

SPECIAL COMMUNICATION

Peer-led surgery education: A model for a surgery interest group

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Abstract

We present a systematic, sustainable, student-led model for a Surgery Interest Group in a low and middle-income country setting to encourage other medical students to establish similar groups in their institutions. Our model was developed at the Aga Khan University Medical College, Karachi, and is comprised of medical students, teaching associates, residents, faculty and alumni. The group focuses on connecting medical students with an interest in surgery with opportunities to help them match in surgery training programs. The opportunities include, but are not limited to, skill development, personal development, mentorship and research. Our model has shown growth and expansion over the last four years, and can be successfully replicated in medical colleges across similar settings.

Keywords: Education, Surgery, Undergraduate medical education, Mentorship.

Introduction

Over the last century, advances in our understanding of disease pathology have caused surgical disciplines to move to the forefront of healthcare. Once considered either a luxury or a last-ditch effort, surgical intervention is now regarded as a necessary component of quality medical care. There is a need for 2.2 million more surgeons and anaesthetists to meet the global demand.¹ A surgeon in today's world works towards a mission of making timely, affordable and quality surgical care possible and widely accessible. Therefore, young aspiring surgeons must be exposed to the right opportunities at the right time. The Surgery Interest Group (SIG) at the Aga Khan University (AKU), Karachi, serves this very purpose. It utilises resources available to students and leverages them to structure workshops, talks, surgical camps and a

host of other activities while serving as a platform for connecting faculty, residents, alumni and students.

Since its inception four years ago, the group has established itself within AKU and has enabled many medical students, who are aspiring surgeons, to pursue their dream careers. With the introduction of a new structure, the group is ready to take on new challenges. The SIG (Figure-1) now comprises five divisions: Education and Skills Development, Alumni Outreach, Research, Event Administration, and Media & Publications. All these domains work in close coordination to bring about a greater volume of outcome in the shape of added opportunities for students without compromising on quality.

Surgery is a small community, and we must grow in synergy instead of silos. Therefore, we cater not only to the surgically-inclined students of the AKU, but even outside through our countrywide Ambassadors Programme and international networks. This has allowed medical students from multiple institutions to foster connections with each other while simultaneously deepening their interest in surgery as a career choice.



Figure-1: Surgery Interest Group (SIG) logo adopted in 2018.

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History of the group

To promote the field of surgery among medical students and help them find a match in surgical training programmes, Dr. Ayesha Quddusi, who at the time was a medical student, approached the leadership of AKU Department of Surgery with a proposal to establish a surgery interest group in mid-2016. Dr. Sadaf Khan, a colorectal surgeon and a distinguished alumnus, and Dr. Ather Enam, Chair of the Department of Surgery, saw the concept's potential and became the biggest advocates of the programme. Later that year, the group was given the official approval by the Chair of Surgery, with Drs. Enam and Khan as its Patrons, and Dr. Quddusi as the first Convener.

Structure of the group

The group has a core and a general body (Table-1). The core team consists of three members from the final (fifth) year and five members each from third and fourth years of undergraduate medical programme. These members are appointed for the duration of an academic term. Final-year members hold the positions of convener, general secretary, and treasurer, and supervise the working of the five divisions, while each fourth-year student leads one of the five divisions (Figure-2).

The third-year core members rotate in the divisions on a bi-monthly basis and serve as the secretary of their assigned division. The general body members from all the five years are selected through a performance-based evaluation and are then assigned to the divisions on a rotational basis. Apart from the opportunity to co-organise events with the core, the general body members are given preference while short-listing applicants for various programmes offered by the group.

The education and skills development division oversees the development of skills and personal development courses for surgery enthusiasts. In contrast, the alumni outreach division acts as a direct connection between the existing and the former students, and provides a

Table-1: Team composition over the years.

Academic Year	Core Members	General Body Members	Faculty Patrons	Administration
2019-20	13	134	2	2
2018-19	9	103	2	2
2017-18	9	57	2	2
2016-17	9	50	2	2

conduit to channelise experiences and opportunities. The research division collaborates with university centres and faculty involved in active research to enable students find research assignments in their fields of interest while also offering training and mentorship opportunities. The event management and media divisions ensure adequate logistical support and effective communication for the functions of the other divisions of the group.

Activities of the Group

At the beginning of each academic year, a calendar of events is devised by the group's leadership and shared with patrons for approval (Table-2). Activities include a monthly guest lecture by a renowned faculty or alumni. The topics range from recent advances in surgery to surgical career pathways, and motivational talks. Talks and panel discussions by current students returning from elective rotations are also featured routinely to encourage knowledge-sharing among peers.

SIG's most sought-after event of the year is the suturing

Table-2: Distribution of Surgery Interest Group (SIG) activities over the years.

Academic Year	Workshops	Discussions & Talks	Conferences	Surgical Camps
2019-20	8	16	2	-
2018-19	1	10	1	1
2017-18	2	8	1	-
2016-17	2	8	-	-

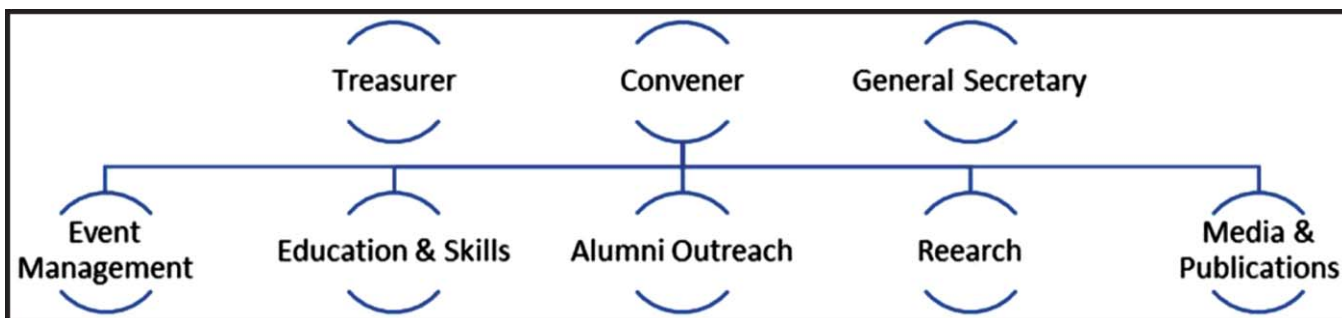


Figure-2: Structure of the Surgery Interest Group (SIG).

and knot-tying workshop (Figure-3), which has a record number of sign-ups each year. This year, SIG conducted two separate workshops for more than 130 students from 10 medical colleges other than AKU via the Ambassadors Programme. Participants of the workshops had to pre-register themselves. A resource booklet was emailed to all participants. On the day of the workshop, a pre-test was conducted to assess the attendees' baseline knowledge. After a brief presentation on surgical instruments and sutures, the participants were divided into smaller groups of five. Each group had a facilitator and a student lead who helped them learn different suturing techniques on a silicone pad. To reduce the cost, the Department of Surgery provided us with sutures that were being discarded from the operation rooms (ORs). Following suturing practice, a wooden knot-tying board and shoelaces were used to learn surgical knots. The participants were also given the option to borrow equipment to practise at their own time.

Other skill development workshops introduced recently include surgical etiquette and Foley catheter insertion workshops with 30 and 100 participants, respectively. The former was designed to guide students on how to ace their surgery rotations. It taught wound dressing, wet and dry scrubbing techniques, and preparation of patient lists. The students also learned about different ways to assist their teams during surgical rounds and in the OR. For the Foley catheter insertion workshop, we borrowed a mannequin from AKU's Centre for Innovation in Medical Education (CIME). A urology resident volunteered his time to teach during the workshop. The workshop divided attendees into smaller groups and included a demonstration followed by practice sessions for each group. Apart from the skill development workshops, two



Figure-3: Suturing and Knot-Tying workshop setup.

workshops were included on the theme of personal development with topics ranging from email writing to curriculum vitae (CV) building, catering to more than 600 attendees.

The SIG plays an active role in organising the Annual Surgical Conference held by the AKU Department of Surgery each year. The conference itinerary includes several events exclusively for students, with the group enjoying a leading role in designing, organising and conducting these events which include an early morning breakfast meal featuring local cuisine with the visiting surgeons, a dedicated students' session and various workshops. The SIG recently introduced the concept of Surgery Olympics and invited over a hundred medical students from across the country to take part and learn from a competition-based surgical pedagogy.

The current academic session was disrupted due to the coronavirus disease-2019 (COVID-19) pandemic.^{2,3} The group was able to adapt quickly by moving its activities on virtual platforms. Surgery Saturdays — an online series — was launched and opened to medical students across the country. Each weekend the session featured Pakistani-origin speakers pursuing surgical training and practice across the globe, including Australia, the United Kingdom, and the United States. With time and space no longer a limitation, we witnessed a record rise in the audience with a cumulative total of well over 3,000 attendees.

To maintain the highest standards, SIG activities are reviewed and approved by faculty patrons. To further strengthen quality control measures, SIG was able to get accreditation from the Accreditation Council for Continuing Medical Education (ACCME) for over 10 of the current year's events, including talks and workshops.

Role of Alumni

The AKU has a rich and diverse alumni network dedicated to giving back. The alumni take a deep interest in SIG and are always there to help and guide medical students. Therefore, the group has a dedicated division to ensure that this connection is fostered to the benefit of the students. Visiting alumni generously offer a lecture or a small group discussion (SGD). During the sessions, students get the opportunity to learn from the rich experiences of their seniors. Following the session, students can engage in informal discussions over refreshments. This interaction often transforms into a mentor-mentee relationship with the alumni helping and guiding the students in securing training

opportunities. Alumni not physically on campus often use video-link services to connect with the students. Interestingly, the spirit of giving back is not limited to senior alumni. Even recent graduates take a leading role in various activities of the group. They offer guidance in a wide range of basic yet essential topics, like tips and tricks of CV building, email writing, residency interviews, and a lot more.

International networks, partnerships, and the Ambassador's Programme

The SIG works on the principle of synergy to extend opportunities through partnerships and networks. It successfully launched a nationwide Ambassadors Programme during recently which now has students from over 20 medical colleges from across Pakistan (Table-3). Ambassadors and students in their medical schools enjoy a host of activities offered by the group and get recognition in the shape of merchandise and certificates to enhance the group's reach.

On the international front, the SIG joined the International Association of Student Surgical Societies (IASS) and Association of Women Surgeons (AWS). The group also became part of the American College of Surgeons' International Surgery Interest Group directory and is the only one from South Asia. These networks help the members learn and share experiences across the borders and adopt international best practices.

Table-3: Medical colleges of students in the Ambassador's Programme.

Dow University of Health Sciences (DUHS)
Ziauddin University (ZU)
Liaquat National Medical College (LNMC)
Sir Syed College of Medical Sciences (SSCMS)
United Medical and Dental College (UMDC)
Fatima Jinnah Dental College (FJDC)
Liaquat College of Medicine and Dentistry (LCMD)
Jinnah Sindh Medical University (JSMU)
Bahria University Medical College
Karachi Medical and Dental College (KMDC)
Jinnah Medical & Dental College (JMDC)
Islamabad Medical & Dental College (IMDC)
Bolan University of Medical and Health Sciences (BUMHS)
Combined Military Hospital (CMH) Medical College, Lahore
Shifa College of Medicine (SCM)
Indus Medical College (IMH)
Liaquat University of medical and health sciences (LUMHS), Jamshoro
Baqai Medical University
Federal Medical and Dental College (FMDC)
Quaid-e-Azam Medical College, Bahawalpur
People's University of medical and health sciences for women, Nawabshah
Islamic International Medical College Rawalpindi

Resources and Funding

The group activities are made possible with the logistical and financial support of the AKU Department of Surgery. The main logistical requirements are space, equipment and volunteer time. Expenses are mainly incurred towards procuring equipment, sutures, booking spaces, souvenirs and refreshments. Students, residents, and faculty of the university generously contribute their time with no compensation. Students interested in implementing a similar model in their institutions may get in touch with their Chair of Surgery, Surgery Coordinator(s), and Undergraduate Medical Education office to coordinate resources and funding. It is possible to implement this model with minimal financial resources, and there are economical options available for each category.

Findings

The SIG at AKU has been successful in sparking interest in surgery among medical students across all years while dispelling myths and helping break stereotypes about surgery as a career choice. It has enabled students to explore the field of surgery by serving as a bridge to faculty, residents, alumni and other medical students. It has provided opportunities to enhance their hands-on skills as well as offered personal and professional grooming. In addition, the model is cost-effective with adequate coordination and support from the Department of Surgery.

Limitations

Due to busy clinical clerkships, the time that students can dedicate to the group's activities is limited. However, since participation in the group is voluntary, it is driven by passion and energy. Moreover, increased involvement of general body members, especially preclinical students, can ensure smooth functioning of the group's activities.

Conclusion

The student-led SIG model has shown growth and expansion over the last years. Besides consolidating protocols for routine activities, the group aims at periodically adding new ones to adapt to the students' changing circumstances and needs while keeping costs to a minimum. The strengths of this model include the spirit of volunteerism and giving back, which keeps the group going. Student members dedicate their time and efforts, which significantly reduces the cost of human resource, while at the same time providing them with the essential leadership and management experience. The model can therefore be

successfully replicated by interested medical students in their institutions across low and middle-income countries (LMICs).

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References

1. Meara JG, Leather AJ, Hagander L, Alkire BC, Alonso N, Ameh EA, et al. Global Surgery 2030: evidence and solutions for achieving health, welfare, and economic development. *Lancet* 2015;386:569-624. doi: 10.1016/S0140-6736(15)60160-X.
 2. Ahmed H, Allaf M, Elghazaly H. COVID-19 and medical education. *Lancet Infect Dis* 2020;20:777-78. doi: 10.1016/S1473-3099(20)30226-7.
 3. Rose S. Medical Student Education in the Time of COVID-19. *JAMA* 2020;323:2131-2. doi: 10.1001/jama.2020.5227.
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