

## **Comment**

### **The BURST Research Collaborative: a trainee-led research model that can change the way that research is conducted in Urology**

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## **Trainee-led research collaboration as a model for delivering multi-centre studies**

The trainee-led research collaborative approach allows the delivery of multi-centre studies cheaply and efficiently, recruiting patients quickly, often finishing ahead of schedule [1]. This model trains a future urological consultant workforce with the skills to deliver multi-centre studies that can improve patient care. The BURST (British Urology Researchers in Surgical Training) Research Collaborative ([www.bursturology.com](http://www.bursturology.com)) is an international trainee-led organisation with the aim of delivering multi-centre audit and research and providing the education to produce methodologically robust work. BURST Research Collaborative members comprise urological residents, medical students, methodologists, basic scientists and urological consultants.

## **The challenges of traditional models of research**

One of the major challenges with the traditional model of research is the ability to design, carry out and deliver a methodologically robust study in a timely fashion, and thereby being able to influence clinical practice prior to clinical practice moving on. A single clinician may find it challenging to collect enough data or recruit enough patients at their own site, particularly with a busy clinical job. Multi-centre studies are a solution, but big grants are often required to fund the expensive infrastructure of running these studies, and funding is scarce and time-consuming to obtain. A single clinician, whether a trainee or consultant, despite having good ideas, may not have the adequate training, opportunities or time to develop and launch large studies on their own [2].

## **The principles of trainee-led collaborative research**

Trainees lead on the project proposal, design, development, delivery, data collection, analysis and write up. This is a model that has proven success in other specialities [1, 3], but to our knowledge, until now, has not yet been carried out on a large scale in Urology.

A thorough peer review process is a key step of a strong research collaborative project. The committee and senior advisors associated with the committee should have methodological and research experience amongst them. When adopting new projects, they conduct an initial internal peer review prior to an external peer review process where input from experts in the specialist areas of the specific project is sought. The study protocol can be adapted and improved by the feedback from each stage of peer review thus ensuring a methodologically robust study. The study is subsequently piloted amongst a few centres and if successful is rolled out nationally and internationally (Figure 1). All trainees who recruit patients or contribute data to the studies are recognised with PubMed indexed collaborator status.

## **MIMIC as an example of a trainee-led research collaborative project**

MIMIC (A multi-centre cohort study assessing the role of inflammatory markers in spontaneous stone passage in ureteric colic) is a recent BURST collaborative research project [4]. The aim of the study is to establish whether white cell count at presentation with acute renal colic is a predictive biomarker of spontaneous stone passage.

The idea was proposed by a trainee and the protocol developed by the BURST committee with input from the BURST advisors. The project-specific database was developed by BURST and instructions for obtaining local approvals to run the project were provided to all sites at registration. MIMIC was piloted in 6 centres around the UK and after refinement of key study processes, was launched in October 2016, recruiting over 4100 patients from 71 sites and 7 countries within 4 months (England, Wales, Scotland, Ireland, Northern Ireland, New Zealand, Australia).

We believe that MIMIC is the largest contemporary outcomes-based cohort study in stone research. It has helped to establish and refine the main factors that influence spontaneous stone passage and this may inform the decision-making for Urologists managing patients who present with renal colic in the future. The preliminary results were presented at the European Association of Urology 2017 Congress and won a prize for best presentation in its session [4].

### **The reasons why trainee-led collaborative research works**

Trainees are distributed throughout Urology units in a country or region, and are involved in day-to-day management of the patients whose data is being collected. They are generally keen to be given a role of responsibility in a meaningful research project, and work well with other trainees in their peer group. Since they are often required to carry out some research and attain research competencies to achieve completion of their training, it is intuitive to involve them in the delivery of multi-centre studies. By doing so, this results in the exchange of ideas and skills amongst the network and a future workforce is trained in clinical trial delivery.

Good initial projects to establish a trainee-collaborative network are those that are based on a common pathology, with a short-term primary outcome, that can be delivered without too much controversy. During project delivery, a large number of trainees take part in recruiting patients and collecting data but only need to contribute a small number of patients each. This reduces burden on the individual trainee but collectively this makes for large, potentially high impact studies, powered to investigate questions that would otherwise be difficult to answer.

### **The potential of the trainee-led research collaborative model**

Trainee-led research has a multitude of advantages to trainees themselves, the centre they work at, to Urology as a specialty and to its patients (Table 1). Trainee-led collaboratives have taught us not to underestimate the trainee and to utilise this extremely capable resource more astutely. The potential that these networks have to deliver important clinical research studies should be recognised more widely. As a research collaborative matures, ambitious randomised studies of surgical interventions can be carried out [5]. There is an opportunity here to help achieve successful delivery of surgical randomised trials, which is something that we have struggled with as a speciality. If urological training program directors encourage their trainees and colleagues to take part in trainee-led collaborative projects and acknowledge their contribution as markers of research competencies [6], this could result in a highly skilled workforce, a culture of routine delivery of multi-centre clinical studies alongside clinical practice and an improvement in the care of Urological patients.

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**Appendix 1**

BURST Committee: Veeru Kasivisvanathan, Ben Lamb, Taimur Shah, Arjun Nambiar, Sophia Cashman, Kevin Gallagher, Matt Jeffries, Kenneth McKenzie

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