Wilderness Expedition Medical Provider Field Notes

Version: 1Dec22

This document is a compilation of personal notes intended to be used by the author as a field reference when performing Wilderness Expedition Medicine in remote areas. This is one example of how field notes can be organized on a single sheet.

It is challenging fitting all the information you might need into a single, double-sided sheet. Because of space and formatting constraints, notes were significantly abbreviated to allow them to fit. Because of the abbreviated nature of these notes, they may not make perfect sense to anyone other than the author of this document. There are obvious hazards when using information that is abbreviated and subject to misinterpretation.

Although intended for personal use, others are welcome to review, provide feedback or use this document.

To optimally use, print pages 3 and 4 on regular sized 8.5x11” printer paper.

Print at 100% if you want to be able to read the font and use the measuring scales.

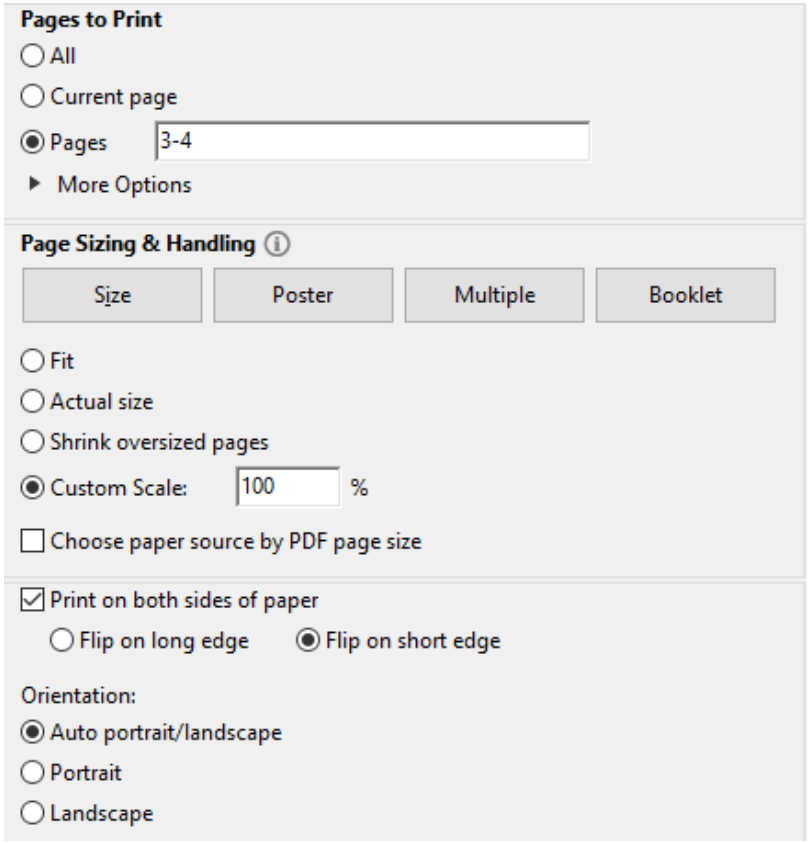
It can be printed smaller or larger if you desire a different sized set of notes.

For single sheet use, print double sided with flip on short edge.

Use vertical markings on front page to help you fold it into a trifold pamphlet.

If the trifold is too big for your kit, fold it in half.

Waterproofing or printing on waterproof paper is optional.



Glasgow Coma Scale (GCS)

Eye Opening	Spontaneous	4
	Response to verbal command	3
	Response to pain	2
	No eye opening	1
Best Verbal Response	Oriented	5
	Confused	4
	Inappropriate words	3
	Incomprehensible sounds	2
	No verbal response	1
Best Motor Response	Obeys commands	6
	Localizing response to pain	5
	Withdrawal response to pain	4
	Flexion to pain	3
	Extension to pain	2
	No motor response	1

Example: E2V3M4 =9
13+ = Mild / 9-12 = Mod / 8- = Sev
<13 at Any Time = Rapid Evac
13 or 14 2-hours after injury = Evac

Cranial Nerves

I	Olfactory	Smell
II	Optic	Vision
III	Oculomotor	Pupil size / eyelids / eye move
IV	Trochlear	Eye movement
V	Trigeminal	Face sensation / jaw move
VI	Abducens	Eye movement
VII	Facial	Face move / taste
VIII	Vestibular	Hearing / balance
IX	Glossopharyngeal	Taste / swallow / gag
X	Vagus	Swallow / gag / heart rate
XI	Spinal Accessory	Neck/shoulder move
XII	Hypoglossal	Tongue move

Neuro Motor / Neuro Sensory

Neuro Motor		Neuro Sensory
Elbow flexors	C5	Anterior lateral shoulder
Wrist extensors	C6	Dorsal thumb
Elbow extensor	C7	Dorsal middle finger
Finger flexor	C8	Dorsal 4/5th digit
Finger abductors	T1	Medial forearm
Hip flexor	L2	Proximal medial thigh
Knee extension	L3	Distal medial thigh
Ankle dorsiflexion	L4	Medial ankle
Long toe extensor	L5	1st web space
Ankle plantarflexion	S1	Lateral ankle/heel

Head

Second impact syndrome: AVOID 2nd injury! (in 72hrs)
Cushing's triad: ↑SBP and/or widen pulse pressure, bradycardia, & irregular resp = cerebral herniation
Tx: SBP >110 15-49yrs / >100 50-69yrs + Glucose 100-180
Tx Suspected ↑ICP: Elevate head of bed (HOB) 30-60°
Evac: skull fracture; vomit x2; seizure; blood thinners; unusual behavior/combative; focal neurological deficit; 60+ yrs old; high impact; eye/vision issue; intoxicated
Low Threshold for Evac if anything NOT right
Per TCCC: 2gm TXA within 3hr of blast/blunt TBI injury

Spine

Immobilize suspected spinal injuries
Consider releasing immobilization if NO 'NSAID':
1. **N**eurological deficit
2. **S**pinal tenderness
3. **A**ltered mental status
4. **I**ntoxication
5. **D**istracting injury

Diaphragm	C1-C4
Neurogenic Shock	T6-
Spastic Bladder	T12-
Flaccid Bladder	T12+

ALOC

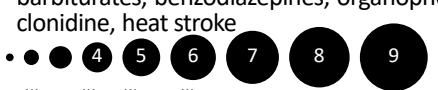
Altered Level of Consciousness/Responsiveness
Sugar; **T**emperature; **O**xygen; **P**ressure
Electricity; **A**ltitude; **T**oxins; **S**alts
Naloxone: Repeat every 2-3min until responds or evac'ed

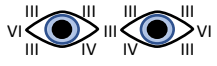
5-Min Neurological Examination

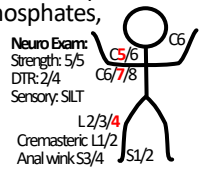
Mental status - LOA; mood & affect; thought content; cognition - orientation, memory (recall 3), judgement, intellect (100-7s), abstraction (orange/apple alike); focal cortical function - aphasia (speech), apraxia (tasks), and agnosia (interpret sensations); adventitial movements (ticks/tremor); face symmetry
Gait - casual, heel-toe tandem
Romberg test - stand, feet together, eyes closed
Truncal stability - Romberg with eyes open, seat/stand
Functional motor testing
-Stand from a squat/arms above head/chin-chest/fist
Eyes - Visual fields, pupils and eye movements
Motor exam -Pronator drift/motor tone/hand grips
-Finger-to-nose testing with eyes closed
Reflexes - Muscle stretch reflexes + Babinski

Eyes

Pupils **E**qual/**R**ound/**R**eact to **L**ight & **A**ccommodates
Normal Pupils: 2-4mm bright light / 4-8mm dark
Unilateral Pupil Dilation and ↓LOC = herniation
Dilated (mydriasis): cocaine/ecstasy/LSD/meth, psychedelic mushrooms, epinephrine/adrenaline, migraine headache, hypoglycemia
Constricted (miosis): stroke, cluster headaches, opioids, barbiturates, benzodiazepines, organophosphates, clonidine, heat stroke



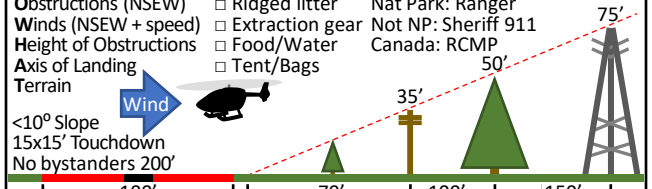




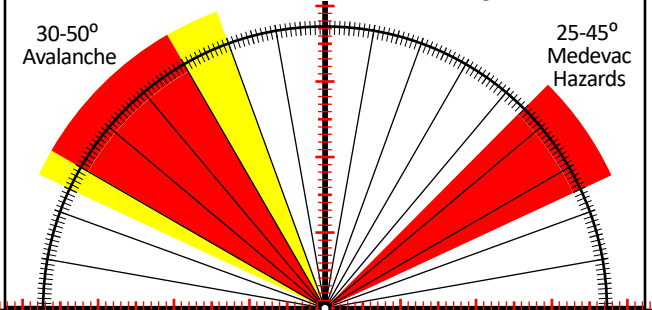
Suitability
Obstructions (NSEW)
Winds (NSEW + speed)
Height of Obstructions
Axis of Landing
Terrain

□ Hoist
□ Ridged litter
□ Extraction gear
□ Food/Water
□ Tent/Bags

Initiate Rescue:
Nat Park: Ranger
Not NP: Sheriff 911
Canada: RCMP



Most of US: East declination: Grid → Mag SUBTRACT G-M∠
US East Coast has West declination: Grid → Mag ADD G-M∠



Normal Vital Signs

HR: 60-100/min regular
Resp: 12-20/min regular/unlabored
Cap Refill: ≤2 seconds
Skin: pink/warm/dry
Eyes: PERRLA
LOC: A&Ox4
Temp: 97.6-99.6°F
36.4-37.6°C
Pulse Ox: 95-100%
Glucose: 70-100mg/dL
Glasgow Coma Scale: 15
Systolic Blood Pressure:

6-12yrs	>105	Radial	~70
13-18yrs	>117	Femoral	~52
<90 = Shock		Carotid	~42

Chest: CTAB; bilat rise/fall
CV: RRR; no MRGs

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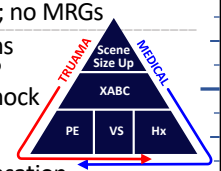
Patient Assessment



Scene Safety and Universal Precautions
10-Second Scene Survey; Responsive?
Primary Exam – XABC and treat for Shock
X = e**X**sanguination – Stop the Bleed!
Secondary Exam - Head-to-Toe
Physical Exam: **C**irculation/**M**otor/**S**ensation
Inspection **P**alpation **P**ercussion **A**uscultation
Deformities/**O**pen Wounds/**T**enderness/**S**welling
Vitals: Pulses, Respiration, Skin, Eyes, AVPU
Alert & Orientated person/place/time/event
History and Documentation: SAMPLE; OPQRST; SOAP

Signs/Symptoms	**O**nset of the event
Allergies	**P**rovocation or palliation
Medications	**Q**uality of the pain
Past medical history	**R**egion and radiation
Last Oral Intake	**S**everity
Events Leading Up	**T**ime (how long/ when)

Subjective: per victim/witness; SAMPLE; OPQRST
Objective: Physical exam; Vitals; IPPA; CMS; DOTS
Assessment: What you think is going on
Plan: Your plan = treatment and evac plan

Shock

Weak/Absent Radial Pulses &
Confusion/Unconscious
Tx: Stop ALL Bleeding!
Keep Warm, Rapid Evac
Chest Injury: Tension pneumothorax?
Septic/Neuro/Anaphylactic may be pink and warm

	BP	HR	RR
Hypovolemic	↓	↑	↑
Obstructive	↓	↑	↑
Anaphylactic	↓	↑	↑
Cardiogenic	↓	↑	↑
Septic	↓	↑	↑
Neurogenic	↓	↓	↓

CPR

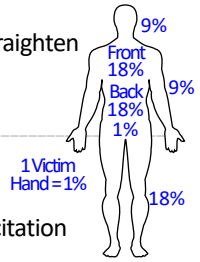
Mainly for Sudden Cardiac Arrest
CPR 30 Compression 100-120/min followed by 2 Breaths
Check Pulse every 2 min (5 cycles of CPR)
Rescue Breathing: adult 1/5 breath/sec; child 1/3 sec
Opiate cardiac/respiratory arrest: naloxone and CPR/RB
Lightning: prolonged resp arrest after return of pulse
Drowning: Start with 5 Breaths then CPR
Drowning + Cold Water ≤43°F (6°C): CPR as long as 90min
Hypothermia: longest CPR with neuro recovery: 8+hours
-Note: ACLS meds + pacing don't work <86°F (30°C)
Chest injury + NO pulse: per TCCC = decompress and CPR

Trauma
Major Extremity Bleed: Tourniquet (2" wide)
- if Tourniquet fails, add 2nd Tourniquet above the 1st
- Evac or convert tourniquets <2 hrs if possible
2g TXA IV/IO for shock or significant bleed in <3hrs
Junctional Bleeds: Pack the Wound; pressure 3min
Impaled Object: Stabilize object & Evac
Small Wounds: dress; hold pressure 3-5min
-Close only clean wounds!
-thorough irrigation; povidone soak; rinse 1 liter
-Rothman Protocol: 30ml povidone + 1L +soak 3min
-Don't Close: dirty; puncture; bite; infected
Rapid Evac: severe bleed; eye; joint; shock

Chest
Watch for signs Tension Pneumothorax:
- Difficulty Breathing; Increased respirations; Shock
Cardiac Tamponade: need for pericardiocentesis?
-Beck's Triad: Low BP; JVD; muffled heart sounds
Significant torso trauma
-Per TCCC: NO Pulse/Respirations = CPR after
bilat needle decompression 5 ICS/MAL or 2 ICS/MCL
Rapid Evac: shortness of breath; fail chest or tension/open/severe/shock

Bone & Joint (Wilderness Only)
Most: **R**est/**I**ce/**C**ompression/**El**evation
Dislocations: Reduce & Splint vs Splint only
-Reduce digits/kneecaps/shoulders
-Don't force reduction
-If it doesn't reduce easily – STOP
-otherwise splint and evac dislocations
Check CMS before/after reductions
Open Fracture: Clean and protect
-Rinse 1-3 liters cleanest water available
-Cover with moist, sterile gauze
Angulated Fracture or Loss CMS: Straighten
-to straighten: pull gently and slowly
-Stop if resistance or pain
All Fractures: Splint and Evac

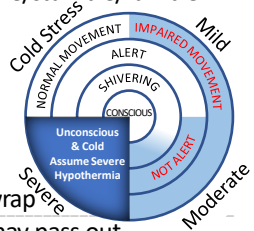
Burns
Cool for 10 minutes and dress
>10% Body Surface Area = Evac
>15% BSA = Air evac?
>20% BSA = Hypo wrap + fluid resuscitation
3rd deg or face/hands/feet = Evac



Poison Ivy/Oak
Alcohol to remove urushiol oil then soap & water
Wear clean clothing and bag contaminated clothing
oatmeal bath/topicals OK; Antihistamine doesn't help
Moderate -NO blister/face/genitals = topical steroid
Severe reaction - ≥10% BSA = oral steroid
-Prednisone 1 mg/kg/day (max 60mg) taper 2-3wks
-Example: 40mg qdx5d; 20mg x5d; 10mg x5d

Jellyfish
US Jelly Tx: remove tentacles; rinse with seawater; hot water immersion/shower or hot packs for pain
Australia/Indo-Pacific/Hawaii = different treatment!
Mild reaction (NO systemic symptoms):
-remove tentacles; seawater rinse; 20min HOT water
Mod/sev pain; frosted ladder; CPR; systemic symptoms:
-vinegar 30secs; pick off tentacles; cold/ice pack; Evac

Cold
Frostbite: Skin Freezes 28°F (-2°C)
-rewarm 98.6-102.2°F soak; dry gauze; Evac
Hypothermia: 95°F (35°C); Mild/Mod/Severe
Mild: 'umbles' - mumble/grumble/stumble/fumble
Tx: dry/warm victim; food/drink
Moderate: Severe Confusion
Tx: External heat source
Severe: Unconscious
Tx: HypoWrap; be gentle; Evac
Very Wet Clothing:
Shelter <30min - Wrap NOW
>30min - remove wet clothing + wrap



Heat Illness
Heat Exhaustion: Tired; dizzy; may pass out
Tx: rest; shade; fluids; elevate legs; cool
Evac if no improvement with 2 hours of rest
Heat Stroke: Life Threatening! 104°F (40°C)
hot; confused or unconscious; drunken walk
Tx: Rapid Cooling First! Rapid Evac next
Hyponatremia: potentially Life Threatening!
Headache; History drinking too much; frequent urination
Tx: stop drinking water and observe
seizures/confused/drunken walk = Rapid Evac

Altitude
After 9,000' "Climb High - Sleep Low"
Sleep max +1,600'/day; +3,300' = extra day rest
Acute Mountain Sickness: Headache and fatigue
Tx: STOP Accent!; DON'T Sleep Higher;
Descend if no improvement; hyperbaric bag helpful
Prevention: Acetazolamide - 125mg q 12h
Tx AMS: Acetazolamide - 250mg/q 12h
HACE: Confused; Drunken Walk
Tx: Descend 3,300' (1000m) ASAP!!!; Rapid Evac
Dexamethasone 8mg x1 then 4mg q 6h
HAPE: Nonproductive cough; Shortness of Breath
Tx: Descend 3,300' (1000m); O2; rest + warmth helps

Lightning
CPR then rescue breathing 30min+ if needed
ABCs after pulse; Rapid Evac
Bolt from Blue has 10-mile range
Flash to Bang: 5 sec = 1 mile
Ground Current 60' blast radius

Snakes
NOTE: snake strike distance = snake length
-can strike + envenomate several hours after Death!
Pit Viper envenomation: Cytotoxic and Haemotoxic
-Generally severe pain at bit site; can be delayed 8h
-TXA ineffective in treating Viper coagulopathy
-a few have neurotoxic venom e.g. Mojave rattlesnakes
Coral Snake: Neurotoxic; Red touch Ylw; Ø Red touch Blk
Sudden collapse = anaphylaxis + severe envenomation
Snake Bite Tx: Move away from snake!
-do NOT try catch/kill snake!
-calm patient
-take picture OK if safe (not important)
-**Do NOT delay Evac** with first aid!
-during evac: mark edge of redness
-remove jewelry & constrictive clothing

Heart Attack
Anyone: shortness of breath; pain chest/jaw/back/arm/shoulder
Ladies: nauseous, lightheaded, tired
Tx: calm person, aspirin and Rapid Evac!
REST! & Evac NO Walking!

Stroke
FAST: Face/**A**rms/**S**peech/**T**ime
numbness/weakness face, arm or leg;
dizziness; confusion; trouble speaking/seeing/walking
balance issues; severe headache for no known cause
TPA can be given up to 4.5 hours after stroke onset
Tx: Rapid Evac!

Diabetes
Hypo of 55-69mg/dL = 15gm sugar + recheck 15min
<55mg/dL = 1mg **Glucagon**; repeat 15min if needed
Not sure if Hypo/Hyper – give glucose and reassess
Hypo or Hyperglycemic event = Evac
Unconscious: Rapid Evac and:
-Glucose gel/paste between gum/cheek
-Massage area and reassess 15-20min
15gms = 3 glucose tabs; ½ cup juice; 6 candies; 1tbsp sugar

Anaphylaxis
Swelling; wheezing; dizzy; unconscious
Give Epi; repeat 5-10min if needed
Epi 0.3mg Adult; 0.15mg Youth(33-66lbs)
Used autoinjector has unused medication inside
Give antihistamine (helps itching/hives only)
Rapid Evac – even if seems OK

Asthma
Follow Asthma Action Plan!
Evac if fails to improve or severe event
No action plan = Rescue inhaler and Evac
If inhaler not available Coffee may help
Look for Tripoding

Drown
Reach/Throw/Row/Tow/DON'T GO!
ABCs: 5 breaths + CPR and AED
Rapid Evac – even if seems OK
1-10-1 Principle
1 min catch breath
10 min self rescue
1 hr unconscious

Abdominal
Jumping causes Abd pain on landing = Appendicitis
Note: Black Widow bite may look like Appendicitis
Evac: pain with movement/walking; rigid abdomen; blood in stool or vomit; dehydrated; suspect pregnant; shock; ill >24 hrs; pain >12 hrs; >102°F
Sanitation 5 Fs: Fingers/Flies/Feces/Food/Fluids
Cooking hand heat test: Hi 2-4sec/Med 5-7/Low 8-10

Reheat USDA inspected plant cooked ham	140°F
Beef/goat/pork/fish/raw ham (pork/ham rest 3min)	145°F
Rabbit/venison/eggs/ground pork/pork sausage	160°F
Poultry/ground beef/reheat ham/casseroles/leftovers	165°F

Survival
Rule of 3s: 3 whistle blasts; 3 fires; 3 etc.
3min air/blood; 3hrs shelter; 3d water; 3wk food
STOP: **S**TOP/**T**ime/**O**bserve/**P**lan
Plan: First Aid/Shelter/Fire/Signal/Water/~~Food~~
Most rescues occur in 72hrs - food is NOT a priority
Tx Water: boil or 5 drops bleach/betadine per liter/quart
-bleach + betadine do NOT neutralize giardia or crypto

155.160MHz: SAR	Ch9: CB
121.5MHz: Int Aero Distress	Ch20: FRS/GMRS Distress
156.8MHz: Int Maritime Dis	Ch16: VHF Marine Distress
243.0MHz: NATO Distress	SOS: ●●● – – – ●●●