

Field Physician

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Purpose:

To provide a Metropolitan Medical Response System (MMRS) resource that includes an on-scene physician to assist fire department personnel and EMS providers.

Overview:

The field physician will provide on-scene physician assistance. Any fire department personnel, EMS provider, public health official, emergency management official or law enforcement personnel, with authorization from the incident commander, will be able to request the services of the field physician as outlined below. The field physician will provide medical assistance on-scene and during transport of patients, if required, to the hospital. In addition, the field physician will act as an on-scene resource and liaison to special resources available through the Medical College of Wisconsin.

The field physician will respond to scenes such as, but not exclusive to:

- 1) Level A activations of the City of Milwaukee Hazmat Team
- 2) Heavy Urban Rescue Team activations when field limb amputations may be needed

Qualifications and Training:

Field physicians will be required to undergo specialized training. All physicians must be credentialed to practice in the emergency department at Froedtert Hospital

and be in good standing. In addition, field physicians will be required to undergo the following specialized training:

- Complete IS-700.a course
(<http://training.fema.gov/emiweb/is/is700a.asp>)
- Complete HAZMAT Awareness training
- Attend training with the Milwaukee Fire Department Heavy Urban Rescue Team (HURT) team annually.
- View the Introduction to Field Amputation lecture once every two years.

Activation:

In order for the field physician to respond, a call must be placed to the Milwaukee County EMS (MCEMS) Communications Center and a request made that the field physician respond. The communicator will ascertain the nature of the incident, the resources requested, a contact phone number and/or radio frequency and the exact place and person the physician is to report to. The communications center will have a list of on call field physicians and contact information.

Response:

Once the field physician team is activated, arrival at the scene within Milwaukee County can be expected within 60 minutes. Once activated, the field physician will obtain the necessary equipment from the trauma room (Appendix 1) at Froedtert Hospital and proceed to the scene. The MCEMS communicator will facilitate all transportation arrangements that the field physician may need from Froedtert to the scene. Field physicians may be taken to the scene by law enforcement, Flight for Life, Milwaukee Fire Department personnel or may respond in their private vehicle. Once the physician arrives on scene, he/she will check in with the designated person obtained by the MCEMS communicator and provide the services requested.

Operations:

The field physician, upon being activated by the MCEMS communicator, should ensure he brings the following personal equipment:

- Milwaukee Fire Department issued turnout gear to include:
 - Bunker jacket and pants
 - Helmet
 - Safety glasses
 - Extrication gloves
 - Boots
- Milwaukee Fire Department credentials (ID badge)

All other equipment that will be needed will be stored in and obtained from the trauma room at Froedtert Hospital (Appendix 1).

Once the field physician is activated by the MCEMS communicator, he/she will respond to Froedtert Hospital to obtain the necessary equipment. On the way to Froedtert, the field physician should call ahead to the ED shift flow coordinator and request that they complete the ED Shift Flow Coordinator Duties Upon Activation of the Field Physician (Appendix 2). This form will be attached to the field physician medical pack in the trauma bay for reference.

The field physician medical pack will be kept in the trauma bay at Froedtert Hospital (Appendix 1). It will be kept in clearly marked bags on the shelves on the north end of the trauma bay. In addition, a clearly labeled cooler will be kept on the shelves to transport blood to the scene.

Once the field physician has obtained the necessary equipment, he/she should check in with the MCEMS communicator to gather the information obtained and discuss the transportation mode that has been arranged.

After Action:

After the field physician is done with the equipment, it must be returned to the emergency department at Froedtert Hospital. The field physician will return the medication packs to central pharmacy and complete the Froedtert Hospital Department of Pharmacy Trauma Amputation Off-Site Administration Record (Appendix 3).

The emergency department shift flow coordinator will be able to help the field physician send appropriate equipment to sterile processing and in obtaining cleaning supplies for other non-disposable equipment. Any disposable equipment used should be replaced by the field physician. If there is any equipment that the emergency department does not routinely stock, the field physician should contact the Milwaukee County EMS Medical Director to coordinate the replacement of supplies.

The field physician should write a patient care note on the Froedtert Patient Progress Record (Appendix 4). A copy of this note should be kept with the patient's chart. In addition, the Milwaukee County EMS Medical Director should receive a copy of this note. A copy of the Consent for Surgery or Invasive Procedure form (Appendix 5), even if not physically signed by the patient, should accompany both copies of the progress note. The Consent for Surgery or Invasive Procedure form should have documentation that verbal consent was obtained if able, in cases where the patient was unable to physically sign.

Field Extremity Amputation

Purpose:

To allow a field physician, who is specially trained, to perform a field extremity amputation.

Overview:

The literature is limited on the number of field extremity amputations in the United States and there has not been a quantification of potentially preventable field deaths. One study found twenty-six field amputations done over a five-year period. Of respondents, 96% of respondents stated they had no training available through their EMS agencies related to the performance of in-field extremity amputations. This curriculum and protocol will ensure field physicians are well trained should the need for a field amputation arise. Both initial and real time educational material will be part of the curriculum.

Indications:

There are four main indications for a field extremity amputation. The first two are relatively straightforward with the third and fourth indications being a bit more dependent on provider judgment. Of note, the trauma surgery faculty is always available to the field physician by phone if the indication for a field amputation is not clear.

- 1) The patient has an entrapped extremity, extrication will not occur rapidly, the patient is hypotensive and is considered a nonresponder to initial IV fluids (life before limb).

- 2) The patient has an entrapped extremity, extrication will not occur rapidly and the patient is in the situation where further structural collapse or bodily injury is imminent if they are not rapidly extricated.
- 3) The patient has an entrapped extremity, extrication will be extended, the patient was initially hypotensive but responded to initial IV fluids and currently has an adequate blood pressure.
- 4) That patient has an entrapped extremity, the patient is hemodynamically normal and in the best judgment of the fire department and field physician, extrication is likely to take many hours, if it can be done successfully at all.

Procedure:

Note that these steps are guidelines only. Due to the extreme environment this procedure is taking place in, modification of the below procedure may be necessary.

- 1) Perform initial physical assessment according to Advanced Trauma Life Support guidelines and provide routine medical care.
- 2) Ensure the patient's airway is patent and obtain IV or IO access.
- 3) Once the decision as been made to perform a field limb amputation, obtain verbal consent, if possible, from the patient undergoing the limb amputation. All consents, or attempts at consent must be documented on the Consent for Surgery or Invasive Procedure form (Appendix 5).
- 4) Provide analgesia and sedation for the patient
- 5) Ensure you have proper body substance isolation and protective gear on.

- 6) Place a tourniquet as far distally as possible but proximally to the site of the proposed amputation. Tighten the tourniquet and record the time on the tourniquet.
- 7) Apply sterile towels around the amputation site and secure in place with towel clips.
- 8) Apply betadine solution to the skin and allow drying for 2 minutes.
- 9) With a scalpel, make an incision medially and extend it laterally as far as possible.
- 10) Incise all the soft tissue, down to bone.
- 11) Place a Kelly clamp underneath the bone, using a back and forth motion to allow for further dissection of the tissue. Place a laparotomy pad in the jaws of the Kelly clamp and pull the laparotomy pad underneath the bone. Grab both ends of the laparotomy pad and move the laparotomy pad back and forth to allow for further dissection and retraction.
- 12) While holding both ends of the laparotomy pad in your left hand, take the safety off the battery operated bone saw and test the saw.
- 13) Place the saw blade perpendicular to the bone and begin sawing. You will feel release of the bone when you are completely through.
- 14) Place the safety back on the saw and put the saw down.
- 15) Using a Mayo scissors or scalpel, cut the remaining soft tissue to complete the amputation.

- 16) If you have continued bleeding, place a second tourniquet just above or below the first tourniquet and tighten. If bleeding continues, apply direct pressure over the site of bleeding. If this is not possible or fails to control bleeding, selective clamping of bleeding vessels is done with a Kelly clamp.
- 17) Place sterile, saline soaked gauze over the end of the limb and cover with an Ace bandage.
- 18) If you are able to retrieve the amputated limb, place sterile, saline soaked gauze over the end and secure in place with an Ace bandage. Place the amputated limb in a clean bag and transport to the hospital with the patient. Do NOT place the amputated limb on ice. The decision on whether an amputated limb can be reimplanted must be left to the surgical team at the hospital. Again, if the limb can be retrieved in a safe and timely manner, transport it with the patient to the hospital.

References

- Benson M, Koenig KL, Schulz CH. Disaster Triage: START, then SAVE - A new method of dynamic triage for victims of a catastrophic earthquake. *Prehosp and Disaster Med.* 1996;11(2):117-124.
- Foil MB, Cunningham PRG, Hale J, Benson NH, Treurniet S. Civilian field surgery in the rural trauma setting: a proposal for providing optimal care. *J Natl Med Assoc.* 1992;84(9):787-789.
- Gans L. Management of Unique Clinical Entities in Disaster Medicine. *Emerg Med Clin N Am.* May 1996;14(2):301-326.
- Grande CM, Baskett PJF, Donchin Y, Weiner M, Bernhard WN. Trauma Anesthesia for Disasters: Anything, Anytime, Anywhere. *Crit Care Clin.* April 1991;7(2):339-59.
- Husum H, Gilbert M, Wisborg T. *Save Lives, Save Limbs.* Panang, Malaysia: Third World Network; 2000.
- Jaslow D, Barbera JA, Desai S, Jolly BT. An emergency department-based field response team: case report and recommendations for a "go team." *Prehosp Emerg Care.* 1998;2:81-85.
- Kampen KE, Krohmer JR, Jones JS, Dougherty JM, Bonness RK. In-field extremity amputation: prevalence and protocols in emergency medical services. *Prehosp Disaster Med.* Jan-Mar 1996;11(1):63-66.
- Koenig KL, Schulz CH. The crush injury cadaver lab: a new method of training physicians to perform fasciotomies and amputations on survivors of a catastrophic earthquake (abstract). *Ann Emerg Med.* 1992; 21:613.

Koenig KL, Schultz C, Bade R. Medical disaster response amputation and fasciotomy training (letter). *Prehosp and Disaster Med.* 1993;8(2):205

McIntyre KE, Bailey SA, Malone JM, Goldstone J. Guillotine amputation in the treatment of nonsalvageable lower-extremity infections. *Arch Surg.* April 1984;119:450-453.

Porter KM. Prehospital Amputation. *Emerg Med J.* 2010 Dec;27(12):940-2.

Sharp CF, Mangram AJ, Lorenzo M, Dunn EL. A Major Metropolitan "Field Amputation" Team: A Call to Arms . . . and Legs. *J Trauma.* 2009 Dec;67(6):1158-61.

Stewart RD. Field Surgical Intervention: An Unusual Case. *J Trauma.* October 1979;19(10):780-783.

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Appendix 1

Field Physician Equipment List

Equipment

Personal Protective Equipment
Cellular phone
2 way radio
Laptop computer
ZOLL M series monitor
CO2 monitor
Suction

Jump Pack

3 – 14 gauge IV Angiocaths
3 – 16 gauge IV Angiocaths
3 – 18 gauge IV angiocaths
3 – 20 gauge IV angiocaths
5 IV start kits (tape, tegaderm, alcohol preps, etc)
IO gun
Tape
Gauze
ABD pads
Roller gauze
Ace Bandages
2 - Trauma dressings
Biohazard bags

BVM

Disposable stethoscope
Laryngoscope handle and blades
Replacement batteries for laryngoscope handle
Replacement lightbulbs for laryngoscope blades
Assorted ET tubes
ET tube holder
Disposable EtCO2 monitor
King LT airways
Surgical airway (Melker Kit)

Betadine
2 - Sterile towel packages
Towel clips
Laparotomy pads
Stryker bone saw
Gigli saw
4 - Tourniquets
Scalpels
Sterile gloves
Hemostats (small and large)
Mayo scissors
Kelly clamps
Plastic bags

Medication Kit

Variety of needles
Variety of syringes
Versed
Ketamine
Fentanyl
Dilaudid
1% lidocaine
1% lidocaine with epi
Bupivacaine
Etomidate
Succinylcholine
Rocuronium
Zofran
Narcan
Flumazenil

2 liters of saline
Blood tubing

Blood Cooler

4 units O-

Appendix 2

ED Shift Flow Coordinator Duties Upon Activation of the Field Physician

- 1) Call the blood bank and request that 4 units of O- packed red blood cells be sent stat to the ED. Once the blood arrives, place two ice packs and the blood in the cooler labeled “Field Physician Blood.”
- 2) Complete the Froedtert Hospital Department of Pharmacy Trauma Amputation Off-Site Administration Record. This document can be found attached to the Field Physician pack, located on the shelves on the north side of the trauma bay. Remove the medications from the trauma room Accudose and give to the field physician upon their arrival. You should manually enter in a “Doe, Field” patient and pull the medications under this newly created patient.
- 3) Once the field physician arrives, have them sign the Froedtert Hospital Department of Pharmacy Trauma Amputation Off-Site Administration Record, indicating the medications and amounts received. One copy of this form should be placed in the ED pharmacist’s mailbox. The second copy of this form will remain with the medications/physician and will be completed by central pharmacy and the physician upon return of the unused medications.

Appendix 3

FROEDTERT HOSPITAL DEPARTMENT OF PHARMACY TRAUMA AMPUTATION OFF-SITE ADMINISTRATION RECORD

<Patient Addressograph Sticker Below OR Complete the following>

Patient Name: _____

MRN: _____

Code	Description	Quantity Dispensed (#vial/amp)	Administered (mL)	Returns			
				Trauma Team		Pharmacy	
				Unused (#Vials/amp)	Partial (mL)	Unused (#Vials/amp)	Partial (mL)
142840	Bupivacaine 0.5% PF—30 mL vial	1 vial					
80486	Etomidate 2 mg/mL—10 mL vial	3 vials					
43691	Fentanyl 50 mcg/mL—2 mL ampule	6 ampules					
50832	Flumazenil 0.1 mg/mL—5 mL vial	6 vials					
44435	Hydromorphone 2mg/mL—1mL syringe	6 syringes					
44919	Ketamine 50 mg/mL—10 mL vial	4 vials					
79487	Lidocaine 1% 10mg/mL PF—30mL vial	2 vial					
56785	Lidocaine 1% w/ Epinephrine 1:100,000—30 mL vial	1 vial					
51390	Midazolam 1 mg/mL—5 mL vial	4 vials					
46065	Naloxone 0.4mg/mL 10mL vial	1 vials					
132981	Ondansetron 2mg/mL—2 mL vial	2 vials					
53543	Rocuronium 10 mg/mL—5 mL vial	2 vials					
48265	Succinylcholine 20 mg/mL—10 mL vial	2 vials					

Dispensing Signature (Nurse / Pharmacist) Date/Time

Accepting Signature (Physician) Date/Time

Returning Signature (Physician) Date/Time


Receiving Signature (Pharmacist / Technician) Date/Time

Waste Signature (Pharmacist) Date/Time

Co-signature of Waste (Pharmacist) Date/Time

Please return medications and documentation form to Froedtert Hospital's Central Inpatient Pharmacy

Patient Progress Record - Item # 2217



2217

ORIGINAL - Medical Records

80700
12/05

9200 West Wisconsin Avenue
P.O. Box 26099
Milwaukee, WI 53226-3596

[illegible]

Appendix 5

Front

1. I, _____ agree that I will have the following surgery/
procedure _____

- b. This procedure will be done by or supervised by, _____ (Attending physician)
- c. Others may assist my physician with this surgery/procedure. Resident physicians and other licensed professionals may be performing important tasks related to the surgery and anesthesia according to hospital policies. Resident physicians may assist depending upon their skill set and will be under the supervision of the responsible physician practitioner.
2. I understand anesthesia for the operation or procedure may include one or more of the following: General Anesthesia, Spinal or Epidural Anesthesia, Nerve Block Anesthesia, Local Anesthesia, Monitored Anesthesia Care or Moderate Sedation. The anesthesiologist, the anesthesia care team or your provider will discuss the choices and type of anesthesia that will be needed for the surgery or procedure. The type of anesthesia may change during the surgery or procedure as necessary. They will also discuss the risks associated with the type of anesthesia you will receive. The risk (or harm) from an anesthetic may include:
- Damage to my teeth, cut to my lips or gums or vocal cord injury
 - Adverse or allergic reaction to a medication
 - Infection, bleeding or infiltration of intravenous or arterial catheter
 - Loss of sensation that is temporary or permanent
 - Awareness or being mentally alert during any part of the procedure
 - Heart attack, stroke or brain damage
 - Post-operative nausea and vomiting
 - Scratch to the eye
 - Weakness
 - Delayed removal of breathing tube
 - Death
3. I have talked to my doctor or team about:
- What the surgery/procedure is and what I can expect to happen.
 - How it may help me (the benefits).
 - The possible risks such as a severe loss of blood, infection, heart attack, death, and other risks: _____

- My other choices for treatment and the risks/benefits of those choices. (alternatives)
- What short-term and long-term effects the procedure might have.
- What will likely happen if I say no to this procedure.
- How long it will take me to recover from the procedure.
- If I have a "Do Not Resuscitate (DNR) Order" I understand it will not apply during the procedure.
4. I understand that:
- I have been invited to ask questions.
 - No one has promised me a certain result for this procedure.
 - If my doctor(s) finds further serious problems during the procedure, they may change my treatment if it is best for me.
 - Some medications may be used to manage pain and others may sedate me or cause me to be sleepy.
 - For educational purposes, medical and healthcare students may watch the procedure.
 - Healthcare equipment vendors may be present during the procedure.
 - Pictures or video may be taken. They will only be used for medical and educational reasons.

(OVER, PLEASE)

Consent for Surgery



2439

17 of 18

ORIGINAL - Medical Records

Froedtert HOSPITAL

Froedtert & Community Health

9200 West Wisconsin Avenue
P.O. Box 26099
08/09 Milwaukee, WI 53226-3596

5. I understand that:

- If I change my mind and tell my doctor before they start they will fully respect my wishes and this will not affect my continuing care in the hospital.
- The members of the surgical team may change during the procedure.
- The team will double-check who I am. They will ask me what I am having done and where on my body I am having it done. This is for my safety.

☐ My questions have been answered. I agree to the procedure.

6. **Tissue/Graft:** ☐ Not Applicable

I have been told that tissue/graft may be used, I understand the risks and benefits. _____ (Patient initials)

7. **Blood Products:** ☐ Not Applicable

I have been told whether I might need blood transfusions. I know the risk and benefits of transfusions and my doctor and I talked about my other options such as donating my own blood, receiving my own blood back or having someone donate blood on my behalf. You may give me blood (or blood products) if I should need them during this stay and if related to this procedure.

☐ Yes, blood products may be used. _____ (Patient initials)

☐ No, I refuse blood or blood products. I understand this may cause me serious harm or death.
_____ (Patient Initials)

Patient Signature

Date

Time

Witness Signature

Date

Time

8. If a patient is a minor or otherwise unable to sign, complete the information below:

Signature of Parent, Legal Guardian, Health Care Agent,
or Other Authorized Representative

Date

Time

Relationship to patient: _____

9. I have discussed the procedure and above information with the patient (or patient's representative) and answered their questions. The patient (or the patient's legal or authorized representative) consents to the procedure.

Provider Signature

ID #

Date

Time

**Authorization and Consent
for Surgery or Other Procedure - Item # 2439**

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Froedtert HOSPITAL

Froedtert & Community Health

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