



THE BAIRD
INSTITUTE

Applied heart & lung surgical research



Making our Mark

Significant Achievements of The Baird Institute



Impact and Influence

- Translational Research Facility at the Hybrid Theatre, Charles Perkins Centre, The University of Sydney.
- Oversight of Academic Surgery at the Institute of Academic Surgery (RPAH) and The University of Sydney.
- Leading the advancement of vascular modelling and robotic surgery.
- Chaired the Cardiac Surgical Services Review for the Medicare Benefits Scheme (MBS), Department of Health.
- Involved in the NSW Government's Agency for Clinical Innovation (ACI) study of emergency extracorporeal membrane oxygenation (ECMO) patients arresting in the street, working with the Ambulance Service.
- Assisted in the development of the Surgical and Robotic Training Institute, Royal Prince Alfred Hospital (RPAH).

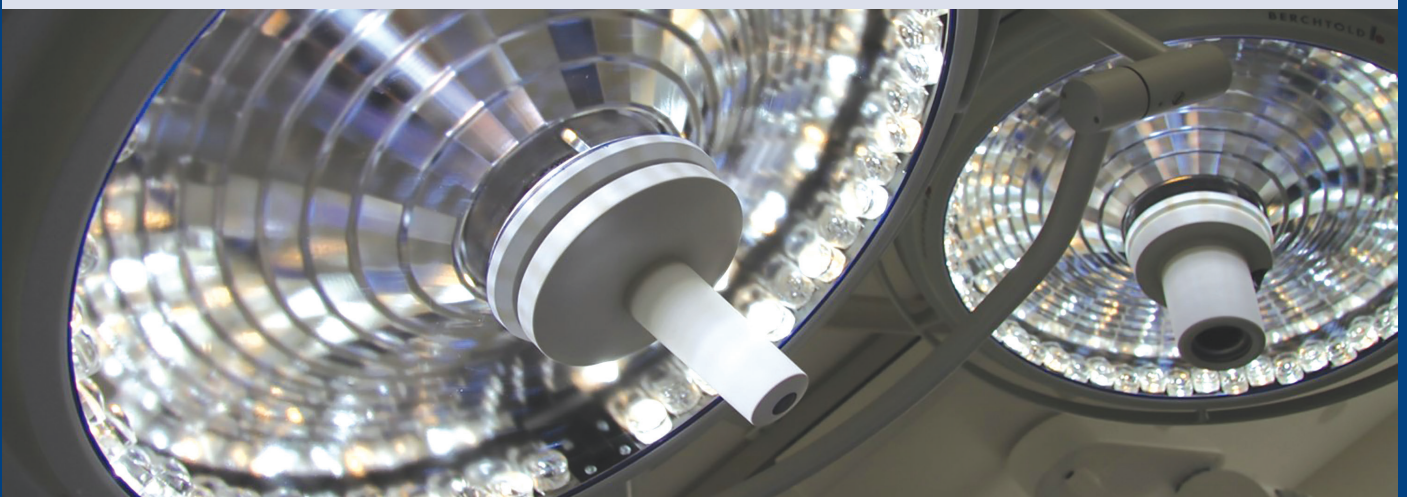
Achievements in Research

- Recognised industry authority: over 300 clinical and theoretical research reports and abstract submissions to international and national conferences.
- Cited in more than 15,000 journal articles, conference papers, theses, books, pre-prints, abstracts, technical reports and other scholarly publications.
- Strong record of graduate and postgraduate degrees including: 10 PhD & Masters research dissertations, 11 Bachelor of Medicine and Surgery (Honours) degrees and 3 Bachelor of Medicine and Surgery research degrees.
- Results of 27 clinical trials and registries published in leading medical journals. Results from the Transfusion Requirements in Cardiac Surgery (TRICS 111) Trial published in the New England Journal of Medicine.
- Aspirin and Tranexamic Acid for Coronary Artery Surgery (ATACAS) Trial named 2017 Best Clinical Trial by Australian Clinical Trials Alliance. Professor Paul Bannon, the Chair of The Baird Institute, was the NSW Chief Investigator.
- Seven peer reviewed grants: six from the National Health and Medical Research Council (NHMRC) and five non-peer reviewed grants.
- Ran the first Heart and Lung Nurses conference in 2015, to transmit knowledge and bring the nursing fraternity into the research space. The 2nd conference is scheduled for September 2018.
- The *Annals of Cardiothoracic Surgery*: assisted in developing this bi-monthly peer-reviewed publication.
- Industry collaborations with The University of Sydney, Sydney Local Health District, The Centenary Institute, The Heart Research Institute, among others, to further the results of cardiac and lung surgical research.



Clinical Impact

- Work in aortic disease to adapt, develop and teach the latest in aortic root reconstruction techniques.
- Assisted in the development of a hybrid aortic surgical team at RPAH, creating a centre of excellence for aortic surgery in New South Wales.
- Research into the underlying pathology and genetic causes of aortic aneurysms, resulting in better surgical treatment for patients with aortic disease. We continue research into understanding why aneurysms develop so we can predict and prevent them.
- Landmark study published in the Journal of the American College of Cardiology (JACC) - the world leading journal on cardiology - into the “no-touch” beating heart bypass surgery technique (an OPCABG). Findings were that this technique reduced postoperative stroke by 78 %, when compared to traditional coronary artery bypass grafting (CABG).
- Research into robotic-assisted heart surgery – traditional cardiac operations performed via “key-hole” incisions – demonstrated that these procedures result in excellent patient outcomes, namely a faster recovery and return to normal everyday activities.
- Research into the gene responsible for building our blood vessels has resulted in a better understanding of genetic influence on the development of aortic aneurysms. This research will ultimately help identify a cure for this devastating blood vessel anomaly.
- Through non-syndromic thoracic aortic aneurysm and dissection outcomes research, we identified the significant differences in the processes of aortic disease. Today, surgeons and researchers around the world use this analysis to examine their own results and ensure better patient outcomes.
- With grant support from the NHMRC, investigations were conducted into blood flow in the abnormal ascending thoracic aorta. This, along with data from the Aortic Tissue Bank and Database at RPAH, allowed research into cardiac disease processes and surgical care.
- Clinical trials at RPAH, supported by The Baird Institute, have contributed to national and international findings, ultimately resulting in improved techniques and technology to improve patient survival.
- Research into, and development of, synthetic materials which mimic blood vessels, indicates that synthetic or “fake” blood vessels act just like normal ones and reduce the risk of clotting. This approach helps surgeons to “fake” it when the patient’s own blood vessels are too damaged.



- Establishment of a Heart Muscle Tissue Bank at RPAH to further research into cardiomyopathy, focussing specifically on genetic factors contributing to valve and ventricular disease.
- Our research into the repair or replacement of the mitral valve continues to inform best practice. A new approach for patients who are too unwell to have surgery, is the endovascular (through the blood vessel) placement of a clip to reduce valve leakage. Results from innovative “MitraClip” surgery will need to be reviewed over the long term to improve patient survival and longevity.
- Development of a comprehensive lung and thoracic surgery database at RPAH which continues to provide valuable information about surgical practices, patient recovery and outcomes, and quality control. Data is collected from patients undergoing lung cancer resections and other major chest operations.
- Research via imaging analysis into neural connectivity so we can better understand brain injury after cardiac surgery.
- Research into computational modelling and augmented reality has meant that today these practices are an integral part of surgical planning and tertiary-level teaching.



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