institute for
RESPIRATORY HEALTH

ANNUAL REPORT 2015

Institute for Respiratory Health
Ground Floor E Block
Sir Charles Gairdner Hospital
Nedlands
Western Australia 6009

Telephone +61 8 9346 3198
Facsimile +61 8 9346 4159

admin@resphealth.uwa.edu.au

resphealth.org.au

Institute for Respiratory Health

@LungAustralia

CONTENTS

WHO WE ARE

We are a collaborative respiratory research organisation. We aim to improve the life of everyone living with a respiratory condition by bringing together world class researchers and dedicated clinicians to investigate, diagnose, treat and prevent respiratory diseases.

We conduct and foster innovative basic and clinical research and translate our work into improved treatments for people with respiratory conditions.

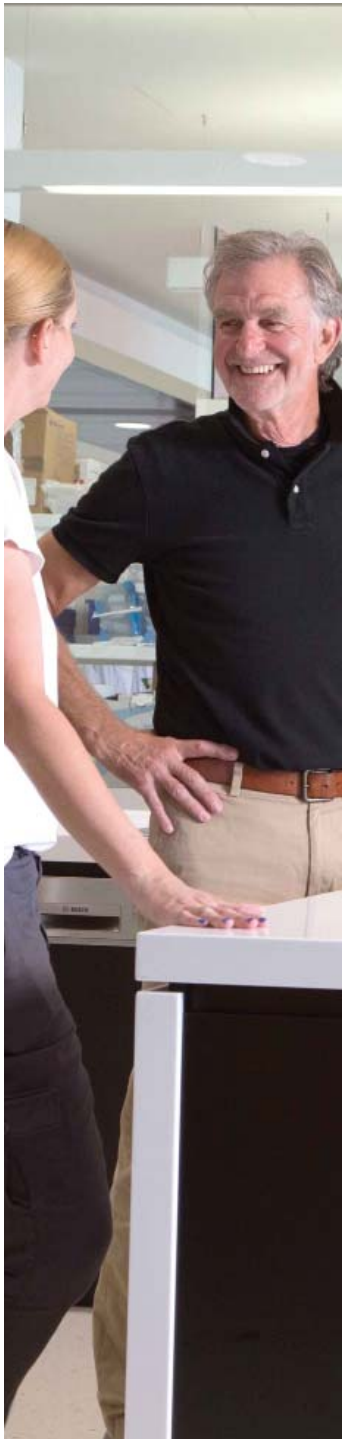
We campaign for an increased awareness and investment in respiratory education and research. We focus on real people and our work gives hope for a better future to those with respiratory disease.

OUR VISION

To improve the life of everyone living with a respiratory condition.

OUR MISSION

To bring together world class researchers and dedicated clinicians to investigate, diagnose, treat and prevent respiratory conditions. Our work gives hope for a better future to those with respiratory diseases.



OUR VALUES

WE'RE RESULTS DRIVEN.

We lead our field by constantly improving our processes and knowledge base. We translate our work from innovative laboratory based sciences to clinical practice. We manage multiple major drug trials, and our researchers work in state-of-the-art research facilities.

WE FOCUS ON REAL PEOPLE.

People are at the heart of everything we do. We educate our patients, and the wider community about lung health so everyone can breathe easier. We nurture our students and offer grants and scholarships so everyone can live their passion and work towards our common goal.

WE COLLABORATE.

We bring together passionate experts from around the world and share knowledge to deliver life changing outcomes. Our researchers consistently publish ground breaking results. We work with leading pharmaceutical companies and deliver new treatments and we all work towards a common goal – to offer the best quality of life to everyone living with a respiratory condition.

WE THINK OUTSIDE THE BOX.

We look for new ways of doing things and keep up to date with the latest scientific advancements. We are constantly developing better ways to diagnose and treat respiratory diseases.

OUR OBJECTIVES

RESEARCH EXCELLENCE

We conduct and foster innovative basic and clinical research to prevent, and better understand respiratory conditions and improve their diagnosis and management.

CLINICAL EXCELLENCE

We translate our research into improved treatments for people with respiratory conditions.

CAMPAIGNING AND EDUCATION

We campaign in Western Australia for an increased awareness of and investment in respiratory education and research.

CHAIR'S REPORT

SUE MOREY

We think outside the box - this is one of the four core values that underpin our brand, and certainly one that our Board has embraced with vigour in 2015.

We officially launched our new name in April and under the leadership of our Director, we have focused on a strong, united future for respiratory health and research professionals in Western Australia.

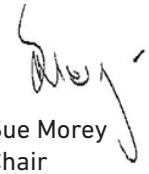
In September the Board was honoured to recognise the services of its founder and inaugural Director by hosting the Philip Thompson Oration. We were privileged to have Emeritus Professor Norbert Berend as the guest presenter in front of over 100 invited guests.

We continue to have wonderful support from our Patron, the Hon Chief Justice Wayne Martin, and Ambassadors Karen Tighe and Glenn Mitchell. Their willingness to help the Institute at every opportunity is appreciated.

Our strong relationship with the University of Western Australia continued in 2015 with the successful establishment of the Centre for Respiratory Health. I would also like to acknowledge the support we received from Sir Charles Gairdner Hospital, Fiona Stanley Hospital and our partnerships with Notre Dame, Murdoch and Curtin Universities.

Our high performing Clinical Trials team continued to deliver outstanding results through their tireless efforts. I would like to recognise the services of Dr Martin Phillips as Principal Investigator and the support of the Sub Investigators.

I wish to pass on my gratitude to fellow Board Members and Sub-Committee Members for their commitment during 2015. Your time and energy to help guide the Institute is highly valued.



Sue Morey
Chair

DIRECTOR'S REPORT

GEOFF LAURENT

Research is at the heart of everything we do and in 2015, we took important steps to develop new therapies for respiratory diseases. These advances have been outlined in this report, through our e-newsletter and on our website.

We continued to work with the research community by hosting seminars for visiting scientists and being actively involved in collaborative groups.

Our ongoing commitment to the wider respiratory community to develop new initiatives was highlighted in a new partnership with Conquer Cystic Fibrosis Inc. I can only admire the work of this volunteer committee which consists of passionate parents and friends who raise funds for research into the disease. We are excited to facilitate the implementation of the Conquer Cystic Fibrosis Research Program here in WA. This will consist of up to three new postgraduate PhD Scholarships plus additional seed funding for research programs.

We are also privileged to have the support of the Melbourne Cup Luncheon Committee, who this year raised a record amount for the Glenn Brown Memorial Grant. In the past 5 years, the volunteer committee has generated over $275,000 towards medical research.

Our affiliation with Westcare Inc continues to grow, with formal discussions on how the two organizations can work closer together. I would like to thank the Westcare Board and CEO for their willingness and enthusiasm to explore these opportunities. Further developments will take place into 2017.

As we work towards one of our objectives - to educate our patients and the wider community about lung health so everyone can breathe easier - we have worked with Curtin University to develop our own Respiratory Wellness Program. This concept has taken considerable effort to refine and we are now confident that it will play an important role during 2016.

Through 2016, we will endeavour to obtain national and international funding to put Western Australia at the top of the respiratory research league. Your continued support is also vital for us to achieve this goal.

Professor Geoff Laurent
Director

BOARD OF DIRECTORS

MS SUE MOREY OAM FRCNA
CHAIR
Nurse Practitioner in Respiratory Medicine,
Sir Charles Gairdner Hospital.
Board of Directors Westcare Inc.

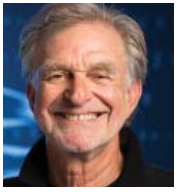
PROF GEORGE YEOH BSC PHD
DEPUTY CHAIR
(UWA appointed representative)
Head of Liver Disease and Carcinogenesis Unit,
Centre for Medical Research, University of
Western Australia.

MR PETER GUNZBURG B COM
TREASURER
Non-Executive Chairman of Eurogold Limited.

PROF GEOFFREY STEWART BSC PHD
Chair of Scientific Sub-Committee.
School of Pathology and Laboratory
Medicine, University of Western Australia.

MR JOHNSON KITTO LLB
Managing Partner of Kitto & Kitto,
Barristers & Solicitors.

PROF LOU LANDAU AO MBBS MD FRACP
Emeritus Professor of Paediatrics,
University of Western Australia.
Chair of the Postgraduate Medical
Council of Western Australia.



PROF GEOFF LAURENT BSC PHD FRCP(HON) FRCPATH FMEDSCI (DIRECTOR)
Director of the Institute for Respiratory Health.
Director of the Centre for Cell Therapy and
Regenerative Medicine, University of Western
Australia.
Honorary Fellow at University College London.

SUB-COMMITTEES OF THE BOARD
Finance: Peter Gunzburg (Chair), Cameron Agnew, Sue Morey
Scientific: Prof Geoff Stewart (Chair), Prof Peter Eastwood,
Prof Robyn O'Hehir*, Prof Stephen Holgate*

*External to the Institute for Respiratory Health.

OUR BRAND LAUNCH

To celebrate our name change, in April we held an official ceremony to recognise our new name, look and reinvigorated core values.

Professor Geoff Laurent highlighted our achievements over the last 15 years as well as the importance of fostering a collective and common goal – to provide the best quality of life to everyone living with a respiratory condition.

COMMUNITY ACTIVITIES

THANKS TO ALL OF OUR DONORS, VOLUNTEERS, AND MEMBERS FOR YOUR SUPPORT IN 2015 – WE COULDN'T DO IT WITHOUT YOU!

MAJOR GIFT GIVERS

Individuals

Angela Marmont
Beverley Fitzgerald
Carolyn and Ted Cahill
Dr Aditya Jha
James Joseph Clinton
Joanne Barratt
Melbourne Cup Luncheon Volunteers
Michael and Nicola Dunn
Suzanne Morey
Wayne Flynn
William Darby

Corporates

Cowaramup Lions Club
Cycling Eventures
Mobile Dewatering
Westcare

MAJOR FUNDRAISERS

HBF Run for a Reason

Team Mel from Santa Maria College
Annie Dawes
Damian Vujcich
Denise Meyrick
Hilary Monton
Jamie Wood
Katie Mcgregor
Natalia Forrest
Nigel Stephens
Laila Abudulai
Harsh Budhiraja
Richard Nyen
Lauren Schipp
Michael Cahill and Zoe
Team from the Clinical Trials Unit

Sydney Marathon

Michelle Dujmovic

Ultra Easy 100 Challenge, NZ

Carolynne McFarland

VOLUNTEERS

Catherine Papanastasiou
Jenni Ibrahim
L I F E – Busy Bee Helpers

MEMBERS

We continued to enjoy the strong support of our members, who comprise of the scientific / medical sector, the broader community, students and the corporate sector.
In 2015 we saw an increase in medical / scientific members who are mainly involved in respiratory medicine and research.

Corporate Member for 2015

Turner Freeman Lawyers

HBF RUN FOR A REASON

We raised $14,700 to go towards improving the life of everyone living with a respiratory condition when our fundraising teams ran the HBF Run for a Reason in May. Thank you sincerely to everyone who ran or donated.

MELBOURNE CUP LUNCHEON

The Melbourne Cup Committee outdid themselves in their annual fundraiser for the Glenn Brown Memorial Grant for Cystic Fibrosis and Bronchiectasis. A record $61,901 was raised at the State Reception Centre in Frasers, King's Park. The event is run entirely by volunteers and wouldn't happen without Janeine Thomas and the Melbourne Cup Committee, Pam Barnett, Suzanne Sheridan, Lisa Fast and Helen Tranchita, who work tirelessly for many months leading up to the day. Many volunteers help out on the day including the our staff members.

MEDICAL RESEARCH SEMINARS

In 2015 we ran research seminars and two NHMRC grant workshops. The following presentations were made:

Professor Chun Seow
Department of Pathology & Laboratory Medicine, University of British Columbia
'Smooth muscle, how does it work and why do we care'.

Dr Jane Bourke
Department of Pharmacology, Monash University
'Targeting the small airways – no longer the "silent zone" in chronic lung diseases'.

Raine Visting Professor William Cookson
Imperial College London
'Asthma: genes versus the microbiome at the airway barrier'.

Dr Manuel Ferreira
QIMR Berghofer Medical Research Institute
'Genetics of asthma: from associations to interventions'.

Professor Nigel Laing
Neurogenetic Disease, Harry Perkins Institute of Medical Research
'Research Fellowships'.

Dr Peter Noble
Centre for Neonatal Research and Education, UWA
'Early Career Fellowships'.

Professor Peter Eastwood
Institute for Respiratory Health & Centre for Sleep Research, School of Anatomy, Physiology & Human Biology, UWA
'How a grant review panel works'.

Emeritus Professor Emeritus Norbert Berend
George Institute for Global Health Australia
'Tips for writing successful project grants'.

TOUR OF LABORATORIES

We invited our donors and supporters to a tour of our laboratories to get a better idea of what 'a day in the life of a scientist' looks like. Afterwards morning tea was provided so visitors were able to meet the scientists whose research they are supporting.

Images courtesy of Stefanie Muller Photography.

L I F E

LUNG INFORMATION AND FRIENDSHIP FOR EVERYONE

L I F E, our community self-help group had a busy year. Their monthly meetings featured speakers from a wide range of topics - from the correct use of inhalers and spacers, self-management, advanced care planning, portable oxygen concentrators, Red Cross services, a consumer's experience of living with cystic fibrosis, to sudden deaths in the nineteenth century Western Australia.

L I F E Coordinator Dr Jenni Ibrahim, addressed attendees on Patients' Perspectives of Living with a Chronic Lung Condition at the annual conference of the WA chapter of the Thoracic Society of Australia and New Zealand. She also spoke about advanced health directives to the sister group, Bentley Bronchiatrix.

The group continued to enjoy their quarterly lunches as they visited Fremantle Port, Rod Evans Seniors Centre East Perth for Christmas in July and Rockingham for lunch with members of the local respiratory support group.

During 2015, L I F E convened the Lung Leaders Network – bringing together leaders from the other 10 respiratory support groups in WA. Two workshops were organized for the year. We have supported L I F E and the Lung Leaders Network events by organising venues and lunch. ConnectGroups, the peak body for self-help groups in WA is also supporting the Network by way of a small grant.

L I F E has extended the readership of its quarterly magazine Breath of L I F E by circulating it to all of our community members. L I F E would like to welcome the new readers.

PHILIP THOMPSON ORATION

In honour and recognition of our founder and inaugural Director of the Institute Professor Philip Thompson, we held the first Philip Thompson Oration, in September.

Our special guest Professor Emeritus Norbert Berend, Head of Respiratory Research at the George Institute for Global Health Australia and past President of the Thoracic Society of Australia and New Zealand presented "Air pollution and lung health - A global problem with special importance for Asia Pacific".

HERO AWARD WINNERS

Our annual 'Heroes' are members who demonstrate outstanding support and commitment to the Institute and others with respiratory conditions.

RAEMA FITZGERALD, THOMAS MURNAME, SAL HYDER, SHIRLEY SHEHAN AND JUNETTE KEANE

Raema, Thomas (pictured, middle), Sal, Shirley and Junette (pictured, left), known as the L I F E – Busy Bee Helpers, work tirelessly to help the Clinical Trials Unit.

Each month the group dismantle blood kits, make up files and undertake any other duties asked. They do this willingly and with a smile on their face and it is because of their generosity that the Clinical Trials team can attend to other tasks.

Volunteering is an essential part of the Institute and without these kind-hearted people we could not function as well as we do. Their efforts are appreciated.

HERO HONOUR ROLL

2014
Ms Lyndell Gore and
Ms Meagan Shorten

2013
Mrs Janine Ban

2012
Mrs Janiene Thomas and
Ms Alison Guest

2011
Mr Paul Barratt (deceased)

2010
Mrs Edna Brown (deceased)
and Dr Jenni Ibrahim

RESEARCH GRANT PROGRAM

We are grateful to the individuals and organisations who have chosen to support our research grant program and help fund specific areas of respiratory research.

Our competitive research grant program enables such donors to establish a grant addressing a specific research area by providing $50,000 for a 12 month period. The research areas include infectious lung disease, cystic fibrosis and bronchiectasis.

We add value to the donation by administering the grant, which includes an independent, voluntary scientific board selecting the grant winners.

ALAN KING WESTCARE PROJECT GRANT FOR INVESTIGATION INTO INFECTIOUS LUNG DISEASE

Awarded to: Dr Susan Peters,
School of Population Health, University of Western Australia.
'WA miners' morbidity from lower respiratory infections and association with exposure to diesel exhaust and silica dust'
Funded by Westcare Inc.

GLENN BROWN MEMORIAL GRANT FOR INVESTIGATION INTO CYSTIC FIBROSIS AND BRONCHIECTASIS

Awarded to: Dr Anna Tai, Respiratory Medicine, Sir Charles Gairdner Hospital.
'Systematic molecular surveillance of P. aeruginosa strains in patients with cystic fibrosis at Sir Charles Gairdner Hospital'.
Funded by Melbourne Cup Luncheon Committee volunteers.

Sue Morey with Alan Tough, Westcare President

Melbourne Cup Committee with Dr Anna Tai

EDUCATION INITIATIVES

Supporting the education of clinical and scientific researchers is part of our vision to improve the life of everyone living with a respiratory condition. In 2015 we invested over $44,000 in funding PhD and Honours student scholarships, all of which supported young scientists to embark on a career in respiratory research.

PHD SCHOLARS

Hui Min Cheah, University of Western Australia.
Research Unit: Pleural Diseases.
Project Title: 'Biological Activity of Malignant Pleural Effusion in Mesothelioma.' Supervised by YCG Lee.

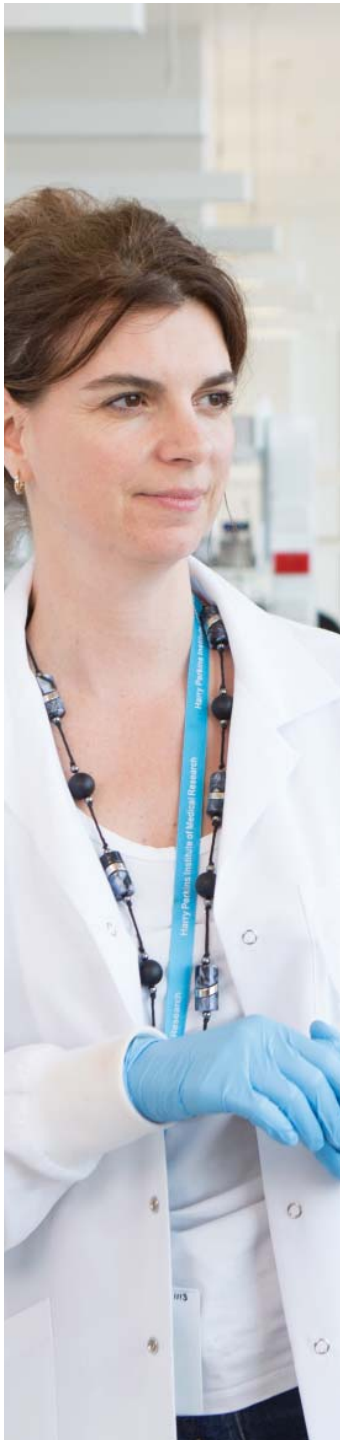
Kimberly Birnie, University of Western Australia.
Research Unit: Tissue Repair.
Project title: 'miRNA in Malignant Mesothelioma.' Supervised by SE Mutsaers, B Badrian, PJ Thompson.

Chuan Bian Lim, University of Western Australia.
Research Unit: Tissue Repair.
Project title: 'Role of Hedgehog signalling in malignant mesothelioma.' Supervised by SE Mutsaers, CM Prêle, S Baltic, PJ Thompson.

Dr Natalia Forrest, University of Western Australia.
Research Unit: Pleural Diseases.
Project Title: 'Novel Pharmacological Therapy for Pleural Infection'. Supervised by YCG Lee.

Dr Rajesh Thomas, University of Western Australia.
Research Unit: Pleural Diseases.
Project Title: 'Management of Malignant Pleural Effusion'. Supervised by YCG Lee.

Joe Yasa, Murdoch University.
Research Unit: Tissue Repair.
Project Title: 'The role of IGF-1 in lung regeneration'. Supervised by R Mead, GL Laurent, A Lucas, CM Prêle.



Jesse Armitage, University of Western Australia.
Research Unit: Stem Cells
Project Title: 'The effects of MSC infusion on inflammation and immune regulation in COPD patients'. Supervised by Y Moodley, D Tan

MASTERS SCHOLARS

Dr David Manners, University of Western Australia.
Research Unit: Occupational and Respiratory Health.
Project Title: 'Developing a patient Decision aid for lung cancer screening'. Supervised by F Brims.

MASTERS SCHOLARS

Malik Setiawan, University of Western Australia.
Research Unit: Stem Cells
Project Title: 'T-cell and monocyte responses against non-typeable Haemophilus Influenzae (NTHI) in patient with chronic obstructive pulmonary disease (COPD)'. Supervised by Y Moodley, D Tan.

HONOURS SCHOLARS

Courtney Kidd, University of Western Australia
Research Unit: Molecular Genetics.
Project Title: 'SETD7 in asthma pathogenesis'. Supervised by S Baltic, PJ Thompson.

Aleksandar Stranatic, University of Western Australia.
Research Unit: Molecular Genetics.
Project Title: 'Differential expression of splice variants play a vital role in pathogenesis of asthma and asthma severity'. Supervised by S Baltic, PJ Thompson, L Barrett, A Currie.

DOCTOR OF MEDICINE IN DENTISTRY

Nathanael Ong and Hee Woong Shin, University of Western Australia.
Project Title: 'The role of exosomes in COPD'. Supervised by Y Moodley, D Tan, J Armitage.

SUMMER VACATION CADETS

Joe Yasa, Murdoch University.
Research Unit: Tissue Repair.
Project Title: 'Evaluating the kinetics of induction of Jak/STAT signalling in CD20+ cells'. Supervised by CM Prêle, G Hoyne.

Danny Bigelow, Note Dame University
Research Unit: Tissue Repair.
Project Title: 'Characterising immune cell composition. within fibrotic lesions in IPF'. Supervised by CM Prêle, GHoyne.

JUNIOR TRAVEL AWARD WINNERS 2015

Dr Chuan Bian Lim, University of Western Australia.
Conference: ATS 2015 International.
Abstract: 'Targeting malignant mesothelioma with the redox-modifying small molecule GANT61'.

Kimberley Choon Wen Wang, University of Western Australia.
Conference: TSANZ Annual Scientific Meeting & ERS International Congress, 2015.
Abstract: 'Independent effects of airway smooth muscle remodelling and allergic inflammation on airway responsiveness'.

RESEARCH OVERVIEW 2015

A summary of key clinical and scientific projects undertaken by the Institute during 2015.

AIRWAY DISEASE

The Molecular Genetics and Inflammation Unit continued to collect a large sample bank of DNA, serum, and RNA samples of patients with airway diseases such as asthma, COPD and bronchiectasis. These samples are then used in genetics projects to help better understand the predisposition of genetic diseases and the devleopment of future therapies.

ASTHMA

The Molecular Genetics and Inflammation Unit is a member of the Australian Asthma Genetics Consortium, which was formed to promote a more rapid progress towards the identification of the genetic causes underlying asthma. The Unit contributes genetic data samples to its various studies and early findings have already achieved publication in the prestigious Lancet and Nature Genetics journals.

The Molecular Genetics and Inflammation Unit continued studies on the molecular mechanisms underpinning pro and anti-inflammatory pathways in the lung, in particular, the role of alternative splicing in chronic inflammatory lung disease. New therapeutic approaches to treat severe asthma using antisense oligonucleotides are being explored.

Epigenetic mechanisms may play an important role in asthma as both are heritable, influenced by the environment, and modified by *in utero* and environmental exposures and ageing. It regulates the expression of a large number of well-established asthma associated

genes. The Molecular Genetics and Inflammation Unit has identified the differences in genes regulating these processes in mild and severe asthma. This may explain why some people get asthma and what determines its severity. This may be a good therapeutic target.

The Clinical Trials Unit is involved in a number of studies for new medications that address different subsets of asthma. Many physicians are not conscious of these asthma subtypes and struggle to achieve control using conventional treatments.

ALPHA 1 - ANTITRYPSIN DEFICIENCY

The Clinical Trials Unit continued to investigate whether a new study drug is safe and effective in slowing down the progression of lung damage in patients with alpha1-antirypsin deficiency (AATD). The study drug is made from blood plasma donated from humans, and is designed to increase the concentration of AATD in the body to prevent or slow down lung damage in patients with AATD.

BRONCHIECTASIS

The Clinical Trials Unit tested two new inhaled antibiotics targeting bacteria in the airway to reduce airway inflammation. This study is ongoing and both treatments appeared to be very promising.

CHRONIC OBSTRUCTIVE PULMONARY DISEASE (COPD)

A trial continued within the Clinical Trials Unit for a new inhaler to see whether the way it has been developed works better than those currently available for managing COPD.

A new medication which was intravenously administered to COPD patients was trialled. This medication has previously been trialled with asthma patients in the Clinical Trials Unit, focusing on treatment to the cellular component of COPD.

An inhaled therapy, combining three approved medications into one inhaler was trialled by the Clinical Trials Unit. This is ongoing and is looking promising for patients.

The Physiotherapy Unit is conducting a randomised controlled trial of supplemental oxygen versus medical air in people with COPD. The study is comparing breathing supplemental oxygen versus medical air (sham intervention) during an eight-week exercise training program. The outcomes assessed are exercise capacity, daily physical activity and health-related quality of life, both at the completion of the training period and at six months later.

The Stem Cell Unit is currently conducting a study on Regulatory T-cells (Treg). The goal is to analyse the role of Tregs in the pathogenesis of COPD.

The Stem Cell Unit is investigating T-cell co-inhibitory receptors (PD-1, CTLA-4). The aim of this ongoing study is to compare the expression of inhibitory receptors between AECOPD, stable COPD and healthy controls.

The Stem Cell Unit is currently studying the effects of mesenchymal stem cell (MSC) treatment on inflammation and immune cells.

The Stem Cell Unit is also undertaking a study of non-typeable Haemophilus influenza infection in COPD. The aim is to characterize anti-bacterial responses of T-cells and monocytes of COPD patients.

CYSTIC FIBROSIS (CF)

The Clinical Trials Unit in collaboration with the Cystic Fibrosis and Bronchiectasis Unit continued clinical trials

of drugs that target the protein which is defective in CF as a result of genetic mutations. The trial has now finished and most patients have been able to receive a special access program to obtain the drug. Continuing use will help determine whether this targeted therapy will provide much needed long term benefits to people living with CF. This therapy was recently approved by the Therapeutic Goods Administration in Australia for Delta 508 homozygous patients, and awaits approval by the PBS. Other targeted therapy trials are planned in 2016, with 3 new studies in the pipeline for cystic fibrosis patients.

A study focused on telehealth for rural and remote CF patients was completed by the Cystic Fibrosis and Bronchiectisis Unit. Data is being analysed; the project investigated the feasibility of providing CF multidisciplinary telehealth clinics as part of routine care, and their impact on satisfaction, lung function, and quality of life in adults with CF who live in rural and remote Western Australia.

The Cystic Fibrosis and Bronchiectisis Unit, in collaboration with the Physiotherapy Unit, have developed a smartphone application (SMART CF) that allows patients to report their symptoms to the CF Centre at Sir Charles Gairdner Hospital. In 2015, a pilot study was completed that showed the smartphone application had excellent usability among adults with CF, and is now ready to be utilised in a larger randomised controlled trial commencing in early 2016. The trial will investigate the impact of the smartphone application on the number of respiratory exacerbations requiring intravenous antibiotics in adults with CF.

The Cystic Fibrosis and Bronchiectasis Unit is investigating the systematic molecular surveillance of P. aeruginosa strains in patients with CF at Sir Charles Gairdner Hospital's CF Centre. This collaborative project will assess the point-prevalence of bacterial strains using established molecular strain-typing methods and will characterize patterns of changes in airway populations of this pathogen within-patients during clinical stability and pulmonary exacerbations. It will also build up local capacity for systematic molecular surveillance and will establish a local bank of longitudinally collected P. aeruginosa isolates for future studies.

LUNG CANCER

The Occupational and Respiratory Health Unit have developed the LungScreen WA Project. In 2011, the results from the National Lung Screening Trial in the US reported a 20% reduction in lung cancer mortality when CT was used to screen high risk current and former smokers compared to chest x-ray alone. Many questions regarding implementation of screening in Australia remain unanswered, including how to properly identify high risk patients and the cost utility of the process. The project successfully began recruitment in mid-2015 and is currently on hold as funding for a national study has been gained.

INTERSTITIAL DISEASE

IDIOPATHIC PULMONARY FIBROSIS (IPF)

The Clinical Trials Unit is one of several centres internationally that is conducting a trial of a new medication for IPF. The trial aims to address the efficacy and safety of a new medication that shows potential for treating this ultimately fatal condition.

The Molecular Genetics and Inflammation Unit continues to collect, process and store samples from IPF patients for an Australia-wide collection.

The Institute also continued collaboration with the Australian Lung Foundation through the Australian IPF Registry. This Registry aims to enroll all Australians with IPF so that the data collected can help researchers learn more about this serious disorder. The Molecular Genetics and Inflammation Unit is also exploring the bio markers for IPF in collaboration with the Assoc/Prof Yuben Moodley.

The Molecular Genetics and Inflammation Unit and Tissue Repair Unit continue to collaborate on the genetic analysis of IPF samples and to explore the mechanisms of IPF.

The Tissue Repair Unit continued to address IPF at a molecular level. The cause of IPF is unknown but it is widely accepted that repeated injury to the epithelium leads to dysregulated healing, initiating a cascade of processes resulting in fibroblast / myofibroblast accumulation and overproduction and deposition of collagen. Our Tissue Repair Unit has pioneered studies identifying the gp130-induced signal transducer and activator of transcription (STAT)3 signalling pathway as pivotal in the development of lung fibrosis. What regulates STAT3-mediate fibrosis is not clear but their current studies are focusing on understanding the role of mediators known to activate the pathway, cell types that may be regulating the mediator response, as well as a possible breakdown in regulation of the naturally occurring inhibitors that normally control the STAT3 response.

LUNG REGENERATION

The ability of tissue is highly variable across species with many amphibians regenerating tails, limbs and even eyes. In humans this capacity is more limited, although this varies from one tissue to another. The lung's regenerative capacity is now recognised to be much more rapid than previously thought even in the adult human. Prof Geoff Laurent, together with Dr Cecilia Prêle and Dr Andrew Lucas are investigating the molecular and cellular cues that drive regenerative lung growth and how they differ in young vs ageing lungs. Understanding the mechanisms of this growth and its capacity in humans will open up transformational research programs that may allow us to cure chronic lung diseases that are currently seen as untreatable.

PATIENT CARE

The Occupational and Respiratory Health Unit continued a randomised controlled patient preference study examining the utility of advanced care planning in severe respiratory disease patients. The project is in collaboration with the WA Department of Health and the Rural School at UWA. The project started recruitment in July 2014 and aims to recruit ~100 subjects with severe respiratory disease and examine their health care utilization (with particular emphasis on expenditure) with or without bespoke Advanced Care Plans in place. Recruitment completed in late 2015, with a further 6 months follow up afterwards.

The Occupational and Respiratory Health Unit is conducting a randomized study examining the effects of early palliative care of patients with mesothelioma 'RESPECT-meso'. In partnership with multiple centres in the UK they are recruiting patients to see if the quality of life is improved with the addition of regular early palliative care in addition to all normal care. Recruitment is progressing well and the study should be complete by late 2016.

PLEURAL DISEASE

MESOTHELIOMA

Limited treatment options in Mesothelioma lead to a short median survival and clinical management is hampered by the lack of molecular biomarkers for diagnosis/ prognosis. There is growing evidence that short non-coding RNAs such as microRNA (miRNA), are useful biomarkers in cancer. Studies in the Tissue Repair Unit are trying to determine the diagnostic and prognostic potential of miRNAs in serum and pleural effusion fluids and cells from patients with mesothelioma compared with other diseases. The Unit also worked a project seeking to determine if differentially expressed serum miRNAs are early disease markers. miRNA also have important biological roles within cells so the Tissue Repair Unit are also looking at the biological significance of certain miRNAs in mesothelioma.

Increasing evidence is pointing to the reactivation and aberrant expression of developmental signalling pathways, such as the hedgehog (Hh) pathway, as critical to the pathogenesis of certain cancers. The Tissue Repair Unit have undertaken a study which demonstrated that Hh pathway signalling is important in the growth of mesothelioma and are examining different antagonists to identify the best possible therapeutic approach to inhibit mesothelioma growth and to elucidate the mechanisms the Hh pathway uses to promote tumour growth.

The Pleural Disease Unit employs various *in vitro* techniques and preclinical models to investigate novel therapies for malignant pleural disease and mesothelioma. FGF-9 is an exciting and novel target uncovered from global gene profiling of human MPM samples. The Unit has verified over-expression of FGF-9 in MPM over other cancers and benign pleuritis in five separate cohorts of human pleural tissues and effusions. Preliminary *in vitro* work shows that FGF-9 induces mesothelioma cell proliferation and matrix invasion, and knock-down of FGF-9 retards MPM growth in mice. This data is the first to suggest a central role of FGF-9 in the biology of MPM and current studies are aimed at assessing anti-FGF-9 strategies for clinical translation. In addition, findings show that FGF-9 inhibits the anti-tumour immune response in mesothelioma. The Unit is currently determining the mechanism for this novel role for FGF-9.

Malignant pleural effusion develops when cancer causes abnormal accumulation of fluid (usually litres) in the pleural cavity between the outside of the lung and the chest wall. Most (95% of) MPM patients suffer from a pleural effusion. It is commonly thought that the pleural effusion is simply a by-product of cancer involvement of the pleura. The Pleural Disease Unit is currently determining why MPM stimulates the production of such large volumes of fluid, often throughout the disease course and to establish that the malignant pleural fluid produced by MPM significantly enhances tumour cell proliferation, migration and invasion. These findings will reveal the formation of malignant effusion as part of biological programme by which MPM facilitates its own growth and spread. It will challenge the conventional belief that the malignant effusion is a by-product of pleural cancers and will have significant impact on clinical care strategies. The Unit is also investigating the role of MCP-1 in the development of pleural effusions from a variety of etiologies using clinical and pre-clinical models.

No study to date has examined how appropriately tailored exercise could reduce functional decline and provide a non-invasive supportive intervention for those with malignant pleural disease. The Pleural Medicine Unit are

currently investigating the development of an intervention designed to counteract the aetiology of poor outcomes, enhance quality of life, and improve daily functioning in this patient population. The result could prove to have a significant impact on clinical care.

Malnutrition and sarcopenia have been shown to significantly affect survival, quality of life and physical functioning in other cancers but their role in mesothelioma has not been examined. The Pleural Medicine Unit are currently researching to identify the incidence, progression, consequences and mediators of malnutrition and sarcopenia in Mesothelioma.

PLEURAL EFFUSION

The Pleural Medicine Unit is currently conducting the Pleural Effusion and Symptom Evaluation Study (PLEASE). The study aims to identify key factors that underlie breathlessness in pleural effusion patients and develop predictors of improvement in breathlessness following effusion drainage.

An international AMPLE randomized clinical study was conducted during 2015 by the Pleural Medicine Unit. The study compared indwelling pleural catheter (IPC) with pleurodesis in the management of malignant pleural effusion. The study is now completed and analysis of the data is underway.

The Pleural Medicine Unit also leads the Australasian Malignant PLeural Effusion Trial-2 (AMPLE-2). It is a multi-centre, open-labeled, randomized trial. Patients with MPEs are randomized to either aggressive (daily) or symptom-guided drainage regimes after IPC insertion. The aim is to determine which regime is superior in improving clinical outcomes.

PLEURAL INFECTION

Pleural infection is associated with considerable morbidity and mortality. Effective removal of the infected pleural fluid and efficient delivery of appropriate antimicrobial therapy are the two principles of treatment. The Pleural Medicine Unit has recently shown that the novel treatment tPA and DNase when given intrapleurally successfully cures, without needing surgery, 90+% of patients who failed antibiotic treatment and simple drainage. The Unit is continuing to establish the safety and efficacy of intrapleural tPA/DNase therapy through a comprehensive follow-up program and a multinational patient registry.

Examination into the effects of common bacteria in pleural infection and their biological effects on pleural mesothelium *in vitro* and *in vivo* continued. The Pleural Medicine Unit identified key mediators governing the development of pleural infection and provided proof-of-concept data that antagonising these mediators can reduce bacterial invasion of the pleural cavity, potentially leading to new therapeutic approaches.

Research on the effects of bacterial infection on the resident mesothelial cells and pleural fluid is being conducted by the Pleural Medicine Unit. The aim is to better understand the infective process which may lead to therapeutic optimization.

The Pleural Medicine Unit is taking part in a collaborative study with the Oxford Respiratory Trials Unit, UK. The study is looking at patients who come into hospital with pleural infection. PILOT is an observation study which hopes to determine the capacity of baseline clinical information together with a specific prediction model to anticipate how well patients respond to treatment.

RESEARCH ACTIVITIES

AWARDS IN 2015

Kim Birnie. TSANZ WA. Finalist. Young Investigator session.

Dave Manners. TSANZ WA branch. Best abstract, 2015 Scientific meeting.

Cecilia Prêle. 2nd Biennial Rare Lung Disease Short Course. Best Scientific Poster Award.

Cecilia Prêle. European Resiratory Society. ERS Travel Bursary - 14th ERS Lung Science Conference.

Joe Yasa. EMBL Student Course. Poster presentation prize.

Joe Yasa. PhD Scholarship. Murdoch University.

INVITED PRESENTATIONS AND CHAIRMANSHIP

INTERNATIONAL

Fraser Brims. Presence of Pleural Plaques and/or Asbestosis and the Risk of Lung Cancer in a Crocidolite Asbestos Exposed Population from Western Australia. World Conference on Lung Cancer, Denver, USA.

Geoff Laurent. Convenor. New Developments in Bioengineering for Medical Research. CCTRM Annual Research Sympoisum, Curtin University, Perth.

Geoff Laurent. Co-convenor and MC. UWA London Alumni Dinner. RAC Club London.

Geoff Laurent. Convenor and session chair. The Third UCL-Helmholtz Zentrum-UWA Collaborative Research Meeting, Perth.

Gary Lee. Symposium (Mesothelioma): Pro - con debate role of surgery in the management of mesothelioma (con). British Thoracic Society Winter Meeting, London, UK.

Gary Lee. Bacteria, fibrinolytics and pleural space – Exciting new lessons. Defining the specialty: building a pleural service line. The Cons: Pleuroscopy should be performed when the initial thoracentesis is non-diagnostic. American Thoracic Society International Conference, San Francisco, USA.

Gary Lee. CHEST World Congress, Shanghai, China.

Gary Lee. New therapy in pleural infection. Top papers in pleural diseases. National Conference on Pulmonary Diseases, Jaipur, India.

Gary Lee. Medical approach in managing empyema. Focus on malignancy. Pleural Infection – fibrinolytics and DNase. Mesothelioma – What clinicians need to know. 17th Internationl Meeting on Respiratory Care Indonesia (RESPINA), Jakarta, Indonesia.

Gary Lee. Mesothelioma: Challenges of diagnosis and management. Pleural Infections: Controversies and Novel therapies. Pleural Research. Indwelling Pleural Catheters. South African Thoracic Society Annual Congress, Cape Town, South Africa.

Gary Lee. Pleural diseases: the next 10 years. Treatment of malignant pleural effusions. Lung and pleural infections: Controversies and advances. American Thoracic Society International Conference, Denver, USA.

Gary Lee. Malignant pleural effusions. Canadian Lung Cancer Conference, Vancouver, Canada.

Gary Lee. Towards less invasive management of pleural effusions. Trudeau Society of Los Angeles, Los Angeles, USA.

Gary Lee. Management of malignant pleural effusions. Management of pleural infections. California Thoracic Society 2015 Annual Conference, Carmel, USA.

Gary Lee. Pleural Ultrasound – How to assist your daily practice. Indwelling Pleural Catheters for malignant pleural effusions. How will we be Managing Pleural Diseases in 2025? ADEPT State-of-the-Art Interventional Course on Pleural Diseases - Mumbai, Chennai and Delhi, India.

Gary Lee. Pleural infection – Advances clinicians should know. Grand Round, Harbor- UCLA Medical Center, Los Angeles, CA, USA.

Cecilia Prêle. STAT3 mediated regulation of lung fibrosis. The Third UCL-Helmholtz Zentrum-UWA Collaborative Research Meeting, Perth.

Cecilia Prêle. Investigating the cellular mechanisms regulating thoracic pathologies. The University of Manchester, Manchester, UK.

Cecilia Prêle. Lung Fibrosis: A SAD (STAT-associated Disease), Brunel University, Uxbridge, London, UK.

Cecilia Prêle. Session Chair, The Third UCL-Helmholtz Zentrum-UWA Collaborative Research Meeting, Perth.

NATIONAL

Fraser Brims. Low Dose CT Chest correlates well with Physiologic measures of interstitial lung disease. Royal Australian and New Zealand College of Radiologists 66th Annual Scientific Meeting, Adelaide 2015.

Gary Lee. Symposium: Management of malignant pleural effusions: advances and controversies. Symposium: Advances in pleural infection management reduces need for surgery. TSANZ annual scientific meeting, Gold Coast, QLD.

Cecilia Prêle. STAT3 mediated regulation of lung fibrosis The University of Newcastle, Sydney,

Anna Tai. Pseudomonas aeruginosa population fluctuation in cystic fibrosis pulmonary exacerbation – a battle of the strains? 11th Australasian Cystic Fibrosis Conference, Sydney.

Phil Thompson. Guest Speaker, Royal Australian College of Pathologists, Melbourne.

Phil Thompson. Guest Speaker, Asthma and COPD forum, Sydney.

LOCAL

Svetlana Baltic. Chair, ASMR, Perth.

Svetlana Baltic. Chair, TSANZ, Perth.

Fraser Brims, David Manners, Annette McWilliams. LungScreen WA Project: Protocol and Initial Results. TSANZ WA Branch Annual Meeting 2015.

Gary Lee. Symposium (Clinical Trials). TSANZ WA annual scientific meeting.

Gary Lee. Pleural Effusion Research Program. Perth Mesothelioma/Asbestos Group Annual Symposium, Perth.

Andrew Lucas. Can IGF-1 trigger regenerative lung growth in adult lungs? CCTRM Annual Research Symposium, Curtin University.

Siobhain Mulrennan. Cystic fibrosis. Respiratory Departmental Meeting, Fiona Stanley Hospital.

Rajesh Thomas. Improving breathlessness in patients with pleural effusions – to cut a 'lung' story short. TSANZ WA Meeting.

Dino Tan. Session chair. TSANZ WA annual scientific meeting.

COMMITTEES AND BOARDS

INTERNATIONAL

Geoff Laurent. Member of Advisory Board, BARD1AG.

Geoff Laurent. American Thoracic Society World Lung Health Committee.

Geoff Laurent. Long Range Planning Committee of Cell and Molecular Biology Assembly of the European Respiratory Society.

Geoff Laurent. Chairman for the International Colloquium on Pulmonary Fibrosis, International Lung Fibrosis Foundation.

Geoff Laurent. Member, WASOG Conference Scientific Committee.

Geoff Laurent. President, British Association of Lung Research.

Geoff Laurent. Director of the European Respiratory Society (ERS) Lung Science Conference.

Geoff Laurent. Editorial Board Member, European Respiratory Society (ERS).

Geoff Laurent. Editor-in-Chief, International Journal of Biochemistry and Cell Biology.

Geoff Laurent. Associate Editor, American Journal of Respiratory Cell and Molecular Biology.

Geoff Laurent. Section Editor, Fibrogenesis and Tissue Repair.

Geoff Laurent. British Thoracic Society, Advisory Board (Thorax).

Geoff Laurent. Member of Scientific Committee Board, SAB. Helmholtz Zentrum Munchen. Munich, Germany

Gary Lee. Editorial Board Member. Journal of Thoracic Diseases.

Gary Lee. Editorial Board Member. Respirology Case Report.

Gary Lee. Section Editor for Pleural Diseases. Current Respiratory Care Report.

Gary Lee. Editorial Board member. Plevra Bülteni (Turkish).

Gary Lee. Series Editor. Translational Respiratory Medicine.

Cecilia Prêle. Organising and Scientific Committee, The Third UCL-Helmholtz Zentrum-UWA Collaborative Research Meeting, Perth.

Cecilia Prêle. Deputy Section Editor, Fibrogenesis and Tissue Repair.

NATIONAL

Fraser Brims. Member, Australian Mesothelioma Registry Management Committee, Cancer Institute NSW.

Geoff Laurent. Review Panel Member, NHMRC. Canberra.

LOCAL

Svetlana Baltic. Member of the WA TSANZ Executive Committee and organizing committee for TSANZ 2016.

Svetlana Baltic. Organizer, the Alan James Lung Club.

Sally Lansley. Secretary of the WA TSANZ Executive Committee and organizing committee for TSANZ 2016.

Sally Lansley. Organizing Committee. WA ASMR, ASMR

Siobhain Mulrennan. Member of the Drug and Therapeutics Committee, Sir Charles Gairdner Hospital.

Siobhain Mulrennan. Respiratory Health Network Executive Advisory Group and Respiratory Health Network Advisory Group.

Siobhain Mulrennan. Member of the WA TSANZ Executive Committee and organizing committee for TSANZ 2016.

Siobhain Mulrennan. Vice Chair of the Busselton Population Medical Research Institute Board and Member of the Busselton Population Medical Research Institute Research Committee.

Cecilia Prêle. Organising and Scientific Committee, CCTRM Annual Research Symposium, Perth.

Dino Tan. Chair & member, Outreach subcommittee, ASMR.

Dino Tan. Chair, Associate Committee, TSANZ.

Dino Tan. Member, Local Committee, ASI.

COLLABORATIONS

INTERNATIONAL

Prof Celeste Porsbjerg & Dr Asger Bjerregård. Bispebjerg Hospital, Denmark. 'Inflammatory markers in asthma exacerbations'.

Prof David Schwartz. University of Wisconsin. 'Assessing mutations in Idiopathic Pulmonary Fibrosis'.

Prof Selma Kanazir. Institute for Biological Research, "Sinisa Stankovic", Serbia. 'Polymorphism in the collagen type 1 alpha gene in premature ovarian failure'.

British Lung Foundation, University of Portsmouth, Oxford Respiratory Trials Unit and University College London, Sir Charles Gairdner Hospital. 'An international multicentre randomised controlled trial examining the effect of early palliative care provision on quality of life for mesothelioma patients - RESPECT-meso'.

University of Queensland, University of New South Wales, North America and Canada. 'Low dose CT scan for the early detection of lung cancer in high-risk smokers: an evaluation / demonstration project - LUNGSCREEN'.

University of Portsmouth, UK. 'The presence and provenance of coagulation factors in post-mortem specimens of lungs from fatal asthma and non-fatal asthma and controls'.

UWA School of Population Health, Brock University, Canada. 'Development and validation of risk models for lung cancer in asbestos exposed individuals'.

Prof Robin McAnulty, University College London. STAT3 regulation of cell responses in IPF'.

Prof Irmgard Irminger-Finger, University Hospitals Geneva (HUG). 'Bard1 in pulmonary fibrosis'.

NATIONAL

Dr Manuel Ferreira. QIMR Berghofer Medical Research Institute. 'Identifying genetic determinants for asthma'.

Prof Scott Bell. Adult CF Centre, The Prince Charles Hospital; QIMR Berghofer Medical Research Institute, Queensland.

Assoc/ Prof David Whiley. University of Queensland Clinical Centre of Research. 'Systematic molecular surveillance of P. aeruginosa strains in patients with cystic fibrosis at Sir Charles Gairdner Hospital'.

University of Western Australia, Royal Australasian College of General Practitioners and University of Queensland. 'Attitudes towards and understanding of lung cancer screening in General Prtactcionsers in Australia'.

Prof Darryl Knight, University of Newcastle, Prof Matthias Ernst & Dr Rob O'Donoghue, Olivia Newton-John Cancer Research Institute, Erik Thompson, Queensland University of Technology. STAT3 regulation of cell responses in IPF'.

LOCAL

Prof Brendan McQuillan. University of Western Australia. 'Phamacogenetics of ADRbeta2 in cardiac disease'.

Prof Ryan Lister. Harry Perkins Institute for Medical Research. 'SETD7 in pathogenesis and severity of asthma'.

The Rural School of UWA, WA Department of Health and Edith Cowan University. 'A randomised controlled patient preference study examining the utility of advanced care planning in severe respiratory disease patients'.

National Centre for Asbestos Related Diseases, The University of Western Australia and Sir Charles Gairdner Hospital. 'The genetic understanding of asbestos related disease'.

PathWest and the Sir Charles Gairdner Hospital, Pleural Diseases Unit. 'The microbiology of pleural infection in Western Australia'.

Dr Joost Lesterhuis. National Centre for Asbestos Related Diseases, UWA. 'Identification of the molecular networks that drive mesothelioma invasion'.

Prof Jenette Creaney. National Centre for Asbestos Related Diseases, UWA. 'The effect of FGF9 on anti-tumour immunity in malignant mesothelioma'.

Adult CF Centre, Sir Charles Gairdner Hospital; The University of Western Australia. 'Systematic molecular surveillance of P. aeruginosa strains in patients with cystic fibrosis at Sir Charles Gairdner Hospital'.

Brown S, Keijzers G, Smith J. 'A randomised controlled trial of interventional versus conservative treatment of primary spontaneous pneumothorax'. Project Grant, National Health & Medical Research Council, Australia.

Prof Gerard Hoyne, University of Notre Dame. STAT3 regulation of cell responses in IPF'.

GRANTS

Brims FJH. Funding for development of an interactive risk model and risk-explanation tool for participants in a lung cancer screening program. WA Cancer and Palliative Care Network Cancer Grant.

Brims FJH. Support for a research registrar for 1 year to continue the LungScreen early detection program for high risk smokers. WA Cancer and Palliative Care Network Cancer Fellowship.

Brims FJH. An analysis of lower respiratory tract illness in WA miners 1995-2013. Alan King Westcare Research Grant.

Brims FJH. Development of a lung cancer risk prediction model for asbestos exposed workers. Dust Diseases Board NSW.

Lee YCG. Australasian Malignant Pleural Effusion (AMPLE) Trial-2. Project Grant, Sir Charles Gairdner Research Advisory Committee, Australia.

Lee YCG, Eastwood PR, Jenkins S, Singh B and **Thomas R**. A comprehensive study of breathlessness in patients with a malignant pleural effusion. Project Grant, Cancer Council of Western Australia, Australia.

Creaney J and **Lee YCG**. Establising the biological activities of malignant effusions in malignant pleural mesothelioma. Project Grant, NSW Workers' Compensation Dust Disease Board, Australia.

Lucas M, Laurent GL, Prêle CM, Mutsaers SE, Eule U, Delriviere L. Role of IGF1 and IGF1R signalling in compensatory lung growth post-pneumonectomy. Sir Charles Gairdner Hospital Research Advisory Committee Grant.

Mutsaers S. miRNAs in mesothelioma. Cancer Council WA Fellowship.

Knight D, Burgess J, Westall G, **Laurent GJ, Mutsaers SE, Prêle CM**. Fibroblast Scenecence as a diver of pulmonary fibrosis. NHMRC Project Grant

McAnulty R, **Mutsaers SE, Prêle CM**. Pump Priming Grant. Evaluating B-cell and JAK/STAT targeted therapies for lung fibrosis. British Lung Foundation.

Chakera A, Carson C, **Prêle CM, Mutsaers SE**. Systematic analysis of the effect of infection on mesothelial gene transcription: implications for the management of peritoneal dialysis-associated peritonitis. Sir Charles Gairdner Hospital Research Advisory Committee Grant Grant.

Prêle CM, Mutsaers SE, Knight DA, O'Donoghue R, Hoyne **G, Laurent GJ**. STAT3 regulation of cell responses in IPF. NHMRC Project Grant.

Tan D. Postdoctoral Medical Research Fellowship. Royal Perth Hospital – Medical Research Foundation.

Thompson PJ & Baltic S. Managing asthma severity by managing PGD2 receptors. Sir Charles Gairdner Hospital Research Advisory Committee Grant.

Thompson PJ & Baltic S. Aberrant alternative splicing defines the severity of Asthma. Asthma Foundation WA project grant.

Wood J, Mulrennan S, Jenkins S. Investigating the use of a smartphone application to reduce intravenous antibiotic use in cystic fibrosis'. Sir Charles Gairdner Hospital Research Advisory Council Grant.

PUBLICATIONS

BOOK CHAPTERS

Mutsaers SE, Jaurand M-C, **Lee YCG**, **Prêle CM**. Mesothelial cells and pleural immunology. In: Textbook of Pleural Diseases 3rd ed, Chapter 3. Light RW and Lee YCG, eds. London, UK: Arnold Press; in press.

Mutsaers SE, **Prêle CM**, Herrick SE. Structure and function of the mesothelial cell. In: Intraperitoneal Cancer Therapy: Principles and Practice. Chapter 5. Ceelen W and Levine E, eds. Abingdon, UK. Taylor and Francis; in press.

Leong SL, Davies HE and **Lee YCG**. Malignant Pleural Mesothelioma. In: Shah P, Hearth F, Lee YCG and Crier G, eds. Essential Clinical Pulmonology. Taylor & Francis; in press.

Azzopardi M and **Lee YCG**. Pleural Effusion Management in Malignant Pleural Mesothelioma. In: Malignant Pleural Mesothelioma: Present Status and Future Directions. Sharjah, UAE: Betham; in press.

Light RW and **Lee YCG**. Pneumothorax, Chylothorax, Hemothorax and Fibrothorax. In: Broaddus VC, Mason RJ, Murray JF, Nadel JA, King TE, Ernst JD, Lazarus SC, Slutsky AS eds. Murray & Nadel's Textbook of Respiratory Diseases, 6th ed, in press. Philadelphia, PA, USA: Elservier; in press.

Lee YCG and Light RW. Future Directions. In: Light RW and Lee YCG, eds. Textbook of Pleural Diseases, 3rd ed, pp. 847-649. Taylor & Francis, 2016.

Davies HE and **Lee YCG**. Pleurodesis. In: Light RW and Lee YCG, eds. Textbook of Pleural Diseases, 3rd ed, pp. 569-580. Taylor & Francis, 2016.

Thomas R, Kalomenidis I, Jett J and **Lee YCG**. Malignant Pleural Effusions. In: Light RW and Lee YCG, eds. Textbook of Pleural Diseases, 3rd ed, pp. 283-300. Taylor & Francis, 2016.

Lee YCG. Pleural Tumors. In: Oxford Textbook of Medicine, 6th ed. Oxford, U.K.: Oxford University Press; in press.

de Fonseka D, **Lee YCG** and Maskell NA. Pleural Diseases. In: Oxford Textbook of Medicine, 6th ed. Oxford, U.K.: Oxford University Press; in press.

Davies HE and **Lee YCG**. Mediastinal Tumours and Cysts. In: Oxford Textbook of Medicine, 6th ed. Oxford, U.K.: Oxford University Press; in press.

Rashid Ali MR, Porcel JM, Koegelenberg C, Halifax R, Maskell NA and **Lee YCG**. Pleural Diseases. In: Shah P, Hearth F, Lee YCG and Crier G, eds. Essential Clinical Pulmonology. Taylor & Francis; in press.

Stathopoulos GT, **Lee YCG** and Robinson BWS. Experimental Models: Pleural Diseases. In: Light RW and Lee YCG, eds. Textbook of Pleural Diseases, 3rd ed, pp. 125-144. Taylor & Francis, 2016.

INVITED REVIEWS AND EDITORIALS

Mutsaers SE, **Birnie K**, Herrick SE, **Lim CB**, **Lansley S**, **Prêle CM**. Mesothelial cells in tissue repair and fibrosis. Front Pharmacol. 2015 Jun 9;6:113.

Porcel JM, Stathophoulos G and **Lee YCG**. Advances and controversies in pleural diseases. J Thorac Dis 2015; 7:961-3.

Bintcliffe OJ, Hallifax RJ, Edey A, Fellor-Kopman D, **Lee YCG**, Marquette CH, Tschopp JM, West D, Rahman NM and Maskell NA. Spontaneous pneumothorax – Time to rethink management? Lancet Respir Med 2015; 3:578-88.

Thomas R, **Jenkins S**, **Eastwood PR**, **Lee YCG** and Singh B. Physiology of breathlessness associated with pleural effusions. Curr Opin Pulm Med 2015; 21: 338-345.

Piccolo F, Popowicz N, Wong D, and **Lee YCG**. Intrapleural Tissue Plasminogen Activator and Deoxyribonuclease Therapy for Pleural Infection. J Thorac Dis 2015; 7:999-1008.

Azzopardi M, Porcel J, Koegelenberg C, **Lee YCG**, Fysh E. Current controversies in the management of malignant pleural effusions. Semin Respir Crit Care Med 2014;35:723-31.

Porcel JM, Stathophoulos G and **Lee YCG**. Advances and controversies in pleural diseases. J Thorac Dis 2015; 7:961-3.

Porcel JM, Azzopardi M, Koegelenberg CF, Maldonado F, Rahman NM and **Lee YCG**. Diagnosis of pleural effusions. Expert Rev Respir Med 2015; 9:801-815.

Moodley Y, Corte T, Richeldi L, King TE Jr. Do all patients with idiopathic pulmonary fibrosis warrant a trial of therapeutic intervention? A pro-con perspective. Respirology. 2015 Apr;20(3):389-94.

McQualter JL, **Laurent GJ**. Delineating the hierarchy of lung progenitor cells and their response to influenza. Eur Respir J. 2015;46(2):315-7.

Kargul J, Irminger-Finger I, **Laurent GJ**. Epigenetics regulation of disease: There is more to a gene than its sequence. Int J Biochem Cell Biol. 2015 Oct;67:43.

Kargul J, Irminger-Finger I, **Laurent GJ**. Mitochondrial diseases: From the lab bench to therapies. Int J Biochem Cell Biol. 2015 Jun;63:1.

JOURNAL ARTICLES

Marenholz I, Esparza-Gordillo J, Ruschendorf F, Bauerfeind A, Strachan DP, Spycher BD, Baurecht H, Margaritte-Jeannin P, Saaf A, Kerkhof M, Ege M, **Baltic S**, Matheson MC, Li J, Michel S, Ang WQ, McArdle W, Arnold A, Homuth G, Demenais F, Bouzigon E, Soderhall C, Pershagen G, de Jongste JC, Postma DS, Braun-

Fahrlander C, Horak E, Ogorodova LM, Puzyrev VP, Bragina EY, Hudson TJ, Morin C, Duffy DL, Marks GB, Robertson CF, Montgomery GW, Musk B, **Thompson PJ**, Martin NG, James A, Sleiman P, Toskala E, Rodriguez E, Folster-Holst R, Franke A, Lieb W, Gieger C, Heinzmann A, Rietschel E, Keil T, Cichon S, Nothen MM, Pennell CE, Sly PD, Schmidt CO, Matanovic A, Schneider V, Heinig M, Hubner N, Holt PG, Lau S, Kabesch M, Weidinger S, Hakonarson H, Ferreira MA, Laprise C, Freidin M. B, Genuneit J, Koppelman GH, Melen E, Dizier M. H, Henderson AJ & Lee YA. Meta-analysis identifies seven susceptibility loci involved in the atopic march. Nature communications (2015) 6, 8804.

Mulrennan S*, **Baltic S***, Aggarwal S, **Wood J**, Miranda A, Frost F, Kaye J, **Thompson PJ**: The role of receptor for advanced glycation end products in airway inflammation in CF and CF-related diabetes. Scientific Reports (2015) 5:8931-8939.

The Interleukin-1 Genetics Consortium & **Baltic S** co-author as part of Australian Asthma Genetic Consortium: Cardiometabolic effects of genetic upregulation of the interleukin 1 receptor antagonist: A mendelian randomisation analysis. The Lancet Diabetes & Endocrinology (2015).

Lim CB, **Prele CM**, Arthur PG, **Baltic S**, Creaney J, Watkins DN, **Thompson PJ** & **Mutsaers SE**, Mitochondria-derived reactive oxygen species drive GANT61-induced mesothelioma cell apoptosis. Oncotarget (2015) 6(3):1519-1530.

Aung AK, **Thompson PJ**, Gibbs H, Spelman DW. Adjunct prednisolone therapy for patients with community-acquired pneumonia: a multicentre, double-blind, randomised, placebo-controlled trial. The Lancet (Scientific Letter) 2015, 386 (9997):953.

Paternoster L, Standl M, Waage J, Baurecht H, Hotze M, Strachan DP, Curtin JA, Bønnelykke K, Tian C, Takahashi A, Bauerfeind A, Alves AC, Thyssen JP, den Dekker HT, Ferreira MA, Altmaier E, Sleiman PMA, Xiao FL, Gonzalez JR, Marenholz I, Esparza-Gordillo J, Pino-Yanes M, Xu C, Carstensen L, Groen-Blokhuis MM, Venturini C, Pennell CE, Barton SJ, Levin AM, Curjuric I, Bustamante M, Kreiner-Møller E, Lockett GA, Bacelis J, Bunyavanich S, Myers RA, Rüschendorf F, Kumar A, Tung JY, Hirota T, Kubo M, McArdle WL, Henderson AJ, Kemp JP, Zheng J, Smith GD, Macek M, Kurek M, Kirsch MA, Mangold E, Rodrí¬guez E, Peters A, Franke A, Lieb W, Novak N, Fölster-Holst R, Horikoshi M, Pekkanen J, Sebert S, Husemoen LL, Grarup N, de Jongste JC, Rivadeneira F, Hofman A, Jaddoe VWV, Pasmans SGMA, Elbert NJ, Uitterlinden AJ, Marks GB, **Thompson PJ**, Matheson MC, Robertson CF, AAGC, Reid J, Li J, Zuo XB, Zhang XD, Yin XY, Sun LD, McAleer MA, O'Regan GM, Fahy CMR, Campbell LE, Arnold A, Homuth G, Matanovic A, Schmidt CO, Kalb B, Hu D, Eng C, Postma DS, Feenstra B, Geller F, Hottenga JJ, Middeldorp CM, Hysi P, Bataille V, Spector T, Tiesler CM, Thiering E, Pahukasahasram B, Yang JJ, Imboden M, Huntsman S, Vilor-Tejedor N, Relton CL, Myhre R, Nystad W, Custovic A, Weiss ST, Meyers DA, Cichon S, Söderhäll C, Melén E, Lau S, Keil T, Ober C, Raby B, Simpson A, Jacobsson B, Holloway JW, Bisgaard H, Sunyer J, Probst-Hensch NM, Williams LK, Godfrey KM, Wang CA, Boomsma DI, Melbye M, Koppelman GH, Lee Y, Hübner N, Jarvis JD, McLean WHI, Irvine AD, Zhang XJ, Hakonarson H, Gieger C, Burchard EG, Martin NG, Duijts L, Linneberg A, Jarvelin M, Noethen MM, Tamari M, Hinds DA, Glass D, Brown SJ, Heinrich J, Evans DM, Weidinger S. Multi-ethnic genome-wide association study of 21,000 cases and 95,000 controls identifies 11 novel risk loci for atopic dermatitis. Nature Genetics. In Press.

Thompson PJ, Frith P, Ratnavadivel R, Bremner P, Chang C, Day P, Frenzel C, Kurstjens N, Glisten Study Group. Glycopyrronium once-daily significantly improves lung function and health status when added to fluticasone/salmeterol in patients with COPD: The GLISTEN study. Thorax 2015; 70:519-27.

Birnie KA, Yip YY, Ng DCH, Kirschner MB, Reid G, **Prêle CM**, Musk AW, **Lee YCG**, **Thompson PJ**, **Mutsaers SE**, Badrian B. MicroRNA-223 loss and stathmin over -expression promote cell motility in malignant mesothelioma Molecular Cancer Research 2015 13: 1106-18.

Smith S, Sonego S, Marks G, Waterer G, Wallen G, Cheng A, **Thompson PJ**. Non-pharmaceutical interventions to reduce the transmission of influenza in adults – a systematic review. Respirology 2015, 20: 896-903.

Bicknell TJ, Vodanovich DA, Holland AE, Hill CJ, Cecins N, Jenkins S, McDonald F, Burge AT, **Thompson PJ**, Stirling RG, Lee AL. Validity and reliability of the Chronic Respiratory Disease Questionnaire in non-cystic fibrosis bronchiectasis. Respiration 2015, 90: 89-96.

Aung AK, **Thompson PJ**. In Pulmonary and Systemic Fungal Infections Ed: Kaufmann; Seminars in Respiratory and Critical Care Medicine 2015 36: 756-66.

Lee AL, Cecins N, Holland AE, Hill C, McDonald C, Burge AB, Rautela L, **Thompson PJ**, Stirling RG Jenkins S. Field walking tests are reliable and responsive to exercise training in people with non-cystic fibrosis bronchiectasis. Journal of Cardiopulmonary rehabilitation and prevention 2015 108:1303-9.

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FINANCIAL REPORT

STATEMENT BY THE BOARD

The Board has determined that the association is not a reporting entity and that this special purpose financial report should be prepared in accordance with the accounting policies outlined in Note 1 to the financial statements.

In the opinion of the Board the financial report:

1. The association is not a reporting entity because there are no users dependent on general purpose financial statements. Accordingly, as described in note 1 to the financial statements, the attached special purpose financial statements have been prepared for the purposes of complying with the Charitable Collections Act 1946 (WA).
2. The attached financial report and notes thereto comply with the Accounting Standards as described in note 1 to the financial statements.
3. There are reasonable grounds to believe that the association will be able to pay its debts as and when they become due and payable.

This statement is made in accordance with a resolution of the Board and is signed for and on behalf of the Board by:

Dated this 14th day of March 2016

Sue Morey, Board Chair

For a comprehensive review of our financial position, please email admin@resphealth.uwa.edu.au.

INCOME STATEMENT

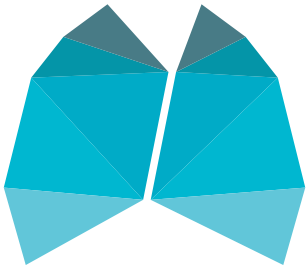
FOR THE YEAR ENDED 31 DECEMBER 2015

REVENUE	2015 $	2014 $
Grant income	1,494,900	1,175,819
Clinical trials	818,822	917,690
Infrastructure funding	189,611	149,370
Fundraising income and donations	202,091	120,577
Corporate grants	250,000	130,000
Memberships income	7,040	4,605
Interest income	34,812	66,598
Other income	200,695	23,225
Total revenue	**3,197,971**	**2,587,884**
Expenses		
Operating expenses	(467,121)	(518,896)
Employee benefits expense	(2,235,505)	(1,861,127)
Depreciation expenses	(35,826)	(42,003)
Finance costs	(1,418)	(1,575)
Other expenses	(442,308)	(310,760)
Total expenses	**3,182,178**	**2,734,361**
Surplus/ (deficit) for the year	**15,793**	**(146,477)**
Surplus/(deficit) allocated to		
Restricted funds	185,321	121,204
Designated funds	695,650	277,856
Unrestricted funds	(865,178)	(545,537)
	15,793	**(146,477)**

BALANCE SHEET

FOR THE YEAR ENDED 31 DECEMBER 2015

	2015 $	2014 $
CURRENT ASSETS		
Cash and cash equivalents	1,255,318	1,408,134
Trade and other receivables	929,914	379,231
Inventory	5,760	-
Financial assets	-	250,000
TOTAL CURRENT ASSETS	2,190,992	2,037,365
NON-CURRENT ASSETS		
Property, plant and equipment	157,490	173,956
TOTAL NON-CURRENT ASSETS	157,490	173,956
TOTAL ASSETS	2,348,482	2,211,321
CURRENT LIABILITIES		
Trade and other payables	266,429	214,436
Employee provisions	221,014	153,690
TOTAL CURRENT LIABILITIES	487,443	368,126
NON-CURRENT LIABILITIES		
Employee provisions	66,239	64,188
TOTAL NON-CURRENT LIABILITIES	66,239	64,188
TOTAL LIABILITIES	553,682	432,314
NET ASSETS	1,794,800	1,779,007
MEMBERS' FUNDS		
Accumulated funds		
Restricted	437,266	251,945
Designated	1,379,275	683,625
Unrestricted	(21,741)	843,437
TOTAL MEMBERS' FUNDS	1,794,800	1,779,007



institute for
RESPIRATORY HEALTH

Institute for Respiratory Health
Ground Floor E Block
Sir Charles Gairdner Hospital
Nedlands
Western Australia 6009

Telephone +61 8 9346 3198
Facsimile +61 8 9346 4159

admin@resphealth.uwa.edu.au

resphealth.org.au

Institute for Respiratory Health

@LungAustralia