

WILDERNESS AND RURAL LIFE SUPPORT GUIDELINES

Editor:

Robert J. Koester, M.S. *WEMT course coordinator, Virginia Department of Emergency Services.
Director Appalachian Search & Rescue Conference (A.S.R.C.)*

The following individuals served as contributing editors.

Albert M. Baker, M.D. *Resident, Dept. of Internal Med. Medical College of Virginia Hospital. A.S.R.C.*
Richard A. Christoph, M.D. *Pediatric EMS Director, University of Virginia Medical Center.*
Keith Conover, M.D. *Department of Emergency Medicine, Mercy Hospital of Pittsburgh. A.S.R.C.*
Anne Eckman, EMT *University of Virginia Medical School. A.S.R.C.*
Lorick Fox, REMT-P, PA-C *Cardiac Surgery, McGuire VA Medical Center. Flight Paramedic, A.S.R.C.*
Carol Gilbert, M.D. *Director of Trauma, Roanoke Memorial Hospital. A.S.R.C.*
George Lindbeck, M.D. *Department of Emergency Medicine, University of Virginia Medical Center.*
William Mackreth, EMT-P *Flight Paramedic, University of Virginia Medical Center. A.S.R.C.*
Diana D. Rockwell, R.N. *Prehospital Coordinator, University of Virginia Medical Center.*

The editors have taken great care to make certain that all guidelines are correct at the time of this printing. However, as our knowledge of wilderness and rural medicine expands, guidelines will change. *Procedures requiring special training by a physician are indicated by italics.* This set of guidelines is not intended to take the place of an education in wilderness and rural emergency medicine. It is intended to provide a set of reminders to practitioners in the field.

dbS Productions
Charlottesville, Virginia

Copyright © 1991 by **dbS Productions**
All rights reserved.

No part of this book may be reproduced in any form or by any electronic or mechanical means including storage and retrieval systems without permission in writing from the publisher except by a reviewer who may quote brief passages in a review. Permission is also granted to the Appalachian Search & Rescue Conference Inc. to make copies of this particular document, but only for the distribution to active members of the Conference as defined by the A.S.R.C. bylaws.

Published by dbS Productions
P.O. Box 1894
University Station
Charlottesville, Virginia 22903
For Orders call (800) 745-1581
C.O.D. or send check or money order

Printed in the United States

Wilderness and Rural Life Support Guidelines

Library of Congress Catalogue Card Number: 90-85412
International Standard Book Number: 1-879471-02-7 applies to heavy bond waterproof version 4"x7" available from dbS productions for \$10.00. plus \$4.50 shipping and handling. 10% discount for 10-24, 20% discount for 25 or more. \$0.25 shipping charges for each additional book over one.

GENERAL ORDERS FOR ALL PATIENTS

! Assess scene for safety hazards and chance of trauma.

*Check responsiveness.

*Primary survey (**see Appendix C**).

*Obtain brief history.

*Reassure patient and keep informed about treatment.

*Perform secondary survey.

*Radio base with the following information as soon as possible.

a. Team identification

b. Radio net security request

c. Patient status code

d. Team location

e. Patient's age, sex, approximate weight

f. Patient's chief complaint, mechanism of injury

g. Description of history of present injury or illness with pertinent negatives

h. Pertinent past history (medications, allergies)

i. Vital signs, mental status, and physical findings

j. Highest level of medical training on team, equipment available; and additional equipment or personnel needed.

k. Treatment provided

l. Estimated time for evacuation to roadhead

*Update report regularly and immediately advise base of important changes.

*Record all notes on Initial Report Form (**see back**).

*Fill out EMS report form.

*Providers must **not** provide any treatment for which they are not certified.

SHOCK

A. HYPOVOLEMIC SHOCK

*Primary survey (**see appendix C**).

a. Airway with cervical spine control

b. Breathing

c. Circulation: control of major bleeding

d. Disability (mental status AVPU)

e. Expose and evaluate all injuries. Cover again and insulate to conserve heat

*Vitals every 5 minutes until stable, then every 15 min.

*Perform brief multi-trauma survey.

*Treat for shock.

a. Elevate legs or the foot of Stokes basket if no respiratory distress

b. Apply *MAST* if multi-system trauma, or injuries of abdomen, pelvis, or legs. Inflate if systolic Blood Pressure (BP) less than 90 mmHg with clinical signs of shock (**see appendix B for contraindications**)*

c. Keep patient warm

*Administer O₂ - high percentage (**see appendix A**).

*Splint any suspected fractures.

*Request helicopter evacuation.

B. CARDIOGENIC SHOCK

- *Place patient in position of greatest comfort.
- *Vitals every 5 minutes including breath sounds until stable then every 15 minutes.
- *Administer high percentage O₂ (**see appendix A**).
- *Keep patient warm.
- *If possible, seek medical command advice before moving.
- *Request helicopter evacuation.
- * *Italics indicates skill requiring approval of physician.*

C. ANAPHYLACTIC SHOCK

(difficulty breathing, wheezes, generalized hives, and low blood pressure after exposure to possible allergen.)

- *ABC's.
- *History (e.g. recent insect stings, ingestions, past reactions).
- *Assure removal of stinger.
- *Listen to breath sounds for development of respiratory difficulty (wheezing, stridor).
- *Elevate legs unless respiratory distress occurs.
- *Vitals every 5 minutes until stable then every 15 min.
- *Assist patient in administration of their own Epinephrine (Ana-Kit™, Epi-Pen™).
- **For Adults: Administer a subcutaneous injection of 0.3 ml epinephrine (1:1000) (**see appendix Q**).*
- **For Children: Administer 0.01 ml/kg epi (1:1000) S.Q. up to a maximum of 0.3 ml.*
- **Repeat injection in 10 minutes if needed.*
- **Administer 50 mg. (two capsules) oral Benadryl™ (diphenhydramine) to Adults (> 12 y.o.).*
- *Keep patient warm.
- *Administer O₂ - high flow (**see appendix A**).
- *Request helicopter evacuation if unstable.

CARDIAC PROBLEMS

A. SUSPECTED CARDIAC PAIN

- *ABC's.
- *Take brief history (past history, Angina, MI, CHF, diabetes, hypertension, COPD, meds..).
- *Evaluate for heartburn and chest muscle injuries.
- *Vitals every 5 minutes until stable then every 15 min.
- *Check for pulmonary edema (wheezes, rales).
- *Loosen restrictive clothing and place patient in position of greatest comfort.
- *Reassure patient.

*Allow patient to take own nitroglycerin 0.4 mg. S.L. every 5 minutes x 3 if needed, and systolic BP > 100
Closely monitor blood pressure. If effectively reduces pain or difficulty breathing, dosage may be repeated

*Administer O₂ - High flow (consider history of COPD).

*Evacuate with medical command approval.

*Consider helicopter evacuation.

B. CONGESTIVE FAILURE

(Fluid in the lungs, shortness of breath, wheezes, rales)

*Treatment same as Suspected Cardiac Pain (**see above**).

*Keep patient in position of greatest comfort. If possible allow patient to sit up with legs dangling.

*Listen for progression of crackles, rales and wheezes.

*Request helicopter evacuation.

RESPIRATORY

A. ASTHMA

*ABC's. Observe closely for respiratory depression.

*Brief history (past history, medications...).

*Vitals every 5 minutes until stable then every 30 min.

*Place patient in position of greatest comfort.

*Increase oral fluid intake (if History of asthma).

*Assist patient with administration of personal inhaler.

*Administer *warmed*, humidified O₂.

**If severely dyspneic administer 2-3 deep inhalations 1-5 minutes apart of albuterol with a metered dose inhaler. May repeat as long as pulse < 140 and diastolic BP < 100.*

If albuterol unsuccessful, no history of chest pain, and age 12-45 then administer 0.3mg (0.3ml) 1:1000 epinephrine S. Q. (see appendix Q**).*

*Consider helicopter evacuation.

B. HYPERVENTILATION

*Evaluate for and treat other disorders (i.e. Fever, CNS disorder, anxiety, ingestion, hyperglycemia).

*Place patient in position of greatest comfort.

*Reassure patient. Avoid paper bags, monitor for signs of airway obstruction.

C. DYSPNEA (difficulty breathing)

*ABC's.

*Take history (recent trauma, asthma, cardiac disease, insect stings).

*Calm and reassure patient.

*Vital signs every 5 minutes until stable then every 15 minutes. Listen to lungs.

*Place patient in sitting position.

*Loosen restrictive clothing.

*Administer O₂ - high flow. Consider COPD.

CHEST TRAUMA See musculoskeletal protocols.

ANAPHYLACTIC SHOCK See Shock protocols.

GASTROINTESTINAL

A. ACUTE ABDOMEN

- *History (past surgery, trauma, eating, pain onset, pain type, blood in stool or urine, nausea/vomiting).
- *Abdominal exam (check bowel sounds first, percussion, palpate & check for rebound tenderness and scars).
- *Vitals every 15 minutes. Oral temperature every hour.
- *Place patient in position of greatest comfort and minimize movement.
- *Nothing by mouth.
- *Request helicopter evacuation.

B. DIARRHEA/VOLUME DEPLETION

- *History (infection, fever, eating, pain onset, pain type, blood in stool, fecal incontinence).
- *Abdominal exam (check bowel sounds first, percussion, palpate, scars).
- *Vital signs every 15 minutes until stable. Include hourly orthostatic BP.
- *Increase clear oral fluids unless contraindicated. Administer formulated oral electrolyte mixtures (**see appendix J**).

C. NAUSEA/VOMITING

- *History.
- *Vital signs every 15 min., include hourly orthostatic BP.
- *Prevent aspiration of vomitus.
 - a. Secure patient on side in stokes basket
 - b. Suction secretions constantly with syringe or other portable suction device if level of consciousness decreased
- *Consider helicopter evacuation.

DIABETES

A. HYPOGLYCEMIA

(low blood sugar)

Conscious patient

- *Obtain brief history.
- *Vitals every 5 minutes including neurological checks until stable, then every 30 minutes.
- *Allow patient to take sugar orally.

Unconscious patient

- *ABC's. check for med-alert tag.
- *Consider other causes of altered mental status (hypothermia, head injury, overdose...).
- *Vitals every 5 minutes until stable. Include initial temperature, watch for signs of shock.
- *Prevent aspiration of secretions by regular suction. Secure patient on side in the Stokes basket.
- *Keep patient warm.
- *Carefully administer glucose paste under the tongue.
- *Administer *Glucagon 1mg (1ml) I.M* (**see appendix Q**).
- *Administer O₂ - high flow, consider COPD.
- *Consider helicopter evacuation.

B. HYPERGLYCEMIA (high blood sugar, ketoacidosis)

- *ABC's check for medical alert tag.

- *Take history, if available.
- *If unsure if patient is hyperglycemic or hypoglycemic, treat for hypoglycemia and observe.
- *Vitals every 10 minutes with neurological checks until stable then every 30 min.
- *If fully conscious, administer oral fluids.
- *Prevent aspiration of vomitus and prepare for vomiting.
- *Treat for possible shock.
- *Administer O₂ - high flow (consider history of COPD).
- *Request helicopter evacuation.

MUSCULOSKELETAL

A. CHEST INJURIES

Broken rib (point tenderness of rib)

- *Assess breath sounds to determine presence of underlying lung injuries.
- *Vital signs every 5 minutes until stable.
- *Encourage patient to take occasional deep breaths.
- *If respiratory distress, administer O₂ - high flow. Consider history of COPD.
- *Constantly evaluate for pneumothorax and watch for progression.

Flail Chest (paradoxical movement)

- *ABC's If inadequate respirations, assist ventilations.
- *Stabilize segment by constant, firm manual pressure or having patient lie with the injured side down. Consider positive pressure assistance to ventilations.
- *Treat flail chest before moving on to other injuries.
- *Administer O₂ - high flow (**see appendix A**).
- *Vitals every 5 minutes, including breath sounds.
- *Secure bulky soft mass as a splint on top of loose fragment of chest wall with adhesive tape.
- *Request helicopter evacuation.

Pneumothorax (decreased breath sounds, shortness of breath)

- *ABC's
- *Assess and treat any trauma.
- *Administer O₂ - high flow (**see appendix A**).
- *Vitals every 5 minutes until stable then every 15 minutes. Include breath sounds.
- *Apply occlusive dressing if needed for chest/neck trauma. Have patient cough, then cover.
- *Watch for signs of tension pneumothorax (tracheal deviation, diminishing breath sounds, increasing difficulty breathing).
- *Be prepared to suction airway.
- *Transport in most comfortable position.

*Request helicopter evacuation.

Perforating Chest Injury

*ABC's.

*Administer O₂ - high flow (**see appendix A**).

*Close hole immediately with sterile occlusive dressing by having patient cough then cover.

*Do **not** tape completely, leave one side untaped to create valve-like effect. If dyspnea increases remove dressing & reapply at end of expiration.

*Vitals every 5 minutes including breath sounds until stable then every 15 minutes.

*Assess and treat for trauma.

*Monitor carefully, watch for the signs of a tension pneumothorax.

*Transport in most comfortable position (sitting).

*Request helicopter evacuation.

B. SPRAINS AND STRAINS

*Obtain history and mechanism of injury.

*Perform neurological and circulatory survey (movement, sensation, pulses, and capillary refill) distal to injury.

*Allow patient to walk only if no gross swelling or ecchymosis, and patient able to walk forward and backwards. If successful, treat with rest, cold (snow, ice, cold water), an elastic bandage, and elevation.

*Otherwise, treat as a fracture.

C. FRACTURES (Fx)

*ABC's, check for and control bleeding.

*Obtain history and mechanism of injury.

*Perform neurological and circulatory survey (movement, sensation, pulses, and capillary refill) distal to injury.

*If distal pulses present, immobilize and splint the Fx and the joints above and below the Fx.

*Apply cold compresses (snow, ice, cold water, instant ice) over site of bruise around Fx.

*If distal pulse absent, apply traction, straighten limb, splint and immobilize, and maintain traction if required. See next step regarding open Fx. If still no pulse, reposition again.

*If open Fx, do **not** push bones into wound. Splint limbs as they lie. Straighten open Fx with gentle axial traction only if a) distal pulses are absent and cap refill poor or b) splinting necessary to control bleeding or c) splinting necessary for rescue.

*If open Fx, a) if evacuation > 2 hrs, and if b) sterile saline or clean water is available, then irrigate wound with copious amounts of fluid under pressure prior to straightening. **See next step** regarding irrigation technique.

*Prepare a) at least one liter of clean water per each square inch of wound. b) May use Iodine tablets in safe water. c) Irrigate the wound using a 35cc syringe with a 16-19 gauge needle or angiocath after removing needle. Improvise with plastic bag or glove.

*Repeat neurological and circulatory checks frequently after splinting.

*Treat for shock, if indicated.

*Elevate injured extremity whenever possible and not contraindicated.

*Request helicopter evacuation if diminished circulatory or neurological status or if open Fx.

D. DISLOCATIONS

General

*Check movement, pulses, sensation distal to injury.

*If circulation and neurological signs normal, immobilize the involved joints proximal and distal to injury, in position of greatest comfort. If impaired request helicopter evacuation.

Shoulder dislocation

**Attempt anterior shoulder dislocation reduction if a) patient evacuation to hospital will take > 6 hr, b) no signs of midshaft fracture present, and c) dislocation occurred within last 4 hours.*

**Contact medical command if possible.*

*a) *Have patient lie face down on a rock, log, or other platform and allow the affected arm to dangle down with 10-15lb weight on wrist or upper arm (see appendix P).*

b) *The patient is told to relax and eventually spontaneous reduction may occur (about 1 hour).*

c) *After reduction, immobilize arm with sling and swathe, check neurovascular status (see appendix P).*

Patella dislocation

**Attempt patella reduction if a) pt evacuation to hospital > 6 hr, and b) injury occurred within 2 hours.*

**Flex hip and apply gentle traction that slowly extends the knee while gently pushing the patella back into its normal position.*

**Immobilize knee in extended position from the ankle to the groin and repeat neurological and circulatory status.*

Knee dislocation

*Check distal pulses, circulation and neurological status.

*Attempt knee dislocation reduction only if no distal pulses present with poor capillary refill or distal neurological deficits. First attempt contact with Medical Command.

*One person stabilizes the femur proximal to the knee.

*Second person applies in-line traction on the lower leg.

*Repeat neurovascular checks and periodically check for compartment syndrome (see appendix B).

*Splint leg with approximately 15° of flexion.

*Request helicopter evacuation.

Hip dislocation and fracture.

*Check distal pulses, circulation, and neurological status.

*Buddy splint legs together after padding. When available, apply traction device for femur fractures.

*Request helicopter evacuation.

E. NECK/SPINE INJURIES

*In case of high-velocity impact (e.g., fall greater than 15', aircraft crash, motor vehicle accidents) head injury with altered consciousness, unconsciousness associated with trauma, severe facial trauma, any sign or symptom of spine injury (abnormal motor or sensory function, numbness, spine tenderness or pain on neck or back, tingling), or unknown mechanism of injury, then assume spinal cord injury.

*Maintain cervical neutrality on patient's head.

*Apply a stiff cervical collar, if available. Do **not** hyperextend neck. If not, use available materials to stabilize

the head and neck.

*Vitals every 5 minutes until stable then every 30 min.

*Evaluate, and treat for shock. If stable, may await arrival of more definitive immobilization devices prior to evacuation.

*Place on backboard, KED, vacuum splint or other rigid stretcher, in normal anatomical position, when available.

*Insure backboard or device and lumbar section of the spine (small of the back) well padded.

*Insure knees kept slightly flexed for patient's comfort.

*To prevent aspiration, suction secretions. Anticipate vomiting when packaging patient. Rotate patient as a whole if needed.

*Conduct and document neurological checks every 10-15 minutes.

*Consider helicopter evacuation.

NEUROLOGICAL

A. ALTERED CONSCIOUSNESS

*ABC's with cervical spine control.

*Obtain history (diabetes, drug abuse, trauma, exposure, seizures).

*Vitals every 5 minutes and *initial rectal temperature*, until stable then every 15 minutes.

*Conduct full secondary survey and neurological exam including GCS **see appendix D.** (if GCS less than 13, request helicopter evacuation).

*If indicated administer Glucose paste (sugar) under the tongue. Use caution with the airway.

*Administer high flow O₂ (consider history of COPD).

*Treat for hypothermia, if indicated.

*Prevent aspiration of vomitus and be prepared to suction airway.

B. CEREBROVASCULAR ACCIDENT (stroke)

*ABC's.

*Vitals every 30 minutes and *initial rectal temperature*.

*Conduct and document neurological checks every 15-30 minutes.

*Elevate head 15 to 20 degrees with spinal support.

*Reassure patient.

*Administer O₂- lowflow. Consider COPD.

*Prevent shock.

*Be prepared to suction airway.

C. HEAD INJURY

- *ABC's. Assume spinal cord injury, in all severe head injuries.
- *Secure a good airway.
- *Maintain cervical neutrality.
- *Apply cervical collar, if available. If not, use available materials to stabilize the head and neck.
- *Vitals every 5 minutes including initial temperature until stable, then every 30 minutes.
- *Conduct and document neurological checks every 30 minutes.
- *Place on well padded backboard, KED, vacuum splint, or other rigid stretcher in normal anatomical position.
- *Elevate head of backboard or head of the Stokes basket if BP > 90 and no other signs of shock.
- *Administer high flow O₂. Hyperventilate to a rate of 24-30 breaths/minutes, if respirations less than 24 breaths/minute (**see appendix A**).
- *Do **not** aggressively treat mild hypothermia.
- *Prevent aspiration of vomitus and be prepared to suction.
- *Request helicopter evacuation.

D. SEIZURES

During

- *Protect patient from self injury.
- *Note sequence and duration of manifestations, urinary/fecal incontinence, tongue biting, or any other trauma.
- *If possible, administer O₂ - high flow. Consider COPD.
- *Insert nasopharyngeal airway, if required.
- *Restraint contraindicated.
- *If patient has repeated seizures with persistent decreased consciousness, request helicopter evacuation.

After

- *ABC's
- *Take history.
- *Vital signs every 15 minutes including initial temperature until stable.
- *Prevent aspiration.
- *Examine for additional trauma. Immobilize spine if indicated.
- *Allow patient to rest after seizure. Orient patient to his surroundings.
- *Keep environment as calm and quiet as possible.
- *Insert nasopharyngeal airway, if required.
- *If patient fully conscious administer oral sugar.
- *Transport patient on side.
- *Some patients with a known seizure disorder and a single seizure may be able to walk out.

OPHTHALMOLOGIC

A. CONJUNCTIVAL FOREIGN BODY

- *Flush with clean water and inspect.
- *Lift out with tip of moist cotton applicator. Do **not** get rigid part of applicator near eye (**see appendix P**).

B. CORNEAL FOREIGN BODY

- *Irrigate with water (saline preferable, contact lens solution).
- *Do **not** remove if implanted.
- *Patch eye and keep moist. Patch both eyes if feasible.
- *If impaled object do **not** remove. Treat by placing cup over affected eye.

C. CORNEAL ABRASION

- *Patch both eyes if feasible. Otherwise patch affected eye.
- *Apply cool compress.
- *Consult an Ophthalmologist for follow-up.

D. SNOW BLINDNESS

- *Treat the same as corneal abrasion.

SOFT TISSUE

A. BLEEDING & WOUNDS

Major bleeding

- *Rescuer should wear protective clothing.
- *Apply pressure with sterile gauze sponges and dressings. Add additional ones as needed. If bleeding persists, reevaluate bleeding site and redirect pressure.
- *Elevate legs and/or bleeding site, if not contraindicated. Treat for shock (**see shock guidelines**).
- *If severe arterial bleeding persists, place BP cuff (or tourniquet if only one BP cuff is available) on the extremity proximal to wound. Inflate BP cuff 10 mmHg above systolic pressure and clamp tubing. Monitor pressure continuously. If BP cuff tourniquet needed contact medical command to discuss length of time to continue tourniquet.
- *If extremity involved, splint if indicated.
- *Obtain vitals every 10 minutes (pulses, skin temp, capillary refill).
- *When bleeding is controlled, examine for other injuries.

Nosebleed

- *Maintain airway. Have patient squeeze nose for 5-10 minutes with head tilted forward.
- *Take history and vitals.
- *Aspirin contraindicated.

Vaginal Bleeding

- *Take history (abdominal pain, menstruation, pregnancy, missed periods, amount of bleeding) and vitals.
- *If spotty bleeding patient may slowly walk out. If suspect pregnancy and copious bleeding develops, evacuate on left side. Request helicopter evacuation.
- *Do **not** place bandages into the vagina.

Amputated Extremities

- *Treat for major bleeding (**see above**).
- *Place amputated part (rinsed with sterile saline) in saline moistened gauze and seal in a plastic bag. Keep bag cool with cold water or mixture of ice and water.
- *Do **not** immerse part directly in saline or water.
- *Do **not** allow part to freeze or come in contact with ice.
- *Ensure part is evacuated with patient.
- *Request helicopter evacuation.

Wounds

- *Minor bleeding: Apply direct pressure with sterile dressing and elevation. If not effective, treat as major bleeding. Consider seeking care for tetanus and rabies.
- *Irrigate wound with clean (or sterile) saline or water under pressure; use at least one liter of water per three inches of laceration or each square inch of abrasion (**see Fractures for irrigation technique**).
- *Impaled object: Immobilize object in place with bulky dressing. Contact medical command concerning removal or shortening of object if long, rough evacuation.
- *Abrasions: Cover with antibiotic ointment and sterile dressing after irrigation. See physician if contaminated, or involves face.
- *Infected wound: Clean all foreign bodies from wound and allow to drain. Clean wound daily and apply topical antibacterial and dressing. Apply 30 minute hot soaks three times a day. Immobilize infection site. Evacuate for physician follow up.
- *Blisters: a) If no danger of popping then gently clean blister and pad. b) If danger of popping sterilize a pin or obtain sterile needle. Drain blister, apply topical antibacterial and sterile dressing (**see appendix P**).

B. BURNS

- *Stop burning process- roll victim on ground. If electrical, properly trained individual should carefully remove victim from electrical contact. Chemical burns require copious amounts of water for at least 20 minutes, especially if in the eyes.
- *ABC's.
- *Vital signs every 10 minutes until stable.
- *Assess for other injuries.
- *Remove jewelry and non-adherent clothing.
- *Place sheet or plastic liner around patient.
- *Apply cold water to first and second degree burns; but to no more than 10% of total body surface area at one time. Monitor core temperature.
- *Administer high flow O₂- consider COPD.
- *Oral rehydration contraindicated for severe burns (2nd and 3rd degree burns greater than 15% of total body surface area (**see appendix H**)). *If IV fluids unavailable and transport > 6 hrs, administer oral rehydration*

after establishing (1) bowel sounds, (2) passing gas, (3) hunger, (4) normal consciousness, (5) no oral or inhalation burns, and (6) no other contraindications.

*Application of creams contraindicated for all 2nd and 3rd degree burns.

*If burns involve face, hands, feet, genitalia, > 15% of body surface area, or if evidence of respiratory burns (singled nasal hairs, sooty sputum, extensive facial burns), or if patient has underlying medical problems, request helicopter evacuation.

DENTAL

A. ORAL BLEEDING

*Determine if wound is in the oral cavity, or deeper.

*Pack with gauze.

*Apply pressure.

*Take vitals.

*Monitor airway carefully.

B. FRACTURED TOOTH

*Cover with gauze.

C. AVULSED TOOTH

(knocked out)

*Rinse tooth gently in water.

*Immediately insert avulsed tooth into socket.

*Have patient hold tooth firmly in socket.

*If unable to replace tooth and if patient fully conscious, then place tooth in patient's cheek pouch.

*If not possible, place in gauze dressing soaked in water (or patient's saliva). Place moist gauze with tooth in ziplock™ bag.

*Ensure tooth is transported with patient.

CHILDBIRTH

A. GENERAL

*Obtain history (estimated birth date, twins, number of pregnancies, vaginal bleeding, watery discharge, timing of contractions, desire to move bowels).

*Vitals every 5 minutes including timing contractions.

*Administer O₂ - high flow (**see appendix A**).

*Prepare for delivery with gloves and drapes if birth expected within minutes. Inspect perineum. Do **not** conduct a vaginal exam. Be prepared to dry and provide insulation for baby.

*Request helicopter evacuation.

B. NORMAL DELIVERY

- *Gently support infant's head over perineum. Control expulsion of infant's head by putting gentle pressure on the perineum and guiding the head out.
- *Once infant's face has appeared; vigorously suction mouth and nostrils while supporting head.
- *Check for cord around infant's neck. If around neck attempt to slip over head. If too tight; clamp and cut at this time (**see below**).
- *Apply gently downward pressure on infant's head until anterior shoulder appears. Then apply upward traction on the head to deliver other shoulder. Again vigorously suction mouth and nostrils. Begin drying infant.
- *Clamp the cord 8 inches and 10 inches from the infant. Cut the cord between the clamps.
- *Finish drying infant. Be sure to cover head.
- *Follow steps outlined in Management of Mother and Placenta (**see below**).

C. MANAGEMENT OF MOTHER AND PLACENTA

- *Allow placenta to deliver spontaneously, do **not** pull on cord.
- *Continuously massage fundus (mother's abdomen). Mother may also breast-feed infant if she desires.
- *For severe bleeding or if placenta fails to deliver, treat for shock and continue to massage abdomen.
- *Save placenta in plastic bag and transport with mother and infant.

D. BREECH DELIVERY

- *Take no manipulative action until infant is delivered spontaneously to the umbilicus. Do **not** pull on or place limbs into vagina.
 - *If infant descends to umbilicus grasp pelvic bones and apply gently downward traction. Do **not** apply traction to legs or back.
 - *Swing infant's body to left or right (whichever one is easier) to deliver one shoulder. Swing infant's body the opposite direction to deliver second shoulder.
 - *Apply gently abdominal compression to the mother's uterus while allowing the infant's legs to hang down for 30 seconds (while supporting infant). Maintain abdominal compression and swing infant's legs upward until its body is in a vertical position to deliver the head.
 - *Vigorously suction infant's mouth and nostrils.
 - *Clamp and cut cord (**see above**).
- ## **E. PROLAPSED CORD**
- *Put mother in shock position while resting on one side.
 - *Place a moistened sterile towel over the prolapsed cord. Do **not** touch the cord itself.
 - *Arrange quickest possible evacuation.
 - *If infant begins to deliver, allow delivery to proceed (follow normal delivery, **see above**).
 - *Suction infant's mouth and nostrils, clamp and cut cord.

HEAT DISORDERS

A. HEAT CRAMPS (Muscle spasms)

- *Seat patient in a cool place and gently stretch the affected muscle.
- *Administer oral fluids containing electrolytes, if fully conscious (**see appendix J**).
- *Salt tablets and massages contraindicated.

B. HEAT SYNCOPE (Fainting)

- *Have patient lie down in a cool place.
- *Vital signs every 10 minutes until stable.
- *Check for any trauma due to fall, conduct neuro exam.
- *Evaluate patient for hypoglycemia, CVA, history of seizures, heart problems, and cardiac arrhythmias. Check orthostatic BP.
- *Administer oral fluids containing electrolytes and sugar, once fully conscious (**see appendix J**).

C. HEAT EXHAUSTION

- *Have patient sit or lie down in a cool place.
- *Vitals every 10 minutes including initial temperature until stable.
- *Elevate feet.
- *Remove constricting clothing and excessive clothing.
- *Begin gentle evaporative cooling with tepid water and fanning.
- *Administer oral fluids with electrolytes if possible (**see appendix J**).
- *Be prepared to clear airway if vomiting occurs.

D. HEAT STROKE

(neurological impairment with elevated temperature)

- *ABC's.
- ***Rapidly** remove clothing, **cool patient** by moistening skin with tepid water while fanning vigorously. Cover extremities with wet, light clothes or sheet.
- *Vitals every 5 minutes including temperature until stable then every 15 minutes.
- *Conduct and document neurological checks every 15 minutes.
- *Evaluate and treat for shock.
- *Provide shade.
- *Administer high flow O₂ (**see appendix A**).
- *Do **not** apply ice directly to skin.
- *Do **not** give or use alcohol.
- *Do **not** give Aspirin, Ibuprofen, or Acetaminophen.
- *When core temperature below 102° F, stop active cooling, but continue to monitor temperature throughout evacuation. Be prepared to reinitiate cooling.
- *Be prepared to clear airway if vomiting occurs.
- *Request helicopter evacuation.

COLD DISORDERS

A. FROSTNIP

- *Recognize early, in team members and self.
- *Apply warm hand to affected area or place in armpits. Do **not** rub, massage, or apply snow.

B. FROSTBITE

- *Check vitals including temperature every 10 minutes until stable.
- *Evaluate and treat for hypothermia.
- *Determine extent and severity of frostbite.
- *Gently remove restrictive clothing, jewelry, etc., from affected area.
- *Wrap in bulky sterile dressings to protect from pressure.
- *Provide insulation to prevent further cooling.
- *Elevate and immobilize area.
- *Administer O₂ - low flow (**see appendix A**).
- *Do **not** rewarm in field unless transport greatly delayed (> 12 hr) and **no** possibility of refreezing. Then rewarm with 105-110° F water. Water temperature must be monitored using a thermometer. Extremity should be as straight as possible without touching sides of container.
- *Rubbing and massage contraindicated.
- *Tobacco, alcohol, and caffeine contraindicated.

C. HYPOTHERMIA

Mild 37-32° C
98-90° F
shivering:

- *Avoid rough handling. Do **not** place in head up position.
- *Prevent further heat loss.
 - provide shelter
 - insulate from the ground
 - If clothes damp, remove, dry skin, provide layer of dry clothes
 - Wrap in space blanket or plastic bag and provide as much insulation as possible
 - Cover head and feet
- *Record vitals every 10 minutes, including initial temperature until stable.
- *Direct auscultation of the heart should be used to determine pulse rate, if not palpable peripherally.
- *Evaluate for co-existing disorders (trauma, drug overdose, hypoglycemia) Conduct neurological checks.
- *Administer *warmed, humidified* O₂. Consider COPD.
- *Add heat.
 - Administer warm sugared fluids. Do **not** give if patient not fully alert, has abdominal disorders, or if surgery required.
 - Place in sleeping bag protected from elements. Place second person in bag if required
 - Hot packs must be less than 110°F and placed on the neck, groin, and armpits

8. Alcohol, caffeine, and nicotine contraindicated.

Severe < 32° C
< 90° F

Shivering stops, inability to walk.

*ABC's. Auscultate heart for at least 3 minutes if no carotid pulse present.

*CPR must **not** delay patients removal from field.

*Be as gentle as possible. Do **not** place in head up position.

*Prevent further heat loss.

- provide shelter
- insulate from ground
- if clothes damp, **cut off**, dry skin gently, provide layer of dry clothes
- wrap in space blanket or plastic bag
- cover head and feet (do **not** rewarm feet)
- place in sleeping bag

*Prevent aspiration.

*Record vitals every 5 minutes *including initial rectal temperature*. When vitals stable record every 15 minutes. Heart rate should be determined by direct auscultation of the heart. Conduct neurological checks.

*Administer *warmed humidified* O₂ -high flow.

*Evaluate for co-existing disorders.

*Do **not** give oral fluids, massages, alcohol, caffeine, or nicotine.

*Request helicopter evacuation.

POISONINGS; VENOMOUS BITES & STINGS

A. SNAKEBITE (pit viper)

*ABC's.

*Identify snake if no delay or risk.

*Check vitals every 10 minutes.

*Reassure patient and keep patient quiet.

*Remove constricting items.

*Check bite site and irrigate wound (**see fractures**).

*Suction with a high negative pressure pump (no cutting required) if bite within 15 minutes.

*Splint and immobilize limb at heart level.

*Do **not** cut skin, use cold therapy, give alcohol, apply electric shock, or administer aspirin.

*Consider helicopter evacuation.

*If bitten individual is alone, then slowly walk out.

B. SNAKEBITE (coral snake)

*All of the above.

*If bite is on extremity, apply loosely wrapped elastic bandage on entire limb starting 4 inches proximal to the puncture site.

*Loosen if distal pulses or venous blood return decreased.

C. TICK REMOVAL

*Use plastic gloves (tissue, cloth, etc) and/or forceps, when available.

*Grasp tick as close to head as possible.

*Pull tick out perpendicular to skin using steady pressure.

*Avoid twisting tick while pulling.

*Avoid squeezing tick.

*Examine attachment site to insure all parts removed.

*If parts remain, treat as topical splinter.

*Wash hands, especially if gloves or forceps were unavailable.

*Advise patient to discuss incident with the patient's personal physician.

D. SCORPION STINGS

*ABC's.

*Evaluate sting site and clean.

*Apply dressing and cold compresses.

*Splint or immobilize site.

*If possible and safe, save scorpion for identification.

*Consider helicopter evacuation in severe cases.

E. INSECT STINGS

*Obtain brief history.

*Remove stinger, if present, by teasing or scraping.

*Check vitals.

*Remove constricting items (rings, cloths, etc.).

*Clean wound.

*Apply Sting-Kill™ or meat tenderizer.

*Apply cold compress.

*Observe 15-30 minutes for allergic reaction.

*See **Shock** for **Anaphylactic** protocol.

F. SPIDER BITE

- *Obtain brief history.
- *Save specimen.
- *Check vitals every 5 minutes until stable.
- *Clean wound.
- *Remove constricting items.
- *Apply cold compress.
- *Remove patient from field for physician follow-up.
- *Observe 15-30 minutes for allergic reaction.
- *See **Shock** for **Anaphylactic** protocol.

G. INGESTED POISONS

- *ABC's
- *Take history.
 - a) what taken
 - b) when, how much, symptoms
- *Determine Glasgow Coma Scale Score **see appendix D**.
- *Vitals every 5 minutes until stable then every 15 min.
- *Check for gag reflex if not alert.
- *Have Medical command contact poison control center.
- *If instructed and patient conscious, administer activated charcoal (Use adult unit doses of premixed charcoal).
- *If instructed and patient conscious, administer Syrup of Ipecac (**see appendix Q**):

Age	dose
< 8 months	do not administer
9-11 months	10 ml
1-12 years	15 ml
> 13 years	30 ml

$$15\text{ml} = 1 \text{ tbsp}$$

- *Administer 12-24 ozs of fluids after Syrup of Ipecac.
- *Collect emesis and bring to hospital, if feasible.
- *Administer second dose if no vomiting in 30 minutes. Administer no more than two doses.
- *Do **not** allow patient to sleep, especially after administration of Ipecac.

LIGHTNING

- *ABC's.
- *CPR if needed, primary and secondary survey.
- *In multi-patient triage, treat pulseless and breathless patients first.
- *Prolonged rescue breathing may be required.
- *Administer O₂ - high flow (**see appendix A**).
- *Vitals every 5 minutes until stable then every 15 min.
- *Examine for trauma.
- *Assume head injury (cerebral edema), cervical and lumbar spinal damage (**see head injury** section for proper treatment), or pulmonary edema possible.
- *Immobilize spine.
- *Examine for, and treat burns.
- *Fluid restrictions in hypertensive and normotensive victims.
- *Constantly check for delayed neurological, physiological, circulatory, and behavioral manifestations.
- *Monitor for compartment syndrome (painful swollen limbs, progressive loss of sensory and motor function). Repeat examination every 30 minutes.
- *Request helicopter evacuation.

HIGH ALTITUDE ILLNESSES

A. GENERAL TREATMENT

- *Vital signs every 5-30 minutes, including lung sounds.
- *Descend 2,000 feet or more until symptoms resolve, if possible.
- *Increase fluids.
- *Increase carbohydrates in diet.
- *Avoid heavy exertion, moderate exercise best.
- *Never leave patient alone.
- *Sedatives, tobacco and alcohol contraindicated.

B. MILD ACUTE MOUNTAIN SICKNESS (AMS) (headaches, shortness of breath, insomnia, anorexia, nausea)

- *Descend 2,000 feet, more if possible.
- *Take 10 deep breaths every 6 minutes unless dizziness or tingling of the hands develop.
- *Administer 2L/min O₂ via cannula, if available.

C. MODERATE TO SEVERE AMS

(see mild symptoms, plus difficulty walking in a straight line and/or decrease in level of consciousness)

*Descend at least 2,000 feet, more if possible.

*Administer 2L/min O₂ via cannula, if available.

D. HIGH ALTITUDE CEREBRAL EDEMA

(decreased consciousness, impaired judgement, coma, hallucinations)

*ABC's.

*Descend at least 3,000 feet (at once), more if possible.

*Administer 2L/minute O₂ via nasal cannula.

*Request helicopter evacuation.

E. HIGH ALTITUDE PULMONARY EDEMA

(weakness, cyanosis, difficulty breathing, audible sounds [crackles] in chest, cough)

*ABC's.

*Descend 2,000-4,000 feet or more until symptoms resolve.

*Keep the patient warm.

*Minimize physical exertion.

*Have patient breath through pursed lips.

*Administer 6-10L/minute O₂ via mask.

*Request helicopter evacuation.

F. CEREBRAL THROMBOSIS

(visual field defects, isolated loss of sensation, decreased consciousness, other neurological problems occurring over several days)

*ABC's.

*Administer 2L/minute O₂ via cannula, if available.

*Immediate evacuation to hospital.

*Request helicopter evacuation.

PSYCHIATRIC

- *Quiet and supportive reassurance is always indicated. Help orient the patient.
- *Maintain good eye contact, paraphrase statements. Explain everything thoroughly.
- *Clearly explain all actions and procedures.
- *Give honest answers balanced by judicious omissions.
- *Remember that unconscious patients may comprehend sounds, including conversations.
- *Avoid changing medics.
- *Remove disruptive individuals from the team.
- *Remove anxious individuals from stressful situations.
- *Obtain temporary detaining order if possible, and necessary. Discuss this ahead of time with the family and law enforcement agency.
- *Obtain adequate force before restraint is attempted. Do **not** provoke the patient.
- *Do **not** blame the patient for accident.
- *Do **not** be flippant or dishonest.
- *Do **not** tell victim how to feel.
- *Do **not** expect too much or too little.
- *Do **not** appear hurried.
- *Do **not** expect praise or thanks for your actions.
- *Above all, listen to the patient and care!

APPENDIX

A. OXYGEN DELIVERY SYSTEMS

- *Administer high-flow O₂ to any patient who appears hypoxic with pallor, cyanosis, tachypnea, or labored breathing. Humidify O₂ in the presence of asthma or hypothermia or if therapy will be long term.
- *Administer high flow O₂ to any trauma, shock, or cardiac patient by using a non-rebreather mask, unless mask not tolerated, or O₂ supply limited.
- *Administer low flow O₂ to COPD patients (½-1L/min.). If in respiratory distress and patient fails to respond to lowflow then increase to high flow. **Be prepared to ventilate all COPD Patients!**

% O₂

B. PNEUMATIC COUNTER PRESSURE DEVICE

Medical Anti-Shock Trousers (MAST)

- *Place MAST on patients suspected of hemorrhage from injuries to the pelvis.
- *Do **not** use MAST if major chest injuries, penetrating trauma, isolated head injuries, pulmonary edema, or hypotension due to medical illness.
- *If above conditions satisfied and suspect shock (signs of shock and systolic blood pressure < 90 mmHg.); inflate suit until the systolic blood pressure is between 100-110 mmHg.

*Leaks and changes in elevation and temperature significantly alter suit pressure. Therefore, monitor suit pressure continuously.

*Monitor for compartment syndrome (painful swollen limbs, pain out of proportion to injury, or progressive loss of sensory and motor function). Repeat exam every 30 minutes.

*Attempt to contact medical command concerning deflation of suit if complications arise.

*If unable to contact medical command deflate suit after 6 hours. Slowly deflate abdominal section first and then the leg compartments. Stop deflation if BP falls more than 5-10 mmHg.

I. WILDERNESS C.P.R. GUIDELINES

In some states, EMS agency personnel are allowed to determine that an individual is dead, if the following conditions exist;

*Lethal injury where survival is impossible.

*Rigor Mortis- rigidity of muscles.

*Dependent lividity- ecchymosis lower half.

*Decomposition.

If doubt exists, then the patient should be treated as viable.

A. INDICATIONS FOR CPR

*If patient **not** breathing, begin ventilation.

*If patient pulseless, begin compressions (In suspected hypothermia subjects, check pulse for at least 3 minutes and auscultate the heart for at least one minute).

B. CONTRAINDICATIONS TO CPR

*Any respirations or motion evident.

*Written (Physician) Do **Not** Resuscitate status.

*Danger to rescuers.

*Injury not compatible with life.

*Compressions impossible (i.e. chest frozen).

*Victim submerged more than 1 hour.

*In cases of severe hypothermia if CPR delays evacuation.

C. DISCONTINUATION OF CPR

*Resuscitation successful.

*Exhaustion of rescuer.

*Rescuer or team placed in danger.

*Provision of definitive care.

*If cardiac arrest sustained longer than 30 minutes in normothermic patients.

In some cases, discontinuation of CPR prior to definitive care may be indicated for reasons other than part C. However, discontinuation of CPR may **only** be ordered by a physician.

J. ORAL ELECTROLYTE REPLACEMENT SOLUTIONS

A. SOLUTIONS

1. **World Health Organization (WHO) Formula**

(2% glucose, 90 mEq/L Sodium).

Oralyte™, Pedialyte™, Packaged mixes.

2. **ERG™ or Gatorade™** (6% glucose and 50-90 mEq/L Sodium).

3. Homemade sugar/salt solution

Sugar 3-4 Tsp/L (1-2% Solution)
Salt ½ Tsp/L (30 mEq/L)

4. Oral Fluid Replacement Solution

Sodium Chloride	½ Tsp/Liter
Sodium Bicarbonate	½ Tsp/Liter
Potassium Chloride	¼ Tsp/Liter
Table sugar	12 Tsp/Liter

5. US Public Health Service Formula

Glass #1	Glass #2
8 oz. Fruit Juice	½ Tsp Baking Soda
½ Tsp honey	8 oz. clean water
1 pinch salt	

Equal amounts should be drunk from each glass, alternating between the two.

B. ADMINISTRATION

- *The WHO Formula may be used whenever possible.
- *Mild dehydration in children require solution #2 to be diluted by 100%.
- *Serious dehydration dictates solution #1. Adults may use solution #2 diluted by 100% in emergencies.
- *8 oz. of water may be slowly given safely in adult cases, if sipped slowly, unless nausea or decreased consciousness exists.

K. INDICATIONS FOR AEROMEDICAL EVACUATION

General Criteria

- *Flooding, mud, or snow makes roads unsafe and hinders carry-out evacuation.
- *Terrain makes ground carry-out or road evacuation dangerous to the rescuer and/or patient.
- *Time required for ground carry-out threatens the patient or affects the safety of the rescuers; or strains all resources.
- *Patient requires more advanced levels of medical personnel or equipment than rescue team has available.

Patient Criteria

A patient with any of the following conditions, injuries, or illnesses becomes a candidate for aeromedical evacuation.

- *Shock, severe burns, or multiple systems injuries (two or more organ systems involved).
- *Flail chest, pneumothorax, perforating chest injury, or any severe chest pain.
- *Crushed pelvis or any traumatic amputation.
- *Altered consciousness, suspected spinal injury, and/or head injury.
- *Heat stroke, severe hypothermia, burns, poisonous animal bite, poisonous ingestion, or lightning strikes.
- *Systolic blood pressure below 90 mmHg with two or more readings.
- *Respiratory rate less than nine or more than 30/min.
- *Pulse rate less than 50 or more than 110/minute.
- *Acute abdomen, GI bleeding, significant hematuria.
- *Conditions with a potential for airway compromise.
- *Complicated delivery or serious vaginal bleeding.

N. HELICOPTER HANDSIGNALS

Helicopter handsignals should only be used by personnel properly equipped and trained.

O. HELICOPTER PASSENGER BRIEFING

P. MEDICAL PROCEDURES

Q. LISTED GUIDELINE DRUGS

NOTICE: The indications and dosages of drugs in this book have been carefully checked and recommended by the wilderness medical community at the time of this printing. Standards for usage and dosage may change. The medications described do not necessarily have specific approval by the Food and Drug Administration for use in the diseases and dosages for which they are recommended. The manufacturer's package insert is the best source of information on FDA opinion. The reader should note that ultimate responsibility rests with the prescribing physician, medical command, or the operational medical director.

ACTIVATED CHARCOAL

DOSAGE:50-100g P.O.

PED DOSAGE:25-50G OR 1G/Kg

USE IN FIELD:To treat certain cases of poisoning and overdoses.

SIDE EFFECTS:None.

COMMENTS:Administered with water orally. If combined with sorbitol may cause liquid stools in one hour.

ALBUTEROL (Proventil, Ventolin)

DOSAGE:2-3 deep inhalations (90mcg/actuation) 1-5min. apart.

USE IN FIELD:Asthmatics, especially asthmatic symptoms in patients over age 45 or history of cardiac disease.

SIDE EFFECTS:Fine finger tremor, mild tachycardia, decreased BP.

DIPHENHYDRAMINE (Benadryl)

DOSAGE:25-50 mg (0.5-1 ml) deep I.M.

PED DOSAGE:1 mg/Kg

USE IN FIELD:Severe allergic reaction, antiemetic.

STORAGE:Drug is stable after freezing. Container should be checked for cracks or leakage. Store in light-resistant container.

COMMENTS:50 mg/ 1ml Causes severe drowsiness.

SYRUP OF IPECAC

DOSAGE:30ml (2 tbsp) P.O. followed by 12-24 ozs of water.

PED DOSAGE:1-12 years of age give 15ml; 9-11 months give 10ml; less than 8 months do **not** administer.

USE IN FIELD:To induce vomiting in selected cases of poisoning.

SIDE EFFECTS:Increased danger of aspiration. Do **not** use with pregnant women or before activated charcoal.

EPINEPHRINE 1:1000

DOSAGE:0.3 mg (0.3ml) S.q. May repeat every 10-20 minutes up to three doses.

PED DOSAGE:0.01 mg/Kg (0.01ml/Kg) up to 0.3 mg.

USE IN FIELD:Systemic allergic reaction. Severe asthma attack.

SIDE EFFECTS:Tachycardia, jitteriness.

STORAGE:Darkens upon exposure to light and air. Oxidation causes a color change to pink, then brown. Should be stored at 25C: avoid freezing. Heat above 40C may inactivate the product.

COMMENTS:1mg/1ml Unless life threatening allergic reaction, do **not** give to known cardiac patient, a patient over 45, if pulse is greater than 140/min on an adult, or greater than 180 on a child. May be ordered to inject 0.3 ml sublingually for severe anaphylactic shock.

GLUCAGON

DOSAGE:1 mg or 1 unit (1 ml) I.M. May repeat in 20 minutes if patient does **not** become awake and alert.

PED DOSAGE:1 mg also.

USE IN FIELD:Unconscious diabetic or in coma of unknown origin.

STORAGE:Cloudy or thick diluent should **not** be used. Do **not** use if exposed to temperatures greater than 95 F for extended period.

COMMENTS:1mg/1ml. Must be liver glycogen present to be effective.

R. SUGGESTED PERSONAL MEDICATIONS

ANTACID WITH SIMETHICONE (Mylanta II, Gellusil II, Riopan II)

DOSAGE:1-2 tablets as needed (max 12/day).

USE IN FIELD:Heartburn, ulcer pain, indigestion, gas pain.

SIDE EFFECTS:Diarrhea.

COMMENTS:Drink a full glass of water with each dose. Antacid also neutralizes tetracycline and chloroquine.

ASPIRIN

DOSAGE:Two 325mg tablets every 6 hours.

USE IN FIELD:Moderate pain, high grade fever, headache, frostbite, muscle injury, or sunburn.

SIDE EFFECTS:Sensitivity, bleeding, ringing in ears, upset stomach.

COMMENTS:Do **not** give to children under 18 years of age, or to patients with heat stroke, abdominal pain, or history of gastric ulcers.

CALAMINE-DIPHENHYDRAMINE (Caladryl)

DOSAGE:Topical, apply to skin 2-3 times daily.

USE IN FIELD:Drys out rash due to plant contact.

COMMENTS:Only available as a liquid. Take precautions for spills.

DIPHENHYDRAMINE (Benadryl)

DOSAGE:1-2 25 mg tablets every 6-8 hours as needed.

USE IN FIELD:Allergies, itching, sleeplessness, mild nausea, motion sickness.

SIDE EFFECTS:Drowsiness.

COMMENTS:Antihistamines may worsen sleep patterns at high altitudes. Do **not** use for Asthma.

HYDROCORTISONE 0.5% (Cort-aid)

DOSAGE:Topical, apply to skin 2-3 times daily.

USE IN FIELD:Rash, swelling due to insect bite or plant contact.

SIDE EFFECTS:Makes infections worse. Thins skin.

COMMENTS:Do **not** use for sunburn or if rash worsens. Minimize use in groin and face region.

IBUPROFEN (Advil, Motrin, Nuprin)

DOSAGE:200-400mg every 6 hours.

USE IN FIELD:Moderate pain, high grade fever, headache, sunburn, menstrual cramps, frostbite, muscle injury.

SIDE EFFECTS:Rare, upset stomach.

POVIDONE-IODINE (Betadine) **BACITRACIN; NEOSPORIN**

DOSAGE:Topical, apply thin layer 2-5 times daily.

USE IN FIELD:Antibiotic for minor burns, abrasions, cuts, lacerations, and blisters.

SIDE EFFECTS:Neosporin contains neomycin which may cause skin reactions.

COMMENTS:Povidone-iodine becomes inactive once dry.

PSEUDOEPHEDRINE WITH TRIPOLINE (Actifed)

DOSAGE:1-2 tablets every 6-8 hours as needed.

USE IN FIELD:Nasal congestion, sinus congestion.

SIDE EFFECTS:Dry mouth, fast pulse, drowsiness.

COMMENTS:Do **not** give if uncontrolled high blood pressure. May use nasal spray.

CLOTRIMZOLE (Lotrimin)

DOSAGE:Topical, apply to skin 2 times daily.

USE IN FIELD:Antifungal for athlete's foot, or in groin.

SIDE EFFECTS:Redness, blistering, peeling, and itching.

COMMENTS:Dry skin well before applying.

LOPERAMIDE (Immodium A.D.)

DOSAGE:1-2 (2mg) capsules after each unformed stool (up to 8/day, for 2 days).

USE IN FIELD:Diarrhea causing cramps or compromised activities.

SIDE EFFECTS:Dry mouth, drowsiness.

COMMENTS:Do **not** use if acute abdomen, bloody stool, or known bacterial cause. Try clear liquid diet before using antidiarrheal.

TABLE OF CONTENTS

GENERAL ORDERS FOR ALL PATIENTS	1
SHOCK	2
Hypovolemic shock	2
Cardiogenic shock	2
Anaphylactic shock	3
CARDIAC PROBLEMS	4
Cardiac Pain	4
Congestive failure	4
RESPIRATORY	5
Asthma	5
Hyperventilation	5
Dyspnea	5
GASTROINTESTINAL	6
Acute abdomen	6
Diarrhea/volume depletion	6
Nausea/vomiting	6
DIABETES	7
Hypoglycemia	7
Hyperglycemia	7
MUSCULOSKELETAL	8
Chest injuries	8
Sprains and strains	10
Fractures	10
Dislocations	11
Neck/spine injuries	13
NEUROLOGICAL	14
Altered consciousness	14
Cerebrovascular accident	14
Head injury	15
Seizures	16
OPHTHALMOLOGIC	17
Conjunctival foreign body	17
Corneal foreign body	17
Corneal abrasion	17
Snow blindness	17
SOFT TISSUE	18
Bleeding & wounds	18
Burns	20
DENTAL	21
Oral bleeding	21
Fractured tooth	21
Avulsed tooth	21
CHILDBIRTH	22
General	22
Normal delivery	22
Management of mother and placenta	23
Prolapsed cord	23
Breech delivery	23
HEAT DISORDERS	24
Heat cramps	24
Heat syncope	24
Heat exhaustion	24
Heat stroke	25
COLD DISORDERS	26
Frostbite	26
Hypothermia	27
POISONINGS; VENOMOUS BITES & STINGS	29
Snakebite	29
Tick removal	30
Scorpion stings	30
Insect stings	31
Spider bite	31
Ingested poisons	32
LIGHTNING	33
HIGH ALTITUDE ILLNESSES	34
General treatment	34
Mild acute mountain sickness (AMS)	34

Moderate to severe AMS	34
High altitude cerebral edema	35
High altitude pulmonary edema	35
Cerebral thrombosis	35

PSYCHIATRIC 36

APPENDIX 37

a. Oxygen delivery systems	37
b. Pneumatic counter pressure device	38
c. Multiple trauma	39
d. Trauma score	41
e. Measurement of blood pressure	42
f. Pediatric vitals	43
g. Temperature	43
h. Burn table	44
i. Wilderness C.P.R. Guidelines	45
j. Oral electrolyte replacement solutions	46
k. Indications for aeromedical evacuation	47
l. Landing site preparation	48
m. Helicopter safety	50
n. Helicopter handsignals	51
o. Helicopter passenger briefing	52
p. Medical procedures	53
q. Listed guideline drugs	55
r. Suggested personal medications	57