

# Prioritizing circulation before the airway in trauma may improve outcomes for patients with massive bleeding

November 28 2023

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For trauma patients suffering from massive blood loss, a care approach that emphasizes halting bleeding and restoring circulation first, rather

than the traditional approach of restoring the airway first, can help improve the survival and overall outcomes of these patients, according to a literature review published in the *Journal of the American College of Surgeons*.

Researchers from multiple institutions in the United States and Colombia concluded that enough medical literature exists to support the concept of prioritizing restoring circulation in [trauma patients](#) with massive bleeding, medically known as exsanguination. The research represents a [paradigm shift](#) in [trauma care](#) to an approach that is more time effective and can make a difference in survival when seconds matter, especially in rural areas with more limited resources.

"Patients with massive bleeding benefit from an approach in which the priority is circulation, instead of securing the [airway](#) with intubation. In patients with exsanguinating injuries, we can improve outcomes by delaying intubation and supporting the airway with other maneuvers, such as oxygen and opening the airway," said lead study author Paula Ferrada, MD, FACS, professor of medical education at the University of Virginia and chief of [trauma](#) and acute care surgery at Inova Healthcare System in Falls Church, Virginia.

"Those seconds can be the difference between life and death."

Dr. Ferrada led a team of 12 surgeons from 10 institutions in conducting a literature review comparing the conventional airway-breathing-circulation (ABC) approach to resuscitating trauma patients and the newer circulation-airway-breathing (CAB) model.

"Our belief in prioritizing circulation in patients with exsanguinating hemorrhage stems from our collective clinical experience, which includes the invaluable insights of our senior authors with decades of experience in caring for injured patients," the literature review stated.

The literature review summarized multiple meta-analyses (analyses of multiple studies and trials) and trials evaluating both approaches. It noted that patients in hemorrhagic shock are most vulnerable to circulatory collapse that comes with ABC and require circulatory resuscitation before intubation.

"We decided to write this literature review to give not only the evidence behind the physiological principles that we're discussing but also, as people that are very experienced with trauma, we have seen how this clinically affects our patients," Dr. Ferrada said.

Dr. Ferrada noted the ABC approach is based on an expert consensus, "not necessarily truly in evidence." Over the past decade, protocols shifted to prioritize restoring circulation, initially for nontraumatic cardiac arrest.

Now this review proposes the same approach for trauma patients with severe blood loss. One study cited found that CAB had a mortality rate of 12.4% vs. 23% for ABC. A [meta-analysis](#) found that a sharp drop in [blood pressure](#) after intubation to restore the airway worsened mortality, with 19.6% for CAB and 33.2% for ABC.

The review noted that the CAB approach follows on the American College of Surgeon's STOP THE BLEED program, which provides training to promptly address bleeding through a variety of medical interventions, including direct pressure, wound packing, and tourniquet use.

"I believe that we're not done yet in producing evidence for this CAB approach," Dr. Ferrada added. "I think it's important to have a prospective study evaluating the difference in mortality between the two approaches."

**More information:** Prioritizing Circulation to Improve Outcomes for Patients with Exsanguinating Injury: A Literature Review and Techniques to Help Clinicians Achieve Bleeding Control, *Journal of the American College of Surgeons* (2023). DOI: [10.1097/XCS.0000000000000889](https://doi.org/10.1097/XCS.0000000000000889)

Paula Ferrada et al, Circulation First for the Rapidly Bleeding Trauma Patient—It Is Time to Reconsider the ABCs of Trauma Care, *JAMA Surgery* (2023). DOI: [10.1001/jamasurg.2022.8436](https://doi.org/10.1001/jamasurg.2022.8436).

Provided by American College of Surgeons

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