

# Tomorrow's Surgery, Today.

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**“We have bigger plans for *The Baird Institute* to support, than *The Baird Institute* even knows.”** *Professor Paul Bannon*



*“Let’s start imagining what robotics, nanorobotics and imaging make possible for research and cardiothoracic surgical practice.”*

The research space: The Hybrid Theatre, Charles Perkins Centre, The University of Sydney



Professor Douglas Baird AM:  
A truly great Australian.

## FUTURE SURGERY

It is an exciting time for The Baird Institute. And we invite you to be a part of our ambitious future.

For over fifteen years we have funded clinical trials, PhD students, surgeon scientists, laboratory work, surgical training, surgical outcomes research and imaging research. Through this research, and the partnerships we have forged, The Baird Institute is now a recognised and established international voice in the field of cardiothoracic surgical research.

Ultimately, The Baird Institute facilitates connection: it is a stellar example of how a small cohort of surgeons working in conjunction with undergraduate and postgraduate Faculties of Medicine, can work to improve surgical techniques, materials and evidence-based care, ultimately to enhance the quality of patients' lives.

With clinical outcomes now in play as best practice, and with basic science now completed, it is time to start imagining what robotics, nanorobotics and imaging make possible for research and surgical practice, particularly in the areas of cardiac disease, biological studies and genetic disease. We believe that these directions in investigation will ensure that The Baird Institute remains an international leader in translational research, where cutting edge research rapidly results in improved cardiothoracic surgical practice.

The namesake of The Baird Institute, the late Professor Douglas Baird AM (1940-

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1995), was a gifted cardiothoracic surgeon and Head of the Cardiothoracic Surgical Unit at Royal Prince Alfred Hospital. Doug was committed to ongoing research, with a steadfast and unwavering belief that surgical outcomes must be continually measured and improved. We remain committed to this belief. We know we can always do better through research, investigation and innovation.

## ON THE EDGE OF TOMORROW

To remain at the forefront of international cardiothoracic research, The Baird Institute must continue to generate innovative research and findings which disrupt existing practices. Our objective has always been to sustain and drive medical research. We know that supporting innovative health solutions is positive for the community at large, ultimately leading to reduced healthcare costs and improved health outcomes and quality of life for patients.

We are now poised to drive high end, cutting edge translational research. And to do this, we are seeking your financial support for our research program.

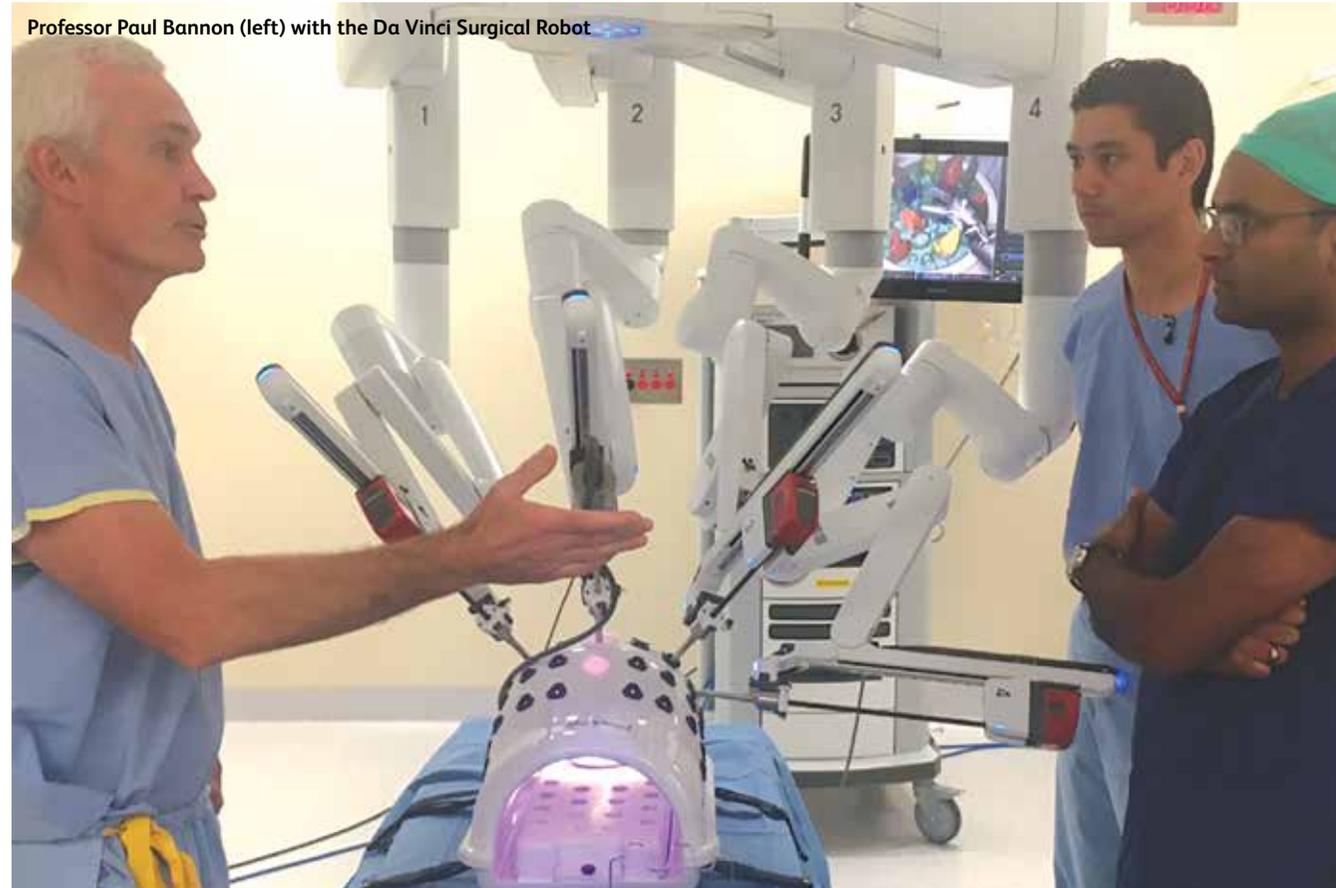
## OUR INNOVATIVE SURGICAL SOLUTIONS PROGRAM

### Discovering The Possibilities Of Future Surgery

The cardiothoracic surgeon of the future is a hybrid of surgeon and research scientist. And the operating theatre of the future is a hybrid theatre: a facility where high level imaging, robotics and traditional surgical procedures are combined to produce the best outcomes.

Imaging, with robotics, is the basis for future surgery. It enables clinicians to map out surgeries, to predict, reconstruct and teach surgery like never before. Imaging takes surgeons and surgical students on a virtual adventure through the patient's body. They can regard and investigate it from various aspects and angles before the operation – virtually, in hyper-real modelling – or even in real time.

Professor Paul Bannon (left) with the Da Vinci Surgical Robot



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## The Research Space

The equipment at the Hybrid Theatre, in the Charles Perkins Centre (CPC) at the University of Sydney, is the best in the world. It is a facility where researchers, clinicians and industry partners come together to rapidly translate evidence into state-of-the-art clinical practice. Some of the best researchers in the world reside in Australia and, without doubt, this is the best place for them to imagine, contemplate and investigate the possibilities of the future. At the CPC, the only limit to what they can achieve is their imagination.

## Making The Program A Reality

To bring this team together, The Baird Institute has set the ambitious target of securing a **three-year commitment** from our supporters for a total amount of \$900,000. This three-year commitment is crucial to be able to sustain the momentum of our pioneering research program.

Recently, The Baird Institute was the fortunate beneficiary of a generous bequest which will go a long way to supporting the cost of consumables - principally software - in the research program. The Royal Prince Alfred Hospital has committed to funding an Advanced Surgical Fellow, while the University of Sydney has contributed to the infrastructure by building and equipping the Hybrid Theatre at CPC.

## The Research Team

The Baird Institute now needs to work to guarantee the salaries for the Research Team. The Research Team will be comprised of:

1. **A Post-Doctoral Fellow** with a background in biomedical engineering.
2. **Two PhD Students**, both cardiothoracic surgical trainees: one specialising in robotic surgery, the other in vascular and valve modelling.

The Post-Doctoral Fellow will oversee the two general areas of research and will work very closely with The Baird Institute, The Australian Centre for Field Robotics and Sydney Imaging at The University of Sydney.

To achieve our goals, push the boundaries of today and realise the possibilities for future surgery, we need to guarantee funding for this team for the first three years.

Your support will make these world-leading investigations possible.

***We want to build a team which can delve deeper into robotics and aortic disease, and run innovative programs in coronary work, ECMO and artificial heart design.***



**Join us and together  
we can chart the  
course for the future of  
cardiothoracic surgery.**

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# SIGNIFICANT ACHIEVEMENTS OF THE BAIRD INSTITUTE SINCE 2001

- Translational Research Facility at the Hybrid Theatre, The University of Sydney
- Oversight of Academic Surgery at the Institute of Academic Surgery (RPAH) and The University of Sydney.
- Recognised industry authority: cited in more than 15,000 journal articles, conference papers, theses, books, pre-prints, abstracts, technical reports and other scholarly publications.
- 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.
- 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 everyday life.
- 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.
- 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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