

## STUDENTS' CORNER SHORT REPORT

### PakSurg: The first trainee-lead model for multicenter surgical research collaboration in Pakistan

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#### Abstract

We describe creation and piloting of the PakSurg Collaborative, devised via integration of existing trainee-led collaborative models in the United Kingdom with the resource-limited surgical care in Pakistan. This is the first trainee-lead surgical research collaborative in Pakistan, established by the student-lead Surgery Interest Group from the Aga Khan University. The project involved creation of a model that included a steering committee comprising of five teams which worked in conjunction with collaborators from multiple hospitals. To facilitate this collaboration, a comprehensive and cost-efficient study management pathway was developed. The PakSurg Collaborative has the potential to deliver methodologically robust, high-quality, multicenter surgical evidence from Pakistan. This nationally representative data could inform evidence-based surgical guidelines, potentially translating into improved outcomes for patients undergoing surgery.

**Keywords:** Research, Surgery, Multicenter studies, Collaborative research.

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#### Introduction

In Pakistan, a majority of existing surgical research evidence is based on single-center experiences. The resulting evidence is generally limited by small sample sizes, lack of generalizability, and potential for bias.<sup>1</sup> Pakistan is a lower-middle-income country (LMIC) with limited resources available for research training and career development. There are limited funding opportunities available for surgical researchers. Consequently, the depth and quality of research output is inadequate to inform surgical practice.<sup>2</sup> Evidence-based surgical guidelines exist but are usually powered by data extrapolated from high- and upper-middle-income

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countries.<sup>3</sup> It is well-documented that LMICs face unique and diverse challenges in building and maintaining surgical capacity. Therefore, the validity of existing guidelines based on resource-rich environments is questionable.<sup>4</sup>

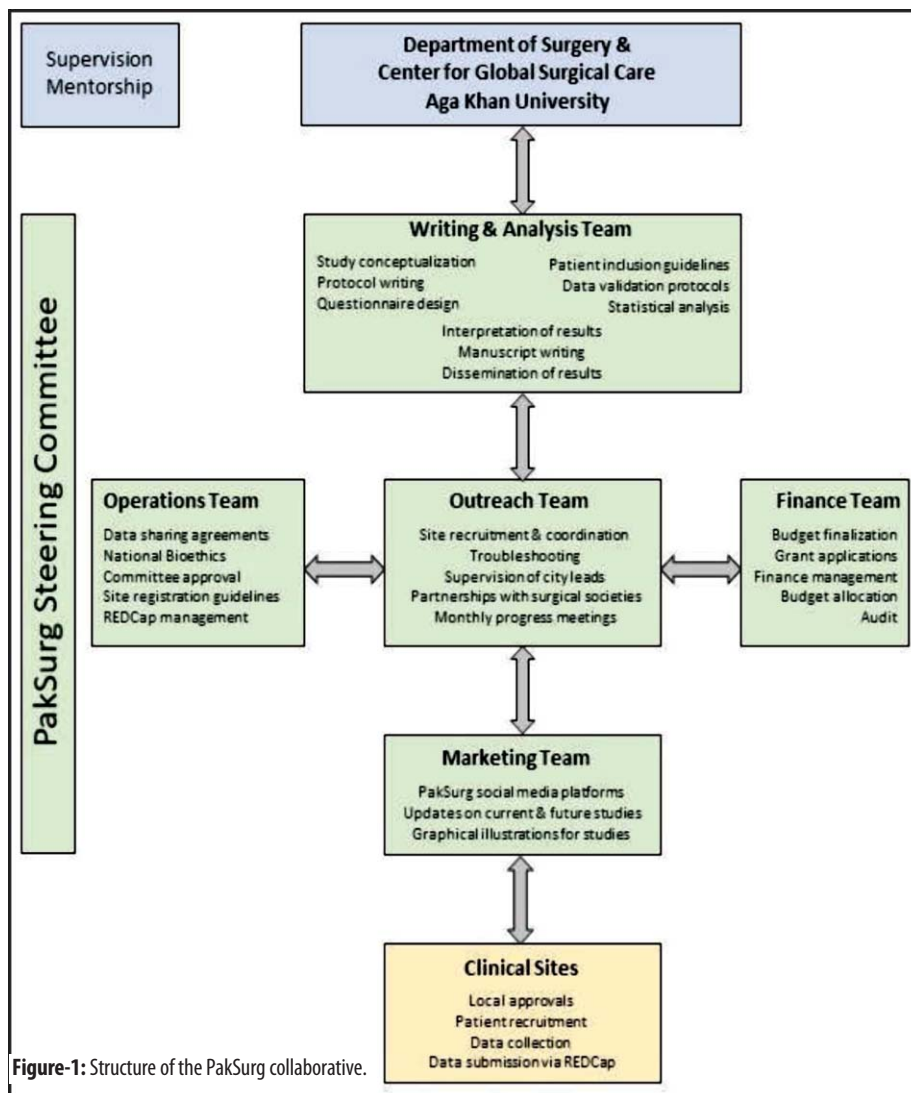
The trainee-lead collaborative research model has been developed within the surgical community in the United Kingdom.<sup>5</sup> This comprises of groups of trainees recruiting patients, collecting data, and submitting it over short patient recruitment windows. As a result, individual burden on trainees is significantly reduced while ensuring methodologically robust surgical research output, capable of informing surgical practice and improving the quality of care.<sup>1,5-7</sup> This collaborative model also allows delivery of high-quality evidence in a timely fashion, evidenced from the role that the COVIDSurg Collaborative has played in informing surgical practice during the coronavirus disease 2019 (COVID-19) pandemic.<sup>8-11</sup>

Despite allowing delivery of high-quality evidence from multicenter studies efficiently at minimal cost, the trainee-lead collaborative model has not been implemented in Pakistan till now. National research output from such a model could inform evidence-based surgery in Pakistan, improving perioperative outcomes and quality of surgical care for patients. We describe the formation of the first trainee-lead surgical research collaborative in Pakistan.

#### Methods and Results

The student-lead Surgery Interest Group (SIG) at the Aga Khan University (AKU), Karachi, Pakistan researched and reviewed models of existing national and international trainee-lead surgical research collaboratives. These included the GlobalSurg,<sup>12</sup> Global NeuroSurg Research Collaborative,<sup>13</sup> PancreasGroup,<sup>14</sup> STARSurg Collaborative,<sup>15</sup> BURST Research Collaborative,<sup>16</sup> and the Vascular and Endovascular Research Network.<sup>17</sup>

The logistical requirements and feasibility of integrating these models within a resource-constrained environment were discussed in multiple SIG internal meetings, and with the Department of Surgery and Centre for Global Surgical Care (CGSC) at AKU. An initial trainee-lead model



RETAINER study in Pakistan.<sup>18</sup> For this purpose, SIG invited centers in Pakistan to collaborate via its National Ambassador Network. This network includes over 150 medical students and surgical trainees from 70 medical colleges and hospitals. A virtual meeting was held over Zoom, and study-specific details in addition to center registration pathways were presented and explained to the ambassadors. SIG was subsequently involved in processing registrations, assisting with local institutional approvals, and troubleshooting during patient recruitment, data collection, and data submission phases. Regular internal progress meetings and discussions with the Department of Surgery and CGSC were conducted to assess progress, consider limitations, and re-evaluate the planned model.

This exercise led to the creation of the first trainee-led surgical research collaborative in Pakistan, the PakSurg Collaborative. Under this model, the steering committee comprises of five teams working in conjunction to implement multicenter surgical research in Pakistan. This includes writing and

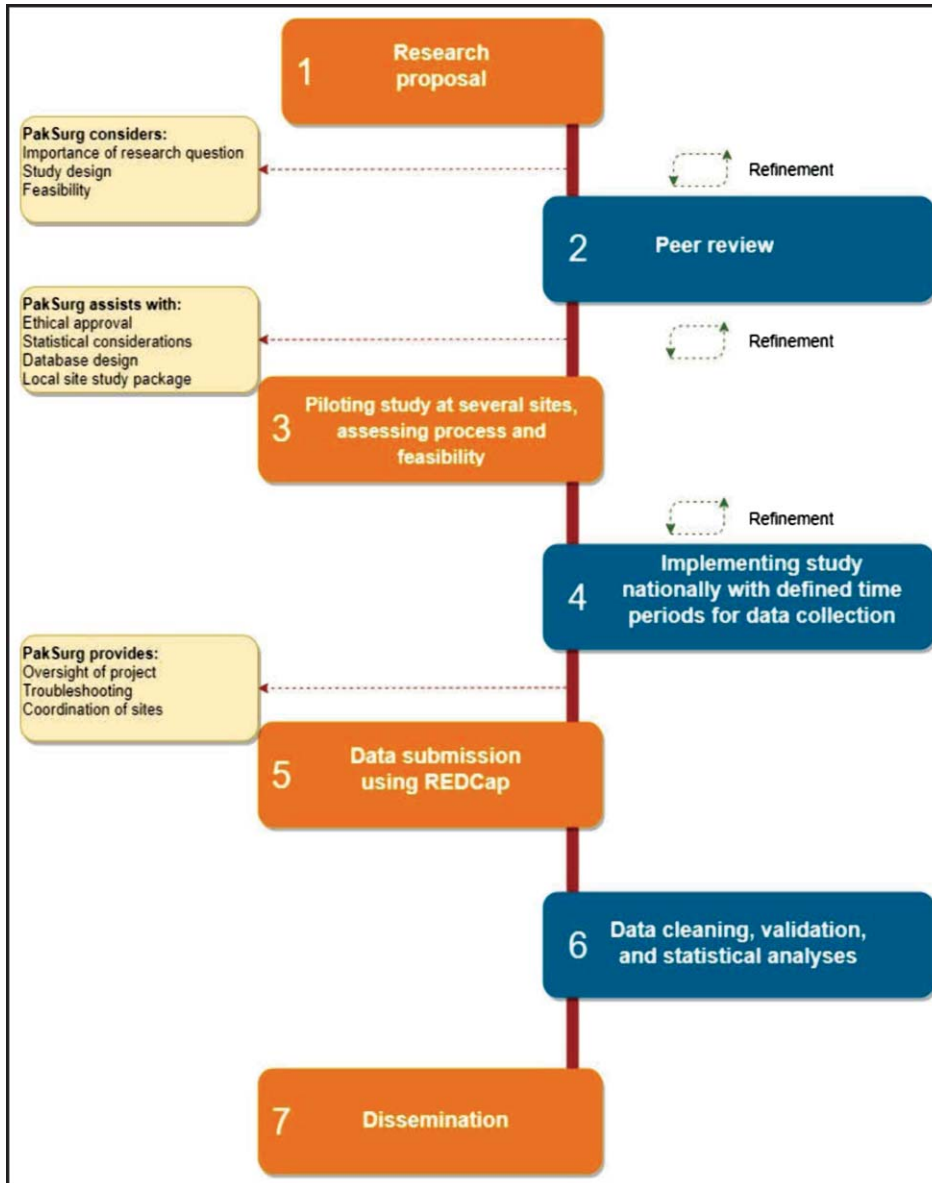
was developed after integrating the various international and regional models with the existing surgical practices in the Pakistani healthcare system.

To understand the limitations of implementing this model nationally from the point of view of institutional collaborators, SIG partnered with the GlobalSurg, the Global NeuroSurg Collaborative, and the PancreasGroup. During this phase, SIG selected students and trainees from AKU to recruit patients, collect, and submit data for surgical research studies by these collaborative groups. Virtual Zoom-based meetings were conducted with these students and trainees, and feedback was incorporated into the planned model.

To explore potential bottlenecks in implementing surgical studies in Pakistan, SIG collaborated with the Royal College of Surgeons in Ireland and led their

analysis, outreach, operations, marketing, and finance teams (Figure-1).

Potential project proposals are adapted after an extensive peer-review process, with input from experts in the field. Only feasible research studies with relevance to the local context are selected. This is followed by piloting the selected study, adjusting methods and processes based on feedback, and implementing nationally after approval from the National Bioethics Committee (Figure-2). Local institutional approvals, patient recruitment, and data collection are managed by mini teams at each center, facilitated by the PakSurg Steering Committee. De-identified patient data according to a standardized proforma are submitted to the PakSurg Steering Committee via a secure network based on REDCap.<sup>19</sup> The PakSurg Steering Committee is subsequently responsible for data cleaning, validation, statistical analyses,



**Figure-2:** Study-management pathway incorporated into the PakSurg collaborative.

manuscript writing, and dissemination. All collaborators contributing data to the studies are awarded with PubMed indexed collaborator authorship on resulting publications, similar to global collaborative models.<sup>20</sup>

## Conclusion

The organization of a successful multicentre research collaboration is challenging. A functional and cohesive team is required for the study planning and execution, with quality assurance. Although organization of such projects may be difficult, multicenter research provides evidence-based data related to safety and efficacy of surgical care.<sup>21</sup> Improvements in surgical outcomes in

Pakistan warrants nationally representative data to inform evidence-based surgical care. Trainee-led surgical research collaboratives can fill this gap while ensuring that the research output is methodologically robust.

PakSurg Collaborative has been designed to involve a large number of trainees in data collection. This reduces burden on individual trainees while collectively leading to large, well-powered studies aiming to answer questions that would otherwise be difficult to answer.<sup>6</sup> In addition, PakSurg aims to increase surgical research output in Pakistan and provide evidence to improve patient care and health outcomes. Despite the potential of this strategy, this collaborative model is currently limited to observational studies due to governance issues associated with complex interventional studies. The PakSurg team plans to start with simpler studies and gradually progress to national, multicenter randomized controlled trials.

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**Conflict of Interest:** None to declare.

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