#### THE BAIRD INSTITUTE Applied heart & lung surgical research

# Greetings

In order to remain at the forefront of international cardiothoracic research, The Baird Institute must continue to generate innovative research and findings which disrupt existing practices. In this newsletter, you will read about the innovative research taking place by our surgeon researchers into surgical robotics and minimally invasive surgery. Our objective has always been to sustain and drive medical research and the money we raise is used to fund this world class research. We know that supporting innovative health solutions is positive for the community at large and leads ultimately to reduced healthcare costs and improved health outcomes and quality of life for patients.

In September this year, the Australian Bureau of Statistics (ABS) reported that Heart disease was the number one cause of death in Australia in 2018 with 17,533 deaths. This averages out to roughly 48 people per day. Despite this dire statistic, the ABS also reported a decrease in Heart Disease mortality rates of 22.4% since 2009. This is good news, but there is still so much more to be done. Continuing to help reduce these statistics is The Baird Institute's reason for existing and we are doing this in new and revolutionary ways as you will read inside this edition of "Heart to Heart".

I invite you to take a look at our new and improved website – www.bairdinstitute.org.au – I think you will find it easy to navigate and discover everything you wish to know about the Institute and our research and training programs.

I am very happy to announce that we have reinvigorated our Scholarship and Grants program and to date this year we have issued three educational scholarships and the same number of educational grants. All our grant and scholarship recipients will introduce themselves in this newsletter and enlighten us on the research that they are undertaking.

We have recently produced a video on the innovative work we are involved in; please take a look at the following page on our website - https://bairdinstitute.org.au/innovate/

Finally, if you or your loved one have had surgery please consider joining our Heart and Lung surgery patient support groups. Details on how to join are on page 4 of this newsletter.

On behalf of the team at The Baird Institute, we would like to extend our sincere thanks to all our donors for their continuing trust and support. Best wishes to you and your families for the holiday season and for a very healthy and happy 2020.

Letherine Catherine Rush CEO, The Baird Institute

# **A NOTE FROM OUR PATRON** *The Hon. Michael Kirby AC CMG*

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The best gift anyone can give at Christmas is the gift of life. This is what The Baird Institute does all the time. In recent months The Baird Institute has stepped up the robotic surgery program at RPAH. It has issued three scholarships to cardiothoracic trainee surgeons. It has made three grants to students and trainees to develop new databases. It has helped with the maintenance of clinical trials. And it has created a patient support group with the catchy title "Heart to Heart".



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DECEMBER 2019

Truly, the Baird Institute is a fine Aussie life saver!

Every heartbeat matters, every breath's important and every dollar helps

walkin

# SCHOLARSHIPS AND GRANTS PROGRAM

This year we have issued three scholarships and three grants, principally to cardiothoracic surgical trainees or registrars. The aim of our Scholarship and Grants program is to assist those medical students and trainee surgeons who would like to begin a career in academic surgery. There are many reasons to pursue a career in academic surgery. including the ability to provide the best patient care, to discover and apply new knowledge to surgical problems, to teach trainees & surgeons across the world and to be a part of innovation and change. The Baird Institute, by providing these scholarships and grants, assists medical students and trainee surgeons in this endeavour. Please find on the next page, details on the recipients of our educational grants and scholarships in 2019 and an outline of their research projects. We are very grateful to our corporate supporters who have contributed so generously to our Scholarships and Grants Program.

# SCHOLARSHIP AND GRANTS PROGRAM



#### **CHARIS TAN**

I am a cardiothoracic registrar at Royal Prince Alfred Hospital. I graduated from Monash University with a Bachelor of Medicine and Bachelor of Surgery (Hons) and was a recipient of the Ellice Jane Hammond Prize for excellence in student internship. I am a director of Airborne Aid, an international non-profit organisation based in Australia, connecting medical

aid with destinations in need through free luggage space. I have presented at international conferences and published in international peer-reviewed journals. In 2019 I was very happy to receive a research grant from The Baird Institute pertaining to the upkeep and integrity of data entry into the ANZSCTS Cardiac database. I have also received a Baird Institute educational scholarship to complete a Masters of Philosophy (Surgery). My these is is entitled "Optimising Medical and Surgical Treatments of Isolated Tricuspid Regurgitation".

My research is to retrospectively characterize patients with isolated primary severe Tricuspid Regurgitation, who were identified or referred late (symptomatic right heart failure or right ventricular dysfunction for less than 12 months) and to fully understand the impact of our current management strategy on clinical outcomes with the aim being to improve the existing strategy.



#### **KEI WOLDENDORP**

I am a registrar in Cardiothoracic surgery at Royal Prince Alfred Hospital, where I have worked for the past 4 years. I studied at the University of New South Wales as an undergraduate, having received assistance from the Rural Australian Medical Undergraduate Scholarship to move to Sydney from northern NSW. I graduated in 2015 with an MD and BMed.

I have had a keen interest in Cardiothoracic surgery since my medical school years and began my involvement with The Baird Institute in 2012 under the mentorship of Professor Paul Bannon. Since then I have continued my research with The Baird and have been fortunate enough to have the opportunity to present several pieces of my work at international conferences and to publish peer reviewed journals.

Since 2016 I have been involved in a Masters of Philosophy (MPhil) at the University of Sydney with a focus on Cardiothoracic surgery. My thesis is on the prevention and treatment (particularly new methods) of stroke after cardiac surgery, which although rare, still presents a devastating complication of undergoing heart surgery. I am particularly focusing on one of the largest modifiable risk factors, atrial fibrillation. Atrial fibrillation is an irregular heart rhythm that commonly occurs after heart surgery. Although it is usually transient and not noticed by patients, it poses a risk of stroke if it persists and can often require blood thinning medications to be taken to lower this stroke risk. Fortunately, the vast majority of patients who develop atrial fibrillation, revert back to a normal heart rhythm within a few days to a few weeks following surgery. In this setting I am looking at improved ways to manage patients who develop atrial fibrillation, particularly looking at more effective and safer methods to help reduce the risk of stroke associated with this heart rhythm. This year I've been fortunate enough to be awarded a generous research scholarship from The Baird Institute which will go a long way to enabling me to attend future research conferences as well as providing assistance for the purchase of necessary research equipment for my thesis.

## MATHEW DOYLE

I am a Cardiothoracic registrar at Royal Prince Alfred Hospital in Sydney. I completed my junior medical training at St George Hospital in Sydney before moving to RPAH.

Prior to studying medicine, I studied exercise physiology and rehabilitation. I have previously worked with cardiac patients in both inpatient and outpatient

rehabilitation settings. My experience in cardiac exercise rehabilitation and current cardiothoracic surgical training provides a unique opportunity to bring novel exercise therapies into the acute care setting.

Since starting my training in cardiothoracic surgery, I have observed that many patients, particularly the elderly and frail, are unable to perform standing or waking exercises in the first few days following surgery. This is due to the impact of heart surgery on the body. As a result, patients who are older or physically deconditioned can rapidly lose strength in their leg muscles due to inactivity.

My research involves the development of a new piece of exercise equipment and exercise protocols for patients in the first week after cardiac surgery. We have tested our equipment in a university laboratory setting and validated its performance. We are currently performing research with this new exercise modality with patients in the first few days after major heart surgery. Our research group hopes that this mode of exercise may provide a means of maintaining leg muscle strength for those patients who are unable to walk around the hospital ward post-surgery.

I am very grateful for the scholarship that I have received from The Baird Institute as it will provide support for the construction and refinement of our exercise apparatus required for my research, as well as the purchase of several pieces of monitoring equipment that patients wear when participating in the study.



## SAM KHADRA

It was during the first week of my medical school at the University of Sydney that we were given a talk on the importance of research in medicine by Dr Jonathan Hong and encouraged to get ourselves involved. Dr Hong left a link to Professor Paul Bannon's email on the lecture slides and I decided to send him an email outlining my interest. I began working

as a research assistant in the Cardiothoracic Department at Royal Prince Alfred Hospital and have been fortunate enough to be awarded a grant from The Baird Institute to complete the project outlined below.

In conjunction with The Baird Institute and Strathfield Private hospital, I am commencing work on a project to integrate peri-operative data on cardiothoracic surgery performed at Strathfield private with the Central Sydney database. The intention is to have a centralised database of operative outcomes which will be the backbone of productive research going forwards. The cardiothoracic data at Strathfield Private stretches back to the hospital's conception and captures a history of innovative procedures from minimally invasive surgery, robotic surgery and trans-cutaneous aortic valve replacements (TAVI). Hosting this data on the central Sydney database will allow broad accessibility and ensure it can be utilised in valuable cardiothoracic research in the future.

Although I am at an early stage of my long journey through the medical profession, I am motivated by pursuing a career that

balances research, education and clinical work. I am lucky to be able to work closely with a mentor like Professor Paul Bannon who embodies the characteristics of clinical excellence, services to the broader community and contribution to education that I will strive to emulate in my own career. It is a great privilege to have this opportunity, and I am immensely grateful to both The Baird Institute and Professor Paul Bannon for trusting me with this role and providing a generous grant to facilitate the completion of the project.

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#### NICHOLAS MCNAMARA

I am a cardiothoracic registrar at Royal Prince Alfred Hospital. I graduated from Sydney University with a Bachelor in Physiotherapy in 2012 and graduated in Medicine in 2016. For the past three years I have been working at Royal Prince Alfred Hospital pursuing a career in cardiothoracic surgery and am currently completing my Master of Surgery

(Cardiothoracic Surgery). I am very grateful to have recently received a grant from The Baird Institute for my work with A/Prof Christopher Cao on the thoracic surgery database.

The thoracic surgery database at Royal Prince Alfred Hospital was designed to capture operative information and outcomes to guide the delivery of optimal surgical care. It is currently undergoing an evolution as we begin to include more data pertaining to longer term outcomes. Recently, we reviewed our thoracic database and found it to be lacking in useful information relating to patients' long-term pain and postoperative function. As these are undoubtedly two very important outcomes, we have worked to expand the database to capture this information. We will be using this new information to better determine which operative and anaesthetic practices lead to improved pain and function so that we can ensure the best possible outcomes for all our patients.



## WORKPLACE GIVING

The Baird Institute has launched its Workplace Giving Program where employees can make small regular donations out of their pay to charities, through their employer's payroll system. Workplace giving has been adopted by many companies in Australia who want to work together with their staff to create the greatest collective impact possible for charities. Workplace Giving is appealing for charities themselves as it is a low cost revenue stream which requires minimal administration. If you are an employer or an employee and would like to find out more about supporting The Baird Institute in this way, please contact our CEO, Catherine on 02 9550 2350 or catherine@bairdinstitute.org.au

# WELCOME TO OUR NEWEST TEAM MEMBER Cardiothoracic Research Assistant, Dan Jackso



Recently, the Institute created a new position of Cardiothoracic Research Assistant with the aim being to support the team across multiple projects within Royal Prince Alfred Hospital and the Charles Perkins Centre (CPC) at the University of Sydney. This role will be varied and includes furthering the development of research databases, managing bio-banking processes and laboratory bench research work. In August 2019, the Institute was pleased to recruit Dan Jackson into this exciting new position. This is another important investment in the team supporting the high-impact research work conducted by our researchers. Dan brings considerable quantitative research support skills to this role, having previously worked in the Cardiology Department at Royal Prince Alfred Hospital, in the NSW public health care system for over 10 years and recently graduating from the University of Sydney with a Masters of Public Health. He has a keen interest in cardiovascular disease, clinical data management for research and facilitating clinicians and medical students to achieve research objectives that ultimately lead to improved treatment outcomes and quality of life for all Australians. We appreciate the generous support of our donors which has made the employment of this additional team member possible.

## PATIENT SUPPORT GROUPS

"One of the greatest gifts a person can give another, is support.



This year we have established two patient support groups - one named, "Heart to Heart" for heart surgery patients and the other for lung surgery patients named, "Take A Deep Breath". These groups provide education and support to patients and their families, carers and friends. Our first Heart to Heart meeting was held last month and was well attended. Participants said they particularly enjoyed hearing other patients' stories about their way of coping after surgery.

The Baird Institute's mission is to foster research and apply science to improve the outcomes for patients facing heart or lung surgery. Our support groups focus upon the power of bringing people with heart and lung disease together, to share their experiences and by so doing, to support each other pre and post-surgery.

If you would like to join "Heart to Heart" or "Take A Deep Breath" you can do so by going to the group Facebook pages at the links below. You can also register your interest in our group meetings on our website or call us on 02 9550 2350.

https://www.facebook.com/groups/hearttoheartnsw/

https://www.facebook.com/groups/takeadeepbreathnsw/

Some photos from a recent Heart to Heart gathering and comments from participants below and to the right.



"I personally enjoyed the get together. It is a help to hear other patient's stories of their way of coping after surgery. The dietitian's talk was very helpful and her explanation of portion sizes was excellent". Dianne McLennan

"The presentation by dietitian, Simone, was the most informative of this type that I have attended, with simple, practical tips for effective portion control and nutrition. I enjoyed the opportunity to discuss my surgery and outcomes with others who have had similar experiences" John Weismantel





#### COMMUNITY FUNDRAISING

Thank you to the following supporters of The Baird Institute for fundraising on our behalf in the last 6 months. We very much appreciate their efforts to raise funds for life saving heart and lung research.

#### Anita

Law ..... City to Surf

#### Natalie

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Karen Courtney...... Facebook

> Birthday Fundraiser

Katrina Ho.....Facebook Birthday Fundraiser

# VALE

Our thoughts are with the families of the following longstanding & generous supporters of The Baird Institute who have passed away in the last year. Wishing you all strength and peace at this difficult time.

Serafina Salucci · Richard Bourke · Eileen Follett · Brad Barber · Martin Maxwell Flohr · Elva Rankin · Colleen Bresnan · Wilma Francis · John Farrell · Donald Ray · David Henry Head · Patrick Fegan



## **A PATIENT'S STORY**

Below is a story from Mrs Irene Hay who had open heart surgery at Royal Prince Alfred Hospital in April, 1987. At this time Professor Doug Baird, the namesake of our Institute was Head of the Cardiothoracic Department. Irene contacted us recently to update us on her progress. It has been 33 years since her surgery and she continues to do very well. Professor Bannon commented; "We would not have expected Irene to have survived so long. It is a very clear example of the physician, surgeon and patient all working together to arrive at a great outcome."

Today, the 11th October, is now 33 years since I had my heart attack. My husband and I set off on a trip around Australia in August 1986, both of us were very active and in good health. All went well until we were in Perth and setting of for Rottnest Island. It was the first day of The America's Cup trials. I had a pain in my neck and shoulder that day, but put it down to the fact that I had been carrying a heavy video camera around the whole trip. On the



ferry, I kept going hot and cold, I went downstairs to get coffee twice, apparently this is what thinned my blood enough for it to get past the clot that had lodged in the top of the main artery to the heart. By the time we got to the island I was a bit of a wreck and had to be taken by ambulance to the small hospital there. I was treated by the nurses with assistance from the Royal Flying Doctor service who consulted over the phone. Eventually, I came good and they flew me to Perth. I was in hospital for a couple of weeks before I was flown back home to NSW, going by road was not an option! All was fine until I got a left ventricular aneurysm and had to be admitted to Sydney's Royal Prince Alfred Hospital to have bypass surgery in 1989. Dr Bruce Leckie was my surgeon.

I continue to have a pretty active life; gardening, swimming, sewing and selling craft items, painting etc. I have been caring for my very sick husband for the past 4 years which has been tough. He recently died. Since my heart surgery, I have not been sick or hospitalised (32.5 years) until September this year, when once again I was a patient at Royal Prince Alfred Hospital, fortunately it was not for my heart! Apparently only 30% of my heart is working, so I think I am doing OK. I appreciate that my heart attack is probably nothing out of the ordinary, but the fact that I have survived this long is pretty good.

Irene Hay

# **RESEARCH UPDATE**

# **CLINICAL TRIALS** *Lorna Beattie*

The cardiovascular research team at RPAH have welcomed 2 new members this year. Lisa Turner is currently on maternity leave and has been replaced by Carmel Vanderham, while our new Research assistant Dan Jackson has also recently jumped on board. The Baird Institute continues to support the 10 Cardiothoracic trials and databases and 6 vascular trials and databases which are managed by the research team.

The Co-POC trial, a prospective, randomized, double-blind, placebo-controlled study, that will evaluate the efficacy and safety of the medication colchicine in decreasing peri-operative myocardial damage and for the primary prevention of Post Pericardiotomy Syndrome, postoperative effusions, and Post-Operative Atrial Fibrillation, continues in RPAH and we have now recruited 10 patients.

The team hope that the VISION study (a large international study looking at Vascular events in patients having Cardiac surgery) will reach completion early next year and the first publication will follow shortly after. The clinical trials research team at RPAH made a significant contribution to this study recruiting 500 patients over 3.5 years.

## MINIMALLY INVASIVE ROBOTIC ASSISTED THORACOSCOPIC SURGERY Associate Professor Chris Cao

Minimally invasive robotic assisted thoracoscopic surgery has evolved as a safe and efficacious procedure for patients with lung and pleural diseases in the United States and Europe. Through small incisions, surgeons are able to control a variety of instruments to excise lung and mediastinal cancers with threedimensional magnified vision, seven degrees of freedom of movement and increased precision with reduced tremor. Associate Professor Christopher Cao has led a team of leading international thoracic surgeons and medical lung cancer specialists to establish the largest international database to date to study the safety of robotic surgery for patients with lung cancer. These studies were conducted in "Memorial Sloan Kettering Cancer Center" in the United States, the largest cancer institution in the world. In addition, the studies were published in three top international journals in 2019.

With support from The Baird Institute, we are analysing our own surgical results from Royal Prince Alfred Hospital to improve the clinical outcomes of patients who undergo robotic cardiothoracic surgery. Our aim is to deliver cutting edge technology to minimize risks to patients, shorten hospital stay, reduce pain, and improve quality of life.

# **EDUCATION AND TRAINING PROGRAM**

# **UPDATE** Dr. Brian Plunkett

2019 has seen an unprecedented reinvigoration in registrar and junior medical officer training in the Cardiothoracic Department at RPAH. Masterclasses have seen guest speakers focus on professional standards and skills in medical training. Dry and wet labs, along with simulation programs conducted in partnership with industry have seen a practical hands on experience unrivalled in Australian Cardiothoracic Surgical Training. Skills covered to date include macro and microvascular anastomosis, large vessel cannulation and closure, conduit harvest, and pulmonary anatomy and resection. Didactic teaching within the weekly cardiothoracic program continues but now looks to draw from allied specialist fields in cardiology, anaesthesia, critical care and infectious diseases. Program design for an even more exciting 2020 is well underway.

## MINIMALLY INVASIVE CARDIOTHORACIC SURGERY – THE HUMAN CADAVER COURSE Prof. Tristan Yan

There has been a significant paradigm shift towards increasing minimal access surgery within the field of Cardiothoracic Surgery. Training in minimally invasive techniques is important for the future of our specialty program. Our academic surgeons, Tristan Yan, Brian Plunkett, Christopher Cao and Martin Misfeld held the first Minimally Invasive Cardiothoracic Surgery course – The Human Cadaver Course - on 19th and 20th October, 2019. Prof Martin Misfeld is the Co-Director of Cardiac Surgery at Leipzig Heart Centre, an

internationally recognised expert in minimally invasive cardiac surgery, who has recently joined RPAH as a VMO cardiac surgeon to enhance our Minimally Invasive surgical program. The objective of this bi-annual hands-on course is to train our young surgeons in how to perform minimally invasive cardiothoracic surgical procedures, utilizing a human cadaver model. Support for these educational and training courses for our young surgeons is much appreciated



# **ROBOTIC MITRAL VALVE REPAIR** Professor Tristan Yan

There has been tremendous evolution and innovation in cardiac surgery. In the early years of the specialty, innovation focused on decreasing mortality and expanding the pathologies that surgeons could address during heart operations, while in the current era, with operative mortality for routine procedures exceedingly low, the focus has shifted to decreasing perioperative complications, improving perioperative quality of life, and maximizing long-term outcomes. As a result, the onus has fallen on surgeons to shift away from the traditional sternotomy (a type of surgical procedure in which a vertical inline incision is made along the sternum, after which the sternum itself is divided) and offer equally effective operations through less invasive approaches.

In 2019, Professor Tristan Yan was appointed as the clinical lead of the Minimally Invasive and Robotic Cardiothoracic Surgery Program at RPAH. He has performed more than 1000 minimally invasive cardiothoracic procedures with excellent clinical outcomes. Toenhance the RPAH Minimally Invasive Cardiothoracic Surgical Program, Professor Martin Misfeld, the co-director of Leipzig Heart Centre (Europe's largest cardiac centre) was also appointed as a senior cardiac surgeon at RPAH. Together, they performed the first robotic mitral valve repair at RPAH.

"Mitral valve surgery is one area that has seen some of the most impressive progress over the last two decades. With the advent of new technology, including peripheral cannulation systems, specially designed instruments, and robotic-assistance, complex valve repair and replacement can now be performed through small access incisions in the right chest without disturbing the skeleton. Minimally invasive surgical approaches offer patients gold standard results with fewer complications and a faster recovery, ensuring that despite the growth of transcatheter technologies, patients and cardiologists will not have to make the choice of trading long-term efficacy for short-term gains", said Professor Misfeld.

One of the research projects currently under investigation is examining the advantages of minimally invasive surgery including less bleeding, enhanced cosmesis, shorter ICU and hospital length of stay, better respiratory function, less transfusion requirements, less infectious complications and faster return to work. The project also analyses the possible complications and the reasons for the robotic approach not gaining widespread use, which may include the complexity of procedure, and the cost associated with greater initial investment, maintenance, disposable instruments and retrograde cardioplegia catheters. In the study, it has been suggested that this may be compensated for by the overall economic advantages of a robotic approach, specifically shorter hospital stay and faster return to work. The available literature has clearly shown that the costs associated with robotic-assisted mitral valve surgery are in no way prohibitive. The potentially increased costs relative to traditional approaches are easily offset by the many advantages of the evolving technology.

Given the present cost-conscious healthcare climate, the appraisal of the economics of robotic surgery, supported by The Baird Institute will only intensify and, as adoption broadens and more surgeons become facile with the technique, the balance will likely continue to move in favour of this impressive technology. Future robotic mitral operations will be customized for each patient and will be based on their valve pathology, comorbidities, fragility, and age as well as their surgeon's ability. The less invasive era in cardiac surgery is here, we need to keep an open mind and adapt to change!



A photo of RPAH's first robotic mitral valve repair performed by a dedicated surgical team (from left to right: Dr Mathew Doyle, Sis Rosa Fung, Prof Martin Misfeld, Prof Tristan Yan, Dr Stephen Llewellyn, Dr Bruce Adendorff, Sis Carol Tran and Dr Mike Ginsberg)

# Many Thanks to Our Supporters

Every one of our donors has contributed in a significant way to our research and training programs and we are very grateful for their support, however we would particularly like to thank our principal supporters.







# SEASON'S GREETINGS

For a full list of all research publications of The Baird Institute, please go to our website www.bairdinstitute.org.au/our-publications/

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