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III MARINE EXPEDITIONARY FORCE (FMF)
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AND
MARINE CORPS INSTALLATIONS PACIFIC-MCB CAMP BUTLER
UNIT 35001
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III MEF/MCIPAC-MCBBO 6200.1A
SAF

28 FEB 2022

III MARINE EXPEDITIONARY FORCE/MARINE CORPS INSTALLATIONS PACIFIC-MCB CAMP BUTLER ORDER 6200.1A

From: Commanding General, III Marine Expeditionary Force
Commanding General, Marine Corps Installations Pacific-MCB Camp Butler
To: Distribution List

Subj: III MARINE EXPEDITIONARY FORCE/MARINE CORPS INSTALLATIONS PACIFIC-MCB CAMP BUTLER HEAT AND COLD STRESS INJURY PREVENTION PROGRAM

Ref: (a) MCO 5100.29C Volume 2
(b) MARADMIN 111/15
(c) NEHC-TM-OEM 6260.6A

Encl: (1) Flag Locations
(2) Heat Flag Activity Limitations
(3) Exertional Heat Injury (EHI) Risk Identification, Prevention, and Treatment
(4) Work/Rest Ratios and Fluid Replacement Guide
(5) Physical Conditioning and Acclimatization Programs
(6) Cold Weather Injury Risk Identification, Prevention, and Treatment

1. Situation. This Order provides policy, assigns responsibilities, and establishes guidelines to prevent and manage Exertional Heat and Cold Injury (EHI and ECI) for III Marine Expeditionary Force (MEF), Marine Corps Installations Pacific-MCB Camp Butler (MCIPAC-MCBB) and tenant activities.

a. The Wet Bulb Globe Temperature (WBGT) index reading is standardly used as an indicator of external heat stress on the human body. MCIPAC-MCBB air stations and installations shall designate a heat index season appropriate to their climate and location.

b. Unit commanders may monitor "climate" (heat/cold) conditions during the off-season as the situation/mission directs.

c. For use in this Order the below terms are defined:

(1) Garrison Based Field Events: Activities such as Physical Fitness Tests (PFTs)/Combat Fitness Tests (CFTs), Marine Corps Martial Arts Program (MCMAP), Water Survival Training/Swim Qualification, unit physical fitness events, and gas chambers happening aboard an installation outside of the range environment.

(2) Non-Garrison Based Field Events: Activities such as events taking place on a range, live fire event, dismounted movements, and jungle training.

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2. Cancellation. III MEF/MCIPAC-MCBBO 6200.1.

3. Mission. Per the references, establish procedures for the notification and tracking process of heat and cold conditions and to provide instructions on the prevention and treatment of heat and cold casualties for III MEF, MCIPAC-MCBB, and tenant activities. Commanders at all levels are responsible for the planning and execution of EHI and ECI prevention and management.

4. 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 and ECI cases within their commands.

(a) This Order applies to commanders and leaders at all levels. The period of greatest risk for heat injury on Okinawa is 1 May to 31 October and otherwise during any type of warm weather event. The heat index dates may be different for those MCIPAC-MCBB Installations outside of Okinawa. Enclosures (1) through (6) provide direction and guidance to prevent and manage EHI and ECI on and off duty.

(b) All personnel will use Risk Management (RM) per reference (a) for exercises, physical training, and warm/cold weather operations year-round to prevent EHI and ECI incidents within their command.

(2) Concept of Operations. Commanding Officers and Officers-in-Charge (OIC) shall support their respective Heat Stress System and EHI initiatives during the heat index period by:

(a) Properly posting and disseminating heat stress conditions/information as appropriate, and receiving units properly adhere to identified heat conditions.

(b) Obtaining local area WBGTs for field evolutions remote from the WBGT flag locations in enclosure (1), and record WBGTs in a log through the duration of evolutions. Logs must be maintained through the end of the heat season. WBGT readings will be taken hourly during Green through Yellow Flag conditions. upon reaching Red Flag condition, monitoring and recording WBGTs will be performed at least every 30 minutes until the evolution ends, or flag conditions are reduced back to Yellow or Green; notifying units within the area of responsibility of flag conditions per enclosure (2).

(c) Ensuring leaders know their troops and have relationships based on trust. Individuals must report their EHI risk levels and symptoms without fear of reprisal at all times.

(d) Ensuring personnel with one or more personal risk factors listed in enclosure (3) are identified, evaluated, cleared, and educated on EHI prevention strategies by a medical provider before physical exertion in heat. A supervisor and/or coworker will monitor identified individuals for EHI symptoms listed in enclosure (3) during all events or other outdoor activities within the designated heat season, or when temperatures may be expected to exceed 80 degrees Fahrenheit.

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(e) Ensuring the guidance in the references and enclosures within this order are applied using RM and control processes. For garrison based field events, Hospital Corpsman are not required to be on site. For these events, commanders or leaders shall ensure a RM assessment is signed off at the appropriate level per reference (a), and communication devices are available to summon emergency services. For non-garrison based field events, the commander or leader shall:

1. Designate at least one EHI-trained safety Hospital Corpsman capable of taking rectal temperatures and a designated safety vehicle with a driver to monitor the event, implement prevention measures, respond to heat related emergencies, and transport heat casualties. The safety corpsman will not actively participate in the evolution to which they are assigned to monitor.

2. Establish reliable communications (coordinated with EHI-trained safety Hospital Corpsman) with the supporting medical clinic or U.S. Naval Hospital (USNH) Okinawa emergency department during and outside normal working hours, and prior to commencing remote field events. Provide the supporting medical treatment facility (MTF) with information regarding the event time, location, and EHI risk assessment.

a. The Senior Medical Officer (SMO) and/or Clinic Manager must be notified of all events that may require clinic support.

b. After hours support requests must be routed at least two-weeks prior to the event, to the Director for Branch Clinics via the local Department Head of the Branch Medical Clinic where the event will be taking place.

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 (3). The above listed supplies for the safety vehicle are the responsibility of the unit controlling the event and can be purchased through GSA Servemart. Ice can be acquired by coordinating with the local dining facility. Medical supplies for evolutions must be requested by the respective unit's medical support, and will not be provided by the Branch Medical Clinic. The safety Hospital Corpsman will have basic first aid equipment to include rectal thermometer, blood pressure cuff, and Intravenous (IV) tubing and fluids. The safety Hospital Corpsman and cooler will go with the heat casualty transported by ambulance or safety vehicle for expedient cooling. If the exercise/evolution that required Hospital Corpsman support only has one EHI-trained Hospital Corpsman available, the event will be halted until their return, or until another EHI-trained Hospital Corpsman is on site.

(f) Obtaining WBGT information per enclosure (1).

(g) Regulating events, work/rest cycles, and fluid replacement per enclosures (2) and (4).

1. Ensuring proper fluid consumption to prevent dehydration-related injuries and EHI. It is essential to follow the fluid replacement guidelines in enclosure (4), including maximum fluid intake guidelines.

2. Adding 10-20 degrees Fahrenheit to WBGT in determining work/rest cycles and fluid replacement requirements for persons operating in heavy gear (mission oriented protective posture (MOPP), personal protective equipment (PPE), etc.) per enclosure (4).

(h) Applying the prevention guidance in enclosure (3) to all warm weather events.

(i) Conditioning and acclimating all personnel, per enclosure (5) before participation in a PFT/CFT or other high-risk activities, per enclosure (3), will maintain conditioning year-round.

(j) Reporting all Exertional Heat Injuries (EHIs) as directed by reference (b). All EHIs will be reported by the member's chain of command via Risk Management Information–Streamlined Incident Reporting (RMI-SIR) system. Use the installation's Reporting Unit Code (RUC) by location to ensure proper statistical analysis and tracking when an EHI occurs on one of the following installations:

1. Marine Corps Base (MCB) Camp Butler: 67400 (Camps Kinser, Foster, Lester, Courtney, Hansen, Schwab, Gonsalves (Jungle Warfare Training Center), and Ieshima Training Complex)

2. Marine Corps Air Station (MCAS) Iwakuni: 02209

3. Combined Arms Training Center (CATC) Camp Fuji: 20229

4. MCB Hawaii: 02301

5. MCAS Kaneohe Bay: 02303

6. MCAS Futenma: 02601

7. Camp Mujuk: 20810

8. Camp Blaz: 67420

(k) The member's first level command is also responsible for ensuring submission of a Medical Event Report (MER) in accordance with BUMED Instruction 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 via the electronic form in enclosure (3), appendix B. This form will be sent via email to the respective Major Subordinate Command (MSC) Surgeon's Office, III MEF Surgeon's Office at (iiimeffhp@usmc.mil), and to the USNH Okinawa Epidemiology Division at (usn.butler.navhospokinawaja.mesg.epidemiolgoy@mail.mil) phone number 646-9611 within 48 hours of EHI occurrence.

(l) Ensuring personnel receive training in EHI prevention, recognition, triage, treatment, and transport per enclosure (3) on an annual basis.

b. Subordinate Tasks

(1) Installation Commanders (MCB Hawaii, MCB Blaz, CATC Fuji, MCAS Iwakuni, and Camp Mujuk). Develop and promulgate heat and cold stress procedures for your respective areas of responsibility as applicable to this Order and the references to ensure notification procedures are identified to support units aboard your installations when conducting training evolutions.

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(2) MCIPAC-MCBB Camp Commanders and MCAS Futenma Station Commander. Camp/Station Commanders on Okinawa, to include the OIC, Ie Shima Detachment and OIC, Jungle Warfare Training Center (JWTC) will:

(a) Ensure the Automated Heat Stress System (AHSS) for your respective location is functioning on the MCCS Okinawa public website at <https://www.mccsokinawa.com/ahss/> while the heat index reading is in effect from 1 May to 31 October for Okinawa based units. Commencing at 0700 daily, ensure hourly readings of the heat index are updated on the website until conditions meet or exceed "RED Flag". When at or above "RED Flag" conditions, ensure the website is updated every thirty minutes until conditions return to "YELLOW Flag" or "GREEN Flag". If the heat index is not updating/functioning as stated above, immediately contact the Installation Safety Office (ISO) at 645-3806 for immediate trouble shooting or replacement.

(b) Purchase Green, Yellow, Red, and Black Heat Condition Flags and ensure the appropriate flag is flown from designated flagpole(s) per enclosure (1), at each camp/station area to indicate the effective WBGT heat index readings as noted below (flags and flag replacement information are available at USMC Servmart), contact Base Property Control Office (BPCO) Customer Service at 645-3438, or on the Global address book at MCBBUTLER, BPCO CUSTOMERS, CUSTSERV.BPCO.MCBB.FCT@USMC.MIL for purchase information.

| <u>Temp (°F)</u> | <u>Flag</u> |
|------------------|--------------|
| 80 - 84.9 | -Green Flag |
| 85 - 87.9 | -Yellow Flag |
| 88 - 89.9 | -Red Flag |
| 90 - Above | -Black Flag |

(c) Possess a backup system to the AHSS for measuring WBGT readings during heat stress season and maintain logs. Logs shall be maintained for the duration of the present heat stress season. Backup systems are available as needed for check out at the ISO. A backup system is defined as any system capable of providing the correct readings of Dry Bulb (DB) temperature, Wet Bulb (WB) temperature, Relative Humidity (RH), and Globe Temperature (GT). 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:
 $(DB \times 0.1) + (GT \times 0.2) + (WB \times 0.7) = (WBGT)$

(d) Provide a primary and alternate point of contact, with phone numbers, for AHSS administration to the MCIPAC-MCBB ISO.

(3) AC/S, G-3, III MEF. Process feasibility of support requests received via AMHS at address "III MEF, G-3" for commands that either do not have organic Hospital Corpsman within their Table of Organization, or for commands without sufficient Hospital Corpsman support for their scheduled event(s). Requests must be received by III MEF, G-3 six weeks prior to the event for support to be sourced.

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(4) AC/S, G-3, MCIPAC-MCBB. Ensure Range Control provides timely notification to training units in the field on Okinawa of WBGT readings. 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) Assistant Chief of Staff (AC/S), G-4, MCIPAC-MCBB. Maintain appropriate stock of Heat Flags at Base Property Control Office (BPCO) to support camps and the air station aboard Okinawa. Ensure a process is in place for Camp/Station Responsible Officers (RO) to survey Heat Flags that need to be replaced/surveyed. For Camps/Station to receive information on the flag replacement process, contact BPCO Customer Service at 645-3438 or on the Global address book at MCBBUTLER, BPCO CUSTOMERS <CUSTSERV.BPCO.MCBB.FCT@USMC.MIL>.

(6) AC/S, G-6, MCIPAC-MCBB. Maintain a web link on the internet and SharePoint incorporating the WBGT as sourced from the AHSS MCCA Okinawa public site.

(7) AC/S, Marine Corps Community Services (MCCA)

(a) Maintain AHSS sites within MCCA identified Gyms aboard Okinawa Camps and Station.

(b) Ensure heat stress readings are both displayed on <https://www.mccsokinawa.com/ahss/>, and the MCCA Liberty App.

(c) Ensure access is available to heat stress logs of present heat season for heat stress injury mishap investigation and historical purposes.

(d) Ensure access to MCCA facilities where AHSS are housed for maintenance/trouble shooting.

(8) Installation Safety Office, MCIPAC-MCBB

(a) Ensure proper funding, operation, maintenance, calibration and communication of WBGT systems.

(b) Maintain AHSS equipment as organizational property. If the online AHSS is out of service/off-line, ensure each alternate device is signed via hand receipt by the designated Camp/Station representative at the rank of E-6 or above, or civilian equivalent prior to use. During the off-season months (1 November - 30 April) all AHSS equipment and alternate devices will be removed from active locations for storage by 30 November.

(c) Coordinate the maintenance, installation, and operation of WBGT equipment and AHSS sites to include retention of historical database for WBGT heat index (Okinawa) per enclosures (1) and (2).

(d) Ensure hand-held WBGT systems are available for checkout for field evolutions remote from the WBGT flag locations. Request of equipment can take place by calling the camp Foster ISO at 645-3806.

(9) MCIPAC-MCBB Communication and Strategy. Provide information campaign support throughout the EHI season to educate the Marine Corps community on the dangers associated with heat illness/injury, preventive measures, and first aid procedures.

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(10) III MEF Surgeon's Office. Provide a medical expert to review this Order annually and provide recommended updates to the MCIPAC-MCBB Safety Director.

(11) Commanding Officer, USNH Okinawa

(a) Request the Emergency Medical System (EMS), MTF, 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.

(b) Ensure Hospital Corpsman are trained or receive refresher training annually to be qualified as EHI-trained safety Hospital Corpsman.

(12) Commanding Officers, OICs, and Civilian Equivalents

(a) Commands organically staffed with Hospital Corpsman will ensure unit Safety and Medical personnel provide EHI training annually to all personnel no later than fifteen days prior to the designated heat season. Those personnel arriving in country during the EHI season shall be provided training within the first week of reporting to duty.

(b) Commands not organically staffed with Hospital Corpsman shall request support as appropriate via the Automated Message Handling System (AMHS) to AMHS address "III MEF, G-3" six weeks prior to events that require Hospital Corpsman support. If there is a specific command in mind to provide the support, add their AMHS address to the CC on the message release. Also, provide EHI training annually to all personnel no later than fifteen days prior to the designated heat season.

(c) 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, Commanding Officers will establish a system to identify and monitor new arrivals and previous heat casualties e.g., wearing a strip of white tape on Kevlar helmet, or around pants leg.

(d) Ensure appropriate risk management assessment are conducted for both garrison and non-garrison based field events utilizing the Joint Risk Assessment Tool at <https://jrat.safety.army.mil/>, per reference (a).

(e) For garrison based field events, when Hospital Corpsman are not on site, ensure appropriate communication devices are on site to ensure emergency services can be contacted if needed.

5. Administration and Logistics. Any deviations or requests for changes to this Order must be routed to the Director, ISO MCIPAC-MCBB.

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6. Command and Signal

a. Command. This Order is applicable to members of the United States Armed Forces assigned to III MEF, MCIPAC-MCBB installation commands, and other tenants and activities operating on MCIPAC-MCBB installations.

b. Signal. This Order is effective the date signed.



W. J. BOWERS



J. W. BIERMAN

DISTRIBUTION: III MEF List I, II
MCIPAC-MCBB List A

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Heat flag contact and location information are as follows:

| CAMP/STATION | MONITORED BY | BLDG# | PHONE# | FLAG LOCATION |
|-----------------------------------|---|----------------------------|--|--|
| Foster | Camp Services | 494 | 645-7315 | Bldg 1 (MCB/WING HQ) Bldg 494 (H&S BN) |
| Kinser | Camp Services | 107 | 637-1886 | Bldg 107 (Camp HQ/Gate 1) Bldg 1307(Gym Area) Bldg 500 (Warehouse Road) Bldg 1217(Roberts Field) Bldg 864 (JSG HQ) Bldg 520 (PMO) |
| Hansen | Camp Operations | 2860 | 623-4649 | Bldg 2860 (Camp HQ) Bldg 2386(Clinic) Bldg 2466 (Ranges) Gate 1 Parade Deck Hansen Brig |
| Courtney | Camp Services | 4231 | 622-7633 | Bldg 4231 (Clinic) Bldg 4451 (Gym) |
| Schwab | Camp Services | 3403 | 625-2215 | Bldg 3522 (Regiment) Bldg 1020 (Ammo) |
| MCAS Futenma | Station Weather | 510 | 636-3177 | Bldg 159 (Semper Fit Gym) Bldg 510 (Station Weather) |
| Gonsalves | IDC (Corpsman) | 500 | 622-2211/2238 | Bldg 500 (HQ/BEQ) |
| Ie Shima Training Facility (ISTF) | OIC | 80 | 622-2600 | Bldg 80 (ISTF HQ) |
| MCAS Iwakuni | Weather Officer | 5780 | 253-3005 | Bldg 1 (HQ) Bldg 1010 (Ironworks South) Bldg 9595 (Ironworks North) Bldg 3420 (Boathouse) |
| Fuji | Range Control | 265 | 224-8051 | Bldg 265 (CP) |
| Hawaii | METOC (MCAS) CDO (MCBH) CDO (CLB-3) SDO (MAG-24) | 6823 216 1086 301 | 808-257-2839 808-257-7700 808-257-0047 808-590-6961 | Bldg 6823 Bldg 216 Bldg 1086 Bldg 301 |
| Mujuk | S-4 | 1201 | 315-763-6927 | Front Gate (PMO) |
| MCB Blaz | TBD | TBD | TBD | TBD |

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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 personnel who have not become thoroughly acclimatized. Personnel 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: Halt all non-essential physical activity for all units. **Essential activities described below may proceed ONLY after appropriate risk management decision by the commander, and/or commanding officers per reference (a) is made.**

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) and in conjunction with the unit's Commanding Officer coordinating with the Ground Safety Manager/Officer, Medical Officer, and/or medical personnel, as well as the supporting medical treatment facility (MTF) to ensure preparation for expected Exertional Heat Injuries (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 principals of risk mitigation.

Note 2: Most EHIs occur during No flag or Green flag conditions.

The American College of Sports Medicine (ACSM) Black flag condition starts at Wet Bulb Globe Temperature (WBGT) 82°F, which is well within military Green flag condition of WBGT 80°F to 84.9°F. EHIs occur even when temperatures are as low as 60°F. WBGT guides do not fully prevent EHI.

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| Flag Color | WBGT Index (°F) | Intensity of Physical Exercise |
|---|-----------------|---|
| Green  | 80-84.9 | Discretion required in planning heavy exercise for un-acclimated personnel. |
| Yellow  | 85-87.9 | Strenuous exercise and activities (e.g., close order drills) should be curtailed for new and un-acclimated personnel during the first three weeks of heat exposure. |
| Red  | 88-89.9 | Strenuous exercise curtailed for all personnel with less than 12 weeks training in hot weather. |
| Black  | 90 and Above | Physical training and strenuous exercise suspended for ALL PERSONNEL (excludes operational commitment not for training purposes). |

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EXERTIONAL HEAT INJURY (EHI) RISK IDENTIFICATION, PREVENTION, AND TREATMENT

Appendices: (A) Heat Deck Standard Operating Procedure Guide
(B) Report of Heat/Cold Injury, NAVMED 6500/1 (rev 9-92)

General. EHI occurs commonly in Marines and Sailors exerting in hot, humid and low wind environments. EHI is affected by multiple contributing factors and encompasses a spectrum of illnesses ranging from simple “heat cramps” to life threatening “heat stroke”. Permanent damage and death are directly related to how much time the body spends at an elevated temperature. No instruction or guide can cover all possible situations.

1. Risk Factors

a. Environmental

(1) Exertion in high Wet Bulb Globe Temperature (WBGT) conditions per enclosure (2). The effects of heat and exertion are cumulative.

(2) Wearing clothes or equipment that restricts cooling (add 10°F to WBGT for wearing kevlar, flack, and pack or mission oriented protective posture (MOPP) gear).

(3) Competition, peer pressure, or “orders” pushing individuals beyond ability (e.g., unit runs, humps, Physical Fitness Test (PFT), or Combat Fitness Test (CFT)).

b. Personal

(1) Physical conditioning. EHI risk is increased when personnel are overweight, and out of shape.

(2) Illness: Observation or symptoms of fever, vomiting, diarrhea, or respiratory illness within three days requires medical clearance.

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

(4) Fatigue and stress.

(5) Acclimatization less than three weeks per enclosure (5).

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

(7) Medications, alcohol and supplements; personal taking prescription medication and/or supplements require medical clearance.

(8) Personnel who have experienced a prior EHI or have acute or chronic medical conditions predisposing them to EHI (dehydration, sunburn, heart disease, diabetes, overweight or obese, or, anyone with a genetic predisposition, i.e., sickle cell trait) require medical clearance before resuming training.

2. Prevention

a. Leaders must know their personnel and monitor at risk personnel. Ensure medical clearance is adhered to in situations listed in paragraph b.

b. Troops must trust they can communicate a change in their EHI risk level and symptoms, or stop exerting physically without fear of reprisal.

c. Physically conditioned and acclimatized per enclosure (5).

d. Apply Risk Management (RM) before, during, and after evolutions, paying close attention to flag locations listed in enclosure (1) and heat activity limitations per enclosure (2). Plan events for low risk times.

e. Provide rest with shade, active cooling, meals, and fluids per enclosure (4).

f. Group “conditioning” unit marches and runs shall be curtailed during black flag or other risk times.

g. 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. Isolated painful muscle spasms of the legs, arms, and torso are treated with oral sodium (salty snacks), fluid replacement, and rest. Transport to a medical facility if not resolved within 30 minutes.

b. Heat (Parade) Syncope. Should improve rapidly with shade, water, and lying flat with the legs elevated. If condition does not improve within three minutes, or fully resolve within 15 minutes, treat as heat stroke.

c. Heat Exhaustion. Fatigue, malaise, headache, nausea, vomiting, cramps, rapid breathing, rapid heart rate, dizziness (especially during exertion) is a medical emergency.

d. Heat Stroke. Mental status changes/neurologic symptoms alone, or in conjunction with other heat cramps or heat exhaustion symptoms are a medical emergency.

(1) Stop casualty from exerting. Verify and manage Airway, Breathing, and Circulation (ABCs).

(2) Move casualty to shade, remove excessive clothing (keep undergarments) and pour water over the casualty while notifying a Hospital Corpsman and safety vehicle for transport to a medical treatment facility (MTF).

(3) Medical personnel responding will obtain vital signs including an initial rectal temperature and follow appropriate medical protocols.

(4) Prepare to evacuate casualty, contact emergency services. If ambulance is unable to access the location, transport with tactical assets escorted by onsite medical personnel.

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(a) For the following scenarios:

- Rectal temperature greater than 103°F with Heat Exhaustion/Heat Stroke or

- Rectal temperature between 102-103°F with Heat Exhaustion/Heat Stroke

EXPEDITIOUSLY TRANSPORT TO NEAREST SUPPORTING HEAT DECK CAPABLE MEDICAL FACILITY WHILE COOLING, APPLY ICE WATER SOAKED SHEETS AND TOWELS around the body and head changing every 60 seconds during safety vehicle (or ambulance) transport, or place ice or “cool packs” in the groin and axilla while pouring water over the EHI casualty, AND if possible, have air conditioning in transport vehicle set to coldest level. If no air conditioning, drive with windows/top down. Limit IV hydration to 1L Normal Saline (NS) unless hypovolemic shock is present. Do not delay cooling or transport to obtain IV access or administer IV fluids. Cool to 102°F during transport.

(b) For rectal temperature less than 102°F with signs of heat cramps that do not resolve in 30 min, or heat exhaustion, the patient should be transported to a HEAT DECK Clinic or MTF for urgent evaluation and disposition by a medical provider.

(c) Provide medical turnover to the accepting medical provider. Hospital Corpsmen will not return to the field until the patient/casualty has been secured by the accepting medical provider at the higher level of care.

(d) Treating medical personnel will ensure that any incidence of heat illness described above should be reported within 12 hours of the incident via the U.S. Naval Hospital Okinawa (USNHO) Form NAVMED 6500/1.

4. Emergency Heat Deck Treatment (HEAT DECK Standing Operating Procedures (SOPs) for all Branch Clinics). The Branch Clinics Standard HEAT DECK SOP will be followed for all heat casualties brought to those clinics.

- a. The clinic manager or other designated responsible party with clinic access should ensure during the high risk season that heat deck personnel, to include a provider, are available on site during clinic hours when there is a black flag or other conditions of high risk.

- b. On arrival to Heat Deck, medical personnel must verify and manage patient Airway Breathing and Circulation.

- c. Obtain rectal temperature and vital signs and establish large bore IV access (18 gauge or higher).

- d. 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 identified as mass casualties):

- (1) Packing and Pouring: Pack ice around, 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 results can be achieved with ice and water with 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;

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(2) Ice bath Immersion: Immerse patient in ice water pool (circulating water cools more rapidly. Best published cooling rate of 0.35°F per minute.

(3) Field and Transport Method: Serial wrapping every 60 seconds with ice water soaked sheets around the body and towels around the head, “burrito method.” Place ice or “cool packs” in the areas of the neck, groin, and axilla (armpit) while pouring water over the EHI casualty.

e. 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. **PERFORM COOLING WITH CARDIAC MONITORING** if possible and ensure cooling is continued with ice and water.

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

g. Utilize NS as infusion of choice at a rate to be determined by the medical provider.

h. Perform an initial mental status exam and continually monitor for changes. If the patient deteriorates, pursue immediate transport via ambulance to the USNHO Emergency Department.

i. Obtain glucometer glucose reading. If the glucose reading is less than 70 mg/dl, consider additional glucose with the medical officer’s consultation.

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

k. Document treatment on NAVMED form 6500/1, Appendix B, and in AHLTA (i.e. USNHO Heat Injury template).

5. Transport, Admission, and Disposition Guidelines to USNHO:

a. Heat Injury casualties on Okinawa will be transported to the USNHO for final diagnosis, treatment, and disposition. Heat Injury casualties outside Okinawa will be transported and treated according to local installation policy. The treating medical provider will contact the receiving medical provider. Copies of all medical documentation, to include NAVMED Form 6500/1, Appendix B, and the medical provider’s and nursing notes will accompany transport as applicable.

b. All Heat Injury casualties will be monitored until all studies, including laboratory data, are reviewed by a medical provider and the patient’s symptoms are resolved. Upon discharge, all casualties are placed sick-in-quarters with a follow-up appointment within 24 hours. Patients will be placed on light duty with no PT for seven days. At that time, a medical provider will re-evaluate the patient and make further duty determination. No patient should return to full duty without medical clearance.

c. Document all follow-up visits in the patient’s medical record.

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

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a. 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.

b. 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) and tissue (muscle, gut) injury that are 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.

7. 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.

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. The Hospital Corpsman or assisting person must travel with the ambulance to assist in ice water cooling of the casualty during transport.

c. Complete required documentation.

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Appendix A

HEAT DECK STANDARD OPERATING PROCEDURE GUIDE

1. This Heat Deck SOP for Okinawa is in effect 1 May to 31 Oct and when the expected temperature exceeds 80°F. III MEF units outside of Okinawa shall abide by local installation policy while adhering to this Heat Deck SOP as closely as possible.
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 Airway, Breathing, and Circulation (ABCs)), 1 vitals taker, 2 cooling personnel. Prepacked IV and lab supply kits in bags ready for use aid in 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 two sheets and two towels will be ready daily (cooling in transport if needed). Event coverage Hospital 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 when notified of an incoming casualty. The water should be changed after treatment of the 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 poured 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 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. Manufacturer's sanitation guidelines will be followed.
9. When Tropical Cyclone Condition of Readiness 1 (TCOR 1) is set, pools moved inside and the wooden pool platform will be secured. The platforms and pools will be made ready when clinic operations return to normal.

Appendix B

| REPORT OF HEAT/COLD INJURY | | | |
|--|---|---|--|
| FROM: DATE _____ | | NAME _____ | |
| TO [USNHO - PREVENTIVE MEDICINE] [] | | GRADE _____ RATE _____ RACE _____ SEX _____ AGE _____ | |
| | | BIRTHPLACE _____ | |
| | | DATE AND TIME OF EXAMINATION _____ | |
| | | UNIT TO WHICH ATTACHED _____ | |
| | | DATE REPORTED TO PRESENT STATION _____ | |
| PRESENT ILLNESS (Onset Date and Time) | WEIGHT _____ | DIAGNOSIS (check one) <input type="checkbox"/> HEAT CRAMPS <input type="checkbox"/> HEAT EXHAUSTION <input type="checkbox"/> HEAT STROKE <input type="checkbox"/> CHILBLAIN <input type="checkbox"/> FROSTBITE <input type="checkbox"/> HYPOTHERMIA | TIME ON ACTIVE DUTY (Months) _____ |
| DESCRIBE BRIEFLY WHAT PATIENT WAS DOING AT TIME OF INJURY. INCLUDE DESCRIPTION OF CLOTHING _____ | | | |
| NOTE: (1) ALL HEAT-STRESS INJURIES SHOULD HAVE RECTAL TEMPERATURES. (2) ALL HEAT-STRESS INJURIES WITH RECTAL TEMPERATURES GREATER THAN 104°F SHOULD HAVE SERUM SGOT DRAWN 24 HOURS AFTER THE INJURY | | | LAB FINDINGS |
| SYMPTOMS (Check all applicable) <input type="checkbox"/> UNCONSCIOUS <input type="checkbox"/> WEAK <input type="checkbox"/> OTHER (Specify) _____ <input type="checkbox"/> DIZZY <input type="checkbox"/> NAUSEA <input type="checkbox"/> CONFUSED <input type="checkbox"/> CRAMPS <input type="checkbox"/> NUMBNESS <input type="checkbox"/> VOMITING <input type="checkbox"/> VISUAL DISTURBANCES (Specify) _____ | | | SKIN (Check all applicable) <input type="checkbox"/> RED <input type="checkbox"/> NORMAL <input type="checkbox"/> PALE <input type="checkbox"/> OTHER (Specify) _____ <input type="checkbox"/> WET <input type="checkbox"/> DRY <input type="checkbox"/> RASH |
| TEMPERATURE (°F) _____ PULSE _____ HEIGHT _____ | | | |
| HOURS OF SLEEP (Last 24 Hours) _____ | LAST MEAL (Date and time) _____ AMOUNT _____ <input type="checkbox"/> LIGHT <input type="checkbox"/> MODERATE <input type="checkbox"/> HEAVY | BLOOD PRESSURE SYSTOLIC _____ DIASTOLIC _____ | |
| AMOUNT OF WATER IN QTS. (Last 12 Hours) _____ | SWEATING (Check one) <input type="checkbox"/> EXCESS <input type="checkbox"/> MODERATE <input type="checkbox"/> NONE <input type="checkbox"/> SLIGHT | | |
| LAST HISTORY OF HEAT/COLD ILLNESS (Specify type) _____ | | | |
| DATE (MONTH AND DAY) _____ | | DIAGNOSIS _____ | |
| RECENT ILLNESS OR IMMUNIZATION _____ | | | |
| DATE _____ | | DIAGNOSIS _____ | |
| DISPOSITION PRESENT ILLNESS | | <input type="checkbox"/> BINNACLE LIST/SIQ (NUMBER OF DAYS) _____ <input type="checkbox"/> LIGHT DUTY (NUMBER OF DAYS) _____ | |
| <input type="checkbox"/> CLINIC <input type="checkbox"/> HOSPITAL (Admitted) | | | |
| REMARKS (Initial treatment, long-term treatment potential, extent of injury, remission) _____ | | | |
| SIGNATURE _____ | | | |
| PREPARED: _____ | | SUBMITTED: _____ | |
| | | COMMANDING OFFICER _____ | |
| NAVMED 6500/1 (Rev. 9-92) | | | |

Reset

28 FEB 2022**WORK / REST RATIOS AND FLUID REPLACEMENT GUIDE**

| Flag Condition | WBGT °F | Easy Work** | | Moderate Work** | | Strenuous Work** | |
|----------------|----------------|-------------|---------------|-----------------|---------------|------------------|---------------|
| | | Work/ Rest | Water per Hr. | Work/ Rest | Water per Hr. | Work/ Rest | Water per Hr. |
| Green | 80-84.9 | No Limit | ½ Qt. | 50/10 | ¾ Qt. | 30/30 | 1 Qt. |
| Yellow | 85-87.9 | No Limit | ¾ Qt. | 40/20 | ¾ Qt. | 30/30 | 1 Qt. |
| Red | 88-89.9 | No Limit | ¾ Qt. | 30/30 | ¾ Qt. | 20/40 | 1 Qt. |
| Black | 90 and Greater | 50/10 | 1 Qt. | 20/40 | 1 Qt. | 10/50 | 1 Qt. |

Note 1: Add 10°F to the WBGT index for MOPP gear performing Easy Work and add 20°F to the WBGT index for Moderate and Hard Work.

Note 2: Add 10°F to the WBGT index PPE, or when body armor is worn. Minimize restrictive clothing/equipment and wear light colored clothing if possible.

Note 3: Work/rest times and fluid replacement volumes will sustain performance and hydration for at least four hours of work in the specified heat category. Individual water needs will vary.

** CAUTION: Hourly fluid intake should not exceed 1 ½ quarts per hour.

** 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 4: It is important to eat snacks/meals for salt and calories.

Note 5: **DON'T OVERDO IT!** Beware of the accumulative effects 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 6: Actively cool during rest periods by soaking hands and arms in water (colder better), via showers, shade, fans, or any other means of cooling. At a minimum, drop loads and relax dress.

| Easy Work | Moderate Work | Strenuous Work |
|---|--|---|
| -Weapon maintenance -Walking hard surface at 2.5 mph, <30 lb. load -Manual of Arms -Marksmanship training -Drill and ceremony | -Walking loose sand at 2.5 mph, no load -Walking hard surface at 3.5 mph, <40 pound load -Calisthenics -Patrolling -Individual movement technique; e.g., low crawl, high crawl -Defensive position Construction -Field assaults | -Walking hard surface at 3.5 mph, ≥40 lb. load. -Walking loose sand at 2.5 mph with load. -Running and participating in physical conditioning training. |

** Examples of Easy, Moderate, and Strenuous Work.

28 FEB 2022**PHYSICAL CONDITIONING AND ACCLIMATING PROGRAMS**

1. Physical conditioning is important for Exertional Heat Injury (EHI) risk reduction and accelerated acclimating. Table 1 suggests six weeks in garrison or pre deployment physical conditioning and acclimating 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 acclimating. Break a sweat but don't push beyond comfort in heat. Rest when needed.

Table 1. CONDITIONING AND ACCLIMATING IN GARRISON OR PREDEPLOYMENT

| Week | Activity | Intensity (%HRmax)* | Frequency (times per week) | Duration (min) |
|------|-----------------------------|---------------------|----------------------------|----------------|
| 1 | Intermittent exercise | 65% - 80% | 3 | 35 - 40 |
| 2 | | | 4 | 45 - 55 |
| 3 | | | 4 | 60 - 70 |
| 4 | | | 5 | 80 - 90 |
| 5 | Continuous aerobic activity | 55% - 65% | 5 | 100 |
| 6 | | | 7 | |

*Note: Maximum 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 acclimating program that may also augment the program in Table 1 for deployments as an eight day arrival in theater acclimating program. The first day provides critical rehydration, sleep and rest to recover from a flight.

Table 2. ACCLIMATIZATION IN GARRISON / UPON ARRIVAL IN THEATER

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

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

Note 2: The moderate workload may be adjusted at one's own pace or mission needs but must avoid exhaustion.

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3. Acclimating improves cooling mostly through increased sweating (evaporation) which is less effective in high humidity. Acclimating is important, but does not fully prevent EHI.
4. Acclimating 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 four to seven progressive exercise sessions of one hour to four hours total duration each over a period of seven to ten days. Studies indicate military units (various levels of individual conditioning) acclimatize about 40% at one week, 80% at two weeks and 100% at three weeks.
5. Individuals not exercising or working in heat for two to four plus weeks should be reconditioned/acclimatized during a graduated three to six week reconditioning / acclimating program adapted from Table 1 or Table 2. Reconditioning requires reverting to a lower level of exertion and increasing total exertion. A "rule-of-thumb" guide for deconditioned /non-acclimated personnel is to start at 50% of the last "conditioned" exertion level and increase exertion about 10% per week for a total of three to six weeks. Leaders may determine when documentation of conditioning and/or acclimatization program completion is indicated.

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COLD WEATHER INJURY RISK IDENTIFICATION, PREVENTION, AND TREATMENT

Appendices: (A) Cold Casualty Decision Matrix
(B) Report of Heat/Cold Injury, NAVMED 6500/1 (rev 9-92)

General. Cold weather injuries occur commonly in Marines and Sailors working in cold, wet and high wind environments. Cold weather-related injuries include: injuries due to decreased temperature (hypothermia, frostbite, nonfreezing cold injury), injuries due to heaters, carbon monoxide poisoning, and accidents due to impaired physical and/or mental function resulting from cold stress. Cold weather injuries can also occur in warmer ambient temperatures when an individual is wet due to rain or water immersion. Permanent damage and death are directly related to how much time the body spends in cold weather temperatures. No instruction or guide can cover all possible situations.

1. Risk Factors

a. Environmental

(1) The primary factors in cold weather injuries are temperature and air (wind) speed, which cause the cooling effect from convection and evaporation (wind chill).

(2) Wind chill temperature index is a calculation of the cooling effect on the body in cold weather conditions.

(3) An individual's exposure time to cold weather conditions will vary by susceptibility and resistance based on age, geographic origin, nutrition and gender.

b. Personal

(1) Physical Conditioning. Personnel are at increased risk for cold injury if not in top physical shape. Over exertion can cause loss of large amounts of body heat by perspiration cooling the body rapidly.

(2) Illness. Fever, vomiting, diarrhea, or respiratory illness within three days requires medical clearance.

(3) Fatigue and stress. Mental weariness may cause an individual to neglect body defense mechanisms.

(4) Inadequate hydration and nutrition (calories and salt). In snow covered terrain, normal daily military rations increase to 7,000 calories per day.

(5) Medications, and supplements require medical clearance.

(6) Prior cold weather injuries increase and individual's risk of subsequent cold injuries.

(7) Additional injuries that are not related to cold, but reduce blood flow to extremities, significantly increase the risk of cold weather injury.

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2. Prevention

a. Leaders must know their personnel, and monitor at risk personnel. Ensure medical clearance in situations listed in paragraph b.

b. Troops must trust they can communicate changing cold weather injury risk and symptoms, or stop exerting without fear of reprisal.

c. Cold-related injuries are preventable, provided leadership equips members with adequate clothing, nutrition, hydration and dry shelter, limiting or avoiding alcohol and allowing gradual acclimating.

d. Apply RM before, during, and after evolutions, paying close attention to ambient and wind chill temperatures.

e. Provide cold weather injury education, training and proper use of protective equipment at least two weeks prior to the start of the mission, or training in a cold weather related environment.

3. Signs, Symptoms and Treatment of Cold Weather Injuries. Cold weather injuries refer to a spectrum of disorders (e.g., dehydration, sunburn, snow blindness, carbon monoxide poisoning, chilblains, immersion/trench foot, frostbite and hypothermia) resulting from total body cold stress.

a. Dehydration: Is a deficiency in body fluids that inhibits body functions. Proper hydration is essential to supplying fuel and energy to body parts to facilitate heat production.

(1) Signs and Symptoms: Irritability, darkening urine, decreased amounts of urine being produced, dry mouth, tiredness, mental sluggishness, lack of appetite, increased or rapid heartbeat, dizziness, and even unconsciousness.

(2) Treatment: To treat dehydration, give the individual warm liquids to drink. Warm liquids will be consumed more readily in a cold environment than cold beverages. Avoid coffee, sodas, cocoa, tea and other caffeinated beverages. Do not let the victim eat snow as this uses up body heat and might be contaminated by disease causing pathogens.

b. Sunburn: Because the air temperature seems relatively cold, many misjudge the intensity of the sun. Thinner air allows more of the burning rays of the sun to penetrate the atmosphere and reflect light off the snow.

(1) Signs and Symptoms: First degree burns involve reddening of the skin and second degree burns are characterized by the formation of blisters.

(2) Treatment: Sunburn is usually treated on first notice by further application of sunscreens. In mild cases, a sunburned patient can continue their duties even though they may suffer significant discomfort for a few days. In more severe cases, a cold compresses should be applied, aspirin may be taken for pain, and warm liquids should be administered to replenish body fluids. Clothing provides adequate coverage of the skin, however, exposed areas such as the face, lips, neck, ears, and bare hands are susceptible to sunburn. In addition, light reflection from snow can cause burns in areas not ordinarily affected, such as under the chin, around the eyes, inside the nostrils and ears, and even on the roof of the mouth.

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c. Carbon Monoxide (CO₂) Poisoning: CO₂ is a colorless, odorless, tasteless gas. Large amounts of this gas can build up when there is not proper ventilation for engines, stoves, and heaters. Many people have fell to sleep and died from carbon monoxide poisoning.

(1) Signs and Symptoms: Signs/symptoms progress slowly. At the onset, they may go unnoticed because carbon monoxide is colorless, tasteless, and odorless. Symptoms include headache, tiredness, excessive yawning, confusion, followed by unconsciousness, and eventually death. A cherry-red coloring to the tissues of the lips, mouth, and inside the eyelids occurs very late in CO₂ poisoning when the patient is very near death.

(2) Treatment: If experiencing any of the symptoms of CO₂ poisoning, stay calm and move to fresh air immediately. Panic and haste decisions may cause one to pass out in the area of high CO₂ concentration. If a patient is found unconscious in a running vehicle or a heated tent, immediately take him/her to fresh air and perform mouth-to-mouth resuscitation until revived, another trained person takes over, or EMS arrives to take control of the scene. Send someone for medical aid; severe complications can develop, even in casualties who appear to have recovered perfectly.

d. Snow Blindness: Blindness is a very painful inflammation of the eyes (cornea) caused by overexposure to the ultraviolet rays of the sun.

(1) Signs and Symptoms: The eyes will become bloodshot; feel irritated (full of sand). The eyes will be red and there can be a lot of tearing. Eye movement will cause pain.

(2) Treatment: If snow blindness develops, blindfold both eyes and apply a clean, cool wet compress to eyes. This prevents further damage to eyes and reduces the pain associated with movement. If further exposure is unavoidable, use the dark glasses or bandages with tiny pinholes to decrease further damage while letting the injured patient function. Seek medical attention immediately. Aspirin can be used to control the pain. Recovery may take two to three days.

e. Chilblains: Chilblains is a condition that usually occurs in temperatures above freezing, accompanied by high humidity. It can develop in only a few hours of skin exposed to cold. The most common affected areas are the ears, nose, fingers, and toes.

(1) Signs and Symptoms: Appears as red, swollen skin, which is tender, hot to the touch and may itch. This can worsen to an aching, prickly (pins and needles) sensation and then numbness. In severe cases, blistering may appear.

(2) Treatment: Apply local warming (putting bare hands over the affected area on the face; putting affected hands inside the uniform under the armpits; putting bare feet against the abdomen of another). Rubbing or massaging the affected area may cause tissue damage. Have medical personnel evaluate the area for tissue damage.

f. Trench/Immersion Foot: Trench foot/Immersion foot results from prolonged exposure to water at temperatures usually below 50° F. It is not limited to the feet and produces severe injury to affected areas. The combination of cold and moisture softens skin, causing tissue loss, blisters and often infection.

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(1) Signs and Symptoms:

(a) Extremity appears cold, swollen and mottled. Cyanosis, a blueness of the skin resulting from imperfectly oxygenated blood, is usually present. Usually occurs in 3 stages:

1. First stage: Affected part is cold, without pain. Weak pulse at the site.
2. Second stage: Affected limb feels hot, as through burning and has shooting pains.
3. Third stage: Injured patient has pale skin, cyanosis around the nail beds and lips, and decreased pulse strength.

(b) When the extremity re-warms, the skin becomes warm, dry, and red. The pulse rebounds and the injury is painful. The injured area may itch, tingle, and exhibit increased sensitivity to cold; these symptoms, along with nerve damage, may be permanent. Recovery can take weeks. Development of blisters, ulcers, and gangrene is possible. Amputation may be necessary.

(2) Treatment: Remove wet clothing; replace with dry, warm clothes and slowly warm the patient at room temperature. The affected area may become swollen, red and hot to the touch after it has been re-warmed. Avoid walking on injured feet as blisters may form. Elevate feet to reduce swelling (edema) and seek prompt medical attention. Above all, do not break the blisters as this can lead to an infection of the area. Bed rest and avoid trauma until the injury heals.

g. Frostbite/Freezing Injury: Normally occurs at temperatures below 28° F. Frostbite is freezing or crystallization of living tissues. Exposure time can be minutes, or instantaneous if skin is directly exposed to extreme cold or high winds. The extremities (fingers, toes, ears, etc.) and face are affected first. Extent of frostbite depends on temperature and duration of exposure.

(1) Symptoms: Symptoms of frostbite vary and may include a cold feeling, pain, burning, followed by numbness as it progresses in severity. The skin turns pale or grayish, appearing frosty or waxy-white. The skin may feel hard, may not be movable over joints and bony prominence with these areas possibly being frozen. The level of deep frostbite cannot be determined in the field. It may take three to seven days or longer for medical personnel to ascertain the extent of the injury. Blisters, swelling, and pain may occur after thawing. There are four predominate stages of frostbite.

(a) First stage (Superficial Frostbite): Skin will become numb and turn to a gray or waxy-white color. The area will be cold to the touch and may feel stiff, but the underlying tissue will be soft.

(b) Second stage (Full Thickness): Freezing of the dermis, frozen surfaces appear white and feel soft and doughy. Deep tissues will still remain unaffected. However, blisters will form around two days after thawing. Normally, second stage frostbite results in full recovery, but might, on occasion, result in permanent lack of sensitivity to hot and cold in those areas.

(c) Third and Fourth stages (Deep Frostbite): Usually extend beyond the first layer of skin and may include the bone. Joint movement may be absent or restricted depending on the extent of the injury. Discoloration is the same as for superficial frostbite, but the underlying tissue is hard. If an entire area is frostbitten, such as an entire foot or hand, tissues may appear purple as the result of sludging (thickening)

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of blood within the vessels. A blackened appearance will be noticed after the injury has thawed. This category of frostbite requires immediate evacuation to a medical facility.

(2) Field Treatment: You must take action at once if you notice your feet, hands or parts of your face becoming numb. If your feet are numb, place your bare feet against the warm abdomen of a buddy and keep them there until the pain returns. There should be very little pressure placed on the affected areas to ensure the ice crystals do not further damage the tissue. If your face is numb, cover the area with your bare hands until the pain returns. DO NOT massage the affected area as this will cause further damage-the crystallized tissues may break internally and cause more damage. If your hands are numb, place them under your clothes, in your armpits or on your belly. DO NOT apply ointments or medications to the frostbitten area. DO NOT give alcoholic beverages or tobacco products. Give the casualty something warm to drink. Remember, when the skin starts to thaw, it will hurt. Do not lance blisters; cover them with sterile dressing. If tissues freeze, evacuate the victim immediately as a litter casualty. Thawing of a frostbitten victim is a medical procedure and should not be done by nonmedical personnel. If you must continue to walk on frostbitten feet, do not thaw the affected area until walking is no longer necessary. It will be nearly impossible to walk on thawed, frostbitten feet and it will be extremely painful. Walking on frozen feet does less harm than walking on thawed feet.

h. Hypothermia: Hypothermia is a condition of abnormally low core body temperature, which occurs when heat loss exceeds the body's heat production. Hypothermia is usually associated with cold climates, but it can occur in warm climates during extended exposure in thunderstorms, hail, rain, water submersion or water exposure, and accompanying winds.

(1) Symptoms: Signs and symptoms of hypothermia change as body temperature falls. Mental function tends to decline first, and the patient loses ability to respond appropriately to the environment. Muscular functions deteriorate until too clumsy to walk or stand. Biochemical processes become slow and deficient as the body cools. Unfortunately, early signs and symptoms of hypothermia can be difficult to recognize and may easily go undetected. A victim may deny trouble; believe the symptoms, not the victim.

(a) Mental signs: Decision making abilities deteriorate. Response to cold becomes slow, improper, or indifferent. In general state the patient becomes apathetic and lethargic, and expresses increased complaints. Cooperation in group activities decrease. Many also exhibit slurred speech, accompanied by disorientation progressing to incoherence, irrationality, and possible unconsciousness.

(b) Physical (muscular) signs: In the early and moderate stages of hypothermia a patient may experience hypothermic losses of fine motor ability, which may progress to stumbling, clumsiness, and falling. In severe cases, shivering ceases, and patients exhibit stiffness and inability to move.

(2) Initial Field Treatment of Hypothermia: Seek medical attention immediately. The preferred method is to immediately evacuate the casualty.

(a) Moderate hypothermia: Move the casualty out of the water and wind to a sheltered environment. Replace wet clothing with dry clothes. Cover the casualty with blankets or other insulating material. Apply heating pads wrapped in towels to the casualty's armpits, groin, and abdomen. If patient is conscious and alert, give warm nutritious fluids to drink, simple sweetened foods to eat. Carbohydrates are fuel which most quickly transforms into heat and energy. Do not give alcoholic beverages or tobacco

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products. Wrap victim from head to toe and gently evacuate to a medical facility in a recumbent (lying down) position.

(b) Severe hypothermia: Cut away wet clothing and replace with dry clothes. Ensure the casualty's airway remains open. Apply an additional heat source. One method is to place the casualty in a sleeping bag with outer clothing removed and have another member remove their outer clothing and get into the sleeping bag with the victim (monitor rescuer for hypothermia). Cover both members with additional clothing. Evacuate the casualty to a medical facility as soon as possible. Handle very gently since hypothermia causes an irritable heart, which could result in a cardiac event. During evacuation, the patient should be insulated from the cold surfaces of a vehicle or transport.

4. Initial Field Treatment of Frostbite: Managing freezing injuries in the field depends on many conditions, including the treatment of other injuries, the possibility of hypothermia (body temperature below 95°F/35°C, the possibility of refreezing, and the ease of evacuation. Once a tissue is thawed, it must not freeze again. If there is the possibility that tissue could be thawed and then refreeze (for example, evacuation), the tissue must not be allowed to thaw since re-formation of ice crystals will cause increased tissue damage. If the patient is required to walk, do not thaw extremities.

5. Transport, Admission and Disposition Guidelines.

a. Hypothermia casualties on Okinawa will be transported to USNH Okinawa for final diagnosis, treatment, and disposition. Cold weather casualties outside of Okinawa will be transported and treated according to local installation policy. The treating medical provider will contact the receiving medical provider. Copies of all medical documentation, to include NAVMED Form 6500/1, Appendix B, and medical providers and nursing notes, will accompany transport.

b. Document all follow-up visits in the victim's medical record. Follow-up and disposition must consider that certain individuals have genetic pre-dispositions to environmental cold injury.

c. All cold weather casualties, whether injuries are more intensive than most injuries, may require extended recovery time. The medical provider will re-evaluate the patient on a consistent basis until returned to full duty. No patient should return to full duty without medical clearance.

6. Documentation. Per the Tri-service Reportable Events Guidelines and Case Definitions, March 2012, the following ICD-10 codes should be used for cold weather injuries are:

a. T86 (Hypothermia Accidental): A condition of abnormally low core body temperature which occurs when heat loss exceeds the body's heat production.

b. T69.02 (Immersion Foot): A condition of the feet produced by prolonged exposure to water.

c. T69.1 (Chilblains): A rare condition characterized by skin inflammation, blister formation, swelling and ulcerations in the extremities. It occurs in persons exposed to cold temperatures.

d. T33.90 (Frostbite superficial): A condition of living tissues, freezing or crystallizing in minutes exposed to extreme cold or high winds.

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Table 1-1 Rewarming protocol

| Pre-thaw | Thaw | Post-thaw |
|--|---|--|
| <ul style="list-style-type: none"> • Protect part – no friction massage. • Stabilize core temperature. • Address medical and surgical conditions. • Rehydrate patient. | <ul style="list-style-type: none"> • Provide parenteral ketorolac or other analgesia. • Provide tetanus booster. • Immerse part in circulating water that is thermometer-monitored at 98–104 °F (37–40 °C). • Encourage gentle motion of part, but do not massage. • Administer drugs to inhibit platelet activity, smooth muscle contraction, and vasoconstriction. | <ul style="list-style-type: none"> • Dry and elevate part. • Leave clear vesicles intact. • Debride broken vesicles, and apply topical antibiotic or sterile aloe vera ointment. • Leave hemorrhagic vesicles intact. • Consider tetanus and streptococcal prophylaxis. • Provide hydrotherapy at 98 °F (37 °C) three times a day. • Consider dibenzylene in severe cases. • Administer ibuprofen 400 mg every 8 hours orally. |

Appendix B

| REPORT OF HEAT/COLD INJURY | | | | | |
|---|------------|--|---|--|--------------------|
| FROM: DATE _____ | | | NAME _____ | | |
| TO: USNHO - PREVENTIVE MEDICINE | | | GRADE _____ RATE _____ RACE _____ SEX _____ AGE _____ | | |
| [] | | | BIRTHPLACE _____ | | |
| [] | | | DATE AND TIME OF EXAMINATION _____ | | |
| [] | | | UNIT TO WHICH ATTACHED _____ | | |
| [] | | | DATE REPORTED TO PRESENT STATION _____ | | |
| PRESENT ILLNESS (Onset Date and Time) | WBGT _____ | DIAGNOSIS (check one) <input type="checkbox"/> HEAT CRAMPS <input type="checkbox"/> CHILBLAIN <input type="checkbox"/> HEAT EXHAUSTION <input type="checkbox"/> FROSTBITE <input type="checkbox"/> HEAT STROKE <input type="checkbox"/> HYPOTHERMIA | TIME ON ACTIVE DUTY (Months) _____ | | |
| DESCRIBE BRIEFLY WHAT PATIENT WAS DOING AT TIME OF INJURY. INCLUDE DESCRIPTION OF CLOTHING _____ | | | | | |
| NOTE: (1) ALL HEAT-STRESS INJURIES SHOULD HAVE RECTAL TEMPERATURES. (2) ALL HEAT-STRESS INJURIES WITH RECTAL TEMPERATURES GREATER THAN 104°F SHOULD HAVE SEBUM SCOT DRAWN 24 HOURS AFTER THE INJURY | | | | | LAB FINDINGS _____ |
| SYMPTOMS (Check all applicable) <input type="checkbox"/> UNCONSCIOUS <input type="checkbox"/> WEAK <input type="checkbox"/> OTHER (Specify) _____ <input type="checkbox"/> DIZZY <input type="checkbox"/> NAUSEA <input type="checkbox"/> CONFUSED <input type="checkbox"/> CRAMPS <input checked="" type="checkbox"/> NUMBNESS <input type="checkbox"/> VOMITING <input type="checkbox"/> VISUAL DISTURBANCES (Specify) _____ | | | | SKIN (Check all applicable) <input type="checkbox"/> RED <input type="checkbox"/> NORMAL <input type="checkbox"/> PALE <input type="checkbox"/> OTHER (Specify) _____ <input type="checkbox"/> WET <input type="checkbox"/> DRY <input type="checkbox"/> RASH | |
| HOURS OF SLEEP (Last 24 Hours) _____ | | LAST MEAL (Date and time) _____ AMOUNT <input type="checkbox"/> LIGHT <input type="checkbox"/> MODERATE <input type="checkbox"/> HEAVY | | BLOOD PRESSURE SYSTOLIC _____ DIASTOLIC _____ | |
| AMOUNT OF WATER IN QTS. (Last 12 Hours) _____ | | SWEATING (Check one) <input type="checkbox"/> EXCESS <input type="checkbox"/> MODERATE <input type="checkbox"/> NONE <input type="checkbox"/> SLIGHT | | | |
| LAST HISTORY OF HEAT/COLD ILLNESS (Specify type) _____ | | | | | |
| DATE (MONTH AND DAY) _____ | | DIAGNOSIS _____ NONE | | | |
| RECENT ILLNESS OR IMMUNIZATION _____ | | | | | |
| DATE _____ | | DIAGNOSIS _____ NONE | | | |
| DISPOSITION PRESENT ILLNESS <input type="checkbox"/> CLINIC <input type="checkbox"/> HOSPITAL (Admitted) | | | | <input type="checkbox"/> BINNACLE LIST/SIQ (NUMBER OF DAYS) _____ <input type="checkbox"/> LIGHT DUTY (NUMBER OF DAYS) _____ | |
| REMARKS (Initial treatment, long-term treatment potential, extent of injury, remission) _____ | | | | | |
| SIGNATURE _____ | | | | | |
| PREPARED: _____ | | | SUBMITTED: _____ COMMANDING OFFICER | | |

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