

# How Should we Hone an On-Scene Saw Bone?

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U•TORONTO

EMERGENCY MEDICINE

# Field Amputations in Toronto

Dr. Michael Feldman, EMS Medical Director

# Subway Crash 1995



# Field Amputations

- Tourniquets
- Basic surgical instruments
- Chest tubes
- PRBCs



# Crane Collapse 2012



# Industrial Bakery 2019



# Field Amputation

- Necessary Elements for EMS
- Necessary Elements for Hospital
- Scene Management
- Victim Management
- Amputated Part Management
- What if you can't Amputate?

# Hospital Actions

- ***Hospital-Based Personnel***
- The charge nurse and emergency physician need to decide who should go. A physician needs to perform an amputation. That may be an emergency physician, or a general surgeon or orthopedic surgeon who is in house and capable of performing a field amputation.
- Nurse(s) to assist
- ***Hospital Equipment***
- “Grab and go” equipment in a bag appropriate to move to EMS vehicle and onto the scene
- ***Hospital Communication***
- Start with Emergency Physician conversation with EMS Personnel
- Field personnel communicates as early as possible with the ED, to allow ED and OR prep
- ***Hospital Documentation***
- It will primarily be the responsibility of the ED physician and charge nurse to complete documentation on patient care, equipment mobilized, and policies followed
- Surgeon and/or non-ED nurse document outside hospital in hospital record.
- PIO’s doing joint information release

# Hospital Management

- **FIELD AMPUTATION REFERENCE DOCUMENT**

- Major Incident Management File

- There are rare occasions when a request will be made for a team to be sent from the hospital to the field to perform an amputation. The air or ground ambulance may perform the personnel transfer. Neither vehicle has the necessary equipment to perform the surgery, so this form will assist the ED staff in assembling and accounting for this unusual incident.
- If at all possible, send two physicians and two nurses to the scene. One nurse assists the surgeon, the other assists with anesthesia, blood, and general patient care.



# Hospital Management

- Amputation equipment request from O.R.
- Hospital-specific
- Minor dissection set
- Gigli saw blade
- Amputation set
- Minor vessel set

NUMBER TAKEN	NUMBER RETURNED	ITEM
ED		Anesthesia supplies (to be administered by a physician)
ED		Fentanyl
ED		Versed
ED		Propofol or Etomidate
ED		Other Medication
ED		Tourniquet equipment
ED		Sterile gloves (appropriate sizes)
ED		Gowns, masks & goggles
ED		Large adaptics, gauze, Kerlex
ED		6 inch Ace Wraps
ED		Plastic bags (to place amputated body part in and return it to hospital) (clean or sterile)
OR		Amputation equipment request from O.R. <ul style="list-style-type: none"> <li>▪ Minor dissection set</li> <li>▪ Gigli saw blade</li> <li>▪ Amputation set</li> <li>▪ Minor vessel set</li> </ul>
ED		Warmed Normal Saline Solution
ED		Blood tubing
Blood Bank		2 Units O negative blood

# Scene Management Man in Machine

- Command
- Paramedic or EMT in Charge
- Rescue/Extrication Officer
- Safety Officer
- LZ Officer
- Hospital Personnel Safety Liaison



# Scene Management

- Essential that hospital-based resources be provided a safe operation
- Safety Liaison for hospital personnel to guide/protect/shield
- Needed safe landing area and rapid transport to the patient
- Any necessary protective gear like boots, bunker coat, helmet, goggles
- Safe platform to work on
- Lighting, ventilation, and physical access to the patient
- Patient as prepared as possible including monitor, oxygen, tourniquet, IV or IO access
- Backboard and stretcher
- Something to contain an amputated extremity and ice to put around it if needed
- Transport unit for patient
- Transport unit for amputated part
- ***Debriefing session for scene personnel, and technical review***



# Boat Lift



# Victim Management

- Surgical team immediately assess the patient
- Converse (consent) with patient
- Administer needed anesthesia or analgesia
- Perform necessary amputation
- Release, medicate, treat patient
- Move victim to the transport vehicle



# Amputated Part Management

- In some cases that may mean having the patient leave rapidly
- (Run the machine) Release and evaluate body part
- Clean and transport the cooled body part to the hospital
- Second transport vehicle and personnel
- Timing of delivery may be important
- Debriefing session for scene personnel, and technical review

# What if you Can't Amputate?

- Constant plan evolution of Options 1 through 5
- Additional technical resources anywhere on planet
- Patient assurance/analgesia/comfort
- Patient conversation with family



# Shock Trauma Go-Team Standard Operating Procedure Prehospital Amputation

Last update: 29 JAN 2020



## Indications:

- ▶ Need for rapid/emergent removal of the patient from their environment due to life-threatening factors that are either situational or patient-centered/medical in nature **AND** entrapment of a limb that would be amenable to field amputation otherwise preventing the emergent removal of the patient from their environment.

## Contraindications:

- ▶ Entrapment of a limb at a proximal location so as to not allow proper placement of a tourniquet to control bleeding.
- ▶ Environmental or situational consideration as to make the procedure unsafe for the provider.

## PROCEDURE STEPS

1. Use eye protection, gloves, gown, mask
2. Remove clothing
3. Apply **TWO** tourniquets to GROIN or AXILLA on the affected limb
4. Tighten **ONE** tourniquet until bleeding stops and note time
5. Apply sterile towels and apply chlorhexidine or betadine (if possible)
6. Incise **CIRCUMFERENTIALLY** with a scalpel, extend incision as far as possible
7. Retract soft tissue as necessary to rapidly expose bone
8. Using the bone saw or Gigli saw, cut the bone
9. Cut the remaining tissue with scalpel or scissors
10. If necessary to stop bleeding, apply direct pressure and tighten second tourniquet
11. If still bleeding, attempt to selectively clamp vessels & consider hemostatic dressings
12. Apply ACE bandage

If the amputated limb can be recovered,  
dress with saline-soaked sterile gauze  
and transport with patient in a clean  
plastic bag

# “They Called Us... About a Crush on You” 🎵 : In-Field Amputation

Since rare and consequential, how can this skill be made available to variety of patients?

## Eagles Question



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## Contributions

Battalion Chief Anthony Scott, MSL, NRP

EMIHS Quality Management



# Models of In Field Amputation

## Local EM/EMS Docs or Surgeons:

- Local EMS Med Dir: How available are they?
- **Ad Hoc** (?Rural hosp): Willing doc functions in a ... ent

## Urban Search and Rescue

NUS&R FEMA Teams: 28 credentialed  
State based (SUSAR): Variable +/- 38

NUS&R has a curriculum in its MTS class

## Metropolitan Based Tactical Rescue Team

## Regional Models: Shock Trauma Go-Team

Dr Ben Lawner & Colleagues

International Curriculum Guidance (INSURAG) exists

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