

Student-led surgical research network: Enhancing medical student research opportunities

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Abstract

The current paper was planned to describe a student-led surgical research network established by the Research Division of the Surgery Interest Group at the Aga Khan University, Karachi. The project involved the creation of a collaborative network to provide opportunities to medical students to work with faculty on research projects. Over 25 students were directly connected with faculty and research mentors to work on research projects in the surgical specialty of their choice. The initiative of establishing a student-led surgical research network was successfully implemented and provided medical students with novel research opportunities by helping bridge the gap between the students and the faculty.

Keywords: Students, Research, Mentors.

Introduction

Research plays a critical role in advancing medical education and improving healthcare.^{1,2} Research, while being important for the advancement and evolution of medicine, is also essential in establishing the reputation and rating of leading academic institutions and comprises a significant portion of a medical student's education.² From the beginning of their careers, academically-oriented medical students, physicians and surgeons are actively involved in research, resulting in the provision of high-quality, evidence-based care to their patients.³ For this reason, it is important that every medical institution shall expose students to research, provide training to learn how to properly conduct research, and highlight the importance of research in the profession.^{1,4} The research division of the Surgery Interest Group (SIG) at the Aga Khan University (AKU), Karachi, identified the need of the development of a research network to connect medical students with an aptitude for research with faculty members who are actively involved in research. Although the curriculum at

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AKU has a compulsory research module for junior medical students in order to introduce them to research, there are still significant barriers that make it difficult for students to become involved in research projects. As medical students are not aware of the entire breadth of medicine, they have difficulty in landing up with the right opportunities. In addition, students also have to grapple with the skills required for research, such as data-collection and analyses, appropriate use of referencing software, and decent writing skills. A research network group would serve to help in connecting students with faculty. It would develop essential skills for research, such as critical thinking, writing, communication and self-confidence, in medical students.⁴ It would also allow the faculty and the institution to further their own respective reputations, and improve overall quality of healthcare by promoting evidence-based medicine.²

The current paper was planned to describe the structure of a student-led surgical research network established by the research division of SIG at AKU medical college. The research division of SIG provided research opportunities to surgery enthusiasts so that they may explore their passion for surgery and further their professional development.

Methods and Results

The research division of SIG circulated a research sign-up application form to the AKU medical students. Data collected from the students documented previous research experience and skills, the field of medical research they were interested in, and the applicant's curriculum vitae (CV). Simultaneously, faculty belonging to the AKU Department of Surgery was emailed to collate available research opportunities for the students. A database was created from the data collected and it was regularly updated with more students and projects. This database was used to match students to faculty who were conducting research projects in their field of interest.

The SIG collaborated with the Society for Promoting Innovation in Education (SPIE) at AKU to provide mentorship to students working on faculty-led projects. A

SPIE student mentor was assigned to multiple students working on various faculty-led projects. The role of the mentor was to teach the students different skills necessary for research, like methods for conducting successful literature reviews, data-collection, data analyses using the Statistical Package for the Social Sciences (SPSS), referencing using EndNote, and manuscript-writing to assist students in their projects. Student mentors were allowed to work with the students to help write the research papers.

Collaboration with the Centre for Global Surgical Care (CGCS) at AKU worked to promote research in global surgery. In addition, the collaboration allowed students to get to know different faculty mentors working on CGCS research projects.

The application form was filled by 112 students. Of them, 59(53%) were from pre-clinical years I and II, and 58.9% had no ongoing project. Most of the students were aware of the process and details of data-collection 100(89.3%) and were mainly interested in learning writing skills 37(33%) and using SPSS 30(26.8%). Lastly, SIG provided research projects to 28(25%) students, including 4(3.6%) working on CGCS projects.

Discussion and Conclusion

Knowing how to conduct research is an essential skill and a rewarding experience that encourages the practice of evidence-based medicine.^{5,6} However, the participation of medical students in research is stalled by the lack of training, proper guidance and availability of projects.¹ The research division of SIG has provided novel exposure of medical research to AKU students. In one year, a substantial number of students were matched to faculty-led projects of their surgical field of interest. Left on their own, it is unlikely that so many students would have had the opportunity of getting involved in research. While projects are still ongoing as more students are matched to their respective faculty members, it can be safely inferred that SIG has made more research opportunities available for undergraduate medical students in the field of surgery than ever before by bridging the gap between medical students and surgical faculty.

Furthermore, the need for adequate training and guidance by each student was met by the provision of capable research mentors. Laursen et al. have shown that research helps in developing a physician-scientist career, a better idea of choosing the right field of interest and prepares the student for later graduate

programmes.⁷

The research interest and involvement of medical students in Pakistan has a long way to go. There has been an improvement in the research culture since the Higher Education Commission (HEC) was established, but Pakistan still has a lot of ground to cover.⁸ Sometimes a vicious cycle can occur due to lack of research opportunities and too many options can have the reverse effect.⁹ One, therefore, needs to strike a balance and the current programme successfully enhanced students' productivity. There is an urgent need for initiatives taken at the undergraduate level to provide exposure to students in research activities.¹⁰ Research networks initiated by student-led groups serve to promote and create such opportunities for students.

In the future, SIG aims to organise training workshops for students interested in research and create more research opportunities available for them. Moreover, SIG plans to initiate an Each-one-Teach-one Initiative which will hire research assistants to mentor one student each and teach specialised research skills. Through this, we hope to advance the research careers of medical students and help them on their way to becoming great surgeon-scientists, there by contributing to the evolution of medical science and enhancing patient outcomes.

The initiative of establishing a student-led surgical research network can be successfully implemented and may serve to produce productive research opportunities for medical students by simultaneously matching them with appropriate mentors.

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Conflict of Interest: None.

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References

1. Mostafa SR, Khashab SK, Fouaad AS, Abdel Baky MA, Waly AM. Engaging undergraduate medical students in health research: students' perceptions and attitudes, and evaluation of a training workshop on research methodology. *J Egypt Public Health Assoc* 2006;81:99-118.
2. Schexnayder S, Starring H, Fury M, Mora A, Leonardi C, Dasa V. The formation of a medical student research committee and its impact on involvement in departmental research. *Med Educ Online* 2018;23:e1424449. doi: 10.1080/10872981.2018.1424449.
3. Taylor AK, Purdy S. How to get involved in research as a medical student. *BMJ* 2017;356:i6593. doi: 10.1136/sbmj.i6593.
4. Dagher MM, Atieh JA, Soubra MK, Khoury SJ, Tamim H, Kaafarani BR. Medical Research Volunteer Program (MRVP): innovative program promoting undergraduate research in the medical field. *BMC Med Educ* 2016;16:160. doi: 10.1186/s12909-016-0670-9.

5. Djulbegovic B, Guyatt GH. Progress in evidence-based medicine: a quarter century on. *Lancet* 2017;390:415-23. doi: 10.1016/S0140-6736(16)31592-6.
 6. Melnyk BM, Fineout-Overholt E, Giggelman M, Choy K. A Test of the ARCC© Model Improves Implementation of Evidence-Based Practice, Healthcare Culture, and Patient Outcomes. *Worldviews Evid Based Nurs* 2017;14:5-9. doi: 10.1111/wvn.12188.
 7. Laursen S, Hunter A-B, Seymour E, Thiry H, Melton G. Undergraduate research in the sciences: Engaging students in real science. Hoboken, NJ: John Wiley & Sons; 2010.
 8. Naseem I, Tahir M, Afridi A, Saeed BB. A Descriptive Analysis of Research Culture in Pakistan. *FWU J. Soc. Sci.* 2019;13:36-50.
 9. Zier K, Stagnaro-Green A. A multifaceted program to encourage medical students' research. *Acad Med* 2001;76:743-7. doi: 10.1097/00001888-200107000-00021.
 10. Sheikh AS, Sheikh SA, Kaleem A, Waqas A. Factors contributing to lack of interest in research among medical students. *Adv Med Educ Pract* 2013;4:237-43. doi: 10.2147/AMEP.S51536.
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