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A Program of the  
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Winter 2003

# FLIGHT ROUNDS



## ACUTE TRAUMATIC AMPUTATION

**Linda Ptack, RN**

*Chief Flight Nurse, Flight For Life*

The traumatic amputation of extremities is frequently dramatic and includes physical as well as emotional factors. Trauma is the second leading cause of amputation in the United States with 30,000 occurring annually. Eighty percent of all traumatic amputation victims are male, with most of them being between the ages of 15-30. A complete amputation totally detaches the limb or appendage from the rest of the body; in partial amputation, some soft tissue remains attached to the affected site.<sup>1</sup>

### Case Review

Flight For Life participated in several cases this past year involving traumatic amputations. The two following cases will describe the mechanisms of injury, patient assessments, and key patient management components.

Case one involved a male in his 70's working at a construction site who sustained a complete amputation of the left leg just proximal to the knee as a result of unintentional contact with an auger. While the EMS provider was still enroute to the scene, FFL was placed on standby. The EMS agency was able to rapidly assess and manage the awake and talking patient with supplemental oxygen, control of bleeding through application of a tourniquet, and prompt IV fluid resuscitation. The patient was transported to the closest hospital, and FFL was made a "go." The amputated extremity had been placed in plastic and then into an ice filled cooler chest at the scene and transported to the hospital with the patient. Aggressive resuscitation of the patient included intubation (to aid in treating hypovolemic shock as well as pain control), fluid and blood administration, direct pressure at the amputation site, analgesia, sedation, IV antibiotics, and tetanus immunization. FFL arrived and administered warmed IV fluids, sedation,

# 2004 UPCOMING EVENTS/CONFERENCES

## TNS Course

February 4, 5, 11, 12, 18, 19, 25, and 26, 2004.

## Emergency Services Conference

Flight For Life will host its 20th annual Emergency Services Conference: Trends and Issues 2004 March 15th in Illinois and March 16th in Wisconsin.

## PHTLS

March 27th and 28th will be a PHTLS Provider class  
August 8th will be a PHTLS refresher class  
October 10th will be a PHTLS Instructor class

## Safety Inservice

### August 2004

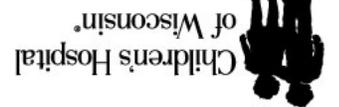
The Wisconsin helicopter will offer a safety inservice August 21, 2004. The location of the inservice will be Froedtert Hospital. Upon completion of the inservice, personnel are eligible to sign up for a ride along shift with the Flight For Life staff.

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.

*A member of Children's Hospital and Health System.*



Centegra Northern Illinois  
Medical Center



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### (Acute Traumatic Amputation)

neuromuscular blockade, and analgesics. Despite direct pressure being maintained to the amputation site and the femoral artery during the flight to the Level One Trauma Center, he continued to lose blood. The trauma and reimplantation teams were ready to evaluate the patient, and within ten minutes of arrival, he was in surgery. From the time of injury to the operating room, the patient received five liters of crystalloid fluid and seven units of blood. Due to the significant damage to the extremity and amputated part, along with massive contamination, the reimplantation of the lower extremity was not possible. The patient was discharged from the hospital within ten days with continued outpatient physical therapy and plans for a prosthetic lower extremity.

Case number two involved a male in his early fifties who was working with a punch press machine and sustained a severe crush injury to his dominant right hand. FFL was requested directly to the scene. Upon arrival of the flight crew, he was awake, talking (with a GCS of 15), and vital signs were within normal range. A partial amputation of the palm of the right hand with deformity was noted. Assessment also revealed he had decreased sensation and movement to all five digits. Bleeding was controlled with direct pressure and a bulky dressing. With the right hand elevated on a pillow, he was placed in a position of comfort on the stretcher, and rapidly transported to a Level One Trauma Center. During the transport, he was given frequent doses of IV analgesia with little effect. Within one hour of his injury, he arrived at the Trauma Center and was evaluated by the trauma and reconstructive hand surgery teams. He spent six hours in the operating room with successful repair of his injuries. Two months post injury he was reported to have nearly full use and sensation of his dominant hand. The evolution of sophisticated microsurgical reconstructive techniques has created the possibility for successful limb/digit salvage, even in the most severe cases.

### Transport Considerations

As prehospital or emergency care providers, the rule of thumb should be to assume reimplantation may be possible in any case, and no amputated body part is too small to be salvaged. However, saving a patient's life takes precedent over recovering the amputated part(s). Transport to the hospital should never be delayed locating "missing pieces." Emergency care given immediately after amputation has critical impact on both the physician's ability to salvage and/or reattach the severed part(s) as well as the patient's ability to regain feeling and function.

Muscle tissue is very intolerant of ischemia, especially warm ischemia. This tissue dies quickly resulting in the inability to replant the extremity, severe post ischemic complications in the limb itself, or systemic complications including renal failure and septicemia. Distal and digital amputations may survive with longer periods of ischemia, but the more proximal the amputation, the greater the urgency for prompt revascularization<sup>2</sup>. Tissue that has not been adequately preserved will not survive more than six hours. For these reasons, transport to a definitive center that can provide the patient with microvascular surgical capabilities and definitive reimplantation within six hours is recommended.

### Discussion

When the patient and amputated part(s) reach the Emergency Department, trauma, or reimplantation center, the physician(s) will assess the probability that the severed tissue can be successfully reattached. Factors contributing to the decision between limb salvage and amputation include the extent of extremity injury, the general condition of the patient, and the experience of the surgeon. The patient's wishes and lifestyle, along with quality of life and functional ability will also be considered when patient condition permits.

In the past, amputations have been considered a last resort or an acknowledgement of failure. In some instances, early amputation may be preferred because it can greatly speed up the rehabilitation process. Saving a marginal limb that is of little or no use to the patient may be achieved only at great cost. The severely disrupted extremity provides a greater potential for sepsis and can cause a far greater drain on the patient's limited resources than emergent amputation. The traumatic amputee will often have a better outcome from having a well fitting and functional prosthesis, than a nonfunctional replanted limb.

Please refer to Flight For Life's "Limb Replantation" educational card for guidelines of care for the patient and amputated part. FFL is here to assist you in any phase of your transfer and transport needs.

<sup>1</sup>Maureen Haggerty, "Health A to Z, Your Family Health Site," [www.healthatoz.com/healthatoz/Atoz/ency/traumatic\\_amputations.html](http://www.healthatoz.com/healthatoz/Atoz/ency/traumatic_amputations.html); Dec. 2002

<sup>2</sup>Dzierzynski, W, Froedtert & Medical College, Grand Rounds Article, "Upper Arm Replantation,"

[www.froedtert.com/wellness/publications/detail.jsp?id=1147;2002](http://www.froedtert.com/wellness/publications/detail.jsp?id=1147;2002) (accessed August 19, 2003)

## Wear That Eye Protection

**Matt Penar**

*Firefighter/Paramedic, Lake Forest Fire Department*

The story is always the same. It began like any other diabetic call with routine medical care: oxygen, monitor, IV, check the blood sugar. We've all been on that type of call hundreds of times. Then it changed from routine into a nightmare: one of the duty crew experienced an "exposure to body substances." Not a needle stick. There was some blood on the end of the test strip, and with just the wrong flip, like an Olympic diver on a spring board, a few drops of blood flew into the face of one of our paramedics.

Then it all begins. The paramedic becomes a patient. First comes the exposure workup; then the five stages of grieving: "**DABDA**." First, **D**enial: "It couldn't have happened to me," then **A**nger: "Why wasn't my partner more careful? Why don't they have a better way to test blood sugar?" then the **B**argaining: "If I get through this, I won't let it happen again," then comes **D**epression: "Why did it have to happen to me?", and finally comes **A**cceptance. After working your way through these five stages, your Department's protocol dictates that you must go before the safety committee, and you relive it again.

It happened because part of the "Universal Precautions" or "BSI - Body Substance Isolation" procedure (by whichever title you learned it) was ignored. We all become complacent, certainly never expecting an exposure from a blood glucose test strip. We wear the gloves but forget the safety glasses even though we know things can happen on even the most mundane of calls. It only takes but a few seconds to put on a pair of safety glasses; some of them are even stylish! But we just don't do it. Not because we don't want to be safe but because we think that it won't happen to us.

I implore you to wear them on every call, just like your gloves.

## Celebrating 20 Years of Service

**Claire Rayford**

*Professional Relations/Marketing Manager, FFL – WI*

At the end of December 1983, a small group of nurses zipped up the last soft pack of medical supplies. They were finally ready to load everything into the Bell 206 Long Ranger helicopter, prepared to accept their first flight as air medical transport nurses. It's hard to believe this all began almost 20 years ago; it often seems like yesterday.

Flight For Life's philosophy of creating partnerships with pre-hospital, law enforcement, and health care agencies came from two people who laid the foundation of the program. Dr. Joseph Darin, then Chairman of the Department of Emergency Medicine, Medical College of WI (located at that time at the old Milwaukee County Medical Complex), and Barbara Hess, the first Program Director of Flight For Life, worked together tirelessly to put together an air medical program that would provide superb patient care and excellence in customer service. We are grateful for the leadership they provided, which has enabled us to remain focused on our commitment to meeting the needs of our patients and their health care providers. Barb is honored on the front cover of the 20<sup>th</sup> anniversary edition of the Flight For Life calendar. She lost her two year battle with cancer on October 11, 1988, just one year after helping to start the Flight For Life-Northern Illinois helicopter in McHenry, IL.

We are also thankful to all of our supporters, both then and now, and want to celebrate our twentieth anniversary with as many of you as possible. Safety is at the heart of our mission. With your assistance, we have completed close to 19,000 safe patient transports. We know this achievement has been possible due to countless hours of training at hospitals, ambulance and fire departments, EMS and law enforcement education centers throughout Wisconsin and northern Illinois.

The 'kick-off' to our year long celebration will be at the end of January 2004, at the Wisconsin EMS Association's annual conference. For the first time, our helicopter will be brought inside at the Midwest Airlines Center. Please stop by and visit with us if you plan on attending this excellent conference.

Throughout the year, watch for us to visit your community at both pre-hospital and hospital events. We'll have some special 20<sup>th</sup> Anniversary items to share with you. Most of all, we'd like to let you know how much we appreciate the teamwork we've enjoyed with you over the years. Together, we share the vision of caring for patients and their families to the best of our abilities, both now and in the future.

## Care Of The Patient With a Traumatic Amputation

**Linda Ptack, RN**

*Chief Flight Nurse, Flight For Life*

### Prehospital

- ♦ Assess ABC's
- ♦ Determine mechanism of injury
- ♦ Assess the injury – sensory, motor, vascular status
- ♦ Is it the patient's dominant extremity
- ♦ Obtain past medical history, allergies, medications
- ♦ Calm and reassure the patient
- ♦ Initiate IV fluids – preferably warmed
- ♦ Control bleeding – direct pressure
- ♦ Keep patient NPO
- ♦ Assess for other injuries

### Emergency Department

In addition to the above:

- ♦ Administer antibiotics and tetanus immunization
- ♦ Injection of local blocks for pain control should be discussed with the receiving specialist first
- ♦ Send copies of x-rays, EKG, lab and medical record as well as the amputated part with the patient

### Documentation

- ♦ Date/time of injury
- ♦ Mechanism of injury
- ♦ Location/type of incident
- ♦ Type of injury (complete vs. incomplete, crush, etc.)
- ♦ Past medical history
- ♦ Time part(s) placed on ice
- ♦ Hand dominance
- ♦ Previous treatment to the area
- ♦ Medications given
- ♦ Allergies

### Care of the Wound

- ♦ Control bleeding with direct pressure and pressure to the artery proximal to amputation site if needed.
- ♦ **USE A TOURNIQUET AS A LAST RESORT!** A tourniquet can increase the risk of tissue damage and reduce the chance for a successful reimplantation. It may also necessitate further amputation in some cases.<sup>1</sup>
- ♦ Remove obvious debris of other material – do not soak the tissue
- ♦ Remaining attached tissue should be left as found
- ♦ Apply dry gauze dressing and cover with bulky dressing
- ♦ Apply compression dressing to assist in bleeding control – wrap distal to proximal
- ♦ Keep elevated
- ♦ Splint in functional or protective position if possible

### Care of the Amputated Part – Complete Amputation

- ♦ **Remember that no amputated part is considered too small to be salvaged**
- ♦ Remove obvious debris – avoid soaking the tissue
- ♦ Place dry part in a dry sterile container or plastic bag
- ♦ Place container/bag on ice – do not bury it in ice (dry ice not recommended as it gets too cold)
- ♦ Label container with the patient's name, time of injury and time part placed on ice
- ♦ **Keep the amputated part with the patient at all times**

### Care of the Amputated Part – Partial Amputation

The care is the same as the wound care recommendations suggested above. **Attempt to cool only the devascularized parts with ice.**

<sup>1</sup>Columbia University and College of P&S Complete Home Medical Guide, "Amputations," [www.cpmcnet.columbia.edu/texts/guide/hmg14\\_003.html](http://www.cpmcnet.columbia.edu/texts/guide/hmg14_003.html) (accessed October 1, 2003)

## A Second Chance at Life

### Tammy Chatman

*Professional Relations/Marketing Manager, FFL - NIL*

For the last 4 years on July 23<sup>rd</sup>, I have received a message on my voicemail. The message is always the same, "Hi Tammy, this is Jeff Hensel. Today is the anniversary of my accident, and I am just calling to thank the crew from Flight For Life for saving my life. If it weren't for a lot of people that took care of me, I would not be here today." This year the call came a little late, not because he forgot, but because Jeff was in Madrid, Spain, on a month-long study abroad program, a journey that never seemed possible four years ago.

Jeff is another one of those "miracle patients." The fact that he is alive is a miracle. It is even more amazing that he just finished his second year of college and will be transferring to the University of Illinois in Springfield in the spring. He even made the Dean's list this past semester! Jeff and his family have shown that it is the courage, dedication, community support, and unwavering commitment to "recovery" by everyone involved that has gotten him to where he is today.

It was July 23, 1999, and 17-year-old Jeff was on his way home when he swerved to avoid something in the road and hit a tree. The Lincolnshire-Riverwoods Fire Department responded to the call, and while en route, they requested Flight For Life-Northern Illinois to the scene. Jeff had a severe head injury and remained in a coma for almost two months at Lutheran General Hospital. After many months of therapy, he finally got to go home just before Thanksgiving. His parents, Nancy and Bill, said it was like having a 6'2", 170 lb newborn baby in the house. They even used a baby monitor at night to "listen" for any calls for help or attempts to get out of bed, as Jeff was still restricted to a wheel chair. He had to learn to walk and talk all over again, regaining his coordination ever so slowly. His short-term memory was almost non-existent.

Today Jeff is a shining example of perseverance and so are his parents. This past June, Jeff rode a bicycle for the first time since the accident. Playing the drums is a passion that has helped him to regain his coordination. He does volunteer work with children and seniors, working toward his goal of becoming a social worker when he graduates from college. His short-term memory is slowly recovering, but it is a very frustrating process. Because of the optic nerve damage he suffered, he also must adapt to his impaired vision. Testing in college is done orally to accommodate his vision and memory problems. Tutors, hard work, and coaching from his parents have enabled him to steadily improve his grades.

Kathi Knop, the flight nurse who transported Jeff, and I paid a visit to Jeff and his parents to catch up on how things are going. Over glasses of ice tea and lemonade, we marveled at Jeff's accomplishments. Each time Jeff comes back home from school his parents see positive changes and improvements in his memory and coordination. During breaks, they help him to get a head start on his next semester with flash cards and repetitive study. The strides Jeff has made are nothing short of a miracle but that does not mean that the road to recovery has been an easy one. For Jeff and his family, it has been a very long and difficult journey, and it is nowhere near over. The doctors say that his recovery could take up to 10 years. But as Nancy so aptly said, "We are thankful to still have Jeff as there are many parents out there who have lost their kids to other tragic accidents."

During our visit, Jeff talked about school and how the other kids always ask about his accident. He takes them to his room and shows them the photos and articles he proudly displays. Then he tells them the story of all the people who made a difference in his outcome, the ones who helped to give him that second chance. It was later in our visit that Kathi shared with Jeff that he was the highlight of not only her time at Flight For Life, but of her entire nursing career. It is not often that patients return to thank those who have made a difference in their life, but Jeff and his family are one of the few who have made that effort. For those who are in the field of EMS, it validates the work that they do every day.

Looking back on our visit with Jeff and his family, one thing that Jeff said stood out above all others. He spoke of his appreciation for all that was done to make each day possible. Then he said to me, "I wish that all of you could be there when I can do something I could not do the month, week, or day before. I wish you could share my successes with me." Well it seems that Jeff has shared his successes with us, if only in a brief visit and that yearly phone call. Thank you to Jeff, Bill, and Nancy. You have no idea what that means to those who do this job.



Left to right: Bill Hensel, Kathi Knop, Jeff Hensel, and Nancy Hensel

## Landing in A Winter Wonderland

### Vince Freeborn

*Pilot, Flight For Life - Wisconsin*

Just like winter driving, winter flying comes with its own unique set of hazards that can make things challenging for those inside the aircraft. A few potential hazards the pilot must constantly be aware of include freezing rain, freezing fog, icing, and snow showers or blowing snow that drop the visibility in an instant. But by far the most common hazard the helicopter crew has to contend with from the first snow fall until spring thaw is the condition of the helicopter landing area. Whether it is at a hospital helipad or a pre-hospital scene landing zone, there are many potential problems awaiting the flight crew during the approach and landing phase as well as while exiting the aircraft after shutdown.

Anyone who has ever witnessed a helicopter take off or land has observed that the wind force generated by the helicopter can be quite substantial. This wind force during the approach and landing phase can kick up enough loose snow to cause what is known as “white out.” A “white out” is a condition of zero to near zero visibility around the helicopter due to the snow cloud generated by the helicopter. This effectively blinds the pilot to the location of the ground. Therefore, it is important that as much loose snow as possible is cleared from the landing area.

Hospital helipads should be cleared of snow and ice through the use of helipad heating systems, plowing, snow blowing, shoveling, etc. Frost as well as compacted snow and ice may cause the aircraft to want to spin while on the ground during “power up” or “power down” sequences. After thoroughly clearing the area of snow and ice, non-heated helipads should be sprinkled with urea. NEVER USE SALT as salt is highly corrosive to the aircraft. Additionally, the helipad should be as “slip free” as possible. (We have experienced our fair share of twisted ankles and sore posteriors from slipping on helipads.) Painted helipads are particularly slippery. If the helipad is due for repainting, please consider mixing some non-slip material, such as sand, into the paint. When plowing the helipad, do not allow snow to be piled up in the vicinity of the helipad. An ever-growing snow bank around the helipad quickly becomes a tail rotor hazard. Do not allow the use of tall marker stakes for plowing reference around the helipad as these are also tail rotor hazards.

Landing zones at scene calls can be difficult to make into the ideal helicopter landing area. You basically take a road or a field at the side of the road and convert it into a helipad. Each site has its pros and cons, and your options for preparing this area into a landing zone may

be limited. There are some simple steps that can be taken to make an acceptable landing zone. Please consider setting up the landing area on a plowed road instead of a snow covered field. The ability to safely transport the patient to the back of the helicopter may be difficult when wading through a snowy field. If a plowed road is not a good option because of wires, trees, or any other hazards, then a field may be the only alternative. In addition to the potential “white out” situation, snow covering a field may be hiding certain hazards. A level snow covering can mask a ground that slopes beyond the limits of the aircraft. Ankle twisting holes and ruts can be hidden from view. Consider having the person who sets up the landing zone walk through the entire area, not just the perimeter, checking for these hazards. When in radio contact with the helicopter, warn the pilot if there is an accumulation of loose snow in the landing zone.

Realistically, there is no avoiding the fact that during winter, we must work around snow and ice. But with a little bit of caution and pre-planning, winter operations with the helicopter can be performed safely and without incident.



## PATIENT FOLLOW-UP INFORMATION

### Linda Ptack, RN

*Chief Flight Nurse, Flight For Life*

Follow-up information on patients transported by Flight For Life (FFL) is a source of many questions.

Compliance with the HIPAA regulation and the use of protected health information (PHI) has changed (and frustrated) the way many of us would like to give and receive follow up on the patients we transport. Current FFL policy allows us to disclose PHI for purposes of treatment, payment, and healthcare operations (TPO). This means we can disclose information to direct treatment providers for the purposes of patient treatment activities, payment purposes, and/or healthcare operations.

Once the patient is transported to the receiving facility, FFL will notify the sending facility of patient status at time of “drop off” as well as any new or additional information obtained related to payment. We then follow up on the patients at 24 and 72 hours. If additional information is available, we will pass on the minimum amount necessary to accomplish the intended purpose related to TPO. After 72 hours, we close out our files for follow up.

Clear as mud? I thought so. For FFL, the HIPAA regulation will mean a “ride the wave” movement, until we all get a better handle on the intent of the law vs. the letter of the law and what compliance really means. We want follow up on our patients, and we know our customers want that follow up as well.

## Scene Call of the Year Award 2002

The 9th Annual Flight For Life Scene Call of the Year Awards were presented at three separate events in the Spring of 2003 to honor the winning departments. The award was developed to recognize and honor the outstanding contributions to patient care by EMS professionals in northern Illinois and Wisconsin. The FFL - Wisconsin award was given to two departments, the Milwaukee Fire Department and the Tess Corners Volunteer Fire Department due to a two-way tie. In Illinois, the award went to the Fox River Grove Fire Protection District.



The Tess Corners Volunteer Fire Department received the award at their annual banquet held April 12, 2003. The scene call occurred early summer of 2002 when a pickup truck collided head on with an SUV, resulting in one fatality and three others injured, one severely. This call involved two complicated extrications, challenging airway management of patients trapped in vehicles, and many simultaneous actions that required coordinating the resources of seven responding fire, EMS, and law enforcement agencies. Both Flight For Life - Wisconsin and Northern Illinois were called to assist at the scene and provided rapid treatment and transport of the critical patients once they were extricated. One of the pediatric patients injured in the crash will receive a special Seatbelt Safety Award from the WI DOT for reminding her family to put on their seatbelts just prior to impact.



The Milwaukee Fire Department (MFD) received their Flight For Life award at their annual Awards and Recognition Ceremony held on May 20, 2003. In spring

of 2002, they called Flight For Life – Wisconsin to the scene of a single vehicle, rollover crash with multiple patients. The position of the vehicle wedged against a tree with entanglement of patients in the wreckage caused an extremely challenging and prolonged extrication. It was a long and difficult rescue that required the combined resources of 43 members from MFD companies. The helicopter crew transported the one surviving patient to the Trauma Center at Froedtert. This call was an excellent example of interface and coordination among multiple EMS and support agencies.



Flight For Life - Northern Illinois presented its award to the Fox River Grove Fire Protection District on April 21, 2003, at their main station prior to their monthly business meeting. The award recognized Fox River Grove for a scene call that occurred in the fall of 2002 involving a patient who suffered a penetrating injury to the neck from a power tool. Extrication was prolonged due to the location of the patient and the fact that the tool could not be removed from the patient's neck. The Fox River Grove crew used ingenuity, timing, and great care to extricate the patient with minimal pain or additional trauma. This call illustrates the importance of teamwork, creativity, training, scene coordination, and management.

All three calls highlight the teamwork that exists among EMS, fire departments, law enforcement agencies, dispatchers, and air medical services as they work together to provide the best possible patient outcome.

Congratulations to Milwaukee Fire, Tess Corners, and Fox River Grove for a job well done!