Response to Letter: Damage control resuscitation initiated in the prehospital and transport setting: a systems approach to increasing access to blood transfusion

Dear Editor,

We thank Drs. Carter and MacDonald for their thoughtful review of our article and would like to respond to their questions.

Our manuscript describes a model of prehospital blood transfusion that could be replicated in other jurisdictions, with a focus on systems-level integration of resources.

The editors identify that "there are no data on what proportion of administered blood was Rh-negative." Our standard operating procedure was to carry 2 units of O-negative packed red blood cells (pRBCs), exchanged at regular intervals, returning them back to regular circulation. Given our minimal wastage, this anecdotally has little effect on the overall region's supply. Furthermore, we regularly transfuse critically ill patients at the scene of injury, before demographic data are available, necessitating the use of O- units for patient safety. Data pertaining to "measures of transfusion safety" were not explicitly assessed for this study. However, our standard operating procedures require any suspected transfusion reaction to be recorded both in our electronic patient care record and a dedicated incident-specific safety report, as well as communicated directly to the local transfusion services. A review of all blood-related incident reports to date did not reveal any suspected or confirmed transfusion reactions at any base.

Some challenges mentioned include "the ongoing costs of exchanging blood products every 3–4 days" and "the need for frequent exchange of a small supply also risks not having blood product available when the existing supply is used." We are fortunate to have local buy-in from our regional blood services to aid in exchange and supply of blood products, which speaks to the importance of regional integration. The risk of unavailable blood product is low. When our blood box is opened, the local transfusion service is notified immediately to prepare a replacement. This typically requires less than 30 minutes; the new blood box can often be picked up at the receiving facility after transfer of patient care, before dispatch to another call. In addition, we have implemented a routine exchange procedure in which a new blood box is received prior to the existing blood box being returned to avoid a time period without available supply.

We agree our study lacks patient-oriented outcomes and supporting laboratory data. The survival benefit of prehospital blood transfusion is not firmly established; however, two recent trials examining combat casualties and severely injured civilians have demonstrated benefit.[1,2] Unfortunately, given that STARS spans six bases across three provinces, universal access to receiving hospital patient data was not practical within the scope of this initial study. Efforts are currently under way to study both clinically relevant outcomes for our transfused patients, as well as presence of coagulopathy on hospital arrival.

We hope that our study can inspire other Canadian prehospital agencies to develop robust transfusion programs that support rural Canadian areas and serve as a basis for further research into the benefits of prehospital blood product administration.

Chase Krook, MD, BMSc

Shock Trauma Air Rescue Society, Calgary, AB

Department of Emergency Medicine, University of Calgary, Calgary, AB

Correspondence to: Dr. Chase Krook, Department of Emergency Medicine, Foothills Medical Centre, C231, 1403–29 St. NW, Calgary, AB T2N 2T9, Canada; Email: Krook.chase@gmail.com

CJEM 2020;22(6):1–2 DOI 10.1017/cem.2020.441

Domhnall O'Dochartaigh, RN, MSc, ENC(C), CNCC(C)

Shock Trauma Air Rescue Society, Calgary, AB

Doug Martin, MD

Department of Emergency Medicine, University of Calgary, Calgary, AB

Department of Emergency Medicine, University of Manitoba, Winnipeg, MB

Zoë Piggott, MD

Department of Emergency Medicine, University of Calgary, Calgary, AB

Department of Emergency Medicine, University of Manitoba, Winnipeg, MB

Ryan Deedo, MD

Shock Trauma Air Rescue Society, Calgary, AB

Department of Emergency Medicine, University of Calgary, Calgary, AB

Sarah Painter, RN, BN, ENC(C)

Shock Trauma Air Rescue Society, Calgary, AB

Gennifer vanWerkhoven, ACP

Shock Trauma Air Rescue Society, Calgary, AB

Darcy McKay, ACP, BappBus, ES, MALT

Shock Trauma Air Rescue Society, Calgary, AB

Dennis Nesdoly, MD

Shock Trauma Air Rescue Society, Calgary, AB

Department of Emergency Medicine, University of Calgary, Calgary, AB

J.N. Armstrong, MD

Shock Trauma Air Rescue Society, Calgary, AB

Competing interests: None to declare.

REFERENCES

1. Shackelford SA, Del Junco DJ, Powell-Dunford N, et al. Association of prehospital blood product transfusion during medical evacuation of combat casualties in Afghanistan with acute and 30-day survival. *JAMA* 2017;318(16):1581–91. doi: 10.1001/jama.2017.15097.
2. Sperry JL, Guyette FX, Brown JB, et al. Prehospital plasma during air medical transport in trauma patients at risk for hemorrhagic shock. *N Engl J Med*. 2018;379(4):315–26. doi: 10.1056/NEJMoa1802345.

https://doi.org/10.1017/cem.2020.441 Published online by Cambridge University Press