Welcome to the Cardiothoracic Research Collaborative! We are a group of trainees committed to carrying out high quality multi-centre research projects to improve surgical practice and patient care.

How to get funding for basic research to clinical reality

By Professor Gianni Angelini

When I was a young trainee rather a long time ago, I went to see one of my mentors and told him that I was interested in doing some research, even though I had no idea where to start! He advised me “to identify a clinical problem you face every day in your practice, understand the mechanisms of action by using basic science and, with a bit of luck, you may be able to take the solution back into your clinical practice”.

This was the most important advice that I ever received in my academic career. It is still relevant today for anyone who wants to carry out what is now fashionably called ‘translational research’.

So how do you go about it?

First, you need a good idea or, more scientifically, a “working hypothesis”. The next step is to do some serious background reading as, otherwise, you risk “reinventing the wheel”. It is most important to understand what is already known in order to be sure that question you are interested to answer is still worthwhile answering – don’t be surprised if you find the answer from the literature without doing any research! Once you are clear in your mind that you have a solid hypothesis, which is going to involve basic science, look around in your institution to see if there are any scientists who may have a similar interest.

Editorial Team: AC Pinho-Gomes & A Protopapas
I would then advise that you meet them and present your ideas. In my experience, basic scientists are always very keen to collaborate with clinicians for the very simple reason that they usually do not have access to patients. So, if you can give them the opportunity to have access to tissue samples from patients (i.e. blood samples, a piece of vein, a muscle biopsy, etc.) and, of course, clinical information about the same patients, you will find you are knocking at an open door.

At this stage it is important not to think you are in charge simply because you and the basic scientist has only a PhD!! My advice is not to think too much about “me, me, me....” but more about “us... as a team”. This is not just pragmatic, but essential if you are going to build a successful collaboration since you as a clinician have no idea about basic science, let alone research methods or the infrastructure which is going to be required. Nowadays, research is no longer for amateurs; most of the techniques, e.g. biomarker assays, gene expression profiling, etc. are very sophisticated, often very expensive and require a considerable level of knowledge, expertise and dedicated facilities to ensure valid results.

So, you have now a basic scientist who is willing to collaborate, a working hypothesis, an understanding of what’s known and what is not, and an appreciation of research methods that are appropriate to tackle your question. All you have left to do is to write the protocol and grant application. At this point, you need to talk to one or two senior members of your department including a statistician (since it would not surprise me if you are unfamiliar with the principles of sample size calculation) who may be able to help by commenting on your proposal and directing you towards the most appropriate research funding body.

Once you have successfully negotiated these steps, you have to ask yourself a very honest question, are you doing this because you have a genuine interest in research? Do you want to understand better the challenges you face in your everyday clinical practice and find better ways of tackling them? Or are you doing research because you have to tick another box in your CV? If your heart is not in the task, you are unlikely to make a worthwhile contribution however hard you work. There is already enough rubbish research published every day of the week, which is wasting money and time, so there really is no need for more of the same.

Any new ideas, suggestions or recommendations? Contact us!

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Now that we have established that you are doing it because you have curiosity and a genuine interest in research, you are ready to put your application to the most appropriate funding body and to wait anxiously for the outcome.

My final message is that if you fail at the first attempt, don’t give up because this, I’m afraid, has happened to all of us. You are up against lots of other people applying for research funding and even the most successful researchers expect to be awarded only 1 in 3 of the grants they apply for. Remember that the most important things in research are dedication, commitment and perseverance.

Good luck from an old, and hopefully wise, academic who has seen it all and still believes that the satisfaction and reward are worth the pain and tribulations.

**CTRC meeting at the SCTS conference**

**Greetings from our lead!**

Our annual meeting (held at SCTS 2016) was a great success, and I would like to thank the CTRC team and all those that helped make our vision a reality. We were fortunate to have 2 excellent speakers:

- Mr Large inspired us all with his talk on clinical research. It was punctuated perfectly with insightful (and often amusing) examples from his own career;
- Mr Hamilton gave a thought provoking overview of the issues surrounding consent in those without capacity, highlighting the aspects pertinent to surgical research.

The session was rounded off with project updates and proposals for future studies.

We are already looking forward to our next meeting where we will host more great speakers and we welcome you to join us there at SCTS 2017.

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**Clare Burdett**

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Reflections on latest breaking news

Highlights from the ACC 2016

Rate Control versus Rhythm Control for Atrial Fibrillation after Cardiac Surgery.

This RCT assigned more than 500 haemodynamically stable patients with new AF following CABG and/or valve surgery to rate or rhythm control. Rate control consisted of treatment primarily with beta-blockers, and rhythm control entailed amiodarone and/or direct-current cardioversion in the study. There was no significant advantage of one treatment strategy over the other in terms of hospital days or complications, and more than 90% of the time, AF had converted into SR by 60 days irrespective of the treatment strategy. The key message is that the best way to treat AF after heart surgery is to give it time to go away. The results of this trial, though, are only applicable to haemodynamically stable patients.

Selective Valve Repair at CABG Supported in Moderate Ischemic Mitral Regurgitation.

For patients with moderate ischemic mitral regurgitation who are candidates for surgery, the addition of mitral-valve repair to CABG won’t improve survival, cardiac structure, or function, nor will it boost quality-of-life scores, over 2 years compared with CABG alone, according to an extended follow-up of 301 patients. Moreover, the results suggested that patients with lots of scar in the ventricular wall who might not benefit much from CABG alone might gain from the addition of mitral-valve repair. This study emphasises that improvement in wall motion is crucial to improve mitral regurgitation, irrespective of CABG being performed in isolation or associated with mitral valve repair. Therefore, assessing each case on an individual basis is paramount.

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Research is “the necessary, the indispensable ingredient for the environment of learning... there is one skill we can give to every practitioner... and that is the skill of learning. The vehicle of such learning is scholarly inquiry, which is research.”

JS Mills, 1966
Our selection of ‘must read’

Statistical Methods for Cardiovascular Researchers


‘If your experiment needs statistics, you ought to have done a better experiment’. Rutherford’s provocative statement has been often quoted in biomedical publications. We may interpret it as advancing the position that researchers should lead the statistics in their own work (not depending fully on a professional statistician). In that spirit comes this succinct editorial by Professor Lem Moyé. He proves in this paper that he understands the challenges a research doctor faces in designing and presenting biostatistics, and embarks in an attempt to produce a guide for us. The epithet ‘cardiovascular ‘refers more to the target readership of the host journal than the specifics of the methods discussed. I find the analysis equally useful for non-cardiac (thoracic) surgical research, or indeed any other speciality. Moyé’s grasp of the predicament is summarised in Table 1 (although the penultimate line would have upset Ernest Rutherford). He proceeds to present a complete discussion of methods we need to be aware in designing a surgical trial. It would be safe to state that the manuscript may substitute, as a mini-handbook, for resource-intensive courses in statistics: the reader should be capable of independent thinking and working on the pointers. The paper has no formal section on conclusions. It seems that it is meant as a reference guide, and as such cannot be abridged further.

The Future of the Academic Cardiothoracic Surgeon: Results of the TSRA/TSDA In-Training Examination Survey


This interesting paper explores how recent changes in training paradigms and programmes in the USA are affecting the development of future academic cardiothoracic surgeons. The authors analysed the responses to the 2015 Thoracic Surgery Directors’ Association/Thoracic Surgery Residents’ Association survey accompanying the in-training examination taken by current cardiothoracic surgery residents. Despite the limitations, the authors end up concluding that ‘the future of the academic CT surgeon appears bright’ because the majority of residents intend on a research career and this was not affected by recent changes in training programmes (including integrated programs that did not allow for devoted research time). They further emphasise that the onus is now on our specialty to harness this interest and ensure the success of this future generation of academic CT surgeons. If this definitely holds true on the other side of the Atlantic, to what extent their findings can be extrapolated to other countries, including the UK, is uncertain due to the marked differences in training programmes and ‘surrounding environment’...
Updates on our projects

‘The Academic Cardiothoracic Surgeon’

What is the past and current research experience of CT Trainees? And what are their future research plans? As the number of CT professors plunges down, concerns over the future the academic CT surgery grow louder. However, the dearth of hard evidence on the actual experience and interest of CT trainees hinders any efforts to attract and retain CT surgeons in academia. We will shortly be sending a brief survey to all NTN’s in CT surgery in order to gather information about trainees’ view on research. We rely on your collaboration to make this project a great success!

Further updates on our other projects on Post-operative Atrial Fibrillation, Pacing after cardiac surgery and Service provision across the UK in our next newsletter!

Dates for the diary

17th September 2016 – CTRC committee meeting

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