



IFR Update

Air Care's helicopter was recently upgraded to allow for IFR single-pilot flight operations. IFR means the flight will be conducted under the Instrument Flight Rules of the FAA. Currently, the helicopter must conduct operations under the Visual Flight Rules (VFR), which is to say, visually. For most operations in controlled airspace around the Kalamazoo area, the weather minima for VFR is a visibility of three miles and a ceiling of at least 1000', and clearance from any clouds of 500' below, 1000' above and 2000' horizontal distance. All of these parameters must be met to allow flight operations under VFR. If any of these parameters are not met, then the flight conditions are considered less than that for VFR flight and to continue, the flight must be conducted under the IFR rules, but only down to a certain level of weather (applying IFR weather minima per Metro and FAA regulations). The weather may be less than that allowed for IFR flight in some cases.

When an aircraft is built it is issued a Type Certificate, which signifies the airworthiness of a particular category of aircraft, according to its manufacturing design. It confirms that the aircraft is manufactured according to an approved design, and that the design

ensures compliance with airworthiness requirements. A Supplemental Type Certificate (STC) is issued for major design changes to type certificated products when the change is not so extensive as to require a new Type Certificate; for example, installing a powerplant different from what was included on the original type certificate.

Air Care's EC145e was issued an STC for its two-axis (pitch and roll) Helisas autopilot that allowed VFR operations with the Genesys instrument display unit. Metro Aviation conducted extensive development and testing for an STC for IFR certification. The modification to the helicopter consisted of removing the two-axis Helisas and installing the newly-STC'd three-axis (pitch, roll and yaw) Helisas, which included adding a yaw servo controller for that third axis. An update to the Genesys instrument display unit, conforming to IFR STC standards was also installed. Now that both STC's have been installed, the helicopter is authorized to conduct flight operations in weather that is below VFR standards.



By Brian Vanderberg
Lead Pilot, West Michigan Air Care
Metro Aviation, Inc.

Pilot Watch

In 1906 near Paris the Brazilian-Franco wealthy eccentric, Alberto Santos-Dumont, in an aircraft of his own design and build, the 14-bis made a manned powered flight that was the first to be publicly witnessed by a crowd and the first by an airplane outside the United States.

After achieving flight and collecting the Deutsch-Archdeacon Prize, Alberto proceeded to celebrate royally at Maxim's restaurant in Paris. After the day's exploits, and the hero holding court amidst a jubilant crowd, it was time to unwind. "A Votre Santé!" Maybe it was between toasts of champagne that Alberto complained to his friend Louis Cartier about the difficulty of checking his pocket watch while flying. He needed to keep his hands on the plane's controls, but instead kept having to fumble for the pocket watch. Louis Cartier listened and Eureka! – an idea was born, which was to become the Santos-Dumont wristwatch – the first pilot watch.

Louis Cartier made a watch for his friend Alberto Santos-Dumont, who wore it every time he flew. Alberto was a celebrity throughout Europe, and with his flamboyant personality, his Cartier watch became equally famous. Looking at pictures of Alberto in newspapers, the public asked, "What is that strapped to his wrist?" The answer was a watch. Instead of a cumbersome pocket watch, Alberto wore a wristwatch affixed by a comfortable leather strap and secured with a small buckle. Though Patek Phillip invented the wristwatch, women mainly wore it until Santos made the wristwatch popular for men.

Adapted from *History of the Pilot Watch Part I – Cartier Santos 1904*
by By Max E. Reddick.

Scott Fedor Update

Ten years ago this month our crew was part of Scott Fedor's initial care and stabilization after a diving accident left him paralyzed. Since that he has become a selfless advocate for spinal cord injury survivors, a powerful motivational speaker, and is now an author with the release of his book "Head Strong: How a Broken Neck Strengthened My Spirit". Congratulations, Scott, on this amazing accomplishment.

To read the original article that appeared in the 2014 edition of *AirWaves* (Volume 19, Number 3), visit the AirCare.org website at <https://bit.ly/2ypFlwN>



West Michigan Air Care Staff

Jennifer Kennedy

Jen is the newest medical crew member at West Michigan Air Care, joining the team in April of 2018. After graduation from Jackson Lumen Christi High School in 1993, Jen attended Eastern Michigan University with a major in Psychology and a minor in Criminal Justice. With Jen's father working as a fire fighter, this was always a field of interest for her. Still unclear as to the path she wanted to take, she received training in Fire investigation, Hazmat, Incident Command, and completed an internship with the Michigan State Police Fire Marshals division to advance her knowledge of this line of work.

Following the direction of her college degrees, in 1998 Jen began working with children ages 12-19 in a juvenile diversion program. Additionally she started with the Jackson City Reserve Police Department to gain experience in criminal justice.

Always intrigued by arson investigation, Jen started with Summit Fire Department (FD) in 2001. She received fire academy training at Jackson City Fire Department and took a position as a paid on-call fire fighter. This position is when her interest in the medical field was piqued. She obtained her MFR and then EMT licenses, which were required for a full time FD position.

After obtaining her EMT she also started working at WA Foote Memorial Hospital in Jackson in 2003 as tech in the Emergency Department (ED). She then decided to pursue a career in the medical field and received her RN in 2008. She continued to work as a RN in the ED for five years while completing her paramedic training.

During her time in the FD she had exposure to many flight programs during patient care situations and began to develop an interest in air medical transport. Jen states, "I have always known I wanted to be a flight nurse and working in the ED only furthered my interest".

In May of 2016, she began working in the Pediatric ICU at Sparrow Health System in Lansing and soon had the opportunity to work for Sparrow's ground critical care transport team in August 2017. She has always enjoyed the demands and challenges associated with taking care of critically ill patients.

Outside of work she enjoys hiking, traveling, camping, fishing, tennis, golf and just generally being outdoors, with family and friends.

Chris Milligan, D.O.

People often ask when I knew I wanted to be a physician. The truth is, I can't pinpoint an exact time. I always remember being interested. In fact, my third grade teacher at Holy Angels in Sturgis will attest to me talking about it back then. My interest in medicine only grew when I started working as a phlebotomist at Sturgis Hospital in 2001. I remember going down to the ED and talking with the physicians there. A couple of them even took me under their wing and went out of their way to show me a few interesting cases along the way.

While I was attending Western Michigan University, I took an EMT course at Kalamazoo Valley Community College on a whim to aid in a part time job. This not only led to a few great friendships I maintain to this day, but also furthered my interest in EMS and Emergency

Medicine. I went on the following semester to take the paramedic class with many of those friends. After I completed my paramedic training, I started working for LifeCare Ambulance full time while still completing my undergraduate education at WMU. The experiences I gained in those five years prior to medical school have been memorable and invaluable.

I started medical school at Lake Erie College of Osteopathic Medicine (LECOM) in 2008. I continued to gain

EMS experience while working part time for Emergycare, the company that covered the city of Erie and much of the surrounding area. Yes ... working part time during medical school ... apparently I needed more and better hobbies.

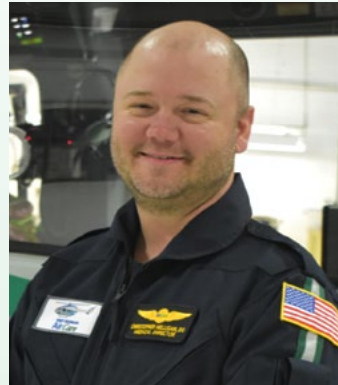
After completing my medical degree, I was accepted to the Emergency Medicine residency at Lakeland Health in St Joseph, Michigan. To my surprise, one of those early EM physicians that showed me the ropes around Sturgis Hospital, was one of my attendings at Lakeland.

I still maintained an interest in EMS during residency and helped develop an EMS track for our residency. Near the completion of residency, I took a position as EMS director for St Joseph County. I have met many great people and rekindled old friendships in the region. This led to the opportunity to come on board with West Michigan Air Care.

Currently, I maintain involvement in EMS in St Joseph County and Berrien County where I live and continue to work at Lakeland Health. I continue to be involved in EMS education at KVCC where I am the associate medical director for the EMS program. During free time, you can find me on the lake, golfing, bowling, watching a Tigers or Lions game, watching Michigan football/basketball, travelling to check out a new brewery, winery, or restaurant, or just on a random road trip.

Jeff Thomas

Jeff Thomas is excited to join the West Michigan Air Care team. During his early career in Iowa he volunteered in EMS as a Firefighter/EMT, starting at the age of 16, with the Lone Tree Fire Department (Yes, it is as small as it sounds!). His interest in helicopter transport medicine stems from his mother's background as a nurse who would occasionally work in the ER. Jeff recalls that he was "fascinated with the stories she would bring home (pre-HIPPA) and I have always been fascinated with aviation. I have wanted to be a flight nurse as long as I can remember."



Chris Milligan, D.O.



Jennifer Kennedy

Medical Director's Corner

He worked as tech in a burn unit at a regional trauma center while he attended the University of Iowa, College of



Jeff Thomas

Nursing and spent the first six years of his nursing career in Adult ICUs, Emergency Departments and a Pediatric Intensive Care Unit. Jeff started flying in 1998 as a Neonatal/Pediatric Transport Nurse while in Iowa and then moved his family to Michigan to fly with the University of Michigan Survival Flight in 2003.

Jeff's clinical interests focus on neonatal and pediatric illness and treatment, as well as respiratory failure, including Adult Respiratory Distress Syndrome (ARDS), and ventilator management. He also enjoys "creating" lectures and presenting to adult learners.

Along with his wife of over 20 years, Tina, and their three teenagers, Jeff lives in Howell, Michigan. He enjoys listening to James Taylor, building scale aircraft models and is a moderately pathological Star Wars fan.

Welcome to the first edition of the Medical Director's Corner. This is a new feature we are adding to the *AirWaves* newsletter. The goal is to provide education and updates to our prehospital and hospital colleagues that coincides with our in house education each quarter. This quarter we are talking *TRAUMA!*

As many of you are aware, most EMS providers in the region are now carrying Tranexamic Acid (TXA). This has been shown to be beneficial in trauma patients who require massive transfusion protocols (MTP) when given within three hours of the onset of injury. But how can you predict who may need MTP? The answer ... the shock index (SI). The shock index is simply a ratio of the heart rate (HR) to the systolic blood pressure (SBP). A SI >0.8 has been shown to indicate a significantly higher likelihood of needing MTP (25% vs 3%)¹. To keep it simple, if the HR is equal to or greater than the SBP, there is a much higher chance your patient will need MTP and would likely benefit from TXA. These patients will also likely be receiving fluid resuscitation initially. But what fluid is best and how much?

Current ATLS recommendations suggest limiting fluid resuscitation to one liter of crystalloid solution but do not give recommendations regarding maintaining any blood pressure. A recent review showed evidence that limiting fluid resuscitation with crystalloid decreased mortality². Limiting crystalloids is thought to decrease coagulopathy, decrease development of hypothermia, and decrease acidosis associated with high volume saline resuscitation, all of

which contribute to the "lethal triad" in trauma³. There has been more recent data suggesting that initial volume resuscitation with plasma decreases

... prehospital administration of plasma as initial fluid resuscitation decreased mortality by 10% (23% vs 33%) in patients that were transported to trauma centers via air ambulance.⁵

mortality. This has led the FDA to give our military access to freeze dried plasma in an emergency use authorization prior to FDA approval for civilian use⁴. A recent study also showed that prehospital administration of plasma as initial fluid resuscitation decreased mortality by 10% (23% vs 33%) in patients that were transported to trauma centers via air ambulance⁵. Based on this research and in collaboration with local trauma teams, West Michigan Air Care has started to carry two units of liquid plasma on every flight. This is in addition to the two units of (packed red blood cells) PRBCs which we had previously carried. Our goal is to bring the most up to date care to our patients in the region.

I hope you have liked this first edition and found it informative. Check back next quarter when we talk about adult critical care. Have a happy and safe summer!



By Chris Milligan, DO
Medical Director
West Michigan Air Care
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Legislation Update

The Michigan legislature passed three bills (HB 5217, HB 5218, HB 5219) in December 2019 regarding use of helicopter air ambulance (HAA) services. They became effective in March 2019. The intent of these bills was to limit the use of HAA for transporting NON-emergent patients. If a physician determines it is medically necessary to transport a NON-emergent patient by HAA, a HAA company that participates as an in-network provider with the patient's insurance must be selected and a separate consent form must be completed prior to the NON-emergent patient transport. There is also a provision in the bills that would shift the portion of the cost of the transport not covered by

insurance for the NON-emergent patient to the sending hospital if this process was not followed.

West Michigan Air Care only transports emergent patients. Thus, this new legislation does not change the previous process or trigger the sending facility to be responsible for the cost of transport. Because all of the patients that WMAC transport are emergent, we contact the next closest HAA provider if we are on another mission to prevent a delay in transport.

If you have any questions, please feel free to contact Matt Heffelfinger, WMAC Program Director at 269-337-2517.

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1. El-Menyar, Ayman, et al. "Shock Index: A Simple Predictor of Exploratory Laparotomy and Massive Blood Transfusion Protocol in Patients with Abdominal Trauma." *Journal of the American College of Surgeons*, vol. 227, no. 4, 2018, doi:10.1016/j.jamcollsurg.2018.08.179.
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3. "Evidence-Based EMS: Permissive Hypotension in Trauma." *EMS World*, 29 Jan. 2016, www.emsworld.com/article/12163910/evidence-based-ems-permissive-hypotension-in-trauma.
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5. Sperry, Jason L., et al. "Prehospital Plasma during Air Medical Transport in Trauma Patients at Risk for Hemorrhagic Shock." *New England Journal of Medicine*, vol. 379, no. 4, 2018, pp. 315-326., doi:10.1056/nejmoa1802345.

Air Care's Fall Conference – Save the Date!

Our Fall Conference is always the first Saturday in October, so put it on your calendar today! See you October 5th for food, fun, and networking all while receiving good education and lots of nursing and EMS credits. Visit AirCare.org for more details and to register now.

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Upcoming Events

- » Keep your eye on our Facebook page for more information on dates and location.

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