Trauma Surgery & Acute Care Open

Conundrums in the surgical intensive care unit: fevers and antibiotic prophylaxis

Diane N Haddad (), Patricia Martinez Quinones (), Sriharsha Gummadi (), Niels D Martin ()

To cite: Haddad DN, Martinez Quinones P, Gummadi S, et al. Conundrums in the surgical intensive care unit: fevers and antibiotic prophylaxis. *Trauma Surg Acute Care Open* 2024;9:e001352. doi:10.1136/ tsaco-2023-001352



 http://dx.doi.org/10.1136/ tsaco-2023-001304
http://dx.doi.org/10.1136/ tsaco-2023-001305
http://dx.doi.org/10.1136/ tsaco-2023-001303
Quthor(s) (or their employer(s)) 2024. Re-use permitted under CC BY-NC. No commercial re-use. See rights and permissions. Published by BMJ.

Surgery, University of Pennsylvania, Philadelphia, Pennsylvania, USA

Correspondence to

Dr Niels D Martin; niels. martin@pennmedicine.upenn. edu

ABSTRACT

This editorial is in response to the three latest clinical consensus guidelines authored by the Critical Care Committee of the American Association for the Surgery of Trauma. Herein, we discuss their main findings and recommendations and their impact on the practice of Surgical Critical Care.

The Critical Care Committee of the American Association for the Surgery of Trauma has produced a series of Clinical Consensus Guidelines, the latest three of which focus on surgical infections and their treatment. The committee authors thoughtfully provide guiding commentary, especially in areas where strong evidence in the literature is lacking; that is, the unique space that these consensus guidelines fill. These latest guidelines cover the evaluation of fever and antibiotic prophylaxis after injury and peri-procedurally.^{1–3}

The authors eloquently provided a broad sweeping discussion on fever evaluation, including both infectious and non-infectious pathogenesis, which interestingly are a 50/50 split in occurrence in the surgical intensive care unit. The tension in the article—similar to that of caring for critically ill patients—lies in appropriately recognizing and treating sepsis, where we know that early antibiotics are essential in improving outcomes,⁴ and avoiding unnecessary antibiotic use, in a world of growing antibiotic resistance primarily driven by overuse.⁵⁶ Table 3 of the Norha *et al* article provides an excellent overview and quick reference that every surgical intensivist should have committed to memory or readily available for reference.

The consensus on post-injury antibiotic prophylaxis is underscored by the importance of targeted prophylaxis in trauma patients and balancing infection prevention with judicious antibiotic use. This practical guide categorizes recommendations by injury type and severity, further stratified by level of evidence. This consensus document is invaluable for trauma providers, streamlining antibiotic choices and ultimately optimizing patient care and minimizing the emergence of antibiotic resistance and should be incorporated into the practice management guidelines of each institution.

Lastly, the consensus on peri-procedural antibiotic prophylaxis in the surgical intensive care unit is most notable for recommending a single pre-procedural dose of antibiotics for most procedures. For promptly treated traumatic bowel injuries, antibiotics should not be continued beyond 24 hours. Cefazolin is appropriate in most cases, but consideration should be given to methicillin-resistant Staphylococcus aureus or gram-negative/anaerobic coverage based on the surgical indication. As above, antibiotic stewardship is paramount to limiting unnecessary exposure and resistance in our highly susceptible surgical and trauma intensive care unit population.

Commentary

Contributors All authors participated in the conception of the work and participated in writing and editing the work.

Funding The authors have not declared a specific grant for this research from any funding agency in the public, commercial or not-for-profit sectors.

Competing interests None declared.

Patient consent for publication Not applicable.

Ethics approval Not applicable.

Provenance and peer review Commissioned; internally peer reviewed.

Open access This is an open access article distributed in accordance with the Creative Commons Attribution Non Commercial (CC BY-NC 4.0) license, which permits others to distribute, remix, adapt, build upon this work non-commercially, and license their derivative works on different terms, provided the original work is properly cited, appropriate credit is given, any changes made indicated, and the use is non-commercial. See: http:// creativecommons.org/licenses/by-nc/4.0/.

ORCID iDs

Diane N Haddad http://orcid.org/0000-0002-0723-0832 Patricia Martinez Quinones http://orcid.org/0000-0001-9704-0268 Sriharsha Gummadi http://orcid.org/0000-0001-8597-6114 Niels D Martin http://orcid.org/0000-0002-2157-0825

REFERENCES

- 1 Nohra E, Appelbaum RD, Farrell MS, Carver T, Jung HS, Kirsch JM, Kodadek LM, Mandell S, Nassar AK, Pathak A, et al. Fever and infections in surgical intensive care: an American Association for the surgery of trauma critical care committee clinical consensus document. Trauma Surg Acute Care Open 2024;9:e001303.
- 2 Appelbaum RD, Farrell MS, Gelbard RB, Hoth JJ, Jawa RS, Kirsch JM, Mandell S, Nohra EA, Rinderknecht T, Rowell S, et al. Antibiotic prophylaxis in injury: an American Association for the surgery of trauma critical care committee clinical consensus document. *Trauma Surg Acute Care Open* 2024;9:e001304.
- 3 Farrell MS, Agapian JV, Appelbaum RD, Filiberto DM, Gelbard R, Hoth J, Jawa R, Kirsch J, Kutcher ME, Nohra E, *et al.* Surgical and procedural antibiotic prophylaxis in the surgical ICU: an American Association for the surgery of trauma critical care committee clinical consensus document. *Trauma Surg Acute Care Open* 2024;9:e001305.
- 4 Evans L, Rhodes A, Alhazzani W, Antonelli M, Coopersmith CM, French C, Machado FR, Mcintyre L, Ostermann M, Prescott HC, et al. Surviving sepsis campaign: International guidelines for management of sepsis and septic shock 2021. Crit Care Med 2021;49:e1063–143.
- 5 Chatterjee A, Modarai M, Naylor NR, Boyd SE, Atun R, Barlow J, Holmes AH, Johnson A, Robotham JV. Quantifying drivers of antibiotic resistance in humans: a systematic review. *Lancet Infect Dis* 2018;18:e368–78.
- 6 Kalil AC, Timsit JF. Less is more: critically ill status is not a carte blanche for unlimited antibiotic use. *Intensive Care Med* 2020;46:2075–8.