

PACE

Primary Aldosteronism
Centre of Excellence

2024 Year In Review

**The Primary
Aldosteronism Centre
of Research Excellence
(PACE)**

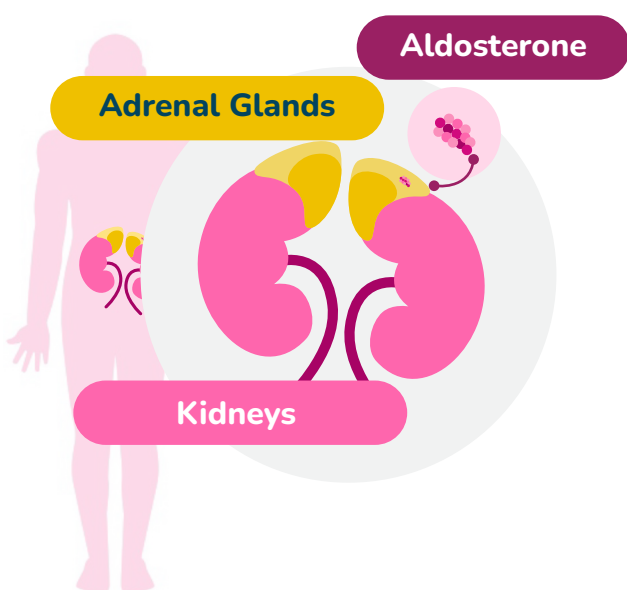
About PACE

The Primary Aldosteronism Centre of Excellence (PACE) is a national collaboration, funded by the National Health and Medical Research Council Centres of Research Excellence program, dedicated to advancing primary aldosteronism research in Australia. With primary aldosteronism being an often-overlooked yet potentially curable cause of hypertension, PACE is committed to raising awareness, improving diagnosis and management, and ultimately enhancing patient outcomes.

To achieve this, PACE is building a sustainable research infrastructure, fostering international collaborations, and developing a multidisciplinary workforce to service the needs of individuals with primary aldosteronism. By solidifying Australia's global leadership in this field, PACE will drive policy change, improve clinical practice, and elevate healthcare education and consumer advocacy to address the public health challenge posed by primary aldosteronism.

What is primary aldosteronism?

Primary aldosteronism is an under-diagnosed cause of hypertension, resulting from the excess production of aldosterone by the adrenal glands. While crucial for salt balance, elevated levels of aldosterone can lead to excess salt and fluid retention and increased blood pressure. If undiagnosed, people with primary aldosteronism have an increased risk of strokes, heart attacks at a younger age, and in some cases, heart and kidney failure.



Vision

PACE envisions a future where primary aldosteronism is widely recognised, accurately diagnosed, and effectively treated. Through pioneering research and clinical capacity building, we aim to transform the diagnosis and management of primary aldosteronism, improving health outcomes and reducing the burden of hypertension and chronic disease globally.

The goals of PACE are to:

- Identify the molecular mechanisms and pathophysiology of primary aldosteronism;
- Address barriers, and implement targeted interventions, to improve detection of primary aldosteronism in diverse healthcare settings;
- Implement scalable algorithms and cutting-edge technology for more reliable and accessible diagnoses of primary aldosteronism;
- Advance targeted treatment(s) for primary aldosteronism; and,
- Gain a greater understanding of the evolution of primary aldosteronism through the interrogation of large Australian patient cohorts across their lifespan.

Meet our team

Our team of internationally recognised clinicians and researchers is rapidly expanding research activities, advancing knowledge, and shaping guidelines, policies, and education in primary aldosteronism.

Through a collaborative effort, we aim to transform the approach to its management across healthcare services, engaging health professionals, policymakers, industry partners, consumers, and the wider community to create lasting change.

PACE Chief Investigators



Professor Peter Fuller

Head, Endocrinology Unit, Monash Health and Head, Centre of Endocrinology and Metabolism, Hudson Institute of Medical Research, Victoria



Professor Christopher Reid

Research Professor, School of Population Health, Curtin University and the School of Public Health and Preventive Medicine, Monash University, Victoria



Associate Professor Jun Yang

Head, Endocrine Hypertension Group, Hudson Institute of Medical Research, and Senior Research Fellow, Department of Medicine, Monash University, Victoria



Professor Markus Schlaich

Dobney Chair in Clinical Research, Dobney Hypertension Centre, Medical School, Royal Perth Hospital Unit, The University of Western Australia, Western Australia



Professor Michael Stowasser

Director, Endocrine Hypertension Research Centre, University of Queensland Frazer Institute, Queensland



Professor Trevor Mori

Senior Principal Research Fellow, Department of Internal Medicine, Medical School, The University of Western Australia, Western Australia



Professor Morag Young

Head, Cardiovascular Endocrinology Laboratory, Baker Heart and Diabetes Institute, Victoria



Professor Gurmeet Singh

Director, Life Course Studies, Menzies School of Health Research, Northern Territory



Professor Grant Russell

Professor, Primary Care Research, Department of General Practice, and Director, Southern Academic Primary Care Research Unit, Monash University, Victoria

Associate Investigators



Professor Gang Chen

Melbourne School of Population and Global Health, University of Melbourne, and Adjunct Professor, Centre for Health Economics, Monash University



Dr StellaMay Gwini

Senior Research Fellow, School of Public Health and Preventative Medicine, Monash University, Victoria, Biostatistician, Endocrine Hypertension Group, Hudson Institute of Medical Research, Victoria



Dr John Malios

General practitioner and regular Presiding Member of Medical Panel Tribunals. Medical advisor for Agilent Technologies and Thalassaemia and Sickle Cell Australia Presenter for the impairment training course Personal Injury Education Foundation (PIEF).

Associate Investigators continued



Professor Helen Skouteris

Head of the Health and Social Care Unit, and Co-Lead of the Division of Evidence Synthesis, Qualitative and Implementation Methods, School of Public Health and Preventive Medicine, Monash University



Associate Professor Julia Harrison

Deputy Head, Monash Medicine Course, Faculty of Medicine, Nursing and Health Sciences, Monash University, Clayton



Professor William (Bill) Rainey

Jerome W. Conn Professor, Molecular & Integrative Physiology and Internal Medicine, and Director, Endocrine Neoplasia Basic Research, University of Michigan, USA



Associate Professor Cherie Chiang

Head of Chemical Pathology, Department of Pathology, Royal Melbourne Hospital.

Endocrinologist, Royal Melbourne Hospital, Austin Hospital & Peter MacCallum Cancer Centre. Clinical Associate Professor, Department of Medicine, The University of Melbourne



Associate Professor Damon Bell

Chemical Pathologist, PathWest Laboratory Medicine Fiona Stanley and Royal Perth Hospital Network, Perth

Endocrinologist, Cardiometabolic Service, Dobney Hypertension Centre, Royal Perth Hospital

Associate Professor, Medical School, University of Western Australia



Professor Ute Scholl

BIH Johanna Quandt Professor for Hypertension and Molecular Biology of Endocrine Tumors,

Berlin Institute of Health at Charité – Universitätsmedizin Berlin, Germany



Dr Marianne Leenaerts

Co-Founder and President, Primary Aldosteronism Foundation

Governance Committees

To guide PACE's strategic direction, we established several governance committees in 2024. These committees bring together representatives from our consumer groups, stakeholders, and partner organisations to provide comprehensive oversight of all PACE activities.

PACE Advisory Board

The PACE Advisory Board, which is composed of experts in primary aldosteronism, hypertension, and / or endocrinology, was appointed to monitor progress and provide strategic guidance on translating research outcomes into practice.

Members of the PACE Advisory Board include: [Professor Lawrence Beilin \(Chair\)](#), [Professor John Funder AC](#), [Professor Garry Jennings](#) and [Professor Alta Schutte](#).

PACE Consumer Council

Drawing on their lived experience with primary aldosteronism, members of the PACE Consumer Council have been appointed to provide invaluable insights that shape our research priorities, study designs, evaluation methods, and the dissemination of our findings. The Council also advocates for the implementation of research outcomes in clinical practice, that will drive meaningful changes in healthcare policies, treatment guidelines, and educational resources for primary aldosteronism.

Members of the Consumer Council include: Paul Beard, Ben Favelle, Judy Finn, Pamela Lincoln, Dr. Sarah Lockie, Dr. John Malios, John McCabe, Colin Richardson, Professor Gail Risbridger AM, Sue Wong and David Wyatt.

We sincerely thank our governance committee members for their dedication and commitment to improving primary aldosteronism diagnosis and care, helping to enhance long-term outcomes for those affected.

2024 Snapshot

In 2024, we celebrated the launch of the Primary Aldosteronism Centre of Excellence (PACE), bringing together collaborators and partners from across Australia and around the world.

With the design and development of the PACE logo and website by the talented Communications team at the Hudson Institute of Medical Research, PACE established its online presence. The [PACE website](#) serves as a vital hub for healthcare professionals, researchers, and individuals living with primary aldosteronism. Through this platform, we share ongoing projects, research breakthroughs, publications, upcoming events, and funding opportunities with our growing community, advancing our mission to enhance understanding and awareness of this debilitating condition.

Our Projects

Throughout 2024, PACE investigators spearheaded innovative programs designed to transform the diagnosis and management of primary aldosteronism to improve health outcomes and reduce the burden of hypertension and chronic disease.

Evaluation of barriers to primary aldosteronism diagnosis in primary and tertiary care

This study aims to identify key barriers and facilitators to the diagnosis and management of primary aldosteronism from the clinician's perspective. Semi-structured interviews with general practitioners, endocrinologists, nephrologists, and cardiologists have been conducted to why and how they screen for primary aldosteronism, and how they manage the condition. Results are currently being analysed.

A Randomised trial assessing the Efficacy and safety of Mineralocorticoid receptor Antagonist therapy compared to Standard antihypertensive Therapy in hypertension with low Renin (REMASTER)

In the randomised controlled [trial](#), we test standard blood-pressure lowering medications against aldosterone-blocking medications for

the treatment of hypertension associated with low renin levels. If the majority of patients with hypertension and low renin actually have a mild form of primary aldosteronism, then aldosterone-blocking medications should be very effective. The trial is still recruiting patients – please refer patients to us (endocrinehypertensionclinic@monashhealth.org) if they have hypertension (requiring two or less antihypertensives) and low renin concentration.

Generating new knowledge to enable early primary aldosteronism intervention – the Raine Study

We worked with scientists and clinicians based in Western Australia, to study the relationship between markers of primary aldosteronism and surrogate markers of cardiovascular health in young adults, using data from [the Raine Study](#). We showed that even from the young age of 27 years, a relationship can be found between higher markers of primary aldosteronism and increased heart wall thickness. The results have been published in [Circulation](#).

Evaluating markers of primary aldosteronism in the Aboriginal Birth Cohort

First Nations peoples in Australia experience disproportionately higher rates of hypertension and cardiovascular disease compared to non-Indigenous populations. However, it is not known if primary aldosteronism may contribute to the higher cardiovascular disease burden. Together with Professor Gurmeet Singh and Dr Belinda Davison, we investigated the prevalence of abnormal aldosterone-to-renin ratio, a marker of primary aldosteronism, in the Aboriginal Birth Cohort and an age-matched non-Indigenous Top End Cohort. Our [findings](#) revealed that around 30% of urban-residing study participants had abnormal aldosterone-to-renin ratio. Ongoing studies are now exploring the relationship between aldosterone and renin, and indicators of cardiovascular health.

EQUIPPing tertiary care for the optimal diagnosis of Primary Aldosteronism (EQUIPPA)

By working with chemical pathologists, radiologists, implementation scientists, and health economists, [this study is](#) developing strategies to simplify the diagnosis of primary aldosteronism. We are testing non-invasive algorithms, novel biomarkers, and nuclear medicine technology to efficiently identify individuals with primary aldosteronism who may benefit from adrenal surgery. We are also evaluating the cost-effectiveness of, and patient preferences for, various approaches to diagnosing primary aldosteronism.

A cluster-randomised controlled trial, implementing CONn Syndrome (primary aldosteronism) screening and Evaluation in Primary care (CONSEP)

In collaboration with primary care physicians from Victoria, South Australia and Tasmania, we are testing the impact of electronic clinical decision making on the screening and diagnosis of primary aldosteronism in general practice. We are still recruiting general practice clinics for this randomised controlled [trial](#).

Events

Launch of National Primary Aldosteronism Forum

In response to growing interest in the diagnosis and management of primary aldosteronism, PACE launched the Australian and New Zealand Primary Aldosteronism Case Forum, creating a platform for discussion of complex and interesting cases. This innovative virtual forum brings together a multidisciplinary network of healthcare professionals, including physicians, radiologists, chemical pathologists, surgeons, and endocrine nurses, fostering collaboration and enhancing best practices in primary aldosteronism care.

Our inaugural virtual forum, held on October 9th, 2024, drew over 80 registrants. Building on this success, we will continue hosting quarterly forums throughout 2025 on the following dates:

- Wednesday, February 19, 2025, 8 – 9pm (AEDT)
- Wednesday, May 21, 2025, 8 – 9pm (AEST)
- Wednesday, August 27, 2025, 8 – 9pm (AEST)
- Wednesday, November 12, 2025, 8 – 9pm (AEST)

We are grateful to all the clinicians who submit cases and join online for lively discussions.

These sessions are organised by the Primary Aldosteronism Case Forum Organising Committee: Professor Peter Fuller, Associate Professor Jun Yang, Professor Michael Stowasser, Associate Professor Damon Bell, Dr. Renata Libianto, Dr. Elisabeth Ng, and Dr. Moe Thuzar.

Events continued



Photo taken at PACE Symposium consisting of PACE Chief Investigators with invited speakers and members of the Consumer Council



Photo taken at PACE Symposium consisting of Consumer Council representatives Professor Gail Risbridger AM, Dr. John Malios and PACE advisor, Professor John Funder AC.

Inaugural NHMRC Centre of Excellence in Primary Aldosteronism Symposium

PACE marked a significant milestone with its inaugural NHMRC Centre of Research Excellence in Primary Aldosteronism Symposium, held at the Adelaide Convention Centre on November 13th, 2024. The event brought together leading experts from Australia and New Zealand to share clinical insights and updates on primary aldosteronism.

The Symposium drew more than 160 attendees, including clinicians, healthcare professionals, and researchers, who participated both in-person and virtually to learn about the latest advances in the field. A highlight of the event was the powerful testimonials from primary aldosteronism patients, who shared their diagnostic and treatment journeys, including the challenges they faced

navigating current clinical pathways. Their insights are invaluable in our mission to improve the diagnostic process and enhance outcomes for future primary aldosteronism patients.

We were overwhelmed by the enthusiasm and engagement from all delegates who attended the Symposium. This successful event was made possible through the generous support of our industry partners: Bayer, DiaSorin, and Servier.



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The full program of the Symposium can be accessed [here](#).

Primary Aldosteronism Patient Support Group

The diagnostic and treatment journey for those living with primary aldosteronism can often be long, stressful and exhausting. To provide much-needed support, the Primary Aldosteronism Patient Support Group was established by consumers for patients and their families. The group offers a forum to help improve understanding of primary aldosteronism and its consequences.

An independent body run and governed by consumers, the Primary Aldosteronism Patient Support Group is affiliated with PACE.

In late 2024, the governance committee for the Patient Support Group convened a meeting to outline their mission, vision and goals, with the view to organise in-person and virtual meetings for those living with primary aldosteronism throughout 2025.

Awards

2024 Primary Aldosteronism Symposium Travel Awards

PACE is committed to developing and nurturing the next generation of primary aldosteronism researchers. To support this, we offered Travel Awards to enable PhD students and Early Career Researchers to attend the Inaugural NHMRC Centre of Excellence in Primary Aldosteronism Symposium in Adelaide on November 13th, 2024.

The three outstanding recipients of these awards were:



Dr. Elisabeth Ng (Hudson Institute of Medical Research, Melbourne, VIC)



Dr. Muthanna Abdul Halim (Princess Alexandra Hospital, Fraser Institute, QLD)



Dr. Sonali Shah (Hudson Institute of Medical Research, Melbourne, VIC)



Professor Michael Stowasser receives prestigious Paul Korner Medal

In November 2024, Professor Michael

Stowasser was honoured with the prestigious Paul Korner Medal for his distinguished career spanning more than 30 years in scientific and clinical research, with a focus on primary aldosteronism. His outstanding contributions to the field of hypertension, along with his service to Hypertension Australia and mentorship of upcoming researchers, were key factors in this recognition.

Professor Markus Schlaich, the President of Hypertension Australia, presented the award to Professor Stowasser at the 2024 Hypertension Australia meeting in Sydney.

For more information on his exceptional achievement, please visit - [PACE_NEWS_Paul-Korner-Award_Dec-24.pdf](#)



Associate Professor Jun Yang inducted into the Victorian Honour Roll of Women

On Wednesday, 16 October 2024, the Hon. Natalie Hutchins MP, Minister for Women, officially inducted Associate Professor Jun Yang into the Victorian Honour Roll of Women. This prestigious recognition honours A/Prof Yang's dedicated efforts to advance the diagnosis and treatment of primary aldosteronism. She has been recognised as a change agent in the field of hypertension research and treatment by the Victorian government.

For more information on her incredible achievement, please visit - [Hypertension pioneer added to Victorian Women's Honour Roll](#)

Publications

2024 saw the publication of a number of manuscripts highlighting key outcomes of PACE projects:

- Yang J, Burrello J, Goi J, Reincke M, Adolf C, Asbach E, Brüdgam D, Li Q, Song Y, Hu J, Yang S, Satoh F, Ono Y, Libianto R, Stowasser M, Li N, Zhu Q, Hong N, Nayak D, Puar TH, Wu VC, Vaidya A, Araujo-Castro M, Kocjan T, O'Toole SM, Hundemer GL, Ragnarsson O, Lacroix A, Larose S, Nakai K, Nishikawa T, Ladygina D, Turcu AF, Sholinyan J, Fardella CE, Uslar T, Quinkler M, Mulatero P, Pintus G, Rossi GP, Hahner S, Amar L, Drake WM, Varsani C, Brown MJ, Wu X, Deinum J, Freel EM, Kline G, Naruse M, Prejbisz A, Young WF Jr, Williams TA, Fuller PJ. *Outcomes after medical treatment for primary aldosteronism: an international consensus and analysis of treatment response in an international cohort. Lancet Diabetes Endocrinol.* 2025 Feb;13(2):119-133.
- Widjaja J, Yang J, Harrison J. *Improving diagnosis of primary aldosteronism through education: a modified Delphi study to identify key learning points. Ther Adv Chronic Dis.* 2024 Dec 25;15:20406223241306952.
- Yang J, Bell DA, Carroll R, Chiang C, Cowley D, Croker E, Doery JCG, Elston M, Glendenning P, Hetherington J, Horvath AR, Lu-Shirzad S, Ng E, Mather A, Perera N, Rashid M, Sachithanandan N, Shen J, Stowasser M, Swarbrick MJ, Tan HLE, Thuzar M, Young S, Chong W. *Adrenal Vein Sampling for Primary Aldosteronism: Recommendations From the Australian and New Zealand Working Group. Clin Endocrinol (Oxf).* 2025 Jan;102(1):31-43.
- Ananda RA, Gwini S, Beilin LJ, Schlaich MP, Stowasser M, Young MJ, Adler B, Fuller PJ, Mori TA, Yang J. *Relationship Between Renin, Aldosterone, Aldosterone-to-Renin Ratio and Arterial Stiffness and Left Ventricular Mass Index in Young Adults. Circulation.* 2024 Dec 17;150(25):2019-2030.
- Mulatero P, Scholl UI, Fardella CE, Charmandari E, Januszewicz A, Reincke M, Gomez-Sanchez CE, Stowasser M, Dekkers OM. *Familial hyperaldosteronism: an European Reference Network on Rare Endocrine Conditions clinical practice guideline. Eur J Endocrinol.* 2024 Mar 30;190(4):G1-G14.
- Ng E, Gwini SM, Stowasser M, Young MJ, Fuller PJ, Singh GR, Yang J. *Aldosterone and renin concentrations and blood pressure in young Indigenous and non-Indigenous adults in the Northern Territory: a cross-sectional study. Med J Aust.* 2023 Sep 18;219(6):263-269.

Current Funding Opportunities

PACE Capacity Building Program

PACE is proud to announce the launch of the Capacity Building Program, designed to strengthen research capabilities among diverse healthcare professionals managing hypertension, including those in allied health and nursing.

The program offers financial support for two streams to enhance expertise in primary aldosteronism across both clinical and research sectors:

- **Stream 1:** PACE Research Capacity Building Travel Grants
- **Stream 2:** PACE Professional Training Opportunity Grants

For further information, or to apply, for the PACE Capacity Building Program, please click [here](#).

PhD Project (2025-2027): Uncovering a Hidden Cause of Cardiovascular and Renal Disease

Applications are now open for individuals interested in pursuing a PhD, where data from the Raine Study will be used to better understand primary aldosteronism; the most common, yet under-diagnosed, cause of hypertension.

For more information on this funded opportunity, please see the [project description](#).

For further enquiries, please contact Professor Trevor Mori (Medical School, University of WA, Perth) at trevor.mori@uwa.edu.au or Associate Professor Jun Yang (Hudson Institute of Medical Research, Melbourne) at Jun.Yang@hudson.org.au.



Acknowledgement of Country

The Primary Aldosteronism Centre of Research Excellence (PACE) acknowledges the Traditional Owners and Custodians of Country throughout Australia and acknowledges their continuing connection to land, waters and community. We pay our respects to the people, the cultures and the Elders past and present.

