DEPARTMENT OF THE ARMY
UNITED STATES CADET COMMAND AND FORT KNOX
204 1ST CAVALRY REGIMENT ROAD
FORT KNOX, KY 40121

ATCC-ST 26 June 2026

MEMORANDUM FOR SEE DISTRIBUTION

SUBJECT: Cadet Summer Training (CST) Policy Memorandum 8 - Guidelines for Prevention, Evaluation and Treatment of Casualties with Potential Heat Illnesses

1. REFERENCES.

a. American College of Sports Medicine (ACSM). 2023. American College of Sports Medicine Expert Consensus Statement on Exertional Heat Illness. Indianapolis, IN.

b. Consortium for Health and Military Performance (CHAMP). 2024. CHAMP Heat Illness Prevention and Treatment Guidelines. Bethesda, MD: Uniformed Services University of the Health Sciences (USU).

c. Department of the Army. 2022. Technical Bulletin Medical 507 (TB MED 507), Heat Stress Control and Heat Casualty Management. Washington, DC. Dated 12 April 2022.

d. Society of Critical Care Medicine (SCCM). 2025. Society of Critical Care Medicine Guidelines for Treatment of Heat Stroke. Mount Prospect, IL.

e. U.S. Army Medical Command (MEDCOM). 2011. MEDCOM Memorandum, Subject: Heat Illness Prevention Program 2011. San Antonio, TX. Dated 15 April 2011.

f. U.S. Army Training and Doctrine Command (TRADOC). 2023. TRADOC Regulation 350-29, Prevention of Heat and Cold Casualties. Fort Eustis, VA. Dated 15 June 2023.

g. U.S. Army Training and Doctrine Command (TRADOC). 2019. TRADOC Heat Illness Prevention Program. Fort Eustis, VA.

2. PURPOSE. To establish policies and procedures for prevention, initial evaluation, rapid cooling, evacuation, reporting, and return-to-duty management of cadets, cadre, and support personnel with suspected exertional heat illness (EHI) within the Ft. Knox CST Area of Responsibility (AOR).

3. APPLICABILITY. These guidelines apply to all CST cadre, Combat Lifesavers, first responders, Army 68W Combat Medics, and healthcare team members in the Fort Knox CST AOR. They are intended to align CST execution with current TRADOC and TB MED 507 guidance, as well as the 2024 CHAMP/WHEC Clinical Practice Guideline, while preserving local command and medical authority.

4. BACKGROUND.

a. Fort Knox weather during CST can be extremely hot and humid. Average daily high temperatures during the summer months range from the mid to upper 80s, and it is common to experience multiple consecutive days reaching the low to mid 90s, and occasionally the low 100s. Along with hot temperatures, humidity levels often reach 100% early in the training day. These high temperatures, combined with elevated humidity, significantly increase the risk of an EHI for cadets, cadre, and support staff.

b. Cadre and staff play a key role in heat injury prevention during CST. Active leadership supervision and the implementation of key mitigation strategies have proven highly successful in reducing the incidence of EHIs.

5. Prevention.

a. Acclimatization, risk assessment, proper nutrition, hygiene, appropriate hydration, and leader supervision are key to preventing EHI. Acclimatization commonly requires 1–2 weeks; cadets arriving from cooler or less humid climates must be monitored as higher-risk individuals during the early training period. Proper diet ensures adequate energy stores and electrolyte intake prior to exertional activities. While adequate hydration supports thermoregulation, hydration alone does not prevent EHIs. At CST, leaders can influence acclimatization and directly supervise nutrition, hydration, work/rest cycles, shade, access to cooling, and the early reporting of symptoms. Cadets should consume full meals at the dining facility and a full Meal, Ready-to-Eat (MRE) in the field when possible. If time is limited, cadets should prioritize the main course and salt-containing food items rather than ancillary snacks alone. Allowing cadets to graze on MREs throughout the day may assist in maintaining energy and electrolyte levels. Leaders must enforce work/rest cycles and fluid-replacement guidance (see Enclosure 1, Work/Rest Cycles).

b. The most critical factor in heat-related illnesses is the rate of metabolic heat production relative to the body's ability to dissipate (e.g., offload) heat. When heat load exceeds heat loss, the risk of an EHI increases. High humidity, even at lower temperatures, severely limits the body’s ability to dissipate heat. NOTE: When the ambient (current) temperature is within five degrees of the dew point, the risk of developing an EHI is at its highest. In this temperature range, sweat cannot evaporate, which rapidly increases the body's core temperature and depletes energy stores. Leaders must evaluate the wet-bulb globe temperature (WBGT) at the training site, recent temperature trends, training intensity, load, uniform/equipment configuration, access to water and nutrition, acclimatization status, and individual risk factors when completing the daily Deliberate Risk Assessment Worksheet (DRAW) (see Enclosure 2, DRAW Example).

c. Any individual may develop an EHI without adequate preventive measures. Higher-risk individuals include those who are not acclimatized, poorly conditioned, overweight, sleep-deprived, recently ill, or dehydrated. Additionally, individuals who are highly motivated to continue despite symptoms, take medications that impair thermoregulation, drink excessive caffeine (e.g., > 200 mg/day, [8 oz of coffee contains ~80 mg]), use performance-enhancing dietary supplements, or have a history of prior heat illness or relevant medical conditions are at elevated risk. This risk is cumulative across consecutive, strenuous training days in hot or humid climates.

d. Heat Dumping. Heat dumping is a highly effective tool in preventing and initially treating EHIs, and consists of both passive and active cooling measures. It is achieved by taking proactive steps to increase the transfer of metabolic heat from the body to the environment. While physical exertion raises core body temperature and a healthy individual's body will eventually adapt naturally, this physiological process takes time. Heat dumping decreases the time required to return the core body temperature to a normal range.

(1) Preventative Active Heat Dumping. The Arm Immersion Cooling System (AICS)—which utilizes hand and forearm immersion into a cold-water trough—is the premier preventative active heat-dumping method available during CST. For maximum effectiveness, personnel must utilize the AICS immediately before and after all high-exertion training events. Because water temperature dictates cooling efficiency, individuals must remain in the immersion trough longer if the water temperature rises (see Enclosures 3 and 4, AICS Protocol and Instructions).

(2) Passive Heat Dumping. Passive heat-dumping methods include removing outer constrictive clothing layers, seeking shade, and resting in an air-conditioned vehicle or facility. While the Polar Skin Comprehensive Cooling System (PSCCS) and other forms of ice sheets are active cooling treatment forms, the primary safety goal is to initiate passive heat-dumping methods before ice sheets become medically necessary, thereby avoiding the risk of rapid overcooling or hypothermia. Passive heat-dumping methods must always be implemented prior to, or in conjunction with, initiating active emergency cooling with ice sheets.

e. DripDrop is an oral rehydration solution (ORS) that can be utilized before, during, or after known exertional events when electrolyte replacement is indicated. It assists in supporting hydration and electrolyte levels but must not be used as a substitute for work/rest cycles, shade, cooling, nutrition, medical evaluation, or evacuation. DripDrop may be distributed prior to road marches or to personnel with suspected dehydration.

f. HOIST is a commercial-grade electrolyte mix that may also be utilized before, during, or after known exertional events. HOIST will be distributed to regiments during standard Class I supply cycles.

g. Proper hygiene plays a critical, yet often understated, role in heat illness prevention. Regular showers, clean clothing, and proper field hygiene help prevent miliaria—commonly known as 'heat rash' or 'prickly heat'—which is the obstruction of sweat ducts that results in an impaired thermoregulatory response. Soiled uniforms retain more body heat and are significantly less breathable than clean uniforms. Regular bathing and laundry exchange are necessary to mitigate these operational risks

h. There is no evidence that overhydration protects against EHIs. In fact, overhydration presents severe physiological dangers, as it can cause profound electrolyte disturbances such as hyponatremia ('low sodium levels'), which can be mistaken for heat illness and fatally worsened by further fluid consumption. While overhydration and EHIs present overlapping symptoms, core body temperature remains the key differentiator. Any individual with a suspected heat illness who exhibits altered mental status, collapse, seizure-like activity, or repetitive vomiting must immediately undergo a rectal core temperature assessment by trained medical personnel, if available, while cooling measures are concurrently implemented.

6. EVALUATION.

a. Any individual who collapses, “falls out”, or becomes incapacitated during or shortly after physical exertion, in the absence of known trauma or musculoskeletal injury, must be evaluated using a standardized approach. Initial actions are to assess responsiveness, airway, breathing, circulation, pulse, mental status, and the exertional or environmental context; remove the casualty from the activity to a shaded or cooled area, if feasible; remove constricting clothing to expose the skin while maintaining personal dignity; and initiate passive cooling measures if an EHI is suspected. Upon identifying a suspected heat injury, non-medical personnel should immediately transition the casualty to shade or a cooled area, initiate passive cooling measures, and notify the 68W Combat Medic to obtain a rectal core temperature. See Enclosures 4-6 for Non-Medical Cadre, Combat Medic 68W, and Provider Suspected Heat Illness assessment and treatment algorithms.

b. Individuals who collapse during an exertional event must be rapidly assessed for airway or cardiac compromise. Once stabilized, their condition must be differentiated among the following exertional injuries (detailed medical definitions are located in Paragraph 12 of this policy):

(1) Exercise-Associated Muscle Cramps (EAMC)

(2) Exercise-Associated Collapse (EAC)

(3) Exertional Heat Exhaustion (EHE)

(4) Exertional Heat Injury (HI)

(5) Exertional Heat Stroke (EHS)

(6) Exercise-Associated Hyponatremia (EAH)

(7) Exertional Rhabdomyolysis (ER)

(8) Exercise-Induced Hypoglycemia (EIH)

(9) Exertional Collapse Associated with Sickle Cell Trait (ECAST)

c. Individuals presenting with altered mental status (such as confusion, disorientation, combativeness, poor balance, short-term memory loss, or the inability to follow commands), a witnessed loss of consciousness, seizure-like activity, an inability to tolerate oral fluids, or repetitive vomiting constitute potential medical emergencies. Because rapid identification and treatment are lifesaving—particularly for EHIs—trained medical personnel must perform an immediate rectal core temperature assessment.

d. It is critical to distinguish between exercise-associated hyponatremia (EAH) and exertional heat stroke (EHS). Although these conditions exhibit similar clinical presentations, their underlying pathologies and treatments differ significantly. A key factor in differentiating EAH from EHS is core body temperature; therefore, trained medical personnel must assess the core temperature of any casualty exhibiting confusion or altered mental status. A rectal

temperature assessment is the only validated, field-expedient method for measuring core body temperature. While every effort must be made to obtain a rectal temperature prior to initiating active cooling with ice sheets, cooling efforts must never be delayed due to an inability to obtain a core temperature reading in a timely manner (e.g., within 5 minutes).

e. If a heat illness is suspected, the following questions should be used to assess mental status changes:

(1) What is your name?

(2) What month is it? What year is it?

(3) Where are you?

(4) What were you doing before you became ill?

7. TREATMENT. Treatment and Evacuation. The following guidelines outline the evaluation, treatment, and medical evacuation procedures for CST cadets or cadre members suspected of having a heat-related illness (see Enclosures 5 through 7 for heat illness evaluation and treatment algorithms).

a. Early symptoms of dehydration include an inability to keep pace with training, fatigue, nausea, headache, and dry mouth. Leaders, 68W Combat Medics, and Combat Lifesavers (CLS) must maintain heightened situational awareness, as these early symptoms can quickly progress to a severe heat illness. Personnel must not delay appropriate treatment. Individuals exhibiting these symptoms must immediately drink water and be moved to shade. Decisive action, once symptoms are identified, is critical to preventing the onset of a heat injury.

b. Implementation of Passive Cooling Measures. Upon identifying a potential EHI casualty, all personnel will immediately implement passive cooling measures, to include relocating the casualty to a shaded or cooled area and removing constricting military gear and clothing. If the casualty is conscious and able, oral hydration should be encouraged pending the arrival of medical personnel. If the casualty's condition continues to deteriorate and medical personnel do not arrive within five minutes of identification, non-medical personnel will immediately initiate rapid active cooling measures utilizing ice sheets.

c. Implementation of Rapid Active Cooling Measures. The primary treatment priority for suspected exertional heat stroke is rapid, whole-body cooling, with the goal of reducing the rectal core temperature to 102.0°F–102.5°F (39.0°C–39.2°C) within 30 minutes of identification. Cold-water immersion (CWI) using ice baths is the standard clinical best practice. The Polar Life Pod® is the local portable immersion capability and must be deployed immediately when indicated and resources are available. Applying ice sheets combined with ice packs and active fanning is an acceptable initial or backup cooling method when CWI is not immediately available, or while immersion resources are being prepared. Do not administer antipyretics for exertional heat injuries. Cooled intravenous (IV) fluids may be administered by trained medical professionals only as an adjunct when clinically appropriate, and their preparation must not delay or replace active external cooling measures. Furthermore, extreme caution must be exercised if there is concern for hyponatremia, as infusing hypotonic or isotonic fluids may exacerbate the illness and significantly increase casualty morbidity and mortality.

d. Immediate Response Prior to Arrival of Medical Personnel (Buddy Aid). When no medical personnel are present at the point of injury (POI), bystanders must immediately initiate heat casualty treatment. Do not delay intervention while awaiting medical assets or Emergency Medical Services (EMS).

(1) Step 1. Immediately move the casualty out of direct sunlight to the nearest shade or cool environment, provided other traumatic injuries do not prevent safe movement.

(2) Step 2. Remove outer layers of clothing to expose as much skin as possible to maximize evaporative cooling. Do **not** remove undergarments. For female casualties, do not remove the t-shirt or brassiere unless absolutely necessary to perform lifesaving medical procedures.

(3) Step 3. Immediately notify on-site medical personnel in the training area and activate EMS:

(a) Cantonment Area: Call 911.

(b) Outside Cantonment: Contact Range Control.

(4) Step 4. If medical personnel are delayed beyond **5 minutes**—especially if the casualty is unconscious or displays an altered mental status (confusion, combativeness, lethargy)—immediately begin aggressive cooling. Utilize the Polar Skin Comprehensive Cooling System (PSCCS) (ice sheets) or the Polar Life Pod® (full-body ice water immersion), if available. Never pause or delay cooling measures while waiting for medical transit.

(5) Step 5. Upon arrival of medically trained personnel, immediately brief them on the casualty's timeline, symptoms, and cooling treatments applied. Hand over responsibility for further assessment, care, and evacuation.

e. When trained medical personnel are present at the scene of the illness, the senior medical provider on-site—in the following order of precedence: physician, physician assistant, nurse practitioner, registered nurse, licensed practical nurse (LPN), 68W Combat Medic, or Combat Lifesaver—will maintain operational control of casualty treatment and evacuation. This authority remains in effect until the provider is properly relieved, or the casualty is officially transferred to an evacuation asset or a higher level of care.

f. Medical personnel will immediately assess the casualty’s airway, breathing, and mental status, and attempt to obtain a rectal core temperature. If the core temperature exceeds 102.5°F, medical personnel will implement active cooling measures (e.g., ice sheets or Polar Life Pod®). Active cooling measures must not be delayed if the medical provider is unable to obtain a rectal core temperature reading within 5 minutes. Active cooling measures must begin immediately using the most effective method available and will continue without interruption until the core temperature reaches 102.0°F–102.5°F (39.0°C–39.2°C), the casualty is transferred to a higher echelon of medical care, or a credentialed medical provider directs otherwise. If ice sheets are utilized, they must be replaced when warm (at least every 3 minutes); do not leave warmed sheets on the casualty, as they will trap body heat and inhibit the cooling process. The Polar Life Pod® (an ice-water, full-body immersion system) must be deployed immediately upon the arrival of the required resources (i.e., 60 gallons of iced water). Active cooling measures

must continue during evacuation preparations and must not be stopped solely to transport the casualty, unless required for airway management, safety, transition to a more effective cooling modality, or once the target temperature is achieved (e.g., 102.0°F–102.5°F).

g. Prior to implementing active cooling measures (e.g., ice sheets or the Polar Life Pod®), personnel must remove the casualty from direct sunlight, if feasible, unless a complicating injury prevents immediate movement. The casualty's military gear and constrictive outer clothing must be removed to expose the skin while maintaining personal dignity (do not remove underwear, and ensure t-shirts and undergarments remain in place).

h. All casualties treated with ice sheets or the Polar Life Pod® must be evacuated to the Role 1 at Logistic Support Area (LSA) Densberger or the Role 1 at LSA Baker, depending on the training area, unless a trained medical professional recommends immediate transport via EMS to an off-site medical facility for a higher level of care (e.g., due to concerns for cardiopulmonary arrest or seizure-like activity). If transfer to an off-site medical facility is indicated, EMS must be activated by calling 911 within the cantonment area, or Range Control within the training areas.

i. The use of ice sheets or the Polar Life Pod® on a casualty must be documented on a DD Form 1380 (TCCC Card) or SF 600, and promptly submitted to the Task Force Medical (TF MED) Chief Medical Officer (CMO) or designated TF MED point of contact (POC).

8. PROPER USE OF POLAR SKIN COMPREHENSIVE COOLING SYSTEM (PSCCS) AND POLAR LIFE PODS. These pieces of equipment are critical components in the treatment of moderate-to-severe heat-related illnesses during CST (see Enclosures 8 and 9 for details regarding the contents, application, and proper use of the PSCCS, Polar Life Pod®, and DataTherm II temperature monitor).

a. The PSCCS must be carried by all 68W Combat Medics assigned to respective regiments and committee training sites, or where the on-site medical authority deems necessary.

b. Polar Life Pods® must be maintained at the LSA Densberger’s Role 1, as well as with 68W Combat Medics during critical training events (e.g., the 12-mile road march), or at any other site where the on-site medical authority deems necessary. Ice sheets and/or Polar Life Pods® must be used any time a casualty exhibits a rectal core temperature above 102.5°F with a change in mental status. Mental status changes include persistent confusion, an inability to properly follow commands, or a loss of consciousness. If a change in mental status is noted, immediately contact the on-site 68W Combat Medic or medical provider. If possible within 5 minutes, trained medical personnel should obtain a rectal core temperature prior to initiating active cooling measures such as ice sheets or the Polar Life Pod®.

9. EVACUATION OF HEAT CASUALTIES. When suspected moderate to severe heat illness requires evacuation to higher level of care, the following applies.

a. Fort Knox Cantonment Area Training Site.

(1) Role 1 Medical Company transport required: High Mobility Multipurpose Wheeled Vehicle (HMMWV) Ambulance.

(2) Offsite Medical Facility transport required: Activate EMS via 911.

b. Outside Fort Knox Cantonment Area.

(1) Role 1 or Role 2 Medical Company transport required: HMMWV Ambulance.

(2) Offsite Medical Facility transport required: Activate EMS via Range Control.

c. Evacuation Authority and Decision Matrix. The on-site chain of command is authorized to upgrade a 68W Combat Medic's evacuation determination (e.g., from routine to immediate) but is strictly prohibited from downgrading it. **If the on-site 68W Combat Medic determines that evacuation is necessary, the evacuation must be executed.** However, the chain of command retains the authority to upgrade the destination to the Role 2 Nelson Troop Medical Clinic (NTMC) or an off-site medical facility. Evacuation destinations must be executed based on the casualty's response to cooling measures:

(1) Responds appropriately to cooling measures. Evacuate to NTMC for evaluation prior to a Return to Duty (RTD) determination.

(2) Does NOT respond to cooling measures. DO NOT evacuate to NTMC. Immediately activate EMS (via 911 or Range Control) for direct transport to an off-site civilian medical facility.

d. All field evacuations require immediate situational reporting to the CST Tactical Operations Center (TOC). When submitting this report, personnel must only report objective, observed symptoms. Do not report a diagnosis of heat illness, or suspected heat illness, until the CMO has made a formal medical diagnosis. Reports must focus solely on the casualty's current symptoms (e.g., change in mental status, confusion, nausea, vomiting, or headache).

10. LIMITATIONS AND DISPOSITION. The goal is to facilitate a safe Return to Duty (RTD) as rapidly as possible, while minimizing the potential for any adverse outcomes or recurrent EHIs. To assist in timely disposition, credentialed providers must risk-stratify Cadets and Soldiers into minimal-, low-, and moderate-to-high-risk EHI categories based on specific clinical criteria and variables. The RTD approach must be executed based on these clinical risk categories (see Enclosure 10 for the RTD algorithmic protocol).

11. HEAT ILLNESS REPORTING. If a reportable heat illness occurs (e.g., heat stroke or heat exhaustion), the CMO must coordinate with TF MED preventive medicine personnel, the United States Army Cadet Command (USACC) safety POC, and the USACC Deputy Command Nurse to ensure all applicable reporting is completed.

a. Serious Incident Report (SIR). An SIR must be completed for all suspected and confirmed heat illnesses.

b. Disease Reporting System Internet (DRSi). The TF MED Public Health Nurse (PHN) or designated representative must enter all reportable heat illnesses into DRSi during the week of their occurrence to ensure the timely tracking of Reportable Medical Events (RMEs).

c. Disease and Non-Battle Injury (DNBI). The USACC Deputy Command Nurse must track all reportable heat illnesses on the weekly DNBI report and coordinate directly with the CMO to confirm all suspected heat diagnoses.

d. International Classification of Diseases (ICD-10) Coding. The treating provider must ensure the casualty is properly diagnosed and that the appropriate ICD-10 code is applied to the medical record (see Enclosure 11 for approved ICD codes).

12. SAFETY INSPECTIONS. Safety inspections must verify that the following items are on hand, serviceable, and utilized during training events: manual and/or digital WBGTs, Arm Immersion Cooling System (AICS), ice sheets and designated coolers, Polar Life Pods®, hydration status markers, leader cards, and current risk assessments for training. See CST EXECUTION (HEAT INJURY MITIGATION) and associated annexes for Safety's guidance on heat mitigation as it pertains to DRAWs, the Cold-Heat Injury Prevention Leader Card, sequencing of training events, and heat dumping in hot climates.

13. EXERTIONAL AND HEAT ILLNESS DEFINITIONS.

a. The term exertional heat illness (EHI) is an umbrella term that encompasses a spectrum of conditions from exertional heat exhaustion (EHE) to exertional heat stroke (EHS) associated with illness/injury sustained during physical work in the heat and in humid environments. The World Health Organization (WHO) classifies four primary categories of common exertional heat illnesses: heat cramps, heat syncope (exercise-associated collapse), heat exhaustion, and heat stroke. The WHO does not recognize "heat injury"—a distinct clinical condition defined by the US military to describe an illness that is more severe than heat exhaustion but does not meet the central nervous system (CNS) criteria required for a diagnosis of heat stroke.

b. Mild Exertional Heat Illnesses. Mild heat illnesses include exercise-associated muscle cramps (EAMC) and exercise-associated collapse (EAC).

(1) Exercise-Associated Muscle Cramps (EAMC). Previously termed "heat cramps," this condition typically presents as acute muscle spasms, stiffness, and localized cramping. EAMC can be experienced during or after physical exercise and may occur with or without core temperature elevation. This condition can mimic ER and ECAST. Of clinical note, whole-body muscle cramps may indicate underlying EAH, which requires further medical evaluation.

(2) Exercise-Associated Collapse (EAC). Also known as Exercise-Associated Postural Hypotension (EAPH) and previously termed "heat syncope," this condition typically presents as a sudden loss of consciousness immediately after the cessation of exercise. It is often preceded by dizziness, lightheadedness, or tunnel vision. EAC is caused by orthostatic hypotension resulting from venous pooling in the lower extremities within the setting of the cessation of muscle contraction. This is primarily observed in unconditioned individuals following bouts of unaccustomed exercise in hot climates. EAC can mimic cardiogenic syncope, which requires further medical evaluation. Symptoms typically resolve quickly with cooling, rest, appropriate oral rehydration, and by elevating the casualty's feet 12 to 24 inches above the heart while lying supine.

c. Exertional Heat Exhaustion (EHE). Heat exhaustion is a mild-to-moderate form of heat illness. This condition represents a normal physiological response and serves as the body's protective mechanism to shut down physical exertion, thereby allowing cooling to occur. Individuals presenting with heat exhaustion generally exhibit an elevated rectal core temperature between 101.0°F (38.3°C) and 104.0°F (40.0°C) at the time of, or shortly after, the event. Heat exhaustion does not result in organ injury. Symptoms may include a mild headache, dizziness, mild confusion, nausea, abdominal cramps, profuse sweating, weakness, muscle

cramps, or extreme fatigue. With early recognition, individuals generally recover with rest, appropriate oral rehydration, and passive cooling measures; however, if physical exertion is not immediately terminated, the condition can rapidly progress to heat injury or heat stroke.

d. Exertional Heat Injury (HI). Heat injury presents as a more severe form of heat exhaustion, often accompanied by an elevated rectal core temperature greater than 104.0°F (40.0°C). Heat injury is clinically defined by objective (e.g., laboratory) evidence of organ damage (such as to the kidneys, liver, or skeletal muscle [rhabdomyolysis]). Clinical symptoms are comparable to those observed in EHE. Rapid recognition and immediate cooling interventions remain critical to halting progression to EHS.

e. Exertional Heat Stroke (EHS). Heat stroke is a life-threatening medical emergency and constitutes the most severe form of heat illness. Affected individuals typically present with an elevated core temperature above 104.0°F (40.0°C) measured immediately following collapse during strenuous activity; however, some individuals diagnosed with heat stroke may present with lower recorded temperatures. These individuals will also exhibit clear evidence of central nervous system (CNS) dysfunction, such as disorientation, irrational behavior, confusion, emotional instability, combativeness, an altered mental state, coma, or seizures. Heat stroke typically causes acute injury to other organs, including the kidneys, liver, and skeletal muscle (rhabdomyolysis). Rapid recognition and immediate cooling interventions remain critical to halting further progression of organ injury and possible death.

f. Exercise-Associated Hyponatremia (EAH). Exercise-associated hyponatremia (water intoxication) can mimic heat-related illnesses. Hyponatremia is caused by progressive loss of sodium due to sweating, accompanied by excessive fluid intake (i.e., drinking more than 12 quarts of fluid per day), and insufficient electrolyte replacement via food and beverage. This condition can be fatal; therefore, individuals must closely regulate their fluid and dietary intake. Altered mental status, repeated vomiting, and seizure-like activity are primary clinical signs of overhydration in the presence of heat illness. Any individual exhibiting these clinical signs, or who is suspected of having a heat-related illness, must be evacuated immediately to emergency medical care. If hyponatremia is suspected in conjunction with a heat illness, personnel must initiate or continue active external cooling measures; however, oral rehydration and intravenous (IV) fluid administration must be strictly restricted until a comprehensive clinical assessment is performed. While IV access may be established, IV fluid infusion must be withheld until hyponatremia is officially ruled out by a credentialed medical provider (i.e., physician, physician assistant, or nurse practitioner).

g. Sudden Cardiac Arrest (SCA). Sudden cardiac arrest resulting from cardiovascular collapse is generally abrupt, presenting with an immediate loss of consciousness and occasionally accompanied by brief, localized seizure-like movements. After confirming a lack of responsiveness and the absence of a pulse, personnel must immediately begin high-quality cardiopulmonary resuscitation (CPR), deploy an Automated External Defibrillator (AED), and activate Emergency Medical Services (EMS).

h. Exertional Collapse Associated with Sickle Cell Trait (ECAST). Also known as "conscious collapse" given the initial lack of mental status changes, an ECAST casualty may initially be a front-runner or off to a strong start, but will eventually be observed slowing down, falling behind, and struggling prior to collapse. As the condition develops, the casualty will begin to lose motor coordination, evolving into an awkward running posture and gait characterized by

stiff or wobbly legs. The casualty may complain of progressive weakness, pain, cramping, or shortness of breath. Distinct from standard exercise-associated muscle cramping, ECAST generally presents with no visible muscle twitching, and the muscles do not "lock up." While the pain of standard muscle cramping is typically excruciating, the predominant symptom of ECAST is profound weakness rather than pain. The ECAST casualty will initially remain mentally clear before the subsequent onset of confusion and loss of consciousness.

14. POLICY DEVIATIONS AND POINTS OF CONTACT. Any deviations from this policy must be approved by the CST CMO. Questions relating to this policy may be directed to the USACC Deputy Surgeon, LTC Andrew R. Kennedy, at (502) 626-1441, or the CST Medical Planners: MAJ Patrick E. Hensel at (210) 823-6799 and Mr. James (Tom) Campbell at (502) 624-5957.

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SHERMAN C. WATSON
COL, FA
CST Commandant

11 Encl
1. Work/Rest Cycles
2. DRAW Example
3. AICS Protocol
4. AICS Instructions
5. Cadre Suspected Heat Illness Algorithm
6. 68W Suspected Heat Illness Algorithm
7. Provider Suspected Heat Illness Algorithm
8. PSCCS Protocol
9. Polar Life Pod® Protocol
10. Heat Illness Disposition Algorithm
11. Exertional and Heat-Related ICD-10 Diagnostic Codes

ENCLOSURE 1. WORK/REST TIMES AND FLUID REPLACEMENT GUIDE

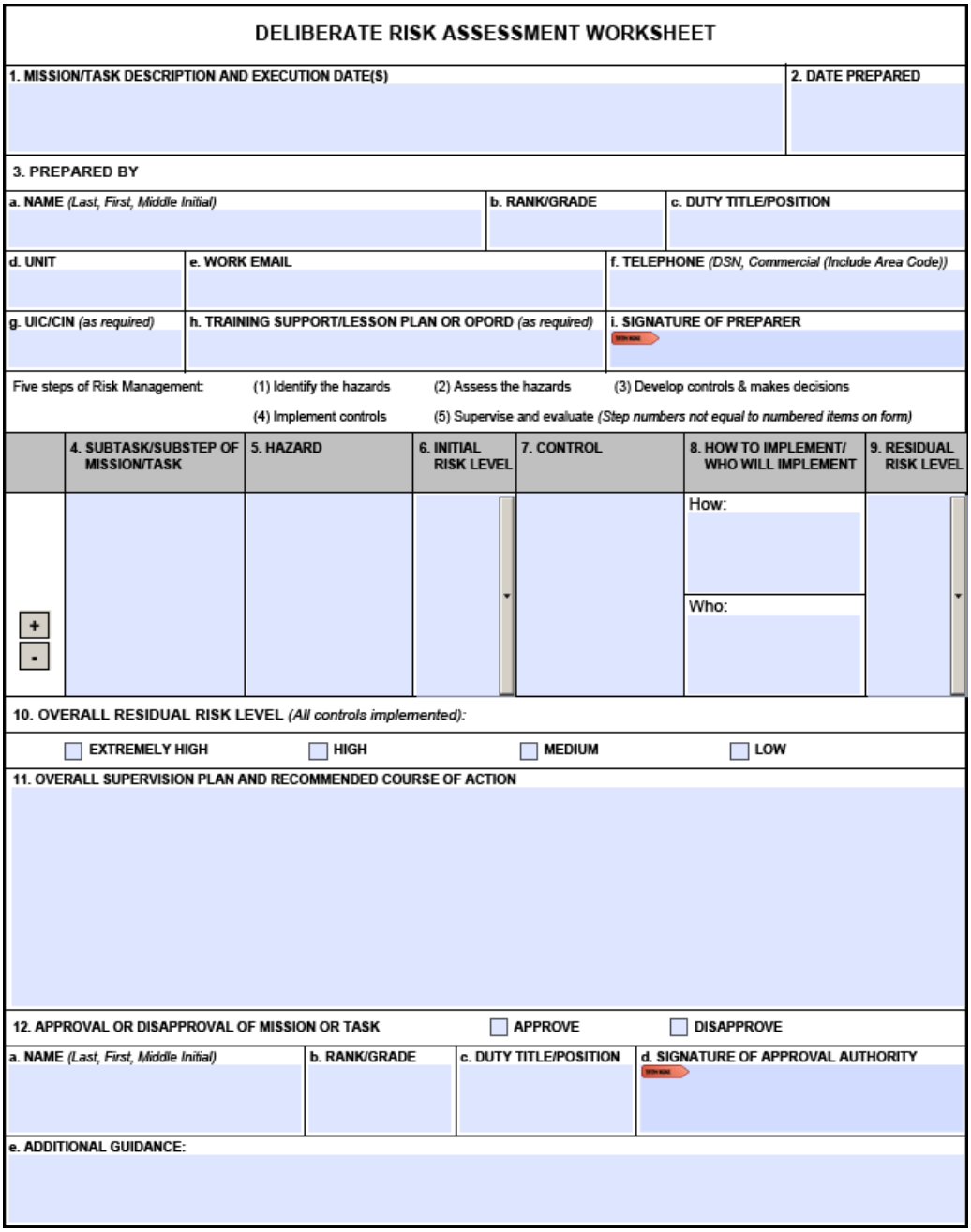
Work/Rest Times and Fluid Replacement Guide

		Easy Work Weapons maintenance, marksmanship training, drill & ceremony		**Moderate Work** Patrolling with 30 lb load, low & high crawl, dig defensive position		**Heavy Work** Patrolling with 45 lb load, hour person litter carry, run/jog 5 mph		**Very Heavy Work** Two person litter carry, move under direct fire, obstacle course	
Heat Category	WBGT Index (°F)	Work-Rest	Water Intake (qt/hr)	Work-Rest	Water Intake (qt/hr)	Work-Rest	Water Intake (qt/hr)	Work-Rest	Water Intake (qt/hr)
1	78-81.9	NL	½	NL	¾	40/20	¾	20/40	1
2 (green)	82-84.9	NL	½	NL	¾	30/30	1	15/45	1
3 (yellow)	85-87.9	NL	¾	NL	¾	30/30	1	10/50	1
4 (red)	88-89.9	NL	¾	50/10	¾	20/40	1	10/50	1
5 (black)	>90	NL	1	20/40	1	15/45	1	10/50	1

Notes:
1. The work-rest times and fluid replacement volumes 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).
2. NL equals no limit to work time per hour (up to 4 continuous hours).
3. Rest means minimal physical activity (sitting or standing), accomplished in shade if possible.
4. CAUTION: Hourly fluid intake should not exceed 1 ½ qt.
5. CAUTION: Daily fluid intake should not exceed 12 qt.
6. If wearing heavy protective clothing (CBRN, JSLIST), add 10ºF to WBGT index for easy work, and 20ºF to WBGT index for moderate and hard work.

*Applies for average sized, heat acclimatized Service Member wearing OCP uniform or service Uniform equivalent.

ENCLOSURE 2. DRAW EXAMPLE



DELIBERATE RISK ASSESSMENT WORKSHEET

1. MISSION/TASK DESCRIPTION AND EXECUTION DATE(S)		2. DATE PREPARED

3. PREPARED BY

a. NAME *(Last, First, Middle Initial)*	b. RANK/GRADE	c. DUTY TITLE/POSITION

d. UNIT	e. WORK EMAIL	f. TELEPHONE *(DSN, Commercial (Include Area Code))*

g. UIC/CIN *(as required)*	h. TRAINING SUPPORT/LESSON PLAN OR OPORD *(as required)*	i. SIGNATURE OF PREPARER

Five steps of Risk Management: (1) Identify the hazards (2) Assess the hazards (3) Develop controls & makes decisions (4) Implement controls (5) Supervise and evaluate *(Step numbers not equal to numbered items on form)*

	4. SUBTASK/SUBSTEP OF MISSION/TASK	5. HAZARD	6. INITIAL RISK LEVEL	7. CONTROL	8. HOW TO IMPLEMENT/ WHO WILL IMPLEMENT	9. RESIDUAL RISK LEVEL
+ -					How: / Who:	

10. OVERALL RESIDUAL RISK LEVEL *(All controls implemented)*:

☐ EXTREMELY HIGH ☐ HIGH ☐ MEDIUM ☐ LOW

11. OVERALL SUPERVISION PLAN AND RECOMMENDED COURSE OF ACTION

12. APPROVAL OR DISAPPROVAL OF MISSION OR TASK ☐ APPROVE ☐ DISAPPROVE

a. NAME *(Last, First, Middle Initial)*	b. RANK/GRADE	c. DUTY TITLE/POSITION	d. SIGNATURE OF APPROVAL AUTHORITY

e. ADDITIONAL GUIDANCE:

ENCLOSURE 3. ARM IMMERSION COOLING SYSTEMS (AICS) PROTOCOL

1. The use of the Arm Immersion Cooling System (AICS) as a preventative heat-dumping measure is directed during all training events, when feasible.

2. Ice Slurry Ratio. The standard configuration for an AICS is a cooler filled with a slurry of water and ice. The ratio of ice to water must never exceed one-quarter (1/4) ice to three-quarters (3/4) water. Cadre are responsible for ensuring that ice is actively present in the slurry at all times.

3. Cooler Specifications. The preferred cooler size is 52 quarts or larger. Coolers must be designated exclusively for AICS use and kept strictly separate from coolers designated for drinking water.

4. Sanitization & Maintenance. To minimize the risk of cross-contamination, personnel must add one (1) teaspoon of bleach (available at the CST warehouse) to each AICS cooler. Each AICS must be emptied, rinsed, and refilled every 24 hours.

5. Emergency Adaptations. If a pre-designated AICS is unavailable, any container—including a standard, round, 5-gallon cooler—may be utilized. However, it must not be reutilized for drinking water until it is emptied and fully sanitized.

6. Execution Procedure. When utilizing the AICS, the individual must fully expose their upper arms to the shoulders. The individual must simultaneously immerse their forearms (up to the elbows) in the AICS for 20 to 30 seconds at a time over a specified duration, depending on water temperature.

7. Physiological Effect. When executed properly, the AICS method of cooling can reduce an individual’s core temperature by approximately 1.5°F (0.8°C) (TRADOC Regulation 350-29).

8. Emergency Priority. If a severe EHS is suspected, personnel must immediately initiate aggressive emergency cooling using ice sheets or the Polar Life Pod®; emergency active cooling must never be delayed to perform preventative AICS.

ENCLOSURE 4. ARM IMMERSION COOLING SYSTEMS (AICS) INSTRUCTIONS

U.S. ARMY

ARM IMMERSION COOLING INSTRUCTIONS

1. Place Cooler approximately 30 inches above ground (on table per example IAW former TR 350-29). Due to sudden change of position which could lead to dizziness or passing out.

Figure E-2. Locally fabricated or improvised arm immersion cooling system

2. Add 1 CAP of Bleach to ice water each time the water is changed out. Water will be changed when visibly dirty or reaches 80° deg. As per former TR 350-29.

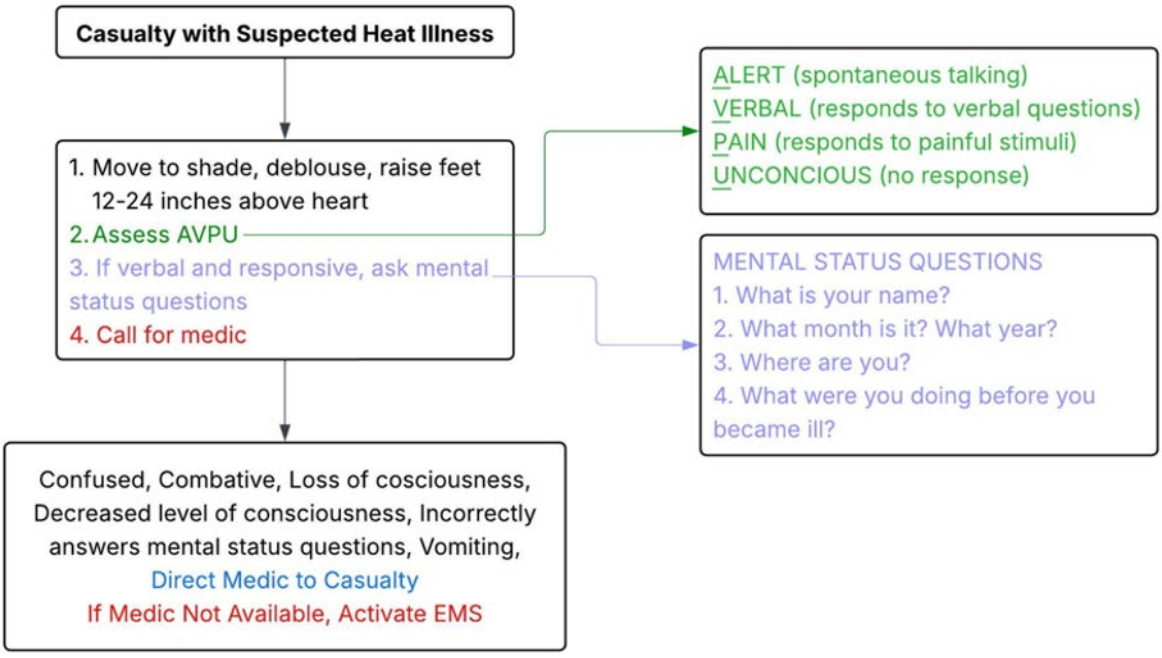
3. Immerse exposed forearms in water for 30 second Intervals with 30 second rest times (both arms raised above head) for the specified time to achieve approximately 1.5° F. temperature reduction.

*** Mandatory 3 Immersion dunks for each Cadet IAW USACC Command guidance.**

Water Temperature (Degrees Fahrenheit)	Immersion Time (30 Second Intervals)
>80°	Replace Water
71- 80°	12 to 15 Times
55- 70°	8to 12Times
45-54°	5to 8Times
35-44°	3to 5 Times

*Water temperature and cooling time must be followed to achieve optimal cooling

ENCLOSURE 5. CADRE SUSPECTED HEAT ILLNESS ALGORITHM



⚠ **Warning: Do not utilize alternate methods (e.g., oral, tympanic, temporal, or axillary) to obtain a core temperature. Personnel must never delay active cooling measures if unable to obtain a rectal core temperature in a timely manner (i.e., within 5 minutes of onset).** ⚠

:

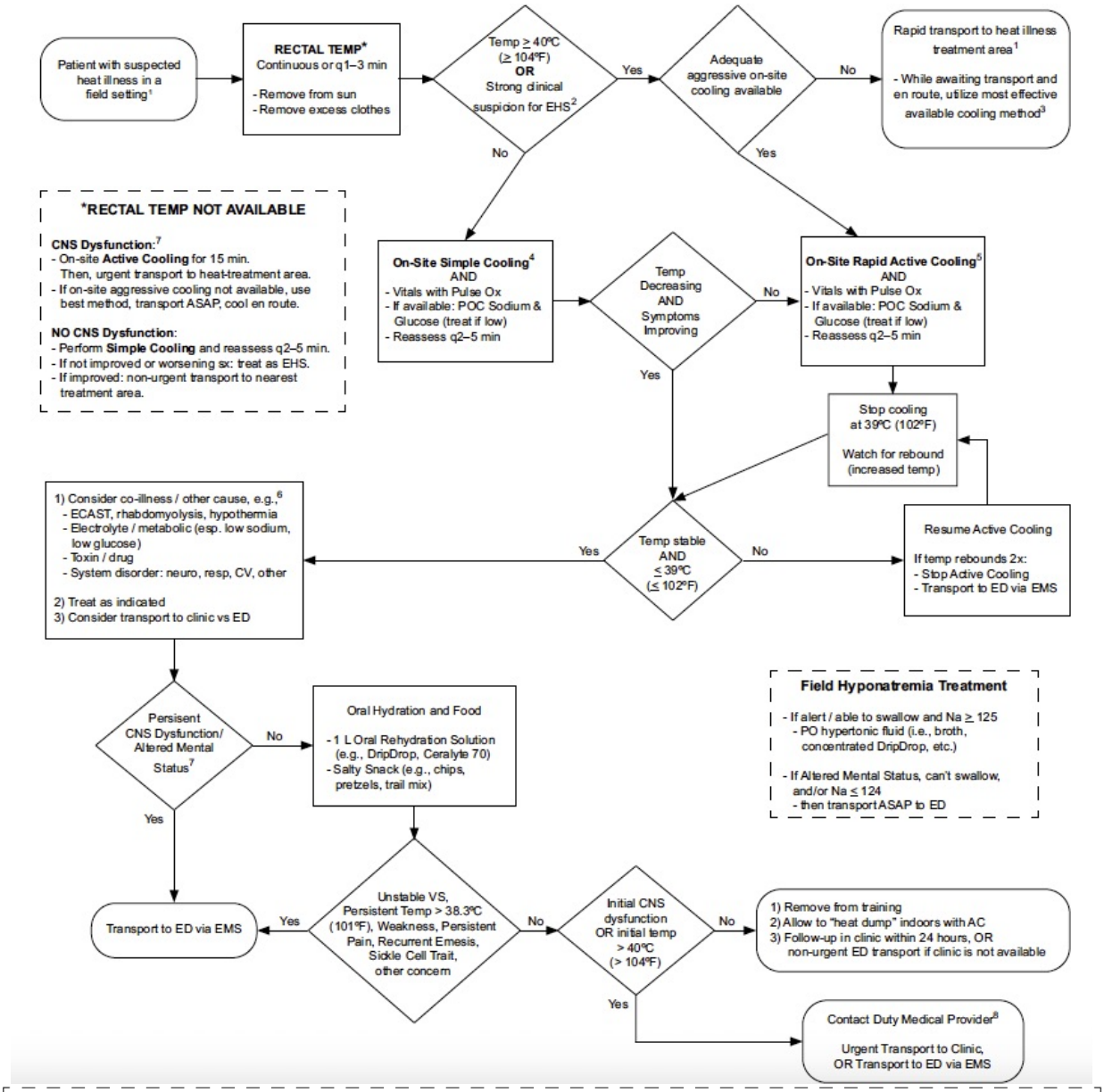
1. Authorized Personnel: Only trained medical personnel (68W Combat Medics, physicians, physician assistants, nurse practitioners, registered nurses, or licensed practical nurses) are authorized to perform a rectal core temperature assessment, which remains the only validated method for measuring core body temperature.

2. Intravenous (IV) Access Limits: 68W Combat Medics are authorized to establish a saline lock (Heplock) only. Medics must not initiate intravenous (IV) fluid infusion unless explicitly directed by a credentialed medical provider (i.e., physician, physician assistant, or nurse practitioner).

3. Documentation Mandate: All medical care administered must be documented on a DD Form 1380 (TCCC Card) or SF 600, and promptly submitted to the TF MED CMO, designated TF MED POC, or evacuating EMS personnel.

4. Evacuation Protocol: Personnel must activate EMS and evacuate any casualty who remains unconscious or exhibits persistent mental status changes, regardless of their recorded core temperature. Personnel are strictly prohibited from transporting a critical casualty to a civilian hospital in a non-tactical or personal vehicle.

ENCLOSURE 6. COMBAT MEDIC 68W SUSPECTED HEAT ILLNESS ALGORITHM



NOTES:

[1] If at all possible, **Cool first, transport second**. If feasible, a plan should be in place to cool heat injuries on site with cooling initiated within 10 minutes of injury.

[2] Reasons for active cooling at lower temp include: CNS dysfunction with ≥ 40ºC (≥ 104ºF) on an earlier temp, concern about accuracy of temperature, significant EHS symptoms.

[3] Any cooling is better than no cooling. Utilize best available cooling method while awaiting transport and en route to a treatment area with appropriate cooling methods. Examples include: dousing with water, dunking in a river or pond, spraying with a garden hose, applying portable ice packs, fans, sitting in an air-conditioned area.

[4] **Simple Cooling**: Ice packs to head / sides of neck / axilla / groin, ice towels to body, forearm immersion if available, fan if available. Stop simple cooling at 39ºC (102ºF).

[5] **Active Cooling best practice**: (A) Ice-Water Immersion or (B) Quantico Method (ice-water dousing AND ice massage to legs AND ice packs to head / neck / axilla / groin).
- Alternate active cooling in order of effectiveness: (i) Tarp-Assisted Cooling (TACO) with > 20 gal water & 10 gal ice; (ii) TACO with < 20 gal water & < 10 gal ice; (iii) ice sheets with ice packs to head / neck / axilla / groin. Important: Ice sheets must be rotated when they feel warm (every 30 sec to 3 min) or core temp may increase.
- May add fans to any method to aid cooling (if available).
- **Stop active cooling at 39ºC (102ºF)** – keep on heat deck / in treatment area – watch for rebound and cool again if needed. (If rebound 2x, check and treat for fever.)

[6] Treat according to applicable protocol / CPG (i.e., ECAST, rhabdomyolysis, etc.).

[7] CNS dysfunction = wide range of possible signs / symptoms, including: disorientation, irrational / abnormal behavior, irritability, emotional instability, confusion, seizures, abnormal speech, blurry vision, hearing change, bladder / bowel loss, numbness / tingling, stumbling / clumsy movement.

[8] If available, transport decision is directed by Duty Medical Provider. If Provider is not immediately accessible, or clinic is not available, then transport to ED via EMS.

Reference. Clinical Practice Guideline: Heat Illness (June 2024). Figure 5.2. Field Algorithm

ATCC-ST
SUBJECT: Cadet Summer Training (CST) Policy Memorandum 8 - Guidelines for Evaluation and Treatment of Casualties with Potential Heat Illnesses

⚠ Warning: Do not utilize alternate methods (e.g., oral, tympanic, temporal, or axillary) to obtain a core temperature. Personnel must never delay active cooling measures if unable to obtain a rectal core temperature in a timely manner (i.e., within 5 minutes of onset). ⚠

:

1. Authorized Personnel: Only trained medical personnel (68W Combat Medics, physicians, physician assistants, nurse practitioners, registered nurses, or licensed practical nurses) are authorized to perform a rectal core temperature assessment, which remains the only validated method for measuring core body temperature.

2. Elevated Temperature Protocol: If the casualty's rectal temperature is above 101.0°F (38.3°C), personnel must immediately initiate active cooling and follow the protocols outlined in Enclosure 6.

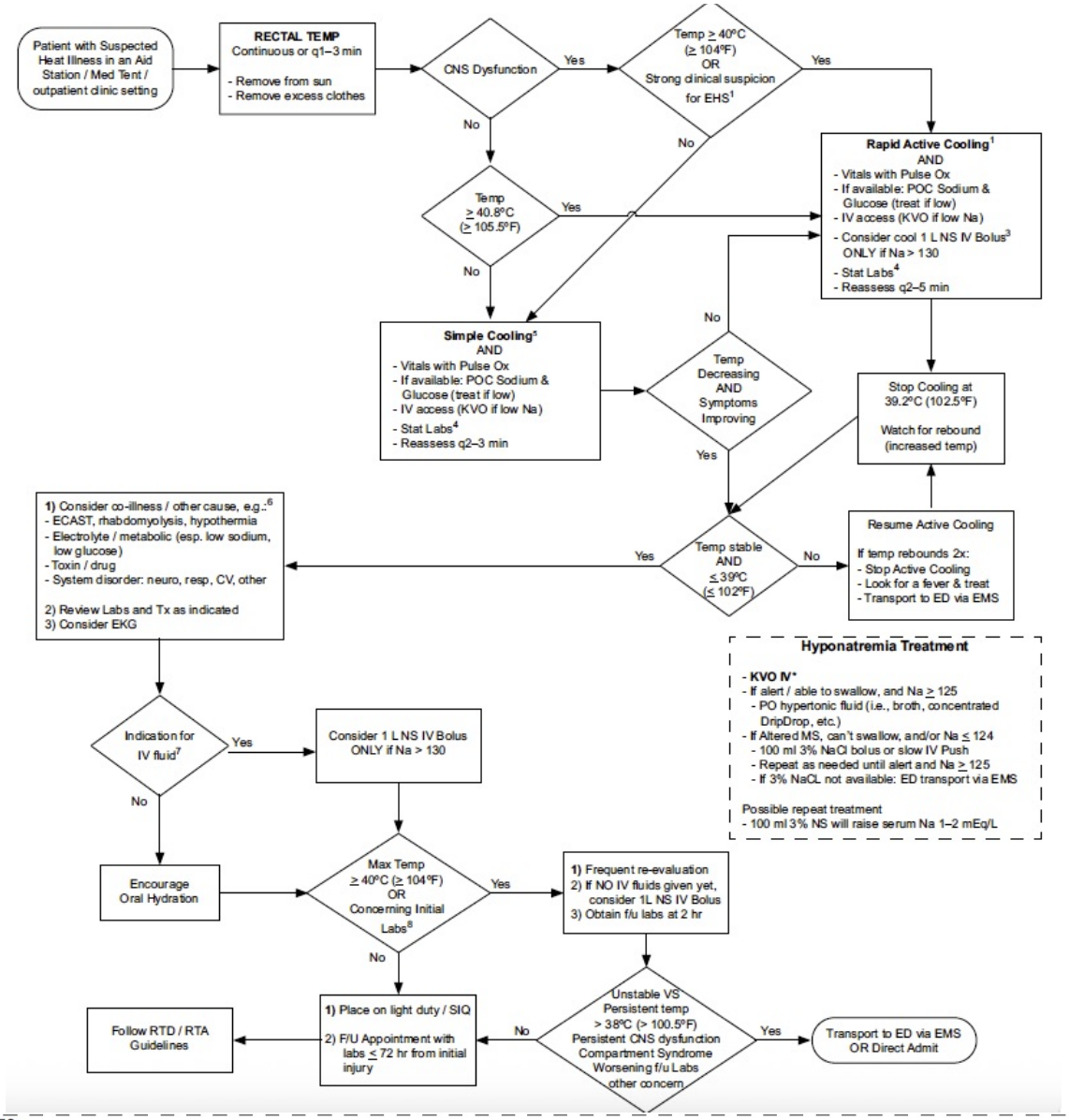
3. Normal/Mild Temperature Protocol: If the casualty's rectal temperature is below 101.0°F (38.3°C), medical personnel must consider alternative causes such as EAC, ECAST, EAH, or ER, and manage or escalate care as clinically appropriate.

4. Intravenous (IV) Access Limits: 68W Combat Medics are authorized to establish a saline lock (Heplock) only. Medics must not initiate intravenous (IV) fluid infusion unless explicitly directed by a credentialed medical provider (i.e., physician, physician assistant, or nurse practitioner).

5. Documentation Mandate: All medical care administered must be documented on a DD Form 1380 (TCCC Card) or SF 600, and promptly submitted to the TF MED CMO, designated TF MED POC, or evacuating EMS personnel.

6. Evacuation Protocol: Personnel must activate EMS and evacuate any casualty who remains unconscious or exhibits persistent mental status changes, regardless of their recorded core temperature. Personnel are strictly prohibited from transporting a critical casualty to a civilian hospital in a non-tactical or personal vehicle.

ENCLOSURE 7. PROVIDER SUSPECTED HEAT ILLNESS ALGORITHM



NOTES:

[1] Reasons for active cooling at lower temp include: CNS dysfunction with ≥ 40ºC (≥ 104ºF) on an earlier temp, concern about accuracy of temperature, and significant EHS symptoms.

[2] **Active Cooling best practice**: (A) Ice Water Immersion or (B) Quantico Method (ice-water dousing AND ice massage to legs AND ice packs to head / neck / axilla / groin).
- Alternate active cooling in order of effectiveness: (i) Tarp-Assisted Cooling (TACO) with > 20 gal water & 10 gal ice; (ii) TACO with < 20 gal water & < 10 gal ice; (iii) ice sheets with ice packs to head / neck / axilla / groin. Important: Ice sheets must be rotated when they feel warm (every 30 sec to 3 min) or core temp may increase.
- May add fans to any method to aid cooling (if available).
- **Stop active cooling at 39.2ºC (102.5ºF)** – keep on heat deck / in treatment area until 39ºC (102ºF) – watch for rebound and cool again if needed. (If rebound 2x, check and treat for fever.)

Note: Any method of cooling is better than no method of cooling. In the event no preferred or alternate method of cooling is available, use best available method (e.g., dousing with water, dunking in a river or pond, spraying with a garden hose, applying portable ice packs, fans) until a more effective method can be used.

[3] Cool IV fluids may be added to any cooling method. Indications include: dehydration, initial temp > 41ºC (> 106ºF), cooling time > 30 min, other concerning situation. DO NOT give IV fluid if Na < 130.

[4] Heat Illness Labs: CMP, CK, Uric Acid, PO4, CBC, LDH, UA + Micro; screen for sickle cell if not done previously. If indicated, add EtOH, UDS.

[5] **Simple Cooling**: Ice packs to head / sides of neck / axilla / groin, ice towels to body, forearm immersion if available, fan if available. Stop simple cooling at 39ºC (102ºF).

[6] Treat according to applicable protocol / CPG (i.e., ECAST, rhabdomyolysis, etc.)

[7] IV Fluid Indications: dehydration, ≥ 20 min to initiate cooling, cooling time > 30 min, other concerning situation. DO NOT give IV fluid if Na < 130.

[8] Concerning INITIAL Labs warrant f/u labs at 2 hr post injury: ALT > 150, Uric Acid > 7, Bicarb < 19, Phos > 4, Cr > 1.4, Ca < 7.5, CK > 2500, Myoglobinuria.

Reference. Clinical Practice Guideline: Heat Illness (June 2024). Figure 5.3. Heat-Treatment Area Algorithm

ATCC-ST
SUBJECT: Cadet Summer Training (CST) Policy Memorandum 8 - Guidelines for Evaluation and Treatment of Casualties with Potential Heat Illnesses

⚠ Warning: Do not utilize alternate methods (e.g., oral, tympanic, temporal, or axillary) to obtain a core temperature. Personnel must never delay active cooling measures if unable to obtain a rectal core temperature in a timely manner (i.e., within 5 minutes of onset). ⚠

:

1. Authorized Personnel: Only trained medical personnel (68W Combat Medics, physicians, physician assistants, nurse practitioners, registered nurses, or licensed practical nurses) are authorized to perform a rectal core temperature assessment, which remains the only validated method for measuring core body temperature.

2. Elevated Temperature Protocol: If the casualty's rectal temperature is above 101.0°F (38.3°C), personnel must immediately initiate active cooling and follow the protocols outlined in Enclosure 7.

3. Normal/Mild Temperature Protocol: If the casualty's rectal temperature is below 101.0°F (38.3°C), medical personnel must consider alternative causes such as EAC, ECAST, EAH, or ER, and manage or escalate care as clinically appropriate.

4. Intravenous (IV) Access Limits: 68W Combat Medics are authorized to establish a saline lock (Heplock) only. Medics must not initiate intravenous (IV) fluid infusion unless explicitly directed by a credentialed medical provider (i.e., physician, physician assistant, or nurse practitioner).

5. Role 1 and 2 Medical Documentation. All medical care administered within the Role 1 and 2 medical facility must be documented in the Electronic Medical Record (EMR) or via SF 600. If electronic connectivity is not established, paper SF 600 records must be manually scanned into MHS GENESIS at NTMC as soon as connectivity is restored.

6. Evacuation Protocol: Personnel must activate EMS and evacuate any casualty who remains unconscious or exhibits persistent mental status changes, regardless of their recorded core temperature. Personnel are strictly prohibited from transporting a critical casualty to a civilian hospital in a non-tactical or personal vehicle.

ENCLOSURE 8. POLAR SKIN COMPREHENSIVE COOLING SYSTEM (PSCCS) PROTOCOL

1. Polar Skin Comprehensive Cooling System (PSCCS) Protocol. CST personnel must utilize the Polar Skin Comprehensive Cooling System (PSCCS). The standardized guidelines and clinical procedures outlined in this section govern the utilization and application of the PSCCS during all training events.

2. Operational Standard and Logistical Requirement.

a. System Components. The PSCCS is a single-use, rapid-cooling system. Each individual pack consists of six (6) saturated sheets and four (4) gel ice packs.

b. Pre-Freezing Standard. To ensure clinical efficacy, the PSCCS must be pre-frozen. Each pack must be stored in an approved freezer at 0°F (-17.8°C) or colder for a minimum of six (6) consecutive hours prior to field deployment.

c. Field Transport. Once removed from the freezer, frozen PSCCS packs must immediately be placed in portable, insulated coolers. Packs must remain inside these coolers during transport to, and while staged at, all active training sites.

d. **Field-Stripping Prohibition. WARNING: PSCCS packs must only be opened when immediate clinical use is required. Personnel are strictly prohibited from "field-stripping" or opening packs prematurely, as this drastically reduces clinical cooling efficacy and incurs unnecessary replacement costs**.

e. Authorized Freezers. Approved deep-freezers for PSCCS staging are located exclusively at the CST TF Medical TOC, Building 5914.

f. On-Site Placement. Committee and Regimental leadership, in coordination with the on-site 68W Combat Medic or designated Combat Lifesaver (CLS), are responsible for the optimal tactical placement of the PSCCS cooler, and must ensure all cadre are aware of its exact location.

g. Daily Exchange Cycle. At the conclusion of each training day, personnel must return any unused, thawed PSCCS packs to the deep-freezers at the TF Medical TOC and exchange them for fresh, fully frozen, freezer-conditioned systems.

h. Medic Rotation Plan. Committee and Regimental leaders must establish a daily rotation plan that allows 68W Combat Medics to execute the ice sheet exchange, ensuring fully frozen systems are present on-site at the commencement of each training day.

i. Training Mandate. The assigned 68W Combat Medic is responsible for ensuring that all on-site cadre are fully trained and familiar with the proper application of the PSCCS.

3. Clinical Application Instructions. Personnel must implement the following sequential steps to ensure safe and effective treatment of suspected exertional heat stroke casualties:

a. Base Sheet Placement. Remove a single ice sheet from the silver packaging. Unfold it completely and place it flat on the ground (or preferably on a litter/stretcher, if available). Place the casualty in a supine position directly on top of the sheet.

b. Targeted Ice Pack Placement. Remove the four (4) gel ice packs from their silver packaging. Place one specially-sized pack in each of the casualty's armpits (axillae) and one in each of the upper, inner thigh regions (groin/femoral areas).

c. Torso and Arm Coverage. Remove a second single ice sheet from the silver packaging. Completely unfold the sheet and cover the casualty's torso and arms from the neck down.

d. Active Sheet Rotation. Every sixty (60) seconds, replace the top ice sheet with a fresh, cold ice sheet. Place the used, warmed sheet into an adjacent cooler filled with ice water (if available) to begin re-cooling. Repeat this rotation until all six (6) sheets are deployed (a 5-to-6 minute cycle).

e. Saturated Rotation. Once all six (6) sheets have been utilized, retrieve the used sheets soaking in the ice-water cooler. Reapply these sheets to the casualty two at a time (one covering the upper body/torso, and one covering the lower body/legs). Note: If an ice cooler is unavailable to soak the sheets, open a new PSCCS pack (if available) and apply the new sheets two at a time.

f. Continuous Treatment. Do not interrupt the active cooling process during temperature measurements. The 68W Combat Medic must continuously monitor the casualty's physiological status and sustain active cooling until:

(1) A Field Litter Ambulance (FLA/HMMWV) or EMS transport arrives.

(2) The casualty begins to shiver.

(3) The rectal core temperature drops below 102.0°F (38.9°C).

(4) A credentialed medical provider (physician, physician assistant, or nurse practitioner) directs cooling to cease.

Do not field strip (cut open and take apart) the PSCCS in advance. The product will lose effectiveness if not used immediately after opening.

Go to https://www.narescue.com/polar-skin-cooling-system-comprehensive.html for additional information on the Polar Skin Comprehensive Cooling System (PSCCS).

ENCLOSURE 9. POLAR LIFE POD® PROTOCOL

1. Polar Life Pod® Full-Body Immersion Protocol. CST personnel must adhere strictly to the following safety parameters prior to and during Polar Life Pod® deployment.

2. Operational Standard and Logistical Requirement.

a. Water & Ice Volume. Personnel must ensure a minimum of sixty (60) gallons of iced water is present on-site and readily available prior to deploying the Polar Life Pod®.

b. Airway Management. CRITICAL: A dedicated individual must be assigned to continuously monitor and hold the casualty's head and the flotation pillow at all times to ensure a clear, unobstructed airway and prevent accidental drowning.

c. Medical Supervision. A trained medical specialist (i.e., 68W Combat Medic, registered nurse, physician assistant, nurse practitioner, or physician) at the scene must supervise the setup, filling, and clinical use of the Polar Life Pod®.

d. Electrocution Hazard. Due to the severe risk of electrocution, personnel must remove all electrical equipment from the immediate area before introducing water to the Polar Life Pod®.

e. Drowning Prevention. To prevent accidental aspiration or drowning, personnel must:

(1) Maintain continuous, uninterrupted visual supervision of the casualty.

(2) Ensure multiple personnel are available to assist with patient handling and monitoring.

(3) Maintain a firm grip on the casualty's head to prevent it from submerging.

f. Vital Signs & IV Access. Utilize the integrated Polar Life Pod® arm ports to access the casualty's arms to monitor vital signs, perform clinical assessments, or establish IV access.

g. Temperature Monitoring Integration. The DataTherm II Continuous Temperature Monitor must be used in conjunction with the Polar Life Pod® to ensure safe, real-time tracking of the casualty's core body temperature.

h. Treatment Cessation. Discontinue immersion immediately if the casualty begins to shiver, or once a rectal core temperature of 102.0°F (38.9°C) is achieved. Trained medical personnel must utilize the DataTherm II Continuous Temperature Monitor collocated with the pod to monitor rectal core temperature throughout treatment.

i. Rapid Draining. To quickly evacuate water from the pod, remove the quick-drain port cap located at the foot of the Polar Life Pod®.

j. Evacuation Transition. Upon the arrival of the evacuation asset, remove the casualty from the Polar Life Pod® prior to placing them on a litter or gurney. If transport is delayed, continue active cooling using alternative means (such as saturated ice sheets).

3. Clinical Application Instructions. Personnel must execute the following instructions in sequence to ensure safe and effective rapid cooling:

a. Pod Staging. Transport the Polar Life Pod® directly to the casualty. Remove it from the carrying bag and unroll it flat on the ground immediately adjacent to the casualty, ensuring the integrated hood is aligned with the casualty's head.

b. Casualty Placement. Log-roll the casualty onto their side away from the pod, slide the unrolled pod underneath them, and then roll the casualty back down. Repeat this process in the opposite direction to perfectly center the casualty within the pod.

c. Head Alignment. Verify that the casualty's head is positioned fully up inside the integrated hood.

d. Pillow & Ear Protection. Place the Polar Life Pod® flotation pillow inside the hood, ensuring the raised neck support is positioned underneath the casualty's neck and the curved side faces the top of the hood. Carefully insert earplugs into the casualty's ear canals to prevent water entry.

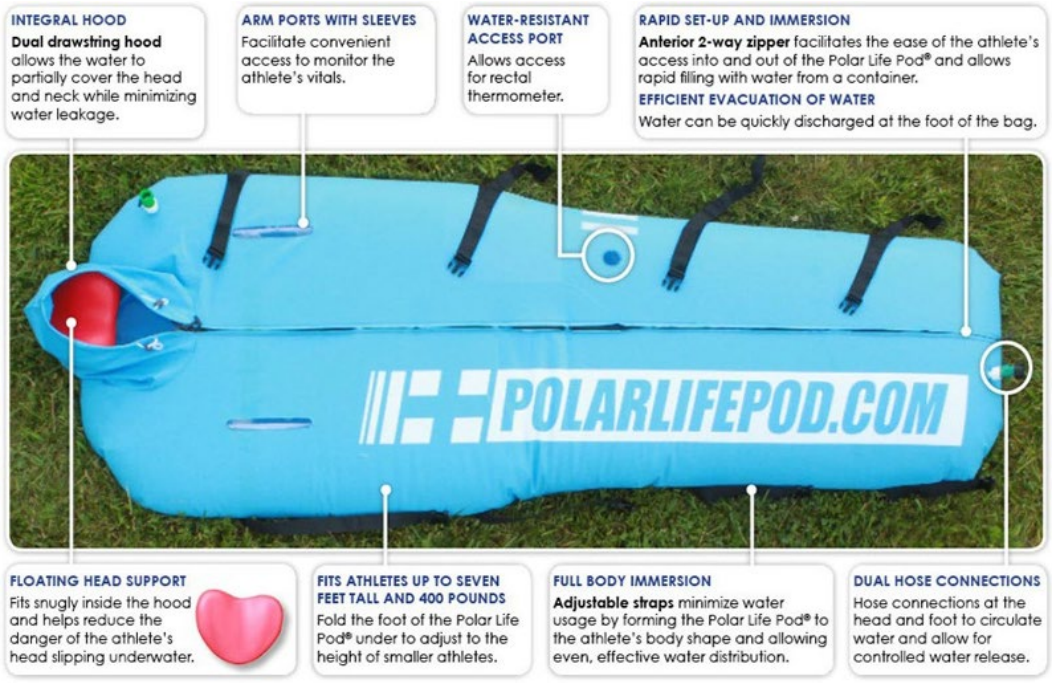
e. Sizing & Zipping. Zip the pod up halfway, securing the integrated chest and torso straps as you progress. For shorter casualties, fold the foot of the pod underneath the bag to adjust for height, which ensures more effective water distribution.

f. Water Introduction. Begin pouring ice water into the pod along the side of the casualty's body. Avoid pouring water near the head or directly onto the chest to prevent airway complications. Fill the pod until there is chest, neck, and partial head coverage (approximately 40 to 60 gallons depending on casualty size). Note: Minor leakage around the zipper and opening is normal.

g. Secure & Close. Secure the two remaining straps and zip the Polar Life Pod® completely closed. Note: If the casualty's girth prevents the zipper from securing, position the sides of the pod as close to the casualty as possible, secure them tightly with the straps, and proceed with filling.

h. Active Circulation. During cooling, continuously circulate or stir the water to enhance the water-to-skin temperature gradient and optimize heat transfer. Have an assistant gently rock the pod to keep the water moving.

i. Thermal Monitoring. Monitor the water temperature using the integrated temperature gauge to ensure it remains between 35.0°F and 59.0°F (1.7°C–15.0°C). Add ice or cold water as needed by unzipping the pod and pouring it in at a safe distance from the casualty's head. Excess warm water may be drained via the hose connections.



Go to https://www.polarproducts.com/polarshop/pc/Polar-Life-Pod-p2105.htm for additional information on the Polar Life Pod® and to view a demonstration.

The DataTherm II Continuous Temperature Monitor must be used in conjunction with the Polar Life Pod® to ensure safe, real-time tracking of the casualty's core body temperature.

ENCLOSURE 10. HEAT ILLNESS DISPOSITION ALGORITHM

1. Return to Duty (RTD) Clinical Criteria and Variables

Clinical Criteria/ Variables	Minimal Risk (must meet all criteria below)	Low Risk (must meet all criteria below)	High Risk (if meets any 1 or more criteria)
Max T_{Core}	< 39°C (102.0°F)	See note*	≥ 42.2°C (108.0°F)
Time from symptoms to treatment/cooling	≤ 10 min	≤ 10 min	> 30 min
Initial CNS dysfunction	n/a	Resolved < 45 min	≥ 60 min of initial CNS dysfunction
Total time T_{Core} > 39°C (102.0°F)	n/a	< 30 min	≥ 60 min
Total time from injury to complete resolution of symptoms	< 50 min	< 3 days	Varies with individual case
Initial Labs (if obtained)	No evidence of EHS/no end organ damage	Normal or elevated	Elevated
Active cooling required?	No	+/-	Yes
Comorbid conditions	None	None	Present
Concussion-like symptoms related to heat illness	Resolved < 48 hr	Resolved < 48 hr	> 14 days
Follow-up appointment(s)	Within 72 hr	Minimum every 48 hr	As clinically indicated
Follow-up labs	Normal within 72 hr	Downtrending to clinically reasonable levels within 72 hr	Varies with individual case
Complicating factors (ICU admission, sickle cell trait, prior EHS, Fam Hx of MH)	No	No	Yes

*Note: No specific core temperature range was assigned to both low and moderate risk due to the variability of core temperature in EHI and the individualization of each heat injury. Both low and moderate risk may exhibit core temperatures between 39°C (102.0°F) and 42.2°C (108.0°F). Other characteristics of moderate risk are intermediate between low and high risk.

2. Minimal-Risk EHI Casualty RTD Protocol.

Stage	Activity	Profile / Duty Status
0	No physical activity for minimum of 1 day. Activities of daily living are okay.	Limited/light duty
1	Light-moderate activity, < 70% age-adjusted max HR, 60 min limit (e.g., jog at ½ speed)	Limited/light duty
2	Moderate activity, < 80% age-adjusted max HR, 60 min limit (e.g., slow run at ¾ speed)	Limited/light duty
3	Full participation, including any fitness test/competition	Full duty

Note: Each stage is a minimum of 24 hours.

3. Low-Risk EHI Casualty RTD Protocol.

Stage	Activity	Profile / Duty Status
0	No physical activity for minimum of 2 days. Activities of daily living are okay.	Limited/light duty
1	Exposure to warm environment, light stretching, 60 min limit	Limited/light duty
2	Light aerobic activity, < 50% age-adjusted max HR, 20–60 min (e.g., brisk walk)	Limited/light duty
3	Light-moderate activity, < 70% age-adjusted max HR, 60 min limit (e.g., jog at ½ speed)	Limited/light duty
4	Moderate activity, < 80% age-adjusted max HR, 60 min limit (e.g., slow run at ¾ speed)	Limited/light duty
5	Complete participation in training/practice settings, excluding any type of maximum-effort test or full competition	Limited/light duty
6	Full participation, including any fitness test/competition	Full duty

Note: Each stage is a minimum of 24 hours. The stage length may be longer depending on both operational and clinical needs, with patient safety being the utmost consideration.

4. Moderate-to-High EHI Casualty RTD Protocol.

Stage	Activity	Profile / Duty Status
0	Individualized length of ADLs for 7–14 days	Limited/light duty or LIMDU
1	Mild activity/stretching in a low-heat stress condition (mild outdoor temperature/air-conditioned area)	Limited/light duty or LIMDU
2	Light aerobic activity, < 50% age-adjusted max HR, 20–60 min (e.g., brisk walk) in a low-heat stress condition	Limited/light duty or LIMDU
3	Light-moderate activity, < 70% age-adjusted max HR, 60 min limit (e.g., jog at ½ speed) in a low-heat stress condition	Limited/light duty or LIMDU
4	Heat acclimatization, < 70% age-adjusted max HR, 60 min limit (e.g., jog at ½ speed) in a warm/hot condition	Limited/light duty or LIMDU
5	Moderate activity, < 80% age-adjusted max HR, 60 min limit (e.g., slow run at ¾ speed) in a warm/hot condition	Limited/light duty or LIMDU
6	Complete practice participation, excluding any type of test/competition in ambient conditions	Limited/light duty or LIMDU
7	Full participation, including any fitness test/competition (minimum 4 weeks prior to this stage)	Full duty

Notes:

Required minimum 4 days per stage, so stage 7 is no sooner than 4 weeks from initiation of return-to-activity.

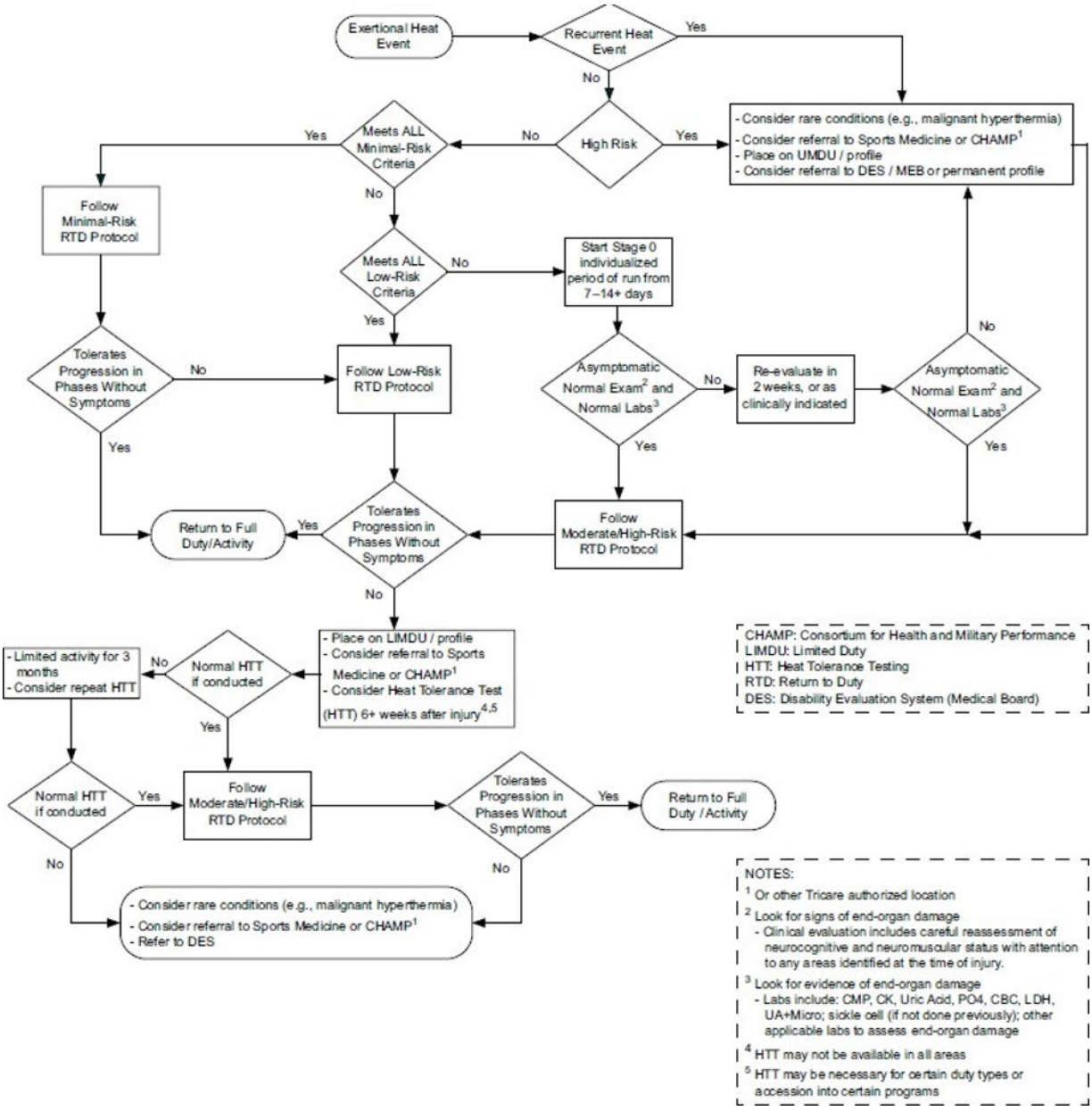
Each stage is individualized and may take up to 2 weeks to complete.

Low-risk patients who fail low-risk protocol estimate: 4–7 days per stage.

Moderate-risk patients estimate: 7–10 days per stage.

High-risk patients estimate: 10–14 days per stage.

5. Return to Duty (RTD) Algorithm



6. Mandatory Profiling Language. Medical providers must append the following standardized language to the physical profile of any Cadet or Soldier treated under this policy, in accordance with TF MED Standard Operating Procedures (SOP): "Cadet/Soldier has sustained a documented heat illness and must be recognized indefinitely as an elevated heat risk by unit leadership. The individual must be visibly marked as an elevated heat risk."

7. Medical Determinations and Fitness Standards. All formal medical determinations regarding retention, training continuation, or medical waiver eligibility must be completed by the USACC Surgeon's Office or designated Brigade Medical Officers. All determinations must be executed in accordance with DoDI 6130.03 (Medical Standards for Military Service) and established Army medical protocols.

ENCLOSURE 11. APPROVED EXERTIONAL AND HEAT-RELATED ICD-10-CM DIAGNOSTIC CODES

1. Approved Diagnostic Codes. The following International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) codes are approved for documenting exertional, heat-related, and associated illnesses or injuries:

a. Dehydration | E86.0 | Document as primary or secondary code based on clinical presentation.

b. Heat Cramps | T67.2XXA | Initial encounter for exertional muscle cramping.

c. Heat Edema | T67.7XXA | Initial encounter for heat-induced localized swelling.

d. Heat Exhaustion | T67.3XXA | Initial encounter for anhidrotic heat exhaustion.

e. Heat Injury | T67.3XXA | Must append additional secondary ICD-10 code(s) identifying the specific organ damage (e.g., acute kidney injury, hepatic failure).

f. Heat Stroke | T67.0XXA | Initial encounter for heat stroke or sunstroke.

g. Hyponatremia | E87.1 | Hypo-osmolality and sodium depletion (water intoxication).

h. Miliaria Rubra | L74.0 | Heat rash / prickly heat.

i. Parade Syncope | T67.1XXA | Initial encounter for heat syncope (exercise-associated collapse).

j. Rhabdomyolysis | M62.82 | Exertional rhabdomyolysis.

k. Sunburn | L55.0 | First-degree sunburn (initial encounter).

2. Diagnostic Authority. The Chief Medical Officer (CMO) will serve as the final diagnostic authority for all suspected heat-illness casualties, following a thorough review of the casualty's medical history from initial presentation through advanced medical evaluation and care. The CMO will annotate the final diagnostic code in an administrative note within MHS GENESIS for the official record.