

Wisconsin Disaster Medical Response
Team
Field Operations Guide

This guide is divided into 7 color-coded sections

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Deploying

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Operations

Demobilization

Safety

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Deployment/Gear Bag(s)

Deployment Bag Minimum Clothing

- (3 pair) Pants acceptable for working conditions. Navy Blue BDU's etc. and Belt No Jeans!
- Sweatshirt Plain – No Markings
- (3) T-shirts Plain – No Markings
- (3 sets) of Medical Scrubs – For Medical Personnel
- (3 pair) Socks, wool or synthetic (No Cotton)
- (3) Underwear
- Large Bandanna
- Cap
- (1 pair) Boots, combat or work
- (1 pair) Tennis Shoes
- Parka or Jacket, rain or 60/40 shell
- Rain pants

Clothing (Cold Weather):

- (1) Wool shirt or sweater
- Coat, winter (polar guard or synthetic)
- Underwear, long (Synthetic, wool, silk)
- (1) Wool cap
- (3 pair) Heavy Socks

- Gloves or mittens (Wool or synthetic)

Sleeping Gear:

- Sleeping bag (synthetic or down) and Pillow
 - May substitute sheet & poncho liner during hot weather)
- Foam pad (optional)
- Ground cloth
- One or Two Person tent or shelter

Cooking & Food:

- Mess kit (cup, and bowl)
- Knife, fork, and spoon
- 24-hour emergency rations
- Water purification tablets (optional)
- (2) One quart canteens w/belt or camel

Personal Equipment:

- Gloves, leather (must be with person all times)
- Head lamp (optional)
- Small Flashlight (must be with person all times)
- Extra bulbs for flashlight
- Extra batteries for flashlight
- Waterproof matches or waterproof case
- Safety pins
- Sun glasses

- Multi Purpose Tool
- ID, driver's license, or credential
- List of medical diagnosis, allergies & chronic medications
- Money or Credit Card
- Pocket notebook and pencil
- Contact lens or prescription glasses
- Sewing kits
- Trauma Scissors, Hemostats (optional)
Stethoscope (optional)
- Hand Wipes
- Shampoo and Soap
- Tooth paste/Tooth brush
- Shower Shoes
- Comb or brush
- Watch
- Razor with blades
- Shaving cream
- Toilet paper
- Mosquito netting
- Deodorant (unscented)
- Towel and Washcloth

- Sun screen
- Lip salve or Chapstick
- Hand lotion
- Insect repellent
- Foot powder
- Moleskin
- Cell Phone
- Personal medications
- Laundry bag

5 Notes

Additional Items I need to bring:

- () _____
- () _____
- () _____
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Preparing For Deployment

Once deployment orders received:

- Determine ability to deploy based on work schedule
- Arrange for child-care if necessary
- Check gear bag contents
- Be prepared for 12 to 24 hours of operations
 - Mobile Field Medical Team deployment periods are generally less than 48 hours
 - Operational periods will generally be 12 hours.
 - The length of the first operational period will be based on incident conditions
- Note the Team Leader in charge and the staging location
- Drive to deployment with the flow of traffic obeying all applicable motor vehicle laws

Staging Area

- When responding to a deployment, members meet at a staging area or volunteer reception (Check-In) center located near the incident
- The Mobile Field Mobile Field Medical Team responds together from staging or center to the incident
- When demobilizing members return to staging area or center

- Exception: if responding to a hospital or other fixed facility with infrastructure already in place, the Medical Unit Team Leader (MUTL) may authorize providers to respond directly to the facility

Team Accountability

Scheduled deployment/Training

An announcement will include the identity of the Unit or Team Leader in charge of that event and contact information (usually the Medical Unit Team Leader or MRC Director)

Notification methods (in order of preference):

1. SMS Text to the cell phone
2. Email
3. Notification by phone call

When arriving:

- Note time of arrival on sign-in sheet

When leaving:

- Note time leaving on sign-out sheet

Sign-in sheet will usually be located in the Operations /Planning area

- May initially need to report to a Staging or Volunteer (Check-In) area

If any members deploys without verbal or written orders from a MUTL or MRC unit leader to a scene they may be terminated.

Emergency Deployments

The Medical Unit Team Leader (MUTL) will be Identified in deployment orders

Response to deployment orders:

- Provide information requested including time and if able to deploy
- If able to respond reply to the message

When arriving:

- Note time of arrival on Sign-In Sheet

When leaving:

- Note time leaving on Sign-Out Sheet

On-Scene Accountability

- Keep supervisor aware of location if leaving base of operation (BoO)

Policy Exceptions:

- Communications infrastructure failures:
 - Respond to the alert by any means possible
 - Although not preferred, member may arrive at the deployment location without notification
 - Notify a responsible team leader of plans

What To Bring

- Bring all equipment listed in Deployment (Gear) Bags section on page 1
- Bring anything else you need for up to 48 hours
- Pack in 1 deployment bag
 - Pack a small backpack or hydration pack inside deployment bag to carry on person during deployment
- Meals may or not be provided
 - Bring snacks and food for special dietary considerations

ICS Integration

Upon arrival, the Medical Unit Team Leader (MUTL) will obtain a briefing from the Incident Commander (IC) on chain of command and reporting procedures.

- The MUTL should address the following points:
 - Physical location of the ICP or EOC

- Location of the Mobile Medical Field Team Base of Operations (BoO)
 - Who, by position, is the MUTL Point Of Contact (POC) or agency liaison
 - Current situation
 - Patient decontamination issues
 - Patient transportation issues
 - Fatality processing issues
 - Hospital notification of incident status
 - Hospital management issues
 - Triage areas and procedures
 - Transportation areas and procedures
 - Support for the Mobile Field Medical Team
 - Emergency procedures
 - Current meteorologic conditions
- Share information with affected locality about Medical Team composition
 - Capabilities
 - Limitations
 - Specific support requirements
 - Integration into the jurisdiction's Incident Command System

Advance Party

- The MUTL may send a small strike team in advance of the rest of the team
- This may occur for deployments far from the home office area.

- Members should obtain advanced information
 - As much information as possible from the ICS
- Integration section on pages 7-8 should be gathered and filled in on the notes page located on pages 12 of this FOG

BoO Setup Location

Base of Operations (BoO) setup considerations:

- Safety
- In the cold zone
- Away from potential hazards presented by incident
- Upwind from any fire or HAZMAT incidents
- Flat and open
- Close to rest room facilities if possible
- Adequate room for BoO setup (may change based on conditions)

Additional Setup Safety Considerations

- Topography: BoO should be at a higher elevation than the incident if there is the possibility of runoff
- Hazards:
 - Adequate clearance from utility wires
 - Water runoff
 - Environmental hazards such as stinging insects and poison ivy
- Access:
 - Travel distance for team members to necessary facilities
 - Patient flow and ambulance entrance/exit
- Other safety concerns such as traffic and noise
- Position the trailer to block traffic and vehicle access

HAZMAT Considerations

Hazard Control Zones

1. HOT (Contamination Zone)
 - Mobile Field Medical Team personnel will not enter this zone
 - Contamination or danger of explosion is actually present
 - Personnel must wear appropriate gear (PPE)
 - Limit number of rescuers to those absolutely necessary
2. WARM (Control Zone)
 - Mobile Field Medical Team personnel will not enter this zone
 - Area surrounding the HOT Zone
 - Vital to prevent spread of contamination
 - Personnel must wear protective gear
 - Life-saving emergency care and decontamination are performed
3. COLD (Safe Zone)
 - Triage, stabilization, and treatment performed
 - Rescuers must shed contaminated gear and be decontaminated before entering the COLD Zone
 - IC and Command Post are normally located within the COLD Zone

- The COLD Zone must be large enough to allow emergency personnel sufficient area to work
4. Public Area
- Zone for public and non-operational personnel

PPE Levels

LEVEL A: Highest level of respiratory, skin, eye, and mucous membrane protection (Items with * are optional)

- Positive pressure, self contained breathing apparatus
- Fully encapsulating chemical protective suit



- Gloves, inner, chemical resistant
- Gloves, outer, chemical resistant
- Boots, chemical resistant, steel toe and shank
- Underwear, cotton, long-john type*
- Hard hat (under suit)*
- Coveralls (under suit)*
- Two-way radio communications*

LEVEL B: Highest level of respiratory protection, lesser level of skin/eye protection (Items with * are optional)

- Positive-pressure, self-contained breathing apparatus
- Chemical resistant clothing (overalls and long-sleeved jacket, coveralls, hooded two-piece chemical splash suit, disposable chemical resistant coveralls.)
- Coveralls (under splash suit)*



- Gloves, outer, chemical resistant
- Gloves, inner, chemical resistant
- Boots, outer, chemical resistant, steel toe and shank
- Boot-covers, chemical resistant (disposable)*
- Two-way radio communications*
- Hard hat,* Face shield*

LEVEL C: Airborne substance is known, concentration measured, criteria for using air-purifying respirators met, skin and eye exposure unlikely (Items with * are optional)

- Full-face or half-mask, air-purifying respirator
- Chemical resistant clothing (one piece coverall, hooded two piece chemical splash suit, chemical resistant hood and apron, chemical resistant coveralls.)



- Gloves, outer, chemical resistant
- Gloves, inner, chemical resistant
- Boots, steel toe and shank, chemical resistant
- Boot-covers, chemical resistant*
- Cloth coveralls (inside chemical protective clothing)*
- Two-way radio communications*
- Hard hat,* Escape mask,* Face shield*

LEVEL D: Work uniform

- Used only for nuisance contamination
- Coveralls and safety shoes/boots
- Other PPE is based upon situation
- Inadequate on any site where respiratory or skin hazards exist

Note: Reevaluate level of protection as information Changes and workers are required to perform different tasks

[Occupational Health and Safety Association: http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=STANDARDS&p_id=9767](http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=STANDARDS&p_id=9767)

Facility Setup

The major components of a camp setup are as follows

1. Set up cones and or caution tape for perimeter
2. Turn on generator
3. Set up area lighting (if needed)
4. Set up/establish communications area/links
5. Clear area under/around tent
6. Position the facility (position based on sun direction/noise/access)
7. ***See MMCF Set-Up Manual***
8. Secure tent to ground (pegs/guy ropes – caution tape on ropes)
9. Set up tent fly
10. Set up vestibule
11. Set up any other applicable shelters or areas; patient registration, triage, team operations center, ambulance staging area
12. Set up internal tent space..treatment areas
13. Set up water distribution system and sink
14. Install tent lighting
15. Install cord protectors as needed
16. Add additional tent insulation (weather dependent)
17. Set up tent heat/AC
18. Place door mats
19. Position cots

20. Place treatment totes and bags
21. Install hanging organizers in Emergent /Stabilization Treatment Area
22. Set up additional Equipment
 - Oxygen bottle/manifold/tubing (if avail)
 - IV/Intubation bags
 - Pediatric treatment bag
 - Patient treatment tote, including:
 - Disposable sheets
 - Disposable blankets
 - Sharps containers
 - Disinfectant wipes
 - Clock
 - Fire extinguisher
 - IV Warmer
23. Install batteries in devices
24. Test equipment (thermometers/glucometers/flashlights)
25. Set-up showers
26. Set-up PETT Toilet and secure (if needed - away from tent/downwind)
27. Obtain GPS coordinates for BoO
28. Locate and find GPS coordinates for a Helicopter LZ

ICS Position Checklists

Medical Unit Team Leader (MUTL)

The MUTL is responsible for the command function at all times. Responsibilities include:

1. Overall management of Mobile Field Medical Team activities
2. Assessment of Mobile Field Medical Team priorities
3. Assess resource needs and orders
4. Coordinate with outside agencies
5. Managing all jobs until assigned to other personnel

Primary Responsibilities

- Receives briefing from IC (or on-scene official)
- Establishes Base of Operations (BoO), dons vest (if available)
- Keeps written accountability for on-scene members

Secondary Responsibilities

- Establishes ICS structure and staff positions
- Ensures adequate safety measures are in place and communicated to all
- Briefs staff and give initial assignments

Tertiary Responsibilities

- Coordinates and directs staff to develop plans
- Makes requests for additional resources

- Prepares and participates in planning meetings
- Assists in developing and approving IAP
- Approves information given to the incident PIO
- Determines if operational periods are necessary
- Coordinates with outside entities as necessary
- Evaluates and ensures accomplishment of objectives
- Demobilizes resources as appropriate
- Conducts post incident analysis

Mobile Field Medical Team Safety Officer (SO)

The SO monitors Mobile Field Medical Team Operations and advises the MUTL on all matters relating to operational safety, including the health and safety of Mobile Field Medical Team personnel. The SO has authority to stop or prevent unsafe acts during incident operations. Reports to MUTL. Responsibilities include:

1. Assess and communicate hazardous situations
2. Ensure a site safety and health plan is developed
3. Correct unsafe acts or conditions
4. Maintain awareness of active and developing situations

Primary Responsibilities

- Receives assignment, dons SO vest
- Receives briefing from MUTL
- Keeps written accountability for on-scene members

Secondary Responsibilities

- Recons the incident visually
- Consults with IC on appropriate PPE, control zones, and safety hazards
- Prepares and participates in planning meetings
- Prepares appropriate ICS forms and other information to be included in the IAP
- Exercises authority to prevent or stop unsafe acts

Tertiary Responsibilities

- Investigates accidents within the incident area
- Participates in the post incident analysis

Mobile Field Medical Team Planning Section Chief (PSC)

The planning section is responsible for collecting, evaluating, disseminating and using information about the incident and status of resources. Reports to MUTL. Responsibilities include:

1. Understand the current situation
2. Predict probable course of incident medical events
3. Prepare alternative strategies for Mobile Field Medical Team operations

Primary Responsibilities

- Receives assignment/briefing, dons PSC vest (if available)
- Recons incident visually or receives briefing from incident command/general staff
- Briefs members on IAP
- Collects and processes incident information

Secondary Responsibilities

- Supervises IAP preparation
- Provides input to Mobile Field Medical Team command staff regarding preparing the IAP
- Participates in planning meetings
- Determines need for any specialized resources
- Formulates alternative Mobile Field Medical Team strategies
- Provides periodic predictions on incident potentials
- Compiles incident status summary information
- Advises MUTL of any significant changes in incident status

Tertiary Responsibilities

- Prepares demobilization plan
- Maintains records/logs

Mobile Field Medical Team Logistics Section Chief (LSC)

The logistics section is responsible for directing set-up/take down of equipment, providing facilities, services and materials. Reports to MUTL. Responsibilities include:

1. Working closely with the MUTL and Planning Section Chief to anticipate incident support Requirements
2. Ordering resources through chain of command
3. Participating in planning meetings
4. Provide periodic status reports to MUTL and or Operations Section Chief
5. Planning for relief and replacement of logistics staff

Primary Responsibilities

- Receives assignment, dons LSC vest (If available)
- Receives briefing from MUTL and PSC
- Directs BoO and equipment setup/demobilization

Secondary Responsibilities

- Participates in IAP preparation
- Identifies service and support requirements for planned and expected operations

- Coordinates and processes requests for additional resources
- Reviews IAP and estimates section needs for next operational period
- Advises on current service and support capabilities
- Estimates future service and support requirements

Tertiary Responsibilities

- Provides input on demobilization as required by planning section
- Ensures safety of logistics section personnel

Mobile Field Medical Team Operations Section Chief (OSC)

The Operations Section Chief should be an experienced MD, or PA or Senior RN responsible for managing the Treatment Areas and assigned personnel. Reports to MUTL. Responsibilities include:

1. Works in coordination with the Treatment Area Team Leader to set up and operate treatment areas
2. Ensures medical personnel are assigned to patients

Primary Responsibilities

- Receives assignment from MUTL, dons vest (if available)

- Documents operations on Unit Log sheet
- Accounts for all personnel assigned to treatment areas
- Assigns personnel to various positions (triage, red/yellow/green treatment areas and patient observation and holding area)
- Develops patient treatment/flow plan (w/Treatment Team Leader)
- Assures needed equipment is available or requested
- Directs use of Mobile Field Medical Team patient tracking form
- Coordinates with physicians from other agencies

Secondary Responsibilities

- Briefs MUTL on situation, needs, and staffing
- Ensures proper documentation (Patient Care Report or Triage Tag) is completed and kept with each patient
- Coordinates with Logistics Officer on supply needs
- Continually checks for problems in the treatment area and institutes fixes as needed
- Coordinates with the emergency department physician at local hospitals

Tertiary Responsibilities

- Demobilizes treatment area at direction of MUTL
- Participates in post-incident analysis

Mobile Field Medical Team Treatment Team Leader

The Treatment Team Leader (TTL) is a physician, physician's assistant, or senior nurse who is responsible for directing all patient care in their treatment area.

Reports to MUTL. Responsibilities include:

1. Treatment decisions for patients
2. Coordinating schedules and treatment responsibilities among all providers
3. Developing standing orders for treatment in the Treatment areas
4. Works in conjunction with Operations Section to setup treatment area

Primary Responsibilities

- Receives briefing from Operations Section Chief
- Directs treatment of patients in their area
- Develops treatment guidelines and/or standing orders for their area

Secondary Responsibilities

- Determines needed supplies in coordination with Operations Section Chief
- Participates in planning meetings

- Assists admissions and planning with Patient Tracking

Tertiary Responsibilities

- Reviews operations and plan improvements with Operations Section
- Participates in post-incident analysis

Mobile Field Medical Team Triage Officer (TRO)

The TRO should be an experienced RN or EMS provider and is responsible for sorting patients into treatment categories. Categories may include using triage tags, assigning to treatment areas or specific bed assignments. Reports to Operations Section Chief.

Responsibilities include:

1. Coordinating with the Treatment Area Team Leaders
2. Sorting patients into treatment categories
3. Directing personnel assigned to assist with triage
4. Providing minimal treatment if needed (bleeding control, etc.)

Primary Responsibilities

- Receives assignment and briefing from Operations Section Chief

- Dons Triage Officer vest (if available)
- Establishes Triage area, acquires needed Equipment
- Evaluates patients and sorts according to system
- Evaluates patients for any type of contamination
- Assesses need for immediate transport vs. treatment in Mobile Field Medical Team system
- Documents patients on Master Patient Tracking Form (if not otherwise assigned)

Secondary Responsibilities

- Documents operations on Unit Log Sheet
- Determines issues that may affect treatment
- Reviews operations and coordinates with Operations Section Chief

Tertiary Responsibilities

- Demobilizes triage area at direction of Operations Section Chief
- Participates in post-incident analysis

Mobile Field Medical Team Communications Officer (CO)

The CO is responsible for all Mobile Field Medical Team voice, data and satellite systems. Reports to MUTL.

Primary Responsibilities

- Receives briefing from MUTL, dons vest (if available)
- Develops Mobile Field Medical Team communications plan
- Establishes communications area
- Participates in planning meeting as appropriate
- Coordinates check-in/check-out of all personnel
- Coordinates with LSC on needed supplies/equipment
- Accounts for all personnel assigned to comm unit
- Maintains communication logs for all transmissions
- Maintains unit documentation logs
- Determines unit personnel leads
- Coordinates with incident communications section
- Recovers all issued equipment

Secondary Responsibilities

- Advises MUTL on communications capabilities
- Ensures communications systems are installed/tested
- Distributes and accounts for portable radios
- Provides technical information as required on:
 - Adequacy of communications system
 - Geographic communication limits
 - Equipment capabilities
 - Anticipated equipment problems

Tertiary Responsibilities

- Ensures equipment is tested and repaired
- Recovers equipment from relieved personnel

Lead Patient Care Technician

See Treatment Team Leader

Patient Care Technician

Provides medical care and life support to patients at the direction of the Lead Patient Care Technician.

Responsibilities include

1. Assist in direct emergency care
2. Assist in non-emergency patient care

Primary Responsibilities

- Receives briefing from Lead Patient Care Technician and dons vest if available
- Provides basic life support and first aid procedures
- Under supervision of the Lead Patient Care Technician, checks vital signs, applies splints to broken or suspected broken bones and applies dressings to wounds to stop bleeding and prevent infection.

Secondary Responsibilities

Depending on the situation may also be called upon to assist other medical staff in non-traditional care such as

applying casts, and wound care not requiring the services of a physician etc

- Ensures patient comfort and care.
- Observes patients for changes in attitudes, behavior and physical condition
- Assesses routine physical condition of patients and reports changes to his or her behavior to their supervisor.
- Records patient's conditions.

Tertiary Responsibilities

- Secures emergency equipment for use by the medical staff, i.e. oxygen and respirators, etc. and is accountable for all issued equipment.
- Obtains litters or assists in the physical transporting and evacuation of patients. Loads and unloads patients from ambulances, aircraft and other conveyances – Litter Bearers.

Admissions/Registration/Discharge

Admissions/Registration/Discharge

Documents all care on a patient care forms. Assists and maintains Patient Tracking System and Forms

- First Copy: Mobile Field Medical Team
- Second Copy: Accompany patient to tertiary care facility/discharge

Exceptions

1. An incident where large numbers of patients are being treated:
 - MUTL may authorize use of MCI tags to document BLS care
 - Must document ALS care on patient care form
2. Deployed to assist another agency that has their own documentation forms:
 - MUTL may direct to use host agency's forms Patient tracking
 - All patients must be tracked on a Master Patient Treatment Form
 - TO collects all records at end of operational period

Scope of Practice

- Follow state laws, rules, and protocols
- Do not attempt any intervention that you have not been authorized and trained to perform
- If mass dispensing of medications is needed, providers may be authorized to administer medications that are not normally within their scope of practice by the state health officer.

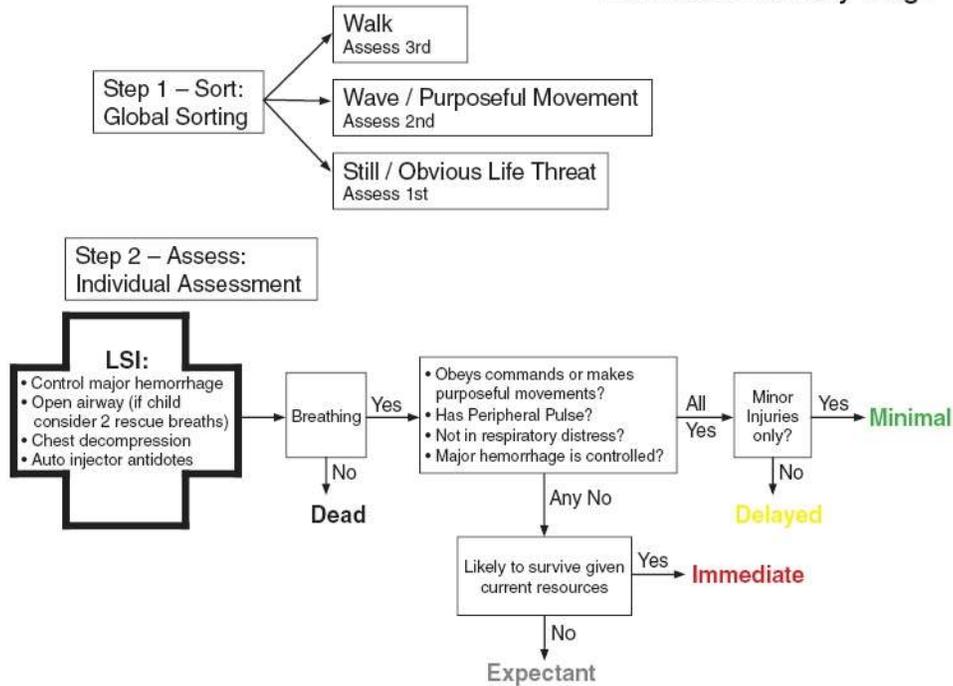
Medical Control

- When the local agency (call out) physician or mid level practitioner is present, providers may be authorized to operate under his/her direction to own scope of practice
- Local medical control may provide remote, on-line medical direction to the Mobile Field Medical Team. On-line medical directions may also be provided by a physician of the state or a local hospital

Triage

SALT Triage

SALT Mass Casualty Triage



STEP 1 – Global Sorting of Patients:

- Walk – move pts who can walk away, lowest priority
- Wave/Purposeful Movement – pts who can gesture are 2nd priority
- Still/Obvious Threat – pts not moving are TOP PRIORITY

STEP 2 – Individual Pt Assessment/Triage:

Life-Saving Interventions (LSI) first:

1. Control major bleeding
2. Open airway (if child, give 2 rescue breaths)
3. Auto-injector antidotes (if nerve gas or pesticides) (if avail.)
4. Chest decompression (if indicated)

If NOT breathing after LSI = DEAD

- Obeys commands or making purposeful movement
- Peripheral pulse
- No respiratory distress
- Bleeding controlled

If any checkboxes missing, then **IMMEDIATE(red)**

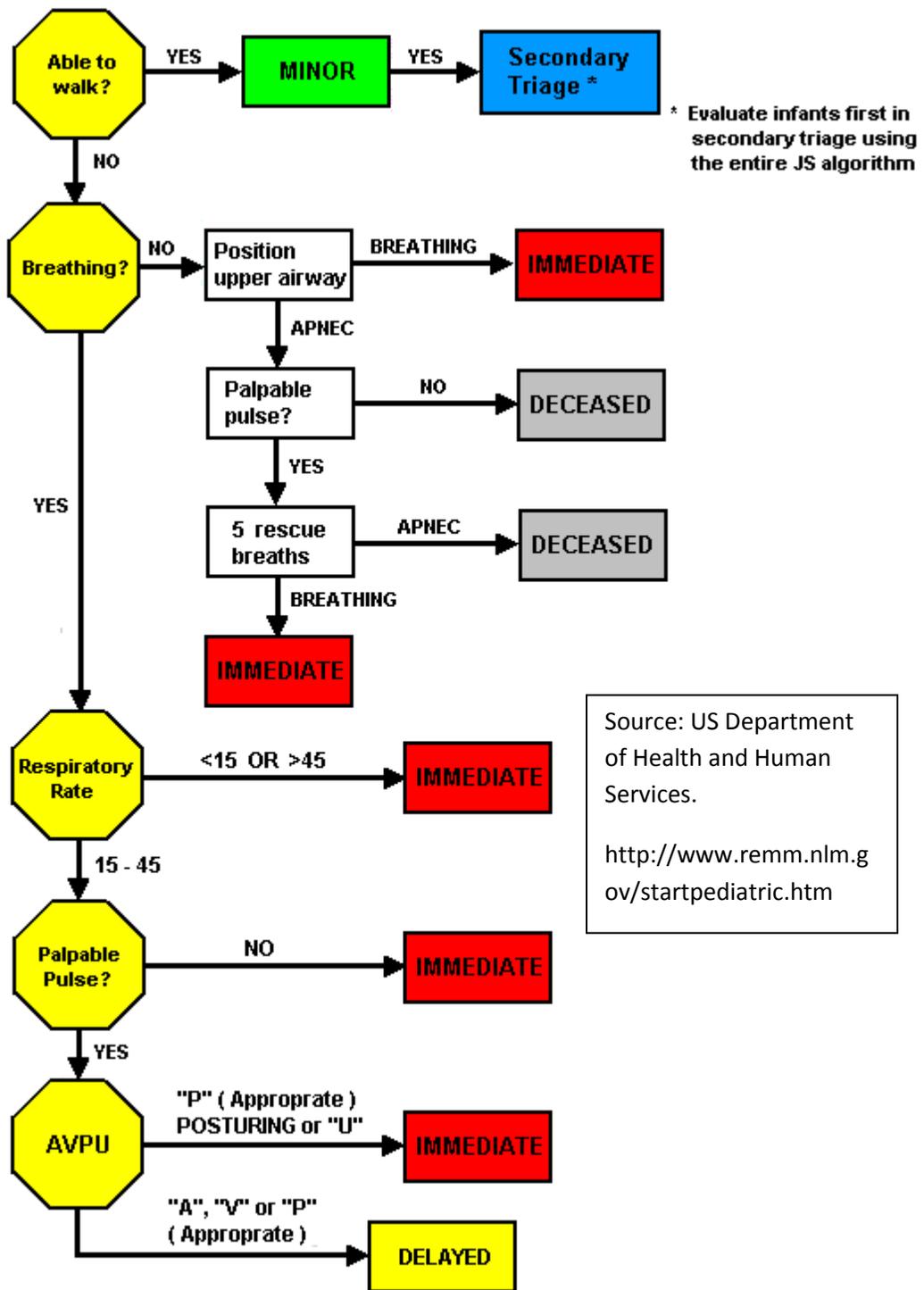
If unlikely to survive given current resources, then **EXPECTANT (gray)**

If all boxes checked, then assess – only minor injuries?

No Go (treat) - DELAYED (yellow)

Yes (may treat) - MINIMAL (green)

JumpSTART Pediatric Triage



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TRAY

Tongue Depressors	Sterile Swabs
Alcohol Pads	Antiseptic Wipes
Penlight	Trauma Shears
Bandage Scissors	Thermometer Covers
Tweezers	Tube Polysporin
Thermometer	Flash Lights
IV Tourniquets	Hydrocortisone Packets
Triple Antibiotic Cream Packets	Tincture of Benzoin Swab Packets

Top Bin

Hibicleans	Blood Pressure Cuff Kit
CPR Mask	Eye Wash
Surgical Scrub Brush	Gauze Trays
Band-Aids	3x3 Petroleum Gauze Pads
3x4 Anti-Microbial Pad	3x4 Non Adherent (Non- Stick Pad)

Center Bin

Triangular Bandage	4" Roll Gauze
2" Roll Gauzes	Instant Cold Packs
4" Elastic Bandage	2" Elastic Bandage
1" Cloth Tape	1" Paper Tape
4"X4" Gauze Pads	2"X2" Gauze Pad
5"X9" Gauze Pad	Eye Pads
Pressure Bandage	

Bottom Bin

Blanket	Tube Clorox Wipes
Sterile Water for Irrigation	Paper Towels
Kleenex	Gloves
Basin	Trash Bags
Procedure Binder	Isolation Gowns
Safety Goggles	Loop Masks
Zip-Loc Bags	Chem Lights
Under Pads	Hand Sanitizer

Patient Packaging

Principals for patient packaging are universal whether using a litter, backboard, or improvised method:

- Concentrate on locking down the weight centers of the body
- If possible make an 'X' with straps, instead of conventional horizontal straps
- Fill in side gaps between the patient and straps to prevent sliding
- Pad under patient: knees and any open spaces
- Protect patient from the environment
- Refer to hypothermia wrap in the treatments section

Hospital Support

The Mobile Field Medical Team may be Requested to assist hospitals if they become overwhelmed with patients during an MCI. They will be operating as a MFMT as a Type II

- Mobile Field Medical Team members can provide assistance to medical facilities in the following areas:
 - Patient tracking
 - Vital-sign monitoring
 - Triage
 - Yellow/Green and Gray care

Communications

Team Call Signs

Team Command	Unit Leader
Communications	Comms
Operations	Ops
Logistics	Logs
Treatment Area	Treatment (Red, Green, Gary)
Triage	Triage
Planning	Plans
Admissions	Admissions

Radio Transmissions

- Use plain English for radio transmissions
- Do not use law enforcement type “10 codes” or amateur (HAM) radio codes
- Radio call signs are be designated by a person’s position; no radio numbers are be used.
 - Examples: “Medical Unit Team Leader”, “Treatment Area Red (Immediate) or “Triage”
 - If no assigned position: use last name of the radio holder
 - Example: If John Doe is assigned a radio but not a position, state “Comms from Doe” or “Medical Unit Team Leader from Doe”

Strategic National Stockpile (SNS)

- SNS contains large quantities of medicines, antidotes, medical supplies, and medical equipment
- Additional vaccines and medications can be requested as needed through a Managed Inventory system
- Supplies/medications will be delivered by the CDC to a predetermined, secure site

The SNS includes:

- Adult & pediatric drugs, some in bulk, most prepackaged for individuals
- IV drugs catheters & admin sets
- General emergency medications
- Burn & blast supplies
- Airway equipment
- Fluids & wound care materials
- Equipment for repacking bulk oral antibiotics

Requests:

- Health Department requests SNS through the Governor
- If CDC determines deployment is appropriate, the first shipment arrives within 12 hours
- State will then take custody of SNS with security provided by the State Patrol and National Guard.

POD Operations

- Point of Dispensing (POD) is a location where pharmaceuticals and other medications are distributed to end users
- POD Types:
 - Closed POD: medication is “pushed” to specified groups of individuals. Examples include:

- Influenza vaccines administered to State officials/staff during an influenza pandemic
- Ciprofloxacin and doxycycline prophylaxis to first responders during a biological incident
- Open Pod: public “pulled” into a location for medication distribution. Examples include:
 - Public health influenza clinics

Basic design of a POD includes:

- Intake (receiving people into the POD)
- Screening and registration (basic information about patients and Triage)
- Dispensing of medication
- Observation and discharge
- Exit

Helicopter Safety

Note: The following is standardized civilian medical helicopter safety protocol for much of the United States

All personnel operating in the vicinity of a landing zone (LZ) are required to wear hard hat, hearing, eye protection, when helicopter is running, landing, or taking off

LZ Preparation

- Prepare at least a 75' x 75' landing zone (day), 100' x 100' landing zone (night)
- Remove all loose debris in an area 1.5 times the LZ size
- No vehicles within 75 feet of aircraft
- Pack all loose snow
- Keep all bystanders at least 200' from site
- Keep clear of the tail rotor
- Protect patient and rescuers from rotor wash
- Be cautious of "white outs" and "brown outs" which are caused by rotor wash

LZ Coordinator

LZ Coordinator should have attended helicopter ground safety course

- Sole Responsibility for the LZ
- Only person to speak directly to the Aircraft
- Use portal VHF radio initially
- Will give LZ report to pilot upon request

Information to relay to aircraft:

- How the LZ is identified
- Obstacles in LZ and how they are identified
 - Use compass headings to identify all objects/obstacles
- Wind gusts

LZ Coordinator should face the LZ with their back to the wind until the pilot identifies it.

Final approach:

- Essential Communications ONLY
- In the event of loss of Comm's and the aircraft is in danger signal a "wave off" by crossing your arms over your head repeatedly

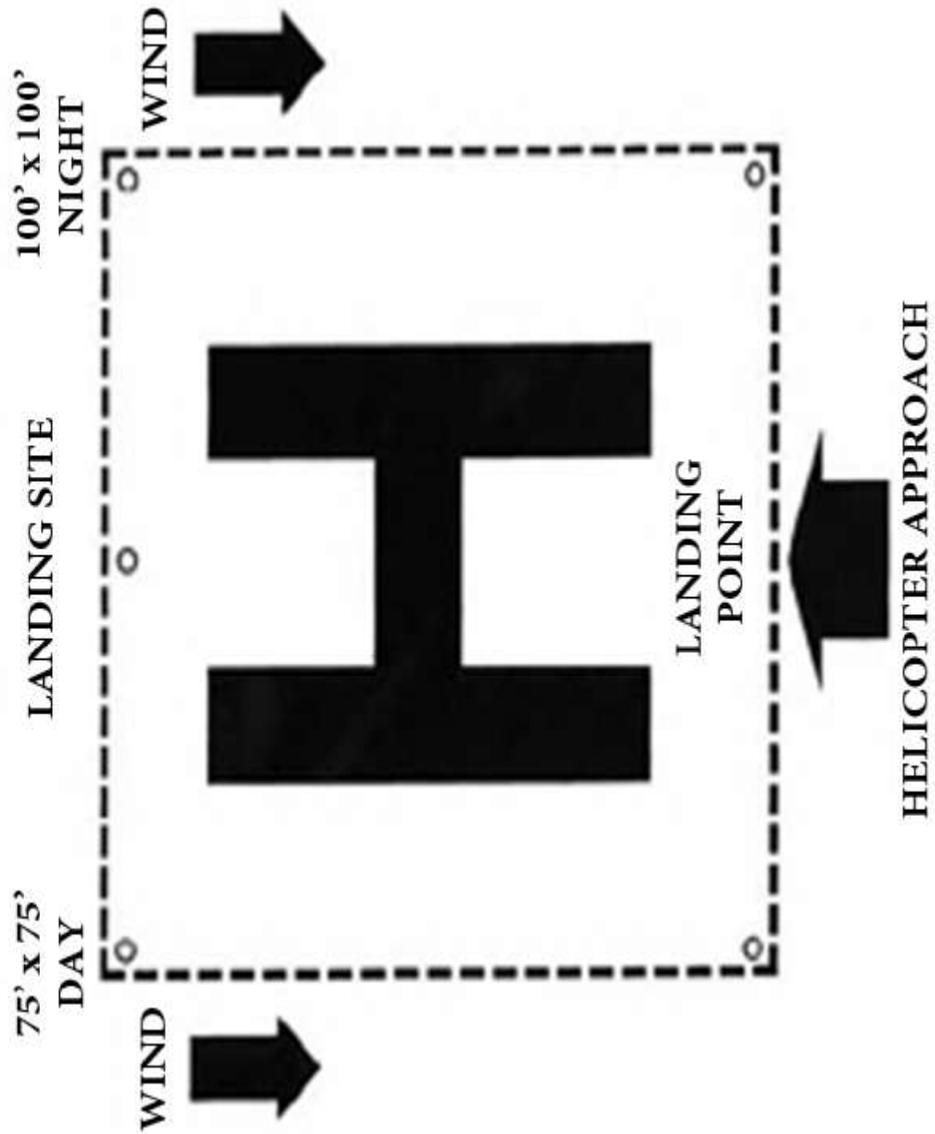
NEVER SHINE A SPOTLIGHT AT THE HELICOPTER DURING NIGHT TIME OPERATIONS

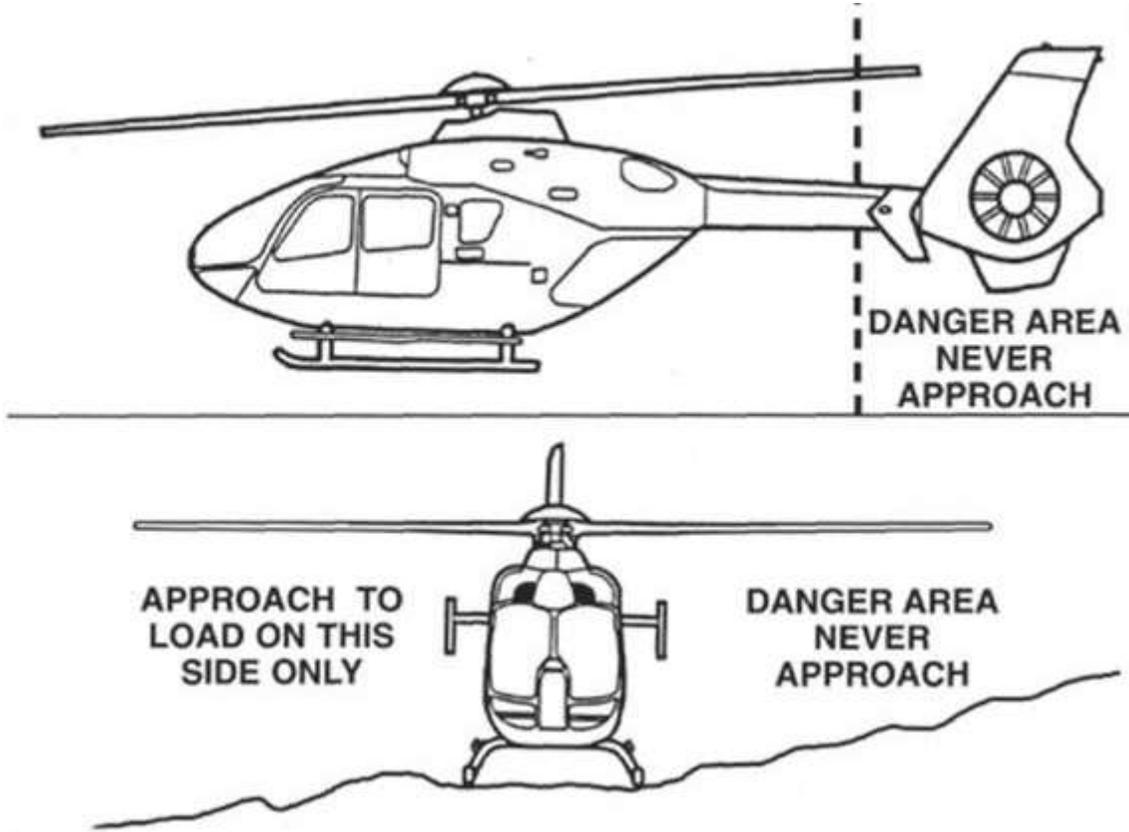
Mark the landing zone with LZ strobe light kit

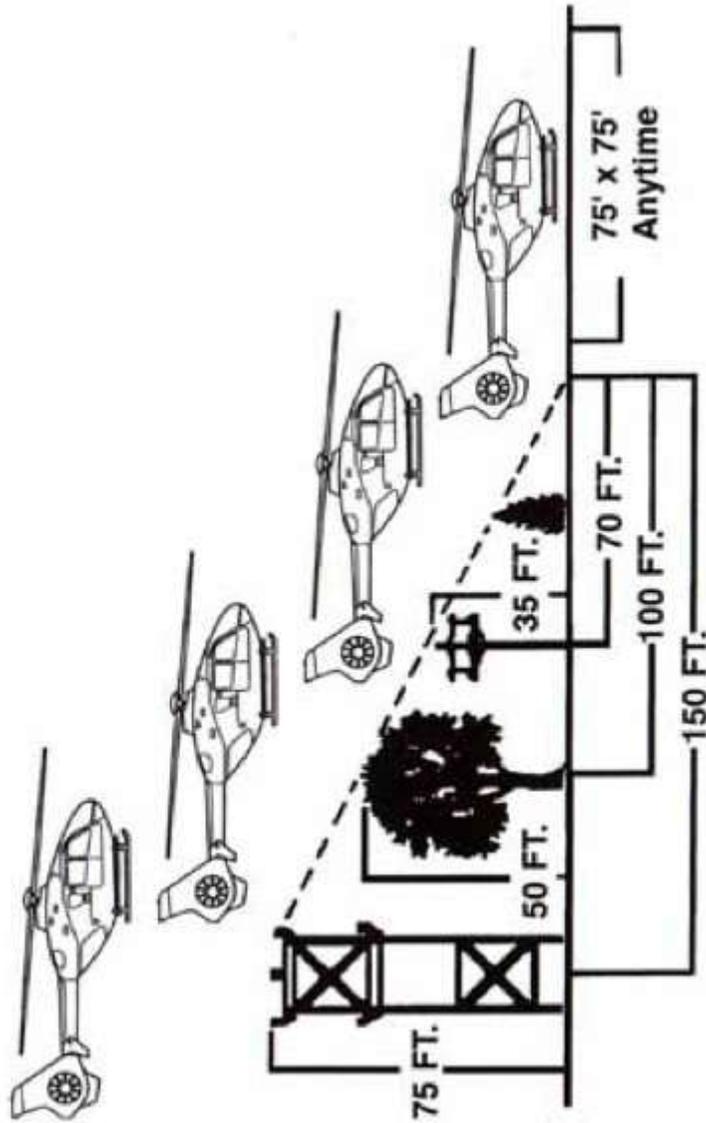
LZ Safety

Approach the helicopter in a crouched position. Hands or equipment should not be raised above your head. IV poles should not be used around the aircraft

- NEVER approach the helicopter unless signaled to do so by a crew member
- Approach from a 90° angle
- NEVER approach the helicopter while the blades not been authorized and trained to perform
- No one is permitted near the tail. DO NOT assist Flight Crew in the opening or closing of doors
- DO NOT unload equipment unless requested by the Flight Crew
- The Flight Crew will supervise patient loading
- DO NOT run near helicopter
- DO NOT have loose items near the helicopter
- NO vehicles are to be driven onto the Landing Zone area
- DO NOT lift anything higher than your head
- Stay close to crew; enter and exit in same direction







Mobile Field Medical Team Field Operations Guide

Integrating With Other Agencies

Maintain situational awareness of other agencies by doing the following:

- MUTL or designee meets with incident command staff on a regular basis
- Have communications officer monitor incident radio channels to obtain information
 - Give updates to appropriate personnel
- If communications cannot easily be established with the incident command staff:
 - MUTL may send an Mobile Field Medical Team member to the command post with a radio
 - This member relays updates to Medical Unit Team Leader or communications

Operational Periods

- Mobile Field Medical Team deployment periods are generally less than 48 hours
- Operational periods will generally be 12 hours. The length of the first operational period will be based on incident conditions
- Some assignments will be shorter depending on staff availability and needs
- Safety Officer will be keeping track of operational periods and staff assignments to assure that staff are receiving appropriate breaks

- Rotation schedule will be set up for staff working outside of the BoO
- If you need a break and have not been allocated one, contact supervisor or safety officer to request one

Food, Water, and Comforts

- Mobile Field Medical Team members should carry initial bottled water, snacks and comfort items
- Mobile Field Medical Team will make an effort to obtain food locally instead of eating MREs
- Team comfort supplies include:
 - OTC medicines
- It is advisable to bring your own filled water bottle and snacks to a deployment, especially if you have special dietary needs

Protective Equipment

- Know your N95 size
- Ample N95, glove, gown, and goggle supplies in the PPE totes on the trailer
- Team members should carry a basic set of PPE including
 - Exam gloves
 - Work gloves
 - Work goggles
 - Hearing protection

Demobilization Checklist

The Medical Unit Team Leader and/or Logistics Section Chief will make specific personnel assignments during Demobilization

1. Complete assigned tasks
2. Ensure all injured personnel and fatalities are properly processed and transported to appropriate facilities
3. Ascertain from IC if other assistance is required of
4. Obtain permission from IC to demobilize
5. Ensure accountability of all Mobile Field Medical Team staff
6. Ensure accountability of Mobile Field Medical Team tools and equipment
7. Restock all tent supplies from supplies on trailer prior to disassembly
8. Clean up debris/trash associated with Mobile Field Medical Team operations
9. Ensure any biohazards and other contaminated equipment/supplies are properly packaged and disposed of
10. Coordinate transportation home
11. Complete member sign out
12. Notify the local IC when the team leaves the site

13. Follow team accountability protocol for notification when team members arrive at their destination

Tent Disassembly

1. Remove all equipment (especially overhead lights;
2. Unzip vertical door zippers
3. Pull door flaps outward
4. Release the velcro bottom strips of doors
5. *See MMCF Set Up Manual*

WARNING: DO NOT WALK ON TENT BODY!

Equipment Restock

Section leaders will direct personnel to restock supplies within their areas

- Restock used tent equipment immediately from tote on trailer
- Restock supplies on trailer
- If restock supplies are not available, notify logistics
- Notify the logistics of any damaged or broken supplies

Personal Equipment Reset

Replenish all personal equipment after deployment

- Wash all uniform pieces and return to gear bag
- Restock equipment from go bag that was used during deployment

- Check over all personal equipment from your personal equipment checklist

Expense Reimbursement

- Deployment mileage and some expenses can be tax exempt on personal taxes
- Mobile Field Medical Team Leader will issue specific reimbursement instructions if applicable

Deployment Emergencies

For any emergency while deploying:

- Contact MUTL via cell phone, SMS, or Email

If you cannot contact the MUTL:

- Contact another Mobile Field Medical Team member to relay information to the MUTL

Personal Protective Equipment

Standard personal protective equipment (PPE):

- BDU uniforms
- Leather work gloves
- Winter weather gear
- Exam gloves
- Sun protection (sunglasses, sunscreen)
- Insect repellent

PPE available in the trailer:

- Earplugs
- Safety glasses
- Leather work gloves
- Nitrile exam gloves
- Vinyl exam gloves
- Hearing protection
- Eye protection
- Hand sanitizer
- N95 masks

- Surgical masks (with and w/o face shields)
- Tyvek coveralls
- Safety vests
- Helmets
- Kneepads

Personal Weather Safety

Cold Weather Deployments

- Dress warmly, including: gloves, hat, winter jacket
- Wear warm waterproof boots with two synthetic or wool sock layers
- Wear water resistant outer layers
- Avoid wearing any cotton items
- Monitor fluid intake
- Use traction devices on icy or slippery surfaces

Warm Weather Deployments

- Wear a wide brimmed hat
- Apply sunscreen before going outside and reapply frequently
- Drink 16–32 oz. of fluids per hour while outside
- Use clothing and indoor spaces to protect skin from sun
- Avoid wearing any cotton items

All Deployments

- Bring many layers for weather that may be warmer or cooler than you expect
- Pack modularly in water resistant bags to keep clothes dry
- Avoid wearing cotton
- Wear a liner sock below primary socks for increased comfort and blister protection
- Eat and drink regularly

Team Safety

Accountability

- Sign in and sign out at the deployment site
- If leaving the BoO, notify your supervisor and carry a portable radio if possible
- If leaving the BoO and going out of radio range, carry a mobile phone and leave the number with your supervisor and the communications officer
- The communications officer will keep track of the location of all deployed Mobile Field Medical Team personnel

Team Coordination

- Notify the safety officer or your supervisor of any team safety hazards

- Notify the supervisor (if unavailable, notify safety officer) if you need a rest period

Team Health

- Be aware of your personal food and hydration needs
- Be alert for team members who may not be drinking enough fluids or taking breaks
- Be alert for team members who are not utilizing appropriate PPE, including body substance isolation, weather protection, and sunscreen

Disaster Injury Treatments

This section contains information on special or unique injuries that occur as a result of a disaster.

From a medical prospective there are three phases of a disaster where an injury or medical event can occur that is directly related to an event

- Pre-Disaster – Indirect injuries preparing for a disaster such an amputation from cutting plywood to boarding up windows before a hurricane. Or a elderly woman suffering a heart attack from the stress of preparing.
- Direct Disaster – Direct injuries as a direct result of a disaster.
 - Penetrating
 - Lacerations
 - Punctures
 - Fractures
 - Blunt
 - Crush
 - Blast
 - Burns
 - Dust, Smoke, Ash inhalation/compaction
 - Eye Injuries
 - Chemical, Radiological, Biological
- Post Disaster – Indirect injuries that occur after a disaster usually during the recovery phase.

- Injuries sustained while cleaning up
 - Strains
 - Sprains
 - Heart Attack
 - Dehydration
 - Stroke
- Injuries sustained due to inadequate shelter
 - Heat
 - Cold
 - Sunburn
 - Animal bites/stings
 - CO Poisoning
- Medical conditions exacerbated due to a lack of infrastructure.
 - Diabetic Coma
 - Hypertension – Stroke, M.I.
 - COPD
 - Asthma

Our Mobile Field Medical Team will deal with patients with direct disaster injuries and indirect post disaster injuries and medical conditions

Structural Collapse

Objectives

- Increase Survival/Decreased morbidity through prompt stabilization
- Expedite extrication by providing stabilization of vital signs
- Immobilization of fractures
- Pain Control
- Anatomic/Physiologic advice for moving patients
- Patient Preparation for hand off to accepting EMS personnel

Operational Approach

- **SAFETY FIRST! YOU AND YOUR TEAM COME FIRST!**
- Consider unusual hazards (HAZMAT, Electrical, Water, Environmental, collapse potential, and Air Quality)
- Consider ABC's (Same as EMS/ED Care)
- Remember universal precautions
- Always have a back-up plan
- Utilize all knowledge available on scene (Combine RN's, PA's, Medics and MD's Ideas)
- Acquire patient data as soon as possible (Age, past pertinent history, Medications, Allergies)
- Consider possible building or outside hazards (Chemicals, Electrical, Air Quality)

- Monitor Rescue Teams Impact on Patient (Dust, Noise, Water, CO and CO2 Production)
- Monitor rescuers for fatigue, dehydration, dust, and physiological status
- Prepare equipment in anticipation of the worse case scenario
- Patient evaluation starts as soon as contact is made
- Perform efficient evaluation/treatment to minimize total rescue time
- Coordinate ongoing patient evaluation with rescue and extrication teams to continuously monitor the patient.
- Perform a complete patient evaluation after patient has been extricated to a safe location

Crush Injury/Crush Syndrome

Crush injury and Crush syndrome are common complications that are typically encountered during explosive incidents, structural collapses, and other disasters.

Crush Injury:

- Compression of extremities or other body parts that causes the muscle swelling and or neurological disturbances to the affected body part

Considerations:

- Muscle tissue is extremely vulnerable to sustained pressure because of its mass
- Compression can be due to debris or the patients own body weight
- Amount of muscle tissue affected will determine if crush syndrome develops
- Crush syndrome can develop within 1 hour of insult if the compression is severe; 4-6 hours is more common

Crush Syndrome

- Reperfusion injury that describes the cascade of local and systemic manifestations that occur when compressive forces are applied to the body for an extended period of time
- Patients will initially appear stable but decompensate rapidly when compressive forces are removed if appropriate treatment is not initiated
- Rescue personnel must ensure that patient extrication is only attempted after appropriate medical interventions have been implemented

Crush Syndrome is based on three criteria:

- Involvement and compression of muscle mass, usually more than a hand or foot
- Prolonged compression. Usually 4-6 hours but can occur as short as 1 hour or less
- Compromised local circulation

Local Effects Associated with Crush Syndrome

- Compressive forces are applied resulting in disruption of the arterial blood flow to the affected muscle
- Anaerobic metabolism develops leading to the formation of lactic acid
- Acidic and anoxic environment leads to cellular death; results in disruption of the cellular membrane
- Intracellular contents leak into the surrounding tissue
- Muscle breakdown creates myoglobin, potassium

Systemic Effects Associated with Crush Syndrome

- Lactic acid is produced
- Acidosis --> Ventricular Fibrillation
- Acidosis causes reduced responsiveness to catecholamines
- Epinephrine does not work well with a pH less than 7
- Potassium and other electrolytes are released
- Hyperkalemia --> Cardiac Arrhythmias
- Myoglobin is released from damaged muscle
- Myoglobinuria --> Acute Renal Failure
- Leukotrienes and other cell mediators
- Aggravate/worsen already damaged tissues
- Lungs --> ARDS

- Liver Injury
- Capillaries leak
- Plasma leakage in the Pulmonary Vascular Bed --> ARDS
- 3rd Spacing of Fluid --> Hypovolemia/Shock

Physical Findings of Crush Syndrome

- Signs of local skin trauma to the affected part
- Local signs of compression
- Erythema
- Ecchymosis
- Bullae Formation
- Abrasion
- The absence of a pulse or a weak thready pulse distally may be an indicator of muscle swelling or compromised circulation
- Continued assessment may demonstrate a pale, cool, diaphoretic limb
- Limb may also be anesthetic

Treatment of Compartment Syndrome

Treatment guidelines are based on the systemic complications that occur after the victim is extricated. Intravenous access should be accomplished before extrication is attempted. ***Treatment guidelines contained here are for reference only. Mobile Field Medical Team will need to follow local medical protocols.***

Rhabdomyolysis

Goal of therapy is to ensure the ensure kidneys are adequately perfused and urine is sufficiently alkalinized to reduce the amount of myoglobin deposited in kidneys

- Establish 2 large bore IVs and infuse 2 liters of Normal Saline prior to extrication
- 1-2 ampules of Sodium Bicarbonate (NaHCO_3) prior to extrication

Hypovolemia

- Maintain adequate tissue perfusion
- Establish 2 large bore IV's and rapidly infuse 2 liters of normal saline
- Ringers Lactate is less desirable because it contains K^+ and lactic acid
- Maintain urine output at 100-200ml/hour

Acidosis

- Treated with sodium bicarbonate (NaHCO_3)
- Treats metabolic acidosis by buffering the acid load
- Decreases precipitation of myoglobin in the kidneys
1-2 amps NaHCO_3 IVP
- pH will increase .15 with 3 amps of NaHCO_3 /
0.05 increase in pH with 1 amp HCO_3

Urine Ph	% Myoglobin Precipitated
8.5 – 7.5	0%
6.5	4%
5.5	23%
5.0	46%
<5.0	73%

Hyperkalemia

- Insulin and glucose:
 - 5-10 units regular insulin with 1 ampule of D50 (must give glucose to prevent hypoglycemia)
- Albuterol inhaler (nebulizer or MDI)
- Kaexolate 15gm orally
- Lasix
- Calcium Chloride for life threatening cardiac symptoms refractory to other therapies
 - Do not give calcium chloride in the same line as bicarbonate; causes precipitation of salts

ECG Abnormalities

- Potassium
 - Peaked T waves with K^+ 6-7meq
 - Sine waves with $K^+ > 7$
- Acidosis
 - Ventricular fibrillation

Treatment

- Infusion of Normal Saline at 5-1.5 L/Hr
- NaHC03 Drip
 - 3 amps in a 500ml bag of D5W and infuse over 3 hours

Other Treatment Considerations

- O2/Airway Support
- Protect open wounds
- Splint limb with non-compressive dressing
- Maintain limb at heart level
- Liberal use of pain medication
- Monitor distal perfusion of limb

Therapeutic Treatment Times

Therapy	Time to Onset	Duration of Treatment
Na HC03	1-2 minutes	30 minutes
CaCl	1 minute	30-60 minutes
Insulin/D50	30 minutes	2-3 hours
Albuterol	30 minutes	2-3 hours
Lasix	60 minutes	Several Minutes
Kaexolate	2-12 hours	4-6 hours

Compartment Syndrome

Compartment Syndrome is a common complication seen during explosive incidents and structural collapses. Increased pressure within the fascial compartment of a muscle that is directly related to blunt or penetrating trauma to the affected muscle. Bleeding occurs within the tight fascial compartment that disrupts arterial blood flow, resulting in:

- Tissue injury
- Tissue ischemia
- Neurovascular damage

Symptoms of Compartment Syndrome

- Tense Muscle Compartment
- Pain with Passive Stretch
- Paresthesia and Anesthesia
- Paralysis
- Pallor (Late Finding)
- Loss of Pulse (Late Finding)

Treatment for Compartment Syndrome

- Relieve external compression on the affected muscle
- Immobilize the affected extremity to minimize pain
- Avoid excessive compression when applying splint
- Adequate and liberal pain control

- Prompt evacuation
- Fasciotomy is the procedure of choice to relieve the pressure within the fascial compartment ***Treatment guidelines contained here are for reference only. Mobile Field Medical Team will need to follow local medical protocols***

Blast Injuries

Blast Injuries Overview

- Explosive devices cause distinct injury patterns rarely seen outside of combat
- Predominant injuries are a combination of blunt and penetrating trauma
- Only a small minority of patients (approx 20%) will sustain life a life threatening injury
- Those patients who have not sustained a significant injury will self present to local hospitals for care; usually arrive before patients with more significant injuries (creating upside down triage)
 - Can contribute to increased morbidity and mortality for those patients who have experienced a significant blast injury by tying up medical resources

- Explosions in confined spaces and/or structural collapse are associated with greater morbidity and mortality
- Beware of the presence of multiple devices that are directed at first responders as well as perpetrators posing as victims
- All blast incidents have the potential for chemical and/or radiological contamination
- Consider all wounds contaminated

Blast Injuries Scene Safety

- Do not enter the scene until its safe
- Be aware of multiple devices
- Notify hospitals early with circumstances of the incident
- Disrupt the scene only as much as necessary to care for injured individuals
 - Save all articles of the victims clothing as well as any fragments from the device
 - If it is necessary to cut away the victims clothes avoid cutting through rips, tears, or holes made by the device
- Exit the scene as you entered
- Protect yourself and other rescuers: Explosive incident scenes contain many potential hazards
- Limit access to bystanders

Patient Triage after an Explosive Incident

Concepts:

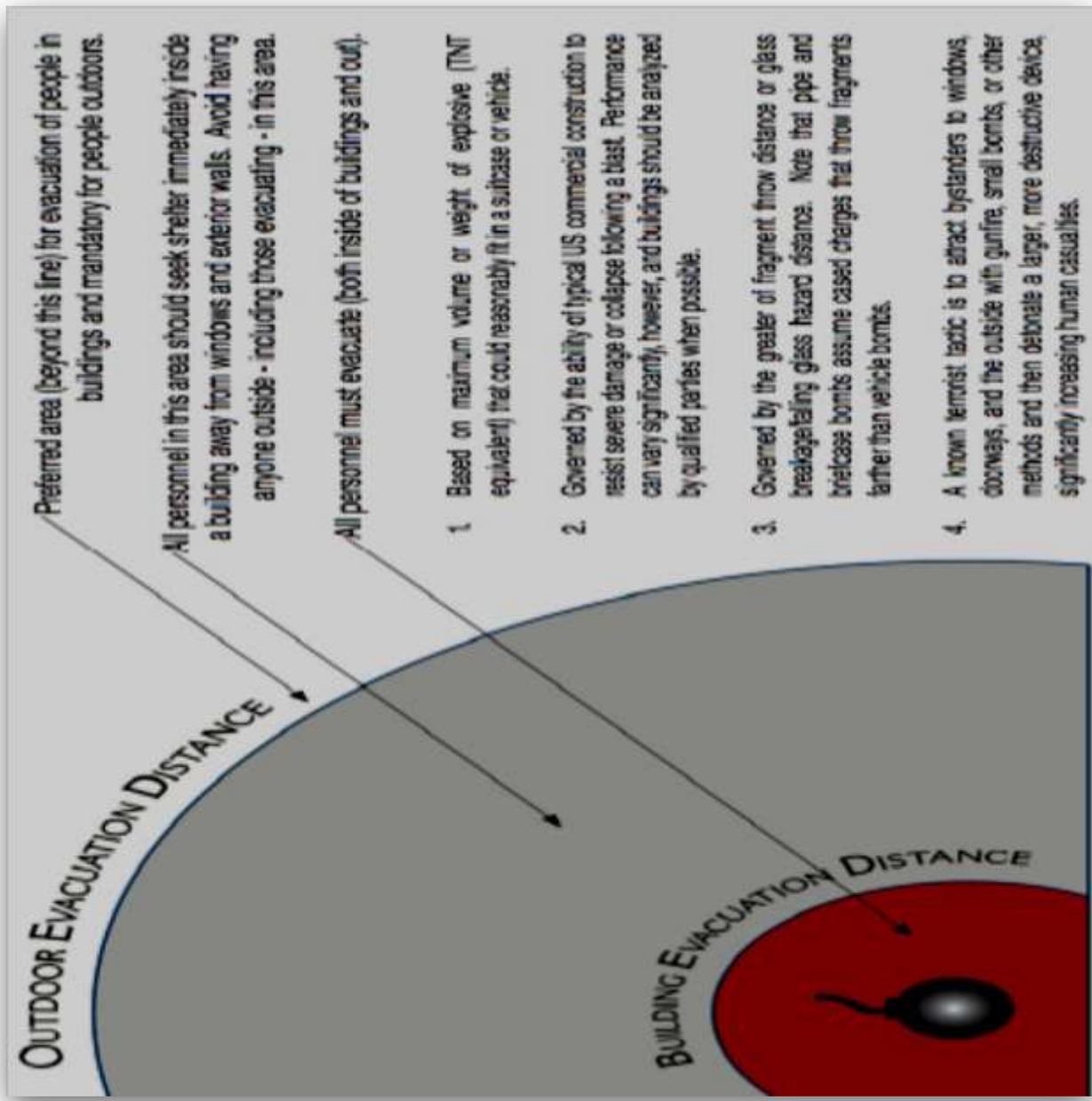
- Patients involved in explosive incidents will experience extensive soft tissue injuries
- Injuries will appear worse than they really are
- Only a small number will have significant life threatening injuries

Considerations:

- Avoid the inclination to over triage these patients
- Patient triage should be based on:
 - Conventional Triage Guidelines
 - Physiologic parameters
 - Mental Status, Vital signs, Glasgow Coma Scale
 - Patient demographics
 - Extremes of age

Bomb Threats Stand Off

Threat Description Improvised Explosive Device (IED)	Explosives Capacity (TNT Equivalent)	Building Evacuation Distance ²	Outdoor Evacuation Distance ³
 Pipe Bomb	5 LBS	70 FT	1200 FT
 Suicide Bomber	20 LBS	110 FT	1700 FT
 Briefcase Suitcase	50 LBS	150 FT	1850 FT
 Car	500 LBS	320 FT	1500 FT
 SUV/Van	1,000 LBS	400 FT	2400 FT
 Small Moving Van/ Delivery Truck	4,000 LBS	640 FT	3800 FT
 Moving Van/ Water Truck	10,000 LBS	860 FT	5100 FT
 Semi-Trailer	60,000 LBS	1570 FT	9300 FT



Source: National Counterterrorism Center, http://www.nctc.gov/docs/2006_calendar_bomb_stand_chart.pdf

- Co-morbidities
- Blast characteristics
- Open or closed space
- Type of explosive
- Patients proximity to the point of detonation
- Blast Lung Injury (BLI)
- Blunt chest trauma that is directly related to the over pressurization blast wave impacting the chest.

Blast Lung Injury (BLI)

- BLI is the major cause of morbidity and mortality among all blast victims both at the scene and hospital.

Symptoms

- Dyspnea
- Hemoptysis
- Chest pain

Signs

- Tachypnea
- Hypoxia
- Cyanosis
- Wheezing
- Diminished breath sounds
- Shock
- Apnea

Associated Complications

Can be delayed, taking 1-2 hours to develop

- Pneumothorax
- Hemothorax
- Air emboli
- Non-Cardiogenic Pulmonary Edema (NCPE)

Treatment

Treatment guidelines contained here are for reference only. Mobile Field Medical Team will need to follow local medical protocols

- High flow O₂ via CPAP or non-rebreather
- Early intubation
- Fluid administration to maintain tissue perfusion
- Maintain systolic blood pressure at of greater than 100 mmHg
- Prompt chest decompression if warranted
- Bronchodilators (Albuterol) for NCPE

Abdominal Blast Injuries

Significant cause of injury and death. Blunt abdominal trauma that can result in:

- Bowel perforation
- Hemorrhage
- Mesenteric shear injuries
- Solid organ lacerations
- Testicular rupture

- Penetrating abdominal trauma can also occur
- Occult injuries can also be present

Suspect abdominal injury in any patient exposed to a blast wave who presents with findings suggestive of an acute abdomen:

- Pain
- Nausea/Vomiting
- Hematemesis
- Rectal pain
- Testicular pain
- Unexplained vomiting

Management

- Same as with any patient with symptoms of an Acute Abdomen
- Ensure ABC's
- Establish IV access
- Pain control
- Do not remove penetrating objects
- Antibiotics and tetanus prophylaxis

Ear Blast Injuries

- Tympanic membrane ruptures are the most common primary blast injury

- Typically first organ to sustain damage and the most sensitive organ to exposure from the over pressurization wave
- Indicates exposure to the over pressurization blast wave
- Can be an isolated finding but can also be a marker for more significant blast injury

Symptoms

- Hearing loss that may interfere with rescue or instructions from rescuers
- Can mimic signs of closed head trauma
- Tinnitus
- Vertigo
- Pain
- Discharge

Treatment

- Address life saving conditions first
- Treat per standard protocols
- Otolaryngologist referral

Secondary Blast Injuries

Injuries sustained from projectiles from the device:

- Bomb fragments
- Flying debris from surrounding structures

- Glass, nuts & bolts, and marbles put in the device to increase its lethality

Primarily penetrating trauma resulting in:

- Extensive soft tissue injuries
- Traumatic amputations

Management

- Treat soft tissue injuries and amputations per standard protocols
- Signifies an increased potential for morbidity and mortality associated with blast exposure
- Consider all wounds contaminated
- Tetanus and Hepatitis B prophylaxis

Tertiary Blast Injuries

Injuries that are sustained when the victim is thrown against a solid object by the blast wind resulting in:

- Blunt and penetrating trauma
- Fractures

Management

- Treat soft tissue injuries per standard protocols
- Blunt trauma can initially be occult
- Tetanus and Hepatitis B prophylaxis

Quaternary Blast Injuries

All other injuries from the blast, such as:

- Crush Injuries
- Burns
- Asphyxia
- Toxic exposures (chemical and biological)
- Exacerbations of pre-existing conditions

Radiation Dispersal Device (RDD)

- Commonly referred to as Dirty Bomb
- Conventional (typically improvised) explosive device causing dissemination of radioactive material
- Explosion produces radioactive and nonradioactive shrapnel and radioactive dust
- Most injuries and fatalities likely due to explosion
- Likely few victims contaminated to level requiring medical treatment of radiation injury

Injuries

- Radiation contamination (common)
- Radiation exposure (uncommon)
- Physical injury & burns
- Fear

Management

- Ensure adequate initial on-site activities (Control, Incident Command, establish zones of response)

- Ensure responder & public safety (adequate PPE, personal dosimetry)
- Perform lifesaving tasks before managing radiation problems
- DO NOT delay lifesaving actions and/or hospital transport for life-threatening injuries
- Package patients in blankets and sheets to minimize contamination spread during emergency transport
- Evaluate for Contamination and/or Exposure
- Prevent and minimize internal contamination.
Remove external contamination
- More information (guidance, diagnosis and treatment algorithms) available at:
 - Radiation Emergency Medical Management
www.remm.nlm.gov

Burn Injuries

Burn Severity is dictated by Total Body Surface (TBS) Area involved

- Burns >20-25% TBSA require IV fluid resuscitation
- Burns >30-40% TBSA may be fatal without treatment
- In adults the Rule of Nines is used as a rough indicator of % TBSA

Anatomic Surface	% of TBSA Involved
Head and Neck	9%
Anterior Trunk	9%
Posterior Trunk	18%
Arms, including hands Each	9%
Legs, including feet	18% each
Genitalia	1%

In Children: adjust percentages due to proportionally larger heads (up to 20%) and smaller legs (13% in infants):

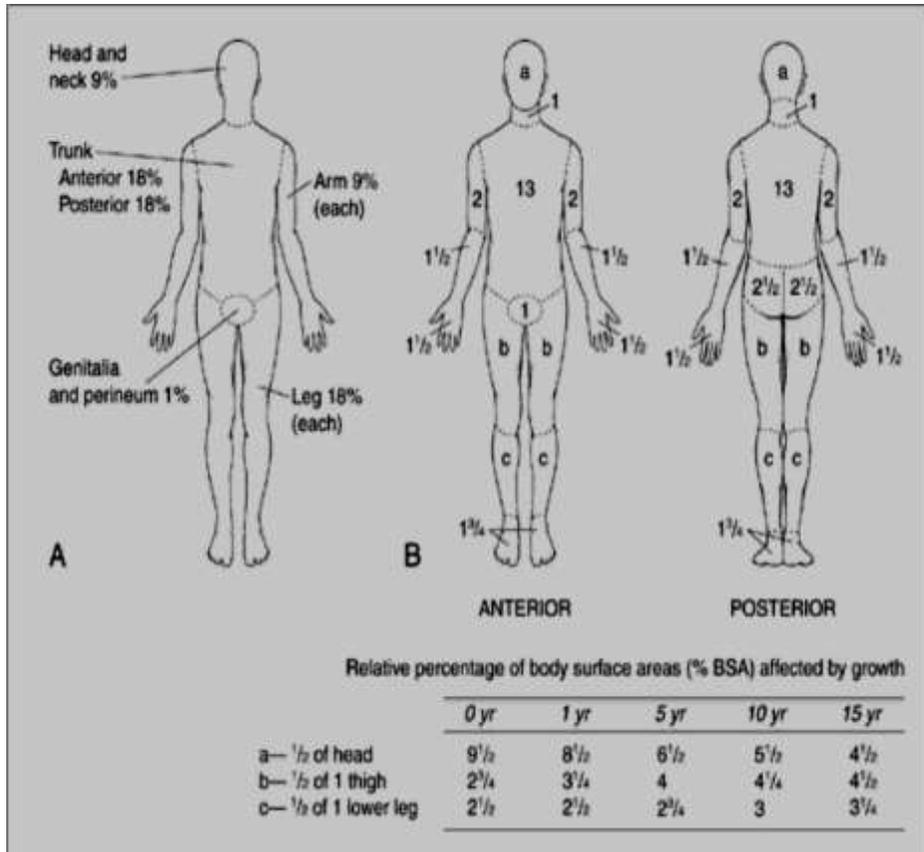
- Lund Browder diagrams improve accuracy for estimating the % of TBSA involved in children
- Palmer hand surface is approximately 1% TBSA

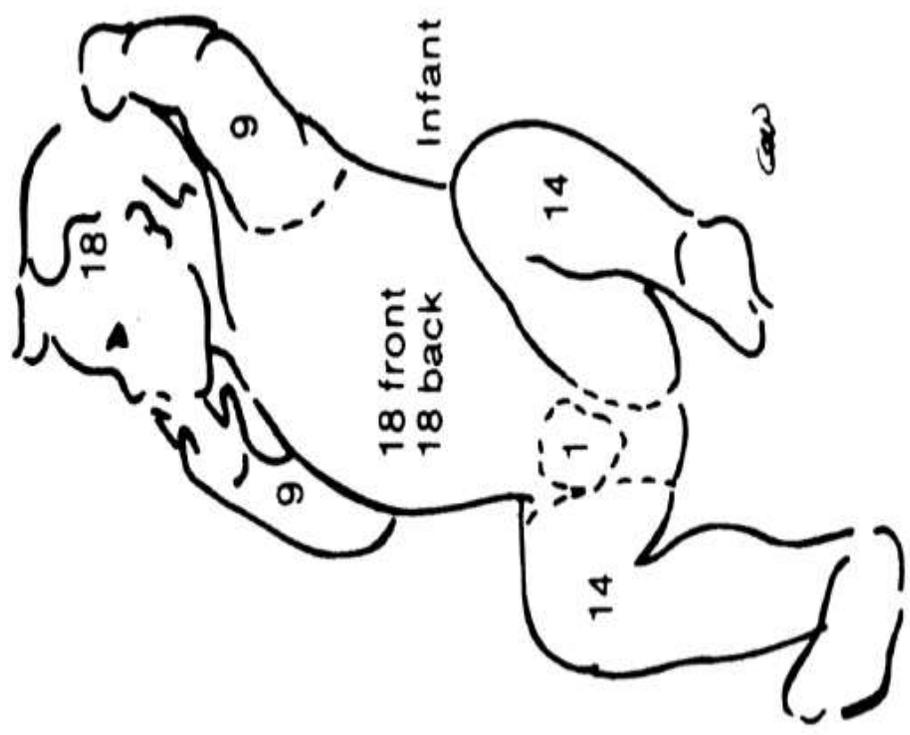
Parkland Formula for IV Fluid Resuscitation

- $4 \times$ patients weight in kilograms \times % of TBSA
- Give $\frac{1}{2}$ of the fluid volume in the first 8 hours
- Give remaining $\frac{1}{2}$ over following 16 hours

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Adult Rule of Nines



Pediatric Rule of Nines

Source: Clinical Education, http://clinicaledu.com/uploads/Rule_of_Nines_Chart.gif

Burn Center Referral Criteria

- Partial-thickness burns of greater than 10% of the total body surface area

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- Burns that involve the face, hands, feet, genitalia, perineum, or major joints
- Third-degree burns in any age group
- Electrical burns, including lightning injury
- Chemical burns
- Inhalation injury
- Burn injury in patients with preexisting medical disorders that could complicate management, prolong recovery, or affect mortality
- Any patients with burns and concomitant trauma (such as fractures) in which the burn injury poses the greatest risk of morbidity or mortality
 - If the trauma poses the greater immediate risk, the patient's condition may be stabilized initially in a trauma center before transfer to a burn center
- Burned children in hospitals without qualified personnel or equipment for the care of children
- Burn injury in patients who will require special social, emotional, or rehabilitative intervention

Burn Centers in Upper Midwest

Wisconsin:

- Adult Burn Center
University of Wisconsin Hospital, Madison
(608) 262-2398
1675 Highland Ave. Madison WI

Columbia/St. Mary's Hospital, Milwaukee
(414) 291-1163
Columbia St. Mary's Regional Burn Center at
2301 N. Lake Dr., 5th Floor Milwaukee, WI 53211

- Children's Burn Center
Children's Hospital of Wisconsin
(877) 607-5280
PO Box 1997
Milwaukee, WI 53201-1997

Minnesota

- Adult Burn Center
Hennepin County Medical Center
Purple Building, Level 4
(612) 873-3000
716 S. 7th Street
Minneapolis, MN 55415

Regions Hospital
1-800-922-BURN
640 Jackson Street
St. Paul, MN 55101

Illinois

- Adult Burn Center
Loyola University Medical Center
(888) 584-7888
2160 S. First Ave.
Maywood, IL 60153

University of
Chicago Burn
Center
(773) 702-1000
5841 S. Maryland

Iowa

- Adult Burn Center
UI Burn Treatment Center
UI Hospitals and Clinics
(319) 356-2496
200 Hawkins Drive, 8 JCP
Iowa City, IA 52242

Michigan

- Adult Burn Center
University of Michigan Health System
(734) 936-9665
1500 E. Medical Center Drive
1C-421-UH
Ann Arbor, MI 48109-5033

Carbon Monoxide Poisoning

Carbon Monoxide (CO) Sources

- Smoke inhalation in structure fires
- Portable generators
- Gas engines
- Furnaces

Signs and Symptoms

- Mild symptoms:
 - Headache
 - Dizziness
 - Lethargy
 - Confusion
- Moderate symptoms:
 - Nausea
 - Dyspnea
 - Blurred vision
 - Fatigue
 - Agitation
- Severe symptoms:
 - Coma
 - Death

Treatment

- High flow oxygen administration
- Support airway, breathing, circulation
- Consider transport to hyperbaric oxygen facility

Nerve Agent Antidote Kits (NAAKs)

Nerve Agent Antidote Kits contain 2 auto-injectors:

- 2mg of Atropine
- 600mg of Pralidoxime (2Pam Chloride)

Note: The newer Duodote is a single auto injector that contains 2.1mg of atropine and 600mg of pralidoxime

Indications

- Organophosphate and carbamate pesticide poisoning
- Organophosphate nerve agent poisoning

Mechanism of Toxicity

- Organophosphates and carbamates are cholinesterase inhibitors
- Blocks the activity of acetylcholinesterase
- This allows acetylcholine to accumulate at the cholinergic receptors in the peripheral nervous system

- Muscarinic and Nicotinic
- Resulting in continued receptor stimulation leading to a cholinergic toxicity

Route of exposure

- Inhalation
- Dermal

Signs of Cholinergic Toxicity

Muscarinic (DUMBELS)	Nicotinic (MTWtHF)
Urination	Mydriasis
Diarrhea (dilated pupils)	Tachycardia
Miosis (pinpoint pupils)	Weakness
Bradycardia, Bronchorrhea, Bronchospasm	Hypertension, Hyperglycemia
Lacrimation	Fasciculations
Salivation, Secretion, Sweating	

Antidote Mechanism of Action

Atropine:

- Used to treat muscarinic symptoms
- Competes with acetylcholine at the muscarinic receptor sites

Pralidoxime:

- Used to treat nicotinic symptoms
- Reactivates the acetylcholinesterase previously deactivated by the organophosphate “2-Pam Crowbar”

Treatment

Treatment guidelines contained here are for reference only. Mobile Field Medical Team will need to follow local medical protocols

Atropine Adult dose:

- .5-2mg IV or IM every 5 minutes until bronchorrhea, bronchospasm, and bradycardia resolve.
- Larger doses are often needed

Atropine Pediatric Dose:

- 0.01 – 0.04mg/kg with a minimum dose of 0.1mg

Pralidoxime Adult Dose:

- 1-2gm IV over 5-10 minutes
- This dose may be repeated after 1 hour if weakness and fasciculations have not resolved
- Administering Pralidoxime faster than 5-10 minutes can result in laryngospasm, muscle rigidity, neuromuscular blockade, and paralysis
- Followed by a continuous IV infusion of 500mg/hr after the initial bolus

- Is only indicated for organophosphate pesticide poisoning
- Can be administered empirically if the type of pesticide is unknown or if the patient is exhibiting nicotinic signs (MTWtH F)

Pralidoxime Pediatric Dose:

- 20-40mg/kg IV over 10 minutes
- 5-10mg/kg/h continuous IV infusion for 24 hours after the initial bolus

Atropine Relative Complications

- Narrow angle glaucoma
- Obstructive uropathy
- Myasthenia gravis
- Patients who cannot tolerate an elevated heart rate, CAD, CHF, etc

Pralidoxime Relative Complications

- Myasthenia gravis
- Renal Failure
- Use Benzodiazepines (Valium or Cana, Ativan, or Versed) to treat seizures in patients with severe exposures
- Valium auto-injectors are contained in both the EMS and hospital CHEMPAK

Mild Symptoms	Moderate Symptoms	Severe Symptoms
Able to Ambulate	Seated or Supine	Acute Distress
Miosis	Moderate to Marked Dyspnea	Loss of Consciousness
Eye Pain	Coughing	Seizures
Dim or Blurred Vision	Wheezing	Flaccid Paralysis
Conjunctival Injection	Nausea	Respiratory Arrest
Rhinorrhea	Vomiting	Cardiac Arrest
Lacrimation	Fasciculations	
Mild Dyspnea	Weakness	
Dose: 1 NAAK	Dose: 2 NAAKs	Dose: 3 NAAKs

Weather

Warning

- Hazardous weather or hydrologic event is occurring, is imminent, or has a very high probability of occurring
- Conditions posing a threat to life or property

Watch

- Risk of a hazardous weather or hydrologic event has increased significantly, but its occurrence, location, and/or timing is uncertain
- Provides enough lead time to activate emergency plans

Advisory

- Special weather conditions, less serious than warning
- Events that may cause significant inconvenience, and if caution is not exercised, could lead to situations that may threaten life and/or property

Cold Injuries

- If the patient is wet strip them down to a base layer
- Apply a diaper/depends to patient
- Apply a vapor barrier around the patient to keep insulation dry
- Insulate with sleeping bags around patient, eliminating any cold spots. Apply heat packs to the core. If possible warm the sleeping bags before putting the patient in
- Place sleeping pads under the patient
- Wrap whole package in a tarp as you would a burrito

Other Hypothermia Considerations

- Optimal if can evacuate to definitive medical care within 3 hours
- No chance of survival if $K^+ > 10\text{meq}$

CDC Wind Chill Chart

Wind Speed (mph)	Actual Air Temperature °F								
	40°	30°	20°	10°	0°	-10°	-20°	-30°	-40°
10	34	21	9	-4	-16	-28	-41	-53	-66
20	30	17	4	-9	-22	-35	-48	-61	-74
30	28	15	1	-12	-26	-39	-53	-67	-80
40	27	13	-1	-15	-29	-43	-57	-71	-84
50	26	12	-3	-17	-31	-45	-60	-74	-88
60	25	10	-4	-19	-33	-48	-62	-76	-91

Frostbite times:

30 minutes	10 minutes	5 minutes
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Source: Centers for Disease Control and Prevention, <http://www.bt.cdc.gov/disasters/winter/duringstorm/outdoorsafety.asp>

MILD HYPOTHERMIA	SEVERE HYPOTHERMIA
<p>TEMP: 35-32o C (95-90°F)</p> <p>Sx: Shivering, impaired motor control and mental status A on AVPU</p> <p>Tx: Prevention; Insulate; Feed Shivering efficient heat production Exercise once shivering resolved</p>	<p>TEMP: <32o C (<90°F)</p> <p>Sx: Shivering stops Slowed or absent vital signs <A on AVPU</p> <p>Tx: Prevention GENTLE handling Insulate,[hypowrap] Heat Core Warmed IV's No Chest Compressions</p>

Frost Bite

SUPERFICIAL & PARTIAL THICKNESS	FULL THICKNESS
<p>Exam: Soft/waxy Sensation intact / diminished, Pale</p> <p>Tx: Prevention WARM immediately Do not allow to refreeze</p>	<p>Exam: Hard No sensation, pale</p> <p>Tx: Prevention; Controlled warming in hospital environment. Do not rewarm in field if less than 24 to evacuate, or need functional use. Pain meds and NSAIDS</p>

Heat Injuries

Heat Exhaustion

- A volume problem, where fluid intake is not adequate to keep up with that lost from sweating
- Core temperature remains within normal limits
- Symptoms are the same as compensated volume shock:
 - Elevated pulse and respirations

- Pale, dry skin
- Decreased urine output

Treatment:

- Removal from heat source
- Volume replacement PO or IV

Heat Stroke

- A temperature problem, where the core temp rises above 105°
- Volume is depleted enough to compromise the body's ability to sweat and dissipate heat
- Signs of volume depletion are present:
 - Elevated pulse and respirations
 - Pallor, dry skin
- Alternatively, heat challenge overwhelms the body's compensation mechanisms while volume is intact so patient may be flushed and sweaty. Signs:
 - Core temp about 105°
 - Altered mental status

Treatment:

- Removal from heat source
- Immediate radical cooling
- Volume replacement as needed
- If significant anticipate the potential of seizures or increasing ICP

Hyponatremia

- Low serum sodium mostly seen with extreme exertion in hot environments
- A rare problem, which is avoidable
- Occurs either from dilution of taking in water without electrolytes or sodium loss from the excessive sweating
- A normal diet or salty snacks should prevent this problem

WHO Oral Rehydration Recommendation

- In many areas of the world IV rehydration is not readily available
- From cholera studies the optimal rehydration recipe was derived

Simplified rehydration formula:

- 1 Lt. [Qt.] potable H₂O
- 1 tsp. Salt
- 8 tsp. Sugar

Water Purification

- Water can be purified by three methods:
 - Heat
 - Filtration
 - Chemical treatment
- All pathogens can be killed by boiling water for 10 minutes
 - At any altitude bringing water to a rolling boil will kill all pathogens related to illness but does not remove chemicals or particulate matter

For filtration and chemical treatment, use the following charts as guides:

Pathogen	Maximum Filter Pore Size	
Giardia & Ameoba eysts	5 microns	
Enteric bacteria	0.2 to 0.5 microns	
Cryptosporidium	3 microns	
Parasitic eggs & larvae	20 to 30 microns	
Chemical	Clear Water (4ppm)	Cloudy Water (8ppm)
Sodium Chlorine (household bleach - 5.25%, unscented) Shake/stir, let stand for 30 minutes before using	2 drops/qt.	4 drops/qt.
	8 drops/gal.	16 drops/gal.
Iodine	1/2 Tab	1 Tab

Fire Extinguishing

P.A.S.S.



PULL →



AIM →



SQUEEZE →

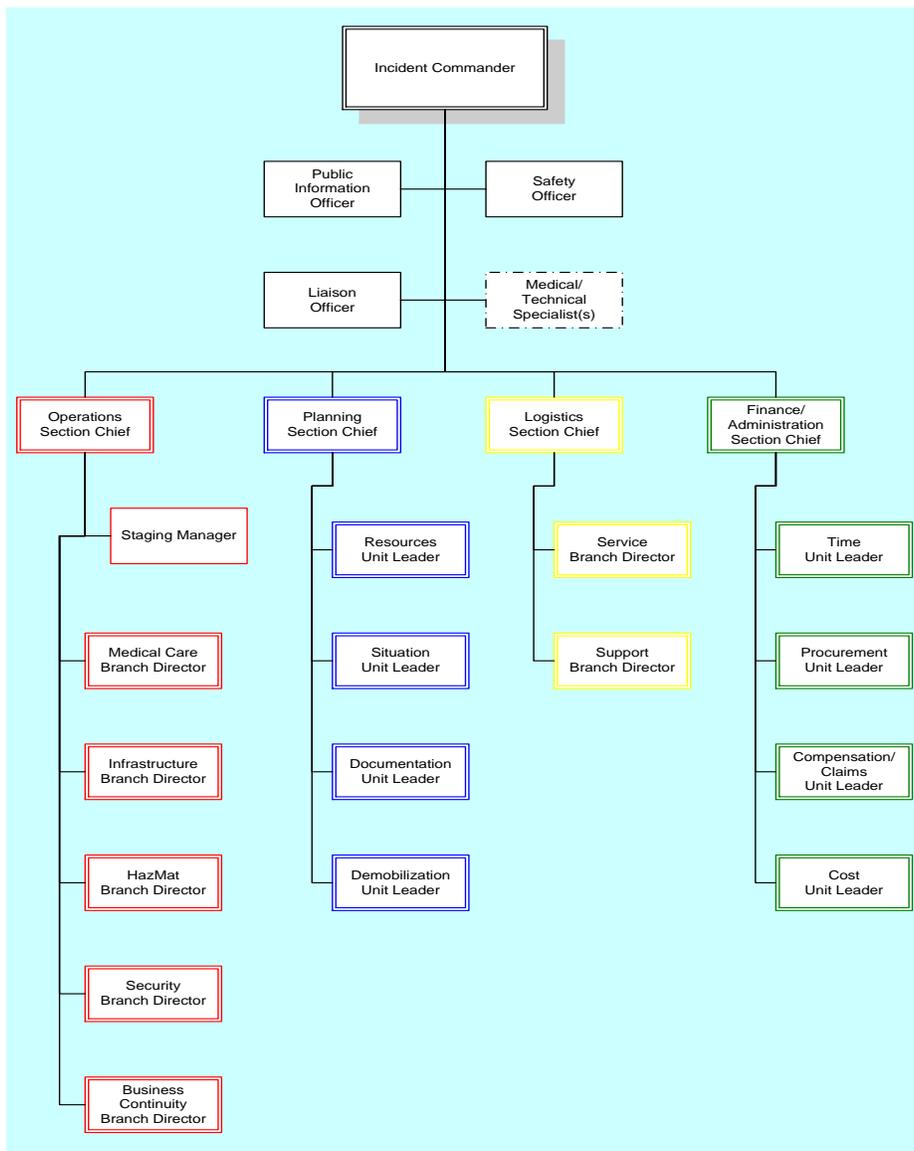


SWEEP →

CLASSES OF FIRES	TYPES OF FIRES	PICTURE SYMBOL
A	Wood, paper, cloth, trash & other ordinary materials.	
B	Gasoline, oil, paint and other flammable liquids.	
C	May be used on fires involving live electrical equipment without danger to the operator.	
D	Combustible metals and combustible metal alloys.	
K	Cooking media (Vegetable or Animal Oils and Fats)	

Source: InterNACHI, <http://www.nachi.org/images08/fire-classes.jpg>

Hospital Incident Command System



Source <http://www.emsa.ca.gov/hics/>

Mobile Medical Care Facility ICS



ACC: Acute Care Center
ACF: Alternate Care Facility
ACS: Alternate Care Site
ARC: American Red Cross
CERFP: CBRNE Enhanced Response Force Package A National Guard resource
CERT: Community Emergency Response Team
ConOps: Concept of Operations Plans
CST: Civil Support Team A National Guard resource
Decon: Decontamination
DMAT: Disaster Medical Assistance Team
DMORT: Disaster Mortuary Operational Response Team
EMAC: Emergency Management Assistance Compact
FH: Field Hospital
FMS: Federal Medical Station
Mass Cass: Mass Causality Incident (MCI)
MFI: Mass Fatality Incident
MRC: Medical Reserve Corps
MFH: Mobile Field Hospital
MFMT: Mobile Field Medical Team
MFMU: Mobile Field Medical Unit

MMU: Mobile Medical Unit
MMCF: Mobile Medical Care Facility
MMCU: Mobile Medical Care Unit
MMRS: Metropolitan Medical Response System
NDMS: National Disaster Medical System
NGRF: National Guard Reaction Force
NMRT: National Medical Response Team
NGO: Non Government Organization
NVRT: National Veterinary Response Team
PPE: Personal protective equipment
SAR: Search and Rescue
SOG: Standard Operating Guidelines
SOP: Standard Operating Procedures
SNS: Strategic National Stockpile
S.A.L.T.: Sort, Assess, Lifesaving Interventions, Treatment/Transport. A form of triage.
S.T.A.R.T Simple Triage and Rapid Treatment. A form of triage.
USAR: Urban Search and Rescue
WMD: Weapons of Mass Destruction
WEM: Wisconsin Emergency Management
WEAVR: Wisconsin Emergency Assistance Volunteer Registry

Wisconsin Disaster Medical Response Team - MRC
Mobile Field Medical Team Field Operations Guide

www.wdmrtmrc.webs.com

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