

# RPA INSTITUTE OF ACADEMIC SURGERY

## YEAR IN REVIEW 2019

IN 2019 WE...

### SURGICAL EDUCATION AND TRAINING

Trained 2573 participants in the IAS Facility  
Hosted 250 training courses  
222 internal courses  
28 external courses  
Facilitated 6 Cardiac Advanced Life Support (CALS) courses  
Ran the inaugural surgical bootcamp with 18 attendees



### INNOVATION, VALUE & THOUGHT



Introduced the first 3D bio printer to be housed on a hospital campus in NSW  
3D printed surgical guides and models were used in training and surgical procedures  
Trialed a resin based printer for more complex surgical planning guides

### SURGICAL PARTNERSHIPS

Hosted IAS 5th birthday including a Q&A and cocktail evening in September  
Held a 'New & Emerging Technologies' evening in March to promote collaboration in emerging technologies  
Local Barnados students group visited IAS & RTI



### SURGICAL RESEARCH

Published a wide variety of surgical research papers in world leading academic journals  
IAS lead the surgical culture survey to assess and improve staff morale in surgery at RPA



## YEAR IN REVIEW 2019

### RPA SURGICAL AND ROBOTICS TRAINING INSTITUTE (RTI)



Held 99 robotic training courses  
Trained 145 participants in robotics  
Trained 8 participants in advanced training courses  
Facility was approved for anatomical courses

### ADVANCED GI SURGICAL PROGRAM

73 peritonectomies and 76 pelvic exenterations performed at RPA in 2019

Celebrated the 100th Pertionectomy operation at RPA in February.

Registered Nurse, Jacob Wells was the first trainee to finish the Advanced GI Surgical Nursing Training Program completing his two year rotation.

Celebrated 25 years of Pelvic Exenteration surgery at RPA



### RPA STRATEGIC PLAN 2019 - 2023



The IAS developed their strategic plan for the next 5 years (2019-2023).

The plan can be viewed in full on our website.

### SYDNEY ROBOTICS MASTERCLASS (SRM)

In June held SRM program with 6 surgical robotic workshops including two urology, a colorectal, a cardiothoracic and two orthopaedic cases, training over 40 attendees.

Over 60 people attended the Robotic seminar held in KPEC.



### FUTURE PLANS

Establishing a surgical podcast for surgical trainees and GPs

Gynecology Department launched the Uterine Transplantation program at RPA - this will be the first in Australia



# RPA Institute of Academic Surgery

Year in Review

2019

## Overview

The RPA Institute of Academic Surgery (IAS) celebrated 5 years in 2019 with a number of events held in September. The IAS also had another very busy year in all its portfolios including numerous research papers being published, new surgical programs and a busy education facility.

## IAS Portfolios

The four portfolios within the IAS includes: innovation, value and thought, surgical education and training, surgical research and surgical partnerships.

## Innovation, value and thought

### 3D Printing and Bio printing

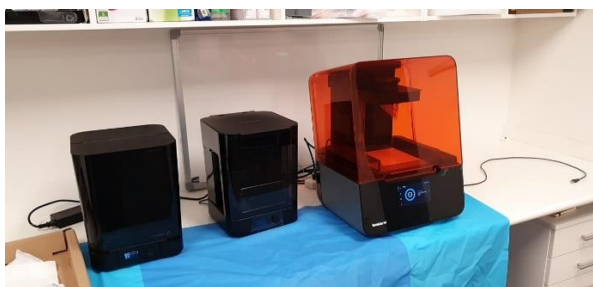
The 3D Bioprinter (aka. 3D Alek) arrived at the IAS in February which is part of ENT Research Lead, Associate Professor Payal Mukherjee's research to develop 3D bioprinted ears.

The project has been made possible by the assistance and expertise of University of Wollongong researcher, Professor Gordon Wallace and his team who are using 3D Alek to bioprint ears with the hope they can assist children with the ear deformity microtia in the future.

Surgical Innovation Research Officer, Kai Cheng has been working with a number of surgeons at RPA and Chris O'Brien Lifehouse for surgical planning using 3D printed guides and models.

The IAS were also loaned a Form3 high resolution resin 3D printer which is currently being used in collaboration with surgeons from the Head and Neck Department to conduct surgical research. The team are currently printing cutting guides for complex maxillofacial surgery.

This area continues to go from strength to strength with a number of Kai's projects being focused around printing moulds to develop organ models for surgical training.



*Form3 high resolution resin 3D printer*

## Surgical Robotics

### Sydney Robotics Masterclass 2019

A unique program dedicated to the training and education of surgeons, nurses and other clinical staff involved in robotic-assisted surgery was held on Saturday 29 June at Royal Prince Alfred (RPA) Hospital, wrapping up the week long events of Sydney Local Health District's annual Research and Innovation Symposium Week.

Hosted by the IAS, the Sydney Robotics Masterclass utilised seven surgical robots across the RPA and Chris O'Brien Lifehouse campus to train staff on a number of different platforms including the Intuitive da Vinci Surgical System used by the thoracic, urology and colorectal workshops as well as two orthopaedic cases using the Stryker Mako and Corin Omnibot systems.

In addition to the specialised workshops, the program also included a half day robotic seminar discussing current robotic practice across a range of surgical specialties, and the future of robotic surgery. Over 120 people attended the event across the workshops and seminar with some surgeons travelling from interstate for the advanced training opportunity.



### Surgical and Robotics Training Institute

The RPA Surgical and Robotics Training Institute (RTI) had another busy year with the activity for 2019 picking up towards the end of the year including a total of:

- 99 robotic basic training courses delivered;
- 145 participants trained in the facility;
- 8 participants completed the advanced robotic training courses

In addition, the facility was granted a cadaveric licence for training purposes under the auspices of the IAS and also celebrated its second birthday in April.



*The RTI team celebrating their second birthday*

### **RPA Surgical Robotics Program**

The RPA surgical robotics program performed 130 surgical cases in 2019. The program now has 10 protocols with 6 surgical specialities engaging in robotic-assisted surgery and celebrated the 300<sup>th</sup> case this year.

The program was awarded the 2019 Quality award winner of the 'Health Research and Innovation' category for '*Research as the gatekeeper: introduction of robotic-assisted surgery into the public sector*' at the SLHD Annual General Meeting (AGM).



*IAS Executive Director, Kate McBride accepting the award*

## Advanced GI Surgical Program (AGISP)

The Advanced GI Surgical Program had a busy year with the 100<sup>th</sup> peritonectomy patient being performed.

A paper was published on the first 50 patients titled [“Accelerating the learning curve in Cytoreductive surgery and hyperthermic intraperitoneal chemotherapy using an external mentor model”](#) in the ANZ Journal of Surgery.

The AGISNP had their first nursing trainee complete their two year rotation. Registered nurse (RN), Jacob Wells completed the program and graduated in August 2019.

The ASISNP commenced in August 2017 allowed registered nursing trainees to rotate across a number of different areas including ICU, theatres and stomal therapy. The program develops their skills, allowing them gain experience in these complex specialty areas and senior nursing roles, and is a great opportunity for registered nurses to enhance their skills and training across multiple areas of nursing.



*Jacob Wells receiving his awards from Clinical Manager, Judy Dixon*

The colorectal department also celebrated 25 years of pelvic exenteration surgery at RPA. The night was organised by surgeon Dr Kirk Austin and pelvic exenteration CNC Sophie Hatcher and was an opportunity to revisit the last 25 years of the program and give special mention to Professor Michael Solomon who pioneered this radical procedure.

This program has done over 600 cases in the 25 years with RPA being the leading centre in the world for this radical procedure.

## Surgical Research

It was a strong year in 2019 for the IAS surgical research portfolio with a number of published surgical articles, mentoring and supervision of higher research degree students and convening and presenting at various national and international conferences.

The IAS has published numerous publication in a number of the highly esteemed journals. Our academics continue to pioneer their research ideas with ongoing developments in the provision of surgical care to our patients. A number of 2019 IAS publications are listed below:

### IAS Academic Articles 2019

- [Addressing the empty pelvic syndrome following total pelvic exenteration: does mesh reconstruction help?](#) Colorectal Disease January 2019 - Dr Peter Lee, Dr Kilian Brown, Professor Michael Solomon
- [Knowledge and attitudes of theatre staff prior to the implementation of robotic-assisted surgery in the public sector](#) PLOS One March 2019 - Ms Kate McBride, Dr Daniel Steffens, Prof Paul Bannon, Professor Michael Solomon
- [Addressing the ethical grey zone in surgery: a framework of identification and safe introduction of novel techniques and procedures](#) ANZ Journal Surgery April 2019 – Dr Kilian Brown, Professor Michael Solomon, Professor Jane Young, Professor Paul Bannon
- [Steroid profiles by liquid chromatography-mass spectrometry of matched serum and single dominant ovarian follicular fluid from women undergoing IVF](#) - Reproductive BioMedicine Online January 2019 - Walters, K.A., Eis, S., Edwards, C.E., Thuis-Watson, R., Desai, R., Bowman, M., Marren, A.J. and Handelsman, D.J.
- [Updated Australian consensus statement on management of inherited bleeding disorders in pregnancy](#) *The Medical Journal of Australia* Volume 210, Issue 7 April 2019 Pages 326 -332 Dunkley, S., Curtain J.A., Marren A.J., Heavener, R.P., McRae, S. and Curnow, J.L
- [Mental illness and surgery: do we care?](#) ANZ Journal of Surgery June 2019 - Kate E. McBride, Professor Michael J. Solomon, Dr Daniel Steffens, Professor Paul G Bannon, Dr Nick Glozier
- [Research as the gatekeeper: introduction of robotic-assisted surgery into the public sector](#) Kate E. McBride, Daniel Steffens, Michael J. Solomon, Teresa Anderson, Jane Young, Scott Leslie, Ruban Thanigasalam, Paul G Bannon July 2019
- [Accelerating the learning curve in cytoreductive surgery and hyperthermic intraperitoneal chemotherapy using an external mentor model](#) Nabila Ansari, Kilian GM Brown, Kate E McBride, Daniel Steffens, Cherry Koh, Christopher J Young, Michael J Solomon, Brendan J Moran July 2019
- [Prophylactic wound drainage in renal transplantation: a systematic review](#) D’Souza, K. Crowley, S.P., Hameed, A., Lam, S., Pleass, H.C., Pulitano, C., Laurence, J.M.
- [Extended Radical Resection: The Standard of Care for Patients with Advanced Pelvic Malignancy](#) Annals of Surgical Oncology August 2019 – Professor Michael Solomon and Dr

Kilian Brown

- [Surgical mentorship in a new landscape](#) - ANZ Journal of Surgery August 2019 – Assoc. Professor Jerome Laurence, Assoc. Professor Jonathan Hong and Assoc. Professor David Storey
- [Inferior vena cava resection and reconstruction with bovine pericardium for renal cell carcinoma: complications and outcomes](#) Paul Morris, Reulan Furtado, Carlo Pulitano, Michael Crawford, David Yeo, Arthur Vasilaras, Charbel Sandroussi Journal Of Urology September 2019
- [Suture retraction of the uterus using a percutaneous port closure needle during laparoscopic mesorectal dissection](#) Kilian Brown, Angelina Di Re, Dean Fisher ANZ Journal of Surgery November 2019
- [Perspectives on surgical randomized controlled trials](#) Stephen Bell, Rebecca Venchiarutti, Satish Warriar, Andrew Stevenson, Michael Solomon ANZ Journal of Surgery September 2019
- [Pushing the boundaries of pelvic exenteration by maintaining survival at the cost of morbidity](#) Rebecca Venchiarutti, Professor Michael Solomon, A/Professor Cherry Koh, Professor Jane Young, Dr Daniel Steffens British Journal of Surgery July 2019
- [Cross-Cultural Adaptation And Pilot Testing Of The Cancer Care Coordination Questionnaire For Patients \(CCCQ-P\) In Chinese And Arabic Languages](#) Jane M Young, Rebecca L Venchiarutti, Ivana Durcinoska, Daniel Steffens Dove Press Journal June 2019

The IAS academics are supervising over 100 higher research degree students across a number of surgical topics and degrees. The students include medical students in the MD program, Masters of surgery, M Phil and PhD.

The Nursing Research and Innovation Group (RIG) was held for the 5<sup>th</sup> year in a row. This research program was run by IAS Surgical Nursing Director, Rachael Roberts with 18 participating in RIG 1 and 12 participants in RIG 2.

The annual Royal Australasian College of Surgeons (RACS) conference was held the first week of May in Bangkok. The IAS had 4 posters presented at the conference as well as presentations from Professor Jane Young, Associate Professor Payal Mukherjee, Associate Professor Sanjay Warriar and Associate Professor Charbel Sandroussi.

The IAS also commenced working with the SLHD in exploring research in surgical culture, particularly in our surgical theatres to improve staff moral and culture. This research has been led by Lauren Gibson and Dr Michael Byrom.

We are looking forward to seeing the results of the surveys and research in 2020.

### Surgical Education and Training

The IAS training facility saw 2573 participants through the doors and 250 training courses held throughout the year. Highlights for the year include:

- The ICU ran the Cardiac Advanced Life Support (CALs) 6 times, training over 100 doctors and nurses in the emergency response to patients in cardiac arrest following open heart surgery.
- ICU have also developed an Extra Corporeal Membrane Oxygenation (ECMO A2E) course designed for the ICU multidisciplinary care team. The course has predominantly been run for RPA staff but recently have opened the program to external ICU staff. In 2019 there were 4 programs ran with 92 participants.
- NICU are one of the most frequent users of the IAS. The NICU department runs multidisciplinary tutorials, skills and simulation sessions at the IAS for the management of newborns at RPA. Training involves simulations to treat neonates with a variety of conditions including pre-term deliveries from 26 weeks, sepsis, pneumothorax, supraventricular tachycardia, hypoglycaemia, apnoea and arrest scenarios. Through 2019 the NICU department ran 17 programs, training more than 230 NICU doctors and nurses.
- W.L. Gore ran a ventral hernia repair workshop with their Gore Bio-A hernia repair mesh. The program including presentation from visiting US Professor Mathew Goldblatt and our own colorectal department. This was a cadaver based training program for 22 general surgery consultants from around NSW.
- The IAS also hosted the Emergency Department for a thoracic emergency procedures workshops. The practical workshop utilised the cadaver tissues from the Gore program to provide essential training to the ED trainees on the practical aspects of managing chest trauma. The program was run by the ED department's Dr Sam Bendall and Dr Matthew Oliver, with cardiothoracic surgeon Dr Brian Plunkett.
- To maximise the utilisation of the cadaveric tissue, a workshop was also held for the general surgery trainees on abdominal dissection techniques. The program was facilitated by A/Prof David Storey, A/Prof Jon Hong and 2019 surgical superintendent Dr Daniel Lee.
- The Gynaecology department ran a weekend workshop investigating the feasibility of different arteries and veins to utilise for anastomosis for the uterine transplant program. The program had consultants from the gynaecology, vascular, transplant and anaesthetic departments attend to discuss and practically work through the steps that would be involved in procuring a uterus from a living donor with good arteries and veins attached to supply blood to the uterus when implanted in to the recipient.
- The IAS initiated a surgical boot camp for the incoming 2020 SRMO's on the Sydney South West Surgical Skills Network. The program was held over two days and put the trainees through their paces on performing surgical skills including suturing techniques, surgical hand tying at depth, chest drain insertion, use of energy device for surgery, bowel anastomosis, vascular anastomosis, flap repairs and burr hole drilling. The program had 18 attendees for the Saturday workshop and 13 on the Sunday.

## Surgical Partnerships

### Events

The IAS hosted a number of events through the year, supporting our medical students as well as organising think tanks to facilitate discussion in surgical innovation.

### IAS 5<sup>th</sup> Birthday Celebrations

The IAS held two events in September to celebrate its 5th birthday as well as acknowledge the last 130 years of surgery at RPA. The theme of the day was *'tomorrow's surgery'* focusing on some of our early career academic surgeon's innovative projects and research. There were a number of presentations from our academics followed by a Q&A discussion with an esteem panel. Areas of discussion included the TGA's new ban of breast implants, the ethics and regulation around surgeon's advertising as well crowd funding for surgery and the role of surgeons in society.



Hosted by Jean Kittson, the evening cocktail event was held at the Museum of Contemporary Art with 250 guests joining us to celebrate surgery at RPA and the IAS 5th birthday. We were fortunate to have a number of distinguished guests join us for the evening including The Hon Professor Dame Marie Bashir, Dr Michael Spence, Professor Laurent Rivory and The Hon Graham Richardson. Vantari VR were also part of the evening showcasing their application of software and equipment in virtual reality used for teaching and training in healthcare.



### **New + Emerging Technologies in Surgery**

An evening for surgeons, researchers and students was hosted by the IAS in March to discuss some of the current challenges facing surgeons and researchers when introducing new technology in surgery. The evening was organised by Associate Professor Payal Mukherjee and included talks from Professor Gerard Sutton, Professor Gordon Wallace and Professor Susan Dodds. Professor Susan Dodds, an ethicist specialising in this area, explained there are multiple challenges facing the use of stem cells, patient specific surgery and the changes in defining a 'medical device'.

Technologies such as augmented reality and virtual reality for surgical training and education as well as the 3D printing and 3D bio printing were discussed.

### **Yurungai Learning Centre Group Visit**

A group of eight local children from Yurungai Learning Centre at Waterloo visited the IAS facilities in April with the student's visit included practicing their surgical skills on our laparoscopic trainers, learning how doctors train to become surgeons and all about key hole surgery. The students also visited the IAS simulation operating theatre and had a turn at performing CPR on the training mannequin. They then made their way to our Surgical and Robotic Training Institute (RTI) where they all had a turn using the da Vinci Si and Xi robot simulators. The group also spent a day with the RPA Arterie team learning about Arts and health.



### **Sydney University Surgical Society (SUSS) Academic Evening**

The IAS and Sydney University Surgical Society (SUSS) hosted an academic evening for the medical students giving an opportunity for the IAS surgeons to present to the students about their current research and ways in which they can get involved, as well as the importance of research in surgery. Associate Professor Sydney Ch'ng, Dr Nabila Ansari, Dr Christopher Cao and Associate Professor Payal Mukherjee presented to the group of 60 students as well as Dr Michael Seco and Dr Mark Ly who gave a different perspective on their research and assistance in research programs. This is the second academic evening the IAS has held in conjunction with SUSS.

### **RPA Grand Rounds**

IAS Robotic Research Lead and urological surgeon, Dr Scott Leslie presented at the RPA Grand Rounds in March on the evolution of robotic surgery and how far surgical instruments have come. Dr Leslie explained the different types of research being done at RPA in surgical robotics as well as where robotic-assisted surgery is heading.

### **Surgical Artist in Residence (AIR)**

The IAS collaborated with their second Artist-in-Residence, Dara Kretschmer who is a well-established photographer. Dara spent a week in the RPA theatres observing a number of cases and taking photographs before printing them on paper and stitching them back together with surgical sutures.

Dara spent two weeks of her AIR in the JL Theatre team room with theatre staff assisting in the stitching of the photographs.

Dara's work is now on display in the IAS and in JL Theatres.



*Dara's work being displayed in the IAS and JL Theatres*

## OUR STAFF

A big congratulations to the following IAS staff;

### **Associate Professor Jonathan Hong**

Congratulations to IAS Deputy Director of Education, Associate Professor Jonathan Hong who won the 2018 Consultant Teacher of the Year for Royal Prince Alfred Hospital and for completing his Masters of Philosophy (Medicine) at the University of Sydney.

### **Associate Professor Payal Mukherjee**

Congratulations to Associate Professor Payal Mukherjee who was nominated as a finalist for the 2019 Woman of the Year Award.

### **Associate Professor Sanjay Warriar**

Congratulations to Associate Professor Sanjay Warriar who has been appointed as the President of the Australia and New Zealand Breast Society.