

Georgia Quality Improvement Program Scientific Session

Review of Abstract: Changing the Playing Field:
A Prehospital Blood Pilot Project in Rural North
Georgia

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Disclosures



- Jesse Gibson- No relevant disclosures
- Matthew Vassy, MD- No relevant disclosures



SESC Podium Paper

Changing the Playing Field: A Prehospital Blood Product Pilot Project in Rural North Georgia

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Background



- Early transfusion is better for patients
- Prior to this study paramedic scope of practice did not include the ability to initiate blood products, and they could only continue transfusions started.
- The scope of practice does allow for post licensure skills to be added on an individual basis with appropriate training.
- This pilot project was performed to demonstrate the safety of initiating uncrossmatched blood products by paramedics in Georgia.

Objectives



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Feasibility of
the Idea

2

Regulatory
Approval

3

Planning

4

Implementation

5

Results & Next
Steps

Feasibility of the Idea

- Discussions with Southwest Texas Regional Advisory Council (STRAC)
- Equipment needed
- Cost assessment
- Exchange process
- Protocols



Regulatory Approval



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Georgia EMS Medical Directors Executive Medical Board discussion of concept and current evidence on the subject



With their approval, initiation of the pilot project.

Planning Phase



- Training program was designed
 - Online: The trauma hemostasis and oxygenation research (THOR) network
 - Hands-on
 - Written comprehensive
- Equipment funded by manufacturers
 - Pelican BioThermal (Peli BioThermal, Maple Grove, MN) Credo cooler with thermal isolation chamber (TICTM) system
 - TempTime (Zebra, Morris Plains, NJ) EDGE temperature monitoring puck
 - LifeWarmer (LifeWarmer, Addison, TX) quantum blood and fluid warming system with a battery powered pump and specialized tubing

Service Area



- EMS Region 2 is located in northeast Georgia and covers 13 counties
- One adult level II trauma center in the region
- Extended service area covers 18 counties
- Area is mountainous & mostly rural

Implementation



- Products from the region's level 2 trauma center blood bank and maintained at one to six degrees Celsius until infused or returned for exchange.
 - Products monitored via the approved temperature monitoring system and exchanged out seven days prior to their expiration date.
 - Liquid plasma was initially used for cost and possibility of wasted product
 - Later cold stored whole blood used in busiest agency.
 - Questionnaire utilized via deidentified Google Docs for all transfusions
 - Medical oversight physician reviewed all cases.
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Initiation Protocol



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Region II Blood Product Administration Guideline



Blood Product Administration

General Guideline

Goals of blood product delivery are to provide safe and effective blood and blood product administration, to provide clotting ability and/or oxygen-carrying capacity to patients in hemorrhagic shock and sustain life, to recognize and effectively treat transfusion reactions. The following protocol is developed in part with Region 2 Blood Production Transfusion Guideline. Blood product delivery should take precedence over TXA administration.

Guidelines	Administration
Indications: STOP EXTERNAL BLEEDING FIRST! Suspected blood loss, age >5 (for transfusion in age <5, contact medical control), plus one of the following for penetrating trauma OR two of the following for blunt trauma, GI bleeding, or vaginal bleeding. - Acute hemorrhage with documented hemoglobin <7g/dL - Systolic BP <90mm Hg - Sustained HR >120 Bpm - Shock Index (SI) > 1 (SI= HR/Systolic BP) - Pulse Pressure (PP) <45 (PP= SBP-DBP) - ETCO2 <25mm Hg Blood Administration Reactions: Allergic Reaction • For mild Skin itching: Administer Diphenhydramine 25mg IVP diluted in 5mL NS over 1-2 minutes use a different IV site/line. Pediatrics: 1mg/kg not to exceed 25mg. • Fever and chills: Discontinue transfusion, Consult with Medical Control. • Anaphylactic Reactions Immediately stop transfusion, follow anaphylaxis protocol. Febrile transfusion reactions • Symptoms include temp (as high as 104 F), chills, Headache, facial flushing, palpitations, cough, chest tightness, increased pulse rate and/or flank pain. Treatment: Administer Diphenhydramine 25mg IVP diluted in 5mL NS over 1-2 minutes at a different IV site/line. Discontinue transfusion, consult with medical control as these symptoms can be benign and blood administration resumed after consult.	Administration: Adult, 1U Plasma and reassess Pediatric, 10-20mL/kg if less than 30 kg maximum rate 0.5mL/kg/min and reassess. 1. How Supplied: 300mL 2. Preparation: Correct blood product confirmed. Prepare blood warmer. Open transfusion set and spike the blood bag. Run transfusion line through warmer. Prime the IV line with plasma/blood. Connect to IV/IO. Secure IV Line. 3. Administration: Turn on Life Warmer and start infusion. Infusion will be at 100mL/min through Life Warmer. Begin transfusion. Avoid pressure if possible. 4. Post Procedure: Continually assess patient. Check to see line is patent. Flush line after infusion. Send empty plasma/blood bag with pt. Document all actions and findings during transfusion. ❖ Blood transfusion must be done with dedicated minimum of 18GA IV or IO. Two other sites should be established for TXA and medication administrations. ❖ Document with blood product form and on provided website. Clearly document mechanism of injury, time of injury/incident occurred, indications for use and time TXA and plasma/blood was administered.
CONTACT MEDICAL CONTROL FOR ANY FURTHER ASSISTANCE	

Obstacles & Issues



- Wi-Fi connection for wireless temperature probes in a rural region
- 50 units of plasma were ultimately wasted among the four agencies early in the pilot
- National blood shortage and transfusion – limiting transfusion in traumatic arrest

Results & Next Steps



- 100 patients
 - 137 blood products
 - 82 cases, liquid plasma was first initiated
 - 18 cases, whole blood
 - In patients receiving a second unit, 33 received liquid plasma and 4 received whole blood.
 - No adverse events
 - One possible inappropriate transfusion with non-survivable injuries
 - A post licensure skill was added in Georgia due to this pilot
 - Underpowered for outcomes, but data continues to be collected
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Table 1: Demographics for first 100 patients receiving prehospital transfusion, May 2020 – Dec 2022

Gender

Male 63

Female 37

Age

Age Range 13 – 93

Median Age 77

Average Age 49

Reason for Transfusion

Trauma 59

Gastrointestinal Bleed 32

Obstetric/Gynecologic 7

Medical^a 2

^aMedical (one uncontrolled nosebleed, one post-operative bleed)



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- Questions?