



Bleeding Patient Receives Essential Blood Products and TXA from Air Care

West Michigan Air Care began carrying two units of thawed uncrossmatched fresh frozen plasma (FFP) on January 19, 2016 in addition to our regular two units of uncrossmatched packed red blood cells (PRBC). A few weeks later, James Diebold was the first to benefit from this addition.

While building an addition on a home on February 6th, 2016, James (J.D.) Diebold, was walking across an area of 2x10 joists when he stepped on a piece of plywood that wasn't nailed down. The plywood flipped and J.D., still holding his heavy toolbox, fell ribs-first onto a joist knocking the wind out of him, then fell through to the crawl space below. Knocked briefly unconscious, J.D. nevertheless was able to climb out of the construction area and into a pickup truck and was driven 10 miles to South Haven Health System's Emergency Department. He was dizzy and lost consciousness twice on the way.



Well into his recovery, J.D. is home and doing well.

A 4-foot fall onto a joist may not seem like a severe mechanism of injury, but a CT scan showed J.D.'s spleen was fractured beyond repair (Grade V) and he was bleeding extensively into his abdomen. His systolic blood pressure fell to 60 and his heart rate dropped precipitously. Arrangements were quickly made for his transfer to a trauma center.

When Air Care arrived, the staff was giving intravenous resuscitation fluids and retrieving packed red blood cells (PRBC). The Air Care medical crew helped start the first unit of PRBC from the hospital's blood bank and gave a Tranexamic Acid (TXA) infusion over 10 minutes. The medical crew continued to give blood products in a 1:1 ratio, administering one unit of fresh frozen plasma (FFP) for every unit of PRBC from the blood products they carried onboard. (See TXA, PRBC, and FFP sidebar.)

During the 16-minute air transport, J.D.'s blood pressure continued to trend downward, requiring more blood. By the time the helicopter landed in Kalamazoo, he'd received a total of two units of PRBC and two units of FFP. Upon arrival at Bronson Methodist Hospital Trauma and Emergency Department, Air Care handed over their last unit of PRBC to the trauma team, and J.D. continued to receive blood products as he was prepped for surgery. The rest is a blur for J.D. He went to surgery and his ruptured spleen was removed by Dr. Sheldon Maltz, MD. The surgery went well and J.D. began to heal.

After dealing with a few complications, J.D. is still having some rib pain but is now at home and getting back into his routine.

TXA, PRBC, and FFP

Tranexamic Acid (TXA) significantly improves outcomes for trauma patients suffering hypovolemic and/or hemorrhagic shock. TXA is classified as an anti-fibrinolytic drug that stops the breakdown of clots and can prevent further bleeding in trauma.

Packed red blood cells (PRBC) – the red, oxygen-carrying component of blood.

Fresh frozen plasma (FFP) – the “white” part of the blood that contains coagulation factors necessary for clotting, which helps control further bleeding in hemorrhagic shock.

Regarding his experience, J. D. says: “Little did I know that the frozen plasma onboard was indeed saving my life long enough to make it to trauma surgery where my life could be saved again ... you are in the business of saving lives. I give God the glory for the science as well. I pray that you continue to receive all you require to continue your compassionate mission.”

David's Air Medical Team:

- » DeWayne Miller, Flight Nurse
- » Dawn Johnston, Flight Nurse
- » Brian Vanderberg, Pilot
- » Terry Tratt, Communications Specialist



By Dawn Johnston, BSN, CFRN, EMT-P
Flight Nurse
West Michigan Air Care

Air Care Now Carries Fresh Frozen Plasma for Patients in Hemorrhagic Shock

A joint effort between Bronson Methodist Hospital (BMH) and Borgess Medical Center (BMC) with Air Care has opened the door to improved outcomes for bleeding patients during air transport.

A better resuscitation means better outcomes for patients in hemorrhagic shock. That was the motivation for adding fresh frozen plasma (FFP) to Air Care's cooler of packed red blood cells (PRBC). This change began on January 19th, 2016.

Ongoing research in the area of hemorrhagic shock has led to improvements in the resuscitation goals, such as earlier use of plasma. Air Care requested the addition of FFP to its cooler of packed red blood cells when we first learned it was feasible. In the past, FFP availability was limited by a 20-minute thawing process and the small quantity of uncrossmatched

FFP in storage at blood banks. New research, however, has broadened the availability of uncrossmatched FFP and a new process has enabled Air Care to carry two units on board for patients in hemorrhagic shock, along with the 2 units of PRBC we have always carried.

Many people were instrumental in making this change and Air Care wishes to say a huge "Thank you!" to Carol Bradley, Blood Bank Director at BMH for facilitating this project. Additional thanks are due to Jayme Heimonen, Blood Bank Technical Specialist at BMC and the blood bank medical directors and staff at both hospitals, along with Dr. Scott B. Davidson, MD, FACS and Dr. Thomas J. Rohs, MD, Trauma Services Medical Directors for BMH and BMC, respectively.

This joint effort between hospitals with Air Care has opened the door to improved outcomes for Air Care's patients. Now that FFP has been added to our arsenal to combat hemorrhagic shock, alongside PRBC and tranexamic acid (TXA), patients can be better resuscitated during air transport.



Photo Submission



Thanks to Derek Lott for snapping this great shot of Air Care at a scene with Martin Township Fire Department.



Photo courtesy of Rob Wetterholt

Where Will You Land Us? Scheduling for LZ Classes Now in Progress!

Landing Zone Safety Training is recommended every two years. Air Care provides this free class with a live demo and gives each attendee one (1.0) EMS Operations credit. Plan on attending an LZ class in your area or call to schedule one for your fire department. We encourage local EMS and law enforcement to attend as well!

“What If I Can’t Attend an LZ Class?”

Now Air Care’s Landing Zone class is available anytime, anywhere! Go to our website at www.AirCare.org. Under “Resources”, click on “LZ Training”. In 20 minutes, you’ll watch a full LZ refresher. You can even complete an “open book” quiz during the video to turn in to your training officer. (Sorry – no EMS credit is available for this option.)

“I’m On Scene and Wish I Had a Checklist”

Bookmark our mobile website to your phone (see next page). It’s like having an LZ instructor on scene. This handy reference helps you quickly:

- » Review how to set up and safeguard a landing zone with our checklist
- » Use the Fly Guides to see if a patient needs air transport and
- » Call to request a helicopter transport.



Photo courtesy of Randy Knowles



Photo courtesy of Stephen Hostetler



Photo courtesy of Derek Lott

AirCare

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- » Call to request the helicopter.

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Please email comments to AirWaves Editor and Flight Nurse Dawn Johnston at dmjohnston@aircare.org.



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