



## Train Wreck

*“Are you flying? We have a train vs. bicycle.”*

Just minutes after 23-year-old Ervin Hunter was struck by a train while riding his bicycle on October 10, 2012, Air Care was called by Albion Community Dispatch to respond to the scene. Upon landing just after 10 am at nearby Albion fire station, flight nurses Sara Sturgeon and Jan Eichel proceeded to the waiting ambulance and made contact with the Huron Valley Ambulance paramedics and other rescuers who were providing initial treatment.

### Initial Assessment

Ervin had multiple severe injuries that were actively bleeding including a large, posterior scalp avulsion, complete amputation of left foot and left forearm, and a complex left ear laceration. There was also concern over his potential internal injuries; Ervin had diminished breath sounds indicating possible chest trauma and decreased responsiveness from a traumatic brain injury. He was hemodynamically unstable with a heart rate of 147 bpm, blood pressure of 81/56 and respiratory rate of 30. An oxygen saturation reading was unobtainable due to his poor peripheral perfusion.



### Emergency Interventions

Due to his altered level of consciousness and labored breathing, the decision was made immediately to place an endotracheal tube for protection of his airway. Rapid sequence induction was quickly performed (utilizing the Hypoperfusion arm of Air Care’s protocol.) Interventions were made to control bleeding and Ervin was loaded into the aircraft with the help of the Albion

Department of Public Safety. During the 18-minute flight to Bronson Methodist Hospital in Kalamazoo, Ervin was placed on the ventilator, received a high-flow

### TXA in Bleeding Trauma Patients Improves Survival

At the time of Ervin’s accident Air Care did not carry TXA. However, his transport became the catalyst to place the medication on board the aircraft and allow our flight nurses to initiate this treatment. During the summer of 2013 Air Care began carrying TXA at all times to aid the survival of our trauma patients by initiating TXA prior to arriving at the trauma center. In addition, we have researched and are adding a large (4-yard) hemostatic + antimicrobial gauze for temporary control of severe, external bleeding, similar to that used in combat.

infusion of normal saline and one unit of packed red blood cells (PRBC). Upon arrival in the Emergency Department, trauma surgeon Dr. Jon Walsh and the Tier I trauma team continued Ervin’s trauma

*(continued on page 2)*





## Train Wreck *(continued from page 1)*

resuscitation and evaluated his injuries. By that time Ervin had lost a great deal of blood and remained tachycardic and hypotensive, placing him into an advanced classification level of hemorrhagic shock.

### Blood Products + TXA = Improved Survival

Within the first few critical hours after his arrival Ervin was taken to surgery where he received additional blood products and was started on the medication, Tranexamic Acid (TXA). He received an initial bolus of the medication followed by an infusion over the next 6 hours. TXA has been shown in studies to be a safe, inexpensive, and easily administered medication that can significantly reduce the risk of fatal bleeding events in trauma patients, potentially saving thousands of lives yearly<sup>1</sup>. (See the additional article “What is TXA?” in this issue of AirWaves.)

Ervin’s road to recovery has been a slow and steady progression. After multiple surgeries and procedures he was transferred to inpatient rehabilitation six weeks after his accident where he worked hard and continued to improve. Recently he was able return home with his family and is grateful to all of those who were a part of his rescue, resuscitation, and continued care throughout his recovery. Just like Ervin, West Michigan Air Care takes pride in working hard and continuing to improve, making steady progress in patient care.

– By Sara Sturgeon and Jan Eichel,  
Flight Nurses

#### References:

1. <http://www.mayoclinic.org/medicalprofs/tranexamic-acid-txa-tpue072012.html>



*Borgess and Bronson Trauma Services met with Air Care’s medical crew to coordinate TXA administration in flight.*

## What is TXA?

The single occupant of a motorcycle crash lost control of his motorcycle and laid it down crashing through a wooden fence and breaking a 4x4 fence post with his left flank/back. The patient also had a near, above-knee amputation to his left leg and was in profound hemorrhagic shock. Despite the administration of two units of O-negative packed red blood cells (PRBC) and three liters of normal saline from West Michigan Air Care during our short transport time, his blood pressure never climbed above 68 mmHg systolic. Once in the Emergency Department the patient continued to receive blood transfusions and further work-up but was also given the drug Tranexamic Acid (TXA).

### How Does TXA Work?

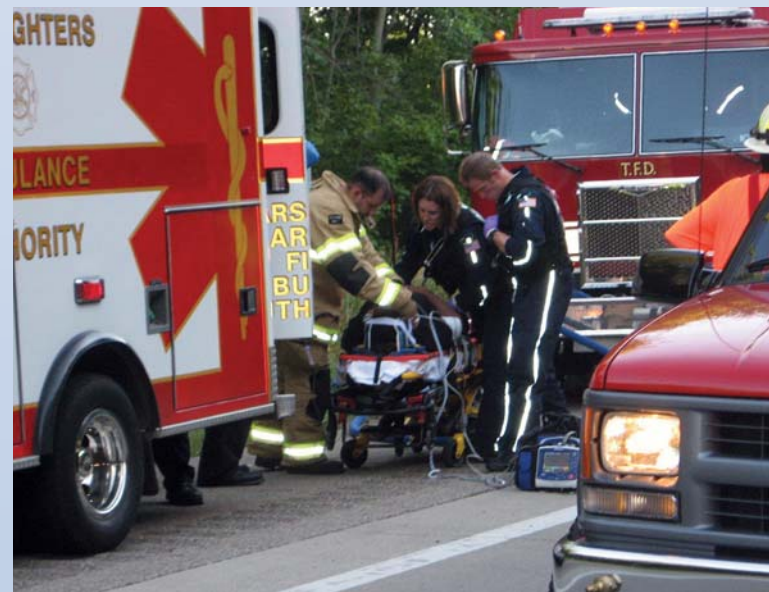
TXA significantly improves outcomes for trauma patients suffering hypovolemic and/or hemorrhagic shock. TXA is classified as an anti-fibrinolytic drug that acts to stop the breakdown of clots. Our bodies normally do this so we don’t over-clot and cause thrombosis. In trauma this breakdown of

clots is amplified and the clots that could stop the bleeding get washed away. TXA makes sure that these clots stay in their place and help bring the patient back to a state of hemostasis. The motorcycle patient above was lucky because he was able to get TXA within the 3-hour window from time of injury that is recommended.

Now that Air Care has TXA on the aircraft, we can provide that much more benefit to those within our community and surrounding areas, giving them early access to the best treatment around. Air Care is the only pre-hospital provider in the area that carries this drug. We have received overwhelming support from both Trauma Centers (Borgess and Bronson) to begin using TXA and look forward to seeing the benefit that it can provide to our seriously injured patients.



*By Paul Rigby  
Flight Nurse  
West Michigan Air Care*





# West Michigan Air Care Presents Clinical Research

***“All four posters from Air Care research were accepted to be presented at the annual Air Medical Transport Conference (AMTC) in October 2013. This is amazing work and a demonstration of the quality of work in this community by a large number of dedicated professionals.”***

– Dr. Glenn Ekblad, EM physician and WMAC Medical Director in a recent email to WMAC flight nurses and EM residents at Western Michigan University School of Medicine (WMed).

The Air Care team is committed to evidence-based medicine and is actively pursuing research to advance our industry. In addition to the two studies featured below, research projects at West Michigan Air Care include “Aeromedical EMS Specialty Track for Emergency Medicine Residents: A Pilot Study” and “Determining Flight Radius for Helicopter Transport for Successful PCI in STEMI Patients.”

## Poster Presentation at AMTC

### “Targeted Hypothermia in Post Cardiac Arrest Patients by an Aeromedical Team”

Therapeutic hypothermia is a standard treatment used for comatose post-cardiac arrest patients to improve neurologic outcomes. Air Care is currently involved in a study to determine the effectiveness of initiating targeted hypothermia in post-cardiac arrest patients by an air medical team. This project is a collaboration between WMed and WMAC with the joint participation of several emergency medicine resident physicians and Air Care flight nurses. **The project abstract was recently accepted for a poster presentation at this year’s national Air Medical Transport Conference (AMTC).**



By Sara Sturgeon  
Flight Nurse  
West Michigan Air Care

## Poster Presentation at SCCM and AMTC

### “AirTraq® – Successful Use in an Air Medical Transport System”

WMAC began using the AirTraq® intubation device (Prodol Meditec) in August, 2009 after completing a training program utilizing mannequins. A recent study by an Austrian team demonstrated a higher than acceptable failure rate of 53% with the AirTraq®, which culminated in a recommendation to use the device only after extensive operating room training. Prior research on the use of an AirTraq® intubation device (Prodol Meditec) had

demonstrated equal or greater first pass success rates compared to direct laryngoscopy. Studies have also shown that proficiency in using the AirTraq® can be obtained by mannequin training. Based on these conflicting studies, a research team, consisting of Dr. Ekblad, two WMed emergency medicine residents, and two Air Care flight nurses, performed a retrospective study of intubations completed by Air Care flight nurses using both the AirTraq® and direct laryngoscopy.



The study objective was to demonstrate equivalency in successful intubation rate of the AirTraq® intubation device compared to direct laryngoscopy in an air medical transport system. **The study poster presentation was shown at the Society of Critical Care Medicine (SCCM) conference**

**in Puerto Rico this past January, and has been accepted for presentation at this year’s national Air Medical Transport Conference (AMTC) that will be held October 21-23, 2013 in Virginia Beach, Virginia. The research team is also preparing the study for publication.**



By Matt Heffelfinger  
Flight Nurse  
West Michigan Air Care



## Have You Had Your LZ Training?

Landing Zone (LZ) safety education should be provided to First Responders every two years. To schedule your free LZ class worth one (1.0) Operations credit, send a request to Dawn Johnston, Flight Nurse at [dmjohnston@aircare.org](mailto:dmjohnston@aircare.org). A live LZ demo with our aircraft will be arranged. Extending invitations to your neighboring fire departments, 911 dispatchers, law enforcement, and local EMS is encouraged.

# West Michigan Air Care's Fall Conference

Saturday, October 5, 2013

Join us for West Michigan AirCare's Fall Conference at the Lawrence Center at Borgess Medical Center in Kalamazoo, Michigan!

Online Registration at [www.AirCare.org](http://www.AirCare.org)

- \$45 for 7 nursing CEUs and 7 EMS CEs (5 applicable to Critical Care Paramedic)
- Freebies, Gifts, and Giveaways!
- Continental breakfast, hot lunch, and afternoon snacks provided!
- \$10 Coupon for Air Care Merchandise!



**0800 Mass Casualty Incidents – Is Your Service Prepared**  
Amy Raubenolt, MD, MPH – Western Michigan University School of Medicine, Kalamazoo, Michigan

**0900 How Can You Mend a “Broken Heart”?**  
**Stress Induced Cardiomyopathy Case Reviews**  
Jan Eichel, CFRN, BA, EMT-P – West Michigan Air Care, Kalamazoo, Michigan

**1015 Case Studies in Burn Resuscitation**  
James Kraatz, MD, FACES – Bronson Methodist Hospital, Kalamazoo, Michigan

**1115 Congenital Heart Defects: As Scary As You Think?**  
Paul Mazurek, RN, BSN, CCRN, CFRN, NREMT-P, I/C – West Michigan Air Care, Kalamazoo, Michigan

**1300 Waveform Capnography**  
Jeff Thomas, RN, BSN, CEN, CMTE, NREMT-P – University of Michigan Survival Flight, Ann Arbor, Michigan

**1415 You and M.E. – Working with Your Friendly Neighborhood Medical Examiner**  
Elizabeth Douglas, MD, FAP – Western Michigan University School of Medicine, Kalamazoo, Michigan

**1515 Remote Medicine – Management of Common Medical Conditions in the Wild**  
Matt Stauffer, MD, MA, FAWM – Infinity Health Care, Lake Bluff, Illinois

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Please email comments to AirWaves Editor and Flight Nurse Dawn Johnston at [dmjohnston@aircare.org](mailto:dmjohnston@aircare.org).



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