Implementation of Robotic Technology in Trauma and Acute Care Surgeons Practices Experience from a Level I Trauma Center

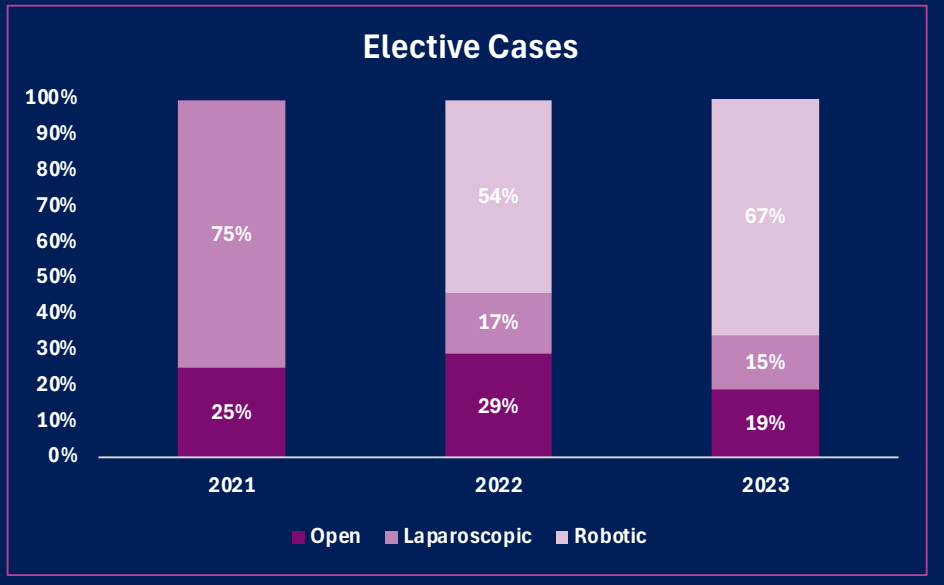
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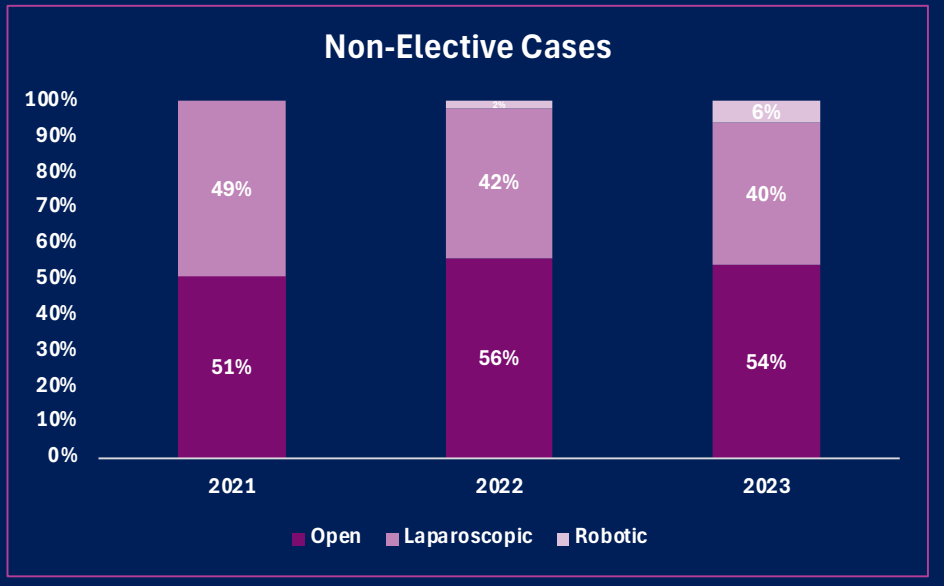
Introduction

Robotic minimally invasive surgery (MIS) applications continue to expand across all surgical fields and training. However, the adoption of such technology falls behind in urgent and emergent settings. In this study, we described our experience in adopting robotic MIS in the practices of trauma and acute care surgeons (TACS) in elective and non-elective cases.

Methods

At a level I trauma center, three TACS adopted robotic MIS in their elective and non-elective practices in a staged manner; pre-implementation (2021), implementation (2022), and post-implementation (2023). Pearson's $\chi 2$ test was used to compare proportions between categorical variables.





Results

In 2021, the group performed 485 abdominal cases, of which 265 (55%) were MIS with no robotic cases. In 2022, a total of 547 abdominal cases were performed, and 290 (53%) were MIS; 107 (37%) robotic, and 183 (63%) laparoscopic. In 2023, 512 cases were performed, of which 302 (59%) were MIS; 144 (48%) were robotic and 158 (52%) laparoscopic. While the adoption of the robotic technology was much more pronounced in the elective setting ($p<0.0001$); the increase in non-elective robotic cases was significant in the post-implementation year (p 0.01).

Conclusion

TACS efficiently integrated robotic technology into their practices, mainly in the elective setting, as the transition in non-elective surgery was lagging. Further studies are needed to elucidate and potentially address the limitations of robotic surgery in the non-elective setting.

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