

Does Patient Presentation Time Impact the Use of Damage Control Laparotomy in Trauma?



Introduction

- Damage control laparotomy (DCL) is a mainstay treatment for severely injured trauma patients, but has risks when compared to definitive closure.
- Trauma patients can present at any time, and multiple studies have looked at the impact presentation time has on a variety of patient outcomes.
- There is a lack of studies which specifically evaluated for the impact presentation time may have on the propensity for a DCL in trauma patients.

Objective:

To determine if trauma patients presenting at night who required an exploratory laparotomy had a DCL performed at similar rates compared to similarly injured patients who presented during the day.

Study Design

- Retrospective chart review of adult patients at University Medical Center, New Orleans between July 2012 to December 2021.
- Data collected included patient demographics, patient presentation time, Injury Severity Score (ISS), Length of Stay (LOS), and patient outcomes.
- Patient presentation was classified as night or day depending on the presence of the sun below or above the horizon using public astronomy records.
- Univariate analysis was performed with $p < 0.05$ considered significant.

Figures

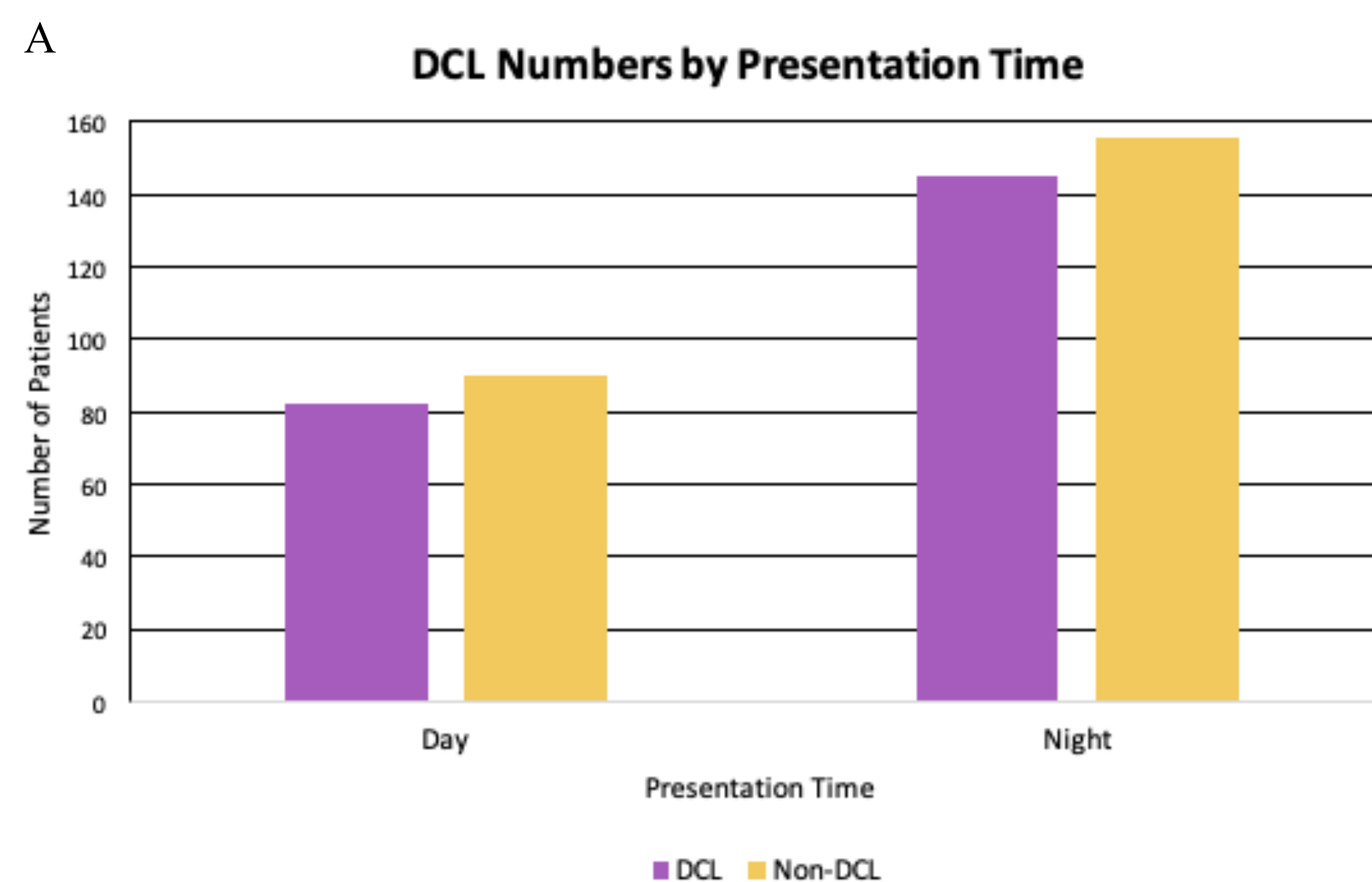


Figure A: There was no significant difference in patients presenting at night undergoing a DCL. $p=0.92$

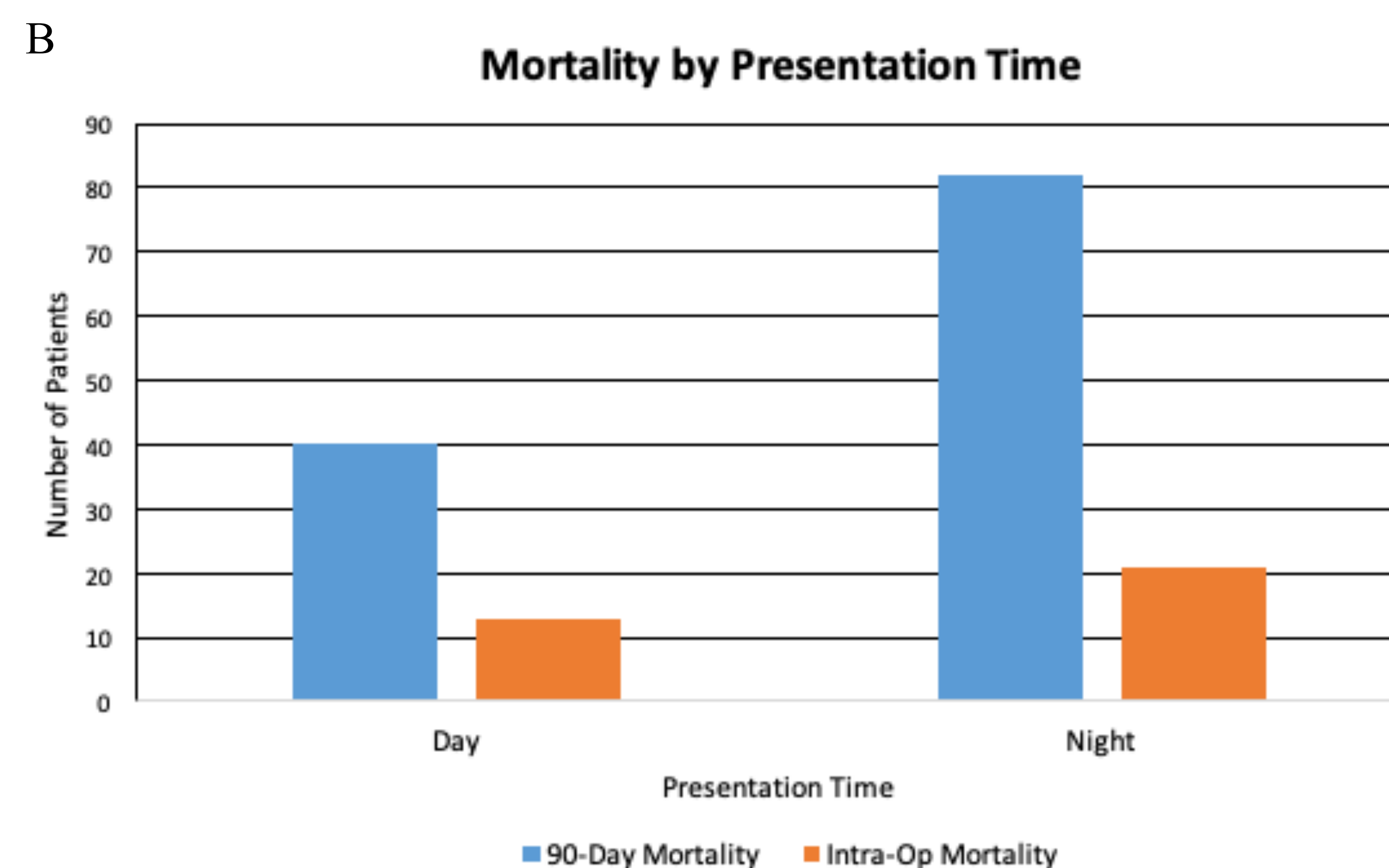


Figure B: There was no significant difference in patient mortality whether they presented during the day or at night. $p=0.38$

Results

- 474 patients met inclusion criteria, with 302 (63.7%) presenting at night.
- 228 (48.1%) of all patients had a DCL with 145 (63.59%) of the night cohort receiving a DCL.
- Of the 474 patients, 103 (21.73%) were deceased within 90 days of presentation.
- No significant difference between daytime and nighttime DCL rates, intra-op mortality rates, or 90-day mortality rates, even when controlling for ISS.

Conclusion

- Trauma patient presentation time ultimately does not have an impact on their need to have a damage control laparotomy, or their overall mortality rate, regardless of ISS.
- Any potential concerns for inadequate staffing or resource availability during evening hours does not have a significant impact on patient outcomes.

References

- George MJ, Adams SD, McNutt MK, Love JD, Albarado R, Moore LJ, Wade CE, Cotton BA, Holcomb JB, Harvin JA. The effect of damage control laparotomy on major abdominal complications: A matched analysis. *Am J Surg*. 2018 Jul;216(1):56-59. doi: 10.1016/j.amjsurg.2017.10.044. Epub 2017 Nov 11. PMID: 29157889; PMCID: PMC6272122.
- Stonko DP, Dennis BM, Callcut RA, Betzold RD, Smith MC, Medvez AJ, Guillaumondegui OD. Identifying temporal patterns in trauma admissions: Informing resource allocation. *PLoS One*. 2018 Dec 3;13(12):e0207766. doi: 10.1371/journal.pone.0207766. PMID: 30507930; PMCID: PMC6277067.