

Current practices in tranexamic acid administration by air medical services in Canada

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INTRODUCTION

- Hemorrhage is the leading cause of early preventable death following traumatic injury. Early **tranexamic acid (TXA)** administration can reduce mortality; however, the use of TXA is controversial and the optimal dosage and timing is unclear.
- Standard of care** is the divided dose of TXA (1 g bolus IV over 10 minutes followed by 1 g IV infusion over 8 hours).
- Research Objective:** Determine current practices of air medical services in Canada regarding administration of TXA in adult major trauma patients.

METHODS

- We created, tested and administered an **electronic questionnaire** via email to air medical services across Canada in January 2024.
- Data on **TXA administration practices** in adult trauma patients were collected including dosage, concentration and timing of administration in relation to injury time, and indications and contraindications for TXA use.
- Responses to the questionnaire were described using frequencies and proportions.

RESULTS

- We contacted eight air ambulance services representing nine provinces (BC, MB, SK, AB, ON, QC, NB, NS, NFLD/LBR) and received responses from seven.
- Six services (85.7%) had a TXA protocol or guideline and all six administer TXA within three hours of injury to adult trauma patients presenting with signs of shock associated with hemorrhage.
- Common contraindications** included hypersensitivity to TXA and less than three hours since injury.

DISCUSSION

- Of the six air medical services surveyed, three services currently administer TXA as a **single 2 g IV dose**.
- The three services that administer a divided TXA dose are considering transitioning to a single 2 g IV dose.
- Further research is warranted to investigate the safety and efficacy of administering a single 2 g IV TXA dose.

Online questionnaire (2024) | Air ambulance services across Canada (n=8) | Response rate (87.5%; 7/8)

85.7%
of surveyed services have a protocol/guideline for TXA administration



100%
of surveyed services with a TXA protocol/guideline administer TXA within 3h of injury



Figure 1. Provinces represented by air ambulance services surveyed (blue).

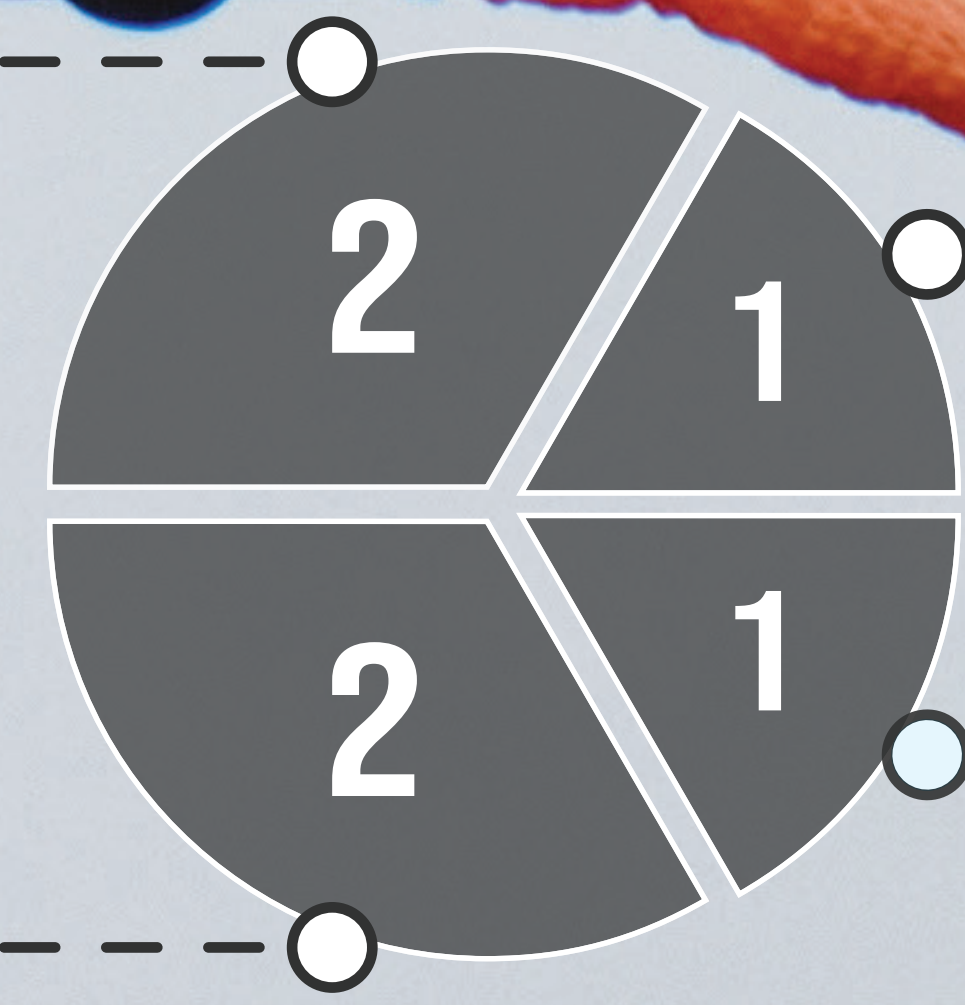
Canadian Air Ambulance TXA Dosing (IV) Practices (n = 6)

2 g IV direct
(2 g/20 mL IV direct over 1 minute)

2 g IV direct
(2 g/20 mL IV direct over 5 minutes)

1 g bolus + 1 g infusion
(1 g/100 mL IV over 10 minutes + 1 g/100 mL IV infusion over 8 hours)

1 g bolus + 1 g infusion
(1 g/100 mL IV over 10 minutes + 1 g/500 mL IV infusion over 8 hours)



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Indication	Frequency (%)
Signs of hemorrhage	6 (100)
Within 3 hours of injury	6 (100)
Traumatic brain injury	2 (33)
SBP < 90 mmHg	2 (33)
HR > 100 bps	2 (33)
SBP < 100 mmHg	1 (17)
HR > 110 bps	1 (17)
Systemic/local hyperfibrinolysis	1 (17)

Table 1. Indications for TXA. Note: Some use >1 indication to determine if TXA is appropriate to administer. SBP = systolic blood pressure; HR = heart rate.

Contraindication	Frequency (%)
Time since injury > 3 hours	6 (100)
Hypersensitivity to TXA	5 (83)
Unable to start bolus within 3 hours of initial bleeding	2 (33)
May react with Ringer's lactate and is not considered compatible in a Y-Site	2 (33)
Age < 12 years (PCP) or < 1 year (ACP)	1 (17)
Gastrointestinal hemorrhage	1 (17)
< 16 years	1 (17)
Active thromboembolic disease	1 (17)

Table 2. Contraindications for TXA administration. PCP = Primary Care Paramedic; ACP = Advanced Care Paramedic.

