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# FLIGHT ROUNDS

A Program of the  
Milwaukee Regional  
Medical Center

Spring/Summer 2005



## THE AIRWAY MANAGEMENT CHALLENGE

**Mike Roelse, RN, NREMT-P**

*Flight Nurse, Flight For Life - Wisconsin*

7wenty years ago, while working as a new paramedic in Los Angeles, I responded to a “person down” in a restaurant. My partner and I arrived to find an obese, middle-aged female, pulseless and not breathing (PNB). “Down” time prior to our arrival was approximately 10 minutes; her EKG showed very fine ventricular fibrillation. As my partner was getting ready to defibrillate her, I was preparing my equipment for endotracheal intubation. Sure enough, we defibrillated her right into asystole (flatline). I then made my first of many failed intubation attempts. I switched laryngoscope blades and repositioned the head, but nothing worked. Nonetheless, I was determined to get this “tube.” Before I knew it, my partner had the IV established and 2 rounds of medication in, and I was still trying to get the patient intubated. The patient did not survive.

I got back to the station and was questioning myself. How could I have missed that tube? What does my partner think? What I should have been thinking was, “We were there 25 minutes. I spent 15 minutes trying to get someone intubated using a single technique, when we had a jump bag full of airway adjuncts (Bag/Valve/Mask, oral airway, EOA, and surgical airway equipment).”

How many times after a call with a difficult airway do you go back to the station and beat yourself up about missing the “tube,” saying to yourself, “I should have done — instead...” or “I should have let my partner try sooner.” This challenge was followed by a difficult intubation attempt when the pressure was on to secure the airway in a critically ill or injured patient. That one additional attempt turned into two or more. The airway you planned to secure in minutes is taking a very loooong time.

## 2005 UPCOMING EVENTS/CONFERENCES

### Trauma Nurse Specialist (TNS) Refresher

September 22 and 23, 2005

Contact Suzette or Cindy at 414-805-6422.

### Emergency Services Conference

Flight For Life will host its 21st annual Emergency Services Conference: Trends and Issues 2005 during the month of September - dates TBA.

### Pre-Hospital Trauma Life Support (PHTLS)

August 13th - PHTLS Refresher class - TBA  
September 24th & 25th - PHTLS Provider class - Paris FD  
October 8th - PHTLS Instructor class - Lakeshore Tech College,  
Cleveland, WI

Contact Lisa Heinz for more information at lhein@mrncffl.org

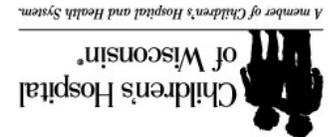
### Safety Inservice - August 2005

The Wisconsin helicopter will offer a safety inservice August 20, 2005. The location of the inservice will be Froedtert Hospital. Upon completion of the inservice, personnel are eligible to sign up for a ride along shift with the Flight For Life staff.

Participation in this program is open to pre-hospital personnel in the following counties: Dodge, Fond du Lac, Jefferson, Kenosha (north of Hwy 142), Milwaukee, Ozaukee, Racine, Sheboygan, Walworth, Washington, and Waukesha.

Participation is also open to registered nurses working in emergency and critical care departments.

To register, call Terry Hirsch at (414) 805-6427.



Centegra Northern Illinois  
Medical Center



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## Lightning

**Joe Songin**

*Pilot, Flight For Life - Wisconsin*

Lightning is one of nature's most beautiful and awesome displays. Lightning is caused by vertical drafts and moisture, not necessarily visible clouds, and can travel several miles from its' source. It is the most dangerous and frequently encountered weather hazard that most people experience each year. Lightning is most often seen in thunderstorms and has been seen in volcanic eruptions, extremely intense forest fires, heavy snowstorms, and hurricanes. Scientists have a better understanding today of the process that produces lightning but cannot forecast the location or time of the next stroke of lightning. Lightning detection systems in the U.S. monitor an average of 25 million strokes of lightning from the cloud to ground every year!

A thunderstorm that forms in air has three components: moisture, instability, and something such as a cold front that causes the air to rise. In the rising and sinking motions within the storm, there are a lot of collisions between the particles. This causes a separation of electrical charges. Positively charged ice crystals rise to the top of the thunderstorm, and negatively charged ice particles and hailstones drop to the middle and lower parts of the storm. Enormous charge differences (electrical differential) develop. The negatively charged area in the storm will send out a charge toward the ground, invisible to the human eye. When it gets close to the ground, it is attracted by positively charged objects, attracting a return flow of charge which produces a luminosity much brighter than the part that came down. This entire event usually takes less than half a second. Each spark of lightning can reach over five miles in length and contain 100 million electrical volts. The rapid expansion of heated air causes the thunder. Some lightning originates in the cirrus anvil at the top of the thunderstorm. This type is particularly dangerous for several reasons. It frequently strikes away from the rain core and as far as 5 or 10 miles from the storm. Recent research from lightning detection networks show that lightning can travel 60 miles or more.

Summer is the peak season for thunderstorms and lightning because warm air holds more water vapor. Warm, moist air near the surface and the proper conditions aloft give you lots of instability, which may produce lightning discharges. For helicopters, visible lightning may not frequently cause damage to aircraft, but it is a good indicator of significant vertical drafts, severe turbulence, and the possibility of hail near or in the associated thunderstorms. Since the Flight Crew must be able to provide care in-flight and a safe, reasonably smooth ride to the patient, all thunderstorms should be avoided by 20 nautical miles.

At Flight For Life, we use the Meteorlogix satellite-based weather reporting/tracking computer system. We are able to monitor thunderstorm development and progression throughout our flying area. In flight, we use the Stormscope lightning detection system. Through the use of these systems, we are afforded the capability of thunderstorm avoidance and the hazards they present.



## Scheduling Safety Inservices

The Flight For Life program is proud to announce we have completed over 22,000 patient transports since our inception in 1984. We attained this goal because of the joint cooperative efforts with fire/EMS agencies and hospitals. Safety training in and around the helicopter is of vital importance to safe operations.

One of the goals of Flight For Life for the next 20,000 patient transports is to hold biannual safety inservices for EMS agencies and hospitals utilizing Flight For Life. We are asking you to check your calendar to schedule a safety inservice. The length of time needed to complete a fire/rescue inservice is approximately 1 1/2 hours; a law enforcement inservice is 30 minutes, and a hospital security inservice is approximately 45 minutes long. Due to the number of communities we interact with, it would be greatly appreciated if you would consider hosting an inservice with neighboring community departments.

Our annual calendar fills up quickly on a first-come, first-served basis, so please call at your earliest convenience. To schedule an inservice, or if you have questions, contact either the Milwaukee flight office at 414-805-6427, or the Northern Illinois flight office at 815-344-5555, ext. 6267.

(The Airway Management Challenge)

STOP and think. Are we doing the patient any good with these prolonged periods of hypoxia? How many of us later review our call and think, "I should have gone to another airway adjunct sooner rather than later" (such as oral airway, Combitube, LMA, transtracheal jet ventilation, or even the surgical airway). What simple techniques might have optimized your first attempt (head alignment, cricoid pressure, suction at the head, switching laryngoscope blades, paralytics, etc.)?

Why do we struggle with airway management decisions?

- PEER pressure
- The Emergency Department hates anything but an endotracheal tube
- Embarrassed if you miss a tube
- "This is one skill (intubation) I pride myself on and I will not miss, no matter how many attempts nor how long it takes"
- Or "I have never missed an intubation"

You may have had success in obtaining an airway, but what was the patient's cervical spine doing while you were manipulating the neck/head a little bit more to get that better view? Or, how well were you oxygenating the patient's brain while making those multiple attempts? Hypoxia, hypoxia.....

The difficult airway is not defined by your level of care (BLS or ALS). A difficult airway is just that. Advanced care and procedures are useless unless you are able to perform the most basic skills to maintain oxygenation. We all learned that the brain does not function very well after 4-6 minutes without oxygen. Those 4-6 minutes start when the patient first stops breathing, not when we walk through the door. The first letter in the ABC's is "A", for airway. Without it, you have nothing. Become a skilled provider utilizing the Bag/Valve/Mask and oral airway. This simple, often overlooked skill can save the life of your patient. Not everyone needs an endotracheal tube to survive.

One can visit any Anesthesia Department and find a difficult airway cart. Even the most experienced Anesthesia Provider with thousands of successful intubations will encounter that difficult airway. The opinion of many anesthesia professionals is "if you have not missed a tube, then you have not intubated enough". It does not make a difference if you missed on your very first airway attempt, or your 1000th. It will happen and is often a very humbling experience.

Over the years I have encountered dozens of Standards of Practice (SOP) or Protocols pertaining to the difficult airway. For example: One intubator with two attempts, then surgical airway; two intubators, one attempt apiece, then surgical airway; one intubator with two attempts, then Combitube - if that fails, then call Medical Control (how long will that take?) for permission to perform a surgical airway. There are hundreds of agencies with hundreds of different standards/protocols. Discuss and implement one which best fits your work environment. Know your options if a difficult airway is encountered.

Here are just a few interventions the Flight For Life crews use in managing the airway:

- Bag/Valve/Mask ventilation with oral or nasal pharyngeal airway.
- Combitube
- Endotracheal Intubation (Adult, Pediatric, and Neonatal)
- Transtracheal Jet Ventilation
- Surgical Airway

With each intubation, I learn something new. Twenty-two years and countless intubations later, while writing this article, I encountered yet another difficult airway. This was another middle-aged female, who went into cardiac arrest while in-flight. She became alarmingly cyanotic in seconds. We quickly defibrillated her into a sinus rhythm with pulses. We attempted one intubation but were unsuccessful; the patient subsequently vomited. The confined space, suboptimal intubator/patient positions, and patient's size were our challenges. Yes, a definitive airway with an endotracheal tube would have been nice. But, with time and experience, we knew the patient needed oxygenation, not multiple intubation attempts. We successfully placed a Combitube, with rapid improvement in the patient's condition. After her hospital stay, she was discharged home, free of deficits. Her positive outcome can be attributed, in part, to our ability to recognize a difficult airway and the need to move on to the next step in a rapid manner.

The take-home message is: Learn from your difficult airway cases. Go to reliable sources and ask questions. Utilize the plethora of research pertaining to the difficult airway to assist you with future calls. The basics and knowing when to move on to your next airway adjunct or provider will increase your success, and more importantly, your patient's chance of survival.

## Techniques to Help Facilitate the Successful Airway

**Mike Roelse, RN, NREMT-P**

*Flight Nurse, Flight For Life - Wisconsin*

- Stay calm
- If available, have Anesthesia paged - you can always cancel them
- Have functioning suction at head of patient
- Know your equipment and its location
- Position yourself and patient to the optimal height
- Utilize Bag/Valve/Mask with reservoir and 100% oxygen source
- Ensure patient's head/neck/torso are midline
- Place shoulders in a neutral position
- *Non-trauma* patient: position head in the "sniffing" position; place blanket roll under shoulders, if needed
- *Trauma* patient: maintain in-line cervical stabilization, open C-collar if it is limiting opening of patient's mouth
- Have a smaller-sized endotracheal tube ready to use, especially in the pediatric and burn patient population
- Switch laryngoscope blades: curved vs. straight
- Apply "B.U.R.P", which is a modification of the Sellick Maneuver, during intubation

B = Backwards towards the spine

U = Upwards towards the head

R = Right 2 cm (continuing to maintain pressure backwards/upwards) to patient's right

P = Pressure (maintain "BUR" pressure until patient is intubated)

- If the esophagus is intubated, leave the tube in place
  - Advantages:
    - Conduit for stomach contents if the patient vomits
    - Occludes the esophagus increasing the chance of successful intubation
  - Disadvantages:
    - May distort airway anatomy
    - Inflated balloon of the esophageal tube may restrict passage of the endotracheal tube
- Let an experienced provider try; this is no time for pride
- Consider utilization of Rapid Sequence Intubation (RSI) medication to sedate and chemically paralyze the patient
- Do everything you can to optimize your first attempt
- Be ready to use another airway adjunct (i.e. combitube, surgical cric, etc.)



### 2006 Flight For Life Calendar

Flight For Life produces an annual calendar for distribution to hospitals, fire departments, and rescue squads. Production has begun for our 2006 calendar and we need your help in obtaining quality photographs. The photos can be from a prehospital or hospital setting. The photos must meet certain criteria for use in the calendar. If you have a photograph for publication, call Tammy Chatman at (414) 778-4573 or Claire Rayford at (414) 778-6098 **PRIOR** to submission. A signed release will be required. Credit will be given to the photographer in the calendar.

With your assistance, Flight For Life's 2006 calendar will be as visually exciting as the 2005 calendar. Thanks for your help!

## Support of the WI Statewide Trauma System

**Lisa Heinz**

*Flight Nurse, Flight For Life - Wisconsin*

Support of the WI statewide trauma system begins initially with the pre-hospital care provider, proceeds to those transporting the patient (oftentimes, the same provider that made initial patient contact) and then advances to the team of physicians, nurses, and numerous other personnel at the hospital. Who is the most important person in trauma? THE PATIENT. What is in the best interest for care of a trauma patient? Rapid transport to the closest appropriate facility that can provide care for a trauma patient.

Are you aware of the current progress of the statewide trauma system? We probably have the expectation that our Medical Directors, ED Managers, and EMS Coordinators have obtained and will provide us this information. It is also extremely easy to access by yourself via a quick on-line visit to:

[http://dhfs.wisconsin.gov/ems/system/Trauma\\_System\\_Index.htm](http://dhfs.wisconsin.gov/ems/system/Trauma_System_Index.htm). Are you aware of the triage/transport guidelines outlined by The Bureau of Local Health Support and EMS in collaboration with the State Trauma Advisory Council? If not, then visit this website for further info: <http://dhfs.wisconsin.gov/ems/system/TSTriage.htm>. Will these guidelines affect your current practice? Do your protocols need to be revised?

Regionalization is a key component in the trauma system. Regional Trauma Advisory Councils were created (RTAC's) for the purpose of designing, implementing, and evaluating trauma care within a region. It is data-based, confidential, and observant of the needs and limitations of each region. Are you familiar with the RTAC in your region? If not, then visit the website: <http://dhfs.wisconsin.gov/ems/system/RTAC.htm>.

What do hospitals have to do to be involved? According to Wisconsin Statute 146.56 and Wisconsin Administrative Rule HFS 118, "all hospitals shall declare their current trauma care capabilities to the Department of Health and Family Services within 180 days of the effective date of the rule, which is January 1, 2005." At this time, this participation remains voluntary. What will your local hospital do?

We ALL should be asking ourselves this question: "What can I do to ensure that the right patients are taken to the right hospital, by the right means of transport, in the right amount of time to give them the greatest chance of survival?" Think about it! If you were traumatically injured, how would **YOU** want to be taken care of and where? Supporting a system designed to incorporate all components of trauma care from injury detection/control to definitive care and rehabilitation is a good start.



## Landing Zone Strobe Kits

In response to department requests for a useful strobe kit for landing zone illumination, Flight For Life has been fortunate to purchase an additional quantity of the new Turboflare landing zone strobe kits at a discounted price. The price of each kit is \$90, which includes shipping (\$85 without shipping). These kits are available at the \$90 price until quantities are depleted; after that, the price will be \$135 each. It is not necessary to utilize strobe kits for landing the Flight For Life helicopters, as there are other means of marking landing zones (i.e. anchored flares, illuminated cones and vehicle headlights) that work just as well.

Kit will contain the following items:

- 5 Turboflare Strobes
- 2 Pair of Flight For Life Safety Glasses with Cases
- 2 Hearing Protection Bands
- Customized LA Rescue Bag with FFL Logo and 800 Number

To place an order, please contact Gina Foley at 414-778-5921 to obtain an order form. If you have any questions, feel free to call either Claire Rayford (WI) at (414) 778-6098 or Tammy Chatman (IL) at (414) 778-4573.