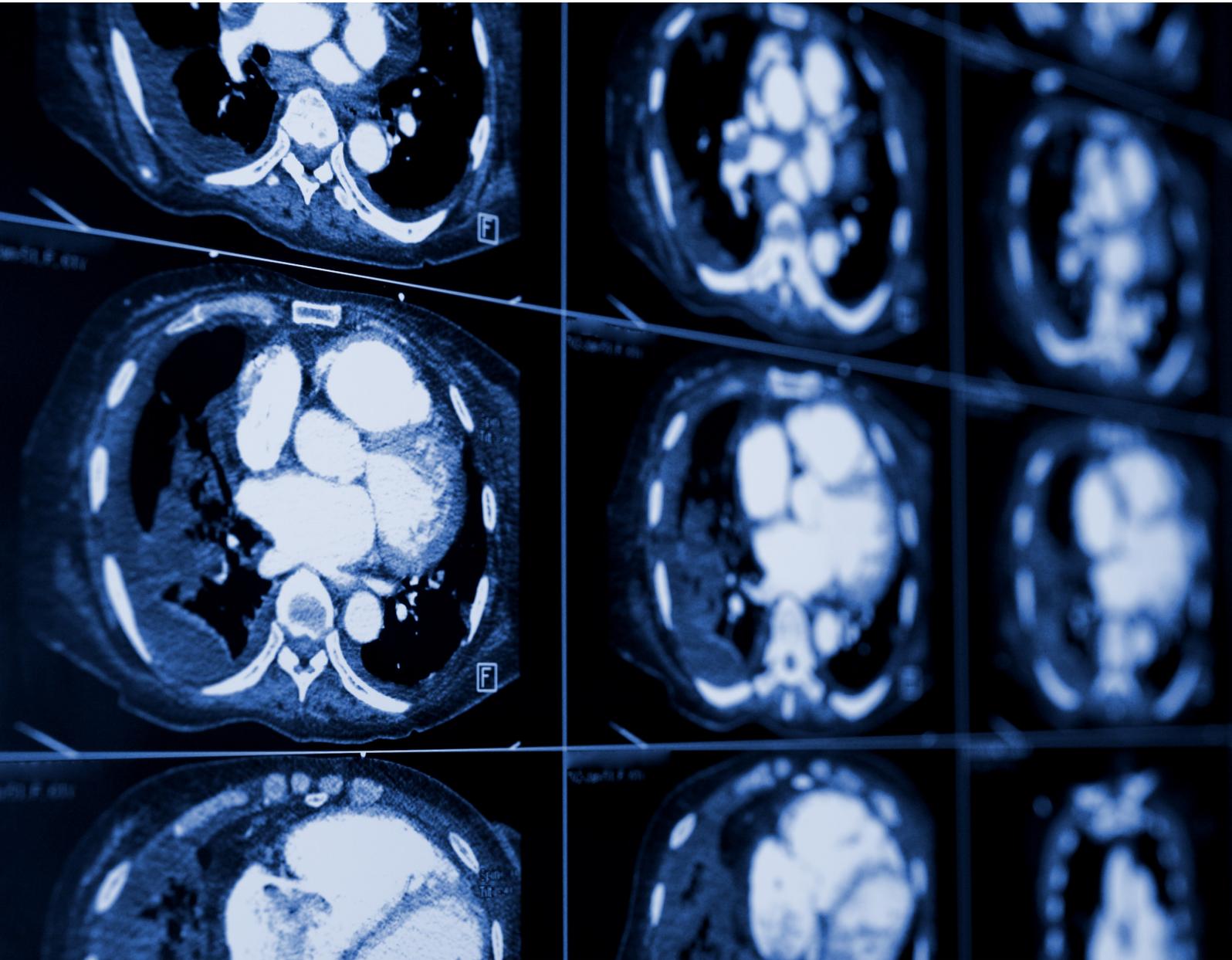


# Woolcock Institute of Medical Research BIENNIAL REPORT

2014 - 2015



Our work makes a difference to people's lives



The Woolcock Institute's mission is to improve the respiratory and sleep health of all Australians through research, education, prevention and care.

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# WHO WE ARE

## Our Vision

A better quality of life for people with sleep, breathing and lung disorders and their families.

## Our Aspiration

To build the Woolcock Institute into the pre-eminent centre for sleep and respiratory research and translation in Australasia, and one of the top four centres of its kind in the world.

## Our History



The late Professor Ann Woolcock (1937–2001) established the Institute in Sydney in 1981 with a vision to become Australia's centre of excellence for respiratory research.

Originally called the Institute of Respiratory Medicine, the Institute was renamed in 2002 in honour of its founder.

The Woolcock Institute soon outgrew its first home at the Royal Prince Alfred Hospital, Camperdown and expanded into several locations. In 2008 the Institute moved to the purpose-built laboratory and clinical complex in nearby Glebe where it remains today. The move was made possible with the generous support of the state and federal governments.

In recent years our activities have continued to grow and diversify into related areas such as paediatric sleep disorders, lung cancer and emphysema.

## Mission Statement

**The Woolcock Institute of Medical Research is Australia's leading respiratory and sleep research organisation.**

With a world-class network of specialised researchers, we deal with the causes, prevention, diagnosis and treatment of respiratory disease and sleep disorders. In the words of Professor Jeffrey Drazen, Professor of Medicine, Harvard University and Editor-in-Chief of the *New England Journal of Medicine*, the Woolcock Institute is regarded as one of the top six such institutes world-wide.

The Institute has strong affiliations with many organisations including the University of Sydney, the University of Technology, Sydney (UTS), University of New South Wales (UNSW), Sydney Local Health District and several other major health districts, professional bodies, commercial companies and research funding organisations. In addition, the Woolcock Institute's scientists and clinicians collaborate with colleagues across Australia, Europe and North America and we operate a branch office in Vietnam where we are addressing the burden of tuberculosis.

Breathing and sleep disorders represent a growing burden of disease in Australia and globally. Our research teams are dedicated to tackling adult and children's sleep disorders, asthma, chronic obstructive pulmonary disorder (COPD)/emphysema, lung cancer and tuberculosis. Our over-riding aim is to improve the lives of patients and their families through discovering cures, developing more effective treatments and ensuring our basic and clinical research is translated to better clinical outcomes.



## **Our distinctive contribution to research and clinical care for respiratory, lung and sleep disorders**

### **For patients and their families**

Drawing on the expertise of the Institute's leading researchers and respected clinicians, the Woolcock Institute offers a range of high quality services for sufferers of sleep and breathing disorders and referring clinicians such as GPs. Our Glebe-based "one stop shop" multidisciplinary clinic is home to some 35 clinicians from sleep and respiratory physicians to nutritionists, psychologists and sleep technicians. It is unique in Australia in offering world class sleep and circadian rhythm laboratories. This makes us a major resource for patients, GPs and their referring specialists. In addition, patients and their families make extensive use of our market-leading information on sleep and breathing disorders to better understand the nature of their condition and the treatment options available to them.

### **For researchers, clinicians and the medical community**

Woolcock clinicians serve in major public and private hospitals and hold academic appointments at leading universities. Our on-site laboratories and clinical facilities are first class. The Woolcock Institute provides a venue for clinicians to see patients and laboratory space, support and research infrastructure for researchers. We also offer an e-health clinic in regional New South Wales. Our researchers and clinicians are highly sought after regionally and globally and are active in a number of countries including China, Vietnam and other parts of Asia. The Woolcock Institute provides training and education opportunities for the next generation of specialist physicians and primary care clinicians such as GPs and pharmacists, clinician researchers and scientists. We are a front line resource for those who will treat and support breathing and sleep disorder sufferers in the future.

### **For donors, corporate clients and other stakeholders**

The Woolcock Institute's unique model of research, clinical services, professional services (education) and community programs enables us to collaborate productively with pharmacy and device companies, workplaces and communities around Australia to build awareness and understanding of, and improved treatments for, sleep and breathing diseases on an individual, community and population basis. We have the potential over time to develop e-health capabilities across our clinical activities which will assist us in promoting prevention strategies and models of distance service delivery. Each of the Woolcock Institute's professional education and community programs is based on the latest scientific evidence sourced from the Institute's own research and leading experts from around the globe. We also offer interested donors and corporates a range of options and modes through which they can partner with us and support our work financially.

### **For governments, health services and research funders**

The Woolcock Institute is a unique and irreplaceable national and international asset. No other Australian organisation – and few international comparators – offer the "bench to bedside" research and translation capability in breathing and sleep health or matches our multi-faceted range of activities. We are thus a valued source of new research outcomes as well as evidence-based treatment options and expert policy advice. In delivering the above we aim to be a facilitator of productive partnerships and a highly effective program manager. The benefit for governments is that the Woolcock Institute aggregates and makes available a unique breadth and depth of breathing and sleep disorders expertise and treatment approaches. The benefit we offer to research funders is our capacity to conduct basic, applied, clinical, public health and contract research and to develop and test new clinical pathways in our clinics.

### **Affiliations**

The Woolcock Institute operates as an independent company limited by guarantee and is governed by a distinguished board made up of outstanding researchers, leaders from industry and commerce, health system experts and senior university administrators.

We have an Affiliation Agreement with The University of Sydney. We are a member of Sydney Research - an alliance of medical research institutes; Sydney Local Health District and The University of Sydney and we also have Memorandums of Understanding with UTS and UNSW that all facilitate a high degree of integrated research collaboration.



**THE UNIVERSITY OF SYDNEY**



# CHAIRMAN'S REPORT



**Robert Estcourt**  
Chairman

I would like to begin my remarks by reminding us all why the Institute exists.

We exist for our dedicated Research Teams who are tackling adult and childhood respiratory and sleep disorders. Amongst others these include asthma, COPD/emphysema, lung cancer and tuberculosis. Our teams strive every day to understand and then develop better treatments for a range of dreadful diseases and conditions.

These cost lives, place significant burdens on healthcare systems and communities and impose heavily on quality of life, depriving many of a full and happy life.

It is the success of our work in these areas that we should be measured on.

In recent years one of the great achievements of all the stakeholders of the Woolcock is that it has become a happy, collaborative and supportive place to work. To be successful those who are associated with us need to get up every day and look forward to working here. The development and maintenance of that culture and environment is vital for our success.

I am pleased to report that 2014 and 2015 have been a very active and successful couple of years:

- We have won a number of NHMRC grants.
- We received other grants from corporate and government sectors, other organisations and individuals who support specific research work.
- Our success is well illustrated by the number of publications per staff member. It is invidious to quote numbers in this industry, but it does seem that whilst we come in the middle of the pack in terms of size, we are amongst the top few in terms of publications per staff member. In other words, the money is not wasted.
- A project I particularly liked was using crowdfunding to raise funds for a tuberculosis awareness project for children in Vietnam.
- Equally important is the translation of our work into the wider community. This has grown strongly in recent years. In 2014 we opened a paediatric sleep clinic and last year we conducted 369 paediatric sleep studies. Then in 2015 we opened a paediatric allergy clinic. The total number of sleep and clinic appointments in 2015 was more than 7,500. We are approaching

capacity and are already having to open for sleep studies over weekends. With recently commenced new initiatives I can see the same happening for clinical appointments. This increased level of translational activity provides a rich source of research ideas and subjects, as well as demonstrating that the Woolcock is not an Ivory Tower, but an integral part of the community - we are determined to see that our work has a beneficial impact on society.

- The growth in “operational” activities has gone hand in glove with growth in research activities and numbers. We now have over 200 researchers working out of this building. The combination of the research work and the translational activities means that in recent years this building has been transformed into one that never sleeps.

Our research work, our increased sleep studies and clinical work and the media reporting have all increased awareness of the Woolcock. We are finding increased interest in what we do to uncover the causes of diseases, finding better treatments and helping patients manage their health challenges. We have coupled this with a sustained campaign to build up our communications with past patients, friends and supporters. All this has considerably raised our profile. This is slowly but steadily building a supportive feed-back loop. Membership of the Institute is increasing and slowly but surely donations are rising.

The increased level of activity in the operational and fundraising space has improved our financial position significantly. It has gained us time to plan for the future, but has not as yet solved our longer term financing problems. While this challenge is greatest in terms of the support costs of research, with budgets at all levels of government and many corporates under stress, we do need to place the Institute on a footing where it can increasingly finance all its activities. In a nutshell we need the financial strength to ensure that the Institute is well placed to reach its potential, cement its position internationally as Australia's premier research institute for respiratory disease and sleep disorders and, in an increasingly challenging financial and operational environment, to ensure the optimal use of all the Institutes facilities, resources and expertise. So while the Institute is in a better research, operational and financial state than for a number of years and is moving in the right direction, it is still faced with major challenges.

There are a number of existing areas of work and new areas that I would like to mention in particular:

- The NSW state government's announcement that it will grant the Institute \$3 million towards supporting the development of a Lung Cancer Research Network and a Woolcock based Centre for Lung Cancer Research. This will be the first of its type in Australia and will fill

a great need if we are to make any major advances in counteracting this terrible illness.

- A private donation to set up a Centre of Excellence for research on emphysema, the Woolcock Emphysema Centre.
- Work is progressing in setting up a network for Optimal Patient Care for asthma.
- Approaches by private companies to work with us in research in associated areas.
- Support for our promotion and mentoring of the next generation of researchers.
- Other organisations working in the respiratory field have expressed an interest in moving into our facilities.

We are becoming a real centre, a true hub for sleep and respiratory expertise and work. These developments underline the role and standing of the Institute.

Whilst 2015 was a successful one, it has not been without some sadness. Professor Ruthven Blackburn, husband of Ann Woolcock, a moving force in our creation and great source of inspiration and support thereafter, died recently. All at the Woolcock will miss him.

In closing I would like to make particular mention of the multi-dimensional support the Woolcock receives from The University of Sydney, the Sydney Local Health District especially the Royal Prince Alfred Hospital, as well as the key financial contributions we receive from the state and federal governments. Without their support and help we would not exist. In particular I would like to thank The University of Sydney for taking such a positive attitude towards our housing needs over the next few years. I would also like to extend the warmest and sincerest thanks to those benefactors and donors who already provide support to the Institute. In the same breath, I am asking them to continue with their work. It would be impossible to mention all the other universities and research institutions, locally and internationally, that we have relationships with and who support us, but I would like to mention two here in Sydney, the University of Technology Sydney and the University of New South Wales. I would also like to make special mention of the Sydney Local Health District and Sydney Research, who support us in many ways.

There are a large number of people that I owe thanks to for the work and progress of the last year. To be frank it would be unfair to mention names with the exception of Professor Carol Armour. I shudder to think where we would be without her enthusiasm, drive, energy and leadership. While the program of change and renewal has absorbed a lot of time and energy, it has not prevented the Institute continuing to have considerable success in research in many fields.

This is Carol's great achievement.

Turning to the Board I would like to express my sincere thanks to my colleagues on the Board. It has been another busy year and the exceptional voluntary service and dedication they bring to the Institute has been of great value. When they signed up for this Board I don't think many realised quite what a lot of work it would entail. They have my sincere thanks. All have shown exceptional dedication to the job required. We did manage to recruit one further member during the year in Matthew Peters, Professor of Respiratory Medicine, from Concord Hospital. Professor Arthur Conigrave from the University of Sydney will be joining us in 2016.

Lastly I extend my thanks to the team at the Woolcock. They are an outstanding group of dedicated researchers. My regard for them is enormous and it is a privilege to be associated with them. I, the Board and the community cannot thank them enough for their dedication and work.

# EXECUTIVE DIRECTOR'S REPORT



**Professor Carol Armour**  
*Executive Director*

The last two years have been very successful ones for the Woolcock and I would like to mention just a few exciting initiatives. Firstly, however I would like to mention our partners who make the research possible. Our affiliated university, The University of Sydney, our partner university, the University of Technology Sydney, the Sydney Local Health District and Sydney Research and our friends and these organisations who support us in so many ways. Thank you.

In keeping with our leadership position as the premier respiratory and sleep institute in Australia, we have secured new funding to further advance two research fields, one of which is new to the Woolcock and the other strengthens our leadership position in the area.

The first is the Centre for Lung Cancer Research and the associated Lung Cancer Research Network. This will be set up with funds from the NSW government and in collaboration with lung cancer researchers across NSW. This initiative was started with Professors Paul Young and Judy Black talking to leading lung cancer researchers. Professor Young has now consolidated this into a network of 25 research groups and clinicians to achieve an active group committed to working together and sharing research results regarding lung cancer across the network. In so doing the network hopes to fast track discoveries in this disease which at the moment has a very poor prognosis. In tandem with the network there will be a Centre for Lung Cancer Research, located at the Woolcock, which will have state of the art laboratories, bio-banking facilities and data storage and access so that the network can work effectively out of our centre. This is a truly transformational program and we are really grateful for the opportunity we have been given to discover new ways to treat lung cancer.

The second new area of funding is focused on emphysema. This area of respiratory disease has been a core research area of the Woolcock for many years. However a charitable foundation, the Heine Foundation, made an offer of support and an additional offer came from a private donor, Mrs Janice Gibson, and so the Woolcock Emphysema Centre will start in 2016. We are delighted that Professor Alaina Ammit has agreed to join us as the Centre Director. This position was enabled by mutually beneficial discussions between the Woolcock and the University of Technology Sydney (UTS). Professor Ammit will have a continuing position at UTS and she will have access to

their facilities and students. I would particularly like to thank our donors and UTS who have made this exciting initiative possible. With these new funds we can have a major impact on this debilitating disease.

The Sleep and Epidemiology groups have had major success in securing a \$1.7M grant from the NHMRC from the Targeted Call on Windfarms and Health. This work will begin in 2016 and I look forward to telling you more about it in our next biennial report.

Professors Daniela Traini and Paul Young continue with their outstanding success in ARC linkage grants. These grants provide funding to solve industry problems through co-funding by government and industry to support outstanding researchers. Professor Traini and Young are developing new devices for use in multiple dimensions of health care.

Professor Guy Marks and Dr Greg Fox continue to be outstandingly successful in their fight against tuberculosis (TB) in Vietnam by researching new ways to detect, treat and scan in the community. As an adjunct to this program the Woolcock supported a production by Dr Paul Mason of an educational book for children affected by TB.

Professor Marks and many researchers at the Woolcock have continued with their work on the respiratory effects of air pollution, supported by an NHMRC Centre of Research Excellence (CRE).

Professor Peter Gibson and other researchers in the Woolcock have been successful in obtaining an NHMRC CRE for severe asthma. This follows on from the successful Severe Asthma Network that Professor Gibson already runs from the Woolcock.

The Physiology group continues to grow and mature under the leadership of Professor Greg King and Dr Cindy Thamrin. They have been successful in obtaining funding from the NHMRC and industry to support their leading edge research in emphysema and asthma. They have developed new techniques to assess lung damage early in disease, at a level that was not previously possible. With this new information we can intervene early in disease, before symptoms develop, and so have better outcomes for patients.

The Clinical Management group is working with GPs and pharmacists, to improve the care of asthma in the community by engaging these health care professionals and facilitating best practice care. Professor Helen Reddel is internationally renowned for her work in developing guidelines for this disease and it is her drive and enthusiasm which underlines education of health care professionals for best practice. Professor Sinthia Bosnic-

Anticevich, following on from engagement with our Ann Woolcock lecturer from the UK in 2015, is now developing the Optimum Patient Care project which will facilitate better care of people with respiratory problems in the community by supporting their health care provider.

Professor Brian Oliver is working towards understanding how viruses affect chronic respiratory disease. Professor Oliver has grown his team in cell biology following the departure of Professor Janette Burgess to the Netherlands. He is known for his collaboration and working across themes at the Woolcock. He is also shared with UTS and together we have built a great working relationship.

Finally the Sleep group - so many successes in many fields. They are working with industry and collaborators across the country in a \$14.5M Cooperative Research Centre (CRC) which will promote the prevention and control of sleep loss, impaired alertness and sleep disorders.

They are currently working on their third CRE, Neurosleep, in which the key aim is to improve cognition, workplace safety, and health outcomes in patients with sleep problems such as shift workers, patients with sleep disorders, neurodegenerative and/or mental health problems. They collaborate across the health district, across universities and across the country and are the international leaders in sleep research and its translation into the community.

In August 2015 we celebrated the long career of Professor Euan Tovey on the occasion of his retirement. Professor Tovey is one of our longest serving Research Leaders and has made a contribution to the Woolcock both as a scientist and a colleague. In recognition of his significant contribution over many years he was inducted into the ranks of the Woolcock Distinguished Alumni. His inquisitive and innovative mind and the many novel mechanisms and devices he created here are legend and we are grateful for his passion and commitment to research and our Institute.

All of this work is made possible by the excellent research support we have in the Woolcock, the Finance and HR and IT teams all work with us to achieve these outcomes and the Clinic and Commercial staff support our engagement with the community. I am supported by an executive management committee who work hard on behalf of the rest of the Woolcock. They are all invaluable to our ongoing success. My management team of Joanne Elliot (operations), Kerstin Baas (commercial) and Sinthia Bosnic-Anticevich (development and fundraising) as well as our Deputy Director (Paul Young) have given me enormous support and the Woolcock success depends on them. Thank you to you all for working as a team and making us the success we are today.



# OUR RESEARCH



Researchers at the Woolcock are part of a multi-disciplinary team dedicated to understanding and treating respiratory and sleep disorders. With over 200 research and clinical professionals we are a world leader in the area of research, clinical diagnosis and treatment.

# AIRWAY PHYSIOLOGY AND IMAGING

**Led by Associate Professor Greg King and Dr Cindy Thamrin.**

The Airway Physiology and Imaging Group investigates what goes wrong with the function of the airways and lungs in diseases such as asthma, chronic obstructive pulmonary disease (COPD) including emphysema, cystic fibrosis and in bone marrow transplant patients and smokers. The knowledge gained from these studies informs doctors of better ways to understand, assess and treat patients. We provide a bridge for translating research from the “bench to bedside”, in other words, making research benefit patients.

The Group is recognised for its expertise in clinical respiratory physiology, i.e. the science of determining how the lung goes wrong and how this causes patient symptoms. We are international leaders in complex lung function methods such as multiple breath nitrogen washout and forced oscillation technique. We also combine these measurements of function with 3-dimensional lung imaging methods: high resolution Computed Tomography (HRCT), magnetic resonance imaging (MRI), single photon emission computed tomography (SPECT) and positron emission computed tomography (PET). We are a diverse team comprising clinicians, basic scientists and engineers.

## Highlights in 2014 - 2015

The Group were very sad to bid farewell to Dr Cheryl Salome as she embraced her retirement – Cheryl is the Woolcock Institute’s longest serving member and has been a pillar of the Institute. She has deservedly been inducted into the Asthma Foundation Hall of Fame and made a Distinguished Alumni of the Woolcock Institute for her contributions to our understanding of airway hyper-responsiveness in asthma.

Dr Kate Hardaker was conferred her PhD in 2015, with her thesis on the physiological determinants of airway hyper-responsiveness in elderly asthma. Dr Hardaker is now pursuing postdoctoral work at the Children’s Hospital in Westmead, working with Dr Paul Robinson who is a Woolcock Affiliate and an alumnus.

In 2014 Dr Stephen Milne and Dr Katrina Tonga joined the Group as new clinician PhD Fellows. Dr Milne will examine how current COPD medications affect the airways in order to improve symptoms, using PET, an exciting new ventilation imaging method. Dr Tonga will look at cells that cause airway inflammation in older people with asthma, to explain why they have more problems than younger people.

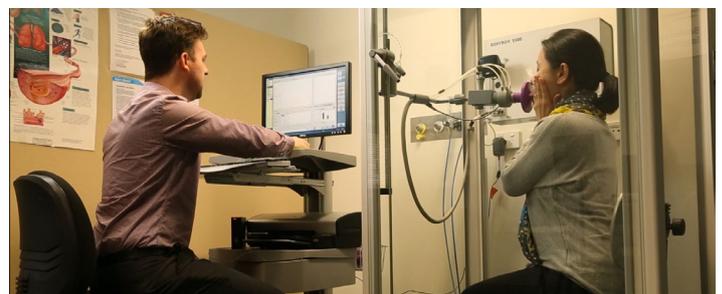
Several new research staff members took up positions with the Group during this time. Dr Chinh Nguyen joined the Group as a postdoctoral fellow with expertise in complex analytics of respiratory and sleep data; Ms Joanna Watts, who has a Masters in Medical Physics, was appointed

as a Research Assistant; Dr Kanika Jetmalani completed her PhD studies and has embarked on her postdoctoral research which includes following up the smokers with normal lung function in her PhD study, to see if those in whom abnormal small airway function were detected will progress towards COPD; Dr Louise Harkness and Dr Francesca Tan also joined the Group as postdoctoral researchers after finishing their PhD studies with the Woolcock Institute’s Cell Biology Group. Members to leave the Group were Dr Jessica Dame Carroll, a postdoctoral fellow and long-term Woolcock Institute member and Research Assistant, Ms Amy Bertolin.

The highlight of 2015 was the opportunity to convene the Flow Volume Underworld meeting here at the Woolcock Institute. This is a long running, elite international meeting attended by the who’s who of respiratory science, that began close to 50 years ago at the Mayo Clinic in Baltimore, USA.

The Group has also been active in running physiology education days for clinicians, health professionals and scientists and they have presented at the American Thoracic Society, European Respiratory Society and Thoracic Society of Australia and New Zealand conferences.

Our current collaborations include the University of Western Australia; Monash University; Vrije University, Brussels, Belgium; Dalhousie University, Canada; Politecnico di Milano, Italy; West China Hospital, Chengdu, Sichuan Province, China. In Sydney, we collaborate with the Royal North Shore Hospital, Concord Hospital, Westmead Children’s Hospital, and Macquarie University Hospital. We also work in close collaboration with our colleagues in the Cell Biology, Sleep and Respiratory Technology Groups within the Woolcock Institute and share several joint research projects.



## Awards

- Associate Professor Greg King’s research was recognised by the Asia Pacific Society of Respirology via the Ann Woolcock Research Medal in 2014.
- Dr Cindy Thamrin was awarded a R.D. Wright Biomedical NHMRC Career Development Fellowship in 2015 which will fund her for the next four years.

## Research Grants

- Associate Professor Greg King:  
University of Sydney Bridging Grant. *The Role of Neutrophils in Small Airways Disease in Asthma* – awarded 2015 (\$30,000).  
*Centre of Research Excellence in Severe asthma* (NHMRC) - awarded 2015-2018 (\$2,498,171)  
*CSI-Sydney: New technologies to treat chronic sinus infection* (NHMRC Development Grant) - awarded 2014-2015 (\$401,708).  
*Airway extracellular matrix and smooth muscle in COPD* (NHMRC Project Grant) - awarded 2014-2016 (\$791,677).
- Dr Cindy Thamrin and Associate Professor Greg King:  
*Prediction of clinical outcomes in COPD from home monitoring of lung function variability* (NHMRC Project Grant) - awarded 2014-2016 (\$496,226).
- Dr Paul Robinson:  
Asthma Foundation Grant. *To investigate FOT Home monitoring utility in paediatric asthma* - awarded 2015-2016 (\$160,000).

### Our early career researchers were successful in securing several seed grants:

- Woolcock Early Career Seed Funding Grants to Drs Jessica Dame Carroll and Claude Farah (\$15K each).
- Sydney Medical School Early Career Research Grant to Dr Claude Farah (\$20K).
- Sydney Medical School Foundation Grant to Dr Paul Robinson (\$33K).

- Centre of Excellence for Severe Asthma Seed Grants to Drs Claude Farah and Cindy Thamrin (\$20K each).
- Menarini COPD Research Top-Up Grant to Dr Kanika Jetmalani (\$20K).
- Marie Bashir Institute Seed Funding to Dr Paul Robinson (\$15K).

## Industry Research Grants

We are grateful for the support provided by Industry, to facilitate several investigator initiated projects:

- Boehringer Ingelheim supports COPD research within the group.
- Menarini is funding a study into sleep disturbances in COPD.
- GlaxoSmithKline is funding a study into potential early intervention for progression of COPD.

## Future Developments

In the next few years, the Group will maintain its integral research into the mechanisms behind asthma, while increasing its interest in COPD including emphysema research, particularly with respect to early disease detection, prevention, home monitoring and management, and a better understanding of why some COPD patients experience multiple flare-ups and hospitalisations.



L to R Back: Chinh Nguyen, Joanna Watts, Katrina Tonga, Louise Harkness, Sabine Zimmermann

L to R Front: Stephen Milne, Claude Farah, Cindy Thamrin, Greg King

# ALLERGEN AND UPPER AIRWAYS

**Led by Associate Professor Janet Rimmer and Associate Professor Euan Tovey.**

The Allergen Group investigates the role of allergens and viruses in asthma and rhinitis (hay fever). Both of these are major triggers for making symptoms worse. Their work focuses on developing methods for sampling and identifying different allergens and viruses, measuring allergen exposures and viral infections in people to determine their role in causing symptoms of asthma and rhinitis. This provides the basis of advice for people about how to better manage their symptoms and ultimately is directed at finding better ways to prevent the disease.

They collaborate with other allergy researchers in Australia and internationally, as well as with virologists, vets at Sydney Zoo (in a study of tuberculosis in elephants), microbiologists, product designers and epidemiologists to achieve their research aims. Both serve on state and national committees and medical advisory boards that address issues about the respiratory diseases.

## Highlights in 2014 - 2015

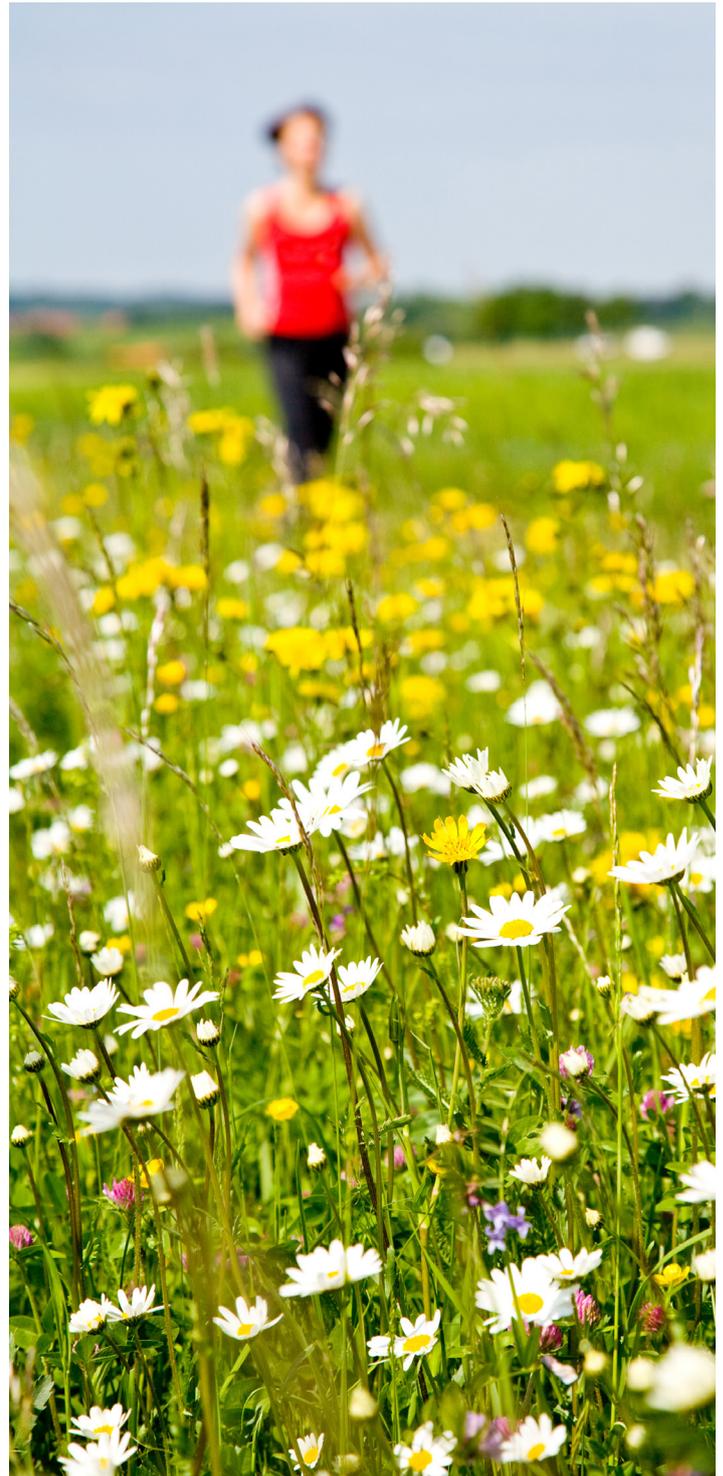
The Group have conducted novel studies of the pattern of daily personal exposure to airborne mite allergen. Their findings challenge the 40-year paradigm that the bed is the main site of this exposure. They found that sleeping in bed only contributes a small fraction, typically around only 5-20% of total daily exposure. Most of the exposure (average 60%) occurred in the house during the morning, day and evening while people were active and short but intense exposure sometimes occurred while using public transport and even in offices. They suspect that most airborne mite allergen is sourced from personal clothing and furnishing and the particles carrying allergens are aerosolised by movement and activity.

They have completed and published the main findings of their long term community study on the role of virus infections in children's asthma. They found that 67 children had respiratory viral infections detectable, on average, for about a third of the 10 week period. Overall, having such infections significantly increased their reported day-to-day asthma symptoms, but children could also test virus positive and not have cold or asthma symptoms. Some children also had almost continuous infections, while others had few or none; the reasons for this continue to be explored along with exploring what other factors provoke these symptoms, and why only a few of the virus infections lead to severe exacerbations whereas the others result only in mild symptoms.

One small study of interest was a study of potential aerosol transmission of tuberculosis among elephants, which involved developing methods to collect exhaled breath from elephants and examining its microbial content.

## Research Grants

- Associate Professor Euan Tovey:  
NHMRC Research Fellowship extension – awarded 2015 (\$66,451).  
Lucy Faulkner Fellowship, to study at Columbia University in New York – awarded 2015 (\$8000).



# CLINICAL MANAGEMENT

**Led by our Executive Director, Professor Carol Armour and Associate Professor Helen Reddel.**

The Clinical Management Group investigates the care of people with asthma and chronic obstructive pulmonary disease (COPD) in the community, clinic and hospital environment. They are working towards achieving better health and quality of life for those people who suffer with respiratory diseases. Their research is investigating the best possible therapy and care, involving the patient in decision making about their health and in day-to-day management of their respiratory condition.

They involve general practitioners, pharmacists, practice nurses, research psychologists, asthma educators, physiotherapists, speech pathologists and specialist respiratory physicians in helping them achieve their research aims. Many of them serve on national and international committees which are addressing issues in respiratory diseases for the future.

## Major Initiatives

During 2015 a major initiative in emphysema research was negotiated and established. In collaboration with Professor Armour and other research leaders at the Woolcock Institute who work in the area of emphysema/COPD, several major new research programs were established and a Centre for Excellence formed. This is now funded for 3 years with the help of significant benefactor funding (\$1.4m) from the Heine Foundation and Mrs Gibson.

## Highlights in 2014-2015

Associate Professor Helen Reddel, as Chair of the Global Initiative for Asthma (GINA) Science Committee, initiated and led a major revision of the Global Strategy for Asthma Management and Prevention, promoting patient-centred and individualised treatment, and challenging several long-held approaches to asthma treatment which lacked evidence. The revised GINA strategy report, which is used as the basis for many countries' asthma guidelines, was published in 2014 and updated in 2015, and has been distributed to over 100,000 health professionals worldwide since 2014. Associate Professor Reddel is also a member of the Guidelines Committee for National Asthma Council, which published new online Australian asthma guidelines in 2014; the guidelines had over 80,000 unique visitors in the nine months to December 2015. She was also a member of the Respiratory Expert Group for Therapeutic Guidelines and Clinical Adviser for the NPS MedicineWise asthma implementation program that reached over 11,000 health professionals in 2014-15 with key messages from the new Australian guidelines.

The Respiratory Effectiveness Group is an investigator-led, not-for-profit research initiative that has been set up in

recognition of the potential value of real-life research and the need to harness real-life evidence to inform meaningful practice guidelines, drug licensing and prescribing decisions. As one of six members of the Executive Committee, Associate Professor Sinthia Bosnic-Anticevich provides leadership and sets research standards. The group evaluates mechanisms of integrating real-life research appropriately into clinical practice guidelines and communicates best practice standards into real-life research. They also engage licensing authorities to ensure real-life research is appropriately incorporated into drug licensing and post-marketing appraisal processes and into national and international health strategies.

The Allergic Rhinitis and its Impact on Asthma (ARIA) initiative aims to educate and implement evidence-based management of allergic rhinitis in conjunction with asthma worldwide. This is a collaborative network, which is supported through initiatives of the European Union. In her capacity as a member of this group, Associate Professor Bosnic-Anticevich contributes a strategic clinical pharmacy perspective. The latest guidelines are currently in press in *Allergy* (Impact Factor 6.028).

Pharmacy ARIA is the leading global initiative for the management of allergic rhinitis in pharmacy. This is a subgroup of ARIA, which oversees the development of guidelines for pharmacy in the management of allergic rhinitis. Associate Professor Bosnic-Anticevich's role as Chair of this group is to lead the writing of the Pharmacy ARIA guidelines and to work with international experts in the field to develop guidelines for pharmacy that can integrate the practice of pharmacy across the health disciplines. The latest Pharmacy ARIA guidelines are currently under review.



Dr Michael Guo is the network coordinator for the Australasian Severe Asthma Network and is involved in research studies which are managed by the Network. He was the project manager for the Australian Xolair Registry (AXR) which was funded by Novartis Australia (2011-2015). The Registry was a national multicentre, non-interventional, observational web-based database which evaluated the real-world use of omalizumab for treatment-resistant severe allergic asthma in Australia. In 2013, the Network also successfully launched the study of "Severe Asthma Web-based Database" (SAWD), a partnership project with TSANZ which was funded by several pharmaceutical companies (GSK, BI, AstraZeneca, Novartis and Roche). This was a multicentre, web-based database study which involved with three countries: Australia (16 sites), New Zealand (3 sites) and China (3 sites).

Dr Claudia Dobler was conferred her PhD from the University of Sydney in 2014. She was awarded an NHMRC TRIP fellowship 2015-16 to implement a decision aid for preventive tuberculosis treatment into clinical practice. In early 2015, Claudia Dobler was elected as medical co-chair of the respiratory network at the NSW Agency for Clinical Innovation (ACI). The ACI works with clinicians, consumers and managers to design and promote better healthcare.

The Group has seen a number of higher degree students graduate in 2014 and 2015. In 2014 Lynn Cheung was conferred her PhD with her thesis on the role of patients in inter professional care and Lia Jahedi and Stephen Hughes were awarded MPhils on the topics of patient preference for inhaler devices and impact on inhaler technique and pharmacy asthma services and sustainability respectively.

They have also participated in the Pharmacology Elective Research program at The University of Sydney which has seen five undergraduate students successfully complete research projects:

- Grace Gillett completed a project on health networks and adolescents with asthma;
- Nay Htoo Aung completed a project on the influence of the media and social networks on health-seeking behavior of patients with asthma;
- Rachel Tan completed a project on assessing the intuitive nature of device use;
- Shizuka Yamauchi completed a project on the improper use of ICS as a key factor leading to non-adherence to asthma medication; and
- Stephanie Yvonne Yee completed a project on determining educational needs of new devices.

In 2015 two PhD students graduated. Sharon Davis was awarded her PhD for her thesis on understanding the inhaler device needs of people with intellectual disability

and M Ashik Ullah was conferred a PhD for his thesis on allergen induced asthma.

Rachel Tan was successful in being awarded with a Bachelor of Science (Honours) for her project *Allergic rhinitis management in practice: understanding what patients do and why*.

## Major Conference Presentations/ Invited Presentations

Associate Professor Helen Reddel gave major international plenary presentations in 2014 on the new GINA report included a European Respiratory Society symposium, the Hong Kong Allergy Conference, and the Boehringer Ingelheim Respiratory Expert Forum in Frankfurt.

In 2015 she presented to the International Meeting on Asthma and COPD and concomitant disorders (Italy), the Global Respiratory Leadership Forum (Cambridge), the American Thoracic Society conference (Denver), and the International Union against TB and Lung Diseases (Sydney). She was invited to give several national plenary presentations on the new Australian asthma guidelines to the Thoracic Society of Australia and New Zealand, Asthma Foundation Australia, AstraZeneca, the Agency for Clinical Innovation and the Pharmaceutical Society of Australia. Other presentations in 2015 included the Australian Asthma Conference, Australian Doctor Live, the launch of the NHMRC Centre for Research Excellence in Severe Asthma, a Masterclass sponsored by GlaxoSmithKline, and a severe asthma expert forum in Melbourne.

In 2014, Dr Michael Guo was invited to TSANZ to present the Australian Xolair Registry study. The Australasian Severe Asthma Network received funding from the Commonwealth government, the Australia-China Science and Research Fund (ACSRF) which allowed Dr Guo and others to travel to China between 2013 and 2014. Dr Guo was awarded a TSANZ Travel Grant to attend the TSANZ 2014 conference.

In 2015, Dr Claudia Dobler was invited to present her research at the Mayo Clinic, Rochester, USA. She was also an invited speaker at the Asia-Pacific conference of the Union against Tuberculosis and Lung Disease and at the annual symposium of the NHMRC CRE in tuberculosis control.

In 2014 Associate Professor Sinthia Bosnic-Anticevich was invited to give a lecture at the Royal College of Surgeons, Beaumont Hospital and Trinity College, Ireland on *Inhaler technique Mastery and Maintenance: uncovering the X-factor*. She was also invited to be a workshop presenter at the International Society of Aerosols in Medicines scientific conference *Bioequivalence of Inhaled Formulation and Respiratory Pediatrics* in Sydney in a workshop called *Clinicians Aspects to inhaler use in Children*.

In 2015 Associate Professor Bosnic-Anticevich gave a number of symposium presentations including *The Australian Story – inhaler devices* at the Respiratory Effectiveness Group Scientific Meeting Singapore; *Meeting the needs of our patients – optimising inhaler use* at the European Association of Allergy and Clinical Immunology, Barcelona, Spain; *Generic Substitution of inhalers* at the European Respiratory Forum, Valencia Spain; *Adherence and Inhaler Technique* at the New Zealand Respiratory Conference, invited by Asthma NZ, Wellington, New Zealand; and two presentations at *Breathing Together: 1st Respiratory Forum*, Seoul, Korea, one called *Sharing best practice tools for improving clinical care* and the other *Inhaler Handling: Matching the Device to the Patient*.

Associate Professor Bosnic-Anticevich also participated in a live debate against Professor Alberto Papi at the European Respiratory Forum, Valencia Spain on *The benefits of automatic substitution*.



## Prizes and Awards

- Dr Juliet Foster, Associate Professor Reddel and co-investigators Professor Tim Usherwood, Professor Susan Sawyer and Dr Lorraine Smith were awarded the *National Prescribing Service MedicineWise National Award for Excellence in e-Health Resources*, for their NHMRC-funded project about improving adherence with asthma medications in primary care, the results of which were published in 2014.
- Dr Dobler was awarded the prize for the best conference presentation in the evidence based medicine category for her study *Benefit of Treatment of Latent Tuberculosis Infection in Individual Patients: A Decision Aid* at the Thoracic Society of Australia and New Zealand (TSANZ) meeting 2014 in Adelaide.



## International Collaborations

In 2015, Associate Professor Reddel was invited to co-chair a large (n=14,600) multinational 3-year observational study, the first to investigate underlying mechanisms and treatment targets across the spectrum of airways disease, including both asthma and COPD. The study is funded by AstraZeneca.

Associate Professor Reddel is a member of the Steering Committee for the multinational SYGMA studies (2014-18), two regulatory studies of as-needed treatment in mild asthma, funded by AstraZeneca. This study was first proposed by Helen in 2008. She is also collaborating with investigators in Canada, Sweden, Denmark and China on a retrospective analysis of the benefit of low dose inhaled corticosteroids in mild asthma; with investigators in the Netherlands on a prediction model for exacerbations in asthma, and a study about diagnosis of COPD; and with investigators in Jordan on pharmacist-led inhaler technique studies. She is chairing the joint data monitoring committee for the FDA-mandated studies of LABA safety in asthma.

Since 2012, Dr Michael Guo and Professor Peter Gibson have been involved in training for clinicians and research staff, and organising a research exchange program for young Chinese researchers to bring them to Australia for training including PhDs. They have also been presenting at Chinese conferences. Chinese organisations involved in this program include a number of hospitals and universities. In late 2013 and 2014 Dr Guo commenced the Severe Asthma Web-based Database (SAWD) in three hospitals in China. In 2014-2015 this study commenced in three hospitals in NZ.

Dr Dobler has established research collaboration with the Mongolian National Tuberculosis Program. This collaboration on late-stage translational research projects was recognised by the Australian government who approved an Australian Volunteers for International Development (AVID) position in Mongolia in 2015 based on this initiative.

Associate Professor Bosnic-Anticevich is an internationally recognised leader in clinical pharmacy research in the field of respiratory medicine; in particular the quality use of respiratory medicines. She has led national and international research groups focusing on the use of respiratory medicines in different patient populations. At any one time she works with over 10 international experts, across Asia, Europe and America in related health and research fields as evidenced in her grant list.

## Research Grants

- Associate Professor Helen Reddel:  
*Centre of Research Excellence in Severe asthma* (NHMRC) - awarded 2015-2018 (\$2,498,171).  
*Novel START, a multinational study of as-needed budesonide/formoterol in mild asthma* (AstraZeneca) - awarded 2015-2018 (NZD\$8,656,359).  
*RCT of ICS/LABA reliever therapy regimen in mild asthma* (New Zealand Health Research Council Program Grant) - awarded 2015-2019 (NZD\$4,977,780).
- Professor Carol Armour:  
*An integrated general practice and pharmacy-based intervention to promote the prescription and use of appropriate preventive medications among individuals at high cardiovascular risk* (NHMRC) – awarded 2015-2019 (\$2,296,358).
- Professor Carol Armour and Associate Professor Sinthia Bosnic-Anticevich:  
*Pharmacy asthma model for sustainable delivery of asthma services* (AstraZeneca) – awarded 2015-2016 (\$135,000).
- Associate Professor Sinthia Bosnic-Anticevich:  
*Exploring Global Perspectives on the Management of Pediatric Asthma in the Community Pharmacy Setting* (Fund for Asthma and Allergy Research, Center for Managing Chronic Disease, University of Michigan USA) – awarded 2015 (\$12,950).  
*Health Care Professional: Easy Low Instruction over time. Research in Real Life* - awarded 2014-2015 (\$250,000).
- Dr Claudia Dobler:  
*Improving evidence-based treatment of latent tuberculosis infection in public-hospital based chest clinics*. NHMRC TRIP (translating research into

practice fellowship) - awarded 2015-2016 (\$172,911).  
*A decision aid for medical practitioners who treat latent tuberculosis infection*. Seed funding by NHMRC CRE in Tuberculosis Control - awarded 2014 (\$20,000).

## Industry Research Grants

The Clinical Management group have a number of Industry research grants with companies including AstraZeneca, Novartis Australia, TEVA Pharmaceuticals, ZENTIVA, MEDA Pharmaceuticals totalling almost \$5 million.

## Future Developments

Several of the projects described above, that have been initiated from the Woolcock Institute of Medical Research, are likely to lead to important changes in international and national asthma guidelines, by making health professionals aware of the substantial burden on patients of having severe refractory asthma, by providing novel evidence for personalised treatment in mild asthma, and by identifying potential treatment targets across the spectrum of chronic airways disease.

The group aims to take on an increasing leadership role in the area of knowledge translation for all respiratory diseases, bridging the gap between research evidence and clinical practice. We have a vision for capacity building in this area, which includes knowledge synthesis (systematic reviews and meta-analyses), clinical practice guidelines and decision aids.



L to R: Michael Guo, Carol Armour, Christine Jenkins, Kate LeMay, Helen Reddel, Juliet Foster

# RESPIRATORY AND ENVIRONMENTAL EPIDEMIOLOGY

Led by Professor Guy Marks and Dr Brett Toelle.

The Respiratory and Environmental Epidemiology Group conducts research to investigate the prevalence and risk factors of respiratory disease in different population groups. Current projects include studies on the impact of air quality on respiratory health, primary prevention of asthma, COPD prevalence and new tuberculosis treatments.

This group uses epidemiological methods to describe the amount of disease and the risk factors for disease within populations. There are three main areas of activity;

- **Respiratory and Environmental Epidemiology (R&EE)**

The Respiratory and Environmental Epidemiology Research Group conducts research to investigate the amount, risk factors and burden of respiratory disease. Their program covers a number of areas including impact of air quality on respiratory health, primary prevention of asthma and a multicentre project to quantify COPD in the Australian community. They are also working in the areas of tuberculosis treatment and case finding.

- **Centre for Air quality & health Research and evaluation (CAR)**

CAR is a Centre of Research Excellence funded by the National Health and Medical Research Council. CAR enables research on the impact of air pollution on human health and translates that research into contributions to policy that aims to mitigate that impact. CAR provides an opportunity to build the capacity for early career researchers by offering post-doctoral fellowships, travel grants, PhD top-ups, seed funding grants and research specific training. CAR engages its partner organisations and the public through organising workshops, symposiums and public lectures.

- **Australian Centre for Airways disease Monitoring (ACAM)**

ACAM was established at the Woolcock Institute in 2002 as a collaborating unit with the Australian Institute of Health and Welfare. It aims to assist in reducing the burden of chronic airways disease, including asthma and chronic obstructive pulmonary disease (COPD), in Australia by developing, collating and interpreting data relevant to prevention, management and health policy for chronic airways disease.

## Highlights in 2014 - 2015

### PhD Candidates

- Completed: Dr Claudia Dobler and Dr Bronwyn Brew
- Continuing: Dr Anthony Byrne, Dr Jennifer Ho, Frances Garden, Wafaa Nabil Ezz
- New: Elyse Guevara-Rattray

### 2015 Summer Scholarship Student (supervised by Dr Mason)

- Amanda Wang

### Major Conference Presentations/ Invited Presentations

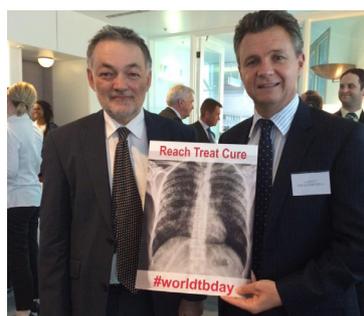
In 2014 Professor Guy Marks was invited to give the keynote address at the CSIRO national symposium on air pollution, Melbourne on the topic "Health effects of air pollution" and at the Australasian College of Toxicology and Risk Assessment (ACTRA) Annual Conference, Sydney, where his topic was "The Epidemiology of Air Pollution - Methodological considerations -filling the gaps in knowledge."

He also gave an invited symposium presentation called "Diagnosing COPD in resource-limited settings" at the International Union Against Tuberculosis and Lung Disease, World Congress on Lung Health in Barcelona, Spain; two presentations at NSW Health Tuberculosis Conference, one on the challenges, opportunities and priorities for TB control from a medical perspective and the other on TB research in Vietnam and a talk on asthma at the National Press Foundation meeting held in association with World Congress on Lung Health, Barcelona, Spain.

In 2015 Professor Marks was the keynote speaker at Inhalation Asia, Shenyang, China and spoke on the control of tuberculosis in Asia; he gave invited symposium talks at the Vietnam Respiratory Society meeting, Ho Chi Minh City, Vietnam on preventing multi-drug resistant tuberculosis



and on tuberculosis detection by actively screening in community in Ca Mau, Viet Nam. He was also invited to give a presentation at the Burnett Symposium on infectious diseases in Melbourne on TB control: case-finding and cure.



In 2015 Dr Brett Toelle presented a paper called *Living with Interstitial Lung Disease – How to maximise my quality of life* at the Lung Foundation of Australia's 2nd Biennial Australian Rare Lung Disease Short Course.



In 2015 Dr Greg Fox was an invited speaker at the Asia-Pacific Regional conference of the International Union Against Tuberculosis and Lung Disease in Sydney and spoke about tuberculosis case finding strategies.

Dr Paul Mason spoke at the Center for Bioethics and Medical Humanities, Faculty of Medicine, Universitas Gadjah Mada, Yogyakarta, Indonesia on the idiom of normalcy; presented a Human Rights/Law and TB workshop with Professor Angus Dawson, and Dr Jed Horner at the Union Asia Pacific Region TB Conference in Sydney; delivered a plenary talk called "Selectively, but not exclusively: understanding structural diversity and functional plasticity in complex systems" at the Woolcock Research Symposium, Woolcock Institute of Medical Research; and presented at a symposium on Pathways to Indefinite Lifespans at the Steghi Grammaton kai Technon (House of Arts and Literature), Larnaca, Cyprus on the topic "Another stage of development: the vital role of degeneracy in healthy ageing."

In 2014 Dr Christine Cowie spoke at the 45 and Up Study Collaborators' Meeting in Sydney on walkability and air pollution in Sydney and in 2015 she presented *Rethinking urban and transport planning policies to improve air quality and health* at the Clean Air Society of Australia and New Zealand (CASANZ). 22nd International Clean Air Society Conference in Melbourne and *Current knowledge of indoor air pollution in Australian homes* at the Thoracic Society of Australia and NZ (TSANZ) Annual Scientific Conference at the Gold Coast in Queensland.



## Awards and Prizes

- Professor Guy Marks was awarded the Highest Ranked NHMRC Fellowship Applicant for the 2014 round.
- Professor Guy Marks was awarded South Western Sydney Clinical School (UNSW), Distinguished Research Award 2014.
- Professor Guy Marks was awarded Lady Mary Fairfax Distinguished Research Award, Ingham Institute 2014.
- Dr Greg Fox: Otsuka / Union Young Innovator in TB Research Award International Union of Tuberculosis and Lung Disease (December 2015, Cape Town).
- Dr Christine Cowie was awarded a Woolcock Institute of Medical Research Training Grant to attend the Advanced Epidemiology Course held by the University of Otago, Auckland NZ. (2015) (\$2,500).
- Dr Christine Cowie was awarded a Centre for Air Quality & Health Research & Evaluation (CAR) Training Award for overseas travel to visit research intensive air pollution epidemiology groups at Imperial College, London and the Institute for Risk Assessment Sciences (IRAS) Utrecht University, The Netherlands (2015) (\$7,500).
- Dr Christine Cowie was awarded a Centre for Air Quality & Health Research & Evaluation Travel Award to present at the Clean Air Society of Australia & NZ Conference, Melbourne, Australia. (Sept 2015) (\$2,500).



## Research Grants

- Professor Guy Marks:  
*Interventions for improving lung health*. NHMRC Senior Principal Research Fellowship - awarded 2014-2018 (\$897,000).  
*Centre of Research Excellence in Severe Asthma* (NHMRC) - awarded 2015-2018 (\$2,498,171).  
University of NSW GOLDSTAR. *A BOLD new model for chronic non-specific respiratory disease to enable better research, prevention, treatment and outcomes* - awarded 2015 (\$40,000).
- Professor Guy Marks and Dr Greg Fox:  
*Prevention of multi-drug resistant tuberculosis in a high prevalence setting: 'Connecting the DOTS' in Vietnam* (NHMRC Project Grant) – awarded 2015-2019 (\$3,200,000).

*Tackling the two greatest obstacles to Tuberculosis elimination: Treatment of latent infection and drug resistant disease.* Canadian Institutes of Health Research (CIHR). 2014 Foundation Scheme Live Pilot competition - awarded 2015-2017 (CAD\$238,648).

## Industry Research Grants

- Dr Brett Toelle (shared with Professor Paul Young from Respiratory Technology Group): *Google Impact Challenge to develop sensors and a mobile app to access and report real-time air quality data* - awarded 2015-2016 (\$250,000).
- Professor Guy Marks and Dr Christine Cowie: *Evaluation of the health impacts of different sources, types and levels of particulate matter in ambient air in NSW.* A review of scientific evidence. NSW Environment Protection Authority (EPA) and NSW Ministry of Health, 2014-15 – awarded 2014 (\$140,000).
- Professor Guy Marks and Dr Christine Cowie: *Current knowledge of indoor air quality in NSW.* NSW Ministry of Health – awarded 2014 (\$40,000).

## Future Developments

At the end of 2015 the Group was awarded \$1.9M by the NHMRC for a special research project on the multidimensional assessment of the health impacts of infrasound. This award was in response to a targeted call for research into wind farms and human health. This project will be jointly run with the Sleep Group and the two groups will work closely together with a number of other multidisciplinary collaborative partners to conduct well designed rigorous research to address this important contemporary public health issue. This research will continue over the next five years and will include both a short term laboratory based study here at our Glebe location and a longer term epidemiological study conducted within rural communities.

In addition to new projects they will continue to work on existing studies that include the Childhood Asthma Prevention Study (CAPS) and Burden of Lung Disease (BOLD). Both of these long term studies continue to provide opportunities for higher degree research students, research publications and conference presentations addressing important questions about the natural history of asthma and COPD through different stages of life.

They will maintain their research program in the areas of respiratory and environmental epidemiology, provide opportunities for research translation and develop the next generation of epidemiology researchers.



L to R Back: Brett Toelle, Paul Mason, Greg Fox, Christine Cowie  
L to R Front: Tessa Bird, Rose Ampon, Guy Marks, Elyse Guevara-Rattray, Leanne Poulos

# WOOLCOCK INSTITUTE OF MEDICAL RESEARCH IN VIETNAM

## Led by Professor Guy Mark and Dr Greg Fox.

Several research projects aimed at the identification and management of tuberculosis are underway at multiple sites across Vietnam. Woolcock Institute offices have been established in Hanoi, Ho Chi Min City and Ca Mau and the implementation of projects across 11 Provinces is overseen by Country Director Dr Nguyen Thu Anh. The Woolcock currently employ 40 local researchers and, as activity within the projects increases, the number of employees will grow to 45.

This work is extremely important because it addresses a very real public health problem and develops research capacity that will provide lasting benefit to public health and respiratory medicine in Vietnam. This research activity has been made possible through several NHMRC project grants that have been awarded to our researchers over time.

The first of these was in 2010 when they received funding for two clinical trials in Vietnam and the most recent was *Prevention of multi-drug resistant tuberculosis in a high prevalence setting: 'Connecting the DOTS' in Vietnam* which was awarded in 2015.



# RESPIRATORY CELLULAR AND MOLECULAR BIOLOGY

Led by Associate Professor Brian Oliver and Associate Professor Janette Burgess (until July 2015).

The Group aims to uncover the molecular and cellular mechanisms underlying chronic respiratory diseases such as asthma, chronic obstructive pulmonary disease (COPD), lymphangioleiomyomatosis (LAM) and pulmonary fibrosis.

They have four main areas of expertise:

- Molecular pathophysiology (Brian Oliver)
- Fibrosis (Dr Pawan Sharma)
- Control of angiogenesis in COPD (Qi Ge)
- Understanding the influence of diet on airway function (Dikaia Xenaki)

These themes are investigated using genetic and molecular approaches on patient tissue samples and novel in-vitro models of the airways. The aims are to discover what drives disease processes and to discover new treatments and/or improve existing ones.

Until July 2015 Associate Professor Janette Burgess led a matrix biology team at the Woolcock Institute. She left to take up the Rosalind Franklin Fellowship at the University of Groningen in the Netherlands.

## Highlights in 2014 - 2015

In 2014-2015, the Group had six Honours students complete their degrees (all but one got first class), three PhD completions, and four students starting their PhDs. Members of the team have given plenaries and invited talks at national and internal meetings (e.g. The American Thoracic Society Meeting).

## International Collaborations

The Group continues to collaborate with researchers in Europe, and North America.

## Significant Research Grants

- Associate Professor Brian Oliver:  
*Mechanisms of impaired bronchodilator response associated with fatty acid intake in obese asthma* (NHMRC Project Grant) – awarded 2015-2018 (\$668,469).  
*Elucidation of the Aetiology of Airway Remodelling in COPD* (NHMRC Project Grant) – awarded 2015-2018 (\$630,000).  
*New Therapies to Treat Airway Scarring* (NHMRC Career Development Fellowship) – awarded 2014 (\$464,000).
- Dr Pawan Sharma:  
*Autophagy as a novel therapeutic target for fibrotic airway remodelling in asthma* (UTS Chancellor's Postdoctoral Fellowship) – awarded 2015 (\$500,000).

## Future Developments

Basic science research can be viewed as the building blocks of discovery in respiratory medicine. In each of their research areas they hope to make significant discoveries in the future. For example they have begun new research projects looking at the environmental causes of COPD such as biomass smoke and other environmental pollutants, and understanding the impact of viral infections in the critically ill in intensive care units. In-order to keep progressing the research they have plans to expand their group size with the recruitment of two new postdoctoral scientist and four PhD students over the next year.



Led by Professor Paul Young and Professor Daniela Traini.

The Respiratory Technology Group was established in 2012 to bridge the gap between fundamental respiratory science (molecular pharmacology and cell biology) and clinical research (physiology, epidemiology and clinical management). The Group is a leader in the areas of drug formulation, device development, testing and delivery.



## Awards and Appointments

Members of the group have received a number of awards and appointments during 2014-15, including:

- Paul Young was promoted to Professor of Respiratory Technology (Sydney Medical School, University of Sydney)
- Daniela Traini was promoted to Professor of Respiratory Science (Sydney Medical School, University of Sydney)
- Professor Young was appointed as Chair of the Australian Chapter of the Controlled Release Society
- Professor Traini was appointed to the board of the International Society of Aerosols in Medicine
- Professor Young and Professor Traini were both appointed as Honorary Adjunct Professors at UTS
- Dr Mehra Haghi was awarded a Humboldt Fellowship
- Dr Judy Loo, Dr Wing-Hin Lee and Dr Hui Xin Ong (YY) were awarded a Marie Bashir Institute For Infectious Diseases And Biosecurity (MBI) seed project fund
- Ms Mariam Mamlouk was awarded an Australian Postgraduate Award (APA) scholarship
- Mr Tim Corish was awarded the Sydney Mechanical Engineering Association (USMEA) First Prize in Professional Communication in Mechanical Engineering
- Dr Hui Xin Ong (YY) won the Award for the Reduction in Use of Animals in Research from the University of Sydney
- Mr Sumit Arora won the Drug Delivery to the Lungs 2015 prestigious Pat Burnell Award in Edinburgh
- There were 8 PhD students in the group during 2014 and another 2 in 2015. Dr Yang Chen, Dr Sharon Davis, Dr Wing-Hin Lee and Dr Judy Loo were awarded their PhDs in 2015.

## International visitors

A number of world leading researchers have visited and spent time on sabbatical with the group in 2014/2015. Visitors included Dr Carsten Ehrhardt (Trinity College, Dublin); Professor Warren Finlay (University of Alberta); Dr Jose Luis Pedraz and Dr Angela Losada (Basque Country University); Mr David Lewis, Mr Alan Tweedie and Ms Gemma Keegan (Chiesi UK) and Dr Rafael Villalobos García (Facultad de Estudios Superiores, Mexico).

Members of the Respiratory Technology team have also spent time overseas conducting research. Dr Hui Xin Ong spent 2014 in Professor Joy Conway's laboratory in the UK undertaking a European Respiratory Society Fellowship in the area of scintigraphy and Dr Mehra Haghi commenced her Humboldt Fellowship in Professor Lehr's group in Germany, focussed on developing cell based models for respiratory drug delivery.



## Infrastructure

Further expansion and acquisition of infrastructure has continued. Of note, the team has invested in microscopy, analytical and advanced testing instrumentation including HPLC/MS, SEM, rheometry and dissolution testing equipment.

## Significant Research Grants

During 2014/15 members of the group secured a number of new grants totalling >\$3,600,000. These include:

- Professor Daniela Traini and Professor Paul Young:  
*One for all and all for one: Engineering a drug delivery platform for DNA vaccines to the lung* (ARC Linkage Grant) - awarded 2014-2017 (\$656,638 including Partner contribution).  
*CSI-Sydney: New technologies to treat chronic sinus infection* (NHMRC Development Grant) - awarded 2014-2015 (\$401,708). To develop a new antibiotic formulation and drug delivery system to the paranasal sinuses.  
*Smartdrops - Shaping the future of particle technology* (ARC Discovery Project) - awarded 2015-2017 (\$521,800).  
*An Integrated Facility for Real-time Localization, Quantification and Characterization of Nanoparticles in the Living Cell Environment* (ARC LIEF) – awarded 2014-2015 (\$440,000).
- Professor Paul Young (with Dr Brett Toelle from Respiratory & Environmental Epidemiology):  
*Google Impact Challenge to develop sensors and a mobile app to access and report real-time air quality data* - awarded 2015-2016 (\$250,000).  
*Mechanisms of impaired bronchodilator response associated with fatty acid intake in obese asthma* (NHMRC Project grant) – awarded 2015-2018 (\$668,469).
- Dr Wing-Hin Lee:  
*Inhalable paclitaxel loaded-iron oxide nanoparticle for lung cancer therapy*. Cancer Institute of New South Wales Early Career Fellowship - awarded 2015-2017 (\$592,183).

## Industry Partners and Collaborators

The Respiratory Technology Group has attracted \$250,000 in industry partnership funding in 2014-2015 to support clinical studies in the areas of sleep and breathing.

They have continued to collaborate with research teams across the world in both academia and industry. Industry partners include Chiesi UK, Evonik, Aradigm, AFT and Pharmaxis. Many of these collaborations have resulted in joint grant funding. In addition to our academic and industrial partners, the RespiTech team continues to lead a number of initiatives including OzNose.org and ECR2STAR.org focussing on nasal drug delivery and early career researcher development, respectively.

The OzNose project has already resulted in a successful competitive grant to undertake clinical studies for chronic rhino-sinusitis, while ECR2STAR has engaged thousands of ECRs with helpful and insightful articles. During 2014, the RespiBugs Group was established. RespiBugs is a collaborative team between Associate Professor Cynthia Whitchurch's bacteria and biofilm group at the iThree Institute and the Respiratory Technology Group. This collaboration is to establish new infectious models of the respiratory tract and develop innovative therapies for the treatment of bacteria and biofilm related lung and nasal diseases. The group have shared postdoctoral and postgraduate students working on a number of projects.



L to R Back: Roberto Paleco, Paul Young, Michele Pozzoli, Wing Hin Lee, Marie Hellfritzsch  
L to R Middle: Stewart Yeung, Alaa Tulbah, Larissa Gomes Dos Reis, Judy Loo, Hui Xin Ong (YY), Daniela Traini  
L to R Front: Michael Lau, Maree Svolos, Maliheh Ghadiri, Mariam Mamlouk, Lala Sarkissian, Yang Chen

## Led by Professor Ron Grunstein.

The Sleep and Circadian Research Group conducts patient-centred translational research across a broad spectrum of sleep disorders at our purpose built research centre and affiliated hospitals. Their comprehensive research program is centred on understanding the impact of sleep disorders on health and wellbeing, and developing new diagnostic and therapeutic pathways to improve sleep health.

The group has funded programs of research in several key areas. These include research into the cardiovascular and metabolic consequences of sleep apnoea; cognitive performance and sleep loss; circadian rhythm disorders; shift work and productivity; and impaired brain functioning in sleep disorders such as insomnia, sleep apnoea and sleep movement disorders.

Researchers have expertise in conducting multisite clinical trials and are currently evaluating important new treatments for sleep apnea (weight loss, wakefulness promoters and dental splints), insomnia (sleep restriction therapy and cognitive behaviour therapy); delayed sleep phase disorder and REM behaviour disorder (melatonin); and breathing problems and respiratory failure (non- invasive ventilation).

The research direction of the group reflects the growth of interdisciplinary sleep collaboration.

The over-arching research objectives are to:

1. Focus on research to improve sleep health outcomes
2. Translate key outcomes of sleep research to clinical practice and policy
3. Develop and extend research skills in clinical trials (small and large multi-centre), biostatistics, population health and novel data analysis related to sleep health

An advisory board, comprising representatives from community based groups who offer support to those with sleep disorders, provide the executive committee with a non-research biased focus.

There are four key research streams which aim to:

1. Reduce the cardio-metabolic impact of poor sleep
2. Improve neurobehavioural performance in individuals with sleep loss
3. Increase effectiveness of treatments for sleep disorders
4. Use novel approaches and biomarkers to characterise the determinants of, and individual susceptibility for adverse consequences of insufficient or disordered sleep

## Highlights in 2014-2015

The Sleep group has made a significant contribution to the field of sleep medicine and research publishing 71 peer-reviewed original research articles, 24 review articles, four letters to the editor, seven invited editorials and one book chapter.

These research achievements were recognised nationally and internationally with several awards and prizes:

- Chapman J., New investigator award from the Australian Sleep Association April 2014.
- Djavadkhani Y., Young Investigator Award, Australasian Sleep Association meeting, Oct 2015, Melbourne.
- Grunstein R.R., Award: Distinguished Professorial Achievement Award, Sydney Medical School, University of Sydney, 2014.
- Hoyos C., Best oral presentation in the Sleep- disordered Breathing session, TSANZ NSW Branch RNIG Education Days and TSANZ NSW ASM, Sydney, November 2014.
- Hoyos C., New investigator award from the American Academy of Sleep Medicine April 2014.
- Hoyos C., Sydney Medical School New Staff/Early Career Researcher grant, \$25,000, 2014.
- Killick R., Award: Peter Bancroft PhD Prize, Sydney Medical School, University of Sydney for PhD thesis: Hormonal and neurobehavioural effects of sleep restriction and fragmentation, which has been passed by all three examiners without any amendments or recommendations, 2014.
- Killick R., Award: Merit Based Meritorious Award from the Sleep Research Society for: '*Neurobehavioural Effects of 'Catch-up' Sleep in Men with Lifestyle Driven, Chronic, Intermittent Sleep Restriction*', SLEEP 2014, The 28th Annual Meeting of the Associated Professional Sleep Society, Minneapolis, May 2014.
- Melehan K.L., Award: Presidential Poster Competition Award for Poster: Melehan K.L., Hoyos C.M., Hamilton G.S., Wong K.K., Yee B.J., McLachlan R.I., Grunstein R.R., and Liu P.Y., '*Adherent CPAP Improves Erectile and Sexual Function and Quality of Life in Men with OSA and Erectile Dysfunction (ED): A Randomised Sham Controlled Study*', 16th International Congress of Endocrinology & Endocrinology Society 96th Annual General Meeting, June, 2014.
- Sivam S., Award: American Thoracic Society International Trainee Scholarship Award, awarded \$1,500 (US) from the Assembly of Sleep and Respiratory Neurobiology and provides scholarship support for international trainees to attend the ATS conference, American Thoracic Society International Conference, San Diego, California, May 2014.

- Students Angela D’Rozario, Samuel Bolitho, Kerri Melehan, Clarissa Hanes, Joanne Fuller, Roo Killick, Yu Sun Bin and Christopher Miller (PhD Cotutelle with the University of Glasgow) successfully completed their Doctor of Philosophy (PhD), and Helena Hiu-Laam Cheung completed her honours project.

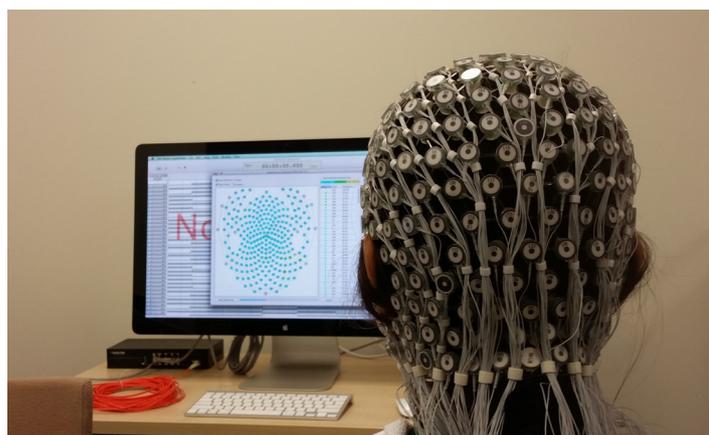
Professor Ron Grunstein was also awarded an NHMRC Research Fellowship in 2015 which will fund him until 2020.

## Significant Research Grants

In addition to the award of their third successive NHMRC Centre of Research Excellence in Sleep Research (NeuroSleep), they also received other competitive (non-NHMRC) research funding from various sources to support their innovative program of sleep research, including:

- Professor Ron Grunstein:  
*Research Facility for High density Electroencephalography (HdEEG) Investigation at the University of Sydney.* The University of Sydney, Equipment Grant – awarded 2014 (\$73,134).  
*High Density Electroencephalography (hdEEG) System.* Perpetual Trustee – awarded 2014, (\$97,312).  
*A Mouse Biotelemetry System for Stroke, Epilepsy and Sleep Research.* The University of Sydney, Equipment Grant – awarded 2014 (\$74,619).
- Dr Nathaniel Marshall:  
*Determining sleep phenotypes in cancer cohorts: interactions with cancer biology and impacts on quality of life.* University of Sydney Cancer SPARC – awarded 2015-2016 (\$155,438).
- Professor Ron Grunstein, Dr Craig Phillips and Dr Nathaniel Marshall:  
*Fixing Broken Clocks – Increasing capacity in translational Molecular Chronobiology Research.* University of Sydney DVC Research SPARC – awarded 2014-2015 (\$161,864).

## Main Current Projects



### NeuroSleep: The Centre for Translational Sleep and Circadian Neurobiology

This NHMRC Centre of Research Excellence commenced in 2014 combining research teams from the Woolcock Institute, Brain and Mind Centre, Monash Sleep Network and Neuroscience Research Australia (NeuRA, University of New South Wales). The centre investigates the two-way relationship between disrupted sleep and body clock systems and brain disorders. The goal is to improve brain performance and workplace safety and health outcomes, in patients with sleep and circadian dysfunction and in the general community.

NeuroSleep undertakes clinical sleep research in four main research themes:

1. Improving alertness and cognition in patients with sleep apnoea
2. Neurobehavioural and neurometabolic effects of sleep loss and circadian misalignment
3. Translational neurobiological strategies for insomnia; and
4. Neurodegenerative and neuropsychiatric disorders in later life - sleep and circadian dysfunction.

### The Co-operative Research Centre (CRC) for Alertness, Safety and Productivity

The CRC commenced in 2014 with 7 years funding of \$70 million in cash and in-kind resources from 3 universities (University of Sydney, Monash University, Flinders University) and 28 industry, NGO and government participants. It aims to address the challenge of reversing the impaired productivity and safety implications of insufficient sleep and shift work.

The development of the four major platform projects that will drive the activities of the Alertness CRC over the next three years includes the following streams of activity:

1. Laboratory-based development of systems and biomarkers to assess circadian, sleep and alertness states
2. Modelling and software development for prediction of alertness and optimisation of scheduling and a data fusion system for the estimation, prediction and control of individual alertness dynamics
3. Assessing individual vulnerability to shift work and integrated interventions for alertness management in the healthcare setting
4. Sleep disorder phenotyping



## Future Developments

### Research Facility for High-density Electroencephalography Investigation

A state-of-the-art research facility for High-density Electroencephalography (hdEEG) Investigation was established mid 2015 complementing the sleep and chronobiology investigation and imaging facilities at the Woolcock Institute and the Brain and Mind Centre. This neurotechnology using simultaneous hdEEG and functional MRI recordings will allow for direct correlation with brain structure and function and investigate links between sleep disorders and brain dysfunction. The equipment will enable the highest quality research in our active research program to improve sleep and health in patients groups such as schizophrenia, major depressive disorder, sleep apnoea, neurodegeneration, and in the ageing population.

### Molecular Chronobiology Facility

The Group are establishing a unique national centre, the Woolcock Molecular Chronobiology Facility (W-MCF) that integrates cutting edge molecular chronobiology and sleep research in a multidisciplinary clinical setting. The proposal is innovative as there is no existing broad-based clinical sleep/molecular chronobiology interdisciplinary team in Australia and only a few internationally. This facility will initially investigate body clock disorders in a range of chronic diseases including those affecting the brain (e.g. dementia), metabolic function (e.g. diabetes), chronic airways (e.g. asthma/COPD) and heart diseases, and mood disorders. The facility will provide measurements such as genotyping, gene expression assays, hormone levels from a range of biological samples specifically integrated with circadian analysis of physiological parameters from experimental studies and clinical trials.

### Health and Sleep effects of Windfarms

The team (including Ron Grunstein, Nathaniel Marshall, Craig Phillips and Delwyn Bartlett) together with the Woolcock Epidemiology group (Guy Marks, Brett Toelle and Christine Cowie) and wider University of Sydney investigators (Miriam Welgampola and Nick Glozier) have received \$1.94 million to investigate whether the infrasound (below the range of conscious human hearing) generated by windfarms may affect sleep and human health (NHMRC Targeted Call for Research into Wind Farms and Human Health). The Sleep Group's part of this study will be to test in the sleep laboratory over 72 hour whether infrasound compared to sham infrasound and loud traffic noise has effects on sleep and cardiovascular regulation.



*L to R Back: Nathaniel Marshall, Dev Banerjee, Keith Wong, Peter Buchanan, Haider Naqvi, Gunnar Unger, Chris Gordon, Craig Phillips, Darren O'Brien, Luke Rowsell, Chris Miller, Nathan Cross*

*L to R Middle: Liz Cayan, Jenny Theorell-Haglow, Parisa Hassan, Yasmina Serinel, Paola Espinel Diaz, Janet Cheung, Delwyn Bartlett, Brendon Yee, Richard Gan, David Wang, Ron Grunstein*

*L to R Front: Roo Killick, Anna Mullins, Camilla Hoyos, Angela D'Rozario, Julia Chapman, Hannah Openshaw, Maria Comas Soberats, Rabiya Atif, Kirsty Dodds*

# ANN WOOLCOCK LECTURE 2015

The purpose of the Ann Woolcock Lecture is to facilitate the visit of eminent respiratory clinicians and scientists to the Woolcock and to promote the exchange of ideas, skills and techniques between the Woolcock and international researchers.

In October 2015 we were honoured to have an international colleague, esteemed researcher and eminent clinician, Professor David Price deliver the Ann Woolcock Lecture. Professor Price is Professor of General Practice at the University of Aberdeen, and the founder of several global research companies including Optimum Patient Care.

His talk, *Making a difference to patients and research in Australia* described his achievements in the UK with Optimum Patient Care and presented us with opportunities for the Woolcock to improve patient care for those with respiratory disease in the future. These opportunities and funding to achieve them are currently being followed up by Associate Professor Bosnic-Anticevich.



Board member Julie Osborne with Professor David Price.

## EDUCATION

The Woolcock Institute plays an important role in providing accredited education to health care providers and improving patient outcomes. In 2014 and 2015 we held a number of symposia attracting over 500 GPs, both local and international, physicians and dentists.

Topics covered included:

- Interdisciplinary Assessment for Sleep and Respiratory Disorders;
- Managing Mental Health and Sleep Disorders in Primary Care;
- Sleep Disorders in Primary Care;
- Future of Obstructive Sleep Apnea Management; and
- Respiratory Disorders in Primary Care.



Building on foundations established in 2012 and 2013, the Woolcock Clinic has continued to expand its research operations and clinical service delivery.

The clinical services are extensive and include the following specialist clinics: CPAP, Insomnia, Paediatric Sleep, Weight, Respiratory Diseases, Complex CPAP and Sleep.

The Woolcock Clinic set a number of records in 2014/15:

- In July 2014 they recorded the highest number of adult and paediatric sleep studies in our history;
- In May 2015 they recorded the highest number of sleep research studies, while still offering routine diagnostic sleep studies;

In 2015 there were a record number of research studies conducted including:

- SLEEP (Diet, Exercise and Sleep Apnoea);
- COPHA (Hypertension and Sleep), DEAR (Armodafinil);
- Sleep Restriction Therapy (Insomnia treatment);
- Insomnia100 (Phenotyping and Biomarkers);
- DSLP study (Delayed Sleep Phase Disorder);
- M-RBD (REM behaviour disorder); and
- Zopiclone-OSA (effects of the medication Zopiclone on patients with Sleep Apnoea).

## New Clinics

The Woolcock launched two new specialist clinics in 2014 and 2015 with the Honourable Member for Sydney, Tanya Plibersek, officially opening them both.

The first was in April 2014 when the Paediatric Sleep Clinic opened offering two dedicated study beds and consultations with specialist paediatric sleep physicians, Consultants Drs Chris Seton and Chetan Pandit.

The second was in July 2015 when immunologist and allergist, Dr John Tan joined with the Woolcock to set up a Paediatric Allergy Clinic.

## New Staff

A number of new staff have joined the Woolcock Clinic which has enabled us to expand the services we offer to both our patients and our clinicians.

In 2014 psychiatrist, Dr Sonia Kumar joined the Woolcock Clinic enabling an expansion of the psychiatric care services and a part-time Clinic Business Development Manager was employed to engage directly with GPs and promote the Clinic, the clinicians and our services.

In 2015, a Clinic Case Coordinator role was created to actively facilitate the cross referral of patients to other Clinic specialists and organise monthly case conference meetings.

## New Infrastructure and Equipment

In 2014 and 2015 we updated and installed equipment and fitted out new consultation rooms to ensure we have the latest equipment to facilitate research and support paediatric sleep investigations. Our new online patient management system also facilitates smooth running of the clinics for both patients and research participants. We would like to acknowledge and thank the benefactors who made the purchase of this new equipment possible, including David Macintosh and Steven and Natalie Hall.

## Training

A Woolcock Sleep Technician Training School (STTS) was established in 2015 with the first students commencing in March of that year. The STTS enables cost neutral training of science and health students interested in sleep medicine to be trained in the correct setup and overnight monitoring of sleep patients. Contingent on successful completion of the course, employment opportunities in the Woolcock Sleep Unit are offered to suitable candidates.



# WOOLCOCK WORKPLACE GENDER EQUALITY

The Workplace Gender Equality Agency conducted research in 2014-15 looking at gender equality benchmarks across organisations in Australia. The Woolcock Institute participated and was compared with similar organisations in the Scientific Research Services sector.

The results indicate that the Woolcock Institute has a high representation of women in senior management and

executive positions. Further data also revealed a much lower gender pay gap than at comparable organisations. The Woolcock Institute was also shown to have formal and informal flexible working arrangements for both males and females at both the manager and non-manager level across a number of measures. We are proud of our record in this area.

## NEW INITIATIVES FOR RESEARCH

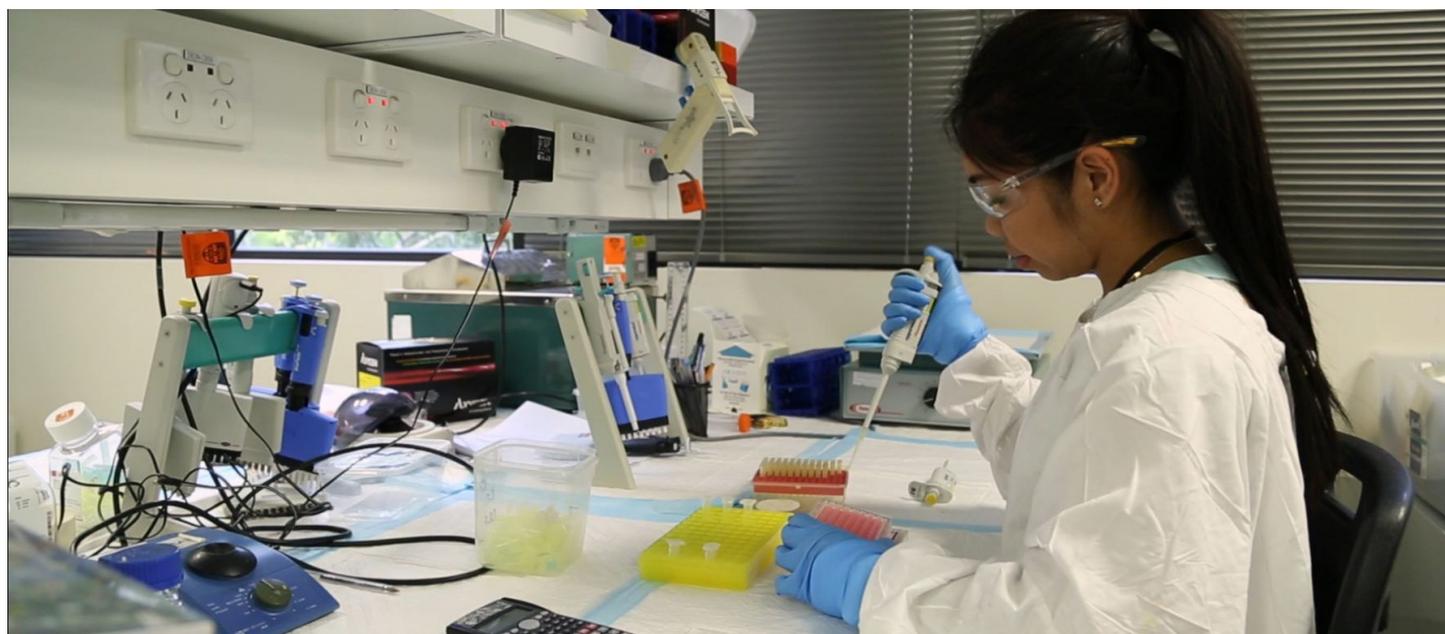
### Lung Cancer Research Centre

In 2015 the Woolcock Institute was granted support from the NSW state government for infrastructure for a lung cancer research centre. We will receive \$3 million to build state of the art laboratories and create a biobank of lung tissue which links up the lung cancer research centres across NSW. In addition a sophisticated bioinformatics platform will share research results across the Lung Cancer Research Network (of more than 25 teams) in order to fast track solutions for lung cancer. The Lung Cancer Research Network is a group of world-class researchers from over 20 hospitals, research centres, universities and organisations that are united in the goal to better understand, treat and prevent this killer disease. These specialists will come together to share data and launch large multidisciplinary projects to rapidly progress avenues of research.

The Centre will operate in conjunction with the Lung Cancer Research Network.

### Centre of Research Excellence in Emphysema

At the end of 2015, private benefactors, the Ernest Heine Family Foundation and the Janice Elizabeth Gibson Fund, agreed to fund the Woolcock Institute to create a Centre of Research Excellence in Emphysema – the Woolcock Emphysema Centre. The fund of \$1.4 million will set up several new research programs and grow the community based clinic to help people with emphysema/COPD. This will strengthen and expand the existing emphysema research at the Woolcock Institute.





## **Professor Carol Armour**

Professor Armour has worked in the area of asthma research at a basic scientific and clinical level. Her investigations span the breadth of asthma research from cellular mechanisms to the translation of new ways to treat asthma within the health system. She is on the Australian Respiratory Council, the National Asthma Council and has chaired the National Asthma Monitoring Advisory Committee, worked on the National Therapeutic Guidelines and the Australian Medicines Handbook. From 2003-2006 she was a member of the NHMRC Research Committee and was the Chair of the Training Awards Committee. She was Pro-Vice Chancellor, Research, at the University of Sydney (2006-2009). In 2005 she was made a Fellow of the Pharmaceutical Society for her services to the profession, and she was awarded the Australasian Pharmaceutical Science Association (APSA) medal for research in 2007. She is currently an Associate Dean in the Sydney Medical School and a Professor of Pharmacology in the Sydney Medical School. In July 2012 she was appointed the Executive Director of the Woolcock Institute of Medical Research.



## **Associate Professor Sinthia Bosnic-Anticevich**

Professor Sinthia Bosnic-Anticevich is an internationally recognised leader in clinical pharmacy research in the field of respiratory medicine; in particular the quality use of respiratory medicines. She leads national and international research groups focusing on the use of respiratory medicines in different patient populations. Professor Bosnic-Anticevich works across the continuum of health care settings, with a multidimensional and inter-professional approach to better understand and improving health outcomes for patients using respiratory medicines.

Professor Bosnic-Anticevich is the author of over 80 research publications (21 during 2014-2015) and has attracted over \$11 million of research funding (over \$2.5 million during 2014-2015). She is actively involved in the mentoring and supervision of research students and early career researchers. Professor Bosnic-Anticevich is on the executive committee of Allergic Rhinitis in Asthma (ARIA), the body responsible for creating guidelines for the management of allergic rhinitis and Chair of the Pharmacy ARIA group. Professor Bosnic-Anticevich is a member of the executive committee of the Respiratory Effectiveness Group, an investigator-led, not-for-profit research initiative that has been set up in recognition of the potential value of real-life research and the need to harness real-life evidence to inform meaningful practice guidelines, drug licensing and prescribing decisions. In this capacity she provides international leadership in setting research standards and excellence in real-life research and in evaluating mechanisms for integrating real-life research into clinical guidelines and practice.



## **Associate Professor Janette Burgess**

Professor Janette Burgess headed the Matrix Biology Division within the Respiratory Cellular and Molecular Biology Group and had an NHMRC Career Development Fellow from 2012-2015. She is recognised nationally and internationally as a leader in the field of abnormalities in the extracellular matrix – the structural framework of all organs – to diseases such as asthma, fibrosis and smoking induced disease in the lung. Professor Burgess and her group have reported quintessential differences in the matrix that may provide a key to understanding the mechanisms underlying both increases and decreases in the matrix and tissue remodelling in the lung during disease and their biological sequelae.

In July 2015 Professor Burgess was awarded the distinguished Rosalind Franklin Fellowship and moved to the University of Groningen in The Netherlands.



### **Professor Ron Grunstein**

Professor Ron Grunstein has been a consultant physician in sleep disorders for over 30 years and a pioneer in improving patient care in sleep medicine in Australia and internationally. He is currently a Senior Principal Research Fellow of the National Health and Medical Research Council (NHMRC's highest level research appointment) and Professor of Sleep Medicine at the University of Sydney. Ron heads the Sleep and Circadian Research Group at the Woolcock Institute and the NHMRC's Centre of Research Excellence in Sleep and Circadian Translational Neurobiology aka "Neurosleep". As well, he is Program Leader in the Co-operative Research Centre in Alertness, Safety and Productivity part-funded by the Commonwealth Department of Industry to answer the challenge of poor sleep and sleepiness impacting on driving, work and society in general.

From 2007-2011, Professor Grunstein served as President of the World Sleep Federation, the roof body for sleep researchers and clinicians internationally organising successful world congresses in Cairns and Kyoto. He was awarded the Australasian Sleep Association Distinguished Achievement Award in 2010, the Kleitman Award, the premier award of the American Academy of Sleep Medicine in 2011 and the Royal Prince Alfred Foundation Medal for Excellence in Medical Research in 2012. In 2014, he received the Distinguished Professor Award from the Sydney Medical School. He has published over 250 peer reviewed articles in sleep research and 40 book chapters. He has a Bachelor of Medicine and Surgery and MD degrees from the University of Sydney and a PhD from the University of Gothenburg in Sweden.



### **Associate Professor Greg King**

Professor King is a medical graduate of Otago University and a clinician-researcher at the Woolcock Institute of Medical Research, The University of Sydney and Royal North Shore Hospital. He is Conjoint Associate Professor of the Sydney Medical School, The University of Sydney and Medical Director of the Respiratory Investigation Unit. He has a research interest in the mechanics of airways disease in relation to clinical aspects of disease. His expertise includes complex measurements of airway and lung function, including the forced oscillation technique, multiple breath nitrogen washout and 3-dimensional ventilation imaging and CT imaging. He currently supervises 7 PhD students (6 as primary supervisor) and postdoctoral fellows from science and medical backgrounds. He has a clinical and research interest in asthma, COPD and bronchiolitis in haemopoietic stem cell transplant recipients. Professor King maintains active participation in the activities of the TSANZ and ATS in terms of teaching, professional development and executive committee function.



### **Professor Guy Marks**

Professor Guy Marks is a respiratory physician and environmental epidemiologist. His main research interests are in chronic respiratory disease (asthma and COPD), tuberculosis control and the adverse health effects of exposure to air pollution. He is Professor of Respiratory Medicine at UNSW, South Western Sydney Clinical School. He is currently an NHMRC Senior Principal Research Fellow. He is head of the Respiratory and Environmental Epidemiology group at the Woolcock Institute and an Honorary Professor at the University of Sydney (Sydney Medical School).

His other major roles include Editor-in-Chief (lung diseases) of the *International Journal of Tuberculosis and Lung Disease*, Vice President of the International Union Against Tuberculosis and Lung Disease, Director of the Australian Centre for Airways Monitoring (a collaborating unit of the Australian Institute of Health and Welfare), Chair of the NSW TB Advisory Committee, and Chair of the NSW Chief Health Officer's Expert Advisory Committee on Air Pollution. He also received an Achievement Award by the NHMRC in 2014 for being the top-ranked applicant for a Research Fellowship in that year.



**Associate Professor Brian Oliver**

Professor Oliver is an NHMRC Career Development Fellow level 2 and an Associate Professor at the University of Technology, Sydney (UTS), who leads a productive team of researchers investigating the pathophysiology of respiratory diseases, with a particular emphasis on understanding mechanisms leading to disease exacerbations and progression.

He is head of the Respiratory Cellular and Molecular Biology Group, at the Woolcock Institute, the President of LAM Australia, and the Treasurer of the TSANZ NSW.



**Clinical Associate Professor Helen Reddel**

Professor Helen Reddel is a respiratory physician working to improve treatment for asthma and COPD. She is a Research Leader in the Clinical Management Group at the Woolcock Institute of Medical Research, Chair of the Science Committee of the Global Initiative for Asthma (GINA), Clinical Adviser for the Australian Centre for Airways Disease Monitoring (ACAM), and a member of the Australian Asthma Handbook Guidelines Committee. Professor Reddel's current research focusses on strategies to improve the management of asthma and COPD, with particular interest in improving the quality prescribing and use of respiratory medications in primary care, and population level monitoring of asthma and COPD through ACAM. She is co-chairing a multinational longitudinal study of 15,000 patients with asthma and/or COPD that aims to identify underlying disease mechanisms so that targeted treatments can be developed. Professor Reddel has a strong focus on improving communication between patients and health professionals, and on making guidelines not only evidence-based, but also practical and practice-centred.



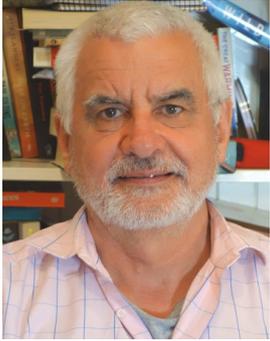
**Dr Cindy Thamrin**

Dr Cindy Thamrin is a Research Leader and NHMRC Career Development Fellow at the Airway Physiology and Imaging Group, Woolcock Institute of Medical Research, and a Senior Research Fellow at the University of Sydney. She has a dual background in respiratory physiology and electronic engineering from the University of Western Australia. Her PhD in 2006 at the Telethon Institute for Child Health Research, Perth, extended a lung function test known as the forced oscillation technique to track changes in airway mechanics with lung volume. Her postdoctoral research at the University Hospital of Bern, Switzerland, focussed on assessing future risk in asthma using novel variability analyses of lung function. Her current research interests are clinical application of new lung function tests, and advanced respiratory data analytics, especially applied to home tele-monitoring of asthma and COPD.



**Dr Brett Toelle**

Dr Brett Toelle is a Senior Research Fellow working within the Respiratory and Environmental Epidemiology Group. For over 27 years he has been involved in the population studies of lung disease which have included studies of pre-school children, schoolchildren, twins, community based adults and occupational work groups. His recent work has focussed on asthma as the participants in the Childhood Asthma Prevention Study (CAPS) transition through puberty and on COPD as part of the Australian Burden of Lung Disease (BOLD) project of adults aged 40+ years from six sites around the country. He is also a psychologist and undertook a PhD investigating "Factors associated with non-adherence to prescribed asthma medication". During his psychology internship he worked with psychologists in the sleep researcher group and clinicians in the Royal Prince Alfred Insomnia Clinic.



### **Associate Professor Euan Tovey**

Professor Tovey is interested in different biological exposures that make asthma worse, with the aim of developing ways to reduce symptoms and prevent the disease. Most people with asthma are allergic to indoor and outdoor allergens and exposure to these can increase symptoms. Our group's research has contributed to both identifying these allergens and in measuring personal exposure to them, most recently over the course of the day and night. Additionally we are interested in the role of respiratory viruses in making asthma worse. We have contributed methods to measuring viral infections over time in children and have applied these in field studies to understand their contribution to asthma symptoms. Finally, like many researchers, we are fascinated by emerging discoveries about the role of the body's own large pool of resident bacteria in changing susceptibility to disease. This may help explain how modern lifestyle changes in recent times have increased asthma prevalence and provide new ways to prevent asthma and allergic diseases. Professor Tovey retired in August 2015.



### **Professor Daniela Traini**

Professor Traini is a Professor in Respiratory Science at The University of Sydney and an ARC Future Fellow. Her research portfolio covers all areas of respiratory research, from bench to bedside and she is an international leader in pulmonary drug delivery.

Professor Traini leads the Respiratory Technology group at the Woolcock Institute and works in collaboration with Professor Young. Over the last 11 years since joining the University of Sydney, and before during her 5 years in industry, she developed a leading research program on aerosol drug delivery, from powder engineering, aerosol generation and characterization, in vitro to in vivo lung deposition to clinical outcomes. Professor Traini has extensive experience in both academic and industrial pharmaceuticals, and still retains strong link with the pharmaceutical industry. Since 2005 she has published over 155 full peer reviewed manuscripts, has 5 patents and has attracted more than \$11M in competitive funding.



### **Professor Paul Young**

Professor Young is a Professor in Respiratory Technology at Sydney Medical School (Discipline of Pharmacology), Head of Respiratory Technology at the Woolcock and an ARC Future Fellow. Professor Young has 20 years' experience in inhalation drug development with a focus on medical device engineering and industry engagement. He is an internationally recognised expert in the field of inhalation technology and has published >170 peer reviewed journal articles since 2002 (>3000 citations), 6 patents, 16 book chapters and in excess of 150 conference proceedings. He has an H-index of 32 and 5-year i10 index of 97. Professor Young has received > \$15M for projects and infrastructure since 2005 and has a proven track record in securing category 1 ARC and NHMRC funding. His research team of around 20 personnel are considered world leaders in the field of aerosol science.



## **Professor Marie Bashir**

Professor Marie Bashir has invested time and energy in the Woolcock Institute over many years. As a medical practitioner herself, she supports the Woolcock model – the care of respiratory and sleep patients as well as investigation of their disease in order to improve their lives. Professor Bashir has supported our international visitors, attended all our alumni events and donated her time to support our Institute. In 2013 the Woolcock leaders and supporters enjoyed her hospitality at Government House. She is a warm and generous supporter who, on every occasion when asked for help, has been willing to give of herself.



## **Professor Norbert Berend**

Professor Norbert Berend retired from his Chair of Thoracic Medicine and as Director of the Woolcock Institute of Medical Research on 30 June 2012. Norbert led the Institute through a time of great change, had oversight of the negotiations to house the whole Institute in one building, sought funding and achieved the dream. At the time he became Director, the Institute had fewer than 20 employees in temporary homes on the University and RPA Hospital grounds. In 2012, the Woolcock Institute had more than 150 employees and associate staff and 55 postgraduate students, all of whom work in a state-of-the-art research institute. During this period he also led the development of respiratory research within the Asia Pacific region.



## **Professor Ruthven Blackburn**

Professor Ruthven Blackburn had the vision to see that Sydney needed a clinical research institute – preferably associated with the University of Sydney. At the time there was very little research being undertaken in respiratory medicine. A group of like-minded individuals led by him and Ann Woolcock started the Institute of Respiratory medicine. From there, the Woolcock started to nurture national and international stars and we owe our existence and excellence to his vision and leadership. We remain extremely grateful to Professor Blackburn and his passing is mourned by the many at the Woolcock who knew him.



## **Professor Christine Jenkins**

Professor Christine Jenkins worked tirelessly with the other research leaders as a team and led them through as they considered their strategy at a time of great change. Professor Jenkins ran the education program for the Woolcock Institute, especially the Think Tank program which has considerably enriched our research and scientific interchange, as well as the professional development program for health care professionals. The invited internationally renowned speakers she hosted at our Institute and the facilitation of interaction with research leaders has enriched our research programs. Her guidance has led to new research directions, collaborations and grants. Professor Jenkins was also a very active member of the two Respiratory CRC programs.



## **Professor Cheryl Salome**

Professor Cheryl Salome has had more than 25 years' experience in respiratory research, particularly in the causes and mechanisms of asthma. Professor Salome worked very closely with Ann Woolcock during her career and was responsible for leading and facilitating epidemiology, cell biology and lung physiology. She nurtured the lung physiology group, recruited PhD students, had oversight of all projects, made sure the research experience was a valuable one and then mentored these rising stars until they became independent research leaders. Her students have gone on to lead the world in lung physiology. Meanwhile, never one to step into the limelight, Professor Salome worked at the Woolcock Institute facilitating the Friday research seminars, the Think Tank and continued to write manuscripts and successful grant applications which changes the way we think about airway disease.



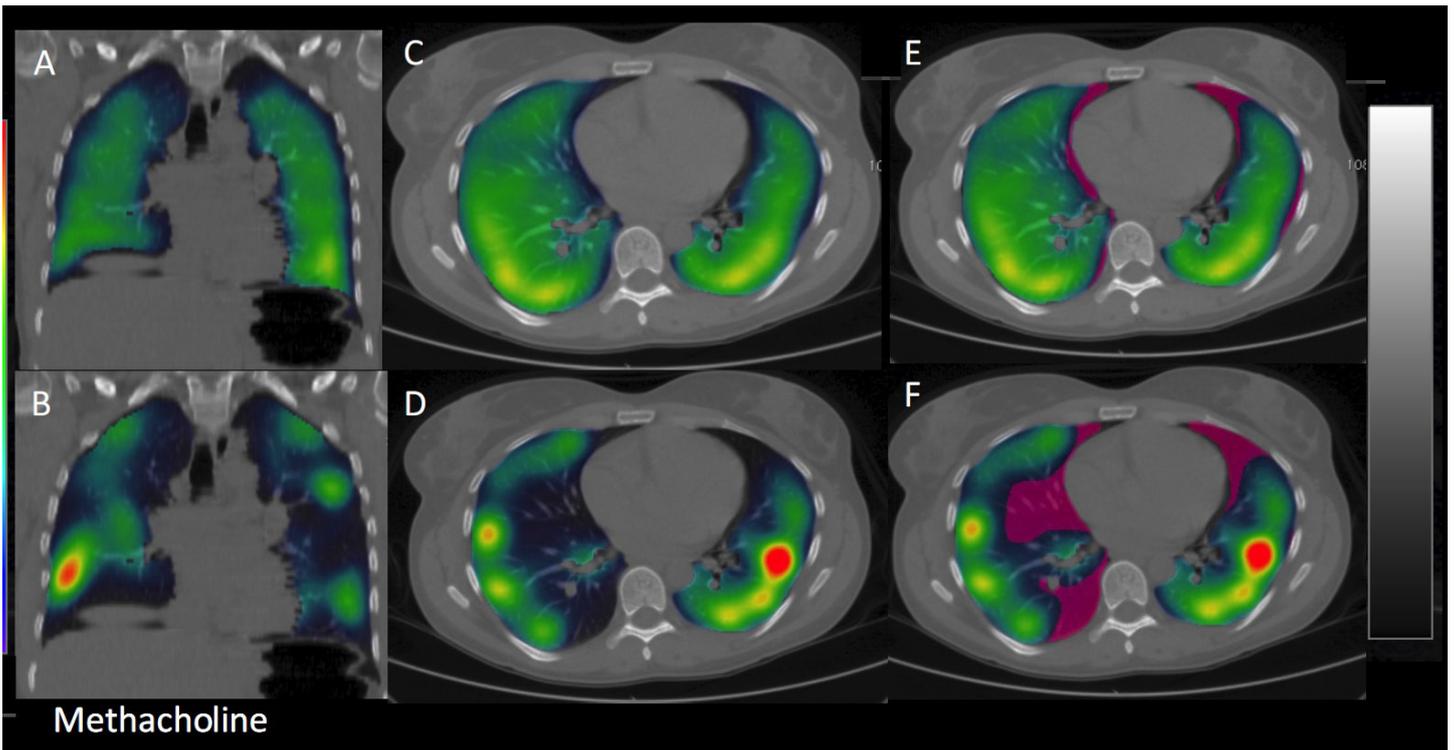
### Professor Paul Seale

Over the years Professor Seale has nurtured many of us, provided advice when asked, opened doors and facilitated pathways. He has been involved in grants and a multitude of clinical trials and fostered the next generation of medical and science students in terms of clinical pharmacology. However, at the Woolcock Institute, he was particularly valued as the leader of the clinical trials unit for 10 years. Professor Seale ensured that the unit was successful, safe and governed appropriately. He has served as our Deputy Director and in this role he provided sage advice for the management team on all matters of governance.



### Professor Euan Tovey

Over the many years of his scientific career Professor Euan Tovey focused on allergy research, particularly the house dust mite. He was a Senior Research Fellow of the NHMRC, an award reserved for leading health and medical researchers. He has been inducted into the Asthma NSW Hall of Fame and has delivered on a multitude of research grants to investigate asthma mechanisms. His inquisitive and innovative mind is evidenced by his long list of patents. He invented many novel mechanisms and devices which he also followed through with development and the Woolcock is grateful for his passion and commitment to research and our Institute.



## Media Highlights 2014-2015

During 2014 -2015 the Woolcock Institute continued to build its media presence with a number of national TV, radio, print and magazine stories.

National and local media stories covered a range of topics and featured Woolcock spokespeople answering questions on sleep, asthma; sleeping pills, Paediatric Sleep Clinic, Paediatric Allergy Clinic, air pollution, bushfire smoke, snoring, shift work, tuberculosis, jet-lag, food allergies, restless legs, and hay fever.

Key media events were:

16 September 2014 - AMAZES asthma trial featured nationally on Channel 7 news. It generated the highest peak in website hits since the new website was launched - 2914 sessions in one day. There were also over 300 calls and emails to the Woolcock Institute in the evening following the news.

14 September 2015 – a story on the Obstructive Sleep Apnoea (OSA) and Dementia study aired on Channel 9 News. This story generated 930 phone enquiries.

24 September 2015 - a story on the ZopOSA study aired on Channel 9 News. This story generated 3796 phone enquiries and significantly increased traffic to the website.

The high level of interest generated by these media stories enabled the researchers to recruit large numbers of eligible and engaged trial participants.

## FUNDRAISING

2014-2015 saw the implementation phase of the Woolcock's new fundraising strategy. The strategy forms the framework for a strategic and systematic approach to cultivating existing relationships and developing new ones.

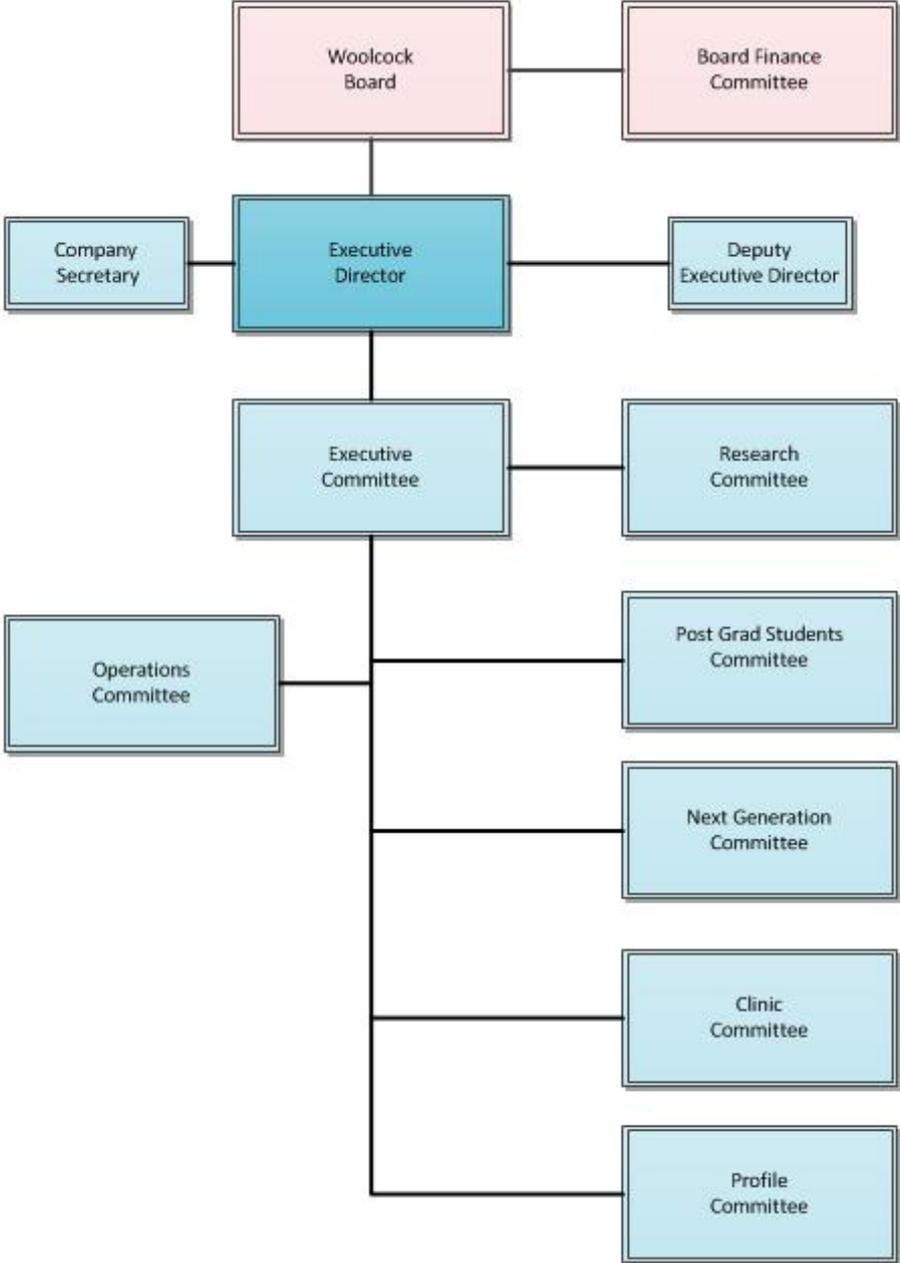
Activities include the engagement of two fundraising champions who promote the fundraising needs of the Woolcock to the community at large as well as to their personal networks; and the production of a series of videos aimed at highlighting Woolcock research and funding needs to the community, patients and stakeholders. In particular, the Centre for Lung Cancer Research video was used to successfully secure funding for the initiative with the State Government of NSW.

2014-2015 also saw the implementation of the Woolcock's major medical philanthropy program, the Grateful Patient Program. Based on the evidence that 50% of donors to health and medical research donate as a consequence of having personally experienced illness or disease, the Grateful Patient Program was specifically developed to support patient giving through a process of research awareness, clinician engagement, recognition, response and referral to our development staff. This program is expected to result in several major donations during 2016-2017.

In the period 2014-2015, a total of \$234,375 was raised through annual and regular donations. There was a 3-fold increase in the number of donations received over the previous year with 25% of donations coming from donors who donated to the Woolcock for the first time.

In 2015 the Woolcock erected two Honour Boards in the foyer of the Woolcock building to celebrate and acknowledge the major contributions made by a number of individuals and organisations over its history. At this time a total of ten Patrons and six Distinguished Alumni have been recognised in this way.

## Woolcock Institute of Medical Research Corporate Governance Structure





## **Robert Estcourt (Chairman of the Board)**

Appointed 14 September 2005

MA Fin. (Exeter), BA Ec. (Hons) (University of Cape Town). Director Brookvine Pty Limited (2004 -); Director e-Clipse Online (2010 -); Director Innova Asset Management (2014 -); Investment Consultant to The Royal Australian & New Zealand College of Ophthalmologists (RANZCO) Board (2013 -); Independent Investment Committee Member Charter Hall Opportunity Funds (2005 - 2014); Chairman Austock Asset Management (2007 - 2009), Director & Chief Executive Officer, Retail Cube Limited, (2004 - 2006); Principal, Estcourt Associates, (2003 -); Director of AMP Portfolio Businesses, (2002 - 2003); Director and Head of Cobalt RunOff Services Ltd, (2000 - 2002); AMP Group GIO Task Force, (1999 - 2000); Director, AMP Asset Management, (1992 - 1999); Head of AMP Investments, New Zealand, (1990 - 1992); Head of Investment Strategy; Equity Research, AMP Investments, (1986 - 1990); Assistant General Manager, Investment Division, UAL Merchant Bank, (1974 - 1986).



## **Professor Carol Armour (Executive Director)**

Appointed 10 April 2012

Appointed Executive Director 1 July 2012

PhD, FPS. Professor Armour has worked in the area of asthma research at a basic scientific and clinical level. Her investigations span the breadth of asthma research from the cellular mechanisms to the translation of new ways to treat asthma within the health system. She is on the Australian Respiratory Council, The National Asthma Council and has chaired the National Asthma Monitoring Advisory Committee, worked on the National Therapeutic Guidelines and the Australian Medicines Handbook. From 2003 2006 she was a member of the NH MRC Research Committee and was the Chair of the Training Awards Committee. She was Pro Vice Chancellor, Research, at the University of Sydney, from 2006 2009. In 2005 she was made a Fellow of the Pharmaceutical Society for her services to the profession, and she was awarded the Australasian Pharmaceutical Science Association (APSA) medal for research in 2007. She is currently an Associate Dean in the Sydney Medical School and a Professor of Pharmacology in the Sydney Medical School.



## **Simon Blackburn**

Appointed 20 September 2013

BS, Hons (Sydney), BE, Hons and University Medal (Sydney), PhD (Cambridge). Director, The Hunger Project Australia (2014 -); Senior Partner, McKinsey & Company, Sydney (2012 -); Partner, McKinsey & Company, Sydney (2008 - 2012); Partner, McKinsey & Company, Boston (2004 - 2008); Consultant, McKinsey & Company, Boston (1997 - 2004); Director, Parents as Teachers, USA (2007 - 2013); Director Massachusetts STEM collaborative, USA (2004 - 2007); Research Engineer, Telstra (1992 - 1993).



## **Professor Macdonald Christie**

Appointed 1 March 2013

BSc(Hons), PhD. Professor Christie completed a PhD at The University of Sydney in 1983. He was an Australian Postdoctoral Fellow in 1985 (NHMRC), a Fogarty International Fellow at Massachusetts Institute of Technology from 1985 - 1987 and then Senior Research Associate at the Vollum Institute in Oregon, USA from 1987 - 1990. Appointed as a tenured academic in the Department of Pharmacology, The University of Sydney in June 1990, where he was Head of Department from 1998 - 2000, full professor (personal chair) from 1999 and Medical Foundation Senior Principal Research Fellow from 1998 - 2002. NHMRC Senior Principal Research Fellow since 2003. Served as Director of Basic Research at the Pain Management Research Institute (2003 - 2008) and Brain & Mind Research Institute (2009 - 2011) University of Sydney. Appointed as Professor of Pharmacology in June 2011. Associate Dean Research, Sydney Medical School (2013 -).



### **Oliver Frankel**

Appointed 30 May 2012

B.Com, LLB (UNSW), LLM (UVa), GAICD. Director, Museums and Galleries NSW (2011 - 2015); Chair of Museums and Galleries NSW (2013 - 2015); Various general management roles at NRMA Motoring & Services (2006 - 2014), including Deputy CEO of Thrifty Car Rental (wholly-owned by NRMA); Director Corporate Finance, Trafalgar Corporate Group (2001 - 2005); Previous experience includes over fifteen years practicing law at leading law firms in Australia (Allens), the UK (Linklaters) and the US (White & Case), including 6 years as a Partner of Linklaters (specializing in corporate finance and M&A); and over 2 years as a senior executive with the AFP Investment Corporation Group.



### **Julie Osborne**

Appointed 30 May 2012

B.Ec, LLM (Syd), GAICD. Non-exec director Assetinsure Holdings Pty Limited and Assetinsure Pty Limited (2014 -); Starlight Children's Foundation - NSW Advisory Board member (2011 -); Westpac Banking Corporation - Executive Director and Head of Structured Finance, Treasury (2003 - 2010), Director and Head of Structured Finance (1999 - 2003), Director Corporate and Structured Finance (1997 - 1999); Associate Director Corporate and Structured Finance (1995 - 1997); Commonwealth Bank of Australia Senior Manager Asset and Structured Finance (1995); KPMG Consultant and Senior Manager Taxation (1987 - 1995).



### **Professor Matthew Peters**

Appointed 8 October 2015

MD FRACP. Professor Matthew Peters is a Respiratory Physician and Head of Respiratory Medicine at Concord Hospital. He holds Academic appointments at Macquarie University and Sydney University. He has long had an interest in Preventative Health and was Chair of Action on Smoking and Health (ASH) for many years. He is a past President of the Thoracic Society of Australia and New Zealand. He has research interests in Respiratory Physiology including aspects of physiology in breath hold divers and the pulmonary and cardiac responses to hypoxia.



### **Professor Bruce Robinson**

Appointed 30 May 2006

MD, MSc, FRACP. Fellow in Medicine, Harvard Medical School (1986 - 1988); Instructor in Medicine, Harvard Medical School (1988 - 1989); Head, Molecular Genetics Unit, Kolling Institute of Medical Research (1989 -); Professor of Medicine (Endocrinology), University of Sydney (1992); Head, Department of Medicine, University of Sydney, Northern Clinical School (1996 - 2001); Chairman, Department of Medicine, University of Sydney (1998 - 1999); Head, Division of Medicine, Royal North Shore Hospital (1998 - 2006); Chairman, Hoc Mai, Australia Vietnam Medical Foundation, University of Sydney (2001 -); Associate Dean (International) Sydney Medical School, University of Sydney (2003 - 2005); Dean, Sydney Medical School, University of Sydney (2006 -).



**Michael Wallace**

Appointed 30 May 2012

M.Sc.Soc., B.Sc. Chief Operating Officer, Australian Commission on Safety and Quality in Healthcare (2012 -); Director, Australian Institute of Health Service Managers (2009 -) Director, Health Insight NSW Pty Ltd (2012 -), Chief Executive, Health Reform Transition Organisation (Western) (2011 - 2012); Adjunct Professor UTAS (2005 -); Chief Executive, Sydney South West Area Health Service (2006 - 2011); Director of Clinical Operations, Sydney South West Area Health Service (2004 - 2006); Deputy Chief Executive, Central Sydney Area Health Service (1993 - 2004); General Manager, Prince Henry, Prince of Wales, Prince of Wales Children's and Royal South Sydney Hospitals (1983 - 1993); Director Medical Administration, Royal Prince Alfred Hospital (1982 - 1983); Chief Executive Officer positions NSW Health (1969 - 1983).



**Ian White (Company Secretary)**

Appointed 1 May 2012

B.Bus, FCPA, ACIS. Ian has over 30 years' experience within the financial services industry. Ian spent twenty four years with AMP where his career spanned many administrative and financial roles, both domestic and international. Since leaving AMP, Ian has contracted to many organisations, large and small, providing finance, governance, risk and compliance support across the banking, insurance, financial planning and funds management industries. Prior to engaging with the Woolcock Institute, Ian worked in risk assessment at the Commonwealth Bank.



**Iven H. Young (Clinical Professor)**

Appointed 21 August 1997

BSc (Med), MB, BS, PhD, FRACP. Respiratory Physician (1975 -); Research Fellow University of Sydney (1974 - 1976); Post-Doctoral Fellow University of California, San Diego (1976 - 1978); Visiting Medical Officer, Royal Prince Alfred Hospital (1979 - 1985) and Senior Staff Specialist in Respiratory Medicine, RPAH (1985 - 2012); Head, Department of Respiratory and Sleep Medicine, RPAH (1991 - 2009); Honorary Visiting Respiratory Physician, RPAH (2012 -); Emeritus Member of Thoracic Society of Australia & New Zealand; Director and Chair of Research Committee, Australian Respiratory Council; Senior examiner for the Australian Medical Council (1997); elected to the adult medicine division of the Royal Australasian College of Physicians (2000 - 2001); Chair, Division of Medicine RPAH (2000 - 2009). Chair Physician Training Council, HETI, NSW Ministry of Health (2010).

# COMMITTEES

## Board Committees

Below is a list of the Board committees that operated in 2014 and 2015 and their membership.

### Finance and Risk Committee

Members: Julie Osbourne (C), Oliver Frankel, Carol Armour, Robert Estcourt

## Executive Management and Committees

Below is a list of the Woolcock Institute committees that operated in 2014 and 2015 and their membership.

### Woolcock Executive Committee

Members: Greg King, Janette Burgess/Julia Chapman, Brett Toelle, Paul Young, Dev Banerjee, Joanne Elliot, Kerstin Baas, Angela D'Rozario/Christine Cowie, Carol Armour (C),

### Next Generation Committee

Members: Camilla Hoyos, Cindy Thamrin, Michael Guo, Brian Oliver, Wing Lee, Yang Chen, Qi Ge, Christopher Miller, Roo Killick, Joanne Fuller, Angela D'Rozario (C), Christine Cowie (C)

### Research Committee

Members: Brett Toelle, Bandana Saini, Craig Phillips, Daniela Traini, Brian Oliver, Lyn Moir, Carol Armour, Joanne Elliot, Greg King (C)

### Clinic Committee

Members: Ron Grunstein, Simon Lewis, Darren O'Brien, Chris Blackwell, Michelle Shahidi, Fran Clements, Delwyn Bartlett, Nick Stow, Sharalynne Allsopp, Kirsty Dodds, Dev Banerjee (C)

### Operations Committee

Members: John Reynolds, Ann Leadbitter, Cansy Itimani, Gunnar Ungar, Lyn Moir, Frances Russell, Joanne Elliot (C)

### Profile Committee

Members: Alicia Wong, Lucy Williams, Joanne Elliot, Euan Tovey, Lyn Moir, Sinthia Bosnic-Anticevich, Dev Banerjee, Paul Young (C)

### Postgraduate Committee

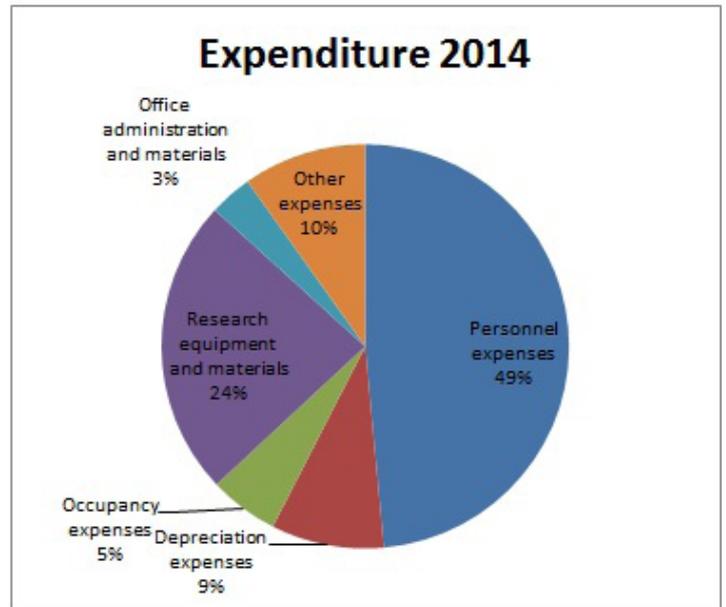
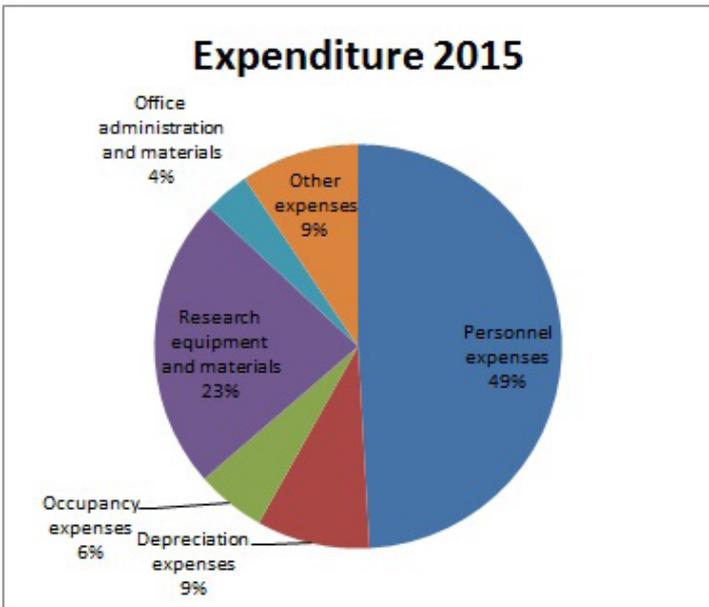
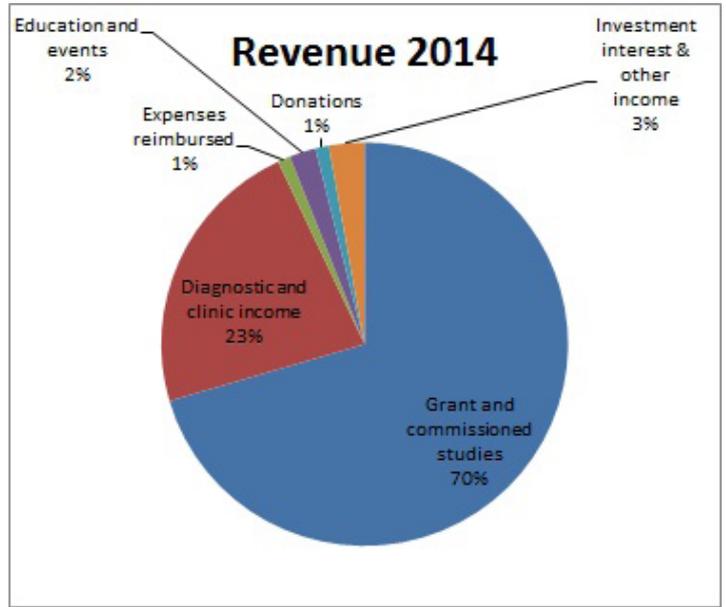
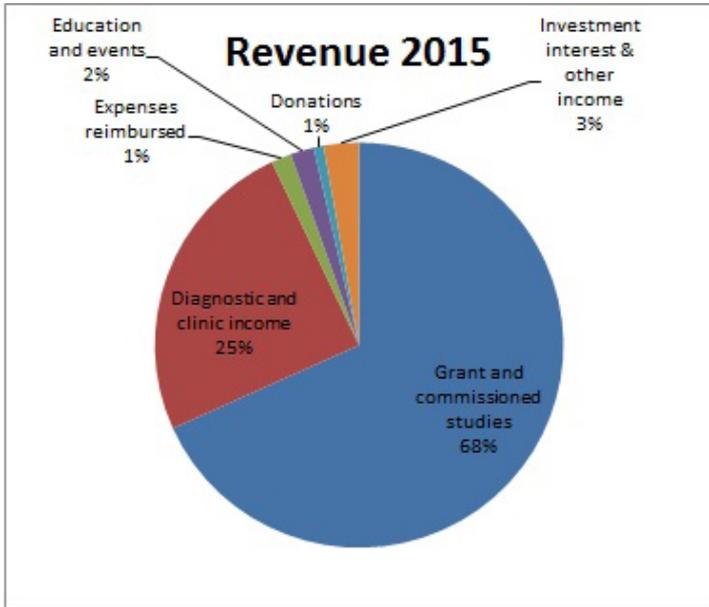
Members: Joanne Fuller, Kirsty Dodds, Nathan Cross, Lala Sarkissian, Paul Mason, Katrina Tonga, Alicia Mitchell, Monique de Pedro, Amandine Laur, Biljana Cvetkovski, Louise Harkness, Amanda Elaro, Carissa Hanes, Razia Zakarya, Kate Hardaker, Nessa Banville, Mehra Haghi, Alen Faiz, Janette Burgess (C), Julia Chapman (C).

### IT Committee

Members: John Reynolds, Gunnar Ungar, Qi Ge, Alicia Wong, Joanne Elliot, Anna Mullins, Brett Toelle (C)



<b>STATEMENT OF INCOME</b>	\$	\$
	<b>2015</b>	<b>2014</b>
<b>REVENUE</b>		
Revenue	12,552,025	12,547,121
<b>Total revenue</b>	<b>12,552,025</b>	<b>12,547,121</b>
<b>EXPENSES</b>	<b>2015</b>	<b>2014</b>
Personnel expenses	(6,462,931)	(6,270,604)
Depreciation expenses	(1,180,521)	(1,156,707)
Occupancy expenses	(725,487)	(714,012)
Research equipment and materials	(3,076,197)	(3,071,647)
Office administration and materials	(471,117)	(439,552)
Other expenses	(1,238,645)	(1,267,285)
<b>Total Expenditure</b>	<b>(13,154,898)</b>	<b>(12,919,807)</b>
<b>Surplus/(deficit) from operating activities</b>	<b>(602,873)</b>	<b>(372,686)</b>
<b>BALANCE SHEET</b>	<b>\$</b>	<b>\$</b>
	<b>2015</b>	<b>2014</b>
<b>ASSETS</b>		
Cash and cash equivalents	7,048,150	7,145,229
Trade and other receivables	1,462,635	1,221,806
Other financial assets	1,068,764	1,356,624
Other assets	128,695	125,733
<b>Total current assets</b>	<b>9,708,244</b>	<b>9,849,392</b>
Property, plant and equipment	3,332,983	4,094,023
<b>Total non current assets</b>	<b>3,332,983</b>	<b>4,094,023</b>
<b>Total assets</b>	<b>13,041,227</b>	<b>13,943,415</b>
<b>LIABILITIES</b>	<b>2015</b>	<b>2014</b>
Trade and other payables	605,030	774,403
Provisions	397,736	633,812
Other liabilities	4,224,719	4,133,556
<b>Total current liabilities</b>	<b>5,227,485</b>	<b>5,541,771</b>
Provisions	242,789	227,818
<b>Total non current liabilities</b>	<b>242,789</b>	<b>227,818</b>
<b>Total liabilities</b>	<b>5,470,274</b>	<b>5,769,589</b>
<b>Net assets</b>	<b>7,570,953</b>	<b>8,173,826</b>
<b>EQUITY</b>	<b>2015</b>	<b>2014</b>
Accumulated funds	7,570,953	8,173,826
<b>Total current liabilities</b>	<b>7,570,953</b>	<b>8,173,826</b>



## 2014

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