



Earlier FFP Administration for Hemorrhagic Shock

What do 61-year-old Joyce Richardson of White Pigeon and 17-year-old Cody Miller of Constantine have in common? Both recently received the lifesaving blood component fresh frozen plasma (FFP) to help stop uncontrolled bleeding very early in their care, thanks to the quick thinking and cooperation of providers at Three Rivers Health and West Michigan Air Care.

Joyce Richardson came to Three Rivers Health on October 31st in acute hemorrhagic shock with internal and gastrointestinal bleeding associated with her prescription blood-thinner, Coumadin. Upon Air Care's arrival, the nursing staff at Three Rivers initiated FFP to reverse bleeding. Joyce was flown to Borgess Medical Center receiving a total of 2 units of FFP before arrival. With Adrian, her husband of 43 years at her side, she eventually recovered and was discharged after a 19-day stay.

Just a few days after Joyce's flight with Air Care, Cody Miller arrived at Three Rivers Health bleeding from his tonsillectomy surgical site performed a week prior at an out-of-state facility. The

ER staff of Three Rivers Health removed several clots from Cody's airway before rushing him to the operating room (OR) to control a small arterial bleed. Cody was intubated and Dr. Akiyoshi Kido used tonsil packing to control the bleeding as West Michigan Air Care arrived. A unit of uncrossmatched packed red blood cells (PRBCs) was initiated to replace Cody's 1.5-liter blood loss and uncrossmatched FFP was also handed to the Air Care crew as they departed for Bronson to begin en route. After a few crucial stitches in Bronson's OR, Cody was extubated and able to go home 2 days later.

What is remarkable about the initial care Cody and Joyce received is that they both benefited from the rapid administration of FFP at their sending institution. Many physicians and nurses are unaware that

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blood banks can dispense uncrossmatched FFP; they simply need a 20-30 minute head start for thawing. With enough notice uncrossmatched FFP can be waiting for the hemorrhagic shock patient as that patient arrives at a receiving institution. In the interest of conserving adequate stores of FFP, however, it remains vitally important for physicians to confirm the patient's condition before ordering it.

FFP for Coumadin reversal has long been a standard of care, but it was only recently demonstrated that a PRBC: FFP transfusion ratio of 1:1 supported outcomes in combat casualties with hemorrhagic shock (Beekley, 2008). Air Care's protocols are grounded in evidence-based research and we have adopted this ratio with the support of Borgess and Bronson Trauma Services. Dr. Scott Davidson, Bronson's Dir. of Trauma Svcs. and Lt. Col. in the US Air Force Reserves used this approach during his deployment to a Combat Support Hospital



Home again: Joyce and Adrian Richardson, glad to be home in White Pigeon

in Iraq with good success. "Using this ratio we avoided some of the complications associated with large-volume crystalloid resuscitation," he said. The strategy makes sense because PRBCs and crystalloid do not replace clotting factors; FFP does. Additionally, blood loss can be reduced by titrating its replacement to keep systolic blood pressure >80 mm Hg in patients without neurologic complications (Geeraedts, Kaasjager et al, 2009).

These days Cody is back at basketball practice and celebrated his 18th birthday on December 7th. Joyce Richardson is home working with therapists and her husband to get back into her routine. Both former patients wish to express their gratitude to all the providers that helped them, and their families echo the same sentiments. "We couldn't have asked for any better care," said Adrian.



By Dawn Johnston, RN, NREMT-P, CFRN
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References:

- Beekley, A.C. (2008). Damage control resuscitation: A sensible approach to the exsanguinating surgical patient. *Critical Care Medicine*, 36 (7), s267-s274.
- Geeraedts, Jr., L. M. G., Kaasjager, H. A. H. et al (2009). Exsanguination in trauma: A review of diagnostics and treatment options. *Injury: International Journal of the Care of the Injured*, 40 (1): 11-20.



Back in the game: Cody Miller with his proud mom, Marty Miller

Trauma Scene to Borgess Medical Center

Hauling logs out of the woods with his Ford Tractor, Jeffrey Sutherland was on his last run of the day on April 17, 2010 when his haul caught on something and the tractor abruptly rolled on top of him. With the tractor nearly crushing his chest and pinning his leg, Jeffrey fought to breathe fully and keep calm. Nonetheless, he was amazed when help arrived just moments later. Crews from Pennfield Fire Department and Lifecare Ambulance worked for almost 2 hours gingerly extricating Jeffrey from under the tractor and monitoring his condition so he wouldn't suffer additional injuries.

When Jeffrey was freed, West Michigan Air Care flew him to Borgess Medical Center. Jeffrey's face was flushed and his eyes red with broken blood vessels from when the tractor rolled onto his chest. His leg was crushed and bruised but the flight crew noticed his pale, pulseless foot had started to "pink up" after extrication. The crew provided IV fluids and pain control during the 12-minute flight to Borgess, where Jeffrey said he received great care. "Everything was done before my wife even got to the hospital," he said.

The next day in his Borgess suite, Jeffrey spotted a walker against the wall and without waiting for an invitation, took it for a test drive, much to his caregivers' surprise. Working with therapists, Jeffrey began walking better and went back to his job for a mechanical contractor in about a week.

Today, Jeffrey is getting around just fine. The accident slowed him down but not for long. "I didn't play softball this year, but I will next year," he smiles. Jeffrey still marvels at how smoothly the trauma system worked for him. "The [rescuers] response time was unbelievable, and the ER was quick and advanced ... just like the TV shows," he said.



Wondering what happened to the patient in this photo? Jeffrey Sutherland (pictured at right) is doing well and wishes to thank all who helped rescue him last April.

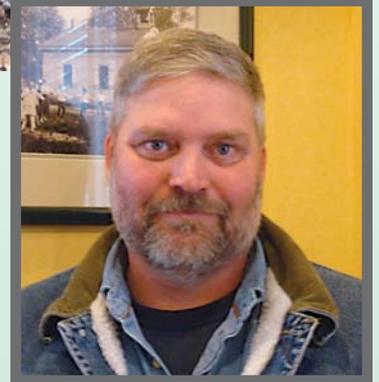


Photo Submission

Thanks to Rob Wetterholt, Western Michigan University student, for catching this great photo of Air Care landing.



*Send us a photo we use in print and we'll send you an Air Care hat and t-shirt!
Email photos to photo@aircare.org*

Fly Guides take the Guesswork Out of Calling Air Care

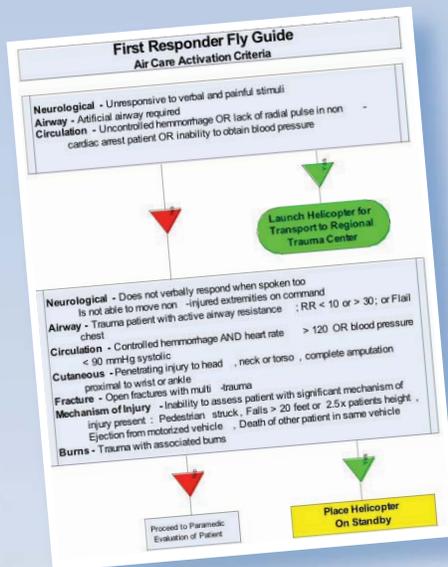
It's a tricky spot for any health care provider to be in: Is this patient hurt enough or sick enough to call Air Care? Should I put Air Care on standby or wait for the paramedic to arrive? Making a decision under high pressure is difficult without clear guidance, but West Michigan Air Care is here to help.

"People don't want to make a mistake," said Kevin Franklin, flight nurse and Utilization Review Coordinator for Air Care. That's why Kevin created regional helicopter activation criteria or *Fly Guides*, a portable "advisor" that indicates when to call Air Care for critical medical or trauma patients. Doctors, nurses, EMS providers, first responders, and even dispatchers can consult their respective *Fly Guides* to determine whether to call Air Care. Borgess and Bronson Trauma Services fully support the *Fly Guides*.

Air Care's new helicopter activation criteria for trauma are based on recommendations handed down from the CDC and the Michigan Trauma Coalition which are more helpful and specific than the old "mechanism of injury" criteria. Our *Fly Guides* have been adapted specifically to southwest Michigan's trauma system and

provide physiologic criteria, which helps providers activate the helicopter earlier and with more confidence that they're sending an appropriate patient.

It's easy to find your *Fly Guide* at www.AirCare.org. Just click on the **When to Request** tab and then select the version for your level: Community Hospital, Paramedic, First Responder or Public Safety Access Point (911 Dispatchers).



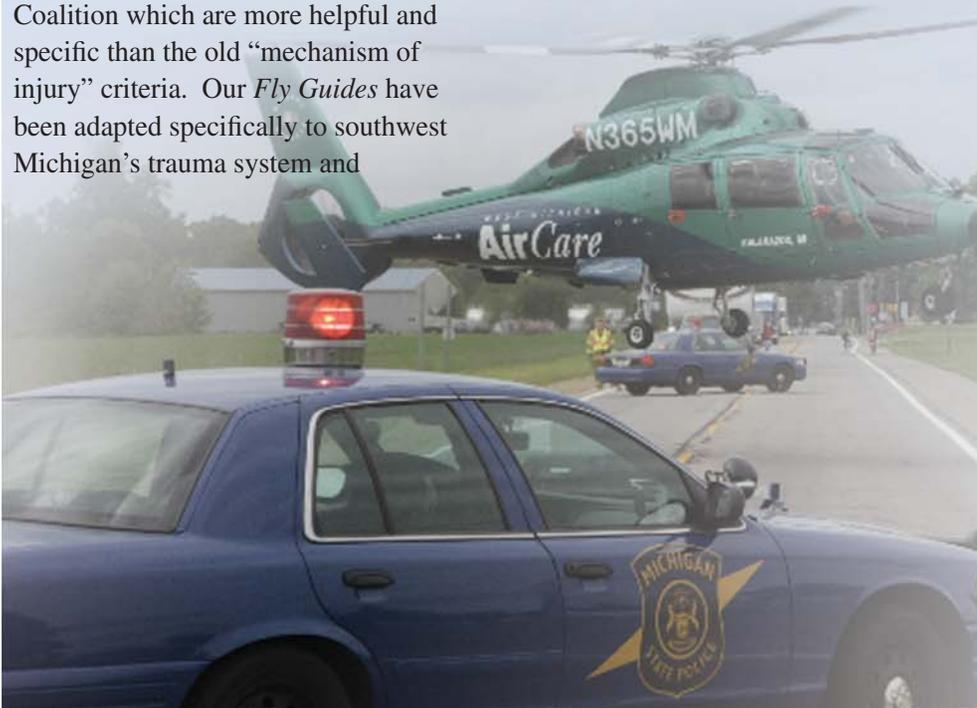
Jackson County Ambulance Uses Air Care's Paramedic Fly Guide Principles

On July 12, 2010 at 8:22 p.m., the Air Care "ship check" and nightly duties had just been completed when the tones went off for a "go-scene flight". At 8:26 p.m. Air Care's Dauphin helicopter lifted from the helipad en route to Jackson County for a scene rendezvous with an ALS ambulance. During the 60+ mile, 21-minute flight to the rendezvous point, it was reported that Jackson County Ambulance Service was transporting a 15-year-old patient when they encountered significant complications and were still more than an hour from their destination hospital.

When the Air Care medical crew arrived, the patient was found to be in respiratory failure and hypoxic despite maneuvers attempted by EMS. The ground crew also reported prolonged seizure activity prior to Air Care's arrival. Air Care's medical crew quickly performed a rapid sequence induction (RSI) with an optical laryngoscope to secure the airway. Since the patient had recently been diagnosed with a neural abnormality, transport was resumed via air to a specialized pediatric neurosurgical facility and ventilations were supported with the on-board ventilator. A loading dose of the anticonvulsant Dilantin was administered to prevent a recurrence of seizure activity.

As Air Care arrived at the pediatric neurosurgical hospital, the patient's vital signs were stable and within normal limits. Oxygen saturations, EtCO₂, and minute ventilation had been maintained throughout his care and no further seizures were encountered. The patient remained hospitalized and completed a neurosurgical repair without further incident.

This is just one real-life example of regional EMS crews calling Air Care appropriately for the definitive care and speed of transport we bring to the bedside of every patient. Air Care's *Fly Guides* can help you do this every time. Whether you are calling from the field or from a regional facility, requesting Air Care not only extends your resources, but can also lead to improved patient outcomes.



By Kevin Franklin, CFRN/EMT-P
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Safety Corner: Help Us Get There Safely



By Shawn Maxwell, Pilot
Safety Manager, West Michigan Air Care
Send related comments/questions to
sdmaxwell@aircare.org.

When the Weather's Too Bad for a Scene Landing, Know Your Airport Options.

It may not look like flying weather, but call West Michigan Air Care to find out if we can rendezvous with your patient at a nearby airport. Air Care can often fly safely under instrument flight rules (IFR) to an airport, even if we can't land at your scene due to weather (see "Soaring Through the Clouds ..." September 2010 AirWaves, at www.AirCare.org).

Communication is the Key to a Safe Landing Zone.

Landing Zone (LZ) Coordinators must make contact with West Michigan Air Care prior to landing to describe the LZ and any hazards nearby. Here are 3 ways to help you plan for effective communications at a landing zone with Air Care:

1. Call Air Care to confirm the frequency to be used.
2. Make sure first responders have radios available at the scene.
3. Test your radios daily and train crews to use them.

To arrange a Landing Zone class for your department go to www.AirCare.org and click on "Event Request". Air Care will contact you to confirm arrangements. Thanks for helping us get there safely all these years.



West Michigan Air Care 2011 calendars are available! Thanks to those who previewed the calendar and gave us such positive feedback. What a response!



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