

STUDENTS' CORNER
SHORT REPORT**Path to publication: A peer mentorship model for student-lead surgical research**Usama Waqar,¹ Hareem Rauf,² Muskaan Abdul Qadir,³ Hina Inam⁴**Abstract**

Early and sustained involvement in research is imperative for medical students to ensure better career prospects in addition to provision of high-quality, evidence-based care to patients. However, involvement of students in surgical research still remains limited, owing to inadequate research training. The current paper was planned to describe the structure of the "Path to Publication" series, incorporating peer mentorship with capacity-building research workshops for medical students. A total of 25 students were grouped into 8 surgical subspecialty groups to conduct research, supervised by experienced student research and faculty mentors. In addition, a series of research workshops were organized in synchronization with the different phases of research for all groups, equipping medical students with the necessary skills needed for each phase. This initiative has successfully equipped medical students with research skills in addition to involving them in surgical research, helping to advance their research careers and promote evidence-based surgery in Pakistan.

Keywords: Evidence-based care, Research, Surgery, Medical students, Capacity building.

DOI: <https://doi.org/10.47391/JPMA.AKU-25>

Introduction

Research comprises a significant portion of medical education in addition to forming the crux of evidence-based medicine.^{1,2} Early, active, and sustained involvement in research is imperative for medical students to ensure better career prospects in addition to provision of high-quality, evidence-based care to patients.^{1,3} This warrants medical schools to provide adequate research training and exposure to medical students.

The curriculum at the Aga Khan University (AKU) has a mandatory research module to provide research exposure to medical students. However, involvement of

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¹⁻³Year 3 MBBS Student, Medical College, ⁴Department of Cardiothoracic Surgery, Aga Khan University, Karachi, Pakistan.

Correspondence: Usama Waqar. Email: usama.waqar@scholar.aku.edu

students in surgical research still remains limited, owing to inadequate research training in idea conceptualization, study design, protocol writing, obtaining ethical approvals, data collection, statistical analyses, and manuscript writing.⁴

The concept of peer mentorship in medical schools encompasses a formal relationship in which a student with adequate expertise provides guidance and support to other students.⁵ Evidence has shown that peer mentorship programmes significantly enhance research interest and productivity among medical students.^{6,7} In addition, research capacity-building workshops can potentially improve the quality of surgical research conducted by medical students.⁸

This manuscript was planned to describe the structure of the "Path to Publication" series which incorporated peer mentorship with capacity-building research workshops and facilitated surgical research by medical students at AKU.

Methods and Results

Path to Publication series resulted from a collaboration between the research division of the Surgery Interest Group (SIG) and the Society for Promoting Innovation in Education (SPIE) at AKU. A sign-up application was disseminated to medical students at AKU, collecting data on prior research experience, research skills, and fields of interest. Based on these characteristics, students from basic sciences and clinical years were matched together and grouped into specific subspecialty research groups.

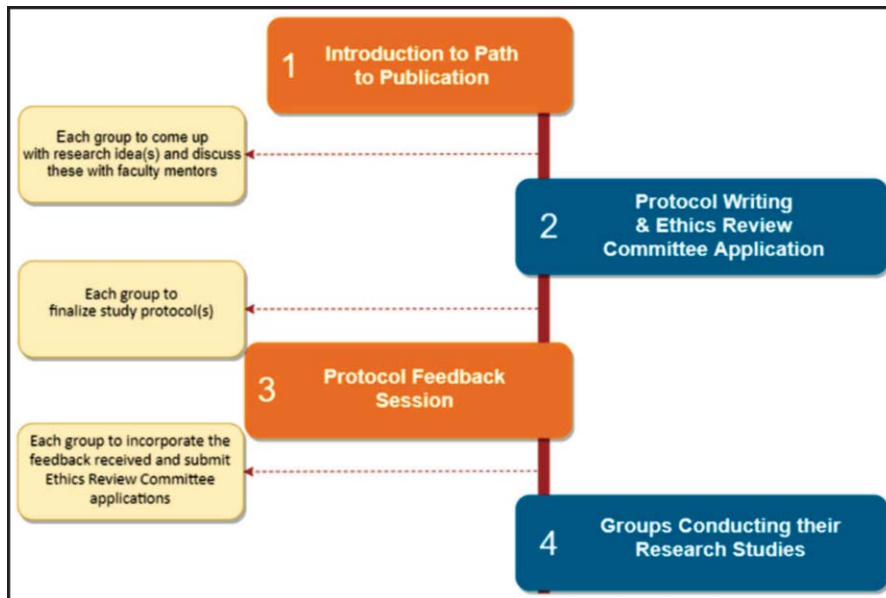
Each group was mentored by one student research mentor from either SIG or SPIE with extensive research experience and was tasked with conducting surgical research as per their specific subspecialty. The role of mentors included teaching necessary skills for research to their group, including idea conceptualization, referencing, protocol writing, data collection, data analyses, and manuscript writing.

In addition, a series of student-led workshops were organized to facilitate this process and provide adequate training to all groups. These included the Introduction to Path to Publication, Protocol Writing & Ethics Review

Table: Workshops planned as part of the Path to Publication series.

Workshop/session	Setting	Objectives
Introduction to Path to Publication	Lead by a student research mentor over Zoom	- Details about Path to Publication - Types of research & hierarchy of evidence - How to come up with potential research ideas relevant to specific subspecialties
Protocol Writing & ERC Applications	Lead by a student research mentor over Zoom	- How to write a study protocol - An overview of ERC application process and requirements
Protocol Feedback Session	Lead by a panel of student research mentors over Zoom	- Each group presented their protocol and received feedback from all mentors

ERC: Ethics Review Committee.

**Figure:** Sequence of events in the Path to Publication series.

Committee (ERC) Application, and the Protocol Feedback workshops (Table). The timing of these workshops was planned such that they coincided with relevant phases of research for all groups (Figure).

Out of 100 medical students who filled the application, 25(25%) students were selected and grouped into 8 subspecialty groups. These included breast surgery, cardiothoracic surgery, neurosurgery, obstetrics and gynaecology, ophthalmology, orthopaedic surgery, paediatric surgery, and plastic surgery. All subspecialty groups managed to develop their study protocols and are currently conducting their respective studies under the guidance of faculty mentors from the Department of Surgery at AKU. These studies will soon be published in peer-reviewed journals with some of them being presented at national or international surgical conferences as well.

Discussion and Conclusion

The Path to Publication model has proved itself to be a

successful model that can be employed to train medical students in research skills and involve them into surgical research. This is essential for promoting the concept of evidence-based surgery in Pakistan. However, despite increasing interest among students, there is very little exposure to surgical research in medical education. Lack of awareness regarding existing research opportunities, weak rapport with competent professors, and inadequate research skills are common challenges faced by medical students from engaging in surgical research.⁹ In addition, students who manage to get involved in surgical research are usually tasked with data collection and not the other phases of

research, restricting active learning.¹⁰

SIG and SPIE at AKU has provided a novel model incorporating peer mentorship with carefully timed capacity-building research workshops to facilitate surgical research among medical students. An equal representation of medical students from basic sciences and clinical years was ensured in each subspecialty group. This diversity allowed various perspectives while designing a research question. A pre-organized and carefully planned timeline allowed all groups to conduct their projects in synchronization with the capacity-building workshops. Considering most medical students have inadequate research skills, this synchronization equipped them with the necessary skills needed for each research phase.⁶ In addition, the involvement of capable research mentors helped further to meet the need for adequate training and guidance. Faculty mentors were also involved to ensure clinical relevance of the selected research questions by each subspecialty group.

In a period of three months, a significant number of medical students were equipped with adequate research skills. These skills were subsequently implemented as each subspecialty group conceptualized appropriate surgical research questions, designed study protocols, approached faculty mentors, and applied for ERC approvals. Without Path to Publication, it is unlikely that so many students would have had this opportunity of learning the necessary research skills while being involved in surgical research. Based on this, it can be inferred that the Path to Publication model has significantly bridged the gap between medical students and high-quality surgical research.

The Path to Publication model can be successfully implemented in other medical colleges in Pakistan to enhance robust surgical research output from medical students. SIG and SPIE aim to facilitate this process via their respective national ambassador networks with representation from most medical colleges in Pakistan. Through this, we hope to simultaneously advance the research careers of medical students while promoting evidence-based surgery to improve patient outcomes.

Acknowledgement: We would like to thank the Surgery Interest Group, the Society for Promoting Innovation in Education, and the Department of Surgery at the Aga Khan University for their contributions to the Path to Publication series.

Disclaimer: The abstract of this manuscript has not been presented or published in a conference or abstract book. This article is not part of a PhD thesis.

This study describes a peer mentorship model employed at the Aga Khan University to provide surgical research training and experience to undergraduate medical

students. Accordingly, no statistical tests were used in this paper, and hence, formal sample size estimations were not conducted.

Conflict of Interest: None to declare.

Funding Disclosure: None to declare.

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