

# ACADEMIC CAREERS

## MEDICAL STUDENTS

The IAS is committed to stimulating aspiring medical students to pursue careers in academic surgery and to support them in establishing themselves as surgeon scientists and educators.

Being an academic surgeon is incredibly rewarding and enables you to provide best practice clinical care, discover and apply new knowledge to surgical problems, teach trainees and surgeons at all levels across the world, contribute toward advancing the field of surgery including being a part of innovation and change, and most importantly to significantly improve outcomes for patients.

In addition, because the medical school curriculum is busy with short rotations, students are often left with relatively little exposure to the operating theatre. Being involved in surgical research gives you a reason to visit theatres regularly to meet with your academic surgeon supervisor. At the same time you will have the opportunity to watch them operate, interact with the surgical team and meet residents and registrars who are often only a few years further down the surgical path than you.

There are several types of surgical research to be involved with as you embark on a career in academic surgery. Each type requires a specific set of skills beyond those acquired during clinical training, and should be chosen based on your research interests. These include:

- Laboratory or Basic Science Research
- Translational Research
- Clinical Research
- Health Systems Research
- Surgical Education Research.

Knowing when to gain your first exposure to surgical research can be difficult and will appropriately vary depending on your interests and commitments.

The IAS encourages involvement in research from as early as possible to ensure a solid understanding of research is developed. In addition to enhancing your knowledge regarding specific surgical areas and research methodology, it can also have the added bonus of smoothing your transition into surgical training and Resident and Registrar positions, and enhance opportunities to expand your research involvement into a higher degree at a later stage.

Ultimately being involved in research will ensure your mind remains as sharp as your scalpel.

Having a good mentor is also an incredibly important component to establishing a successful academic career. It has been shown to make people more confident than their peers, more likely to

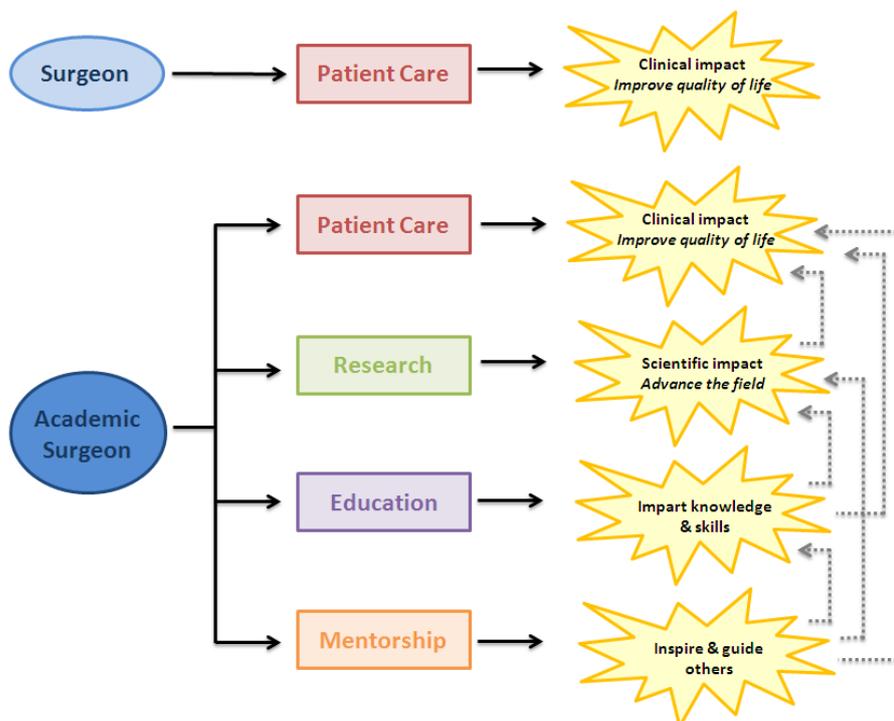
have a productive research career and to overall greater career satisfaction. Encouragement guidance and support of a good mentor is crucial in becoming accomplished in surgery and sciences.

## WHY BECOME AN ACADEMIC SURGEON

Becoming an academic surgeon can be a very rewarding job. Choosing a career in academic surgery enables you to provide best practice clinical care, discover and apply new knowledge to surgical problems, teach trainees and surgeons at all levels across the world, contribute toward advancing the field of surgery including being part of innovation and change, and most importantly to significantly improve outcomes for patients.

All surgeons have the unique opportunity to care for patients using both their intellect and their hands. The clinical impact of providing surgical care to patients is considerable and results in improved quality of life.

For academic surgeons, in addition to providing patient care and having a clinical impact, they also contribute to a number of other critical areas. They have a scientific impact by undertaking research that contributes to advancing their field, which ultimately influences patient care and greatly amplifies the academic surgeon's opportunity to improve patient's lives. Through teaching, academic surgeons impart knowledge and skills to younger trainee surgeons. This can be focused on developing both clinical and scientific skills, which enable trainees to go on and use this knowledge to establish their own academic careers. Finally, through mentorship, academic surgeons inspire and guide others to achieve their goals. No one achieves success in medicine and science without the encouragement, counsel and support of a group of mentors. Helping others enables academic surgeons to 'pay it forward' and to continue contributing to the clinical, scientific and educational accomplishments of the next generation.



Summary from Chapter 1: Why Be an Academic Surgeon? Impetus and Options for the Emerging Surgeon-Scientist. Scott A. LeMaire. From Success in Academic Surgery. Part 1.2012.

## FURTHER STUDY

While there are varying options and pathways to undertaking further education, once completed there is no doubt about the associated benefits of doing so.

Certainly, in establishing an academic career, it is where you learn the importance of a good research idea or question, where you can be introduced to the scientific method used to investigate and analyse that question, and perhaps where you have the first opportunity to present and publish your findings. These concepts and experiences can provide the critical tools upon which to build your initial academic skill set.

Although it is recognised that research can be undertaken along the way in your career without time dedicated to further education, it is evident that a focused commitment which comes with undertaking further education is an essential component for acquiring the basic skills needed to establish an academic career.

The IAS is a strong supporter of continuing formal education and has outlined a list of higher degrees that it has identified as being valuable to enhancing the skills of staff interested in academic surgery. This is by no means an exhaustive list, and the Institute welcomes any staff wanting to undertake further studies to come and talk with a member of the IAS Executive team about varying educational options.

For more information about the higher research degree options visit our higher research degree page ([link to 4.2.3](#))

## ACADEMIC APPOINTMENT OPTIONS

Traditionally any surgeon wanting to pursue an academic career has had three main appointment options to consider between the Hospital and University. This includes:

- University salaried appointment with additional Hospital appointment (VMO)
- Hospital appointment (VMO / Staff Specialist) and clinical academic title with no salary contribution from the University
- Primary salaried appointment at the University with a Clinical Academic appointment at the Hospital for clinical services provided to public patients (40% of Staff Specialist salary).

While there are both advantages and disadvantages within each of these models, it is evident there has been a limited uptake of these appointments overall within the discipline of surgery.

The IAS promotes the view that the future of academic surgery depends on an innovative approach to appointing academic surgeons, and supports models that accommodate time for both clinical practice and academic pursuits.

These include:

- Half-time University salaried appointment with additional Hospital appointment (VMO)
- Surgical departments collaboratively funding a nominated surgeon or research coordinator by contributing one VMO hour per team member to support the development of a well-established surgical research program for the department.

### Half-time University appointments:

The IAS strongly promotes the use of half-time (0.5 FTE) academic appointments within surgery, which has been supported and undertaken in partnership with the University of Sydney. This is largely based on the success of a small number of existing surgeons employed on a part-time basis by both RPA and the University of Sydney who have shown that the model is well suited to supporting academic pursuits within the discipline of surgery.

Further to this, the IAS recently employed two new Associate Professors using half-time appointments enabling these early career surgeons to dedicate time to both clinical practice and research.

The main advantages of the appointment model are:

- Provides incentive for protected research time whilst enabling enough time for clinical practice
- Model has previously been implemented with supporting HR and financial structures (not new)
- Supported by the long established partnership with the University of Sydney
- Recognises the motivating forces within surgery
- Incorporates the prestige of a formal academic appointment at the University of Sydney and maintains clinical and research practice at RPA

Depending on the level of academic appointment, funding to support these salaries range from between \$73,000 for a Senior lecturer up to \$110,000 for a Professor based on 0.5 FTE salary per annum.

### Surgical Research Collaborative Funding Model:

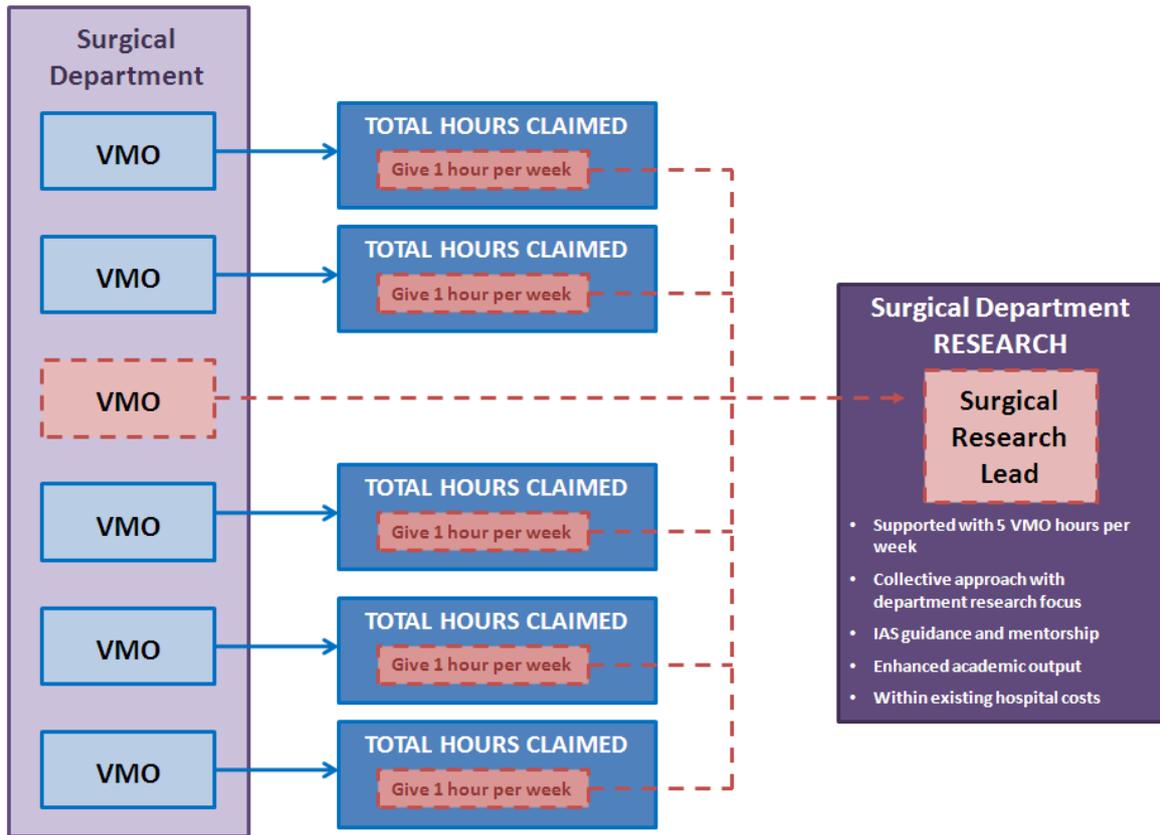
The majority of surgical departments at RPA are committed to establishing a strong research program. However with most departments predominantly consisting of contractual VMOs there is less access to funding to support this.

A viable option exists to establish a new and collective approach for engaging all members of a surgical department to contribute to and sustain research within their own department.

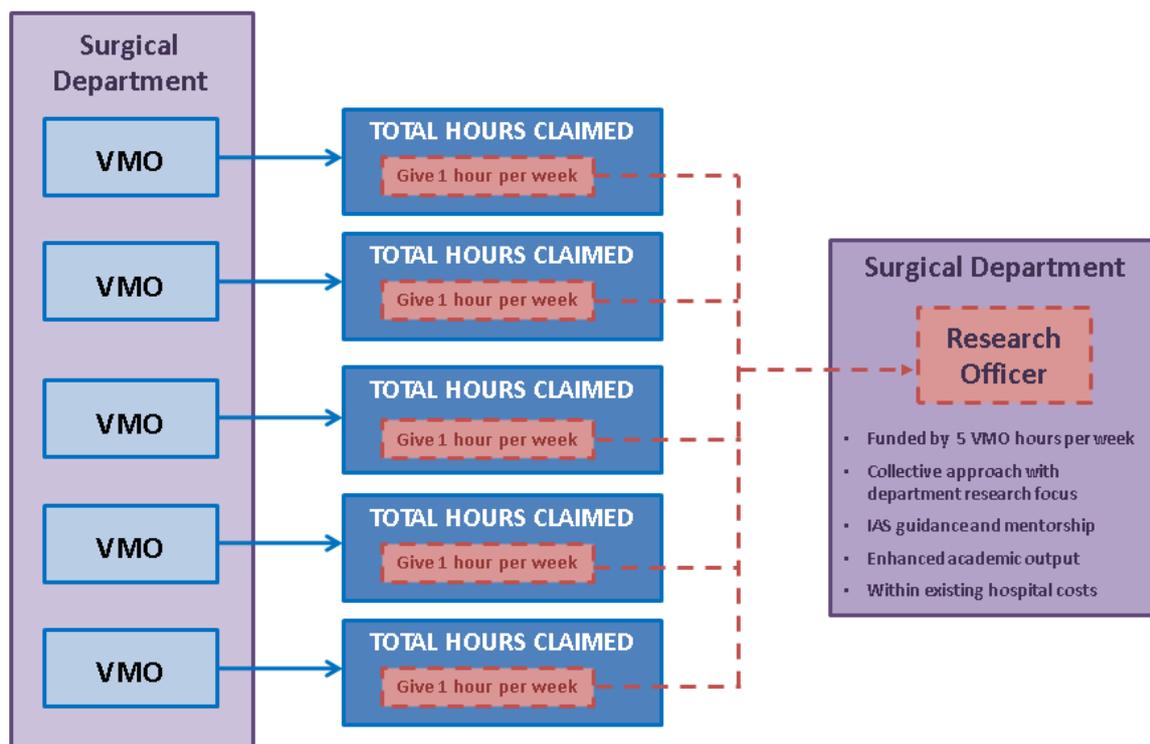
The Surgical Research Collaborative Model involves willing VMOs within a surgical department to contribute one hour per week of their total hours claimed toward supporting a selected surgeon or appointing a Research Officer to be responsible for the overall coordination of the department's research program.

Although the number of surgeons per surgical department varies, the aim of the model is to provide a pool of funding for the department to utilise towards research. There are several options for how a department could utilise the collective funding as outlined in the following diagrams:

Option 1: Academic Surgeon



Option 2: Research Officer



Within both options, the Surgical Research Lead or Research Officer will formally be a part of the IAS enabling them to utilise the expertise of experienced research staff that will provide them with guidance and mentorship in being able to advance the academic standing of their department.

For members of the surgical department, contributing one hour per week to support a coordinated approach to research will result in considerable benefits to their department. Having a key person responsible for establishing the priority research themes of the department, developing and organising new studies and trials, working on enhancing research collaborations and partnerships with other organisations, and coordinating higher-degree student supervision will significantly boost the academic output and standing of the department. Furthermore, the support of the nominated research person would not in any way exclude other department members from starting or continuing with their own research. It is envisaged the positions will play an important role in supporting and facilitating those efforts.

The main advantages of the model are:

- Provides incentive for protected research time whilst enabling enough time for clinical practice
- The commitment made from the department is a strong driver for the chosen academic surgeon or Research Officer to be highly productive
- Involves all surgeons within a department so engagement levels are high
- Benefits the department by having someone take the lead and coordinate priority areas of research within their specialty
- Innovative approach to supporting research in surgery
- The Head of Department has the capacity to cease the model at any time if the academic output is not adequate.

## NAVIGATING AN ACADEMIC CAREER

There are several types of surgical research to choose from as you embark on a career in academic surgery. Each type requires a specific set of skills beyond those acquired during clinical training, and should be chosen based on your research interests:

In **Laboratory or Basic Science Research**, the investigator performs laboratory experiments to answer fundamental biological questions that are relevant to surgical care. The central themes of surgical basic science research generally include the molecular and cellular mechanisms that cause disease, and biological responses to injury, disease, and surgical treatment. Examples of this type of research include that recently completed by Dr Michael Byrom, the IAS Director of Translational Research and Cardiothoracic surgeon, on the development of a novel bioengineered vascular bypass conduit.

In **Translational Research**, the investigator focuses on directly linking laboratory discoveries and clinical care. This type of research is often referred to as 'from bench to bedside' with the potential clinical significance being considerable. Examples of translational research projects include evaluating human vein graft samples with microarrays to determine whether a specific expression profile predicts graft failure, identifying diagnostic biomarkers for human hepatocellular carcinoma by using mass spectrometry, and determining whether doxycycline administration reduces protease expression in human aortic aneurysm tissue.

**Clinical Research** answers questions about surgical diseases and treatments by using human subjects, and varies substantially in scope and complexity. Retrospective studies involving well-defined cohorts of patients can provide important information that can be used to characterize the status quo and generate hypotheses. Example of this include the study undertaken by A/Prof Charbel Sandroussi, IAS Director of Clinical Research and Hepatobiliary surgeon and his colleagues on the [management of Biliary Cystic Tumours, which was a multi-institutional analysis of a rare liver tumour](#). Prospective clinical studies enable surgeons to further refine their understanding of the clinical history of disease and the outcomes of various treatments. The jewel in the crown of clinical research is the randomized control trial (RCT), which is also associated with considerable diversity. Examples of these trials include the multi-centre randomized trial undertaken by IAS Chairman Professor Michael Solomon and his team on centralized nurse-led telephone-based care coordination to improve outcomes following surgical resection for colorectal cancer (the 'CONNECT' intervention).

In **Health Systems Research**, the investigator seeks to reveal the end results of specific health care practices and interventions. This area of research utilizes advanced epidemiologic techniques to link social and process issues (e.g. ethnic disparities in health care access or low procedural volume), with clinical and financial outcomes (e.g. survival, quality of life and hospital costs). Examples of this type of research include that undertaken by IAS Chairman Professor Michael Solomon and his team on the quality of life and other patient-reported outcomes following exenteration for pelvic

malignancy, and that by IAS Vice-Chairman Professor Paul Bannon and his team comparing cardiac surgery versus stenting to determine what is better for the patient.

**Surgical Education Research** seeks to understand the factors that affect surgical training. Surgical educators need to efficiently and effectively train surgical trainees to perform increasingly complex procedures in a manner that optimizes both patient safety and resource utilisation while also ensuring they are highly competent in essential surgical skills. Examples of surgical education research include comparing the effectiveness of computer-aided simulation vs. animal training for teaching advanced laparoscopic procedures, evaluating the effects of teaching techniques on trainee retention of lecture material, and determining whether medical students with the best technical skills choose careers in surgical specialties.

Within RPA, considerable expertise and much research activity has been undertaken within the Laboratory and Clinical Research areas in particular. In considering the overall research spectrum, it is evident opportunities exist to further expand the areas of Translational, Health Systems, and Surgical Education Research.

Further to the type of research to undertake, knowing when to gain your first exposure to surgical research can be difficult and will also appropriately vary depending on your interests and commitments.

Summary from Chapter 11: Choosing, and Being, a Good Mentor. Julie Ann Sosa. From Success in Academic Surgery. Part 1.2012.

## NAVIGATING AN ACADEMIC CAREER

Having a good mentor in surgery is incredibly important. Indeed successful mentoring has been shown to make people feel more confident than their peers, more likely to have a productive research career and to report greater career satisfaction. Certainly it seems fair to say that you can't become accomplished in surgery and science without the encouragement, guidance and support of a mentor(s).

Although mentoring relationships can be formally established, these can often feel forced or artificial, and it is the view of the IAS that mentoring is at its best when it occurs serendipitously. This usually involves two individuals being drawn together by mutual interests and appeal, resulting in a kind of spontaneous mentoring that almost always works. This type of mentoring is characterized by a long term, mutually satisfying relationship that is not initiated or managed by an institution. Hallmarks of the relationship are support, mutual trust and respect, compatibility and solid commitment and effort from both the mentee and the mentor.

Once you have a mentor, they can be called upon to discuss and advise, advocate for, sponsor, and at times maybe even constructively criticize you in order to advance your interests and career.

But how do you find a suitable mentor?

Firstly it is essential you understand what your needs are and what you expect from a mentor to ensure it is a positive and beneficial experience. You will need to be up front with the person about your personal strengths and weaknesses, and about your personal and professional goals, so it

pays to consider these before approaching a potential mentor. The best mentors are people who are:

- Excited about learning and who are continuing their own development, regardless of whether they are a junior or senior academic surgeon
- Well respected and demonstrate good interpersonal skills and judgement
- Active participants in the learning and growth of others
- Encouraging and motivate people to move beyond their comfort zones
- Setting high standards within their own work thereby setting a positive example for you
- Willing to make a time commitment to the process.

To find the right mentor, you will need to take the initiative of seeking out potential people and have patience and perseverance in finding someone that fits well with you.

There are some inherent risks associated with mentoring, which generally result from unrealistic expectations, unreasonable demands being made or people being unreceptive to mentoring altogether. But these can be overcome by having open communication and ensuring expectations are clearly established from the beginning.

Remember the most important metric of mentoring is your success and positive career growth, and will ultimately be the main motivator for your mentor as well.

Summary from Chapter 1: Why Be an Academic Surgeon? Impetus and Options for the Emerging Surgeon-Scientist. Scott A. LeMaire. From Success in Academic Surgery. Part 1.2012.

### The mentors of our RPA academic surgeons:

#### Prof Paul Bannon

<b>Who was your mentor(s)?</b>	I have had 2 significant mentors during my career. From a clinical perspective it was <b>Duncan Thomson</b> and from an academic perspective it was <b>Doug Baird</b> .
<b>Where and when did you first meet them?</b>	<p>When I was an Intern at St Vincent's Hospital, I was required at short notice to cover another Intern working in Cardiothoracic who was struggling with the workload. I did well during that time and was subsequently recommended to Doug Baird who was the Head of Cardiothoracic at RPA. I never really left Cardiothoracic after that. From the very beginning, Doug recognised the potential in me and strongly supported my interest in research.</p> <p>He understood I would not have been satisfied just doing surgery and that I also wanted to develop skills in research. Although he wasn't a researcher himself, he knew what research would benefit our department and arranged so many aspects of my academic development including my research supervisors. In parallel with Doug's support, I also had a clinical mentor in Duncan Thomson. Although they had very different styles, they worked together to guide and support my career.</p>
<b>Why did they have such a big influence on your career?</b>	Together Doug and Duncan orchestrated every step of my career and I had great trust in their advice and what they felt was the right direction for me to take. I was very fortunate to benefit from their different styles and we were also able to strike the right balance between clinical and academic pursuits.

**What were the characteristics that made them a good mentor for you?**

Both Doug and Duncan were incredibly accessible and always gave me a lot of their time, which I was grateful for. They were genuinely supportive of my career development and facilitated so many things to help me along the way. I think they also saw the value in mentoring me and that it would benefit our department in the long run. They were also just great people to learn from.

**How long did the mentoring relationship last?**

It has never ended and is still going. Although Doug passed away, we established The Baird Institute which I am Chairman of and I am in regular contact with Duncan. I still call him for advice actually, even though he tells me I should know the answer!