MED-TAC INTERNATIONAL

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THE WILDERNESS MEDICAL READINESS GUIDE

Evidence-based trauma care for when help is hours away: what to recognize, what to do first, what to carry, and how to decide when to call for rescue.

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M A R C H — TREAT WHAT KILLS FASTEST, FIRST

MEDICAL SME VETERAN-LED · KITS ASSEMBLED IN THE USA · EDUCATIONAL USE ONLY

ABOUT THIS GUIDE

BUILT BY PEOPLE WHO'VE PRACTICED THIS MEDICINE.

MED-TAC International is founded, owned, and operated by medical, public safety, and military professionals. We provide evidence-based trauma care solutions aligned with CoTCCC-recommended and C-TECC-aligned principles — the same priorities that guide professional responders, adapted for people who work and travel far from an ambulance.

This guide is written for hikers, backpackers, backcountry hunters, overlanders, ski tourers, and the people who lead them. It will not make you afraid of the wilderness. It will make you capable in it.

THE AUTHOR

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THIS GUIDE IS

- A prioritized plan for the first minutes and hours of a backcountry emergency
- A kit standard for day trips, multi-day groups, and expeditions
- A training path and a 30-day plan to turn reading into skill

THIS GUIDE IS NOT

- A substitute for hands-on training — a skill you have only read about is not yet a skill
- Medical advice for a specific person or condition
- A reason to take risks you would not take without it

WHO IT'S FOR

HIKERS · BACKPACKERS · HUNTERS · OVERLANDERS · SKI TOURERS · TRIP LEADERS

HOW TO READ THE EVIDENCE TAGS

[VERIFIED] traceable to a named study, guideline, or government source in the References. [MECHANISM] physiology or professional consensus, not a trial. [MED-TAC TARGET] a MED-TAC training goal, not a published standard. Untagged first-aid instruction is consistent with C-TECC and TCCC guidance, the Wilderness Medical Society practice guidelines, and the American Heart Association. Product prices are live tactical-medicine.com prices on the version date.

EDUCATIONAL USE ONLY

This guide is for educational purposes only and is not a substitute for formal hands-on training. Always seek professional medical care when available, and call for help as early as you can. Product references are informational; consult current product documentation for use instructions. Questions and corrections: info@tactical-medicine.com.

HOW TO USE THIS GUIDE

READ IT AT HOME. PRACTICE IT ON THE TRAIL.

1 · UNDERSTAND
Sections 1–2 explain why backcountry care is different and introduce MARCH, the order that saves lives.
pp. 04–07

2 · RECOGNIZE & ACT
Sections 3–8 cover the five threats that cause the most preventable deaths, plus the other emergencies you are likely to meet.
pp. 08–17

3 · EQUIP & TRAIN
Sections 9–10: kit standards by trip length, with checklists, built kits at live prices, and a training path.
pp. 18–22

4 · DECIDE & PRACTICE
Sections 11–13: when to call for rescue, seasonal additions, and your 30-day readiness plan.
pp. 23–25

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YOUR FIRST 60 SECONDS — MEMORIZE THIS

1 · SAFE
Make the scene safe for you first.

2 · BLEEDING
Find it and stop it: press, pack, tourniquet.

3 · BREATHING
Airway open; chest wounds sealed.

4 · WARMTH
Off the ground, covered, out of the wind.

5 · MESSAGE
SOS with position, injuries, and patient count.

PRINT THESE

Kit inventories (pp. 18–19) · **Seasonal additions** (p. 24) · **Rescue report card** (p. 23) · **30-day plan** (p. 25).

Every checklist has checkbox fields: print this guide and mark it up. Keep the rescue report card and your kit inventory in your pack's lid pocket, and re-check dates before every season.

ONE RULE BEFORE ALL OTHERS

Make the scene safe for you first. A second casualty doubles the problem and removes the only responder.

SECTION 1

THE GOLDEN HOUR DOESN'T EXIST OUT HERE

In the city, help is minutes away. In the backcountry, it is hours. The medicine is the same — what changes is who has to do it.

48%

of outdoor recreational injuries treated in U.S. emergency departments were caused by falls (about 213,000 injuries a year). [VERIFIED]

#1

Bleeding is the leading cause of potentially preventable death after injury — and it kills in minutes, not hours. [VERIFIED]

1,024

U.S. deaths attributed to excessive cold or hypothermia in 2023, across all settings. Cold is a hazard in every season at altitude. [VERIFIED]

~358

deaths a year in U.S. national parks (2014–2019). Top unintentional causes: vehicle crashes, drowning, and falls. [VERIFIED]

In a city, the median wait for an ambulance is about seven minutes. In the backcountry, the clock runs in hours. Someone has to reach a signal or trigger a satellite message, a team has to be assembled, and a rescue has to travel in on foot, by vehicle, or by helicopter when the weather allows. Weather grounds helicopters. Darkness slows everything. Cell service disappears exactly where trails begin. [VERIFIED]

What stays constant is the medicine. The interventions that keep a badly injured person alive in the first minutes — controlling hemorrhage, managing an airway, preventing hypothermia — are simple, teachable, and proven in the most demanding environments on earth. That is what this guide is for. Not to make you afraid of the wilderness, but to make you capable in it.

WHAT CHANGES WHEN HELP IS HOURS AWAY

	IN TOWN	IN THE BACKCOUNTRY
Help arrives	Minutes — median about 7	Hours, and only after someone gets a message out
Calling for help	Any phone, anywhere	Satellite messenger, PLB, or a hike to signal — plan it before you leave
Who treats	Trained crews within minutes	You and your party, for as long as it takes
The environment	Indoors, dry, warm	Wind, wet, cold, heat, altitude — and they make every injury worse
Moving the patient	Stretcher, ambulance	Carry, drag, or shelter in place and wait
Decisions	Made by professionals	Yours: treat, move, or wait (Section 11)

YOU ARE THE FIRST RESPONDER — AND MAYBE THE ONLY ONE FOR HOURS

That is not a reason for fear. It is a reason to carry the right kit, know the order of care, and practice it once a month. Most people who prepare never need to use it. The ones who do are glad they did. [MED-TAC TARGET]

SECTION 1 · CONTINUED

PREVENTION IS THE FIRST INTERVENTION

The best backcountry emergency is the one that never happens, and the second best is the one you planned for. Ten minutes at the kitchen table before a trip does more for your safety than anything in your pack.

- ☐ **Leave a trip plan.** Route, turnaround time, return time, and the exact time your contact should call for help if you have not checked in.
- ☐ **Carry a way to call.** A satellite messenger or personal locator beacon (PLB). Know how to trigger SOS and test it before you go.
- ☐ **Build a party medical sheet.** Allergies, medications, conditions, and emergency contacts for everyone — kept in the kit.
- ☐ **Know your exits.** The nearest road, trailhead, and bail-out routes from each section of the route.
- ☐ **Check the forecast.** Weather, avalanche, fire, and river levels. Set a turnaround time and keep it.
- ☐ **Stage your kit.** Bleeding control on your body or in the top of your pack — never at the bottom under the tent.
- ☐ **Name a medical lead.** Decide before the trip who leads a medical response and who manages communications.
- ☐ **Train together.** Run one 10-minute drill with your party before the trip (Section 13).

THE FIRST TEN MINUTES — AND THE NEXT TEN HOURS

0:00	0:02	0:10	0:15	HOURS	ARRIVAL
Scene safe? Then find the life threat — MARCH.	Bleeding controlled: pressure, packing, or a tourniquet.	Airway, chest, and shock managed. Patient insulated from the ground.	SOS sent with GPS position, injuries, and number of patients.	Shelter, warmth, fluids if alert. Recheck every 15 minutes. Write it down.	Hand off: what happened, when, what you did, what changed.

WHAT CHANGES WITH TIME

Early on, the job is to stop what kills in minutes. After that, the job is to stop what kills in hours: cold, shock, dehydration, and a patient left lying on the ground. Most of wilderness care is keeping a stable patient stable — warm, dry, fed if alert, monitored, and documented — until help arrives. [MECHANISM]

SECTION 2

THE MARCH FRAMEWORK

When you can't do everything at once, treat what kills fastest first. MARCH is the order professional responders use — and it maps directly onto the backcountry.

M — MASSIVE HEMORRHAGE

LOOK FOR Spurting or pooling blood, clothing soaked in seconds, bleeding pressure won't control.

DO Arm or leg: a CoTCCC-recommended windlass tourniquet such as the C-A-T. Groin, armpit, neck: pack with hemostatic gauze and press hard.

A — AIRWAY

LOOK FOR Noisy, gurgling, or snoring breathing — or none — in someone who is unconscious.

DO Recovery position. Head-tilt/chin-lift, or jaw thrust if a spine injury is possible. NPA only if you are trained.

R — RESPIRATION

LOOK FOR A wound to the chest or back, breathing that gets worse, bubbling or sucking at a wound.

DO Vented chest seal. Sit them up if conscious. Watch for tension; burp the seal if they get worse.

C — CIRCULATION

LOOK FOR Pale, cool, clammy skin; restlessness or confusion; a fast, weak pulse.

DO Recheck every bleeding control. Lay them flat, keep them still and warm. Small sips only if fully alert and help is hours away.

H — HYPOTHERMIA & HEAD INJURY

LOOK FOR Shivering, wet or cold skin, confusion. After a head strike: worsening headache, vomiting, drowsiness.

DO Insulate from the ground, cover, vapor barrier, handle gently. Track alertness and write down every change.

SAFETY FIRST, SOS EARLY, REASSESS ALWAYS

Before M: make the scene safe for you. As soon as the bleeding is controlled: send the SOS — the rescue clock only starts when someone knows. After H: start again at M and recheck everything every 15 minutes: tourniquets, dressings, chest seal, breathing, warmth. The order comes from Tactical Combat Casualty Care and its civilian counterpart, C-TECC. [VERIFIED]

SECTION 2 · CONTINUED

WHY A DRUGSTORE KIT WON'T SAVE A LIFE

A typical first-aid kit is built for the injuries you can drive to urgent care with: blisters, scrapes, headaches. Keep it — you will use it on almost every trip. But it cannot control major bleeding, seal the chest, or hold off the cold that kills in the first hour when help is hours away. Add the trauma core.

DRUGSTORE KIT HAS	A BACKCOUNTRY KIT ADDS	WHY IT MATTERS
Adhesive bandages, gauze pads	CoTCCC-recommended windlass tourniquet (C-A-T Gen 7)	Stops life-threatening arm or leg bleeding that pressure cannot
Antibiotic ointment	Hemostatic gauze (kaolin or chitosan)	Packs junctional wounds — groin, armpit, neck — where a tourniquet cannot go
Elastic (ACE) bandage	Emergency trauma (pressure) dressing	Holds pressure over packing so your hands are free
Adhesive tape	Vented chest seals, twin pack	Covers entry and exit wounds and lets trapped air escape
Pain relievers	Emergency bivvy and ground insulation	Cold makes bleeding worse; the ground steals heat fastest
Tweezers	Trauma shears, nitrile gloves, permanent marker	Expose the wound, protect yourself, record the tourniquet time
Treats: minor cuts, headaches	**Treats:** the injuries that kill in minutes	Carry both. Know which one to open first.

WHY THIS ORDER

- **Bleeding kills fastest.** Hemorrhage is the leading cause of potentially preventable death after injury — in combat and in civilian trauma. [VERIFIED]
- **Tourniquets work in civilian hands.** Prehospital tourniquet use is associated with lower mortality in civilian trauma (Teixeira 2018). [VERIFIED]
- **Cold compounds everything.** A cold patient clots poorly and slides into shock faster — the H belongs in the first ten minutes, not the last. [MECHANISM]

WHAT MARCH IS NOT

- A reason to skip calling for help. Send the SOS as soon as the bleeding is controlled — or first, if someone else can treat.
- A substitute for training. Take a hands-on course before your next trip (Section 10).

THE BOTTOM LINE

Carry the trauma core on your body or at the top of your pack, where you can reach it in seconds. A tourniquet at the bottom of a 60-liter pack under the tent is a tourniquet you do not have. [MED-TAC TARGET]

SECTION 3

THREAT 1 — MASSIVE HEMORRHAGE

The #1 preventable cause of trauma death. Falls onto rock, blades, and saws produce it; pressure, packing, and a tourniquet stop it.

RECOGNIZE

- Blood spurting, or pooling fast on the ground
- Clothing soaked through in seconds
- The person turning pale, confused, or losing consciousness
- Bleeding you cannot control with firm direct pressure
- Any amputation

WHY IT MATTERS

- Bleeding is the leading cause of potentially preventable death after injury. [VERIFIED]
- A major bleed can become fatal long before any rescue could arrive. [MECHANISM]
- Tourniquet use is associated with survival in military and civilian studies (Kragh 2009; Teixeira 2018). [VERIFIED]

RESPOND — IN THIS ORDER

1. **Expose the wound.** Cut clothing away to find the source. Gloves on if you have them — but don't delay for them.
2. **Arm or leg:** apply a windlass tourniquet **2–3 inches above the wound, on bare skin, never over a joint.** Can't see the source, several wounds, or dark? Go **high and tight** — as high on the limb as it will go. Tighten until the bleeding stops; lock the windlass.
3. **Groin, armpit, neck** (where a tourniquet can't go): pack hemostatic or plain gauze down to the source, fill the wound, then press hard — at least 3 minutes with hemostatic gauze (or per its instructions), 10 with plain. Neck: press on the wounded side only; pack carefully, never pressing on the windpipe.
4. **Mark the time** on the tourniquet and on the rescue report card (p. 23). Tell the rescue team.
5. **Prevent shock:** lay them flat, insulate from the ground, cover, and keep them warm. Send the SOS.

CRITICAL REMINDERS

- An effective tourniquet hurts. That is normal — keep it on.
- Do not loosen it periodically. That is old advice, and it is dangerous.
- Still bleeding? Tighten further, then add a second tourniquet above the first.
- Don't pack the chest or belly — cover and press instead.
- A long carry out? Leave the tourniquet on. Removing it is a decision for a clinician, not the trail.

GEAR

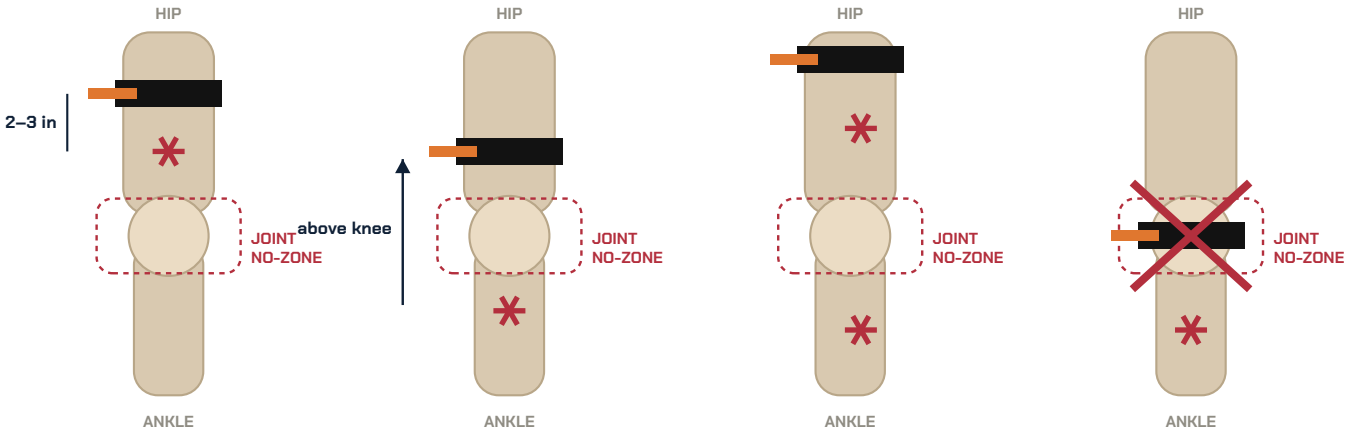
- ☐ Windlass tourniquet (C-A-T Gen 7)
- ☐ Hemostatic gauze
- ☐ Emergency trauma (pressure) dressing
- ☐ Trauma shears
- ☐ Nitrile gloves
- ☐ Permanent marker

SECTION 3 · CONTINUED

WHERE THE TOURNIQUET GOES — AND HOW TO PACK

TOURNIQUET PLACEMENT — FOUR CASES

VERIFIED — ACS / CoTCCC / C-TECC



A · YOU CAN SEE THE WOUND
Bare skin, 2–3 inches above the wound, on the same bone.

B · 2–3 IN LANDS ON A JOINT
Move it above the joint — onto the thigh or upper arm.

C · UNKNOWN · MANY · DARK
High and tight: as high on the limb as it will go.

WRONG · OVER A JOINT
Knee, elbow, or wrist: it cannot compress the artery. Move it.

WOUND PACKING IN FIVE STEPS

1. **Expose** completely — you can't treat what you can't see.
2. **Find the source** — wipe away pooled blood to see where it comes from.
3. **Pack to the base** — push gauze directly onto the bleeding point, then fill the whole cavity tightly.
4. **Hold pressure** — hard, straight down: 3 minutes for hemostatic gauze, 10 for plain. Don't peek.
5. **Wrap** — secure with a pressure dressing and keep checking it.

SELF-APPLICATION — PRACTICE IT

- Falls often injure the person who would have helped. Practice putting a tourniquet on your own arm and leg, one-handed, weak hand too.
- Carry it where either hand can reach it — chest rig, hip belt, or shoulder strap — pre-staged and ready to slide on.
- Pull all the slack out of the strap before you turn the windlass. Most failures are loose straps, not weak windlasses.
- Train with a blue trainer tourniquet; carry an operational one. Monthly drill: under 60 seconds, both arms. [MED-TAC TARGET]

WHEN THE EVACUATION TAKES HOURS

A tourniquet may stay on for hours before a backcountry casualty reaches care. Leave it in place, keep it visible, keep the limb and the patient warm, and tell the rescue team the time it went on. Loosening or removing it belongs to a clinician with the patient in front of them. [MECHANISM]

SECTION 4

THREAT 2 — AIRWAY COMPROMISE

When they can't breathe, nothing else matters. Most airway problems in the backcountry are fixed with position, not equipment.

RECOGNIZE

- Noisy, gurgling, or snoring breathing
- Can speak only one or two words
- Blue or gray lips or face
- Unconscious with snoring — or no breath sounds at all
- Visible trauma to the face, jaw, or neck

WHY IT MATTERS

- Brain injury begins within minutes without oxygen. [MECHANISM]
- An unconscious person on their back can choke on their own tongue, blood, or vomit. [MECHANISM]
- Falls from height and head strikes are common in the backcountry — and so is being alone with the patient. [MECHANISM]

RESPOND — IN THIS ORDER

1. **If conscious:** let them find their best breathing position — usually sitting up and leaning forward. Don't force them flat.
2. **If unconscious but breathing:** roll them into the recovery position (stable, on the side), keeping head and neck in line if a spine injury is possible.
3. **Open the airway:** head-tilt/chin-lift, or jaw thrust if a spine injury is suspected.
4. **Clear what you can see.** Scoop out visible blood, vomit, or debris. No blind finger sweeps.
5. **Consider a nasopharyngeal airway (NPA)** only if you have been trained to place one.
6. **Not breathing normally, no signs of life:** start CPR if the scene is safe and send the SOS. Drowning, lightning, and hypothermia victims are the most likely to benefit. [MECHANISM]

NEVER

- Never practice airway skills — including an NPA — on a conscious person.
- Never do a blind finger sweep; you can push the obstruction deeper.
- Choking and can't speak or cough? 5 back blows, then 5 abdominal thrusts, repeat. Becomes unresponsive: CPR.
- Swelling of lips, tongue, or throat after a sting or food: their epinephrine auto-injector, outer thigh, now (Section 8).

GEAR

- [ ] Nasopharyngeal airway with lubricant (if trained)
- [ ] Nitrile gloves
- [ ] Pocket mask or face shield
- [ ] Prescribed epinephrine auto-injector (if carried)

SECTION 5

THREAT 3 — CHEST INJURIES

The hidden killers. Falls onto rock, ice tools, and branches cause collapsed lungs, bleeding inside the chest, flail segments, and open wounds.

RECOGNIZE

- Breathing difficulty that gets worse
- Sharp pain with each breath
- Bubbling or sucking sounds at a wound
- One side of the chest moving differently from the other
- Coughing blood

WHY IT MATTERS

- Air trapped under pressure in the chest (tension pneumothorax) can kill within minutes. [MECHANISM]
- Chest injuries can look minor at first and worsen over the next hours. [MECHANISM]
- Altitude and cold make any breathing problem harder to tolerate. [MECHANISM]

RESPOND — IN THIS ORDER

1. **Expose the chest fully** — check front, back, and both armpits for wounds.
2. **Open chest wound:** wipe the skin dry and apply a vented chest seal. No seal? Leave it open or cover it with a non-occlusive dressing. Seal entry and exit wounds.
3. **Position:** let a conscious patient sit up or lean toward the injured side if that is easier to breathe.
4. **Monitor for tension:** rising anxiety, breathing getting harder, bulging neck veins.
5. **If they deteriorate:** lift a corner of the seal to let trapped air out ("burp" it), then reseal. Send the SOS as a life threat.

CRITICAL REMINDERS

- Never pack a chest or belly wound — cover it and press around it.
- Leave an impaled object in place; pad around it so it cannot move.
- Broken ribs: let them splint with their own arm or a jacket — don't tape the chest tight.
- Any chest injury plus worsening breathing is a reason to call for rescue now (Section 11).
- Puncture wound? Look for an exit wound on the back or side and seal it too.

GEAR

- ☐ Vented chest seals, twin pack (HyFin Vent)
- ☐ Backup occlusive dressing
- ☐ Trauma shears
- ☐ Gauze to wipe the skin dry

SECTION 5 · CONTINUED

SHOCK AND HEAD INJURY — THE C AND H OF MARCH

SHOCK — RECOGNIZE

- Pale, cool, clammy skin
- Restless, anxious, then confused or drowsy
- Fast, weak pulse; fast breathing
- Thirst, nausea

SHOCK — ACT

- Recheck every tourniquet and dressing: the usual cause is bleeding
- Lay them flat; keep them still
- Insulate from the ground and cover them — cold worsens shock
- Small sips only if fully alert, able to swallow, and help is hours away

HEAD INJURY — RED FLAGS

- Knocked out, even briefly
- Headache getting worse; repeated vomiting
- Confusion, drowsiness, seizure, or unequal pupils
- Clear fluid from nose or ears

HEAD & NECK — ACT

- Any red flag: send the SOS and plan for rescue
- Neck pain, midline tenderness, numbness or weakness, or you can't assess them: keep the head in line and minimize movement
- Never leave them alone; watch the airway
- Write down alertness every 15 minutes

PATIENT MONITORING LOG — PRINT AND KEEP WITH THE KIT

TIME	ALERT? (A/V/P/U)	BREATHS/MIN	PULSE	SKIN	TQ / SEAL CHECKED	NOTES

A/V/P/U: Alert · responds to Voice · responds to Pain · Unresponsive. A trend matters more than any single number — a patient getting worse is a patient who needs the rescue now. Hand this log to the rescue team.

SECTION 6

THREAT 4 — ENVIRONMENTAL EMERGENCIES

Hypothermia is the gradual killer. It develops in any season at altitude, and it makes every injury worse — a cold patient bleeds more and shocks faster.

THE HYPOTHERMIA LADDER — RECOGNIZE THE STEP YOU ARE ON

1 · COLD
Shivering, cold hands, still thinking clearly.

→

2 · THE UMBLES
Stumbles, mumbles, fumbles, grumbles. Poor decisions.

→

3 · STOPS SHIVERING
Confused, drowsy, won't cooperate. Severe.

→

4 · UNRESPONSIVE
Barely breathing. Handle as gently as glass.

RESPOND — IN THIS ORDER

1. **Stop the heat loss:** out of wind and wet immediately — tent, bivvy, the lee of a rock.
2. **Insulate completely — the ground first.** Pad, packs, rope, spruce boughs: the ground steals heat faster than the air.
3. **Wet clothing:** in shelter, replace wet layers with dry. No shelter? Wrap a vapor barrier (plastic, bivvy) over the wet layers, then insulation over that.
4. **Handle gently** and keep a severely cold person horizontal — rough movement can trigger a dangerous heart rhythm.
5. **Add heat to the trunk:** heat packs to the chest, armpits, and back — wrapped, never directly on skin.
6. **Warm, sweet drinks and food only if fully alert and able to swallow.** No alcohol. Stopped shivering or confused? Send the SOS: this is severe.

FROSTBITE — THE SHORT VERSION

- Don't rub it and don't rewarm near a fire or stove.
- Rewarm in warm (not hot) water only if it can't freeze again before rescue; a thawed part that refreezes is worse off.
- Pad and protect blisters; don't walk on a thawed foot if you can avoid it.
- Treat hypothermia before frostbite — the core comes first. [VERIFIED]

GEAR

- ☐ Emergency bivvy
- ☐ Closed-cell ground pad
- ☐ Chemical heat packs
- ☐ Vapor-barrier bag
- ☐ Hypothermia wrap (HPMK)
- ☐ Warm hat and dry socks

SECTION 6 · CONTINUED

HEAT, ALTITUDE, AND LIGHTNING

HEAT STROKE — COOL FIRST, MOVE SECOND

Recognize: hot and confused, collapsed, or acting strangely during exertion in heat. Sweating may continue.

Act now: cold-water immersion in a stream or lake is the fastest cooling there is. Keep the head up and hold on to them.

No water to immerse? Soak them and fan continuously; ice or cold packs to neck, armpits, groin, cheeks, palms, and soles.

Send the SOS. Keep cooling until they are thinking clearly.

Fluids with electrolytes only if alert and able to swallow. [VERIFIED]

ALTITUDE — NEVER GO HIGHER WITH SYMPTOMS

Acute mountain sickness: headache plus nausea, fatigue, or dizziness after going up. Rest; go no higher until it resolves.

Brain swelling (HACE): confusion or unsteady walking — can't walk heel-to-toe in a straight line. **Descend now.**

Fluid in the lungs (HAPE): breathless at rest, cough, falling behind on the climb. **Descend now.**

Descending even 300–1,000 meters usually helps. Altitude medications only as your physician directs. [VERIFIED]

LIGHTNING — PLAN, THEN TREAT

Plan: be off summits, ridges, and open slopes before afternoon storms build. No safe place outdoors in a thunderstorm.

Victims do not carry a charge. It is safe to touch them.

More than one down? Treat the ones who are not breathing first — they are the most likely to be saved with CPR.

Check for burns and fractures from the fall. Everyone struck is evacuated. [VERIFIED]

DRINKING TOO MUCH PLAIN WATER

Nausea, headache, confusion, and vomiting after drinking large amounts of plain water in the heat can be low blood sodium.

Stop the water. Salty snacks and electrolyte drinks if alert.

Confusion or seizure: send the SOS. [VERIFIED]

PREVENTION BEATS TREATMENT

Dress in layers you can adjust before you sweat or chill. Eat and drink on a schedule, not when you notice. Climb high, sleep low, and add altitude gradually. Set a turnaround time and keep it — most environmental emergencies start with a party that stayed out too long. [MECHANISM]

SECTION 7

THREAT 5 — MUSCULOSKELETAL INJURIES

When "walk it off" isn't an option: fractures, dislocations, bad sprains — and the long, painful carry that follows if the splint is poor.

RECOGNIZE

- Deformity or an abnormal angle
- Can't bear weight or use the limb
- Grinding under the skin (crepitus)
- Rapid swelling and bruising; point tenderness over bone

WHY IT MATTERS

- Most backcountry injuries are orthopedic: fractures and sprains top ED visits for outdoor injuries. [VERIFIED]
- A lower-leg fracture turns a hike out into a carry — hours of movement a good splint makes survivable. [MECHANISM]

RESPOND — IN THIS ORDER

1. **Check circulation, sensation, and movement (CSM)** below the injury — before and after splinting.
2. **Open fracture:** control bleeding and cover the wound with a clean dressing. Don't push bone back in.
3. **Immobilize** the joints above and below a broken bone — or the bones above and below an injured joint.
4. **Pad everything** — every bony point and every gap. Long carries turn small pressure points into sores.
5. **Splint in the position found** unless the limb below is pulseless, cold, or pale: then gently pull it toward normal alignment with steady traction — stop if pain or resistance sharply increases.
6. **Recheck CSM** after splinting and every hour. Numb, cold, or swelling? Loosen the wraps.

SEND THE SOS FOR

- Bone through skin, or no pulse below the injury
- Numbness or color change that doesn't improve after realignment
- Suspected thigh-bone (femur) or pelvis fracture — both can bleed internally
- Pain far out of proportion, tight swelling, worse with a gentle stretch: compartment syndrome

GEAR

- ☐ SAM Splint (36 in.)
- ☐ Elastic wrap bandage
- ☐ Triangular bandages (cravats)
- ☐ Padding: foam, clothing
- ☐ Athletic or duct tape

SECTION 7 · CONTINUED

IMPROVISE WELL — AND KNOW WHEN NOT TO

TREKKING POLES

Forearm: one pole plus padding, wrapped with bandanas or tape.

Lower leg: two poles, inside and outside, padded with a sleeping pad.

Crutch: adjusted to armpit height, top padded with spare clothing.

SLEEPING PAD & PACK

Full-leg splint: roll a foam pad around the leg, secure with straps.

Pack stays and frame sheets make rigid splint pieces.

Insulation: the pad goes under the patient first.

BANDANAS & CLOTHING

Cravats to secure splints; **slings** for arm injuries.

Pressure dressing over gauze.

Jacket sling: pin or tie the sleeve across the chest.

WHEN NOT TO IMPROVISE

- **Tourniquets.** Belts, rope, and cord rarely compress an artery and can injure the limb. Carry a commercial windlass tourniquet. [MECHANISM]
- **Chest seals.** Taped-down plastic can trap air. No vented seal? Leave the wound open and watch breathing.
- **Anything dirty in a wound.** No moss, pitch, or ash — clean water and a clean dressing only.

WOUNDS AND BLISTERS — THE INJURIES YOU WILL ACTUALLY SEE

CUTS AND SCRAPES

- Control bleeding with firm pressure first.
- **Irrigate** with plenty of drinkable water under pressure — a syringe, or a pinhole in a clean bag. Dilution beats antiseptic.
- Remove visible debris, then cover with a clean dressing and change it daily.
- Spreading redness, heat, pus, red streaks, or fever: infection — plan to get out. [MECHANISM]

BLISTERS

- **Stop at the hot spot.** Tape or moleskin before it becomes a blister.
- Small and intact: pad around it and leave the roof on.
- Large and tense: drain at the edge with a clean needle, keep the roof as a natural dressing, cover.
- Dry socks at every long break. Feet are how you get home.

GET IT SEEN BY A CLINICIAN

Deep or gaping wounds, wounds over a joint, animal or human bites, punctures, dirty wounds you cannot fully clean, wounds with numbness or weakness beyond them, and anything on the face or hands. Clean and cover it well, then plan to leave the trip. [MECHANISM]

SECTION 8

BEYOND THE FIVE: OTHER BACKCOUNTRY EMERGENCIES

The five threats cause the most preventable deaths. These are the other emergencies a party is likely to meet — each with the step that matters most.

EMERGENCY	RECOGNIZE	DO	SOS?
Severe allergic reaction	Hives plus trouble breathing, throat or tongue swelling, vomiting, or fainting after a sting or food	Their epinephrine auto-injector, outer thigh, now. A second dose after 5–10 minutes if not improving and one is available. Lay flat or sit up if breathing is hard.	Yes
Snakebite (pit viper)	Fang marks, pain, and swelling spreading from the bite	Calm, still, limb at heart level. Remove tight items before swelling. Evacuate to a hospital with antivenom. No tourniquet, cutting, suction, ice, or electric shock.	Yes
Drowning / cold water	Pulled from the water coughing, breathing poorly, or not breathing	Reach or throw — don't go in. Not breathing: rescue breaths first, then CPR. Everyone who nearly drowned is evacuated: lung problems can appear hours later.	Yes
Burns	Stove, fire, or boiling water; blisters or white, leathery skin	Cool running water for 20 minutes. Cover with clean non-stick or hydrogel dressing. No ice, butter, or ointment.	Face, hands, large, or deep
Chest pain	Pressure or pain in chest, arm, or jaw; sweaty, short of breath	Stop all exertion. Chew aspirin if not allergic. Keep them warm and resting.	Yes
Low blood sugar	Diabetic, shaky, sweaty, confused, or acting strangely	Sugar by mouth — juice, glucose, candy — if they can swallow. Recheck in 15 minutes.	If can't swallow
Seizure	Shaking or staring, unresponsive	Protect the head, time it, nothing in the mouth. On the side afterward.	Over 5 min or first seizure
Eye injury / snow blindness	Painful, gritty eyes after sun on snow; debris in the eye	Flush with clean water. Cover both eyes for snow blindness; rest in the dark. Wear glacier glasses.	Penetrating injury
Dental	Lost filling, broken or knocked-out tooth	Temporary filling material; clove oil for pain. Knocked-out tooth: rinse, reinsert or keep in milk or saliva.	Knocked-out tooth

THE PATTERN

Almost every backcountry emergency follows the same four moves: make it safe, fix what kills fastest, protect from the environment, and decide whether to call for rescue. When in doubt, send the message early — a rescue you cancel costs far less than one you start too late. [MED-TAC TARGET]

SECTION 9

KIT STANDARDS BY TRIP DURATION

Build up in tiers. Every person carries Tier 1. The group adds Tier 2 for overnight trips. Expeditions and prolonged-care trips add Tier 3.

TIER 1 · DAY TRIP / PERSONAL
On your body or the top of your pack. The trauma core plus your own blister care and medications.

TIER 2 · MULTI-DAY / GROUP
Carried once per group, in waterproof housing: splints, airway, burns, wound care, medications.

TIER 3 · EXPEDITION / PROLONGED
Group volume of Tier 2, active warming, a litter, and a physician-reviewed medication plan.

TIER 1 — DAY TRIP / PERSONAL CARRY · EVERY PERSON

ITEM	QTY	HAVE	EXP. DATE
Windlass tourniquet — CoTCCC-recommended (C-A-T Gen 7)	1	☐	
Hemostatic gauze (kaolin or chitosan), or compressed gauze	1	☐	
Emergency trauma (pressure) dressing	1	☐	
Vented chest seals, twin pack	1	☐	
Nitrile gloves	2 pr	☐	
Trauma shears	1	☐	
Emergency blanket or bivvy	1	☐	
Permanent marker (tourniquet time)	1	☐	
Blister care: moleskin, tape	1 set	☐	
Personal medications and allergy plan	—	☐	
Satellite messenger or PLB (one per party, minimum)	1	☐	

TIER 2 — MULTI-DAY / GROUP · ONE PER GROUP

ITEM	QTY	HAVE	EXP. DATE
Everything in Tier 1, for every member	—	☐	
Nasopharyngeal airway with lubricant (if trained)	1	☐	
Extra vented chest seals	1 pk	☐	
Burn dressings (hydrogel)	2	☐	
SAM splint	1–2	☐	
Elastic wraps and triangular bandages	2 + 2	☐	
Irrigation syringe; wound-closure strips	1 + 1 pk	☐	
Medications per physician: pain, allergy, stomach	—	☐	
Dental emergency kit	1	☐	
Patient monitoring log and pencil (p. 12)	1	☐	
Waterproof dry bag for the group kit	1	☐	

SECTION 9 · CONTINUED

EXPEDITION TIER, EXPIRATION DATES, AND PACKING

TIER 3 — EXPEDITION / PROLONGED CARE · ONE PER EXPEDITION

ITEM	QTY	HAVE	EXP. DATE
Tier 2, scaled to group size and trip length	—	☐	
Hypothermia management kit with active warming	1	☐	
Lightweight litter or drag stretcher	1	☐	
Pulse oximeter (altitude trips)	1	☐	
Additional tourniquets and hemostatic gauze	per member	☐	
Expanded medication plan reviewed with a physician	—	☐	
Primary and backup communication (satellite + PLB)	2	☐	
Thermometer (low-reading if cold trips)	1	☐	
Repair: duct tape, cord, safety pins	1 set	☐	

WHAT EXPIRES — CHECK BEFORE EVERY SEASON

ITEM	SHELF LIFE	WHAT TO CHECK
Hemostatic gauze (QuikClot Combat Gauze, Celox Rapid)	5 years from manufacture (per product pages)	Printed date; torn or punctured packaging
Vented chest seals	Printed expiration date	Date; adhesive backing intact
Tourniquets	No calendar expiration	UV fading, frayed strap, cracked windlass; replace after any real use
Medications	Per the label	Date; heat and freeze exposure
Chemical heat packs	Printed date	Sealed pouch; replace any that feel warm or hard
Batteries (PLB, messenger, headlamp, oximeter)	Varies	Charge and test before every trip; PLB battery date

PACK IT RIGHT

- The trauma core rides on your body or in the top lid — reachable with either hand in seconds.
- Group kit in a waterproof bag with a bright color, in a known place in a known pack.
- Label the outside. Everyone in the party should know where it is and what's in it.

KEEP IT HONEST

- Restock after every trip — anything opened is used.
- Carry a blue trainer tourniquet for practice; keep the live one sealed.
- Re-check dates each season with this list and the seasonal additions (p. 24). [MED-TAC TARGET]

SECTION 9 · CONTINUED

BUILT KITS THAT MEET EACH TIER

Build your own from the checklists, or start from a kit that already meets the tier and add what your trip needs. Prices are live tactical-medicine.com prices on the version date; the configuration shown matches the contents listed.

TIER 1 — Personal and trail carry — every member — C-A-T IN EVERY KIT

TIER 1

Mini Trail Personal Aid Kit (Mini T-PAK) — LOKSAK

Basic $94.95 · w/Bleeding Control Dressing $124.95

Inside: C-A-T Gen 7, wound-packing gauze, HyFin Vent Compact chest seals, elastic wrap, CPR mask, survival blanket, gloves, plus blister, cut, and sting care. Sealed in an aLOKSAK bag rated waterproof to 200 ft. 1.0 lb.

Where: Day hikes, trail runs, river crossings, hunting — a cargo pocket or hip-belt pouch.

TIER 1

RED — Ready Every Day Personal Aid Kit

$104.95

Inside: C-A-T, compressed gauze, 4-in. trauma dressing, petrolatum gauze, burn gel, single-dose OTC medications, CPR mask, survival blanket, gloves, shears. 1.2 lb.

Where: Everyday carry and day packs — the trauma core plus the small stuff.

TIER 1

MED-TAC Ultra-Compact Trauma IFAK

$199.00 · Coyote Tan or Black

Inside: 27 components: C-A-T, QuikClot kaolin gauze, 6-in. trauma dressing, compressed gauze, burn and wound care, eye shields, irrigation syringe, shears, survival blanket. 1.35 lb.

Where: Hunters, guides, and anyone who wants burns, eyes, and wounds covered on the belt.

TIER 2 — Group and multi-day — one per group — ADD SPLINT + DENTAL

TIER 2

NAR Trauma and First Aid Kit — Class A

From $184.99 · Celox $209.95 · BCD $234.99

Inside: Exceeds ANSI/ISEA Z308.1-2021 Class A, plus a C-A-T, a HyFin Vent chest seal twin pack, and a hemostatic dressing. Zippered bag, 2.94 lb.

Where: The group's base kit for overnight trips; add splints and medications.

TIER 2

Dental Emergency Kit

$51.99

Inside: Temporary filling material, benzocaine gel, clove oil, hemostatic gauze, dental mirror, cotton rolls and pellets, floss, gloves. 16 items, 6 oz.

Where: Holds a lost filling or broken tooth together until you reach a dentist.

HOUSING

Elite Bags SAILS Waterproof Bag

$69.00 · sold empty

Inside: 18.5-liter roll-top dry bag with welded seams and four color-coded module pouches. No medical supplies included.

Where: Waterproof housing for the group kit on rivers, coasts, and wet trips.

SECTION 9 · CONTINUED

EXPEDITION TIER AND SINGLE ITEMS

TIER 3 — Expedition and prolonged care — one per expedition — WARMING + LITTER

TIER 3

Hypothermia Prevention & Management Kit (HPMK)

$124.95

Inside: Heat-reflective shell plus an oxygen-activated self-heating liner the manufacturer rates for up to 10 hours. Vacuum-packed, 3 lb 8 oz.

Where: Winter and alpine trips; any casualty waiting hours for rescue.

TIER 3

HAWK Advanced Hypothermia Management Set

$226.85

Inside: Air-activated warming grid (eight cells, about 4 hours per cell per the manufacturer) plus a Mylar-lined APLS litter that insulates from the ground.

Where: Packaging a cold casualty for a long carry or wait.

TIER 3

Lite Fighter Poleless Litter

$89.99 · Black or Multicam Green

Inside: Ripstop nylon, 18 × 72 in., 2.0 lb, eight handles, three straps, and an insulated center pad. No medical supplies included.

Where: Moving a casualty to a landing zone, road, or better shelter.

ITEM	LIVE PRICE	USE	TIER
C-A-T Gen 7 tourniquet (Black or Orange; Blue is a trainer)	$28.99	A second tourniquet per person, or a trainer for drills	1
QuikClot Combat Gauze / CELOX Rapid	$39.99 / $37.95	Hemostatic packing for junctional wounds	1
HyFin Vent Compact chest seal, twin pack	$12.99	Entry and exit wounds	1–2
TacMed Emergency Bivvy	$19.92	Full-body shelter and casualty wrap, 48 × 84 in.	1
SAM Splint II	$13.99	Wrist, forearm, ankle; molds to fit	2
NPA kit, 6 sizes (if trained)	$19.99	Training-dependent. Position the casualty first	2
TacMed Basic Burn Kit	$38.16	Hydrogel burn dressings for stove and fire burns	2
Pulse oximeter	$29.99	Oxygen saturation at altitude	3
Rapid Expeditionary Evacuation Litter	$99.00	Non-rigid litter, 700 lb rated, packs to 0.75 in.	3

WORKED EXAMPLE — A PARTY OF FOUR ON A THREE-DAY BACKPACKING TRIP

Four Mini T-PAK Basic kits ($379.80), one NAR Class A group kit ($184.99), two SAM splints ($27.98), and a dental kit ($51.99): **$644.76** for the party — about $161.19 each. Add each member's own medications and one satellite messenger. Prices exclude tax and shipping; the product page is the source of truth.

SECTION 10

TRAINING PROGRESSION PATHWAY

Gear without training is a guess. Climb this ladder one rung at a time — the first rung takes an afternoon and covers the injury that kills fastest.

1 · PUBLIC ACCESS BLEEDING CONTROL

Tourniquets, wound packing, and pressure dressings. No prerequisites. Find a course: bleedingcontrol.org. Add CPR and first aid.

START HERE — EVERYONE

2 · WILDERNESS FIRST AID (WFA)

Typically 16 hours over a weekend: environmental emergencies, improvisation, patient care over hours, evacuation decisions.

WEEKEND TRAVELERS

3 · C-TECC-ALIGNED RESPONDER COURSE

Austere, scenario-based trauma care built on the same MARCH priorities in this guide, adapted for civilians.

REMOTE TRIPS

4 · WILDERNESS FIRST RESPONDER (WFR)

Typically 70–80 hours: comprehensive wilderness medicine, leadership, and evacuation planning. The standard for guides.

GUIDES & LEADERS

PRACTICE — SKILLS FADE WITHOUT IT

MONTHLY · 10 MINUTES

- Tourniquet on both arms, weak hand, timed
- Open and lay out the kit — do you know where everything is?
- Write a practice SOS with your GPS position

QUARTERLY · 30 MINUTES

- Full MARCH assessment on a partner
- Splint a leg with poles and a pad
- Package a partner in a bivvy and pad

ANNUALLY

- Hands-on refresher course
- Kit date check against pp. 18–19
- Replace expired medications and heat packs

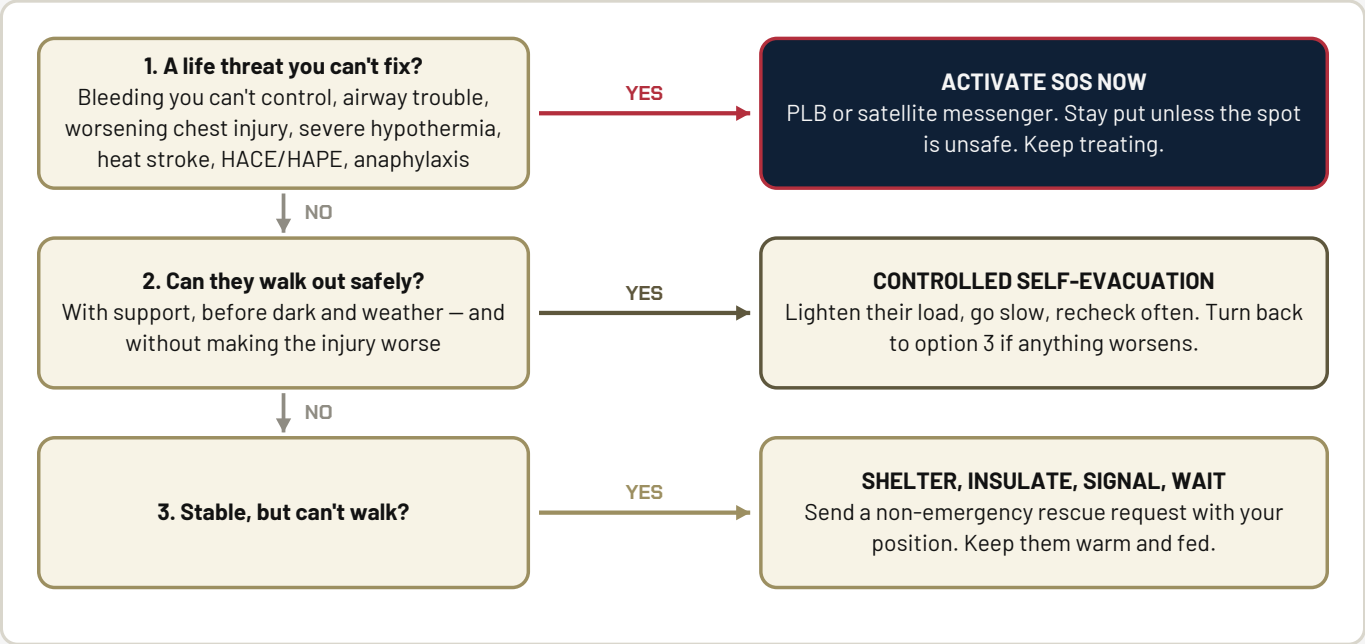
DRILL LOG

DATE	DRILL	WHO	TIME	WHAT TO FIX

SECTION 11

EVACUATION DECISION FRAMEWORK

Treat first, then decide. You have three choices — call for rescue, walk out, or shelter and wait — and the patient's worst problem picks for you.



RESCUE REPORT CARD — FILL IT IN, THEN SEND IT

LOCATION (LAT/LONG OR GRID) _____

WHAT HAPPENED · TIME OF INJURY _____

NUMBER OF PATIENTS · AGES _____

INJURIES / ILLNESS _____

TREATMENT GIVEN · TOURNIQUET TIME _____

CONDITION NOW (A/V/P/U · BREATHING · PULSE) _____

PARTY SIZE · SHELTER · SUPPLIES · WEATHER _____

PLAN: STAYING OR MOVING · HOW TO REACH US _____

Always: note GPS coordinates, the time of injury, and every intervention with its time. You are the eyes of the rescue team until they arrive. Satellite messages are short — send the top three lines first.

SECTION 12

SEASONAL ADDITIONS CHECKLIST

Your core kit stays the same all year. What changes is the environment — add these before the season, not the morning of the trip.

SUMMER & HEAT

- [ ] Electrolyte tablets or powder
- [ ] Cooling towel or bandana
- [ ] Extra water capacity and treatment
- [ ] Sting kit and insect repellent
- [ ] Sunscreen and lip balm
- [ ] Sun hat and sunglasses
- [ ] Antihistamine (per label)
- [ ] Tick removal tool

WINTER & COLD

- [ ] Chemical heat packs
- [ ] Extra bivvy or hypothermia wrap
- [ ] Hand and foot warmers
- [ ] Windproof shelter or tarp
- [ ] Second closed-cell pad
- [ ] Insulated bottle with warm drink
- [ ] Spare dry socks and gloves
- [ ] Avalanche gear if the terrain calls for it

ALTITUDE · 8,000 FT +

- [ ] Pulse oximeter
- [ ] Altitude medications, as your physician directs
- [ ] Extra hydration capacity
- [ ] Glacier glasses — snow blindness protection
- [ ] High-SPF sunscreen
- [ ] An ascent plan that adds altitude gradually
- [ ] A descent route planned for every camp
- [ ] Headache and nausea medications (per label)

WATER & WET TRIPS

- [ ] Personal flotation device
- [ ] Throw rope
- [ ] Dry bag for the group kit
- [ ] Waterproof personal kit (aLOKSAK-sealed)
- [ ] Extra insulating layer — synthetic or wool
- [ ] Hypothermia wrap
- [ ] Fire starter in a waterproof case
- [ ] Whistle on every member

BEFORE EVERY SEASON

- Dates: hemostatic gauze, chest seals, medications, heat packs (pp. 18–19).
- Test the satellite messenger or PLB; update your emergency contacts and trip-plan template.
- Swap seasonal additions; weigh the kit so it gets carried.

WHY SEASON MATTERS

- Heat illness and dehydration cluster in summer; hypothermia and frostbite in winter — but wind and rain cause hypothermia in July at altitude. [MECHANISM]
- Altitude illness can begin above about 8,000 feet (2,500 m), well below most summits. [VERIFIED]

THE NOTE ON THE TRAILHEAD SIGN

If the forecast, the snowpack, the river level, or your party isn't right, the best medical intervention is a different trip on a different day. [MED-TAC TARGET]

SECTION 13

YOUR 30-DAY READINESS PLAN

Four weeks, about an hour a week. Check each box as you go — by day 30 your kit is complete, your party has practiced, and you know your plan.

WEEK 1 · AUDIT

- ☐ **Day 1** Lay out your kit and check it against Tier 1 and Tier 2 (pp. 18–19).
- ☐ **Day 3** Check every expiration date; list what's missing.
- ☐ **Day 5** Order the missing items — tourniquet and hemostatic first.
- ☐ **Day 7** Fill in the party medical sheet and a trip-plan template.

WEEK 2 · LEARN

- ☐ **Day 8** Register for a public access bleeding control course (bleedingcontrol.org).
- ☐ **Day 10** Read Sections 2–3 again; watch a MARCH overview.
- ☐ **Day 12** Set up and test your satellite messenger or PLB.
- ☐ **Day 14** Look up a Wilderness First Aid course near you.

WEEK 3 · PRACTICE

- ☐ **Day 15** Tourniquet on both arms, weak hand, timed. Goal: under 60 seconds.
- ☐ **Day 17** Pack a wound on a trainer or rolled towel for 3 minutes.
- ☐ **Day 19** Stage your kit: trauma core on top or on your body.
- ☐ **Day 21** Splint a partner's leg with poles and a pad.

WEEK 4 · RUN IT

- ☐ **Day 24** Brief your party: who leads, who communicates, where the kit is.
- ☐ **Day 26** Run the scenario below — assess, treat, decide, debrief.
- ☐ **Day 28** Fix what the debrief found; restock the kit.
- ☐ **Day 30** Put the next drill and season check on the calendar.

DAY 26 SCENARIO — FALL ON SCREE AT MILE 6

The setup: a member of your party slips on scree at mile 6, three hours after the last cell signal. Deep cut to the thigh, bleeding hard; a painful, swollen ankle. It is 4 p.m. in October; wind picking up.

Run it: scene safe? Then bleeding (tourniquet or packing, time written), breathing, shock and cold (pad, bivvy), ankle splint, the decision (p. 23), and the rescue report card.

Debrief: How long to the tourniquet? Where was the kit? Who sent the message, with what position? What would you carry, practice, or decide differently?

WHERE TO GO NEXT

PREPARED IS PEACE OF MIND.

Your kit is insurance you hope never to use — and the confidence that comes from knowing you could. Build it once, practice it monthly, and carry it every time.

BUILD YOUR WILDERNESS MEDICAL KIT
tactical-medicine.com/pages/wilderness-medical-preparedness ›

READ THE COMPLETE MARCH PROTOCOL GUIDE
tactical-medicine.com/pages/march-protocol-the-complete-guide-to-tactical-casualty-care ›

SHOP TRAUMA KITS
tactical-medicine.com/collections/all ›

QUESTIONS
tactical-medicine.com/pages/contact-us ›

SCAN FOR THE WILDERNESS MEDICAL PREPAREDNESS HUB

Trail, group, and expedition kits matched to the tiers in this guide, hypothermia systems, litters, and the single items to complete your own kit.

Free companion reference: The Trauma Brief — tactical-medicine.com/pages/brief

ABOUT MED-TAC INTERNATIONAL

MED-TAC International Corp. is founded, owned, and operated by medical, public safety, and military professionals — Medical SME veteran-led. We curate evidence-based trauma care equipment aligned with CoTCCC-recommended and C-TECC-aligned principles, and our kits are assembled in the USA. Founder Marco R. Torres, MD, NRP, is a physician and medical educator with experience as a tactical medic and flight medic. A U.S. Navy veteran, he also founded ALKEONHealth.com.

Questions: tactical-medicine.com/pages/contact-us · Corrections to this guide: info@tactical-medicine.com

TODAY
Lay out your kit against the Tier 1 list (p. 18).

THIS MONTH
Work the 30-day plan (p. 25).

BEFORE THE NEXT TRIP
Take a hands-on bleeding control course and drill your party.

SOURCES

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DISCLAIMER

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MED-TAC
INTERNATIONAL

THE TRAILHEAD IS WHERE THE AMBULANCE STOPS.

YOUR KIT — AND YOUR TRAINING — KEEP GOING.

Founded, owned, and operated by medical, public safety, and military professionals. Medical SME veteran-led. Kits assembled in the USA.

tactical-medicine.com/pages/wilderness-medical-preparedness

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