CCCS-SSAI WikiRecs Clinical Practice Guideline: vasopressors in early traumatic shock

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PICO^A Question: Should early vasopressors be used vs not used in adult trauma patients with hypotension?

Recommendation: The panel did not make a recommendation for this question.

This is a recommendation developed by the Canadian Critical Care Society and the Scandinavian Society of Anaesthesiology and Intensive Care Medicine (CCCS-

This is a recommendation developed by the *Canadian Critical Care Society* and the *Scandinavian Society of Anaesthesiology and Intensive Care Medicine* according to standards for trustworthy guidelines in collaboration with the MAGIC WikiRecs project. An abridged version of the guideline is published in *Intensive Care Medicine* (10.1007/s00134-016-4539-5).

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SSAI) according to standards for trustworthy guidelines in collaboration with the MAGIC WikiRecs project. The WikiRecs project is an ongoing collaborative effort by a network of expert clinicians and methodologists whose aim is to produce trustworthy evidence summaries and clinical practice recommendations within 90 days of identifying potentially practice-changing evidence. See www.magicapp.org/public/guideline/OLwWKL for more details about methods and processes, full evidence summary (GRADE SoF-table), and practical information presented in multilayered formats—available on all digital devices. The electronic supplemental material also contains similar information expanding on the WikiRecs methods and processes.

Justification: A systematic review of the literature, including both blunt and penetrating trauma, found multiple observational trials examining this clinical question^{1–4} and a single randomized-controlled trial (RCT).⁵ Although the observational data suggest increased short-term mortality associated with the use of

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^A PICO is defined as: Population, Intervention, Comparator, Outcome.

Table Evidence profile outlining outcomes studied, pooled relative and absolute estimates of effect, GRADE certainty rating, and summary statement

Outcome	Study results and measurements	Absolute effect estimates		Certainty in effect estimates (Quality of evidence)	Summary
		No early vasopressors	Early vasopressors		
Short-term Mortality (90 days)	Relative risk: 1.24 (95% CI, 0.64 to 2.43) Based on data from 78 patients in 1 study	275 per 1,000	342 per 1,000 Difference: 66 more deaths per 1,000 (95% CI, - 99 to 393)	Very Low Due to very serious risk of bias and very serious imprecision	We are uncertain whether vasopressors increase or decrease short-term mortality
Ventilator-free Days (VFD)	Based on data from 78 patients in 1 study	Mean Difference 2.2 more VFDs (95% CI, -10.8 to 15.2)		Very Low Due to very serious risk of bias and very serious imprecision	We are uncertain whether early vasopressors increase or decrease ventilator-free days

CI - confidence interval

vasopressors (three studies; 1,711 patients; relative risk, 4.97; 95% CI, 2.95 to 8.37; very low certainty in estimates), the panel's assessment was that the RCT provided more informative evidence than the observational studies due to the overwhelming concern for residual confounding bias in the non-randomized trials.⁶ Despite starting as high quality, point estimates from the RCT for the outcomes of mortality and ventilator-free days ended with very low certainty (see Table). These were secondary to concerns related to the potential risk of bias (imbalance between baseline prognostic markers, significant loss to follow-up, and the fact the trial was stopped early due to slow accrual of patients) and significant imprecision.

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As all estimates are based on data with very low certainty, it is very difficult to assess the balance between net benefits and harms from use of vasopressors in this population. Also, some relevant outcomes, such as worsening organ ischemia and rates of arrhythmia, were not captured by the included trial. We lack data on long-term morbidity and quality-of-life indices, which severely limits our ability to make a recommendation. Highlighting the uncertainty of this question, there is currently a high degree of variability in clinical practice, with significant geographical variation regarding the use of early vasopressors in trauma patients.⁷

Understanding both the lack of demonstrated benefit and the fact that the use of vasopressors may be associated with increased resources and potential harm, there was a significant amount of discussion amongst the panel regarding the appropriateness of a conditional recommendation against use. Ultimately, given the high degree of uncertainty, the guideline panel decided to offer no recommendation at this time. Obviously, as with any clinical question, if additional data become available, this issue may be re-addressed. Future research is needed to inform this question.

Conflicts of interest None declared.

Editorial responsibility This submission was handled by Dr. Hilary P. Grocott, Editor-in-Chief, *Canadian Journal of Anesthesia*.

Author contributions *Bram Rochweg* contributed by chairing the guideline panel, helping to employ GRADE methodology and certainty of evidence assessments, and drafting the manuscript. *Mathieu Hylands* and *Francois Lamontagne* coordinated the evidence search and synthesis and were guideline panel members. *Annette Kristiansen* was the methods chair for the guideline panel. *Morten Møller*, *Pierre Asfar*, *Dian Cohen*, *Rachel Khadaroo*, *Jon Laake*,

Anders Perner, Teddie Tanguay, Sandy Widder, and Per Vandvik were panel members, contributed significantly to formulating the recommendation, and provided edits to the manuscript.

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