MARINE CORPS BASES JAPAN/III MARINE EXPEDITIONARY FORCE ORDER 6200.1B

From: Commander, Marine Corps Bases Japan
Commanding General, III Marine Expeditionary Force

To: Distribution List

Subj: EXERTIONAL HEAT INJURY PREVENTION AND MANAGEMENT

Ref: (a) MCO 6200.1E W/CH 1
(b) MARADMIN 334/03

Encl: (1) EHI RISK IDENTIFICATION, PREVENTION, AND TREATMENT
(2) WET-BULB GLOBE TEMPERATURE (WBGT) SYSTEM
(3) HEAT FLAG ACTIVITY LIMITATIONS
(4) WORK / REST RATIOS AND FLUID REPLACEMENT GUIDE
(5) PHYSICAL CONDITIONING AND ACCLIMATIZATION PROGRAMS

1. Situation. This order provides policy, assigns responsibilities, and establishes guidelines to prevent and manage Exertional Heat Injury (EHI) within Marine Corps Bases Japan (MCBJ), III Marine Expeditionary Force (III MEF), and tenant activities.

   a. The wet bulb globe temperature (WBGT) index reading is the standard used as an indicator of external heat stress on the human body. The heat index reading is in effect each year from 1 May through 31 October.

   b. Commanders may direct and impose the monitoring of heat conditions year round.

2. Mission. To establish procedures for the notification and tracking process of heat conditions and to provide instructions on the prevention and treatment of heat casualties within MCBJ, III MEF, and tenant activities. Commanders at all levels are responsible for the planning and execution of EHI prevention and management.

3. Execution

   a. Commander's Intent and Concept of Operations

      (1) Commander's Intent. Within the guidelines of the references, commanders are responsible for the prevention, identification, and first aid treatment of EHI cases within their commands.

      (a) This order applies to all commanders and leaders at all levels from 1 May to 31 October and otherwise during warm weather. It shall meet or exceed the requirements and guidance of the references. Enclosures (1) through (5) provide direction and guidance to prevent and manage EHI. The
concepts in this order will apply year-round when expected temperatures exceed 80°F.

(b) All personnel will use operational risk management (ORM) for exercises, physical training (PT) and warm weather operations year round to prevent EHI incidents within the command.

(2) Concept of Operations. Commanding officers and officers in charge shall support Automated Heat Stress System (AHSS) and EHI initiatives by:

(a) Ensuring that their commands are properly posting and disseminating heat stress conditions and units receiving this information are properly using it.

(b) Obtaining local area WBGTs for field evolutions remote from the WBGT flag locations in enclosure (2). Recording area WBGTs in a log prior to starting evolutions and at least hourly until the evolution ends. Notifying area units using flags per enclosure (3) or other means.

(c) Ensuring leaders know their troops and have command relationships based on trust. Individuals must feel free to report their EHI risk levels and symptoms without fear of reprisal at all times and specifically between 1 May through 31 October.

(d) Ensuring personnel with one or more personal risk factors listed in enclosure (1) are identified, evaluated, cleared, and educated by a medical provider before physical exertion in heat. A supervisor and/or buddy will monitor the identified individuals for EHI symptoms listed in enclosure (1) during all events between 1 May and 31 October or when temperatures may be expected to exceed 80°F Fahrenheit.

(e) Ensuring the guidance in the references and enclosures within are applied using ORM assessment and control processes. For any activity involving one or more persons, to include individual Physical Fitness Tests (PFTs)/Combat Fitness Tests (CFTs), range activities, dismounted movements, jungle training, water survival training/swim qualification, gas chamber, Marine Corps Martial Arts Program, and other platoon size and larger unit events, the commander or leader shall:

1. Designate at least one EHI-trained safety corpsman, capable of taking rectal temperatures, with a safety vehicle to monitor the event, address prevention, rescue stragglers, and transport heat casualties. The safety corpsman will not actively participate in the evolution to which they are assigned to monitor. The corpsman will ensure communications are established and maintained with the supporting medical clinic or U.S. Naval Hospital (USNH) emergency department.

2. Establish reliable communications with the supporting medical clinic or USNH emergency department, during and outside normal working hours, prior to commencing remote field events. Provide the supporting medical facility information regarding the event time, location, and EHI risk assessment.

3. Equip the safety vehicle with coolers containing sheets and towels in an ice water slurry to cool heat casualties while transporting (or waiting on transportation) to definitive care per enclosure (1). The safety corpsman will have basic first aid equipment to include rectal thermometer, blood pressure cuff, and IV tubing and fluids. The safety
corpsman and cooler will go with the heat casualty transported by ambulance or safety vehicle for expedient cooling.

(f) Obtaining WBGT information per enclosure (2).

(g) Regulating events, work/rest cycles, and fluid replacement per enclosures (3) and (4).

1. Proper hydration is essential to prevent dehydration-related injuries as well as to prevent EHI. OVER-hydration can result in hyponatremia, a dangerous medical condition. It is essential to follow the fluid replacement guidelines in Enclosure (4), including maximum fluid intake guidelines. In the setting of significant exertion/hydration demands, supplementation of water intake with sports beverages, not to be confused with energy drinks, can improve hydration status.

2. Remember to add 10 degrees Fahrenheit to WGBT in determining work/rest cycles and fluid replacement requirements for persons operating in heavy gear (MOPP, PPE, Kevlar, etc.).

(h) Applying the prevention guidance in enclosure (1) to all warm weather events.

(i) Conditioning and acclimatizing for all personnel per enclosure (5) before participation in a PFT or other high risk events per enclosure (1). Maintain conditioning year-round.

(j) Reporting all EHIs AS DIRECTED BY REFERENCE (A). All EHIs will be reported by the member’s chain of command via the Web-Enabled Safety System (WESS). Use RUC 67400 (Okinawa), 62613 (MCAS Iwakuni), or 20229 (CATC Fuji) as the location code to ensure proper statistical analysis and tracking. The member’s command is also responsible for ensuring submission of a Medical Event Report (MER) in accordance with BUMEDINST 6220.12A and 6220.1 for all cases of Heat Exhaustion and heat stroke. For units assigned or attached to III MEF, MERs shall be submitted to the III MEF Surgeon’s Office within 48 hours of the EHI and to the USNH Okinawa Epidemiology Division no later than the 1st day of the following month.

(k) Ensuring personnel receive training in EHI prevention, recognition, triage, treatment, and transport per enclosure (1) on an annual basis.

b. Subordinate Tasks

(1) Camp/Station Commanders. Camp/Station commanders, to include the OIC Ie Shima Detachment will:

(a) Provide sufficient funding to the Installation Safety Office through Military Interdepartmental Purchase Request (MIPR) or transfer of funds for replacement of damaged equipment.

(b) While the heat index reading is in effect from 1 May to 31 October for Okinawa based units, ensure that a link from the AHSS is maintained to the Marine Corps Base Camp Butler intranet at www.mcbbutler.usmc.mil. Starting at 0700 daily, ensure hourly readings of the heat index are updated to the website until conditions meet or exceed “RED Flag”. Once at or above “RED Flag” conditions, the website will be updated every thirty minutes until the conditions return to “YELLOW” or “GREEN Flag”.

3
(c) Purchase green, yellow, red, and black flags and ensure the appropriate flag is flown from designated flagpole(s) at each camp/station area to indicate the effective heat index readings WBGT as noted below (flags are available through the supply system).

<table>
<thead>
<tr>
<th>Temp</th>
<th>Flag</th>
</tr>
</thead>
<tbody>
<tr>
<td>80 - 84.9</td>
<td>Green Flag</td>
</tr>
<tr>
<td>85 - 87.9</td>
<td>Yellow Flag</td>
</tr>
<tr>
<td>88 - 89.9</td>
<td>Red Flag</td>
</tr>
<tr>
<td>90 - Above</td>
<td>Black Flag</td>
</tr>
</tbody>
</table>

(d) Possess a backup system to the AHSS for measuring WBGT readings during heat stress season. A backup system is defined as any system capable of providing the correct readings of Dry Bulb temperature, Wet Bulb temperature, Relative Humidity and Globe temperature. These values are used to determine the Wet Bulb Globe Temperature Index that is used to determine the correct flag conditions (DB, WB, RH and GT = WBGT).

NOTE: The WBGT is computed as follows:

\[(DB \times 0.1) + (GT \times 0.2) + (WB \times 0.7) = (WBGT)\]

(2) Assistant Chief of Staff, G-6. Coordinate with Okinawa based camp/station commanders and maintain a web page incorporating the WBGT as sourced from the AHSS program by each camp/station.

(3) Public Affairs Officer. Provide media campaign support annually throughout the EHI season to educate the Marine Corps community on the dangers associated with heat illness/injury, preventive measures, and first aid procedures.

(4) Officer In Charge (OIC), MCBJ Range Detachment. Notify units in the field of the WBGT reading. All units to the south of Ginoza Dam will receive the Camp Hansen reading and units north of the Ginoza Dam will receive the Camp Schwab reading.

(5) Commanding Officers, OICs, and Civilian Equivalents

(a) Ensure the unit Medical Officer provides EHI training to all personnel no later than 15 April. Those individuals arriving in country during the EHI season shall be provided training within the first week of reporting to duty.

(b) Ensure new personnel arriving in country are identified by wearing a WHITE t-shirt during unit/group organized physical conditioning or training for the first six weeks after arrival. During field training exercises, the Commanding Officer will establish a system to identify and monitor new arrivals and previous heat casualties.

(c) Units/activities without Medical Officers should coordinate with the USNH for EHI training.
(6) Commanding Officer, United States Naval Hospital (USNH), Okinawa:

(a) Conduct quarterly environmental health evaluations of AHSS sites and camp/station recording procedures.

(b) Ensure the Emergency Medical System (EMS), medical clinics, heat decks, and emergency department (to include ambulances) have Standing Operating Procedures (SOPs), training, and equipment, including ice/water cooling in place for EHI management.

(c) Provide a medical expert, or access to an expert, to assist the review and update of this order at least annually.

(7) Installation Safety Office

(a) Ensure SOPs exist for operations, maintenance and communication of the WBGT system.

(b) Maintain AHSS equipment as organizational property. Ensure each device is signed for by designated camp representative at the rank of E-6 or above or civilian equivalent prior to the beginning of the heat stress season. Document the condition of each device with pictures and require all photos be signed along with an Equipment Custody Receipt card prior to issuance. During the off season months (1 November - 30 April) all AHSS equipment will be removed from active locations for storage by 30 November.

(c) Coordinate the maintenance and operation of WBGT equipment and AHSS sites to include the retention of the historical database for the WBGT heat index per enclosures (2) and (3).

4. Administration and Logistics. Any deviations or requests for changes to this order must be routed to the Director, MCBJ Installation Safety Office, G-4 Division.


   b. Summary of Revision. This order has been reformatted and contains major administrative changes that comply with the references and includes information on the coordination of AHSS/EHI programs within MCBJ AND III MEF.

5. Command and Signal

   a. Command. This order is applicable to MCBJ/III MEF units and tenant activities. Combined Arms Training Center Camp Fuji and Marine Corps Air Station Iwakuni Commanders, plan and execute the intent of this order as applicable.

   b. Signal. This order is effective the date it is signed.

L. A. FALCAO, JR.
Chief of Staff
MCBJ

D. J. HAAS
Chief of Staff
III MEF

DISTRIBUTION: CODE B/LIST II
EXERTIONAL HEAT INJURY (EHI) RISK IDENTIFICATION, PREVENTION, AND TREATMENT

Appendices: (A) Exertional Collapse / Incapacitation Field Algorithm
(B) Exertional Collapse / Incapacitation Emergency Heat Deck Algorithm
(C) Heat Casualty Treatment Record SF 600
(D) Heat Deck Standard Operating Procedure Guide
(E) Report of Heat Injury, NAVMED 6500/1 (rev 5-99)

General. EHI occurs commonly in Marines and Sailors exerting in hot, humid, low wind environments. EHI is affected by multiple contributing factors relating heat loss to metabolic and environmental heat accumulation. The spectrum of EHI ranges from simple "heat cramps" to life threatening "heat stroke". Permanent damage and death are directly related to time at temperature. No instruction or guide can cover all possible situations. Common sense and an understanding of the basic concepts presented here are essential to the effective identification, prevention, and treatment of EHI. The U. S. Army's web site, http://phc.amedd.army.mil contains downloadable pocket guides, training and videos.

The following guidelines provide for risk identification, prevention and treatment of EHI:

1. Risk Factors
   
a. Environmental
      
      (1) Exertion in high WBGT conditions per enclosure (2) especially when the effects of heat and exertion were noticeable on the preceding day. The affects of heat and exertion are accumulative and dangerous.

      (2) Wearing clothing or equipment that restricts cooling (add 10°F to WBGT for wearing kevlar, flack, and pack or MOPP gear)

      (3) Competition, peer pressure, or "orders" pushing individuals beyond ability (Unit runs and humps, PFT).

      (4) Most Heat Strokes occur during PFTs, unit runs of 3 miles or less, unit marches of 6 miles or less and field activities.

   b. Personal
      
      (1) Physical conditioning. EHI risk is 3 times higher in individuals who are overweight, Body Mass Index (BMI>26) or run slower than 8 minute miles average on the PFT. Overweight and slow imparts 6 times greater risk.

      (2) Illness: Fever, vomiting, diarrhea, or respiratory illness within 24 hours precludes exerting in heat. Illness within 3 days needs medical clearance.

      (3) Pushing beyond comfortable physical exertion or level of physical training.

      (4) Fatigue and stress: Less than 7 hours sleep in last 24 hours, Jet lagged (flight crossed 5 time zones in last 5 days), high prior days heat load/work, "worries" or "stress".
(5) Acclimatization less than 2 to 3 weeks per enclosure (5).

(6) Inadequate hydration and nutrition (calories and salt).

(7) Medications and supplements include but are not limited to allergy and common cold medicines (like benadryl and pseudophed), blood pressure medicines, depression (tricyclics), and ephedra (ma hung) and alcohol (more than 2 drinks for males or 1 drink for females per day within 2 days prior to event). Voluntary dehydration, laxative and diuretic use to "cut weight" are especially dangerous.

(8) Prior EHI.

(9) Genetic (family history) predisposition for EHI.

2. Prevention
   a. LEADERS MUST KNOW THEIR PERSONNEL.
   b. TROOPS MUST TRUST they can communicate changing EHI risk and symptoms or stop exerting without fear of reprisal.
   c. DON'T "PUSH" yourself or others beyond ability in heat.
   d. Physically condition and acclimatize per enclosure (5).
   e. Apply ORM before, during, and after evolutions. Pay attention to the WBGT per enclosure (2). Plan events for low risk times.
   f. Provide rest with active cooling, meals, and fluids per enclosure (4).
   g. Minimize or eliminate group "conditioning" unit marches and runs. Group activities should be solely for "strengthening" group intrinsic values such as trust and cohesion. The slowest individual should pace group physical activities.
   h. Identify individuals at risk and monitor them closely with buddies and leaders.
   i. Get 7 hours sleep and recover from fatigue (prior days work or jet lag). Ensure sleeping, messing and recreation quarters are screened and ventilated by natural or mechanical means. A night time WBGT higher than 80°F calls for air conditioning or fan cooling.
   j. Maintain ideal body weight by regular activity and eating well.
   k. Do not use diuretics, laxatives, or dehydration (rubber sweat suits or fluid restriction) to "cut weight". Official weigh-ins should not occur within 48 hours of a PFT or event in heat.
   l. Avoid alcohol.
   m. If one EHI occurs check the entire unit, and apply ORM to consider event cancellation or modification.
   n. Provide EHI education and training for everyone at least two weeks prior to the start of the season, within the first week of reporting for new arrivals, and when determined by leaders.

3. Signs/Symptoms and Initial (Field) Treatment
a. **"Heat" Cramps (not an EHI)**. Isolated painful muscle spasms of the legs, arms, and torso are effectively treated with oral sodium (salty snacks) and fluid replacement. Transport to a medical facility if not resolved within 60 minutes.

b. **"Heat" (Parade) Syncope (not an EHI)**. Fainting or collapse caused by blood pooling in the legs (not pumping to the brain). It occurs commonly right after (not during) running if the person doesn't cool down by walking or jogging. It also occurs in formations if the leg muscles aren't periodically flexed to pump the pooling blood out of the legs. The "casualty" should improve rapidly with shade, water, and laying flat with the legs elevated. If in doubt, not improving within 3 minutes or resolved within 15 minutes, treat as a "Heat Stroke" per section (d) below.

c. **Heat Exhaustion**. The individual doesn't feel good and may not be able to keep up or continue. Fatigue, malaise, headache, nausea, vomiting, cramps, rapid breathing, rapid heart rate or dizziness may occur. Elevating the legs above the heart, proper hydration, minimizing clothing and resting in a cool place treats heat exhaustion. If the individual looks good, has normal vital signs (including rectal temperature less than 103°F) and mental status, they may be observed. If a heat exhaustion casualty gets worse, isn't improving within 30 minutes or isn't resolved within 1 hour, then continue cooling to rectal temp of 102°F and transport them to the hospital's emergency department (not clinic) for evaluation.

d. **Heat Stroke**. COLLAPSE (especially during exertion) and/or MENTAL STATUS change (giddy, confused, anxious, agitated, combative, seizure, unconscious) of any duration with or without any heat exhaustion signs/symptoms is a MEDICAL EMERGENCY. Heat Stroke casualties in humid environments are usually wet with sweat (may not be wet in desert environments), but sweating may be markedly diminished or absent in advanced heat stroke or extreme dehydration.

(1) Verify and manage Airway, Breathing, and Circulation (ABCs).

(2) Stop casualty from exerting, provide shade, remove excessive clothing making every attempt to maintain privacy (keep undergarments) and pour water over the casualty while getting the corpsman and safety vehicle.

(3) Obtain vital signs including an initial RECTAL TEMPERATURE as it drives treatment decisions. Oral temperatures can vary 12°F from rectal temperatures in exercised individuals.

(a) Rectal Temperature less than 103°F with any "Heat Stroke" sign or symptom: EXPEDITIOUSLY TRANSPORT TO HOSPITAL EMERGENCY ROOM (911 ambulance, not safety vehicle). HYPONATREMIA (water intoxication) OR OTHER DEADLY CONDITION MAY EXIST. Limit IV HYDRATION to 1L NS UNLESS DEHYDRATION OR SHOCK IS PRESENT. Cool to 102°F during transport using methods described in section 4, paragraph c below.

(b) Rectal Temperature greater than 103°F: RAPIDLY TRANSPORT TO THE MTF EMERGENCY ROOM OR SUPPORTING HEAT DECK CAPABLE MEDICAL FACILITY WHILE COOLING (clinic or hospital based on proximity and severity) FOR INTENSIVE ICE WATER COOLING. APPLY ICE WATER SOAKED SHEETS
AND TOWELS (ready in a cooler) around the body and head and change them out every 60 seconds during safety vehicle (or ambulance) transport. Communicate with the receiving medical facility (clinic or hospital) provider during transport. Stop cooling at a rectal temperature of 102°F to allow slight overshoot. If possible, bolus 1 liter of Normal Saline (NS) solution (do not delay cooling or transport to obtain IV access or administer IV fluids).

(c) Provide medical turnover to the accepting medical provider. Corpsmen will not return to the field until secured by the accepting medical provider. Other cooling methods are listed in section 4, paragraph c below.

4. Emergency Heat Deck Treatment (Branch Clinics and Emergency Department). The medical provider may alter this protocol as clinically indicated.

   a. Verify and manage Airway, Breathing, and Circulation (ABCs).

   b. Obtain rectal temperature and vital signs. Establish large bore IV access.

   c. Patients with a rectal temperature greater than 102°F will be aggressively cooled to less than 102°F using one or all of the following methods (EHIs are often mass casualties):

      (1) HEAT DECK: (METHOD OF CHOICE): Pack ice and pour water over and around the casualty on a mesh stretcher placed over a water filled pool. Cooling rates as rapid as 0.4°F per minute are observed (15 minutes to cool from 108°F to 102°F). Similar result can be achieved with ice and water placed on the casualty on the ground. Use a sheet under the casualty and hold it up at the sides/corners, "taco" method, to keep the ice around the casualty.

      OR

      (2) Immersion in ice water pool (circulating water cools more rapidly). Best published cooling rate of 0.35°F/min.

      (3) FIELD AND TRANSPORT METHOD OF CHOICE: Serial wrapping every 60 seconds with ice water soaked sheets around the body and towels around the head, "burrito method".

      (4) Place ice or "cool packs" in the groin and axilla while pouring water over the EHI casualty. ** Without water, this method is equal to ambient cooling.


      (6) Hose with water.

      (7) "Ice Cold" (40°F) IV fluid. Cooling rates 0.1-0.4°F/min. depending on fluid volume and rate.

      (8) Spray with tepid water and fan. This evaporative method used in air-conditioned emergency rooms for gentle cooling of classic heat stroke is less effective in humid environments. The cooling rate of 0.1°F/min.
(1) hour to cool from 108°F to 102°F) results in 10% to 20% heat stroke death.

d. Monitor the rectal temperature continuously or at least every five minutes with the other vital signs until the rectal temperature is less than 102°F and then every 15 minutes thereafter.

e. Stop cooling when the rectal temperature drops below 102°F.

f. Utilize NS as infusion of choice at a rate to be determined by the medical provider. Obtain IV access for all unstable casualties. IV hydration is often not required unless the casualty is in shock or has signs of dehydration such as dry mucus membranes and abnormal vital signs. Lung sounds should be evaluated and documented before a second liter is provided. Pulmonary edema is a complication of EHI. Dehydration is usually not significant, nor is it a significant causal factor.

g. Perform an initial mental status exam and continually monitor for changes. IF THE PATIENT IS UNCONSCIOUS, PURSUE IMMEDIATE TRANSPORT VIA AMBULANCE to the hospital’s Emergency Department. If transport is delayed or deferred, PERFORM COOLING WITH CARDIAC MONITORING (treatment room). NOTE: Seizure, coma, and cardiac dysrhythmias often resolve with rapid cooling. Ensure cooling is continued (no delay) with ice and water while waiting for and during transport. Attend to ABCs.

h. Obtain glucometer glucose reading. If the glucose reading is less than 70, provide the patient with additional glucose at the medical officer’s discretion. Glucose may be given orally (if conscious) or IV.

i. Patients with a respiratory rate of greater than 30 or any mental status changes regardless of respiratory rate should be placed on oxygen via facemask at 8-10 liters/minute.

j. Document treatment on USNH OKI form 6200/3, attachment (3), or a generic SF600, or in AHLTA (i.e. USNHO HEAT INJURY template).

5. Transport, Admission, and Disposition Guidelines (after cooling to 102°F):

a. For final diagnosis, treatment, disposition transport all EHI casualties to USNH Okinawa. The treating medical provider will contact the receiving medical provider. Copies of all medical documentation to include USNH OKI form 6200/3 and/or the medical provider's notes and nursing notes as applicable, will accompany transport.

b. All EHI casualties will be monitored until all studies including laboratory data are reviewed by a medical provider and the patient’s symptoms are resolved. Table 1, EHI Casualty Management Based on Presenting Symptoms and Clinical Chemistries guides but does not dictate admission decisions. Upon discharge, all EHI casualties are placed sick-in-quarters with follow-up within 24 hours.

6. Complications.

a. Hyponatremia is a dangerous condition seen in the setting of exertion and dehydration with increasing incidence in Marine Corps personnel. Hyponatremia (serum sodium of <135 mEq/L) may coexist or be
the primary cause of mental status changes as a result of excessive water consumption during prolonged physical exertion ("exertional hyponatremia"). This diagnosis must be considered in patients with mental status changes with or without hyperthermia (T < 103°F). Diagnosis and treatment require laboratory monitoring and should be conducted at an MTF. Prevention of hyponatremia requires careful attention to hydration guidelines as in enclosure 4 and avoidance of over-or imbalanced hydration. Infusion of Normal Saline in a patient with exertional hyponatremia will raise serum sodium levels, and generally will also treat hyperthermia.

b. Exertional rhabdomyolysis is another dangerous medical condition seen in the setting of exertion and dehydration with increasing incidence in Marine Corps personnel. Rhabdomyolysis is caused by striated muscle cell breakdown with release of toxic contents into the blood from physical exertion particularly under heat stress conditions. Diagnosis and treatment of rhabdomyolysis require laboratory monitoring and should be conducted at an MTF. Prevention of rhabdomyolysis requires careful attention to work/rest/hydration guidelines as in enclosure 4.

7. Laboratory and Studies. Monitoring of electrolytes and other laboratory markers are necessary to guide further hydration and management of EHI complications, including hyponatremia and rhabdomyolysis. Blood for labs may be drawn during IV placement and sent to the hospital along with the patient. Normally this is deferred to the medical facility capable of completing the labs.

a. 20cc of blood will be withdrawn for laboratory analysis.

b. Heat panel labs include: CBC, Na, K, Cl, CO2, BUN, Cr, Glucose, LFTs, CK, and UA.

c. Labs will be ordered as STAT and expeditiously transported to the laboratory.

8. Post Stabilization Care

a. Vital signs and mental status assessments are performed at a minimum of every 15 minutes for one hour and then every hour until discharge from the emergency department unless otherwise directed by the attending physician.

b. If the patient's mental status is appropriate and they are not nauseated, they may eat and drink ad lib. Patients must demonstrate the ability to tolerate oral intake prior to release from the emergency department. Patients should not return to exertional activities for at least 24 hours and until cleared by a medical provider.

9. Follow-up Care

a. Document follow-up visits in the medical record. Follow-up and disposition must consider that certain individuals have genetic predispositions to environmental heat injury and prior heat injury is a risk factor for subsequent heat injury.

b. Patients discharged from hospital admission will be evaluated by a medical officer within 24 hours and their lab values will be reviewed and followed at the discretion of the medical officer.
10. Documentation

a. The USNH OKI form 6200/3, attachment (3), or a generic SF 600, or an AHLTA template (i.e. USNHO HEAT INJURY template) will be used for documentation of all confirmed or suspected EHI.

b. NAVMED 6500.1, attachment (5), must completed and forwarded it to the USNHO Environmental Health Department.

c. Per the Tri-service Reportable Events Guideline & Case Definitions, June 2009, the two ICD-9 codes to be used for EHI are:

(1) 992.0 (Heat Stroke): Severe heat stress injury, specifically including injury to the central nervous system, characterized by central nervous system dysfunction and often accompanied by heat injury to other organs and tissue.

(2) 992.9 (Heat Injury, Unspecified): Reportable cases run the spectrum of moderate to severe heat injury associated with strenuous exercise and environmental heat stress resulting in tissue or end-organ damage. Cases are characterized by organ (liver, renal) & tissue (muscle, gut) injury that is supported by laboratory abnormalities. In the absence of laboratory support, cases with clinical suspicion of tissue or organ injury should be reported in this category.

11. Clinical Procedures when a Medical Provider, Clinic Heat Deck, or Heat Deck Team is Not Available

a. Follow paragraph 3. Signs/Symptoms and Initial (Field) Treatment above in this guide.

b. Contact the Duty Medical Provider for direction regarding treatment and transport. If a medical provider is not available, call 911 to transport the EHI casualty to the emergency department. Go with the ambulance to assist ice water cooling during transport.

c. Complete required documentation.
Appendix A

EXERTIONAL COLLAPSE / INCAPACITATION

FIELD ALGORITHM

Unconscious

Assess responsiveness & Address ABC's
Targeted Hx

INITIATE COOLING/TRANSPORT TO ER ASAP

→ Activate EMS
→ Rectal Temp and vitals
→ RAPID COOLING to 102F
→ IV Access
→ Consider hyponatremia/ rhabdomyolysis

Normal Mental Status and Rectal Temp < 103

Possible HEAT EXHAUSTION
Remove from Heat
Assess Hydration & Calorie depletion

Symptoms Resolve <1hr
Return to Duty

Symptoms not improving <30min or not resolved <1hr
Send to MTF for labs and evaluation

Unconscious

Conscious

Unstable Vital Signs or Severe Altered Mental Status

Assess Mental Status for disorientation confusion, or inappropriate behavior
→ Rectal Temp and Vital Signs
→ Repeat Vitals q5min.

Altered Mental Status and Rectal Temp ≥ 103

HEAT STROKE
Remove from Heat
Initiate Cooling Measures
Bolus IV NS

Probable HEAT EXHAUSTION
Remove from Heat
Assess Hydration & Calorie depletion

Possible Heat Stroke/Other Complication
TRANSPORT TO ER

→ Activate EMS
→ Cool to 102F
→ IV Access only
→ Consider hyponatremia/ rhabdomyolysis

Altered Mental Status and Rectal Temp < 103

TRANSPORT to closest MTF ER or Heat Deck (based on proximity and severity)

DO NOT DELAY COOLING OR TRANSPORT FOR THESE ACTIONS.

- Cooled NS IV Fluid per provider guidance. If mucous membranes dry or “shock” present then bolus 1 L then KVO. If mucous membranes wet, other signs of overhydration or CHF or T<103 then NS @ KVO; Reassess ongoing IVF need from clinical response, lung exam, urine output, and labs.
- Aggressive cooling while preparing transfer and while in route if Rectal T > 102. DON'T DELAY COOLING: Ice water towels or sheets wrapped around body. Ice packs with pouring water over casualty. Cold IV fluids. Fanning. Vehicle air conditioning max OR windows open. Helicopter Rotor wash. Stop cooling when the rectal temperature drops below 102.
- Use C-Spine immobilization and back board for trauma.
- Elevate legs, minimize clothing, rest in shade, oral rehydration & food or energy drink as indicated, reassess frequently.
Appendix B

EXERTIONAL COLLAPSE / INCAPACITATION

EMERGENCY HEAT DECK ALGORITHM

Unconscious

Transport to ER (if not at ER heat deck)
- Activate EMS
- Rapid Cooling
- O2/IVF
- Rectal Temp and Vitals q5min
- Spot Glucose (in ambulance)
- Stat Labs/Studies (if possible)

Conscious

Mental Status & Cardiopulmonary Assessment
Vital Signs (BP, HR, Resp, Rectal Temp q5min)
- Rapid Cooling
- IVF
- Spot Glucose → Treat if low
- Stat Labs/Studies

If Unstable Vital Signs
Or Severe Altered Mental Status

Exertional Heat Illness (EHI)
Hx of T>103

Normal Mental Status
Current Temp > 102

Heat Stroke
Rapid Cooling
O2/IVF
Reassess Continually
Temp q5 minutes

Stop Cooling When Temp < 102
(Watch for Overshoot and Rebound)

Unstable Vital Signs
Persistent Altered Mental Status,
Extreme Muscle Pain/Tightness

Transport to ER

Normal Mental Status
Current Temp < 102

Normal Vital Signs
Mental Status Normal or Improving

Exertional Collapse
No Hx of T>103 (not EHI)

Transport to ER ASAP
Evaluate for:
Cardiopulmonary,
Metabolic disturbance, (esp.
Na & Glucose)

Transport to ER

Disposition per Table 1
EHI Casualty

Altered Mental Status
Current Temp > 102

Altered Mental Status
Current Temp < 102

Possible Heat Stroke
Rapid Cooling
O2/IVF
Reassess Continually
Temp q5 minutes

Stop Cooling When Temp < 102

Review labs/studies
Evaluate for Rhabdomyolysis & Organ Damage

Oral Rehydration
Reassess

DO NOT DELAY COOLING OR TRANSPORT FOR THESE ACTIONS

- Cooled NS IV Fluid per provider guidance. If mucous membranes dry or “shock” present then bolus 1 L then KVO. If mucous membranes wet, other signs of overhydration or CHF or T<103 then NS @ KVO; Reassess ongoing IVF need from clinical response, lung exam, urine output, and labs.

- IMMEDIATE Na, Gluc, K if available; STAT Heat Panel: CPK, Chem 8, LFTs, Uric Acid, UA + Micro, CBC w/Diff, Consider PO4, Mg, PT, PTT, FSP, ABG, CXR and EKG & myoglobin if severe. CHCS ORDER SET: “Heat Panel”. Studies should be done at a MTF capable of performing studies.

- Rapid Cooling Measures: Ice water / pool, Ice Sheets, Cold IV Fluids, Ice packs while pouring water, Hose Watering, Fan. Stop cooling when temperature drops below 102. NOTE: Seizure, coma, and cardiac arrhythmias often resolve with rapid cooling.
Appendix C

TIME:

SUBJECTIVE:

EVENTS PRIOR: ( ) LOSS OF CONSCIOUSNESS ( ) COLLAPSE ( ) CONFUSION ( ) DIZZINESS

HT: ( ) VISUAL DISTURBANCE ( ) NAUSEA/VOMITING ( ) HEADACHE ( ) CRAMPS

WT: FLUID INTAKE IN LAST 12 HRS __________ LITERS. LAST MEAL TIME/AMOUNT:

ALLERGIES:

RECENT ILLNESS: __________ HOURS OF SLEEP: __________ OTHER:

MEDS:

OBJECTIVE:

APPEARANCE: ( ) WELL APPEARING ( ) ILL APPEARING ( ) OTHER:

MENTAL STATUS: ____________________________________ NEURO:

SKIN CONDITION: ( ) PLUSHED ( ) HOT ( ) DRY ( ) PALE ( ) COOL ( ) NORMAL

SUPPLEMENTS:

SWEATING: ( ) SLIGHT ( ) MODERATE ( ) DIAPHORETIC ( ) NONE

PMH: (i.e. heat illness)

CARDIOVASCULAR: ( ) RR ( ) PULSE STRONG ( ) PULSE WEAK/THREADY ( ) OTHER:

PULMONARY: ( ) CTA-B ( ) OTHER:

Initial Vitals:

ABDOMEN: ( ) SOFT ( ) NON-TENDER ( ) NON-DISTENDED ( ) BOWEL SOUNDS PRESENT

Rectal Temp:

OTHER EXAMS:

TREATMENT: METHOD OF COOLING: __________ TIME STARTED __________ STOPPED __________ ( )

DEFERRED

BP:

HYDRATION: ( ) ORAL ( ) IV ( ) DEFERRED

<table>
<thead>
<tr>
<th>#</th>
<th>SOLUTION</th>
<th>RATE</th>
<th>SITE</th>
<th>STARTED</th>
<th>STOPPED</th>
<th>AMT</th>
<th>INITIAL</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>( ) BOLUS ( ) cc/hr</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>( ) BOLUS ( ) cc/hr</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

WGBT:

( ) MEDS GIVEN: __________ ( ) O2 VIA __________ ( ) CARDIAC

VITALS ASSESSMENT:

<table>
<thead>
<tr>
<th>TIME</th>
<th>T ©</th>
<th>P</th>
<th>RR</th>
<th>BP</th>
<th>SPO2</th>
<th>MENTAL</th>
<th>COMMENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

LABS: ( ) HEAT PANEL RESULTS ATTACHED ( ) DEFERRED

ASSESSMENT PLAN: ( ) SUSPECTED HEAT STROKE ( ) EXERTIONAL HEAT EXHAUSTION

( ) DEHYDRATION ( ) OTHER:

DISPOSITION: ( ) TRANSPORT - TIME DEPARTED: __________ RECEIVING FACILITY AND

MO:

( ) ADMITTED TO __________ ( ) SIQ X 24 HRS, PU IN AM AT AD SICKCALL __________

CLINIC

( ) EDUCATION/INSTRUCTIONS GIVEN, PT VERBALIZES UNDERSTANDING ( ) Y ( ) N PT INITIALS:

( ) NAVMED 65001 COMPLETED AND FORWARD TO ENVIRONMENTAL HEALTH DEPT

MO STAMP/SIGNATURE:

PATIENT'S IDENTIFICATION (Use this space for Mechanical Imprint)

RECORDS MAINTAINED AT:

PATIENT'S NAME (Last, First, Middle Initial)

SEX

RELATIONSHIP TO SPONSOR

STATUS

RANK/GRAD

SPONSOR'S NAME

ACTIVITY DIVISION
HEAT DECK STANDARD OPERATING PROCEDURE GUIDE

1. This Heat Deck SOP is in effect 1 MAY to 31 OCT on Okinawa and world-wide when the expected temperature exceeds 80°F.

2. Heat Deck teams will be set daily and serve the following roles: Senior medical provider (team leader) at patient's head (cools head and neck and checks ABCs), 1 vitals taker, 2 cooling personnel, 1 IV/phlebotomist. Prepacked IV and lab supply kits in bags ready for use aid IV/phlebotomy efficiency.

3. Establish a standard "alarm" system for assembly of the heat team. All team members will use universal precautions.

4. A cooler of ice in bags (for heat deck cooling) and one cooler of ice water slurry with 2 sheets and 2 towels will be ready daily (cooling in transport if needed). Event coverage corpsman will have the same ice water slurry, sheets, and towels for cooling during transport from the field to definitive cooling.

5. Cooling pools will be filled with cool/ambient temperature water. Any body fluid contamination will cause the water to be changed after treatment of the contaminating patient. When a pool is not available, good results can be achieved with ice and water with the casualty on the ground. A sheet under the casualty held up at the sides/corners, "taco" method, keeps the ice around the casualty and water sprayed over the patient from a hose.

6. A mesh stretcher will be available to hold patients over the cooling pools.

7. Buckets or basins will be ready to dip water from pools and pour water over the patient with loose ice (from broken open ice bags) packed around patient's head, neck, torso, and thighs.

8. Soft rectal probe thermometers will be used when available for continuous temperature monitoring during cooling. Manufacture's sanitation guidelines will be followed.

9. When TC-1 is set, pools will be emptied and moved inside and the wooden pool platform will be turned upside-down on flat ground near the clinic building and secured to prevent movement during anticipated high wind conditions. The platforms and pools will be made ready when clinic operations return to normal.
Appendix E

REPORT OF HEAT INJURY
NAVMED 6500/1 (rev 5-99)

FOR OFFICIAL USE ONLY (when filled in)

HEAT/COLD CASE

FROM: ______________
DATE: ______________

[Name and address of reporting official]

TO: ______________

[Name and address of recipient]

PRESENT ILLNESS
(CURRENT DATES AND TIME)

[Details of heat/cold injury]

DIAGNOSIS (Check one):
- Heat Cramps
- Cold/Chills
- Heat Exhaustion
- Sunstroke
- Hypothermia

TIME ON ACTIVE DUTY
(Months):

DECREASE BRIEFLY WHAT PATIENT WAS DOING AT TIME OF INJURY. INCLUDE DESCRIPTION OF CLOTHING

NOTE:
1. All heat-related injuries should have rectal temperatures.
2. All heat-related injuries with rectal temperatures greater than 104°F should have serum GGT drawn 24 hours after the injury.

SYMPTOMS (Check all applicable):
- Nausea
- Dizziness
- Headache
- Vomiting
- Fatigue

THERMAL HISTORIES:

[Details of thermal history]

BLOOD PRESSURE:

Systolic: ______________
Diastolic: ______________

AMOUNT OF WATER IN OZ.:

LIGHT: ______________
MODERATE: ______________
HEAVY: ______________

WEIGHT:

PULS:

BLOOD PRESSURE

AMOUNT OF WATER IN OZ.:

LIGHT: ______________
MODERATE: ______________
HEAVY: ______________

WEIGHT:

LATEST HISTORY OF HEAT/COLD AGGREGATE (Specify type):

DAYS (MONTH AND DAY):

DIAGNOSIS:

[Specify type]

DATE:

DIAGNOSIS:

NONE

DIAGNOSIS:

NONE

SIGNATURE:

[Signature]

PREPARED:

[Signature of preparing officer]

NAVMED 6500/1 (REV. 5-99)

ENCLOSURE (1)
The WBGT estimates the environmental EHI risk and is used to set the Heat Flag Activity Limitations, enclosure (3), and the work/rest cycles and fluid replacement guide, enclosure (4). The primary means of measuring WBGT within Marine Corps Bases Japan is the Automated Heat Stress System (AHSS). The AHSS provides a continuous, on-line measurement of the WBGT. Units must use an alternate means to measure and monitor their operations area's WBGT hourly when remote from the AHSS flag locations listed below. WBGT readings are available at www.mcbbutler.usmc.mil. AHSS contact information:

<table>
<thead>
<tr>
<th>CAMP/STATION</th>
<th>MONITORED BY</th>
<th>UNIT</th>
<th>BLDG#</th>
<th>PHONE#</th>
<th>FLAG LOCATION</th>
</tr>
</thead>
</table>
| Foster       | Camp Services| H&S Bn | 494   | 645-7315 | Bldg 1 (MCB/WING HQ)  
|              |              |       |       |         | Bldg 494 (H&S BN)  
| Kinser       | Camp Services| CampSvc | 107  | 637-1886 | Bldg 107 (Camp HQ)  
|              |              |       |       |         | Bldg 1307 (GYM)  
|              |              |       |       |         | Bldg 708 (CLR-35)  
|              |              |       |       |         | Bldg 864 (JSG HQ)  
| Hansen       | Camp Services| CampSvc | 2860 | 623-4649 | Bldg 2860 (CAMP)  
|              |              |       |       |         | Bldg 2819 (7th COM)  
|              |              |       |       |         | Bldg 2386 (CLINIC)  
|              |              |       |       |         | Bldg 2466 (Ranges)  
|              |              |       |       |         | GATE 1  
|              |              |       |       |         | PARADE DECK  
| Courtney     | Camp Services| Clinic | 4231 | 622-7309 | Bldg 4231 (Clinic)  
| Schwab (Regiment) | Camp Services| CampSvc | 3403 | 625-2215 | Bldg 3319 (CAB)  
|              |              |       |       |         | Bldg 3522  
| Putenma      | Camp Services| HQ Sqd | 510   | 636-3177 | Bldg 1020 (Ammo)  
|              |              |       |       |         | Bldg 159 (Semp Fit)  
| Lester       | FRONT DESK   | Naval  | 6021 | 643-7509 | Bldg 6021 (Hospital)  
| Gonsalves    | IDC (Corpsman)| JWTC | 500   | 628-2211 | Bldg 500 (HQ/BEQ)  
| Iwakuni      | Weather Ofcr | AirOps | 757   | 253-3005 | Bldg 1 (MAG-12 HQ)  
|              |              |       |       |         | Bldg 314 (Brks)  
|              |              |       |       |         | Bldg 1010 (Gym)  
|              |              |       |       |         | Bldg 1641 (MALS-12)  
| Fuji         | Duty Cpsmn   | BAS | 263   | 224-8381 | Bldg 263 (BAS)  

ENCLOSURE (2)
HEAT FLAG ACTIVITY LIMITATIONS

GREEN FLAG

WBGT: 80°F - 84.9°F

Action: Heavy exercise for un-acclimatized personnel should be conducted with caution and under constant, responsible supervision.

YELLOW FLAG

WBGT: 85°F - 87.9°F

Action: Strenuous exercise such as marching at a standard cadence should be suspended for un-acclimatized troops. Avoid outdoor classes in the sun.

RED FLAG

WBGT: 88°F - 89.9°F

Action: All physical training should be halted for those troops who have not become thoroughly acclimatized. Those troops who are thoroughly acclimatized may carry on limited activity not to exceed six hours per day. Personnel will not be burdened with body armor, field marching packs or similar equipment during this condition.

BLACK FLAG

WBGT: 90°F and above

Action: All strenuous outdoor physical activity will be halted for all units.

Note 1: Essential activities may be conducted outside this guidance with the following considerations: Essential activities are defined, as those activities associated with scheduled exercises or other major training evolutions where the disruption would cause undue burden on personnel or resources, be excessively expensive or significantly reduce a unit's combat readiness. Essential outdoor physical activity will be conducted at a level that is commensurate with work/rest cycles per enclosure (4) in conjunction with the unit's commanding officer, coordinating with the unit's ground safety manager, medical officer, and/or medical personnel as well as the supporting medical facility to ensure preparation for expected EHIs. All efforts should be made to reschedule these activities during cooler periods of the day. Individual elective outdoor physical fitness training shall also observe the same strict guidance.

Note 2: Most EHIs occur during no flag or green flag conditions. The American College of Sports Medicine (ACSM) Black flag condition starts at WBGT 82°F which is well within military green flag condition, WBGT 80°F to 84.9°F. EHIs occur even in temperatures as low as 60°F. WBGT guides do not fully prevent EHI.
**WORK / REST RATIOS AND FLUID REPLACEMENT GUIDE**

<table>
<thead>
<tr>
<th>Flag Condition</th>
<th>Easy Work**</th>
<th>Moderate Work**</th>
<th>Strenuous Work**</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Work/Rest</td>
<td>Water per Hr.</td>
<td>Work/Rest</td>
</tr>
<tr>
<td><strong>Green</strong></td>
<td>80-84.9</td>
<td>No Limit</td>
<td>½ Qt.</td>
</tr>
<tr>
<td><strong>Yellow</strong></td>
<td>85-87.9</td>
<td>No Limit</td>
<td>¾ Qt.</td>
</tr>
<tr>
<td><strong>Red</strong></td>
<td>88-89.9</td>
<td>No Limit</td>
<td>¾ Qt.</td>
</tr>
<tr>
<td><strong>Black</strong></td>
<td>90 and Greater</td>
<td>50/10</td>
<td>1 Qt.</td>
</tr>
</tbody>
</table>

Note 1: Add 10°F to the WBGT for MOPP gear, PPE, or body armor. Minimize restrictive clothing/equipment and wear light colored clothing if possible.

Note 2: Work/rest times and fluid replacement volumes will sustain performance and hydration for at least 4 hours of work in the specified heat category. Individual water needs will vary.
** CAUTION: Hourly fluid intake should not exceed 1 ½ quarts.
** Daily fluid intake should not exceed 12 quarts.
** If fluid intake begins to approach these maximal levels, supplement water intake with an electrolyte sports drink and ensure snacks/meals are consumed.

Note 3: It is important to eat snacks/meals for salt and calories.

Note 4: DON'T OVERDO IT! Beware of the accumulative affects of heat and exertion from previous days. Personnel who feel sick, dizzy or fatigued must stop exerting. Adjust work / rest ratios based on continuous unit assessment and self / buddy aid evaluations.

Note 5: Actively cool during rest periods by soaking hands and arms in water (colder better), showers, shade, fans, or any other means of cooling available. At a minimum, drop loads and relax dress.

** Examples of Easy, Moderate, and Strenuous Work.
PHYSICAL CONDITIONING AND ACCLIMATIZATION PROGRAM PROGRAMS

1. Physical conditioning is important for EHI risk reduction and accelerated acclimatization. Table 1 suggests a 6 week in garrison or predeployment physical reconditioning and acclimatization program. Use various exercise modalities to rest muscle groups (WALK, jog, bike, etc.). Weeks 1-4 improve aerobic fitness. Weeks 5-6 raise core temperature to assist acclimatization. Break a sweat but don't push beyond comfort in heat. Rest when needed.

<table>
<thead>
<tr>
<th>Week</th>
<th>Activity</th>
<th>Intensity (%HRmax)</th>
<th>Frequency (times per week)</th>
<th>Duration (min)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Intermittent</td>
<td>65% - 80%</td>
<td>3</td>
<td>35 - 40</td>
</tr>
<tr>
<td>3</td>
<td>exercise</td>
<td></td>
<td>4</td>
<td>45 - 55</td>
</tr>
<tr>
<td>4</td>
<td>Continuous</td>
<td></td>
<td>5</td>
<td>60 - 70</td>
</tr>
<tr>
<td>5</td>
<td>aerobic activity</td>
<td>55% - 65%</td>
<td>5</td>
<td>80 - 90</td>
</tr>
<tr>
<td>6</td>
<td></td>
<td></td>
<td></td>
<td>100</td>
</tr>
</tbody>
</table>

*Note: Maximal Heart Rate, HRmax=220-age. Example 65%HRmax calculation for a 25 year old Marine = 0.65(220-25)=127 beats per minute

2. Table 2 suggests an alternate 21 day acclimatization program that may also augment the program in Table 1 for deployments as an 8 day arrival in theater acclimatization program. The 1st day provides critical rehydration, sleep and rest to recover from a flight.

<table>
<thead>
<tr>
<th>Day</th>
<th>Dress</th>
<th>WBGT (°F)</th>
<th>Duration</th>
<th>Activity (moderate workload)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>NO ACTIVITY. REST, EAT, DRINK AND SLEEP (24 hr. after flight)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>T-shirt and shorts</td>
<td>79-86</td>
<td>1 x 50 min</td>
<td>Walk 3.5 mph</td>
</tr>
<tr>
<td>3</td>
<td>T-shirt and shorts</td>
<td>79-86</td>
<td>2 x 50 min</td>
<td>Walk 3.5 mph; rest 15 min; resume walking.</td>
</tr>
<tr>
<td>4</td>
<td>T-shirt and shorts</td>
<td>79-86</td>
<td>100 min</td>
<td>Walk 3.5 mph</td>
</tr>
<tr>
<td>5</td>
<td>Utility uniform</td>
<td>79-86</td>
<td>2 x 50 min</td>
<td>Walk 3.5 mph; remove blouse; rest 15 min; resume walking</td>
</tr>
<tr>
<td>6</td>
<td>Utility uniform</td>
<td>79-86</td>
<td>100 min</td>
<td>Walk 3.5 mph</td>
</tr>
<tr>
<td>7</td>
<td>Utility uniform and 22 lbs. load</td>
<td>79-86</td>
<td>2 x 50 min</td>
<td>Walk 3.5 mph; Remove blouse and load; rest 15 min; resume walking</td>
</tr>
<tr>
<td>8-21</td>
<td>Utility uniform and 22 lbs. load. (add load to 39 lbs as tolerated days 14+)</td>
<td>79-86</td>
<td>100 min</td>
<td>Walk 3.5 mph</td>
</tr>
</tbody>
</table>

Note 1. Allow for continuously available fluids to quench thirst.

Note 2. The moderate workload per enclosure (5) may be adjusted at one's own pace or mission needs but must avoid exhaustion or next day fatigue.

3. Acclimatization improves cooling mostly through increased sweating (evaporation) which is less effective in high humidity. Sweat rolling
(not evaporating) off the skin cools little. Acclimatization is important but it does not fully prevent EHI.

4. Acclimatization occurs by progressive and prolonged elevation of the body’s core temperature. Living in a hot environment without exercising in the environment provides little acclimatization. Working and sleeping in air conditioning inhibits acclimatization. Conditioned athletes acclimatize after 4 to 7 progressive exercise sessions of 1 hour to 4 hours total duration each over a period of 7 to 10 days. Studies indicate military units (various levels of individual conditioning) acclimatize about 40% at 1 week, 80% at 2 weeks and 100% at 3 weeks.

5. Maintain conditioning by following Table 1 weeks 1 to 6 as applicable during periods exceeding 2 weeks of not working or exerting in heat (air conditioned spaces, TAD, leave, injury). Reacclimatize in the area of heat with the 8 day program per Table 2.

6. Individuals not exercised or worked in heat for 2 to 4+ weeks should be reconditioned / acclimatized during a graduated 3 to 6 week reconditioning / acclimatization program adapted from Table 1 or Table 2. Reconditioning requires reverting to a lower level of exertion and increasing total exertion (product of time x intensity) by about 10% per week. A “rule-of-thumb” guide for deconditioned / nonacclimated personnel is to start at 50% (4+ weeks deconditioned) to 75% (3 weeks deconditioned) of the last “conditioned” exertion level and increase exertion about 10% per week for a total of 3 to 6 weeks. Written logs documenting exercise duration and intensity improve compliance. Leaders may determine when documentation of conditioning and/or acclimatization program completion is indicated.

7. Physically fit units where ALL individuals have a BMI less than 26 and an average run time less than 8 minutes per mile on their last PFT may only need 14 days acclimatization. Units with one or more individuals with a BMI equal to or greater than 26 or an average run time equal to or greater than 8 minutes per mile should expect 21 days to fully acclimatize. Days 1 through 8 of Table 2 should be sufficient if the conditioning program, Table 1, immediately precedes acclimatization. NOTE: For individuals preparing to deploy, the six week conditioning / acclimatization program in garrison followed by the 8 day upon arrival in theater program would be sufficient. This assumes less than 1 week travel time to the deployed theater.