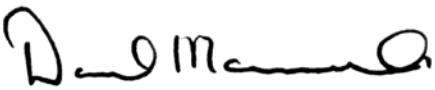
DIRECTORS' DECLARATION

The Directors of the Company declare that:

1. The financial statements and notes are in accordance with the Corporations Act 2001:
   - **i.** comply with Australian Accounting Standards – Reduced Disclosure Requirements; and
   - **ii.** give a true and fair view of the financial position as at 31 December 2016 and performance for the year ended on that date of the Company;
2. In the Directors' opinion there are reasonable grounds to believe that the Company will be able to pay its debts as and when they become due and payable.

This declaration is made in accordance with a resolution of the Board of Directors.

Emeritus Professor J Paul Seale AM
Director
Sydney, 4 April 2017



David Macintosh AM
Director
Sydney, 4 April 2017

INDEPENDENT AUDITOR REPORT
To The Members of the Australian Respiratory Council

Australian Respiratory Council
(A Company Limited by Guarantee)
A.B.N. 11 883 368 767

Report on the Financial Report
We have audited the accompanying financial report of the Australian Respiratory Council, which comprises the statement of financial position as at 31 December 2016, the statement of profit or loss, statement of comprehensive income, statement of changes in equity and statement of cash flows for the year then ended, notes comprising a summary of significant accounting policies and other explanatory information, and the Directors' declaration.

Directors' Responsibility for the Financial Report
The Directors of the Company are responsible for the preparation of the financial report that gives a true and fair view in accordance with Australian Accounting Standards – Reduced Disclosure Requirements and the Corporations Act 2001 and for such internal control as the Directors determine is necessary to enable the preparation of the financial report that is free from material misstatement, whether due to fraud or error.

Auditor's Responsibility
Our responsibility is to express an opinion on the financial report based on our audit. We conducted our audit in accordance with Australian Auditing Standards. Those standards require that we comply with relevant ethical requirements relating to audit engagements and plan and perform the audit to obtain reasonable assurance whether the financial report is free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the financial report. The procedures selected depend on the auditor's judgment, including the assessment of the risks of material misstatement of the financial report, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to the Company's preparation of the financial report that gives a true and fair view in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the entity's internal control. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of accounting estimates made by the Directors, as well as evaluating the overall presentation of the financial report.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

Independence
In conducting our audit, we have complied with the independence requirements of the Corporations Act 2001.

Auditor's Opinion
In our opinion,

(a) the financial report of Australian Respiratory Council is in accordance with the Corporations Act 2001, including:
- **i.** giving a true and fair view of the Company's financial position as at 31 December 2016 and of its' performance for the year ended on that date;
- **ii.** complying with Australian Accounting Standards - Reduced Disclosure Requirements and the Corporations Regulations 2001; and
- **iii.** complying with Div 60 of the ACNC Act 2012.

(b) We have also audited the summary financial reports of the Australian Respiratory Council which in our opinion are in accordance with the requirements set out in the ACFID Code of Conduct.

BRYAN RUSH & CO
Chartered Accountants

D R Conroy FCA
Principal
Auditor No: 2251
Sydney, 4 April 2017

BRYAN RUSH & Co
CHARTERED ACCOUNTANTS
since 1928

BRYAN RUSH & CO
Chartered Accountants

Level 2 154 Elizabeth Street Sydney NSW 2000
Telephone: 02 9267 9227
Fax: 02 9261 3384
Email: admin@byranrush.com.au

MILESTONES

OVER 100 YEARS OF SERVICE

1910 The National Association for the Prevention and Cure of Consumption forms at a public meeting in Sydney

1912 Australia's first tuberculosis (TB) dispensary opens in Sydney

1913 First Annual General Meeting of the National Association for the Prevention and Cure of Consumption was held

1941 Subscription from donors funds the acquisition of the first mobile x-ray unit

1954 Mobile x-ray units in NSW and other parts of Australia take more than 500,000 x-rays in a year

1957 Service expands offshore with a TB survey in Nauru

1982 Mobile vans are handed over to NSW Health

1986 The first grants are provided for respiratory research and overseas TB Control

2002 Laboratory skills training programs begin in the Pacific Region

2005 Dr Ingrid Lang is appointed as the first Ann Woolcock Research Fellow. Dr Lang's research is on Genetic influences on causal pathways of acute lower respiratory tract infections in highly susceptible infants

2005 In collaboration with the US Centers for Disease Control and Prevention the ARC Nurse Consultants commence annual training for nurses and health care workers across the Northern Pacific TB Programs

2006 Name changes from Community Health and Tuberculosis Australia (CHATA) to Australian Respiratory Council (ARC), reflecting our wider focus on respiratory health

2007 ARC funds two Aboriginal Tobacco Cessation Projects; The Aboriginal Health and Medical Research Council's BREATHE Project and the Aboriginal Health Council of Western Australia's Beyond the Big Smoke Project

2008 Development of a TB Resource Kit for professional and community education

2009 Funding and technical support for the project - Combating TB in factory workers and the elderly commences. ARC partners with the Cambodian Anti-TB Association to deliver this project

2010 Further development of resources for professional and community education

2010 Dr Jodie Simpson commences as the Ann Woolcock Research Fellow. Dr Simpson's research is on Characterisation and treatment of innate immune dysfunction in older people with obstructive airway disease

2011 ARC contributes funds for training medical officers to build research skills and capacity in future leaders in respiratory public health in Vietnam

2012 ARC becomes a foundation member of the newly formed Lung Health Alliance

2013 ARC celebrates 100 years of service and advocacy for TB and respiratory health in Australia and the Asia Pacific Region

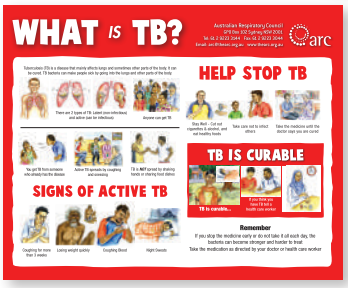
2015 ARC hosted the 5th Conference of The Union Asia Pacific Region, held in Sydney, Australia

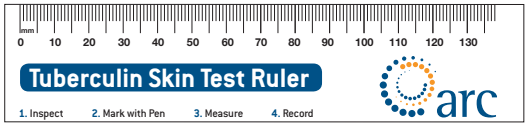
RESOURCES OVERVIEW

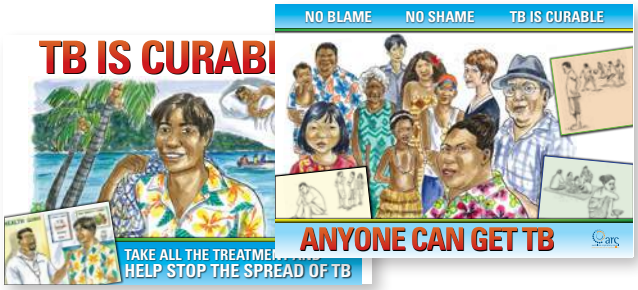
Community Awareness

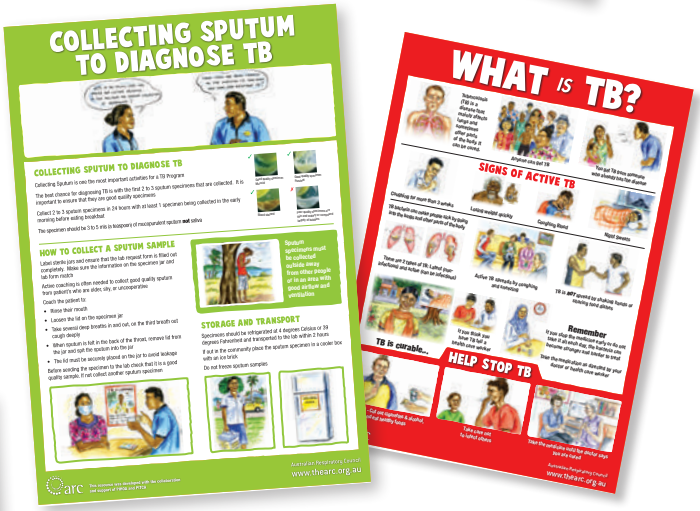
Raising awareness about TB within the community is important. The key messages for TB relate to anyone within the community can get TB, how TB is transmitted, the signs and symptoms of TB, the need to seek medical assessment if symptoms develop, how to treat TB and most importantly that TB can be cured.

To promote these messages ARC has developed a range of resources.









Nurse Education and Training

The aim of the Tuberculosis Training Modules is to provide a dynamic resource which can be added to, updated and expanded as necessary to meet the needs of nurses working with TB Programs across the region.

GIVING TOWARDS A COMMUNITY FREE OF RESPIRATORY ILLNESS

Lung disease affects many different people; an Australian war veteran with chronic lung disease, a person continually exposed to smoking, a young child in the Pacific with drug resistant tuberculosis.

The Australian Respiratory Council's vision is for a community free of respiratory illness.

A bequest, large or small, is a simple and enduring way you can help to improve people's quality of life. Give a gift towards a better Life.

arc
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prevention and cure of respiratory illness

For more information or a copy of ARC's '*Your Future, Your Security*', contact us on (02) 9223 3144 or email arc@thearc.org.au

www.thearc.org.au

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