

One small step: starting a career in surgical research during COVID-19

‘That’s one small step for (a) man; one giant leap for mankind.’
Neil A. Armstrong.¹

Over half a century has passed since Neil Armstrong’s famous words from the lunar surface; a mantra for human potential and progress. Although the first step of any pursuit is often the most challenging, it is the gateway to unlocking the full potential of not only that venture, but also all that follow.

Surgical research can be challenging, but is achievable and necessary for continued improvement of patient care.² For those aspiring towards or formally beginning surgical careers, the prospect of conducting research alongside clinical activity may be daunting. Not only is it a substantial personal commitment, but also the benefits for practice and self-fulfilment³ may not be evident to those with embryonic experience. For those who do decide to pursue academic surgery, the difficulty associated with conducting their first study may be disheartening. The coronavirus disease 2019 (COVID-19) pandemic has changed the landscape of surgical research, at least temporarily, but not the associated opportunities. If one chooses to take their first step towards a career in academic surgery and undertake a study while the pandemic continues, future success depends on these changes being understood.

Primary surgical research has been altered considerably during the pandemic, due to limited access to patients, particularly those undergoing elective surgery. Surgical systems are restructured to prepare for an expected deluge of COVID-19 patients, with elective surgery curbed to increase the available capacity.⁴ Given that prospective data collection is more challenging and bears a greater risk of exposure to COVID-19 in urgent clinical scenarios,⁵ new researchers should have been encouraged to pursue study designs without direct patient contact while cases of COVID-19 transmission existed in their community. A safe, yet valuable, introduction to surgical research can be achieved through involvement in systematic or rapid literature reviews,⁶ retrospective analyses of previously collected data and online surveys. Experience in these study designs can not only lay foundations for future prospective clinical research, but also teach vital skills in research conduct.

COVID-19 resulted in significant changes to the surgical literature. In the early stages of the pandemic, research relating to the disease was fast-tracked due to the urgent need for data. Although this shift was well-intentioned, what resulted was a large influx of low-quality publications, with the considerable volume translating to little advancement in evidence-based surgical strategies.⁷ New researchers should be aware that information flowed at an artificially high rate during the pandemic, and this may not occur in the foreseeable future. Patience must be emphasized as the urgency of the early stages of the pandemic wanes and the normal pace of research approval and peer review⁸ returns.

Effective communication between surgical researchers is crucial to producing high-quality studies. Lockdowns and other physical distancing restrictions associated with the pandemic radically changed many aspects of research conduct, particularly communication

between collaborators. In-person meetings were replaced with teleconferences or virtual meetings, requiring adaptation from students and mentors alike. This shift has provided more frequent and timely interactions between collaborators, and is likely to be maintained even after the pandemic subsides. When designing their first projects, new surgical researchers should consider collaborating with experienced researchers across boundaries of space where it benefits study quality and value for patient care.

Most leading academic surgeons argue that formal qualifications, particularly those involving periods of full-time research, are valuable for students seeking to learn the fundamentals required for future academic success. While few will argue against this, COVID-19 may have added challenges to the lives of many surgical students that may hinder the pursuit of additional degrees. In particular, mental health has been reported to have suffered in areas of high COVID-19 prevalence, with implications for individual and collective emotional and social functioning.⁹ Although the challenges of pursuing academic surgery have always been significant, the potential solutions are clear: professional, financial and interpersonal supports must be available to individuals seeking to begin surgical research.¹⁰ While the first two areas can come from colleagues, universities and organizations such as surgical colleges, the importance of forming a close support network must be emphasized to all starting academic endeavours, with or without COVID-19.

The first study by any new surgical researcher begins the process of unlocking their potential to improve patient care that is built on throughout their future academic career. Some may be giant leaps, but more likely small steps.

Author Contributions

Joshua Kovoov: Conceptualization; writing-original draft; writing-review & editing. **Guy Maddern:** Conceptualization; supervision; writing-review & editing.



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Academic research retreat: a novel approach to maximize the research and publication efforts of medical students and junior doctors

Academic writing in pursuit of publication can be challenging due to limitation in time and support.¹ Academic writing retreats have been demonstrated to be a feasible, effective strategy to improve participant publication outputs.² Academic retreats have been recognized in the literature as an effective approach to offer dedicated writing time to medical faculty.^{3,4}

Lack of support and leadership are significant barriers to junior clinician–scholar research productivity, with many of such candidates often being deficient in the expertise to ensure effective production of manuscripts.⁵ Previous retreat participants have reported protected time, peer mentoring, senior researcher coaching and the participation of a visiting professor as significant enhancers in the ability to apply research skills.⁶ While academic writing retreats have previously been described in undergraduate liberal arts, nursing and medical fields, this appears to be the first time a writing retreat has been described in the surgical literature.^{5,7} Academic surgical writing may be of particular interest to surgically inclined medical students due to the emphasis on publishing surgical research in many surgical training programme selection criteria, both locally and internationally.^{8,9}

To augment the organization's scholarly activity, the Trident Research Cooperative staged a 'Academic Research Intensive' with the theme 'Perioperative Medicine'. The event occurred in June 2019 over a 4-day period. The retreat occurred in an architecturally designed mansion overlooking the Great Ocean Road in Melbourne, Australia. To ensure equitable opportunity, all attendees were medical students or junior doctors sponsored by a full scholarship. Attendees were selected from a pool of applicants by scoring curriculum vitae using a structured marking rubric. Five junior attendees were selected and paired with senior researchers prior to the retreat. Writing pairs met to determine manuscript topics and what work was necessary for manuscript preparation. Three weeks prior to the event, junior members of each pair had performed literature reviews and data analyses. The event aimed to provide participants with protected time for academic writing and a peer-supported network to assist in guiding research projects towards publication. The first

evening of the event was dedicated towards team-building exercises. Subsequent days focused on manuscript formulation. A nightly team dinner provided a platform to review manuscript progress and discuss adjustments to the original model and process. On completion of the 4-day retreat, participants were expected to bring a drafted manuscript to completion, apply amendments recommended by peers and facilitators, determine the ideal journals for submission of manuscripts and to develop a plan for continued writing post-retreat.

Facilitators distributed an online survey via online questionnaire 2 months after the retreat. The survey involved five positive statements rated on a 5-point Likert scale. Responders were not required to submit identifying information. The overall response rate to the survey was 80%. Figure 1 shows a chart demonstrating post-retreat survey evaluations. Participants rated their experience favourably with 'strongly agree' ratings averaging 80% across all five questions. The most negative rating across on any of the questions was 'neutral'. Whilst the survey provided coordinators with valuable data regarding participants perceptions, the greatest gauge of the retreat's success hinged on participants continuing towards manuscript submission to peer-reviewed journals post-retreat.

At the time of writing (March 2021), all projects brought to retreat are either published⁴ or undergoing peer review² in international journals.^{10–12} The time to publication of works completed at the retreat ranged from 5 to 18 months. The model detailed in this article establishes a basis for implementing, executing and completing writing tasks. Whilst doctors work effectively under the pressure of deadlines, untimed academic pursuits, such as completion of research manuscripts, can prove problematic. Previous methodologies described to augment academic writing efforts include expectation mapping, time scheduling and team work.¹³ Other approaches include writing workshops or clubs.¹⁴ Academic writing retreats as described here may accelerate the efforts of the aforementioned methods. Our survey results compare favourably with other published academic writing retreats which used a similar survey protocol.¹⁵ The pairing of junior and senior researchers allowed for better guidance with regard to manuscript structure and fostered immediacy in editorial