

Prehospital Blood Pilot Program Proves Initial Success in Saving Lives

APPROVAL FOR A PILOT PROGRAM IN GEORGIA, USA

In the state of Georgia, only air ambulance helicopters staffed with a registered nurse and paramedic can initiate blood products in a prehospital setting. Paramedics on ambulances are not licensed for this work. However, weather and availability create barriers to air medical helicopters serving all haemorrhaging patients who might benefit from receiving blood products before arriving at the hospital.

In 2018, a team from the trauma department at Northeast Georgia Medical Center (NGMC), the NGMC blood bank, Habersham County Emergency Medical Services and the Regional Trauma Advisory Committee (RTAC) region two decided to explore options to reach more trauma patients with life-saving blood products. The team knew it wasn't the first to pursue a prehospital blood program for EMS ground crews, so it sought advice and best practices from a model program designed by the Southwest Texas Regional Advisory Council (STRAC).

The team, led by Nathan Creel, MD, General Surgeon in Trauma and Acute Care Surgery at NGMC and Medical Director for Air Life 2 and Air Life 14, learned it needed to focus on how to create a strong partnership between EMS teams and NGMC, develop the right protocols for when to administer blood products, create and deliver necessary educational content, ensure appropriate blood supply and maintain efficacy of temperature-sensitive blood products with the right temperature control technologies. As STRAC knew well and shared with the Georgia team, it is important to show that blood products--plasma in this case--would remain at the American Association of Blood Banks' (AABB) required 1-10 degree Celsius temperature range during transport and in emergency situations. To further reduce waste, the team would also need to consider how frequently to trade unused plasma that could still be used in a hospital setting for new plasma ready for use on ambulances.

The team worked for months to outline its plan and provided detailed presentations at two Emergency Medical Services Medical Director Advisory Council meetings. The advisory council granted RTAC region two the opportunity to carry out a 12-month pilot project during the October 2019 meeting--an unprecedented move in the state of Georgia.

The Crêdo ProMed™ medical transport bag is rugged and long-lasting, featuring a carry handle and adjustable shoulder strap for transportation in the most challenging situations.

DELIVERING GEORGIA'S PILOT PROGRAM

RTAC region two includes 13 counties in the northeast Georgia corridor. The pilot program involves the region's only trauma center--Northeast Georgia Medical Center (NGMC)--and four EMS teams from Dawson County, Habersham County, Jackson County and White County. These teams were selected based on volume, response and transport times, and history of trauma patients who could benefit from prehospital blood. Due to cost and difficulty securing inventory of whole blood, the team opted to base the pilot project on prehospital plasma administration.

The Georgia team engaged with Peli BioThermal after they learned of STRAC's success keeping whole blood in temperature range with the company's products, and Peli BioThermal offered its Crêdo ProMed™ medical transport bag as a solution for temperature-controlled transport of plasma during the pilot program. The Crêdo ProMed is rugged and long-lasting, featuring a carry handle and adjustable shoulder strap for transportation in the most challenging situations. The weight and space-saving design is perfect for emergency vehicles with limited space and also offers reliable temperature control for 72-96 hours.

The Georgia team moved forward with the Crêdo ProMed based on recommendations from other prehospital blood programs and incorporated manufacturer protocols into their training--conditioning the TIC™ panels by cooling them in a freezer, placing them inside the VIP (vacuum insulated panels) assembly and inserting the plasma bag into the central payload space. To meet blood bank requirements, the team also purchased a temperature monitoring device used inside the Crêdo ProMed to capture data about whether each unit of plasma remained at 1-10 degrees Celsius while away from the blood bank. Additionally, a secondary colour monitor to measure temperature is taped on the outside of the plasma bag to make sure temperatures are always within range.

The process for temperature control, as well as criteria to administer the plasma, were taught to the four EMS teams through extensive training and the pilot program formally launched in April 2020.

EARLY OUTCOMES OF GEORGIA'S PILOT PROGRAM

The goal of Georgia's pilot program is to show that paramedics can safely administer blood products in a prehospital setting. On May 2, 2020, less than a month after the pilot program began, Jackson County safely administered the first plasma blood product through the pilot. In less than a year, all four EMS programs have safely administered potentially life saving prehospital plasma on 40 occasions.

The transfusion criteria include a larger patient population than trauma. In fact, a third of the patients who receive prehospital plasma are in haemorrhagic shock as a result of gastrointestinal bleeding. A case from January 2021 highlights the impact of the program.

The paramedic who responded said, "The effects of plasma use in the field are truly amazing. I have never witnessed the drastic patient improvements we see with plasma."

A 55 year old male woke in the morning to gastrointestinal bleeding and vomiting blood. He also felt faint and dizzy. When paramedics arrived at his home, his blood pressure was 70/40 and his heart rate was 106. Low blood pressure, high heart rate and a high shock index prompted paramedics to provide one unit of prehospital plasma, and the patient's blood pressure increased and heart rate dropped while on the way to NGMC. The patient arrived at the hospital stable and did not require additional transfusions during his hospitalization.

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The Georgia team hopes to expand the pilot program to more EMS programs in RTAC region two and region 10, where an agency already working in the pilot has another EMS program. Longer term, and as the pilot finishes in the Autumn of 2021, the team hopes the pilot project proves successful and expands as a ubiquitous program for prehospital blood throughout the entire state to truly impact patient outcomes. Programs like this save lives, and all lives are important.



Chad Black, Habersham County Emergency Services Director holds a unit of plasma that will be carried on EMS vehicles. (Photo credit: The Northeast Georgian)

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