centre of excellence

treatable traits

Annual Report May 2022

Message from the Directors

Welcome to the first annual report of the NHMRC Centre of Excellence in Treatable Traits. The Centre began operation in October 2020 after we received five years of funding from the NHMRC Centre of Research Excellence Scheme, with the official launch held in April 2021. We were really excited about launching this centre and progressing the Treatable Traits research agenda, driving implementation to practice, developing significant collaborations, and importantly developing the next generation of airway disease researchers and clinicians through our innovative training programme.

We hope you agree with us that the last 18 months has not been disappointing! In fact, we have achieved a great amount during this period as you will see from the enclosed report. Our focus over the last 18 months has been on establishing the centre and the research programmes, recruiting our excellent trainees, and implementing the support programmes that align with our goals.

> *To revolutionise the management of chronic airway disease by testing and implementing "Treatable Traits" approaches.*

We have amassed a team of investigators who are international world leaders in airway disease research and practice representing the disciplines of Nursing, Medicine, Physiotherapy, Speech Pathology, Health Economics, Behavioural and Biological Sciences. Our team is strengthened by our collaboration and partnership with the peak bodies Asthma Australia and the Thoracic Society of Australia and New Zealand, consumers and now our trainees and affiliate fellows.

Over the next 12 months we are looking forward to our continued collaborations and exciting discussions about Treatable Traits research, conducting that research and communicating and implementing outcomes globally.

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About Us

Who are we?

We are a consortium of world-renowned clinicians, researchers and peak respiratory organisations who are collaborating to improve healthcare outcomes for people with airway diseases.

Our mission is to revolutionise the management of chronic airway disease by testing and implementing "Treatable Traits" approaches - A new paradigm for personalised medicine.

Why are we doing this?

The crisis point is now for people with lung disease. In Australia at least one person dies every day from asthma, and 19 people die per day from COPD. Additionally, asthma deaths are on the rise in developed countries.

The improvements in asthma outcomes that were achieved in the late 20th Century are being lost. This is extremely alarming because asthma and COPD are treatable diseases. A feature of asthma and COPD is the variability, or heterogeneity of presentation. Heterogeneity assumes that within and between individuals, the clinical, biological, and functional presentation of diseases vary.

While current management approaches have led to significant improvements in outcomes, they are unable to sufficiently address this heterogeneity. Personalised medicine is a novel approach to disease management that is delivering considerable improvements in disease related outcomes and health related quality of life in many areas of medicine, including cancer and other respiratory diseases. Personalised medicine accounts for heterogeneity by targeting to the needs of individuals based on distinguishing genetic, biological, phenotypic, or psychological characteristics.

The variability of clinical presentation and treatment response is recognised among clinicians who manage chronic lung diseases; however, this variability is not routinely addressed.

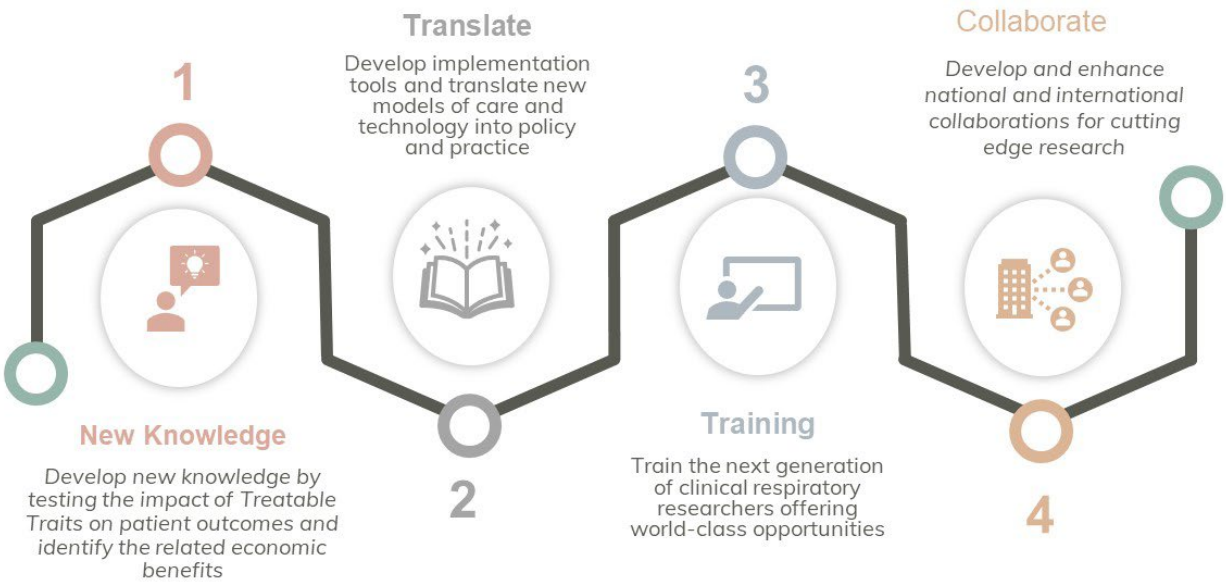
A proposed solution to address the excessive disease burden faced by people with asthma and COPD is a personalised-medicine based strategy called-

"Treatable Traits."

Our Aims

We aim to revolutionise the management of chronic lung diseases by testing and implementing the “Treatable Traits” approach. Whilst doing this we will train the next generation of clinicians and researchers, increase global collaboration and ensure improved outcomes for people with chronic lung diseases into the future.

The Centre of Excellence -Treatable Traits will generate new knowledge to support the Treatable Traits approach and ensure translation into practice through our innovative research and education programmes.



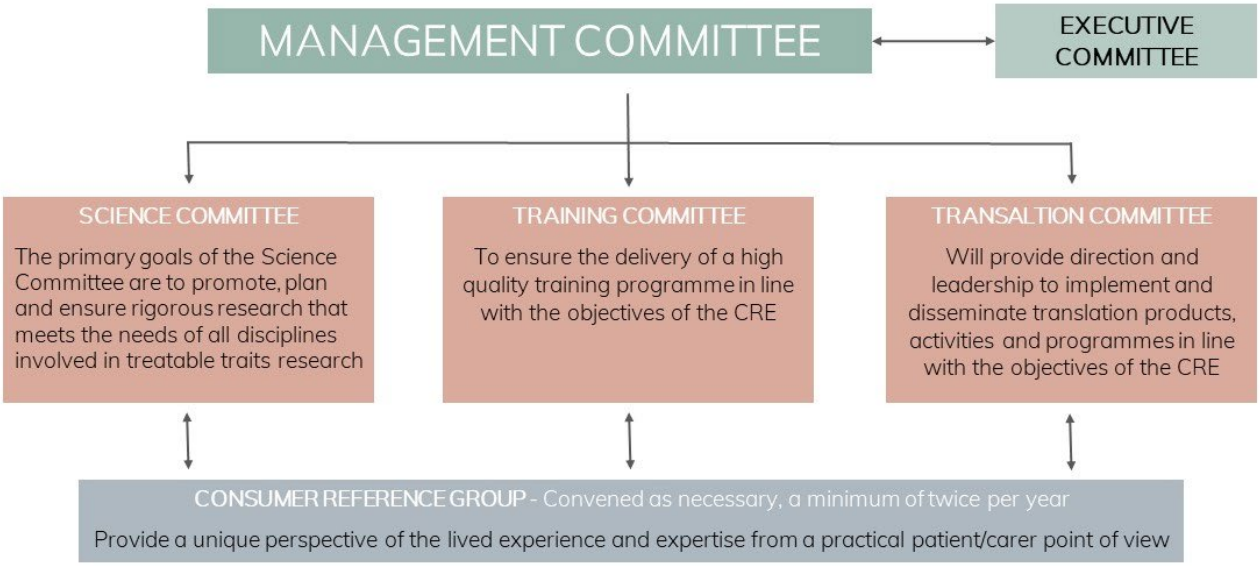
Our Governance Structure

The Centre's governance structure consists of a Management committee, which provides the overall strategic direction and leadership for the Centre. Membership includes the Chief Investigators of the Centre.

Alongside the Management Committee is the Executive Committee. The Executive is comprised of the two Directors, the Centre Research Manager and the Centre Administration Officer.

There are three sub committees of the Management committee. These are the Science, Training, and Translation committees. These Committees are chaired by a member of the management committee and an early career research co-chair. The purpose of these committees is outlined below.

Linking into all the subcommittees is the Consumer Reference Group. The Consumer Reference Group provides an individualised perspective of the experience of living with airway diseases and benefits from the expertise of people with airway diseases. This collaboration allows for co-design of our Treatable Traits research projects.



Progress Snapshot

We been productive since our Centre was launched in November 2020. Below we have provided a brief snapshot of our progress so far.

Our People

Directors

Professor Vanessa McDonald

Professor Vanessa McDonald is a Professor of Chronic Disease Nursing in the School of Nursing and Midwifery at the University of Newcastle, Australia. She is Co-Director of the Centre of Excellence in Severe Asthma and the Director of the Centre of Excellence in Treatable Traits. Head of Research in the School of Nursing and Midwifery, and chair of HMRI's Asthma and Breathing Programme.
Vanessa's research interests are centred around the development of innovative approaches to the management of chronic airway diseases, particularly severe asthma and COPD.
She is passionate about the development and implementation of personalised medicine strategies that place the person at the centre of health care delivery.

Conjoint Professor Peter Gibson

Conjoint Professor Peter Gibson is a respiratory physician and clinical scientist in the Department of Respiratory and Sleep Medicine at John Hunter Hospital, Australia and the University of Newcastle, Australia. Peter initiated the Hunter Medical Research Institute's respiratory research programme and led this programme until 2020. He is co-leader of the Centre of Excellence in Severe Asthma and the Centre of Excellence in Treatable Traits. Peter is a concept leader who has developed innovative approaches around inflammatory subtypes of asthma and cough; airway biomarkers; neurogenic mechanisms, laryngeal dysfunction, and related treatments for refractory cough; and the multidimensional assessment and management of complex airway disorders such as severe asthma, airways diseases in the elderly, and asthma in pregnant women.

Chief Investigators

In addition to our two directors, our investigators include:

Professor Richard Beasley

Richard has been the Director of the Medical Research Institute of New Zealand (NZ) since 2001 and a consultant physician to the Capital and Coast District Health Board since 1988.
Richard has led research that led to identifying the cause of the NZ asthma mortality epidemic, the role of preservatives in paradoxical bronchoconstriction with nebuliser solutions, the inflammatory basis of mild asthma, the development and use of asthma self-management plans, and the efficacy of anti-inflammatory reliever therapy in asthma.

Professor Andrew Searles

Professor Andrew Searles is the strategic lead for the health economics unit at Hunter Medical Research Institute, Australia. Andrew's work applies economic thinking to health-related issues. He is experienced in the conduct of economic evaluations including impact assessments.
Andrew led the development of a national framework to evaluate health technology on behalf Australian Health Research Alliance (AHRA). The framework is known as the "Framework to Assess the Impact from Translational health research" (FAIT).
The work led by Andrew in 2018 to develop a national framework to improve the local level evaluation of healthcare is being implemented. With financial support from the MRFF, he is now implementing a number of recommendations, including leading a team of health economists who will be embedded in NSW local health.

Associate Professor Vanessa Murphy

Associate Professor Vanessa Murphy is a research scientist investigating the management of asthma exacerbations during pregnancy and their health impact on both the mother and baby. She graduated with a Bachelor of Medicinal Chemistry (Hons I and University Medal) from the University of Wollongong, Australia (1998) and completed a PhD in Medicine at the University of Newcastle, Australia (2004). Vanessa has worked as a respiratory researcher at the University of Newcastle and Hunter Medical Research Institute under the supervision of Professor Gibson since 2004.
Vanessa's research interests focus on asthma in pregnant women. Her research is trialling new approaches to the management and treatment of asthma during pregnancy, with a focus on reducing the rate of asthma exacerbations in pregnancy and

improving health outcomes for the baby.

Professor Philip Bardin

Professor Philip Bardin is a Professor of Lung and Sleep Medicine in the Faculty of Medicine, Monash University, Melbourne, Australia. Philip is a clinician-scientist with a record of successful investigation in both clinical and laboratory domains and is recognised as an international expert in severe asthma, Chronic Obstructive Pulmonary Disease (COPD) and Vocal Cord Dysfunction (VCD).
Recently his research has also focused on VCD in obstructive lung diseases. His professional activities reflect a career-long commitment to research and medical education, particularly in the areas of asthma and COPD. Currently, Philip is Editor-in-chief of Respirology; the official journal of the Thoracic Society of Australia and New Zealand and Asia Pacific Society of Respirology.

Professor Anne Holland

Professor Anne Holland is a Professor of Physiotherapy, a joint appointment of Monash University and Alfred Health in Melbourne, Australia. She is also a National Health and Medical Research Council Leadership Fellow (2021-2025).
Anne's research investigates novel treatments for chronic lung disease, with a focus on exercise and physical activity. Over the course of her career, she has published 27 randomised controlled trials of non-pharmacological interventions. Anne was senior author for the American Thoracic Society Home Oxygen Therapy Guideline (published 2020) and the Australian/New Zealand clinical practice guidelines in pulmonary rehabilitation (2017).

Professor Ian Pavord

Professor Ian D Pavord is a Professor of Respiratory Medicine at the University of Oxford and Honorary Consultant Physician at the Oxford University Hospital, United Kingdom (UK). He is the second-highest cited researcher in asthma worldwide.
Ian has a research interest in the clinical aspects of inflammatory airway diseases and has pioneered the use of non-invasive measures of airway inflammation in the assessment of these conditions. He has identified a number of clinically important phenotypes of inflammatory airway disease, has discovered clinically important biomarkers, and has played a lead role in the clinical development of three of the most promising new treatments for severe airway disease.

Professor John Upham

Professor John Upham is a Professor of Respiratory Medicine at the University of Queensland and a Senior Respiratory Physician at the Prince Alfred Hospital, Brisbane, Australia. His research program includes sophisticated studies of immune function in large longitudinal patient cohorts involving teams of investigators across multiple institutions. His unique contribution has been to lead the initiatives to understand biological mechanisms and identify novel therapeutic targets.
His NHMRC-funded phase 3 study of low dose macrolides (Lancet 2017) provides a new treatment option for severe asthma. Findings from this pivotal randomised controlled trial have been incorporated into recently updated international guidelines, Global Initiative for Asthma (GINA), November 2018, thus highlighting the health impact of his work. As part of the CRE in Severe Asthma, he and others developed a web-based Severe Asthma Toolkit that provides important educational and training resources for health care professionals.

Professor Michael Peek

Professor Michael Peek is an Associate Dean (Health Precinct Planning) and Professor of Obstetrics and Gynaecology at the Australian National University, and a subspecialist in Maternal-Fetal Medicine at the Centenary Hospital for Women and Children as part of Canberra Health Services.
Michael's research into medical disorders in pregnancy, including asthma, has been both clinically (including obstetric ultrasound) and laboratory-based. From previous National Health and Medical Research Council (NHMRC) grants, Michael's research findings have been translated into guidelines and clinical care.
Michael also developed a high-risk maternity service that was involved in policy development at a national level. Michael continues his research collaborations with colleagues across Australia and overseas.

Associate Investigators

Professor Alvar Agustí

Professor Alvar Agustí is a Professor of Medicine at the University of Barcelona, and a senior consultant at The Hospital Clinic of Barcelona, Spain. As a physician-researcher, he has been at the forefront of personalised medicine and the treatable traits approach to respiratory disease and as an associate investigator, he will lend his expertise and guidance in this area.

Dr James Fingleton

Dr James Fingleton is an early-career physician-researcher. James's expertise in the areas of personalised medicine, asthma, corticosteroid use and phenotyping respiratory disease will contribute to the success of the Centre of Excellence in Treatable Traits research programme by establishing the feasibility of the Treatable Traits model of care in a mild to moderate asthma population.

Associate Professor Anne Vertigan

Conjoint Associate Professor Anne Vertigan has worked for Hunter New England Health local health district, Newcastle, Australia, for the past 29 years with clinical roles in speech pathology involving the treatment and management of chronic cough, voice disorders and dysphagia. She is an expert in the treatment and management of chronic cough and the role of laryngeal dysfunction (vocal cord dysfunction) in breathing and respiratory disorders.

Professor Luke Wolfenden

Professor Luke Wolfenden is a professor in behavioural science at the University of Newcastle, Australia. His research focuses on the reduction of modifiable chronic disease risk in the community through the use of methodologically rigorous translation and implementation research. His skills in translational and implementation research will be utilised to ensure new evidence generated from the Centre of Excellence in Treatable Traits research programme is effectively implemented into practice.

Professor Mark Hew

Professor Mark Hew is head of Allergy, Asthma & Clinical Immunology at the Alfred Hospital, Melbourne, and Adjunct Professor at Monash University, Australia. Mark serves on the steering committee of the International Severe Asthma Registry and took part in the development of the Severe Asthma Toolkit, leading the section on Comorbidities. His expertise in Vocal Cord Dysfunction (VCD) and severe asthma will inform the Centre of Excellence in Treatable Traits research programme on these themes.

Conjoint Professor Peter Wark

Conjoint Professor Peter Wark is a senior staff specialist in Respiratory and Sleep Medicine at John Hunter Hospital, Newcastle, and a Conjoint Professor with the University of Newcastle, Australia. His areas of expertise include the role of virus infection in acute exacerbations of airway disease and their influence on airway inflammation. His expertise will be utilised to inform the Centre of Excellence in Treatable Traits research programme on the use of new treatment options for those with severe refractory asthma, and the implementation of personalised medicine in asthma treatment.

Associate Professor Celso Carvalho

Associate Professor Celso Carvalho is a physiotherapist with a PhD in human physiology. He is an Associate Professor in the School of Medicine at the University of Sao Paulo, Brazil, with expertise in exercise physiology and pulmonary rehabilitation. He has a special interest in breathing pattern disorders and the role of dysfunctional breathing in respiratory disease. His expertise in both physical activity and breathing pattern disorders will inform these two themes within the Centre of Excellence in Treatable Traits.

Mr Gregory Archbold

Mr Gregory Archbold is a member of the Newcastle Severe Asthma Consumer Reference Group and has contributed to the development of the Centre of Excellence in Treatable Traits research programme. He has experience as a previous research participant, contributing to qualitative studies through interviews and focus groups, and as a participant in several research projects on phenotyping severe asthma, physical activity interventions, imaging treatable traits, and the patient experience and understanding of add-on therapies.

Mr Anthony Flynn

Mr Anthony Flynn is the Senior Research and Evaluation manager with Asthma Australia, the peak national consumer representative body for asthma in Australia. He will contribute to the Centre of Excellence in Treatable Traits in his capacity as Senior Manager of Research and Evaluation at Asthma Australia to disseminate research findings to consumer and community groups, promote consumer involvement in the research and support the development of patient-centred research projects.

Professor Graham Hall

Dr. Graham Hall is the CEO of the Thoracic Society of Australia and New Zealand, joining the Thoracic Society in this role in 2021. Prior to this appointment, Graham had over 25 years of experience in respiratory science and lung health, including as Deputy Director and senior researcher at the Telethon Kids Institute, a clinical scientist and as a director of peak bodies (Australian and New Zealand Society of Respiratory Science (ANZSRS)) and community organisations (Asthma WA). In each of these roles, he brought together diverse stakeholders to improve the lung health of individuals, their families, and the community.

Research Fellows

Dr Rebecca McLoughlin (University of Newcastle, NSW, Australia)
Dr Paul Leong (Monash Health, VIC, Australia)
Dr Dennis Thomas (University of Newcastle, NSW, Australia)
Dr Hayley Lewthwaite (University of Newcastle, NSW, Australia)
Dr Tesfalidet Beyene (University of Newcastle, NSW, Australia)
Dr Janine Mahony (LaTrobe University, VIC, Australia)

Dr Arwel Jones (Monash Health, VIC, Australia)
Dr Alex Gordon (University of Newcastle, NSW, Australia)
Dr Christian Osadnik (Monash Health, VIC, Australia)
Dr Eve Denton (The Alfred, VIC, Australia)
Ms Janet Bondarenko (The Alfred, VIC, Australia)
Dr Jenny Sparks (MRINZ, Wellington, New Zealand)
Dr Joy Lee (The Alfred, VIC, Australia)
Dr Donna-Marie Palakiko (University of Hawaii, Manoa, USA)
Dr Elissa Elvidge (University of Newcastle, NSW, Australia)
Dr Annelies Robijn (University of Newcastle, NSW, Australia)

Research and Education Affiliates

Emeritus Professor Jennifer Oates (La Trobe University, Melbourne, VIC, Australia)
Ms Adriana Avram (Monash Health, Melbourne, VIC, Australia)
Dr Debbie Phyland (Monash University, Melbourne, VIC, Australia)
Dr Joo Koh (Monash Health, Melbourne, VIC, Australia)
Mr Laurance Ruane (Monash Health, Melbourne, VIC, Australia)
Ms Elizabeth Leahy (Monash Health, Melbourne, VIC, Australia)
Mr Malcolm Baxter (Monash Health, Melbourne, VIC, Australia)

PhD Students

Ms Paola Urroz (University of Newcastle, NSW, Australia)
Dr Katarzyna Duszyk (University of Newcastle, NSW, Australia)
Dr Esha Joshi (University of Newcastle, NSW, Australia)

Centre Staff

Dr Vanessa Clark – Centre Research Manager
Ms Amy Cashmore – Centre Administration Officer
Ms Olivia Lewis – Communications and Marketing Officer

Centre Executive

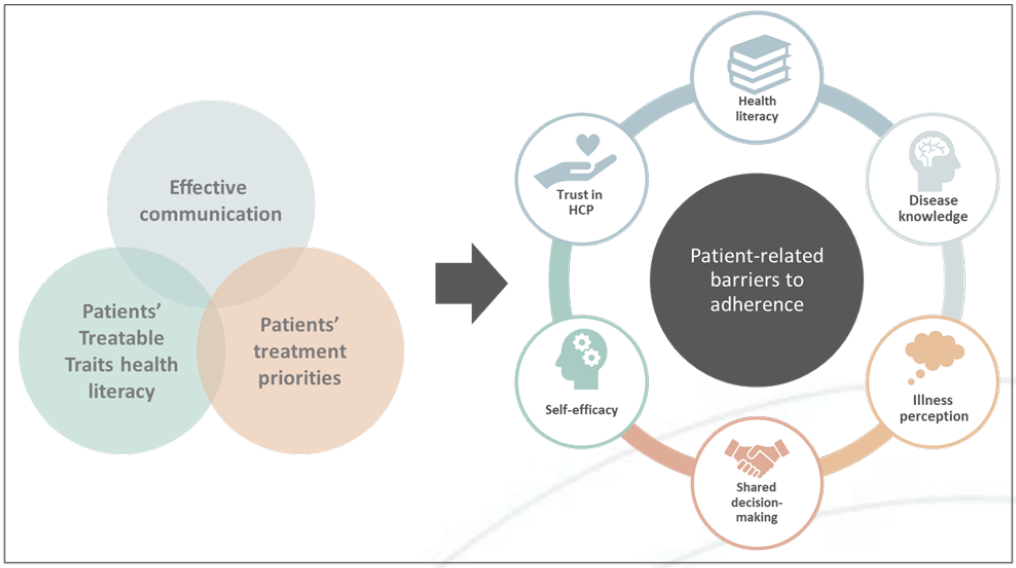
The Centre executive is comprised of our two directors, Professor Vanessa McDonald & Professor Peter Gibson. the Centre Research Manager, Dr Vanessa Clark, and the Centre Administration Officer, Ms Amy Cashmore.

Meet a Centre Member: Dr Rebecca McLoughlin

Rebecca is a post-doctoral research fellow in the Centre of Excellence in Treatable Traits.

Current Research: Rebecca's current research focuses on Treatable Traits in obstructive airway diseases, and the translation and implementation of the Treatable Traits model-of-care into usual practice. Specifically, her work aims to inform the provision of person-centred care by exploring patients' Treatable Traits health literacy and treatment priorities, as well as the most effective way to communicate Treatable Traits to patients. This will allow us to establish methods of engaging patients to optimise acceptance and adherence to the Treatable Traits approach.

What do we need to implement treatable traits? We need to develop patient-centred models of care, which encourage shared decision-making between patients and clinicians.



A model for optimising patient engagement in the Treatable Traits model of care. To enhance patient engagement to this approach, we have developed a model of what we think is needed to address many patient-related barriers to adherence; effective communication of Treatable Traits using terminology patients understand, understanding and addressing patients' Treatable Traits health literacy, and using shared decision-making to accommodate patients' goals and priorities.

Who inspires you? The people who volunteer for our research studies. The time and effort they put into our studies, even though they understand they might not directly benefit from participating, is incredible.

What the best advice you have ever been given in regard to your career?
Never turn down a learning opportunity.

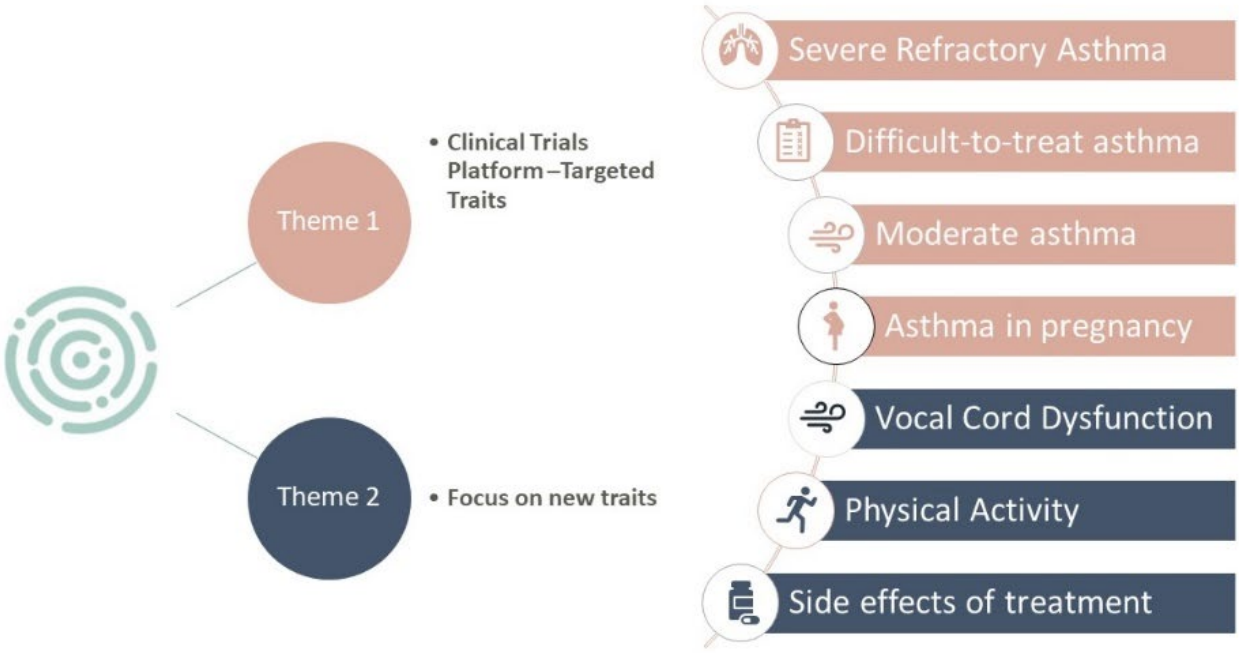
Who do we contact if we want to know more?
Rebecca McLoughlin: bec_mcloughlin@newcastle.edu.au phone (02) 40420011. Vanessa McDonald: vanessa.mcdonald@newcastle.edu.au

Our Research

The Centre has two overarching research themes which will generate new knowledge, translate it to practice and build a new generation of researchers in this area.

The first theme is focused on developing the knowledge of the Treatable Traits approach using clinical trials and platform trials, for a variety of populations, including, severe refractory asthma, difficult to treat asthma, moderate asthma, and asthma in pregnancy. Our clinical trials programme will develop new knowledge regarding the effectiveness and implementation of the Treatable Traits strategy. We will develop and test tools to support the implementation of this approach.

The second theme is developing the knowledge around new traits. These new traits are vocal cord dysfunction, physical inactivity, and side effects of treatment. Through consumer and clinician consultation, we have identified that these traits are strongly linked to clinical outcomes but lack a systematic approach to management.



Highlighted Research

Scaling Vocal Cord Dysfunction Multidisciplinary Team Clinics in Australia and New Zealand to serve unmet clinical need, build capacity and facilitate research

Dr Paul Leong *(pictured)*

Collaborators: Ms Elizabeth Leahy, Mr Malcolm Baxter, Dr Joo Koh, Mr Laurence Ruane, Professor Phil Bardin

What is the problem?
Many people with vocal cord dysfunction in Australia and New Zealand do not have access to multidisciplinary care.

Who is the study aimed at?
Healthcare professionals who are interested in starting a multidisciplinary vocal cord dysfunction clinic.

What do we plan to do?
We will be identifying interested healthcare sites in Australia and New Zealand who wish to implement a vocal cord dysfunction multidisciplinary clinic and collaborating with them to facilitate clinic start-up with the aim of launching three multidisciplinary clinics by the end of 2022.

Who do we contact if we want to know more?
Dr Paul Leong paul.leong@monash.edu

An intervention to improve physical activity and sedentary behaviour in people with severe asthma

Ms Paola Urroz *(pictured)*

Collaborators: Professor Vanessa McDonald, Professor Peter Gibson and Dr Hayley Lewthwaite

What is the problem?
Physical activity interventions mainly in the form of exercise training have shown great asthma and health related benefits. What remains unknown is how to change participation in physical activity and reduce sedentary behaviour. People with severe asthma are at high risk of not engaging in the recommended amount of physical activity, more so than those of less disease severity. To translate the asthma and health benefits of physical activity and non-sedentary behaviour to the severe

asthma population, research needs to identify the best strategy to improve these behaviours.

Who is the study aimed at?
Adults with severe asthma.

What do we plan to do?
We will develop and conduct a pilot randomised controlled trial that aims to improve the volume and pattern of physical activity and sedentary behaviour in a severe asthma population. We will develop an effective, feasible and acceptable intervention that improves physical activity and sedentary behaviour in people with severe asthma.

Who do we contact if we want to know more?
PhD Candidate - Paola Urroz:
paola.urroz@newcastle.edu.au

Oral corticosteroids in asthma

One of the research priorities for the Centre is around addressing the significant adverse effects and morbidity associated with oral corticosteroid use. This work has been developed as part of a collaboration within the Centre, as well as with external collaborators.
The work conducted by the Centre to date comprises five publications including:

Oral corticosteroids stewardship for asthma in adults and adolescents: A position paper from the Thoracic Society of Australia and New Zealand. J. Blakey, et al. Respirology 2021 Vol. 26 Issue 12 DOI: 10.1111/resp.14147 (a summary of the position statement is on the next page).

Mepolizumab and Oral Corticosteroid Stewardship: Data from the Australian Mepolizumab Registry
D. Thomas et al. J Allergy Clin Immunol Pract 2021 Vol. 9 Issue 7
DOI: 10.1016/j.jaip.2021.01.028

The Patients' Experience of Severe Asthma Add-On Pharmacotherapies: A Qualitative Descriptive Study
V. L. Clark et al. J Asthma Allergy 2021 Vol. 14 DOI:10.2147/jaa.S296147

Cumulative dispensing of high oral corticosteroid doses for treating asthma in Australia. M. Hew et al. Med J Aust 2020 Vol. 213 Issue 7 DOI: 10.5694/mja2.50758

What matters to people with severe asthma? Exploring add-on asthma medication and outcomes of importance. V. L. Clark et al. ERJ open research 2021 Vol. 7 Issue 1
DOI: 10.1183/23120541.00497-2020

The outcome of this research has led to the development of a stewardship program for oral corticosteroids. As part of the stewardship program, key recommendations for reducing oral corticosteroids use are being implemented. These include improving inhaler technique, improving adherence, optimising treatment, using multidimensional assessment to manage comorbidities, consider using monoclonal antibody therapy in patients with uncontrolled asthma and placing restrictions on the way oral corticosteroids are prescribed.

Oral corticosteroids stewardship for asthma in adults and adolescents

A position paper from the Thoracic Society of Australia and New Zealand

What is the problem?

Oral corticosteroids (OCS) are an effective treatment for acute and chronic severe asthma. However the indiscriminate use of OCS poses a risk of serious side effects and irreversible harm.

What should we do about it?

There is an urgent need to introduce OCS stewardship approaches. Stewardship approaches have been effective in the appropriate use of antibiotics.

What did we do?

The Thoracic Society of Australia and New Zealand position paper involves a review of current knowledge related to OCS use in asthma, and proposes principles for OCS stewardship to guide asthma management and reduce harm.

Who should read this

- Healthcare clinicians
- Consumers
- Policy makers
- Researchers

Highlighted recommendations for reducing OCS use

- Focus on improving inhaler technique, adherence and optimising treatment
- Consider biologic agents in patients with uncontrolled asthma as a priority
- Identify and manage comorbidities and risk factors including smoking cessation
- Place restrictions on the way OCS are prescribed

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Blakey J, Chung LP, McDonald VM, Ruane L, Gornall J, Barton C, Bosnic-Anticevich S, Harrington J, Hew M, Holland AE, Hopkins T, Jayaram L, Reddel H, Upham JW, Gibson PG, Bardin P. Oral corticosteroids stewardship for asthma in adults and adolescents: A position paper from the Thoracic Society of Australia and New Zealand. Respirology. 2021 Sep 29. doi: 10.1111/resp.14147. Epub ahead of print. PMID: 34587348.

Scan to read

Our Training and Knowledge Sharing

INNOVATE Workshop

In July 2021 the Centre held its first **(*IN*vesting in *NOV*el *A*cademic *T*raining *E*xcellence)** INNOVATE workshop. The purpose of the INNOVATE workshops is to build capacity in research for early-mid career researchers (EMCRs), facilitate the development of collaborations and promote research excellence through the development of inter-and multidisciplinary research teams.

This round, two projects were awarded $20,000 in start-up funding:

Dr Paul Leong (Monash University, primary supervisor Professor Phil Bardin) presented "Scaling Vocal Cord Dysfunction Multidisciplinary Team Clinics in Australia and New Zealand to serve unmet clinical need, build capacity and facilitate research".

Dr Paul Leong

Paul's project focused on the management of Vocal cord dysfunction (VCD). Paul detailed that VCD results in disabling breathlessness, excessive healthcare utilisation and recurrent oral corticosteroid prescriptions. VCD multidisciplinary team (MDT) clinics can streamline diagnosis, reduce healthcare utilisation and lower oral corticosteroid use. However, most patients in Australia and New Zealand do not have access to specialist VCD diagnosis and care. Paul's project aims to establishing a network of Vocal Cord Dysfunction MDTs addressing an urgent clinical service need, scaling clinical capacity and activate a world-first national platform to advance cutting-edge knowledge generation.

Dr Rebecca McLoughlin

Dr Rebecca McLoughlin (University of Newcastle) presented *"Treatable*

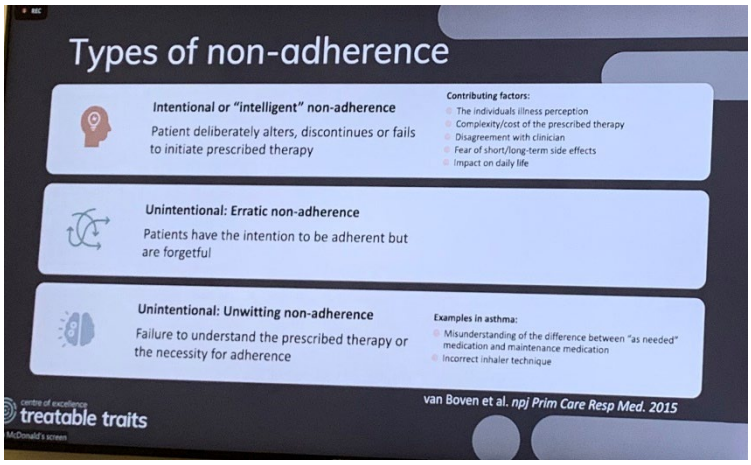
Traits: health literacy and patient engagement".
Rebecca identified that poor adherence, whether intentional or not, has been identified as one of the main contributors to suboptimal asthma management and subsequently poor clinical outcomes. There are several patient-centred factors that drive poor treatment adherence in people with asthma. These include; low health literacy, suboptimal disease knowledge, low perceived need for asthma treatment/medications, and poor patient-clinician communication including a lack of shared decision-making which accommodates patient goals and priorities.
Rebecca will conduct a cross-sectional study in patients with severe asthma using validated questionnaires to assess health literacy and asthma knowledge, with a purpose developed questionnaire used to assess participants understanding of the Treatable Traits and their targeted treatments. The findings of this project will facilitate the progression of this model-of-care from the research setting to clinical practice.

Webinars

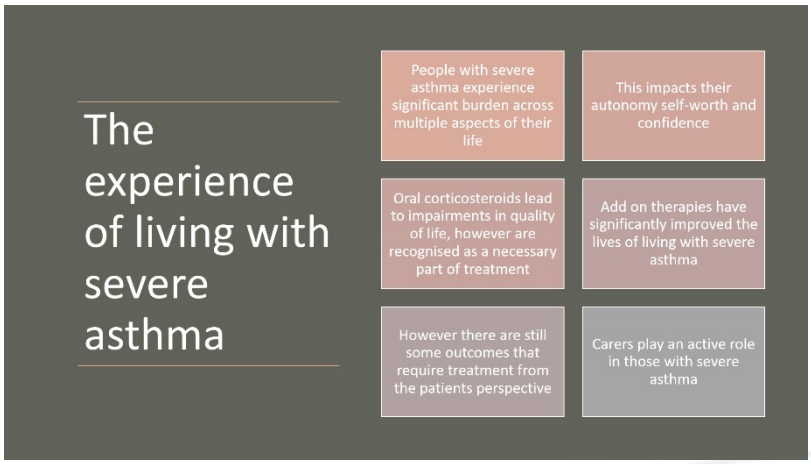
In collaboration with The Thoracic Society of Australia and New Zealand, we submitted a proposal for a post graduate session and convened a 4-part webinar series titled 'Treatable Traits in Severe Asthma: What you need to know for the 2020s'. Overall these sessions were well received, with over 170 registrants, and more than 300 on demand views across the series to date.

The first webinar in this series, "Severe Asthma- the core components" was hosted by Professor Peter Gibson, and included talks around the assessment of difficult to treat asthma by Professor Greg King; New pharmacological approaches by Dr Joy Lee and a presentation on phenotypes, endotypes and biomarkers in severe asthma by Professor Peter Wark.

The following webinar in this series was focused on "extra pulmonary severe asthma traits and treatment approaches". This webinar provided an overview of comorbidities and treatment approaches delivered by Professor Mark Hew. Dr James Hull provided a rationale for the importance of considering laryngeal dysfunction in asthma, and Professor Connie Katelaris delivered a presentation on allergic and non-allergic rhinitis, chronic rhinosinusitis and nasal polyposis.



The next webinar in the series focused on "risk factors and behaviours relevant to severe asthma". There was a focus on physical inactivity and sedentary behaviours, delivered by Associate Professor Christian Osandnik. Ms Michelle Stubbs provided an overview of psychological morbidity in severe asthma and Professor Vanessa McDonald presented on adherence and self-management skills in severe asthma.



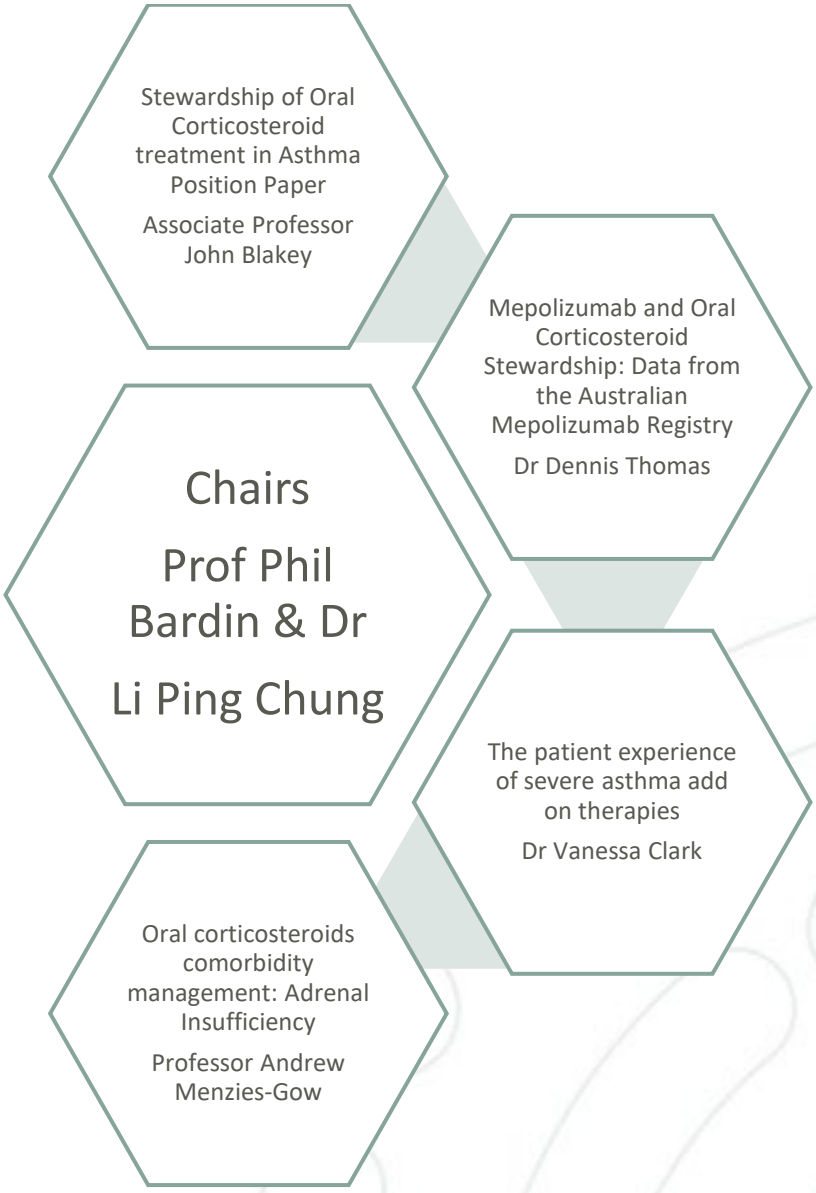
The webinar series was completed with a final session focusing on the "patient experience of severe asthma", it included an overview of the research around the patient experience by Dr Vanessa Clark, and structured Q&A session, facilitated by Professor Lorraine Smith, and included, Mr Anthony Flynn and Ms Karyn Oster from Asthma Australia and consumer representative, Ms Victoria Adams.

Our Centre Investigators also delivered a webinar in collaboration with the Hunter Medical Research Institute: 'Breathe Easy: Asthma and Lung Health Community Seminar' through the Hunter Medical Research Institute - Professor Vanessa McDonald, Professor Peter Wark and Dr Vanessa Clark

Additionally, we collaborated with Asthma Australia to deliver 'Treatable Traits: Asthma in Pregnancy' in collaboration with Asthma Australia - Professor Vanessa McDonald, Professor Michael Peek and Associate Professor Vanessa Murphy.

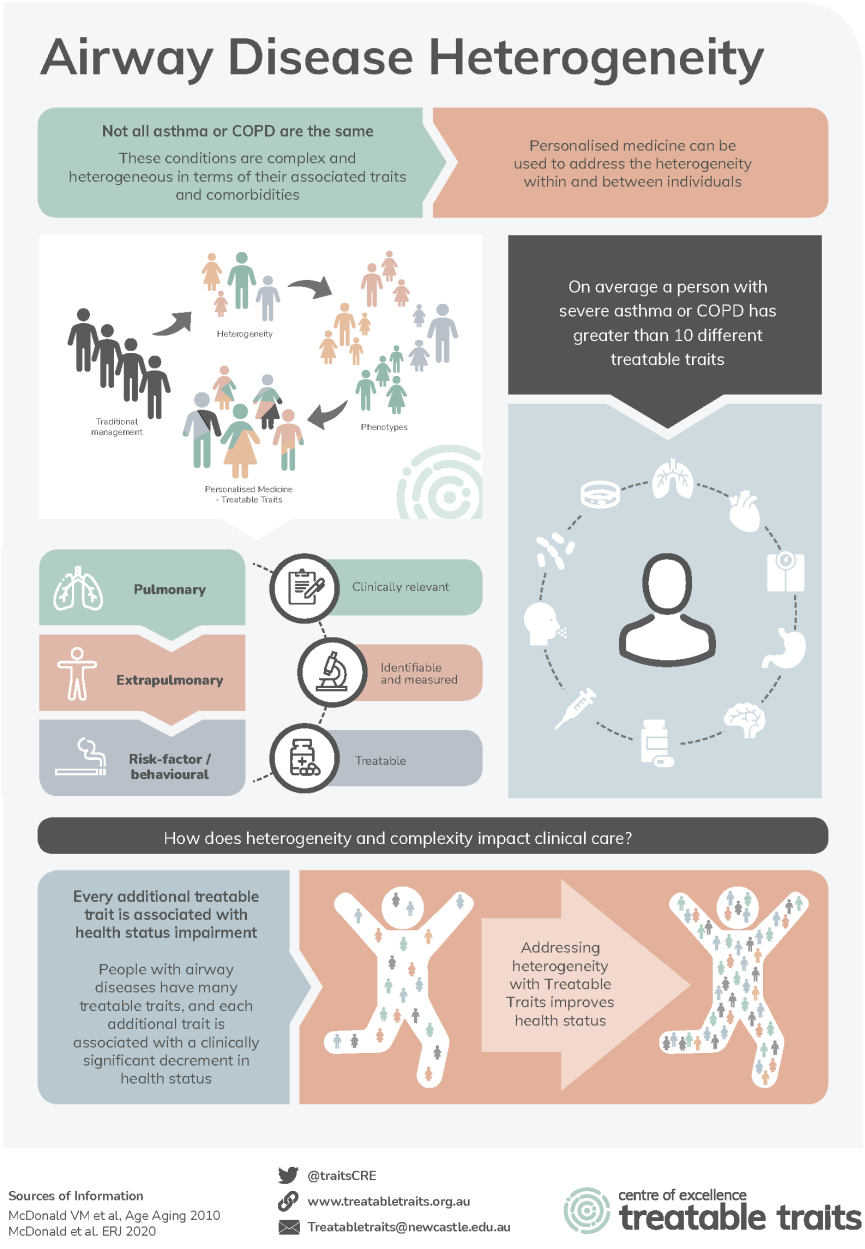
TSANZSRS Annual Scientific Meeting Symposium

The Australia & New Zealand Society of Respiratory Science and The Thoracic Society of Australia and New Zealand (ANZSRS/TSANZ), Annual Scientific Meeting for Leaders in Lung Health & Respiratory Science was held on the 31st March to the 2nd April 2022. As part of this meeting the Centre proposed a successful symposium, "Focusing on oral corticosteroids (OCS) in asthma: A stewardship programme". The aim of this symposium was to provide a patient-centred overview of the burden of OCS use, approaches to reduce and manage the burden, and insight into the patient experience.



Infographics

We have developed some infographics to help people understand some of the key concepts of Treatable Traits. In the past few months, we have developed "What is Treatable Traits", "Airway Disease Heterogeneity" "Multidimensional Assessment", "Airflow Limitation" and "Oral Corticosteroid Burden" infographics.



Downloadable copies of all of our infographics can be found under the resources section of our website *https://treatabletraits.org.au/resources/*

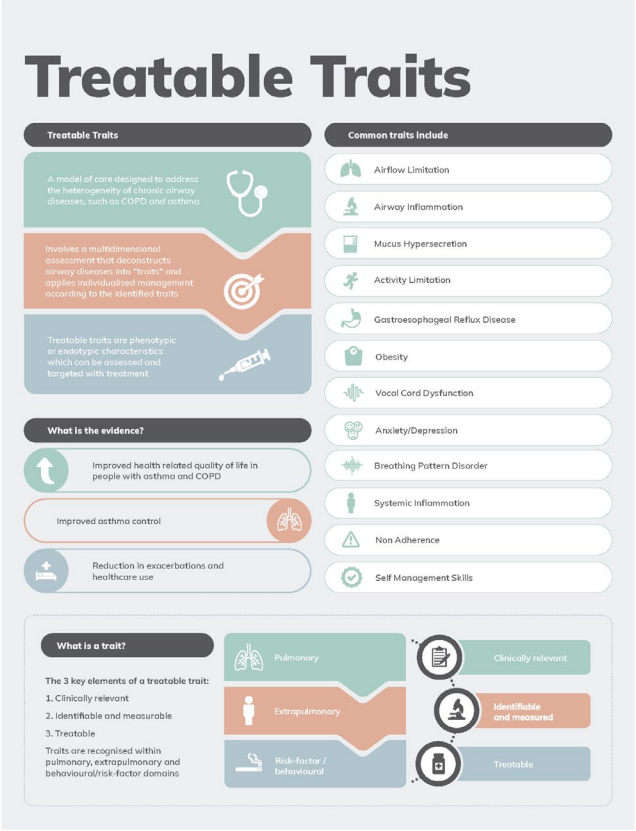
Website

In April 2021 we launched our website

https://www.treatabletraits.org.au/

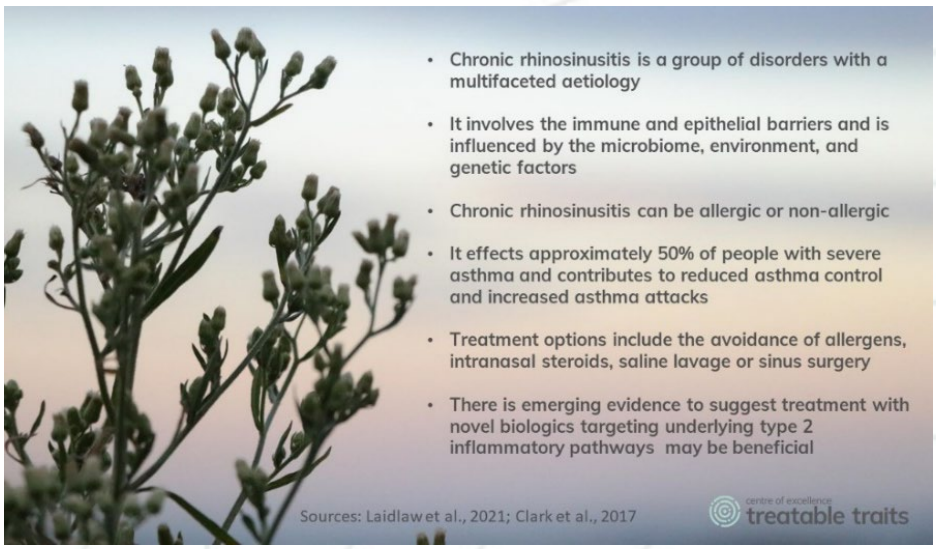
Our website is a centralised platform to facilitate learning more about the Treatable Traits approach, give insight into the research we are conducting throughout the Centre and communicate our impact. Additionally, it is a place to access our free resources, including infographics *(pictured)* and webinars, be notified of upcoming events and learn more about opportunities within the Centre.

Since its launch our website has amassed over 10 thousand views and 421 file downloads, across 73 Countries, including Australia, the U.S, the U.K, Brazil and the Netherlands.



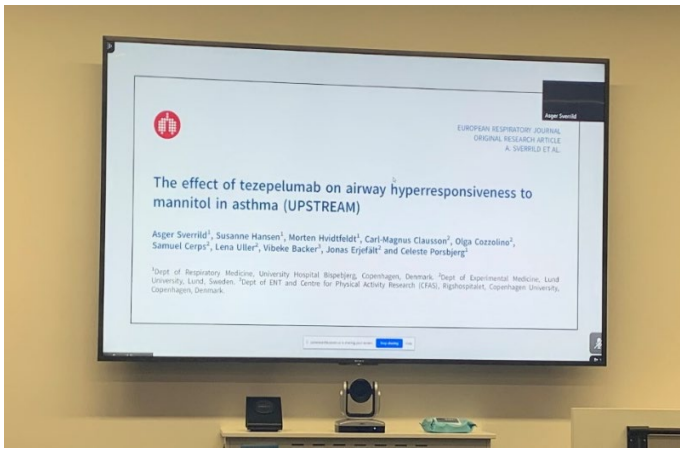
Social Media

In November 2020 we launched our twitter handle @traitsCRE. In the 18 months following, our tweets have been seen 272,000 times and we have amassed 689 followers. We use our twitter platform to share our knowledge about the Treatable Traits, including our "trait of the month" feature, which includes a series of resources and information about a certain trait *(example pictured),* share the latest treatable trait related literature and provide updates of what we are doing here at the Centre.



Journal Club

We have held seven journal clubs throughout 2021-2022. The aims of our journal club are to build capacity among early career researchers so that they can develop skills in critical appraisal of research and practice, identify interesting articles that represent the best evidence to inform clinical practice, and to highlight new research related to any of our research themes.



We had an average engagement of 23 people, ranging from 15 to 29 researchers in attendance from Australia, New Zealand, UK, USA, Spain and Brazil.

Papers presented

A Behaviour Change Intervention Aimed at Increasing Physical Activity Improves Clinical Control in Adults with Asthma - A Randomized Controlled Trial. Chest, Freitas et al., presented by Ms Paola Urroz.

What was the impact of a participatory research project in Australian Indigenous primary healthcare services? Applying a comprehensive framework for assessing translational health research to Lessons for the Best. BMJ Open, Ramanathan et al., presented by Dr. Shanthi Ramanathan.

The effect of tezepelumab on airway hyperresponsiveness to mannitol in asthma. Euro Respiratory Journal, Sverrild et al., presented by Dr Asgar Sverrild.

Dynamics of Inhaled Corticosteroid use are associated with asthma attacks. Scientific Reports. Lee et al., presented by Dr. Joy Lee.

A randomized, placebo-controlled trial evaluating effects of lebrikizumab on airway eosinophilic inflammation and remodelling in uncontrolled asthma (CLAVIER). Journal of Clinical and Experimental Allergy, Austin et al., presented by Dr Dennis Thomas.

The needs and well-being of severe asthma and COPD carers: A cross-sectional study". Respirology, Majellano et al., presented by Ms Eleanor Majellano.

Laryngeal hypersensitivity and abnormal cough response during mannitol bronchoprovocation challenge". Respirology, Lee et al., presented by Dr. Joy Lee.

Fractional Exhaled Nitric Oxide Nonsuppression Identifies Corticosteroid-Resistant Type 2 Signaling in Severe Asthma. American Journal of Respiratory and Critical Care Medicine & Derivation of a prototype asthma attack risk scale centred on blood eosinophils and exhaled nitric oxide. Thorax, Couillard et al., presented by Dr. Simon Couillard.

Research Meetings

Every second month The Centre of Excellence in Treatable Traits gathers together to discuss the themes and projects of the Centre.

These meetings give our researchers a chance to discuss upcoming projects and an opportunity to establish collaborations with researchers from other institutes.

To date topics of these meetings have included health literacy, asthma in pregnancy, vocal cord dysfunction, macrolide use, physical inactivity and frequent viral infections and systemic inflammation.

Four research meetings have been held, with an average of 24 (17-35) researchers engaged. The audience has included researchers from Spain, Brazil, New Zealand and throughout Australia.

Award Highlights

Our researchers have been recognised with prestigious accolades:

Professor Anne Holland - Thoracic Society of Australia and New Zealand Society Medal (2021)

The prestigious TSANZ Society Medal is an acknowledgement of excellence in fields other than research, that is, for the advancement of the practice of thoracic medicine in its widest sense by outstanding teaching or advocacy. Anne was the first allied health professional to receive this award since its inception in 1992.

The Thoracic Society of Australia & New Zealand
LEADERS IN LUNG HEALTH

Conjoint Professor Peter Gibson - European Respiratory Society Fellow (2021)

The Fellow of ERS (FERS) award recognises excellence from within the ERS membership by acknowledging outstanding contributions in research, education, and clinical leadership. Those contributions, combined with the candidate's previous research records (h-index), form the basis for induction into this prestigious group. Up to 50 Fellows are selected each year and recipients may use the designation 'FERS' following their name. FERS awardees are also inducted into an elite advisory board that will be called upon by the Society on various matters in future years.

Professor Vanessa McDonald - Hunter Medical Research Institute Mid-Career Research Award (2021)

The Hunter Medical Research Institute Sid Stephens Memorial Mid-Career Research Award recognises the outstanding leadership and achievements of a researcher within 15 years of completing their PhD.
Vanessa is passionate about the development and implementation of personalised medicine strategies for people with respiratory disease. Her research places the person at the centre of health care delivery.

Professor Vanessa McDonald - Thoracic Society of Australia and New Zealand's "50th Anniversary Medal for Education and Training" (2022)

The award recognises an individual who has demonstrated sustained excellence in education and training. This includes formal and informal teaching within a university, hospital, or other health care setting; curriculum development at an undergraduate or postgraduate level; using research to enhance the efficacy of educational activities; career mentoring of junior members of the Society; integration of teaching into clinical practice; or advocacy on behalf of medical education as applied to respiratory medicine.

Professor Anne Holland - President Elect for the Thoracic Society of Australia and New Zealand (2022)

The Thoracic Society of Australia and New Zealand is a collaborator of the Centre of Excellence in Treatable Traits. It is the peak body representing a range of professions (medical specialists, scientists, researchers, academics, nurses, physiotherapists, students, and others) across various disciplines within the respiratory/sleep medicine field in Australia and New Zealand.

Dr Rebecca McLoughlin – Asthma Australia Fellowship Grant in Digital Health (2022)

The Asthma Australia Fellowship Grant in Digital Health is a two-year fellowship valued at $200,000. The aim of the fellowship is to investigate and advance the role of digital health strategies for the benefit of people with asthma. In this fellowship Rebecca will develop a *"Treatable Traits Shared Decision Making and priority-setting toolkit".* This will consist of a digital patient decision aid, a digital clinician decision aid, as well as a strategy to support the use of these aids in clinical practice.

Grants 2021-2022

Personalised medicine for severe asthma: treatable traits – John Hunter Hospital Charitable Trust Grant $18,182 - Rebecca McLoughlin, Vanessa McDonald, Peter Gibson, Vanessa Clark.

Personalised medicine for severe asthma: treatable traits - 2021 College of Health, Medicine, and Wellbeing Strategic Research Pilot Grant $13,014 - Rebecca McLoughlin, Vanessa McDonald, Peter Gibson, Vanessa Clark.

Scaling Vocal Cord Dysfunction Multidisciplinary Team Clinics in Australia and New Zealand to serve unmet clinical need, build capacity and facilitate research - CRE in Treatable Traits 2021 INNOVATE seed funding $20,000 - Paul Leong, Philip Bardin.

Treatable Traits: health literacy and patient engagement - CRE in Treatable Traits 2021 INNOVATE seed funding $20,000 – Rebecca McLoughlin.

The 'heart rate' for the lungs: evaluating respiratory-specific parameters to optimise exercise prescription for people with chronic lung disease- Hunter Medical Research Institute $46,924. Hayley Lewthwaite, Emily Cox, Jenny Mackney, Vanessa McDonald, Sarah Valkenborghs.

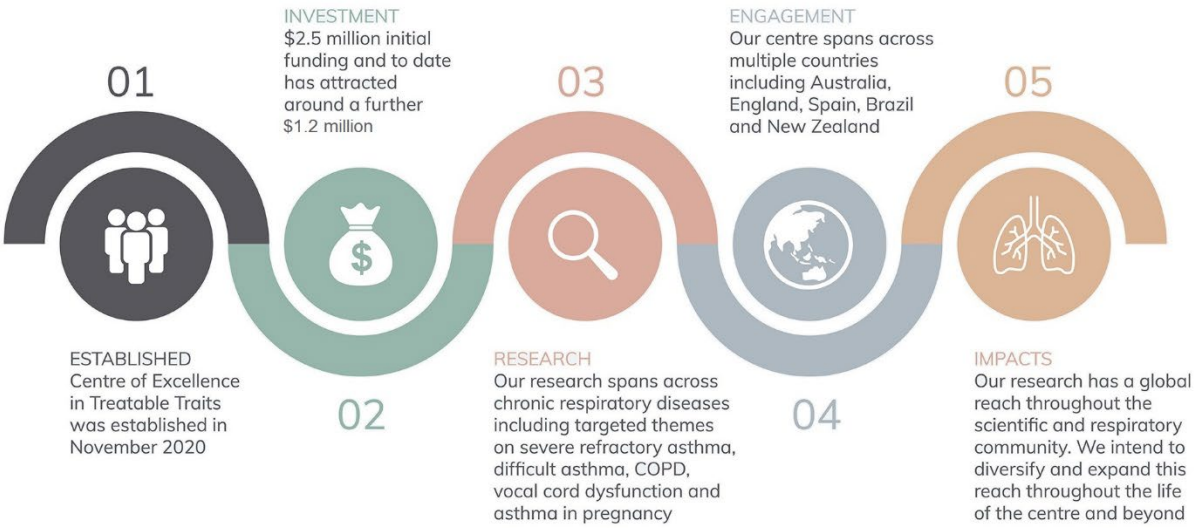
Evaluation of a model of virtual antenatal asthma care- Hunter New England Area Health -$300,000 Peter Gibson, Vanessa McDonald, Penny Reeves, Andy Woods.

Fatigue - a forgotten asthma symptom in asthma - John Hunter Hospital Charitable Trust $10484 – Vanessa McDonald, Shyamala Pradeepan, Vanessa Clark.

Our Impact

NHMRC defines the impact of research as the verifiable outcomes that research makes to knowledge, health, the economy and/or society, and not the prospective or anticipated effects of the research. Impact is the effect of the research after it has been adopted, adapted for use, or used to inform further research.

Many measures can be used to assess impact including traditional research metrics such as publication citations and presentations. However, measurement of impact can also expand to non-academic outcomes such as improved health outcomes, cost savings and the integration of research into policy.



Our Collaborations

Highlighted collaborations

Lung Foundation collaboration

In July 2021, the Federal Minister for Health, The Hon. Greg Hunt, announced an investment of $1.4 million in funding over two years to support the Lung Foundation to design and deliver lung health education and training for primary health care professionals. The Lung Foundation Australia will work collaboratively with the Department of Health, the Centre of Excellence in Treatable Traits, the Thoracic Society of Australia and New Zealand, Asthma Australia, and other key research and professional organisations to design and deliver a competency-based training framework, whilst also enhancing existing training opportunities in lung health.

Air Nutrition Campaign

In September 2021, Asthma Australia in partnership with key respiratory and health organisations, including the Centre of Excellence-Treatable Traits, launched a campaign to help put air quality health into the minds of everyday Australians. The “Air Nutrition”- you are what you breathe campaign focused on raising awareness of air pollution, the adverse health effects that can be caused by air pollution and provided useful strategies to minimise exposure.

Our Publications 2021-2022

- Muhammad Rehan Sarwar, **Vanessa Marie McDonald**, Michael John Abramson, Eldho Paul, **Johnson George**. *Treatable traits in an English cohort: prevalence and predictors of future decline in lung function and quality of life in COPD*, ERJ Open Research. May 2021

- **Clark VL, Gibson PG, McDonald VM**. *The patients' experience of severe asthma add-on pharmacotherapies; a qualitative descriptive study'*. Journal of Asthma and Allergy. Jan 2021

- **Eleanor C Majellano, Vanessa L Clark**, Juliet M Foster, **Peter G Gibson, Vanessa M McDonald**. *It's like being on a roller coaster: The burden of caring for people with severe asthma*. ERJ Open Research. Jan 2021

- Patricia D Freitas, Rafaela F Xavier, **Vanessa M McDonald, Peter G Gibson**, Laura Cordova-Rivera, Karina C Furlanetto, Joice M de Oliveira, Regina M Carvalho-Pinto, Alberto Cukier, Rafael Stelmach, **Celso R F Carvalho**. *Identification of asthma phenotypes based on extrapulmonary traits; physical activity, psychosocial distress and obesity*, Euro Respir J. Jan 2021

- Freitas PD, Passos NFP, Carvalho-Pinto RM, Martins MA, Cavalheri V, Hill K, Stelmach R, **Carvalho CRF**. *A Behaviour Change Intervention Aimed at Increasing Physical Activity Improves Clinical Control in Adults With Asthma: A Randomized Controlled Trial,* Chest. Jan 2021

- Freitas PD, Xavier RF, **McDonald VM, Gibson PG**, Cordova-Rivera L, Furlanetto KC, et al., *Identification of asthma phenotypes based on extrapulmonary treatable traits*, Euro Respiratory Journal. Jan 2021

- Fergus W. Gardiner, Alice Richardson, Carly Roxburgh, Marianne Gillam, Leonid Churilov, Ruth McCuaig, Sean Carter, Christopher Arthur, Cynthia Wong, Adam Morton, Leonie Callaway, Karin Lust, Sarah J. Davidson, Katie Foxcroft, Kiri Oates, Lucy Zhang, Sahani Jayawardane, Mathew Coleman, **Michael Peek**. *Characteristics and in-hospital outcomes of patients requiring aeromedical retrieval for pregnancy, compared to non-retrieved metropolitan cohorts*, ANZJOG. Jan 2021

- O'Neill C, **Gibson PG**, Heaney L, **Upham JW**, Yang I, Reynolds P, Hodge S, Jenkins C, Peters M, Marks GB, James AL, Simpson J. *The cost-effectiveness of azithromycin in reducing exacerbations in uncontrolled asthma*, Euro Respir J. Feb 2021

- **Vertigan AE**, Kapela SL, **Gibson PG.** *Laryngeal Dysfunction in Severe Asthma: A Cross-Sectional Observational Study*. J Allergy Clin Immunol Pract. Feb 2021

- **Vanessa M McDonald, Paola D Urroz**, Marika Bajc, Natalie Rutherford, Bree Brooker, **Peter G Gibson**. *Imaging for Precision Medicine: Can V-P SPECT measure Mepolizumab Response in Asthma?* Respirology Case Reports. Feb 2021

- Sarah A Hiles, **Paola D Urroz, Peter G Gibson**, Adam Bogdanovs, **Vanessa M McDonald**. *A feasibility randomised controlled trial of Novel Activity Management in severe ASthma – Tailored Exercise (NAMASTE): Yoga and Mindfulness*. BMC Resp Open. Feb 2021

- Xin Zhang, Li Zhang, Rui Liang, **Vanessa M McDonald**, Hong Ping Zhang, He Yu, Zong An Liang, Lei Wang, Guy B Marks, Wei Min Li, Gang Wang, **Peter G Gibson**. *Clinical phenotypes of patients hospitalized for an asthma exacerbation: prognostic implications*. J Allergy Clin Immunol Pract. Feb 2021

- **Thomas, Dennis; McDonald, Vanessa M;** Simpson, Jodie L; **Smith, Amber;** Gupta, Sachin, **Majellano Eleanor; Gibson, Peter G**. *Patterns of azithromycin use in obstructive airway diseases: a real-world observational study*. Internal Medicine Journal. Feb 2021

- **Dennis Thomas**, **Erin S Harvey, Vanessa M McDonald**, Sean Stevens, **John W Upham**, Constance H Katelaris, Vicky Kritikos, Andrew Gillman, John Harrington, **Mark Hew, Philip Bardin**, Matthew Peters, Paul N Reynolds, David Langton, Melissa Baraket, Jeffrey J Bowden, Simon Bowler, Jimmy Chien, Li Ping Chung, Claude S Farah, Christopher Grainge, Christine Jenkins, Gregory P Katsoulotos, **Joy Lee**, Naghmeh Radhakrishna, Helen K Reddel, Janet Rimmer, Pathmanathan Sivakumaran, **Peter A B Wark, Peter G Gibson.** *Mepolizumab and Oral Corticosteroid Stewardship: Data from the Australian Mepolizumab Registry.* J Allergy Clin Immunol Pract. Feb 2021

- **Hew M, Denton E**. *Prioritizing Treatable Traits in Airways Disease*. J Allergy Clin Immunol Pract. Mar 2021

- Sarah A. Hiles, **Peter G. Gibson, Alvar Agustí, Vanessa M. McDonald**. *Treatable Traits That Predict Health Status and Treatment Response in Airway Disease*. J Allergy Clin Immunol Pract. Mar 2021

- **Vanessa L Clark, Peter G Gibson, Vanessa M McDonald**. *What do patients with severe asthma want from an add-on medication?* ERJ Open Research. Mar 2021

- **Robijn AL**, Barker D, **Gibson PG**, Giles WB, Clifton VL, Mattes J, **Peek MJ,** Barrett HL, Seeho SK, Callaway LK, Abbott A, Attia J, **Wark PA**, Jensen ME, **Murphy VE**. *Factors Associated with Nonadherence to Inhaled Corticosteroids for Asthma During Pregnancy*. J Allergy Clin Immunol Pract. Mar 2021

- Natasha Winter, **Peter G Gibson**, Michael Fricker, Jodie L Simpson, **Peter AB Wark, Vanessa M McDonald**. *Hemopexin: a novel anti-inflammatory diagnostic marker in chronic airway disease*. Allergy Asthma Immunol Res. May 2021

- Laura Cordova-Rivera, Paul A.Gardiner**, Peter G.Gibson**, Elisabeth A.H.Winkler, **Paola D.Urroz, Vanessa M.McDonald**. *Sedentary time in people with obstructive airway diseases*. Respiratory Medicine. May 2021

- McDowell PJ, Diver S, Yang F, Borg C, Busby J, Brown V, Shrimanker R, Cox C, Brightling CE, Chaudhuri R, **Pavord ID**, Heaney LG; Medical Research Council: Refractory Asthma Stratification Programme (RASP-UK Consortium). *The inflammatory profile of exacerbations in patients with severe refractory eosinophilic asthma receiving mepolizumab (the MEX study): a prospective observational study*. Lancet Respiratory Medicine. May 2021 (online ahead of print)

- **Pham J, Hew M**, Dharmage SC. *Is ethnicity a 'treatable trait' in asthma?* Respirology. Jun 2021

- **Gibson PG**, Prazma CM, Chupp GL, Bradford ES, Forshag M, Mallett SA, Yancey SW, Smith SG, Bel EH. *Mepolizumab improves clinical outcomes in patients with severe asthma and comorbid conditions*. Respiratory Medicine. Jun 2021

- Murphy RC, **Pavord ID**, Alam R, Altman MC. *Management Strategies to Reduce Exacerbations in non-T2 Asthma*. J Allergy Clin Immunol. Jul 2021

- Michael Fricker, **Vanessa M. McDonald**, Natasha A. Winter, Katherine J. Baines**, Peter A.B. Wark**, Jodie L. Simpson, **Peter G. Gibson**. *Molecular markers of type 2 airway inflammation are elevated in eosinophilic severe asthma, but not in eosinophilic COPD*. Allergy. Jul 2021

- Shukla SD, Taylor SL, **Gibson PG**, Barker D, **Upham JW**, Yang IA, Reynolds PN, Hodge S, James AL, Rogers GB, Simpson JL. *Add-on azithromycin reduces sputum cytokines in non-eosinophilic asthma: an AMAZES substudy*. Thorax. Jul 2021

- **Murphy VE**, Karmaus W, Mattes J, Brew BK, Collison A, Holliday E, Jensen ME, Morgan GG, Zosky GR, **McDonald VM**, Jegasothy E, Robinson PD, Gibson PG. *Exposure to Stress and Air Pollution from Bushfires during Pregnancy: Could Epigenetic Changes Explain Effects on the Offspring?* Int J Environ Res Public Health. Jul 2021

- Bousquet J, Humbert M, **Gibson PG**, Kostikas K, Jaumont X, Pfister P, Nissen F. *Real-world effectiveness of omalizumab in severe allergic asthma: a meta-analysis of observational studies*. J Allergy Clin Immunol Pract. Jul 2021

- Niessen N, **Gibson P**, K.J. B, Barker D, Yang I, **Upham J**, P. R, Hodge S, James A, Jenkins C, Peters M, Mark G, Baraket M, Simpson J, Fricker M. *Sputum TNF markers are increased in neutrophilic and severe asthma and are reduced by azithromycin treatment*. Allergy. Jul 2021

- Wen Wen Wu, Xin Zhang, Min Li, Ying Liu, Zhi Hong Chen, Min Xie, Shu Zhen Zhao, Gang Wang, Hong Ping Zhang, Ting Wang, Ling Qin, Lei Wang, Brian G. Oliver, Hua Jing Wan, Jie Zhang, **Vanessa M. McDonald**, Guy B. Marks, Wei Min Li, Surinder S. Birring, Gang Wang, **Peter G. Gibson**. *Treatable Traits in Elderly Asthmatics from the Australasian Severe Asthma Network: A Prospective Cohort Study*. J Allergy Clin Immunol Pract. Jul 2021

- Natasha A Winter, Ling Qin, **Peter G Gibson, Vanessa M McDonald**, Katherine J Baines, Jack Faulkner, Tiffany Evans, Michael Fricker. *Sputum mast cell/basophil gene expression relates to inflammatory and clinical features of severe asthma*. Journal of Clinical Immunology. Aug 2021

- Couillard S, Laugerud A, Jabeen M, Ramakrishnan S, Melhorn J, Hinks T, **Pavord I**. *Derivation of a prototype asthma attack risk scale centred on blood eosinophils and exhaled nitric oxide*. Thorax. Aug 2021

- Jorge F Maspero, John Mark FitzGerald, **Ian D Pavord,** Megan S Rice, Jaman Maroni, Paul J Rowe, Gianluca Pirozzi, Nikhil Amin, Marcella Ruddy, Neil M H Graham, Ariel Teper, Megan Hardin. *Dupilumab efficacy in adolescents with uncontrolled, moderate-to-severe asthma: LIBERTY ASTHMA QUEST*. Allergy. Aug 2021

- Gang Wang, **Vanessa M McDonald**. *Contemporary Concise Review 2020: Asthma*. Respirology. Aug 2021

- **Agustí A**, Barnes N, Cruz AA**, Gibson PG**, Heaney LG, Inoue H, Leather D, Martinez FJ, **McDonald VM**, Oppenheimer J, Papi A**, Pavord ID**, Thomas M, Walker S, Yates L. *Moving towards a Treatable Traits model of care for the management of obstructive airways diseases*. Respiratory Medicine. Aug 2021

- Bokern MP, Robijn AL, Jensen ME, Barker D, Callaway L, Clifton V, **Wark P**, Giles W, Mattes J, **Peek M**, Attia J, Seeho S, Abbott A, **Gibson PG, Murphy VE.** *Factors Associated with Asthma Exacerbations During Pregnancy*. J Allergy Clin Immunol Pract. Aug 2021 (online ahead of print)

- Michael Fricker, Ling Qin, Stephany Sánchez-Ovando, Jodie L Simpson, Katherine J Baines, Carlos Riveros, Hayley A Scott, Lisa G Wood, **Peter AB Wark**, Nazanin Z Kermani, Kian Fan Chung, **Peter G Gibson**. *An altered sputum macrophage transcriptome contributes to the neutrophilic asthma endotype*. Allergy Sept 2021

- **Gibson PG, McDonald VM**, Granchelli A, Olin JT. *Asthma and Comorbid Conditions - Pulmonary Comorbidity*. J Allergy Clin Immunol Pract. Sept 2021 (online ahead of print)

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- Busby J, Matthews JG, Chaudhuri R, **Pavord ID**, Hardman TC, Arron JR, Bradding P, Brightling CE, Choy DF, Cowan DC, Djukanovic R, Hanratty CE, Harrison TW, Holweg CT, Howarth PH, Fowler SJ, Lordan JL, Mansur AH, Menzies-Gow A, Niven RM, Robinson DS, Walker SM, Woodcock A, Heaney LG; investigators for the MRC Refractory Asthma Stratification Program. *Factors affecting adherence with treatment advice in a clinical trial of patients with severe asthma*. Eur Respir J. Sept 2021 (online ahead of print)

- Blakey J, Chung LP, **McDonald VM**, Ruane L, Gornall J, Barton C, Bosnic-Anticevich S, Harrington J, **Hew M, Holland AE**, Hopkins T, Jayaram L, Reddel H, **Upham JW, Gibson PG, Bardin P**. *Oral corticosteroids stewardship for asthma in adults and adolescents: A position paper from the Thoracic Society of Australia and New Zealand*. Respirology. Sept 2021 (Epub ahead of print)

- Risa Fukusho, Laurence Ruane, Debra Phyland, Joo Koh, Adriana Avram, **Paul Leong,** Martin MacDonald, Kenneth K Lau, Malcolm Baxter, **Philip G Bardin.** *A Multidisciplinary Team Clinic for Vocal Cord Dysfunction reduces Corticosteroid burst therapy.* Journal of Allergy and Clinical Immunology: In Practice. Oct 2021

- **Upham JW**, Le Lievre C, Jackson DJ, Masoli M, Wechsler ME, Price DB; Delphi Panel. *Defining a Severe Asthma Super-Responder: Findings from a Delphi Process.* Journal of Allergy and Clinical Immunology: In Practice. Nov 2021.

- **Vertigan AE**, Bone, SL., **Gibson PG**. *The impact of functional laryngoscopy on the diagnosis of laryngeal hypersensitivity syndromes*. Journal of Allergy and Clinical Immunology: In Practice. In Press 2021

- **Leong P**, Phyland DJ, Koo J, Baxter M**, Bardin PG**. *Middle Airway Obstruction: Phenotyping Vocal Cord Dysfunction/Inducible Laryngeal Obstruction(s) To Progress Diagnosis and Management*. Lancet Respiratory Medicine. Accepted 2021

- **Upham JW**, Le Lievre C, Jackson DJ, Masoli M, Wechsler ME, Price DB; *Delphi Panel. Defining a Severe Asthma Super-Responder: Findings from a Delphi Process.* J Allergy Clin Immunol Practice. Nov 2021

- **McDonald VM, Clark VL, Gibson PG**, *'Nothing about us without us What matters to patients with severe asthma?'* J Allergy Clin Immunol Practice, Mar 2022.

- Mathioudakis AG, Abroug F, **Agustí A**, Ananth S, Bakke P, Bartziokas K, et al., *ERS statement: a core outcome set for clinical trials evaluating the management of COPD exacerbations.* Eur Respir J. May2022

- **Thomas D**, **McDonald VM, Pavord ID, Gibson PG**, *Asthma remission- what is it and how can it be achieved?* Eur Respir J. Mar 2022

- **McDonald VM, Gibson PG**, *Treatable traits in asthma: moving beyond diagnostic labels A precision medicine approach to asthma places the patient at the centre of their care,* Medical Journal of Australia. Apr 2022

- **Vertigan AE**, Bone SL, **Gibson PG**, *The Impact of Functional Laryngoscopy on the Diagnosis of Laryngeal Hypersensitivity Syndromes*., J Allergy Clin Immunol Pract. Feb 2022

- Niessen NM, Fricker M, **McDonald VM, Gibson PG**, *T2-low: What do we know? - Past, present, and future of biologic therapies in non-eosinophilic asthma.* Ann Allergy Asthma Immunol, Aug 2022

- **Denton E, Hew M, Gibson PG, Vertigan A**, *Lone Ranger or Handpicked Posse? How Multidisciplinary Assessment Helps Evaluate Suspected Laryngeal Disorders*, J Allergy Clin Immunol Practice. Feb 2022

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- Shaw DE, Heaney LG, **Thomas M, Beasley R, Gibson PG, Pavord ID**. *Balancing the needs of the many and the few: where next for adult asthma guidelines?* Lancet Respir Med. Jul 2021

- Mallise CA, **Murphy VE**, Karayanidis F, Armstrong H, Whalen OM, Woolard AJ, **Gibson PG**, Mattes J, Collison A, Lane AE, Campbell LE. *Parenting stress in mothers with asthma during the postpartum period*. Journal of Asthma. Nov 2021

- Da Silva Sena CR, de Queiroz Andrade E, de Gouveia Belinelo P, Percival E, Prangemeier B, O'Donoghue C, Terry S, Burke T, Gunning W, **Murphy VE**, Robinson PD, Sly PD, **Gibson PG**, Collison AM, Mattes J. *Higher exhaled nitric oxide at 6 weeks of age is associated with less bronchiolitis and wheeze for the 12 months of age*, Thorax. Dec 2021

- **Gibson PG.** *Caging the coughing canary in the global lung health coal mine,* Respirology. Jan 2022

- **Vertigan AE**, Kapela SL, Birring SS, **Gibson PG**. *Feasibility, and clinical utility of ambulatory cough monitoring in an outpatient clinical setting: a real-world retrospective evaluation*, ERJ Open Research. Oct 2021

- Foster PS, Barnes JL, Tay HL, **Gibson PG**. *Transcriptomic drug-response gene signatures are informative for the stratification of patients for clinical trials,* Journal of Allergy & Clinical Immunology. Jan 2021

- Williams C, Johnson B, Middleton PG, Backer V, **Gibson PG**, Hollis G, Coleman C. *Family planning, pregnancy, and birth in women with lung conditions: a worldwide survey*, ERJ Open Research. Dec 2021

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