

North Country Trail Association
Chief Noonday Chapter

BACKCOUNTRY MEDICINE FOR BACKPACKERS AND HIKERS

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DISCLAIMER

This is an outline of a series of talks given to adult outdoor enthusiasts for their use. It is not meant to be an exhaustive text on the subjects treated nor is it ever to be considered as a substitute for obtaining competent medical evaluation and treatment when such is reasonably available. It is presented with the understanding that individuals participate in activities which may put them in circumstances where medical care is not available. In such circumstances, the one may need to assume temporary responsibility for the treatment of the condition as it presents. The author accepts no responsibility for the inappropriate application of the information presented in this outline. In some cases, we have suggested the use of treatments requiring drugs or topical preparations which are currently available only by prescription. It is up to the best judgement of the physician involved as to whether it is appropriate to prescribe these drugs under these circumstances for an individual's use. The fact that they are mentioned in this presentation does not imply that these medications should be or must be prescribed for use by personnel not trained in their proper use and/or application.

CHAPTER ONE

ALPHABET SOUP

A B C'S of CPR

CARDIOPULMONARY RESUSCITATION

NEWS FLASH! THE ABCs ARE NOW THE C A Bs

“C” is for CHEST COMPRESSION not “Circulation”

GETTING THE HEART PUMPING IS NOW THE PRIORITY

Check for Pulse - BRIEFLY - Do not waste time getting started with compressions.

Carotid pulse -- in the neck

Apical pulse -- in the chest to the left of the breast bone 4-5” below
the collar bone.

Brachial pulse -- inner aspect of the upper arm

Radial pulse -- thumb side of the inner wrist

Femoral pulse -- thigh crease

External Cardiac Massage -- manual substitute for the non-working pump -- 100
compressions per minute.

“A” is for AIRWAY

Check for air movement by sight, feeling and sound. Place your ear near the
mouth to feel air movement.

Examine the airway for any obstruction.

Manually clear the airway if you can see or feel any obstruction.

Otherwise dislodge any material utilizing the HEIMLICH MANEUVER, an
abdominal thrust.

Position is critical: Neck Straight, jaw forward

“B” is for BREATHING

Mouth to Mouth Assisted Breathing is always available, always works. No longer
considered mandatory for non-medical providers. Learn to do it right, then
relearn regularly.

BLS -- Basic Life Support Certification -- should be mandated for adult leaders of
youth groups and is strongly encouraged for all group leaders of extended
outings.

Some sort of protective mouth shield is recommended to prevent transmission of
disease to rescuer and rescued alike.

Traumatic Injuries --Trauma Basics

Traumatic Injuries are far more likely to be encountered in the backcountry than cardiac arrests. A reasonably knowledgeable and level-headed approach is essential.

Traumatic injuries are painful and frightening often leading to a panic response, a response which has a negative impact in many ways.

Open Trauma

- OPEN TRAUMA implies a break in the skin e.g. laceration or tear.

- **Rule #1 “All bleeding stops -- eventually.”**

This is the essential truth -- tongue in cheek. It is a call for patience. Most people are too frantic to control bleeding. They keep checking and disrupting the clot their body is trying to make. Let nature do its thing.

Pressure, pressure, then more pressure

Constant pressure nearly always controls bleeding -- even arterial bleeding. The only time a “first-responder” would ever need a tourniquet is in a major amputation

Elevation

Blood, like water, flows downhill. Keep a bleeding injury elevated and it will stop much sooner and hurt less.

Dressing the wound:

Pile more on if your dressing becomes saturated. Above all, do not remove the bottom layer. That is where the clot is organizing.

- **Rule #2: “Smaller wounds heal better & faster”**

- In civilization, this means stitches for large wounds and steri-strips for smaller wounds. Steri-strips are closure tapes which bring the skin edges together like sutures. They are far better than butterfly bandages.
- Steri-strips are left in place 5-7 days. Do not remove them and replace them only if they are coming off.
- Tincture of Benzoin (the old “TufSkin”) helps steri-strips to stick better.
- Outside of civilization, you do what works. If steri-strips get the job done, use them. You’d better carry the large strips. Little ones may not cut it.
- In a pinch, you can work wonders with duct tape.
- In a major -- and I mean major -- you can close the wound with safety pins or even sew it closed with heavy thread or nylon fishing line. This will keep the wound cleaner and a surgeon can always clean your job up later and make you look better.

Rule #3: “The object is to keep a wound clean”

- The dressing needs to be big enough and thick enough. Don't waste space in your kits with small band aids and small gauze pads. The bigger ones usually work better and can always be cut down to a smaller size.
- Military surplus field dressings are nice and thick and absorbent. A feminine hygiene pad also makes a great absorbent dressing.
- The dressing needs to be clean -- not necessarily sterile. If you don't have sterile, use what's clean. Bulk gauze 4x4 pads are cheaper than individually packaged pads and can be kept clean in a zip-lock bag. You can always put a sterile one next to the wound and a non sterile ones on top.
- Tape the edges and seal them. A lot of crud can get in around the edges especially out in the wilderness. Use wide tape. Anything under an inch isn't worth it. You can always make wider thinner.

Closed Trauma:

CLOSED TRAUMATIC WOUNDS can be misleading, major injuries can be hidden, and you must be suspicious. Closed trauma can involve bruises, sprains & strains, tears and hidden bleeding and fractures.

Signs of significant hidden trauma.

Pain: If an extremity becomes non-functional due to pain

Swelling: Rapid onset swelling is a sign of significant bleeding.

Discoloration: bruising is a later sign of bleeding; pallor (lack of color) or cyanosis (blue color) are signs of a lack of blood flow.

Misshapen: if it's angulated or doesn't look like the other one(s) consider it broken or “dislocated”.

Useless: If it doesn't move, something is torn.

R - I - C - E = The Essential Treatment in Trauma

Trauma whether it involves fractures, strains, sprains or tears, always involve some or all of the following: swelling, bleeding, pain, bruising, or tearing of either soft tissue, bone or both.

“R” is for “REST”

Any Injury, major or minor, can be made worse by movement. Not only is further injury prevented, but healing is promoted by immobilization and rest.

Rest means

Not using it. Slings or braces for upper extremities. Crutches, staves, litters, bed rest for lower extremity injuries.

Splinting immobilizes joint injuries or suspected fractures.

“I” is for ICE.

- Application of ice reduces swelling in injured soft tissue.
- Ice reduces bleeding after the acute injury.
- Ice controls pain by numbing nerve endings at the injury site.
- Ice packs or iced salt water provides the best source of cold. Chemical ice packs are neater and more easily transported, but do not achieve the same levels of cold or last as long

“C” is for compression

- Compression adds to the effects of immobilization.
- Compression reverses the forces causing swelling.
- Elastic bandages such as “ACE” wraps provide the easiest and most efficient compression in the field.
- Compression can be accomplished by wrapping with cloth stripping or with wide adhesive tape.
- Compression must not limit circulation

“E” is for elevation

- Reduces swelling by reducing fluid pressures.
- Reduces bleeding by draining blood away from the site of injury.
- Less Blood and less swelling means less pain.

Splinting:

Why Splint traumatic injuries?

- Provides the rest noted above allowing healing.
- Provides pain control especially with unstable fractures.
- Reduces bleeding because motion disrupts clots.
- Preserves function. By controlling pain in one part, a splint allows one to use the rest of the extremity to some degree. In the wilderness, this can be critical.
- Prevents complication and extension of the primary injury.

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Positioning with a splint

- Position of function is ideal. This is the position in which the extremity is normally positioned when in use, e.g. fingers are usually curved as through holding a softball. elbows are usually bent. knees are usually straight.
- Angulated injuries pose a special problem to the first responder.
- If medical care is reasonably close by, splint the injury in the position in which you found it and let a professional take responsibility for putting it back in normal position.

In a wilderness situation, you may not have this option. An angulated injury, whether fracture or dislocation may affect the blood supply beyond the injury. It may also be intolerably painful. In this situation you may have to realign the injury.

Reducing (Realigning) an angulated fracture.

- Be confident and gentle. This can be scary for both of you and you must have a relaxed victim or you cannot help. Above all, do not fight with the injured victim. If they can't relax, splint in the position of injury and wait till later.
- Always **check the pulses** beyond the injury. If you're not sure about the quality of the pulse, compare with the other side. If there is no pulse, you **MUST** reduce (realign) the injury.
- **Go Slow.** Hurry causes pain and muscle tightness as well as fear. If it hurts, you are probably rushing it.
- **Your goal is to achieve alignment with the skeleton**, what doctors call "axial alignment". The extremity may still be shortened, in the case of a fracture, but it should be aligned.
- Support the base above the injury with one hand, or have someone else do it for you.
- Start to pull, gently at first then slowly increase. Start out in the line in which the injury lies and as you achieve greater tension, gently guide it into alignment with the skeleton.
- When you achieve alignment, keep tension on it and have someone else splint it.

- Once the injury is splinted, recheck the pulses. They should be as good as or better than they were before. If they are not, first remove your splint and recheck the pulses. If they are still not good, you must reverse the procedure until pulses are restored.
- After you have manipulated an injury it is critical that you continue to monitor the circulation by checking pulses

What to Use for Splinting

- First you have to use what is available.
- It is no use thinking about an inflatable leg splint if all you have is a canoe paddle.
- Splints take up a lot of room in the first aid kit and are often a waste, but there are a couple options to think about.
 - Inflatable splints don't take up much room. They are a bit pricey, but worth considering if you are looking at a long trek away from everywhere. They are reusable.
 - SAM Splints are malleable aluminum splints which are quite compact, reasonably affordable and very adaptable which makes them a more practical choice than inflatables.
 - Alumafoam splint material comes in strips of varying widths. A piece of this might not take up much room and have many applications.

Soft is better

- Hard splints can injure underlying skin and soft tissue structures.
- Soft bulk can immobilize as well as hard and with less risk of further injury.
- Pad It. Pad It. Pad It.

How to splint:

- Immobilize above and below the injury
- Be certain the point of injury is secure to the splint, both above and below. The object is to immobilize the injury.
- Secure the injured extremity to the splint with something that will hold. Triangular bandages are a poor choice. Duct tape is a good choice.
- If in doubt immobilize it.

Chapter 2

Dealing with Illness in the Backcountry

The Camper Who Came In From the Cold (Hypothermia)

Modes of Heat Loss

RADIATION -- Transfer of heat from a warmer object to a cooler object through the air. Example 50% of body heat can be lost from the head if left uncovered.

Radiant Heat loss can be prevented by proper wearing apparel.

CONVECTION -- Transfer of heat by moving air.

Example "Wind Chill" is the prime example of convection heat loss

Use of tightly woven "windproof" fabric over clothing with built in pockets of air ("insulation") is the best mechanism to avoid convection heat loss and also demonstrates how still air can preserve body heat.

CONDUCTION -- The transfer of heat from a warmer solid object to another cooler object through direct contact.

Wet clothing conducts heat away from the body very rapidly.

Sleeping on the cold ground without an insulating pad -- the ground conducts heat away from the body.

Preventing Conductive Heat Loss

- Stay Dry.
- Insulation of oneself by
 - Proper layering of clothing
 - Down, Hollowfill, or Quallofill, ect
 - Closed cell sleeping pads such as "ENSOLITE"

EVAPORATION -- Transfer of heat from a solid body by the loss of water from the surface in the form of water vapor.

- Example: A person chopping firewood in the cold will generate heat then sweat. Sweat evaporates and heat is lost cooling the body.

- Prevention of Evaporative Heat Loss
 - Proper layering of clothing
 - Keeping Dry
 - Using a vapor Barrier.
 - Replacing water lost by evaporation, be it sweat or insensible water loss through breathing.

Hypothermia - Symptoms

Mild Hypothermia

- **SHIVERING** is the first and most important sign of hypothermia to recognize.
- Lowering of the skin temperature
- Progression of burning pain to numbness
- Confusion, slurred speech
- Loss of coordination and slowing of muscular activity

Severe Hypothermia

Confusion deepens to coma

Shivering ceases. The body is no longer able to generate the energy required to shiver. A bad sign.

Loss of strength progresses to paralysis.

Heart Rate slows and blood pressure drops. This leads to poorer perfusion of blood to the brain and other vital structures.

Blood vessels constrict in the arms and legs in order to centralize the blood volumes around the truly vital structures -- heart, kidneys, brain.

"COLD DIURESIS" develops. The kidneys lose their ability to concentrate urine and one begins to put out enormous amounts of dilute urine.

- **Drops blood pressure** and leads to the "sludging" of blood in the vessels.
- **Dehydration** sets in; less water for the chemistry which keeps us warm.
- **Loss of bladder control** leads to wet garments and further heat loss through both conductive and evaporative losses.

The **HEART becomes irritable** and subject to many rhythm problems which are resistant to standard therapy due to altered body chemistry.

Metabolism slows dramatically. The body's requirements for oxygen are reduced to the point where the hypothermic individual requires very little to maintain vital functions. This is like a state of "suspended animation" and is the only good thing which happens in hypothermia as it may buy time to get proper care and medical attention to the individual.

Hypothermia -- Prevention

WATER is used by the body for the process of "OXIDATION" whereby sugars and other carbohydrates are converted to energy and heat.

In the process of exertion in the cold, large volumes of water are lost by:

- Fueling the oxidative process that provides body heat.
- Insensible water loss by the "frost" produced when we exhale our warm breath into the cold air.
- Replace water lost by evaporation in the form of sweat.

FOOD

- Provides the fuel for the oxidation process that produces body heat.
- **Carbohydrates** (sugars & starches) and **fat** are the most important fueling foods and should be planned for in abundance while camping or otherwise exerting for long periods of time in the cold.

CLOTHING

- Clothing provides insulation, wind barrier, and vapor barrier.
- Layers are magic!!

Hypothermia -- Treatment

Prevention is the best treatment. Early intervention is the next best as "mild hypothermia" is the only form that can be effectively treated or even responded to in the field.

Mild Hypothermia -- How to Treat

- Identify and correct the source of heat loss, e.g. get the wet clothing off an individual who is cold to prevent further convective heat loss.
- Rewarm the individual
- If possible, get the individual active. If they are not too far gone, this will generate heat and warm them. Remember there is a limit to how much this can be done.
- Food and warm liquids
- Transfer heat by conduction and preserve by insulation. e.g. strip the affected individual and put him or her in an insulated sleeping bag along with another warm individual to provide a source of heat. •!
- Remember that putting a hypothermic individual in a cold sleeping bag or wrapping them with a cold blanket may worsen the process by conducting away more body heat.
- Remember to insulate underneath as well

Severe Hypothermia -- How to Treat:

- Go Slowly!! -- One can easily do more harm than good by well intentioned but misdirected or ill-advised efforts. The severely hypothermic individual is in a very fragile state.
- Avoid Jarring at all costs. This individual has an extremely irritable heart. Jarring and jolting can lead to fatal rhythm disturbances. Avoid CPR unless it is absolutely the last resort. Move the individual gently and as little as possible.
- Helicopter evacuation is best when available.
- Do not warm the arms and legs.
 - It dilates the blood vessels, lowers blood pressure and robs the vital organs of much needed blood.
 - Return of cold blood from the arms and legs further chills the heart.
 - Blood from the extremities carries dangerous acids and other metabolites which increase cardiac risk.
- Warm the central body
 - Hot water bottle or hot moist compresses placed around the chest and abdomen are the most effective modality in the field.
- Do not over interpret vital signs
 - Constricted blood vessels and altered metabolism can significantly alter one's vital signs making them unreliable
 - Do not be too quick to initiate aggressive forms of intervention such as CPR which might further jeopardize the victims condition.

Caring for the Sick Camper

What follows is a selection of common illnesses which might confront a group leader in the wilderness. It is by no means exhaustive. The use of the information provided is going to be governed by the situation, and the leader is well advised to use good judgement before attempting any treatment, however simple, given his lack of professional training. Obviously, the leader in back country of the Boundary Waters Canoe Area will be required to do more than the one who is at an organized campground with medical care reasonably available. Remember, the first rule of medicine is "Primum non nocere" ("First, do no harm"), and the second rule is "CYA" "cover your a--". In this era of frivolous legal action, you are setting yourself up for a fall if you do not use good judgement

A is for Allergies

Be certain that you are aware of any and all allergies among your group. A list of each individual's allergies should be on file and updated at regular intervals.

Types

- FOOD ALLERGIES -- may manifest as stomach upset, vague illness, respiratory complaints or skin eruptions.
- CONTACT ALLERGIES -- rash develops on skin at point of contact. May then spread. e.g. poison ivy
- INHALANT ALLERGIES -- manifest as nasal congestion or chest congestion due to dust, molds, pollens, etc.
- SYSTEMIC ALLERGIES -- the most dangerous usually manifesting with hives and may go on to anaphylaxis and respiratory arrest. Frequently associated with severe allergy to bee venom and some common foods such as peanuts.

Treatment

- BENADRYL 25 mg (OTC) or 50 mg (Rx)
 - 25-50 mg up to 4 times a day for allergic symptoms. Main side effect is sleepiness.
- HYDROCORTISONE CREAM 1% (OTC) Apply to rashes 4 times per day
- BEE STING KIT or EPIPEN (EPIPEN JR) Treatment for severe bee sting or other systemic allergies.
- EXTRACTOR (suction device) Sucks venom from the sting or bite site
- OTC Antihistamine or antihistamine-decongestants -- to treat nasal and/or sinus congestion due to inhalant or food allergies . Also effective for itching and rashes
 - Claritin or Claritin D (Loratadine & Sudafed)
 - Zyrtec or Zyrtec D (Cetirizine & Sudafed)
 - Allegra Allegra D (Fexofenadine & Sudafed)

A is for Asthma

Asthma presents with WHEEZING, the inability to breath out.

Causes

- Allergies -- food, inhalants such as pollen & dust, and the systemic reactions like anaphylaxis
- Inhaled irritants -- e.g. smoke
- Exertion
- Environmental Changes - temperature, humidity, barometric pressure
- Infections -- e.g. pneumonia, colds, bronchitis
- Stress

Treatment

Most asthmatics have routine medications for wheezing, either pills or inhalers. The inhalers always act faster and should be used in the event of a crisis and then the pills started right away.

A severe asthma attack may induce panic, which only worsens the wheezing. You must calm the victim

PRIMATINE is an OTC drug for wheezing in both pill and inhaler form. Over the short run it is effective and will get you out of trouble, but it is not as good as a prescription inhaler.

B is for Bee Sting

- CAUSES may be caused by the sting of the honey bee, yellow jacket, wasp, hornet or bumble bee. There is a strong cross reactivity, even though the various venoms are not identical.
- MANIFESTATIONS
 - LOCAL REACTION -- a weal and flare. The sting site becomes raised, red and swollen, often with an associated white, blanched area around it. This is the normal reaction to a sting.
 - INTENSE LOCAL REACTION -- reaction involving a large area of swelling extending directly from the site of the sting e.g. sting on the wrist causes swelling of most of the arm. This indicates increasing sensitivity to the venom. While the sting is not dangerous, it can be very painful.

- SYSTEMIC REACTION -- reaction involving organ systems other than skin. May include nausea with or without vomiting, wheezing, swelling in the mouth nose or throat, generalized hives and even respiratory arrest due to anaphylaxis. Any reaction of this severity indicates an absolute need to be evaluated and treated by an allergist. The next sting could be fatal.

Treatment:

- Remove stinger in a honey bee sting. No stinger left behind in a yellow jacket, wasp or hornet sting. Scrape out the stinger. DO NOT PINCH IT!
- BENADRYL
- Bee Sting Kit or EPIPEN

This kit or device contains adrenalin in a syringe. In the event of a sting of a sensitive individual, the full dose of adrenalin should be injected AS SOON AS POSSIBLE. It may be injected anywhere - the shoulder, the buttock or the thigh. Quick action is more important than good technique. Even if you have never given a shot, give it. You may save a life.

Following the injection of adrenalin (epinephrine), get the victim to emergency medical care as soon as possible. The adrenalin only buys you time. There is still extreme danger of a relapse to the sting victim. The epipen injection can be repeated.

C is for Constipation

Causes

- Inadequate fluid intake compounded by excessive losses due to exertion.
- Inadequate bulk or fiber in diet.
- Dehydrated and/or freeze dried foods
- Distaste for and refusal to use primitive toilets

Treatment

- Force fluids, especially water
- Utilize bulk forming foods such as dried fruits, lentils, beans, whole grain cereals and breads.
- Milk of Magnesia (liquid or pill) if you go more than 48 hours without a BM.

C is for Convulsions

Causes:

The most common cause of convulsions or seizures in teens and adults is EPILEPSY, also may be caused by head injury, heat stroke and infections.

Treatment

- Convulsions or seizures are not, of themselves, serious. They require no treatment other than to prevent harm or injury coming to the victim who has no control of himself or herself in the situation. Prevent them from striking something, rolling into a fire or water, or otherwise injuring themselves
- Do not restrain. Gently control body movement to prevent injury.
- Do not grab the tongue.
- Do not jam objects into the mouth to prevent biting of the tongue.
- If seizures go on for a long period of time or if there are repeated seizures one after another, there's a problem. Seek medical help right away.
- Communicate the circumstances of the seizure to any minor child's parents. While not serious in itself, the seizure does indicate the presence of a serious problem.

D is for Diabetes

HYPOGLYCEMIA

The greatest danger to a diabetic on insulin is NOT high blood sugar levels. It is an insulin reaction causing the blood sugar to drop too low.

Causes of INSULIN REACTION.

- Decreased food intake.
- Increased physical activity
- Combinations of above

Manifestations:

- Cold Sweat
- Nausea with or without vomiting
- Personality change
 - Confusion, belligerence, hysteria
 - Progresses to loss of consciousness if untreated.

Treatment:

- Sugar in any form that you can get into the victim. If alert, put lots of sugar in juice or water and allow to drink. If unconscious, use INSTANT GLUCOSE, a concentrated gel which can be squeezed into the mouth and absorbed through the mucous membrane.
- If you have an insulin dependent companion in your group, you should have 1-2 tubes of INSTANT GLUCOSE or GLUCOSE TABLETS on any outing.

DIABETIC KETOACIDOSIS**Manifestation:**

Diabetic ketoacidosis, dangerously HIGH blood sugar is not likely to occur on an outing unless the individual forgets to take his or her insulin. This individual is very sick, usually manifesting with fever, very dry mucous membranes and is very, very thirsty.

Treatment:

If they have insulin available, give it to them ASAP and seek emergency medical care. It is very unlikely you will give too much insulin; so don't be afraid of it.

As long as they are alert, force fluids until you get them to medical care.

D is for Diarrhea**Sources**

Bad Water -- Rivers, lakes and creeks may contain a variety of microorganisms waiting to make you sick. Giardia (or "Beaver Fever") can be found in the most pristine appearing water. Giardia cysts can survive even in freezing water. Don't trust it because it is cold. Filter.

Spoiled Food -- Salmonella, Shigella and other goodies thrive on food which has been unrefrigerated or uncooked.

Poor Hygiene -- You carry all sorts of critters in your gut.

Careless food preparation -- Cooking with dirty hands or dirty utensils. Undercooking. Saving leftovers without refrigeration.

Prevention

Treat all drinking water

- Boil it for 10 minutes at a rolling boil
- Iodine tablets for crystals -- be careful and follow directions
 - wait the appointed time
 - bad aftertaste, flavoring helps
- Ceramic filter
- Take only food that is dried, freeze dried, vacuum packed, irradiated, pickled or canned.
- Cook as much as you will eat and destroy what is left over.
- Use good hygiene after moving bowels -- both for yourself and other animals.

Treatment

- Best treatment is no treatment. This is the body's method of flushing a bad organism from within.
- Drink plenty of water to replace what you have lost. Adding electrolytes can help, and sugar can worsen.
- Overwhelming diarrhea has to be slowed.
 - Pepto-Bismol 1 Tbsp or 4 tablets every hour for 8 doses
 - Imodium AD is effective when Pepto fails
 - If you are traveling in a foreign country e.g. Mexico, Central America or South America, Getting an Rx of Cipro from your doctor, may be a wise move.

E is for Earache

- ACHE = infection until proven otherwise
- DRAINAGE = infection until proven otherwise
- FOREIGN BODIES
 - BUGS -- Small amount of any oil (mineral, olive, baby oil)
 - Paper, Cotton, etc. -- remove with tweezers only if you can see it. Otherwise seek medical attention.
 - Solids e.g. peas, peanut, beads, etc. -- if it won't shake out or drop out by gravity, seek medical attention. CAUTION: oil or water may make vegetable foreign bodies like peas or beans swell and harder to remove.

E is for Eye Injuries

Foreign Bodies

- First try to wash it out.
- If it won't flush, gently sweep it out with a cotton tipped swap, corner of a gauze pad, or clean handkerchief.
- If unsuccessful, patch the eye to prevent blinking of the lid and seek medical help .

Imbedded Objects

- NEVER ATTEMPT TO REMOVE AN IMBEDDED OBJECT FROM THE EYE.
- If small patch it and get medical attention
- If too large for the eye to close, cover it with a paper or plastic cup or cone and seek emergency medical attention.

F is for Fever

FEVER is the sign of some other more important process going on. The fever is not the illness. It is part of the body's infection fighting defenses. Do not over treat fever, nor forget to find and treat the reason for the fever.

TREATING FEVER

(The following presumes the treatment of a normal size teen or adult. In treating smaller individuals consult labels).

- 1) Temperature above 101 degrees oral
 - two 5 grain (325 mg.) aspirin every 4 hours
 - or two regular (325 mg) acetaminophen ("Tylenol") every 4 hours
 - or two 200 mg ibuprofen ("Advil") every 6-8 hour2)
- 2)Temperature above 104 degrees oral
 - Alternate the above doses of aspirin and Tylenol every 4 hours until fever "breaks" then resume step #1
 - Or give 3 200mg ibuprofen (Advil) every 6-8 hours
- 3) Temperature above 105 degrees oral
 - Give fever medicine as in #2 (above) and
 - Sponge with tepid water, especially the head, continuously for 30 to 40 minutes. Do not use cold water or alcohol as this will induce shivering, the body's attempt to raise its own temperature.

G is for Gastrointestinal Disorders (The Sick Stomach)

Nausea

Dramamine 50 mg every 4 to 6 hours (available in generic) Major side effect = sleepiness

Heartburn

Any antacid will do - Maalox, Mylanta, DiGel, Gaviscon. Liquids usually are more effective but heavier to carry. In a pinch, a little baking soda in water is fine though it should not be used very frequently because of the salt load.

Diarrhea

See "D is for DIARRHEA".

Appendicitis

All abdominal pain is not appendicitis, but it is well to be aware of how it presents.

- Appendicitis pain starts SLOWLY and develops slowly. Sudden severe pain is NOT appendicitis.
- Pain usually starts around the "belly-button" area and then moves down and to the right halfway between the belly-button and the hip bone.
- Usually accompanied by nausea and maybe a low grade fever
- Usually no BM
- Usually hurts to press over the area and HURTS MORE to let go the pressure
- Appendicitis is a surgical emergency and if highly suspected, the victim must be evacuated to a medical facility emergently .

H is for Head Injury

Signs of Serious Head Injury

- Loss of consciousness or definite change in mental status e.g. confusion, amnesia, belligerence, etc.
- Depressed area on the head either visibly or by feel. This may rapidly fill in with a collection of blood, becoming a "goose egg" .
- Fluid, clear or bloody, coming from the nose or ear.
- Bruising about the eye or behind the ear = "battle sign" .
- Paralysis
- Convulsions
- Nausea with or without vomiting
- Slurred speech
- Persistent or severe headache, especially a headache on the opposite side of the head from which the blow to the head was sustained which is called a "contra-coup headache". This is a sure sign of a concussion or bruising of the brain's surface.

TREATMENT DO NOT'S

DO NOT move more than necessary.

DO NOT attempt to clean a severe head wound or remove imbedded debris.

DO NOT remove impaled objects.

DO NOT give food or drink.

DO SEEK MEDICAL ATTENTION ASAP

H is also for Heat Injuries

PREVENTION = the best treatment for heat injuries.

- Acclimatize yourself to conditions before overdoing it.
- Drink plenty of water, and then drink more.
- Don't over-exert during the hottest part of the day.
- Use a SUN BLOCK, at least #15 or greater when you suspect to be exposed to intense sunlight and your skin is not acclimated.
- Cover sun sensitive skin to prevent sunburn.

Sunburn:

- Basically, sunburn should be considered and treated as would any burn, with attention to pain control and prevention of infection.
- Local anesthetic spray ("SOLARCAINE" OR "BACTINE") will sooth the pain.
- Aspirin or ibuprofen reduces inflammation as well as relieves pain
- Hydrocortisone Spray or cream promotes healing
- Moisturizing lotions or creams reduce injury to the skin.
- SECOND SKIN from Spenco Co. is a gel pack which you put over burns occluding the surface of the burn from the air, keeps it cool and moist and is protective. A bit pricey but worth it for significant burns.

Heat Cramps:

- Heat cramps are muscle spasms that occur in response to water loss and salt shifts within the body due to overheating.
- Give the victim all the water they want.
- Get out of the heat
- Don't massage the cramped muscles -- it won't help
- May give a little salt, but only with a lot of water
- Avoid exertion for at least 12 hours

Heat Exhaustion:

There are two types of heat exhaustion. The one you most commonly see is due to excessive salt loss in the face of adequate or nearly adequate water intake.

Symptoms

Victim collapses
Skin pale, cold and clammy – usually
Complains of weakness, fatigue and nausea.

Treatment

Give water if the victim is conscious. May add a little salt in it.
Get to a cool place.
Get medical attention by a physician.
Requires a minimum of 2-3 days of rest

HEAT STROKE = SERIOUS MEDICAL EMERGENCY

Symptoms:

- Victim collapses and is unconscious • Skin is hot, flushed and dry because the victim cannot produce sweat
- Mucous membranes of mouth and the tongue are dry.

Treatment:

- Cool off the body as rapidly and aggressively as possible - immerse in water, pack in ice, hose down with cold water, etc.
- Transport to an Emergency Medical Facility ASAP. Make certain the transport team is aware of the situation and maintains aggressive efforts at cooling the body during transport. Body temperature can go up several degrees in the time it takes to transport the victim.
- Do not be misled if the victim regains consciousness and claims to feel all right! The victim is in serious condition and **MUST BE HOSPITALIZED** for several days to prevent serious complications involving injury of liver, kidney, brain and blood vessels.

I is for Infection

Local Infection

- Redness, swelling, tenderness & oozing of clear or cloudy fluid
- Treat with **TRIPLE ANTIBIOTIC OINTMENT** or **CREAM**
 - Contains Bacitracin, Polymixin & Neomycin
 - Common Brands "Neosporin", "Mycitracin", Generic Brands
 - There are brands which contain local anesthetics.
- Local Infections should be covered with an appropriate sized bandage.

Systemic or Widespread Infections

- These require antibiotics which should be prescribed by a physician or medical professional who has evaluated the condition whenever possible.
- In the event of going into the wilderness where medical care will not be available, it's reasonable to request an Rx for an antibiotic like **TETRACYCLINE** or **BACTRIM DS** from a physician willing to provide it.
- Mild infections: Tetracycline 250 mg. 4 times a day or Bactrim DS twice a day.

- Serious Infection -- double dose Tetracycline to 500 mg four times a day. Bactrim DS twice a day.
- WARNING!! Tetracycline will sensitize skin to ULTRAVIOLET LIGHT. A severe sunburn or "snowburn" can result if the skin is not properly protected. A SUN BLOCK of at least #15 or higher should be used if exposed to sun or glare from the snow.
- Tetracycline may upset the stomach especially in the 500 mg dosage
- Do not give Tetracycline with milk products or within an hour either way on drinking milk products. The medicine will not be absorbed and will not work.
- The main risk for Bactrim DS is a *sulfa allergy* which is quite common.

P is for Poison

Ingested Poisons

Most poisoning in the wilderness will be due to ingesting poisonous food such as delicious looking berries which are ,in fact, toxic.

Symptoms:

Abdominal pain/ cramps
Nausea & vomiting
Diarrhea.

Treatment:

The first effort should be made by diluting the poison with water or milk (not likely to be in great supply)

If caught early, the most effective treatment is to induce vomiting.

Your efforts to dilute will help with this. Do not induce vomiting if your victim is not alert.

Finally, using *activated charcoal* if you have it to absorb the poison can be very effective but messy.

BITES AND STINGS:

Poisoning by venomous insects, spiders and snakes are always possible in the wilderness and can cause varying degrees of disability, illness or even death.

The most effective treatment for venomous bites and stings is to remove the venom with a suction device such as a Sawyer extractor.

In the case of a venomous snakebite, removal of the victim to emergency medical care is paramount.

The snake bite victim should at all costs be kept quiet and transported rather than moving under their own power.

Snake Bite No-No's

Do not cut into the bite site and suck out the venom.

Do not apply a tourniquet.

Do not apply ice to the bite site.

Do not attempt to kill the snake to bring it to the medical unit. You might get bit yourself.

Do not pick up the dead snake. You can still get bit.

Snake Treatment Do's

Suction the venom if possible.

Keep victim quiet.

Clean the site with soap and water and cover it.

Splint the extremity.

Consider a loose constriction band and move it as swelling develops.

When planning a trip to unfamiliar areas, it is advised that you familiarize yourself with the varieties of poisonous flora and fauna that inhabit the area so that you are prepared to avoid, prevent and, if necessary, treat the local poisons.

POISON IVY (SUMAC & OAK)

Practically speaking, these are the same condition transmitted by contact with different plants, The *Rhus* antigen is the contact agent transmitted by contact with the oil (*uroshiol*) of the plant.

PREVENTION:

Learning to identify the plants and avoiding them is the best medicine. Poison Ivy is by far the most common and most important to learn to identify. Poison Ivy is not seasonal and can be contracted from the leafless vine in the winter.

“Leaflets three, let it be!”

IVY BLOCK is a commercial product which provides a barrier to keep the oil from contact with the skin. Effective but require thinking ahead.

Have about 45-60 minute window to remove the oil

FIRST AID:

COLD WATER and oil cutting soap like Fels Naptha laundry soap, Lava, or Dawn Dish soap are effective. NOT HOT WATER. NOT MILD SOAPS. GO-JO effective in the field.

Rash: Can be anything from a flat red rash to bumpy to bubbly. Not always itchy at first but always eventually. Classically had linear streaking called *koebnerization*.

Treatment:

Drying soaps like Fels Naphtha and commercial products like ZANFEL have a definite role very early.

Drying lotions like IVY DRY and CALAMINE have a limited role during the weepy, blistering phase if it occurs.

Oral BENADRYL has a big role.

HYDROCORTISONE CREAM – the stronger the better.

MEDICAL THERAPY:

TOPICAL: Use of strong prescription only steroid creams is common for less severe cases of poison ivy. If you are known to be very sensitive, taking this with you is really smart.

SYSTEMIC STEROID:

Steroid shots: Commonly used. Effective. Needs to be long acting. No control once you get it.

Burst and taper steroid pills: Starts with a high dose for immediate effect and then tapers to low dose to minimize side effects. Minimum two weeks. Don't accept 6 day dose pack.

Dosing can be fine tuned in terms of the speed of the taper or the length of treatment depending on individual sensitivity.

T IS FOR TICKS:

Tick borne diseases are common threat to outdoors enthusiasts.

- Lyme Disease
- Rocky Mountain Spotted Fever
- Colorado Tick Fever
- Tick Paralysis

Ticks reside in trees and brush and catapult onto their human or animal host. Once aboard, they drill their proboscis into the skin to feed and then inject their gift of viruses and bacteria.

LYME DISEASE

The most common tick borne disease in the North Country is caused by a bacteria, *Borrelia burgdorferi*. It is carried by the *Ixodes* tick, otherwise known as the deer tick or dog tick. The Northeast and the upper Midwest are the hot spots but it is found in all the lower 48 states.

Lyme Disease is picked up by the tick nymph from a host mouse, vole deer, dog or human and incubated until the following spring or summer when the adult tick transmits it in its blood meal.

The initial lesion develops a red “target” rash around the bite site. Fever and swollen lymph nodes may also be experienced at this stage. This will last a couple weeks then fade, but re disease is not over.

At this point, the bacterial migrates to other organ systems causing headache, irregular heart rhythms, bone and joint pains among others. At this stage, if diagnosed, it is still sensitive to antibiotics.

If not treated the disease goes on to cause generalized arthritis.

You probably have 24 hours after the tick attaches to safely remove it without contracting the disease.

PREVENTION:

As in most cases prevention is the best medicine and worth all the effort.

Dress Appropriately:

- Long sleeves and long pants. Tuck pants into socks/boots.
- Light colors are best.
- May to August are the main seasons.

LYME DISEASE

Apply DEET containing insect repellent to skin and clothing.

Permethrin spray is also very effective applied to clothing, tents, sleeping bags etc. It is not for use on skin.

Daily Tick check. Scalp and warm areas like thighs are most likely spots for ticks to hook up. These areas should be carefully examined.

REMOVING TICKS:

1. Grasp head gently with tweezers or tick remover and apply gentle traction until it releases and withdraws. **DO NOT CRUSH**. You may contaminate the wound and make it worse.

or

2. Make an overhand loop with dental floss or fish line. Place loop over the tick on the skin and gently tighten the overhand knot until it is tight around the mouth part of the tick. Apply constant gentle traction until the tick releases.
3. Do not crush or kill the tick while it is attached.
4. Some recommend freezing the tick in a zip lock bag in case lab work is later necessary.
5. Wash site with soap and water and apply antibiotic ointment.

Chapter Three

The Basic First Aid Kit

Note, the fallacy of a "basic" first aid kit lies in the many variables presented by a wilderness trip. How many are going, how long will the group be gone, what is the level of expertise within the group and not the least important, how much weight are you willing to allot to first aid equipment? What you don't use is theoretical "waste weight" but if you need and don't have it and can't "fudge", you could be in trouble or at least ruin the outing for someone. To this end I have not included any specific quantities recommended as these would be determined by the nature of the trip.

First Aid Kit Items:

- Band-aids 1" wide and extra-large
- Steri-Strips Substitute "stitches" far superior to butterfly bandaids
- Gauze Pads 4x4 (can be cut smaller) Telfa -- nonstick
- Triangular Bandages -- slings, wraps & dressings
- Large Sanitary Napkins -- excellent field dressing
- Ace Bandages 3" or more
- Moleskin - lots of it - or mole foam - Padding for blisters and hot spots available in large rolls from medical supply houses
- Commercial blister pads
- Roller gauze -- 3"
- Wet-naps - good for cleaning around wounds or your hands before work on a wound
- Tape 3" cloth adhesive can be torn to narrower width; almost as handy as duct tape
- Speaking of Duct Tape, it has many uses in the first aid kit
- Bandage scissors -- EMT scissors are the best
- Small side-cutters and length of nylon cord for fishhook removal
- Large needle - for foreign bodies
- Razor Blades (single edge) - poor man's scalpel
- Safety Pins - for dressing and hundreds of other uses as well, limited only by your imagination
- Splinter forceps - special tweezers for removing small foreign bodies much superior to tweezers
- Small magnifying glass
- Small fine-tip sewing scissors

First Aid Kit Items (continued):

- Extractor -- suction pump for venom removal from bites/stings
- Disposable safety razor
- Irrigation syringe -- large syringe with flexible tip for irrigating wounds
- Hypothermia thermometer
- SAM splint (malleable aluminum)
- Alumaflex splints or bulk strips
- Rescue Request form

Basic Medicine Chest:

This is not an exhaustive list of potential medications and, as with First Aid supplies in general, a great deal of thought is required to decide what is necessary, what *might* be needed and what is just excess weight with little or no likelihood of being used. Much of these are over the counter items. Some of these are available only by prescription and their availability depends on the discretion of a prescribing physician or medical professional.

- Acetaminophen 325 mg
- Aspirin 5 grain (325 mg.)
- Claritin D or Zyrtec D
- EpiPen or Bee Sting Kit (if bee allergy is a risk) ((Rx drug))
- Imodium AD caplets - anti-diarrheal
- Itch Stick - ammonia stick for insect bites
- Ipecac Syrup - to induce vomiting
- Lotrimin A/F -- OTC antifungal for athlete's foot, jock itch or "ringworm"
- New Skin - liquid/spray bandage
- Solarcaine (spray)
- Bactrim DS Rx Sulfa Drug
- Vaseline (Petroleum Jelly)
- Second Skin Burn Dressings
- Peroxide (Change frequently - breaks down rapidly) There is a gel form but I have never used it and cannot vouch for it.
- Antacid - pick your favorite
- Benadryl 25 mg (OTC)
- Dramamine 50 mg
- Hydrocortisone cream 1% (OTC)
- Activated Charcoal
- Ipecac Syrup - to induce vomiting
- Milk of Magnesia - tablet form
- Mineral Oil
- Pepto Bismol - tablet form
- Primatene (spray)
- Tetracycline 250 mg (Rx Drug)
- Triple Antibiotic Ointment (or cream)
- Visine eye drops