Hot Weather Casualties and Injuries Chart

- Train commanders and soldiers on heat injury prevention and heat risk assessment
- Remember the acronym **H**-**E**-**A**-**T** when training in hot weather (**H**: heat category; **E**: exertion level; **A**: acclimatization; **T**: time of heat exposure & recovery time)
- Follow recommended fluid replacement guidelines and ensure nutritional requirements are met

Sunburn

Cause
- Exposure of skin to direct sun
- Can occur on overcast days

Symptoms
- Red, hot skin
- May blister
- Moderate to severe pain
- Can result in fever

First-Aid
- Move to shade; loosen clothing if necessary
- Apply cold compress or immerse in cool water
- Apply moisturizing lotion to affected areas
- Hydrate with fluids
- Administer analgesics for pain or fever
- Do not break blisters

Prevention
- Adequate sun protection
- Use sunscreen liberally and apply often, especially when sweating excessively
- Select SPF 15 or higher
- Proper wear of clothing, cap

Heat Rash (Prickly Heat)

Cause
- Restrictive clothing
- Excessive sweating
- Inadequate hygiene
- Causes heat intolerance if 20% of skin affected

Symptoms
- Red, itchy skin
- Bumpy skin due to blocked pores
- Moderate to severe itching
- Can result in infection

First-Aid
- Apply cold compress or immerse in cool water
- Keep area affected dry
- Control itching and infection with prescribed medications

Prevention
- Proper wear of clothing
- Shower (nude) after excessive sweating

Heat Exhaustion

Cause
- Body fatigue and strain on heart due to overwhelming heat stress
- Dehydration (see below)
- Inadequate acclimatization
- Inadequate physical fitness for the work task
- Most common exertional heat illness

Symptoms
- Dizziness
- Fatigue
- Weakness
- Headache, nausea
- Unsteady walk
- Rapid pulse
- Shortness of breath

First-Aid
- Initiate active cooling by best means available
- Move to shade and loosen clothing
- Lay flat and elevate feet
- Spray/pour water on soldier and fan for cooling effect or use ice sheets around neck, arm pits and groin, if available
- Monitor with the same (one) instructor or supervisor
- Assess soldier's mental status every few minutes
- Have soldier slowly drink one full canteen (quart) of cool water every 30 minutes with a maximum of 2 canteens
- If not improved in 30 to 60 minutes, evacuate for further medical care
- NOTE: Those who recover within 60 minutes should return to light duty on a profile for the remainder of the day

Prevention
- Allow for acclimatization
- Monitor WBGT
- Keep soldiers in shade whenever possible
- Follow water replacement guides
- Observe work-rest cycles
- Identify high risk individuals
- Maintain buddy system
- Eat all meals in garrison and field
- Do not take dietary supplements
- Modify uniform accordingly
- Teach early recognition of symptoms
- Recognize cumulative effect of sequential hot days
- Reevaluate training mission if several mild heat injuries occur

Heat Cramps

Cause
- Excessive loss of salt from body due to excessive sweating
- Not acclimatized to hot weather

Symptoms
- Painful skeletal muscle cramps or spasms
- Mostly affects legs and arms

First-Aid
- Replace salts
- Sit quietly in the shade or cool area
- Massage affected muscle
- Drink oral rehydration package or sports drink
- Drink 0.05 to 0.1% salt solution (add ¼ of MRE salt packet to 1 quart canteen)
- Get medical evaluation if cramps persist

Prevention
- Eat all meals to replace salt
- Consume salt-supplemented beverages if adequate meals have not been consumed prior to prolonged periods of heavy sweating
- Ensure adequate heat acclimatization

Heat Stroke

Cause
- Prolonged exposure to high temperatures
- Cumulative heat stress due to repetitive activity in hot environment
- Failure of body's cooling mechanisms
- Prolonged and overwhelming heat stress
- Predisposing factors such as sickness, poor health or certain medications

Symptoms
- Any of above symptoms for heat exhaustion, but more severe
- Nausea, vomiting
- Altered mental status w/agitation, confusion, delirium, disorientation
- Elevated temperature, usually above 104° F
- Can progress to loss of consciousness, coma, and seizures

First-Aid
- This is a **medical emergency** and can lead to death! **Evacuate** soldier to a medical facility immediately!
- **Begin cooling aggressively**. Body temperature that does not go below 100° F with active cooling or ANY mental status changes calls for immediate evacuation
- Initiate measures for heat exhaustion
- Apply ice packs or iced sheets
- Assess soldier's mental status every few minutes
- If conscious, give sips of cool water while waiting for evacuation or ambulance
- Do not give water to unconscious soldier
- If possible, measure body temperature
- Monitor airway and breathing
- If medic or CLS is present, start intravenous (IV) fluids but limit to 500 ml NS or LR
- Continue cooling process during transport (until body temperature reaches 100° F or shivering starts)

Prevention
- Follow measures for heat exhaustion
- Plan medical support for heat intensive operations
- Ensure appropriate Evacuation capabilities available
- Ensure Preventive Medicine personnel and measures are in place

Additional Medical Considerations in the Hot Weather Environment:

Dehydration

Cause
- Depletion of body fluids and possibly salt

Symptoms
- Dizziness
- Weakness and fatigue
- Rapid pulse

First-Aid
- Replace lost water and salt
- Water should be sipped, not gulped
- Get medical treatment

Prevention
- Drink 3-6 quarts of fluid per day
- Do not take dietary supplements
- Consume full meals and drink at mealtime
- Follow fluid replacement guidelines

Over Hydration (Hyponatremia)

Cause
- Over hydration or water intoxication
- Decreased meals or dieting
- Loss of body salt
- Misdiagnosis and treatment for dehydration

Symptoms
- Confusion
- Weakness
- Nausea, vomiting

First-Aid
- Replace salt loss
- Follow measures for heat exhaustion
- If symptoms persist or become more severe with rehydration, immediate evacuation

Prevention
- Follow fluid replacement guidelines
- Replace lost salt by consuming meals and sports drinks, as directed
- Provide snacks or carbohydrate electrolyte beverage during long training events
- Do not take dietary supplements

See http://chppm-www.apgea.army.mil/coldinjury for an electronic version of this document and other resources

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