Tactical Medical

Operations Manual

Volume 5

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CLINICAL STANDARDS

CLINICAL STANDARDS

CS1 TACTICAL EMERGENCY MEDICAL SUPPORT (TEMS) OPERATIONS

Purpose:

The purpose of this document is to describe the appropriate and authorized interventions for supportive care in the civilian law enforcement tactical environment. Use of protocols in this section is restricted to credentialed providers operating in a tactical support capacity.

Background:

Although medical priorities remain the same as in general EMS, the tactical environment requires modifications to protocol, training and approach to address the following challenges:

- Functioning in a known, suspected, or potentially hostile and/or lethal environment
- Primary medical function is care for tactical team members; medical functions are generally considered secondary and in support of law enforcement objectives
- Limitations to equipment, assessment, and treatment options secondary to factors such as need for light and sound discipline, need for remote patient assessment, equipment size and weight, tactical patient movement limitations, etc.
- Higher likelihood of high velocity firearms injury
- Limitations in access to On Line Medical Control during tactical operations

All the above factors contribute to different risk/benefit considerations in the tactical environment. Tactical medical clinicians must be enabled to assess each situation and determine when altered standards of care are necessary, especially if specifics are not included in the protocols included in this section. Note that available assessment and treatment options vary depending upon the Zone of Care placement of the patient at any given time.

Clinical Standard by Zones of Care:

- *Hot Zone/Care Under Fire*: Any hostile location subject to effective incoming fire. Care in this situation should be limited to extraction to cover, followed by control of life-threatening external hemorrhage. Cardiac arrest patients in this zone may not be considered to be viable due to the inability to provide further care.
- *Warm Zone/Tactical Field Care*: A potentially hostile location with the benefit of cover. Limited ALS interventions may be possible, but cardiac arrest victims may still not be considered viable candidates for resuscitation or may receive limited resuscitation attempts.
- *Cold Zone TACEVAC:* A location not subject to immediate threat. Care in this situation should include care per regular protocols and initiation of transport with or without transfer of care to other providers.

CS2 CARE UNDER FIRE

Purpose:

The purpose of this protocol is to describe the authorized differences in medical care for TEMS Team Members when operating in the tactical environment. Wherever feasible, normal system standards of care are to be upheld, however the tactical environment may necessitate the following adjustments.

I. Remote Assessment

Prior to making patient contact in a hostile environment, use any available means to assess patients or potential patients from a distance to determine signs of life to make appropriate risk/benefit action decisions.

Normal system standards for patient assessment and/or determination of death may not be practical or even possible in the Hot and possibly the Warm Zones.

II. Hot Zone/Care Under Fire

A. The nature of the Hot Zone necessitates severe limitations in patient assessment and care. Triage must be based on limited information and interventions should be limited to extraction to cover and brief attempts to control life-threatening external hemorrhage.

B. Formal Spinal Motion Precautions is inappropriate in this zone. When tactically feasible, attempt to move the patient along the body's long axis during extraction attempts.

C. Life-threatening external hemorrhage control may be attempted utilizing system-authorized methods and/or special tactical methods or devices such as tourniquets or hemostatic dressings. Non-clinical tactical team members may be utilized to assist in basic interventions, if directly supervised by the tactical medic.

III. Warm Zone/Tactical Field Care

A. Airway management
- NPA, Nu-Mask or blind insertion airway device if needed
- No oxygen due to risk of cylinder disruption
- Colorimetric CO2 monitoring on airway devices rather than capnometry/capnography due to equipment and sound/light discipline concerns.
- Surgical cricothyrotomy as indicated

B. Chest wounds
- Needle or finger thoracostomy as needed
- System or tactical-approved occlusive dressing as indicated

C. Hemorrhage control
   - Apply or re-evaluate tourniquet if appropriate. Expose and clearly mark all tourniquet sites with time of tourniquet
   - application.
   - Consider use of hemostatic dressings for compressible hemorrhage

D. Vascular access
   - IV access, fluid replacement and pain management per system protocol as necessary if feasible but may be deferred to Cold Zone if not life-saving. IO access via IO needle only (no driver) if necessary for critical interventions.

E. Extraction to Cold Zone
   - Due to the still potentially hostile nature of the warm zone, unusual methods of transport to the cold zone may need to be utilized, including vehicles which are not intended to perform medical transport.

IV. Cold Zone/TACEVAC

A. All system authorized interventions may be performed per normal protocol and may include transfer of care of the patient to non-tactical clinicians.
B. All post-intervention requirements for OLMC must be performed. A Pinellas County EMS Patient Care Report must be completed, and a copy provided to the EMS Medical Director for review for each patient treated. The EMS Medical Director acknowledges that Level 2 and Level 3 interventions may be performed without real-time guidance from OLMC due to the nature of the tactical environment. The EMS Medical Director will review each Patient Care Report for appropriateness of patient care decisions for the environment and will provide feedback as necessary. Interventions that are beyond the scope of this protocol or system standards are not pre-authorized or encouraged; any such interventions will be closely scrutinized.

CS3 OPERATIONAL MEDICINE

Purpose:

The purpose of this protocol is to describe the authorized alternative standards of care for TEMS Team Members when operating in the tactical environment or in a training environment simulating tactical operations

Background:

Tactical operations and training activities involve prolonged periods of heavy exertion in often difficult environments, as well as the potential for unusual mechanisms of injury. TEMS Team Members routinely perform physical monitoring of tactical operators during these periods (e.g. rehabilitation) and treat minor medical issues to ensure continuity of operational readiness. TEMS Team Members may also be called upon to provide preventative medical care to tactical team members outside of an actual deployment

Standard:

A. Wherever feasible, normal system standards of care are to be employed, however protocols OM1-OM9 and TT1-TT3 may be employed by TEMS Team Members while engaged in tactical operations or training activities

B. TEMS Team Members should consult OLMC when any question as to the appropriateness of an intervention or course of treatment exists

C. Documentation of all treatments must be completed as per protocol

TACTICAL TRAUMA CARE

TACTICAL TRAUMA CARE

TT-TT1 TACTICAL TRAUMA CARE

ADULT ONLY	GOALS OF CARE
	Pending

BLS

- Ensure safety of both first responders and casualties by rendering any weapons and/or tactical gear safe for handling (i.e. firearms, flash bangs, gas canisters, etc).
- Conduct dedicated patient assessment and initiate only appropriate life-saving interventions as outlined in the Care Under Fire guidelines. ***DO NOT DELAY*** casualty extraction/evacuation for non-life-saving interventions
- Assess for and STOP any major bleeding with CAT Tourniquet, Hemostatic dressing, and/or Wound Packing supplies
- Assess for any airway obstructions and ventilatory effort. Maintain airway/ventilation with NuMask and BVM as needed and if able to evacuate the patient without delay
- Perform needle decompression for any significant penetrating injuries to the chest and apply Hyfin Vent Chest Seal to any open chest wound

ALS

- Do not delay evacuation to treatment sector to initiate ALS care
- Perform advanced airway intervention as needed (e.g. King airway, endotracheal intubation, surgical cricothyrotomy)
- Establish IV/Intraosseous access and initiate fluid resuscitation as needed (Titrate 0.9% Sodium Chloride 500 mL bolus, max 2000 mL for SBP>90 or palpable radial pulse)
- Consider pain management as needed.
- Perform finger thoracostomy for traumatic cardiac arrest (with major penetrating or blunt trauma to the thorax)
- Perform needle decompression for any significant penetrating injuries to the chest and apply Hyfin Vent Chest Seal to any open chest wound.

OLMC

- Consult Online Medical Control Physician as needed

PEARLS

- Remote medical assessment of any casualties in an open unsafe environment for signs of life. (Risk vs. Benefit)
- Consider establishing a casualty collection point if multiple casualties are encountered
- As applicable, establish communication with tactical and/or command element and request or verify initiation of casualty evacuation, declare trauma alert as early as possible, and request further resources as required
- Treat for hypothermia prevention as early as possible if unable to evacuate quickly

QUALITY MEASURES

1. Pending

REFERENCES

- Pending

OPERATIONAL MEDICINE

OPERATIONAL MEDICINE

TT-OM1 MUSCULOSKELETAL PAIN

ADULT ONLY	GOALS OF CARE
	Promote safety during training evolutions and support operational readiness and resiliency

BLS
• Apply ice/heat/compression/rest, as indicated • Administer Acetaminophen 1000 mg by mouth every six (6) hours and/or Ibuprofen 800 mg by mouth every eight (8) hours

ALS
• None

OLMC
• Consult Online Medical Control Physician as needed

PEARLS
• Review team member's home medications prior to adding an additional over the counter medication • Review contraindications and precautions for each medication prior to administration • Assess every complaint for a possible more serious condition (e.g. neurovascular compromise, fracture, etc.)

QUALITY MEASURES
1. Pending

REFERENCES
• Pending

TT-OM2 HEADACHE

ADULT ONLY	GOALS OF CARE
	Promote safety during training evolutions and support operational readiness and resiliency

BLS

- Ensure appropriate hydration, nutrition and rest
- Administer Acetaminophen 1000 mg by mouth every six (6) hours and/or Ibuprofen 800 mg by mouth every eight (8) hours

ALS

- Intravenous hydration and Ondansetron 4 mg intravenous as needed for nausea and vomiting

OLMC

- Consult Online Medical Control Physician as needed

PEARLS

- Review team member's home medications prior to adding an additional over the counter medication
- Review contraindications and precautions for each medication prior to administration
- Assess every complaint for a possible more serious condition
- Key points for headache include: atypical headache for patient, nausea and vomiting, thunderclap onset, “worst headache of life”, altered mental status, altered sensorium, seizure, fever, neck pain, etc.

QUALITY MEASURES

1. Pending

REFERENCES

- Pending

TT-OM3 DIARRHEA

ADULT ONLY	GOALS OF CARE
	Promote safety during training evolutions and support operational readiness and resiliency

BLS

- Ensure appropriate hydration, nutrition and rest
- Administer Loperamide Hydrochloride 4 mg by mouth, then 2 mg by mouth after each unformed stool
- Administer Bismuth Subsalicylate 2 tabs or 30 mL by mouth four (4) times a day

ALS

- Intravenous hydration as needed
- Ondansetron 4 mg intravenous as needed for nausea and vomiting

OLMC

- Consult Online Medical Control Physician as needed

PEARLS

- Review team member's home medications prior to adding additional medications
- Ensure hydration
- Most diarrhea is viral
- Review contraindications and precautions for each medication prior to administration.
- Assess every complaint to ensure no more serious condition exists
- Key points for gastroenteritis: Infection by bacteria (the cause of most types of food poisoning) infections by other organisms, eating foods that upset the digestive system, allergies to certain foods and medications, diseases of the intestines (Crohn's disease, ulcerative colitis), malabsorption (where the body is unable to adequately absorb certain nutrients from the diet), hyperthyroidism, laxative abuse, digestive tract surgery, diabetes and competitive running

QUALITY MEASURES

1. Pending

REFERENCES

- Pending

TT-OM4 FUNGAL SKIN INFECTION

ADULT ONLY	GOALS OF CARE
	Promote safety during training evolutions and support operational readiness and resiliency

BLS

- Ensure the affected area is not the cause of a more serious infection as listed in the PEARLS section
- Administer Lamisil, Lotrimin or Tinactin Cream as directed to the affected area
- Administer Acetaminophen 1000 mg by mouth every six (6) hours and/or Ibuprofen 800 mg by mouth every eight (8) hours

ALS

- None

OLMC

- Consult Online Medical Control Physician as needed

PEARLS

- Review team member's home medications prior to adding additional medications
- Review contraindications and precautions for each medication prior to administration
- Assess every complaint to ensure no more serious condition exists. Key points for fungal skin infections are:
    - Insect bite(s) as a differential diagnosis - are also accompanied by itching but have discrete red papule lesions(s). Refer to bite/stings protocol
    - Cellulitis as a differential diagnosis- is bright red, painful, not pruritic, and typically becomes steadily worse without antibiotics. Clean and dress area. Follow up with primary care physician for antibiotic treatment
    - Acute contact dermatitis as a differential diagnosis is diagnosed by sudden onset of intense itching, skin erythema, and a history of environmental exposure. Follow minor allergic reactions protocol (OM5 MINOR ALLERGIC REACTIONS) and/or Anaphylactic protocol (ALLERGIC REACTION AND ANAPHYLAXIS)
    - Poison Ivy and Oak as a differential diagnosis- skin erythema present and is intensively pruritic

QUALITY MEASURES

1. Pending

REFERENCES

- Pending

TT-OM5 MINOR ALLERGIC REACTION

ADULT ONLY	GOALS OF CARE
	Promote safety during training evolutions and support operational readiness and resiliency

BLS

- Proper evaluation of the patient to ensure no major anaphylactic reaction present
- Administer Diphenhydramine 50 mg by mouth for minor allergic reactions
- Administer Claritin tablet by mouth for seasonal type allergies. Make sure has not taken within 24 hours
- If responds to management, no further treatment necessary. Monitor patient

ALS

- Follow Anaphylactic Protocol and consider transport if condition worsens

OLMC

- Consult Online Medical Control Physician as needed

PEARLS

- Review team member's home medications prior to adding additional medications
- Review contraindications and precautions for each medication prior to administration
- Remove from operation and or training due to drowsiness from Diphenhydramine

SPECIAL CONSIDERATIONS:

- Acute, widely distributed form of shock, which occurs within minutes of exposure to an allergen
- Primary causes include insect envenomation, medications, and food
- Death can result from airway compromise, inability to ventilate, or cardiovascular collapse
- The medic's responsibility is to know if members in the unit have such a condition. Moreover, the medic's must also ensure that the member has some sort of anaphylaxis kit and is trained to use it.

QUALITY MEASURES

1. Pending

REFERENCES

- Pending

TT-OM6 POISON IVY/OAK

ADULT ONLY	GOALS OF CARE
	Promote safety during training evolutions and support operational readiness and resiliency

BLS

- Proper evaluation of the patient to ensure no major anaphylactic reaction present
- Cool area with cold water and apply Calamine Lotion to relieve itching
- Administer Diphenhydramine 50 mg by mouth for minor allergic reactions

ALS

- Follow Anaphylactic Protocol and consider transport if condition worsens

OLMC

- Consult Online Medical Control Physician as needed

PEARLS

- Review team member's home medications prior to adding additional medications
- Review contraindications and precautions for each medication prior to administration
- If your reaction is more severe or involves mucus membranes (membranes found in the eyes, nose, mouth, and genitals), you may need a prescription drug, such as prednisone, to help control the reaction
- Remove from operation and/or training due to drowsiness from Diphenhydramine

QUALITY MEASURES

1. Pending

REFERENCES

- Pending

TT-OM7 BLISTER TREATMENT

ADULT ONLY	GOALS OF CARE
	Promote safety during training evolutions and support operational readiness and resiliency

BLS

- For non-ruptured blisters, use paper tape around the sensitive spot to minimize blister formation
- If blister needs to be drained, use a sterile needle and gently press to drain the fluid
- If the top of the blister is ripped, trim away loose skin
- Clean area and cover with Bacitracin ointment.
- Place sterile dressing over the blister with paper tape.

ALS

- None

OLMC

- Consult Online Medical Control Physician as needed

PEARLS

- Review team member's home medications prior to adding additional medications
- Review contraindications and precautions for each medication prior to administration

SPECIAL CONSIDERATIONS:

- When treating blisters, the skin should be left intact
- Change bandage daily or whenever it gets dirty or wet
- Avoid wearing shoes or doing the activity that caused the blister until it heals
- Wear thick socks or work gloves for blisters on feet or hands
- See a doctor for signs of infection, including pus, fever, red or warm skin around the blister, red streaks leading away from blister, swollen lymph glands, increased pain or swelling, or if your last tetanus shot was more than 10 years ago

QUALITY MEASURES

1. Pending

REFERENCES

- Pending

TT-OM8 DYSPEPSIA

ADULT ONLY	GOALS OF CARE
	Promote safety during training evolutions and support operational readiness and resiliency

BLS

- Ensure appropriate evaluation is completed to ensure the patient is not having a cardiac event
- Administer TUMs 2-4 tabs by mouth, as needed. Max: 15 tabs/24 hours
- Administer Pepto-Bismol 2 tabs or 30 mL by mouth four (4) times a day

ALS

- Follow Cardiac Protocol if patient presents with cardiac symptoms

OLMC

- Consult Online Medical Control Physician as needed

PEARLS

- Review team member's home medications prior to adding additional medications
- Review contraindications and precautions for each medication prior to administration
- Assess every complaint to ensure no more serious condition exists

SPECIAL CONSIDERATIONS:

- Swallowed air
- Burped-up stomach juices and gas (regurgitation or reflux) caused by gastroesophageal reflux disease (GERD) or a hiatal hernia
- Peptic (stomach) ulcer or duodenal ulcer
- Stomach cancer
- An inability to digest milk or dairy products (lactose intolerance)
- Gallbladder pain (biliary colic) or inflammation (cholecystitis)
- A disorder that affects movement of food through the intestines, such as irritable bowel syndrome
- Anxiety or depression
- Side effects of caffeine, alcohol, or medicines. Examples of medicines that may cause dyspepsia are aspirin and similar drugs, antibiotics, steroids, digoxin, and theophylline
- Treatment depends on what is causing the problem. If no specific cause is found, treatment focuses on relieving symptoms with medicine

QUALITY MEASURES

1. Pending

REFERENCES

- Pending

TT-OM9 OPERATOR REHABILITATION

ADULT ONLY	GOALS OF CARE
	Promote safety during training evolutions and support operational readiness and resiliency

BLS

- For patients with mild heat related symptoms without severe muscle cramps, nausea, change in mental status or hypotension:
  - Remove from heat, check temperature and vital signs
  - Use available cooling measures, push oral fluids
  - These patients may just be logged in without PCR completion
- If vitals have not returned to near normal and symptoms have not subsided after 20 to 30 minutes or if condition worsens, begin IV hydration

ALS

- If patient meets criteria for moderate to severe heat related symptoms (potentially including marked tachycardia that does not begin to subside within 5 to 10 minutes, hypotension, nausea/vomiting, severe muscle cramps, etc.):
  - All moderate to severe patients must have a PCR completed
  - Begin IV hydration of 0.9% Sodium Chloride at a wide-open rate for a minimum of 2000 mL. Also employ other available cooling measures, including oral fluids if not nauseated. Complete ECG, 12-lead and blood glucose during IV therapy
- If nausea and or vomiting does not subside after fluid treatment, administer Ondansetron 4 mg IV
- If there is any alteration in mental status or seizure activity, transport immediately
- Patients who have normal mental status, near normal vital signs, marked improvement in symptoms, and are urinating after 2000 mL of IV fluid may sign a refusal if requested without OLMC consult. Must be on light duty for the rest of the training day. **** If training is more than one day, he or she must be evaluated prior to start of training, to ensure they continue training. ****

OLMC

- Consult Online Medical Control Physician as needed
- Patients who have received Ondansetron or have not normalized after 2000 mL of IV fluid should be transported.
- If a patient wishes to decline transport, a refusal of care is required

TT-MT2 FINGER INJURIES

ADULT ONLY	GOALS OF CARE
	Promote safety during training evolutions and support operational readiness and resiliency

BLS

- Ensure appropriate evaluation is done to ensure no more serious injury is present
- Clean wound with peroxide and sterile 4 x 4's
- Hang nails and ingrown nails may be treated with trimming of the nail and Neosporin and covering the wound with a Band-Aid
- Subungual hematoma drainage may be performed, if equipment is available. (see procedure)
- Apply Neosporin and cover with proper dressing
- Administer Ibuprofen 800 mg by mouth for pain

ALS

- None

OLMC

- Consult Online Medical Control Physician as needed

PEARLS

- Increased pain, swelling, redness, or warmth around the nail
- Red streaks extending from the nail
- Drainage of pus from the nail
- Swollen glands (lymph nodes) in the neck, armpit, or groin

QUALITY MEASURES

1. Pending

REFERENCES

- Pending

MINOR TRAUMA

MINOR TRAUMA

TT-MT1 DENTAL INJURIES

ADULT ONLY	GOALS OF CARE
	Promote safety during training evolutions and support operational readiness and resiliency

BLS

- Ensure appropriate evaluation is done to ensure not a more serious injury is present
- Apply an ice pack to the mouth and gums for pain
- Apply direct pressure using gauze to control bleeding
- Save any tooth that has been knocked out
- You can take the tooth to the dentist by following:
  - Try to place the tooth back in the mouth where it fell out, so it is level with other teeth
  - Bite down gently on gauze or a wet tea bag to help keep it in place. Be careful not to swallow the tooth
  - If the above step cannot be done, place the tooth in a container and cover with a small amount of whole milk or saliva
  - The tooth can also be carried between lower lip and lower gum or under the tongue
  - A tooth-saving storage device (Save-a-Tooth, EMT Tooth Saver) may be available at your dentist's office. Such a kit contains a travel case and fluid solution
- Administer Tylenol 1000 mg by mouth and/or Ibuprofen 800 mg by mouth for pain

ALS

- None

OLMC

- Consult Online Medical Control Physician as needed

PEARLS

- Seek your dentist right away. The longer you wait, the less chance there is your dentist to fix it
- If your tooth is badly broken, your nerve endings may be exposed. You will need immediate dental help to avoid infection and pain
- Do NOT handle the roots of the tooth. Handle only the chewing edge -- the crown portion of the tooth
- Do NOT scrape the root of the tooth to remove dirt
- Do NOT brush or clean the tooth with alcohol or peroxide

QUALITY MEASURES

1. Pending

REFERENCES

- Pending

TT-MT2 FINGER INJURIES

ADULT ONLY	GOALS OF CARE
	Promote safety during training evolutions and support operational readiness and resiliency

BLS

- Ensure appropriate evaluation is done to ensure no more serious injury is present
- Clean wound with peroxide and sterile 4 x 4's
- Hang nails and ingrown nails may be treated with trimming of the nail and Neosporin and covering the wound with a Band-Aid
- Subungual hematoma drainage may be performed, if equipment is available. (see procedure)
- Apply Neosporin and cover with proper dressing
- Administer Ibuprofen 800 mg by mouth for pain

ALS

- None

OLMC

- Consult Online Medical Control Physician as needed

PEARLS

- Increased pain, swelling, redness, or warmth around the nail
- Red streaks extending from the nail
- Drainage of pus from the nail
- Swollen glands (lymph nodes) in the neck, armpit, or groin

QUALITY MEASURES

1. Pending

REFERENCES

- Pending

TT-MT3 MINOR BURNS

ADULT ONLY	GOALS OF CARE
	Promote safety during training evolutions and support operational readiness and resiliency

BLS

- Ensure appropriate evaluation is done to ensure a more serious injury is not present
- The following burn types require immediate evaluation at an emergency room
  - Burns involving the face, genitals or eyes
  - Circumferential burns
  - Burns greater than 3% body surface area
  - Chemical or electrical burns
  - Burns with associated inhalational injury
- Remove any clothing and jewelry from the affected area
- Cool area with sterile water and sterile 4 x 4's
- Apply Silvadene Cream to the affected area. ***(DO NOT USE ON FACE)***
- Cover the area with a dry sterile dressing
- Administer Ibuprofen 800 mg or Acetaminophen 1000 mg by mouth for pain control

ALS

- Follow Burn Protocol treatment
- Transport to a burn center

OLMC

- Consult Online Medical Control Physician as needed

PEARLS

- Do not pop a burn blister
- Do not apply ice directly to the burned area. This could cause further injury to the skin.
- If the wound isn't healing or you notice any of these signs of infection, call your doctor right away:
  - Redness, swelling, and warmth
  - Increasing pain
  - Temperature over 100 F

QUALITY MEASURES

1. Pending

REFERENCES

- Pending

TT-MT4 OLEORESIN CAPSICUM (OC) EXPOSURE

ADULT ONLY	GOALS OF CARE
	Promote safety during training evolutions and support operational readiness and resiliency

BLS

- Ensure appropriate evaluation is done to ensure a more serious condition is not present or other type of chemical was not used
- Remove from area that the gas was used to a well-ventilated area
- Flush eyes out for 15 - 20 minutes
- Remove clothing and jewelry if needed
- May spray 50/50 wash of Antacid (Maalox)/water to affected area if normal means do not work.

ALS

- Follow Anaphylactic Protocol if signs of severe reaction are present

OLMC

- Consult Online Medical Control Physician as needed

PEARLS

- Longer exposure (about an hour or more) or high-dose exposure that is hundreds of times more than the amount of OC normally used by law enforcers in crowd control may cause severe effects, especially in an enclosed space. These include blindness, glaucoma (a serious eye condition that can lead to blindness) and death from serious chemical burns to the throat and lungs, and potentially fatal respiratory failure
- If used for training purposes no run report needed if no signs/symptoms of allergic reaction or responds to BLS treatment

QUALITY MEASURES

1. Pending

REFERENCES

- Pending

TT-MT5 TASER ACTIVATION

ADULT ONLY	GOALS OF CARE
	Promote safety during training evolutions and support operational readiness and resiliency

BLS

- Ensure appropriate evaluation is done to ensure a more serious condition is not present
- The TASER dart usually penetrates the skin only a few millimeters
- Often (but not always) can safely remove a dart simply by pulling it out
- Transport decisions regarding patients subdued by TASER should be based on patient condition. Inability to remove dart on scene (due to contraindications to clinical procedure or unsuccessful procedure) requires transport to closest ED for removal
- If patient has not had a tetanus shot in last 5 years, they must be advised to get one

ALS

- Electrocardiogram rhythm assessment and 12-Lead ECG must completed on all patient's that were tazed

OLMC

- Consult Online Medical Control Physician as needed

PEARLS

SPECIAL CONSIDERATIONS:

- Burn Hazard -- When a TASER is used in the presence of certain pepper spray propellant, there is a burn hazard. Electrical arcing from imperfect (but effective) dart contact can ignite the propellant. The resulting combustion may not be visible but can lead to complaints of heat and burning. If a patient complains of heat or burning, evaluate for possible minor burns

QUALITY MEASURES

1. Pending

REFERENCES

- Pending

CLINICAL PROCEDURE

CLINICAL PROCEDURE

TT-CP1 HYFIN VENT COMPACT CHEST SEAL

INDICATIONS
• Penetrating wounds to the chest

CONTRAINDICATIONS
• None

CAUTIONS
• Anticipate difficulty with excess blood, skin moisture, or debris

PROCEDURE

1. Clean and dry the wound as practical
2. Remove one vented chest seal from release liner
3. Place firmly over wound, centered, with adhesive side down
4. Apply light direct pressure to assure occlusive seal
5. Repeat with second dressing if a second wound (e.g. exit wound) is present

COMPLICATIONS
• Improper placement may contribute to the development of tension pneumothorax

REFERENCES
• https://www.narescue.com/hyfin-vent-compact-chest-seal-twin-pack

TT-CP2 COMBAT APPLICATION TOURNIQUET (CAT)

INDICATIONS

- Control of life threatening external hemorrhage when standard methods such as direct pressure are inadequate

CONTRAINDICATIONS

- Inability to place proximal to wound

CAUTIONS

- Incorrectly placed tourniquets may increase venous bleeding
- Do not place over a joint

PROCEDURE

1. Apply tourniquet proximal to wound according to manufacturer's instructions. Avoid placing over joints.
2. Tighten tourniquet until bleeding stops.
3. Apply second tourniquet proximal to first (directly adjacent) if needed.
4. Note the time and date of application on the tourniquet or patient's skin near the tourniquet.
5. Monitor for recurrent hemorrhage.
6. Provide analgesia after application when possible
7. Tourniquets should only be removed by the receiving facility, once properly placed.

COMPLICATIONS

- Pain
- Even when properly applied may cause nerve and vascular damage as well as tissue loss

NOTES

- Tourniquets may be used as first line treatment in:
  - Traumatic Cardiac Arrest
  - During incidents with ongoing threats
  - When other standard methods of hemorrhage control are not feasible

REFERENCES

- https://www.narescue.com/combat-application-tourniquet-c-a-t

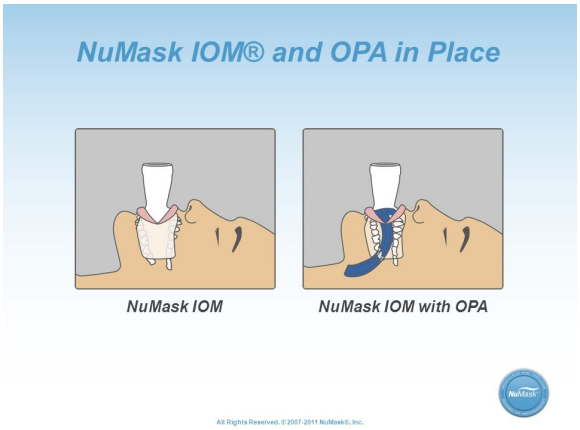
TT-CP3 NuMASK

INDICATIONS
• Ventilatory assistance where standard means are ineffective or unfeasible.

CONTRAINDICATIONS
• Presence of foreign bodies in the oropharynx (e.g. tooth or bone fragments, dental prosthesis, etc.) • Active vomiting

CAUTIONS
• May not be as effective as other means of ventilator assistance • Provides no protection from aspiration

PROCEDURE
• Remove product from packaging • Insert according to manufacturer's directions • Manually stabilize device and occlude nares during ventilation



COMPLICATIONS
• Failure to adequately ventilate and/or oxygenate • Aspiration

NOTES
• None

REFERENCES
• Pending

TT-CP4 WOUND PACKING - QUIKCLOT® COMBAT GAUZE & EMERGENCY TRAUMA DRESSING (ETD)

INDICATIONS

- Control of life-threatening external hemorrhage in areas where proximal tourniquet application is not possible (e.g. junctional wounds) and standard methods such as direct pressure are inadequate.

CONTRAINDICATIONS

- None

CAUTIONS

- Hemorrhage control using external hemostatic dressings may be difficult at non-compressible sites
- Avoid hemostatic dressing contact with eyes

PROCEDURE

1. Expose wound, remove excess-pooled blood from around wound while preserving any clots already in the wound if possible.
2. Locate source of bleeding and pack hemostatic gauze into wound tightly and directly onto bleeding source. Use as much gauze as needed to stem blood flow. Remainder of roll can be used on top of wound or to fill wound cavity.
3. Apply manual direct pressure for 3 – 5 minutes or until bleeding stops.
4. Leave gauze in place. Place the pad of the ETD dressing over wound and wrap tightly to create a pressure dressing. Secure as directed.
5. Consider pain management.

COMPLICATIONS

- Failure to adequately control hemorrhage
- Pain

NOTES

- Wound packing may be used as first line treatment in:
  - Traumatic Cardiac Arrest
  - During incidents with ongoing threats – Ref. CS21
  - When other standard methods of hemorrhage control are not feasible
- QuikClot® Combat Gauze causes rapid, localized coagulation and the formation of a stable blood clot in a variety of wounds. It does not absorb into the body and is safe to leave in the wound until further medical care is available. QuikClot® Combat Gauze does not produce any heat and controls bleeding faster than conventional methods.

REFERENCES

- https://www.narescue.com/combat-gauze-z-fold-hemostatic
- https://www.narescue.com/responder-emergency-trauma-dressings

TT-CP5 TASER DART REMOVAL

INDICATIONS
• Removal of TASER® darts from non-dangerous body areas

CONTRAINDICATIONS
• Involvement of the eye, face, neck, bone, groin or spinal column

CAUTIONS
• Observe standard isolation precautions • Treat removed TASER® Darts as sharps

PROCEDURE

1. Place one hand on the patient where the probe is embedded and stabilize the skin surrounding the puncture site
2. Place your other hand firmly gripping the probe
3. In one quick, fluid motion pull the probe straight out of the puncture site
4. Check probe to make sure entire probe was removed
5. Repeat procedure with remaining probes
6. Darts are a sharps hazard – treat as contaminated needle and dispose in sharps container or TASER® cartridge
7. Clean puncture sites and bandage

COMPLICATIONS
• Inability to remove dart • Bleeding • Infection

NOTES
• None

REFERENCES
• Pending

TT-CP6 MANUAL INTRAOSSEOUS ACCESS

INDICATIONS
• Emergency vascular access when standard methods are unsuccessful or unfeasible

CONTRAINDICATIONS
• Fracture, cellulitis or other overlying infection • Inability to palpate landmarks

CAUTIONS
• Anticipate difficulty with excess soft tissue

PROCEDURE
• Determine landmarks for approved sites (tibial plateau, humeral head, and distal tibia just proximal to medial malleolus) according to manufacturer provided diagrams and choose appropriate needle size • Prep area well with alcohol preps and chloprep or betadine if available • Insert needle manually using a twisting motion according to manufacturer's directions. (www.vidacare.com) • Confirm placement with aspiration of bone marrow, flush, and secure with commercial device • Infuse fluids and medications as needed • In conscious patients, may administer 2% Lidocaine (Adults 30mg, Pediatrics 0.5mg) via slow IO push to control infusion related pain • Write time of placement and operator name on provided band and affix to limb where IO placed.

COMPLICATIONS
• Improper placement may cause injury to the bone, bleeding, extravasation of fluids and medications, necrosis, and loss of limb

NOTES
• None

REFERENCES
• Pending

TT-CP7 SUBUNGUAL HEMATOMA DRAINAGE

INDICATIONS
• Pain control in acute subungual hemorrhage

CONTRAINDICATIONS
• Absence of pain or > 48 hrs from time of injury • Open fracture, non-intact nail, or fingertip amputation • Artificial acrylic nails (flammable)

CAUTIONS
• Will result in eventual loss of nail

PROCEDURE
1. Paint the nail with 10% povidone iodine (Betadine) solution 3 times and allow to dry 2. Adhere to universal blood and bodily-fluid precautions (blood is under pressure and may spurt out) 3. Perform a trephination at the base of the nail, using the free end of a glowing hot (ie sterile) paper clip, electric cauterizing lance or drill. Tap rapidly with the cautery or drill a few times in the same spot at the base of the hematoma until the hole is through the nail. When resistance from the nail gives way, stop further downward pressure to avoid damaging the nail bed. Milk as much blood from under the nail as possible 4. Persistent bleeding from this opening can be controlled by having the patient hold a folded 4" x 4" gauze pad firmly over the trephination while holding his hands over his head 5. Apply an antibacterial ointment such as Betadine and cover the trephination with a Band-Aid 6. To prevent infection, instruct the patient to keep his finger dry for 2 days and not to soak it (e.g., go swimming) for 1 week 7. If there is an underlying fracture, instruct the patient to keep his finger as dry as possible for the next ten days and return immediately at the first sign of infection 8. A protective aluminum fingertip splint may also be comforting, especially if the bone is fractured

COMPLICATIONS
• Failure to adequately ventilate and/or oxygenate • Aspiration

NOTES
• None

REFERENCES
• Pending

TT-CP8 FINGER THORACOSTOMY

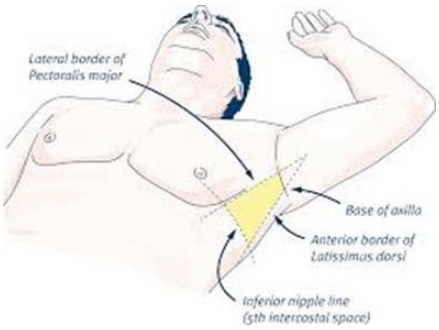
INDICATIONS
• Traumatic cardiac arrest (with major penetrating or blunt trauma to the thorax)

CONTRAINDICATIONS
• Obvious nonsurvivable injury in traumatic cardiac arrest • Cardiac arrest with loss of vital signs greater than twenty minutes

CAUTIONS
• Anticipate difficulty with excess soft tissue

PROCEDURE

1. Abduct the arm(s) to greater than 90 degrees, if possible and locate the "Triangle of Safety" identified by:
   a. Lateral border of the Pectoralis Major (anteriorly)
   b. Anterior border of the Latissimus Dorsi (posteriorly)
   c. The Axilla (Apex)
   d. At the level of the nipple in males or mammary fold in females (Base)



2. Prepare the site with Betadine
3. Identify the appropriate incision site (4th intercostal space, anterior to the mid axillary line) and ensure you are within the "Triangle of Safety".
4. Using a disposable safety scalpel, make a 3 – 4 centimeter incision into the subcutaneous fat. Dispose of the scalpel immediately into a sharps container.
5. With forceps supported by the non-dominant hand, gently push through the intercostal muscles and pleura. A tract capable of having a finger inserted should be achieved.
6. With forceps in position, insert a finger into the pleural space to ensure an opening has been achieved and remove forceps.
7. Perform a finger sweep to assess for the release of air and/or blood and lung inflation or deflation.
8. Place a vented chest seal over the opening.
9. Remove chest seal and re-sweep the site should the patient decompensate again.

COMPLICATIONS
• Creation of a simple pneumothorax or tension pneumothorax • Damage to the lung • Hemorrhage • Infection • Pulmonary contusion/laceration • Liver laceration

NOTES
• The potential for exposure to blood and body fluids is HIGH. All precautions that serve to minimize the risk to the clinician and patient are to be applied. • Clinicians should be “double gloved” with sterile gloves on the outside if possible.

REFERENCES
• Pending

FORMULARY

FORMULARY

TT-F1 ACETAMINOPHEN

Trade Name	Tylenol, APAP	
Class(es)	Pain reliever, fever reducer	
Action(s)	N/A	
Indication(s)	Headache, muscle aches, backache, temporarily reduces fever	
Contraindication(s)	Hypersensitivity to Acetaminophen or phenacetin	
Precaution(s)	Pregnancy, ETOH Use/Abuse, Liver Disease	
Pharmacokinetics	**Onset:** Rapid	**Duration:** 3 – 4 hours
Routes of Administration	Oral	
Technique for Administration	• Do Not co-administer with a high carbohydrate meal • Maximum adult daily dose is 6 tablets	
PEARLS	• Do Not use with any other medications containing • Acetaminophen	
Y-Site Compatibility	N/A	
Interactions	N/A	
Reference	http://dailymed.nlm.nih.gov/dailymed/lookup.cfm?setid=2a8c94ee-8267-4da0-b90f-2814e8dc1ebd	

TT-F2 BACITRACIN ZINC NEOMYCIN SULFATE

Trade Name	Triple antibiotic	
Class(es)	Topical	
Action(s)	Antibiotic	
Indication(s)	Minor scrapes, burns, cuts	
Contraindication(s)	Deep or puncture wounds	
Precaution(s)	N/A	
Pharmacokinetics	**Onset:** N/A	**Duration:** N/A
Routes of Administration	Topical	
Technique for Administration	• Apply small amount 1 to 3 times daily • May be covered with a sterile dressing	
PEARLS	N/A	
Y-Site Compatibility	N/A	
Interactions	N/A	
Reference	http://dailymed.nlm.nih.gov/dailymed/lookup.cfm?setid=2a8c94ee-8267-4da0-b90f-2814e8dc1ebd	

TT-F3 BISMUTH SUBSALICYLATE

Trade Name	Bismatrol, Pepto-Bismol	
Class(es)	Upset stomach reliever and anti-diarrheal	
Action(s)	Coats mucosa	
Indication(s)	Diarrhea, heartburn, indigestion, nausea, upset stomach associated with these symptoms	
Contraindication(s)	Hypersensitivity to aspirin or other salicylates; use more than two days in the presence of a high fever	
Precaution(s)	Diabetes and gout, older adults, pregnancy	
Pharmacokinetics	**Onset:** N/A	**Duration:** N/A
Routes of Administration	Oral	
Technique for Administration	• Shake well before use • Do Not exceed 8 doses for an adult in 24 hours	
PEARLS	• Temporary grayish black discoloration of tongue and stool may occur	
Y-Site Compatibility	N/A	
Interactions	N/A	
Reference		

TT-F4 CALCIUM CARBONATE

Trade Name	Tums Ultra, OsCal, Caltrate	
Class(es)	Antacid	
Action(s)	Buffers stomach acid	
Indication(s)	Heartburn, sour stomach, acid indigestion, upset stomach associated with these symptoms	
Contraindication(s)	GI hemorrhage or dehydration	
Precaution(s)	Decreased bowel motility, pregnancy	
Pharmacokinetics	**Onset:** N/A	**Duration:** N/A
Routes of Administration	Oral	
Technique for Administration	• Do Not take more than 7 tablets for an adult in 24 hours • Chew 2-3 tablets as symptoms occur for an adult	
PEARLS	• N/A	
Y-Site Compatibility	N/A	
Interactions	N/A	
Reference		

TT-F5 CLOTRIMAZOLE

Trade Name	Lotrimin, Mycelex	
Class(es)	Topical	
Action(s)	Antifungal cream	
Indication(s)	Athlete's foot, jock itch, ringworm. Relieves the itching, irritation, redness, scaling and discomfort	
Contraindication(s)	Use in the eyes	
Precaution(s)	Hypersensitivity to other antifungals	
Pharmacokinetics	**Onset:** N/A	**Duration:** N/A
Routes of Administration	Topical	
Technique for Administration	• Apply a thin layer over the affected area twice daily • Protect hands with gloves when applying medication • Do Not use occlusive dressings • For athlete's foot, pay special attention to the spaces between the toes	
PEARLS	• For external use only • For athlete's foot wear well-fitting ventilated shoes and change socks at least once daily	
Y-Site Compatibility	N/A	
Interactions	N/A	
Reference		

TT-F6 FERRIC OXIDE RED

Trade Name	Calamine Lotion	
Class(es)	Topical	
Action(s)	Desiccant, skin protectant	
Indication(s)	Dries the oozing and weeping of poison ivy, oak and sumac	
Contraindication(s)	N/A	
Precaution(s)	• Do Not get into the eyes. Shake well before using	
Pharmacokinetics	**Onset:** N/A	**Duration:** N/A
Routes of Administration	Topical	
Technique for Administration	• Do Not get into the eyes • Shake well before using	
PEARLS	• For external use only • For athlete's foot wear well-fitting ventilated shoes and change socks at least once daily	
Y-Site Compatibility	N/A	
Interactions	N/A	
Reference		

TT-F7 IBUPROFEN

Trade Name	Advil, Motrin, Nuprin, Pamprin	
Class(es)	Pain reliever/fever reducer	
Action(s)	Anti-inflammatory	
Indication(s)	Muscule aches, temporarily reduces fever, headache, backache, menstrual cramps, toothache	
Contraindication(s)	Bleeding abnormalities, hypersensitivity to aspirin or NSAIDS	
Precaution(s)	• History of GI ulcer, diabetes mellitus, hypertension, angina, MI, cardiac decompensation, pregnancy	
Pharmacokinetics	**Onset:** 1 hour (antipyretic)	**Duration:** 6 – 8 hrs
Routes of Administration	Oral	
Technique for Administration	• Give on an empty stomach 1 hour before or 2 hours after a meal. • May be taken with meals or milk if GI intolerance occurs	
PEARLS	• Do Not take Aspirin with Ibuprofen	
Y-Site Compatibility	N/A	
Interactions	Oral anticoagulants	
Reference		

TT-F8 LOPERAMIDE HYDROCHLORIDE

Trade Name	Imodium, Kaopectate, Maalox	
Class(es)	Anti-diarrheal	
Action(s)	Slows intestinal transit and increases contact time	
Indication(s)	Diarrhea	
Contraindication(s)	Conditions in which constipation should be avoided; acute diarrhea caused by broad spectrum antibiotic	
Precaution(s)	• Dehydration, ulcerative colitis, pregnancy	
Pharmacokinetics	**Onset:** 30- 60 minutes	**Duration:** 4 – 5 hours
Routes of Administration	Oral	
Technique for Administration	N/A	
PEARLS	• Monitor fluid and electrolyte balance • Record number and consistency of stools • Do Not drive or engage in other potentially hazardous activities until response to drug is known	
Y-Site Compatibility	N/A	
Interactions	N/A	
Reference		

TT-F9 LORATADINE

Trade Name	Alavert, Claritin	
Class(es)	Antihistamine	
Action(s)	H1 receptor antagonist activity	
Indication(s)	Temporarily relieves symptoms due to hay fever or other upper respiratory allergies, runny nose, itchy, watery eyes, sneezing, itching of the nose and throat	
Contraindication(s)	Hypersensitivity to Loratadine	
Precaution(s)	• Asthma, pregnancy	
Pharmacokinetics	**Onset:** 1 – 3 hours	**Duration:** 24 hours
Routes of Administration	Oral	
Technique for Administration	• Give on an empty stomach 1 hour before or 2 hours after a meal.	
PEARLS	• Monitor cardiovascular status for changes in BP and palpitations or tachycardia	
Y-Site Compatibility	N/A	
Interactions	N/A	
Reference		

TT-F10 POVIDONE IODINE

Trade Name	Betadine	
Class(es)	Antiseptic	
Action(s)	Bactericidal	
Indication(s)	Reduce bacteria that potentially can cause skin infection in minor cuts, scrapes and burns	
Contraindication(s)	Hypersensitivity to povidone-iodine	
Precaution(s)	N/A	
Pharmacokinetics	**Onset:** N/A	**Duration:** N/A
Routes of Administration	Topical	
Technique for Administration	• Do Not use in the eyes • Apply product and allow to dry • May be covered with a bandage	
PEARLS	• Prolonged exposure to wet solution may cause irritation	
Y-Site Compatibility	N/A	
Interactions	N/A	
Reference		

TT-F11 SILVER SULFADIAZINE

Trade Name	Silvadene	
Class(es)	Antibacterial	
Action(s)	Bacteriocidal	
Indication(s)	Prevention and treatment of sepsis in second and third degree burns	
Contraindication(s)	Hypersensitivity to sulfonamides; pregnant women at term	
Precaution(s)	• Impaired respiratory function, pregnancy	
Pharmacokinetics	**Onset:** N/A	**Duration:** N/A
Routes of Administration	Topical	
Technique for Administration	• Do Not use if cream darkens; it is water soluble and white • Apply with sterile, gloved hands to cleansed, debrided burned areas • Cover burn wounds with medication at all times • Dressings are not required	
PEARLS	• Drug does not stain clothing • Analgesic may be required	
Y-Site Compatibility	N/A	
Interactions	N/A	
Reference		

TT-F12 TOLNAFTATE

Trade Name	Tinactin	
Class(es)	Antifungal, antibiotic	
Action(s)	Anti-fungal and anti-infective against bacteria, protozoa and viruses	
Indication(s)	Athlete's foot, jock itch, body ringworm	
Contraindication(s)	Nail and scalp infections; immunosuppressed patients, diabetes mellitus	
Precaution(s)	• Pregnancy, scraped or abraded skin	
Pharmacokinetics	**Onset:** N/A	**Duration:** N/A
Routes of Administration	Topical	
Technique for Administration	• Shake container well before using • Dry area completely before applying • Athlete's foot – pay special attention to the spaces between the toes	
PEARLS	• Athlete's foot – wear well-fitting ventilated shoes. Change shoes and socks at least once daily	
Y-Site Compatibility	N/A	
Interactions	N/A	
Reference		

CLINICAL TOOLS

CLINICAL TOOLS

TT-CT1 FORMULARY PREGNANCY CATEGORY DEFINITIONS

Category A
Adequate and well-controlled studies have failed to demonstrate a risk to the fetus in the first trimester of pregnancy
(and there is no evidence of risk in later trimesters)

Category B
Animal reproduction studies have failed to demonstrate a risk to the fetus and there are no adequate and well-controlled studies in pregnant women

Category C
Animal reproduction studies have shown an adverse effect on the fetus and there are no adequate and well-controlled studies in humans, but potential benefits may warrant use of the drug in pregnant women despite potential risks.

Category D
There is positive evidence of human fetal risk based on adverse reaction data from investigational or marketing experience or studies in humans, but potential benefits may warrant use of the drug in pregnant women despite potential risks

Category X
Studies in animals or humans have demonstrated fetal abnormalities and/or there is positive evidence of human fetal risk based on adverse reaction data from investigational or marketing experience, and the risks involved in use of the drug in pregnant women clearly outweigh potential benefits\

TT-CT2 NFPA 1584 - REFERENCE

TT-CT2 NFPA 1584 - REFERENCE TT-CT2

NFPA ®1584

Standard on the Rehabilitation Process for Members During Emergency Operations and Training Exercises Temperature. Body temperature is a vital piece of information to assessing individuals with both heat and cold stress exposures. Normal core body temperatures range from 98.6°F to 100.6°F (37°C to 38.1°C). The core body temperature (typically obtained using a rectal thermometer) provides the most accurate measurement but is rarely feasible in the field setting. Alternate methods of obtaining body temperature include oral or tympanic (ear) methods. Oral measurements are about 1°F (0.55°C) lower than core body temperature and tympanic measurements may be up to 2°F (1.1°C) lower than core body temperature. It is important to be aware that these alternate methods are subject to error based on several circumstances (e.g., decreased oral temperature in individuals who are hyperventilating).

Elevated temperature, noted by touch or measured, should alert the rehabilitation manager or EMS personnel to the possibility of heat-related illness. However, given the problem of measuring devices underestimating core body temperature, it is essential that a measured temperature in the normal range not be used to exclude the possibility of heat related problems.

Heart rate (pulse). Heart rate (pulse) is another critical measure used to assess health status. Normal resting heart rates range from 60 to 100 beats per minute. Under stress and exertion, the pulse rate can, and should, increase, frequently above 100 beats per minute. The level of increase depends on the amount of stress and the individual's physical conditioning. As members report to rehabilitation after expending a significant amount of energy in stressful conditions, a pulse rate that is up to 70 percent of maximum heart rate [(220 minus age) × (0.7)] is frequently encountered. After resting in rehabilitation, the member's heart rate should return to near normal resting rates. The trainee who has not achieved a heart rate of less than 100 beats per minute by the end of 20 minutes should not be released from rehabilitation, but should be further monitored, and if warranted, sent for further medical evaluation. Part of additional monitoring should include orthostatic pulse and blood pressure.

Respiratory rate. Respiratory rate is a vital indicator used to assess health status and stress, as well as a possible indicator of exposure to other hazards. Normal respiratory rate is 12 to 20 breaths per minute. By the end of the rehabilitation period, the trainee should have a respiratory rate within these parameters.

Blood pressure. Blood pressure is a critical indicator used to assess health status and stress. Blood pressures should increase as the level of physical exertion/stress increases. Blood pressures that are too low, too high, or fail to return to normal levels while in rehabilitation can indicate a medical problem. For example, individuals can become hypotensive as they decompensate in their reaction to stress (e.g., heat stroke). Upon recovery during the rehabilitation, a member's blood pressure should return to, or even be slightly lower than, their baseline. A member whose blood pressure is greater

TT-CT3 FLUID REPLACEMENT

Work/Rest Times and Fluid Replacement Guide

Heat Category	WBGT Index (°F)	Easy Work: Walking on hard surface, 2.5 mph, <30 lb. load; weapon maintenance, marksmanship training.		Moderate Work: Patrolling, walking in sand, 2.5 mph, no load; calisthenics.		Hard Work: Walking in sand, 2.5 mph, with load; field assaults.	
		Work/Rest (minutes)	*Fluid Intake (quarts/hour)*	*Work/Rest (minutes)*	*Fluid Intake (quarts/hour)*	*Work/Rest (minutes)*	*Fluid Intake (quarts/hour)*
1	78° - 81.9°	NL	½	NL	¾	40/20 (70)*	¾ (1)*
2 (GREEN)	82° - 84.9°	NL	½	50/10 (150)*	¾ (1)*	30/30 (65)*	1 (1¼)*
3 (YELLOW)	85° - 87.9°	NL	¾	40/20 (100)*	¾ (1)*	30/30 (55)*	1 (1¼)*
4 (RED)	88° - 89.9°	NL	¾	30/30 (80)*	¾ (1¼)*	20/40 (50)*	1 (1¼)*
5 (BLACK)	> 90°	50/10 (180)*	1	20/40 (70)*	1 (1¼)*	10/50 (45)*	1 (1½)*

NL = No limit to work time per hour.

*Use the amounts in parentheses for continuous work when rest breaks are not possible. Leaders should ensure several hours of rest and rehydration time after continuous work.

This guidance will sustain performance and hydration for at least 4 hours of work in the specified heat category. Fluid needs can vary based on individual differences (± ¼ qt/hr) and exposure to full sun or full shade (± ¼ qt/hr).

Rest means minimal physical activity (sitting or standing) in the shade if possible.

Body Armor - Add 5°F to WBGT index in humid climates.

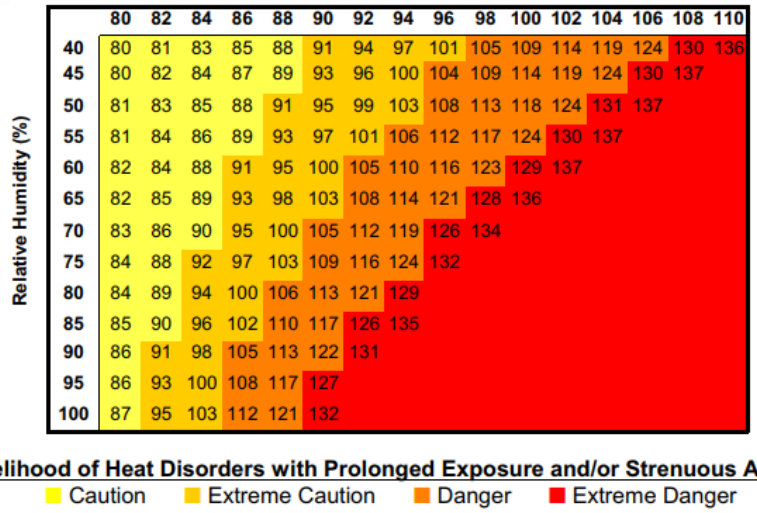
NBC (MOPP 4) - Add 10°F (Easy Work) or 20°F (Moderate or Hard Work) to WBGT Index.

CAUTION: Hourly fluid intake should not exceed 1½ qts. Daily fluid intake should not exceed 12 qts.

USAPHC

TT-CT4 HEAT INDEX GUIDE

National Weather Service Heat Index Chart



Likelihood of Heat Disorders with Prolonged Exposure and/or Strenuous Activity

Caution Extreme Caution Danger Extreme Danger

In order to determine the heat index using the chart above, you need to know the air temperature and the relative humidity. For example, if the air temperature is 100°F and the relative humidity is 55%, the heat index will be 124°F. When the relative humidity is low, the apparent temperature can actually be lower than the air temperature. For example, if the air temperature is 100°F and the relative humidity is 15%, the heat index is 96°F.

It surprises many people to learn that the heat index values in the chart above are for shady locations. If you are exposed to direct sunlight, the heat index value can be increased by up to 15°F. As shown in the table below, heat indices meeting or exceeding 103°F can lead to dangerous heat disorders with prolonged exposure and/or physical activity in the heat.

Classification	Heat Index	Effect on the body
Caution	80°F - 90°F	Fatigue possible with prolonged exposure and/or physical activity
Extreme Caution	90°F - 103°F	Heat stroke, heat cramps, or heat exhaustion possible with prolonged exposure and/or physical activity
Danger	103°F - 124°F	Heat cramps or heat exhaustion likely, and heat stroke possible with prolonged exposure and/or physical activity
Extreme Danger	125°F or higher	Heat stroke highly likely