

Wilderness Medicine



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Wilderness Medicine

- Access to 'sophisticated' health care is difficult or impossible. Self reliance essential.
- Many types of trip including:
 - Private or commercial adventure
 - Charity fundraising trip, Gap Year
 - Extreme sports
 - Industrial: film,oil, mining etc
 - Governmental & Military activities

Everest Base Camp



North Pole Marathon



South Pole



Antarctic Filming



Turkey Youth Adventure



Alps



Helmand, Afghanistan



Primary Care Role

- 'Fit to participate' forms ?????
- Sometimes DR –Dr info request.
- Pre travel advice re vaccinations, malaria, meds to travel with, safe sex etc etc. Multiple sources available.
- Direct patients to fit for travel website

What's it all about?

- Identify, facilitate and support aims of group.
- 99% of the work is done before leaving home!
- Clarify objectives + hazards, inject dose(s) of reality
- Research area, its hazards, politics, health support, customs, laws, legal cover
- Weapons?
- Obtain med kit
- Medical questionnaire + information for all.
- Vaccination, malaria, personal med kit advice for trip members .

What's it all about?

- Experience required in Primary Care, A&E + pre-hospital, environmental, occupational and sexual health + diplomacy + expedition activities
- Heat illness, hypothermia, endurance, altitude & dive medicine, tropical beasts etc; most problems are preventable.
- Water supply? Food supply?
- Management of human waste?
- Disease vectors (insect, animal, human etc)
- Communications? Evacuation routes/options?
- Important function is to prevent illness/injury & to prevent unnecessary evacuations.

The 7 Ps

- Proper Planning & Preparation Prevent Piss Poor Performance
- You must be fit for role.
- Most wilderness medical problems can be anticipated & prevented, without decreasing the aims or enjoyment of the trip.
- Major incident planning/rehearsal?
- Training: pre-trip & in field
- Remember TLC may be required.

Training



Training



Training (18,000ft)



Insurance

- Written confirmation of MPS cover specific to your trip; be especially careful of USA.
- Written confirmation of adequate rescue & medical evacuation insurance for everyone on trip.
- Often different insurance terms if paid vs voluntary.

Remote area considerations

- You are it; no back-up for hours/days/weeks. (have sat/telemedicine coms)
- Limited range of kit & limited re-supply.
- Conserve resources, take multi-use drugs.
- Improvise all the time.
- Re-align fractures with ice, haematoma blocks or under sedation (? alcohol).
- Treat minor wounds aggressively (blisters).
- Prevention of injury/illness (GI esp).

Remote area considerations

- Make contacts at nearest evac. Hospitals.
- Never believe anyone who says there is good kit out there!!
- Difficulties with customs/drugs etc
- Drug security & degradation problems
- Cultural issues + do you treat locals?
- Never underestimate the cunningly stupid pranks your group is capable of! (Ice floe)

Arctic Ocean dip





Don't Panic!!

- Royal Geographic Society
- Web searches
- Foreign Office website
- Previous expeditions to area
- Doctors net
- Wilderness Medicine Society
- Expedition Medicine courses
- Fit for travel website

Wilderness Medical Training

- Expeditionmedicine.co.uk
- Acrossthedivide.com
- Wemsi.org
- Queenstown AWLS course
- DIMM.
- PRIME

Equipment

- Go light unless someone else is carrying it!
- Have a day bag you can restock from main kit as needed.
- Be realistic about what you can do and downscale kit!
- Security of kit
- TP, lomotil, abs, superglue

Equipment



Equipment



Equipment



Field Management

- Early diagnosis + effective treatment ASAP.
- No place for watch and wait for URTI, gut upsets, minor wounds.
- Revise evac. options as you go
- Train group members so they can look after you!
- If one person is unwell, others will be too; find them!
- Confidentiality can be v difficult.

Remote Trauma Principles

- Safety
- Catastrophic Haemorrhage Control
- Airway management with cervical spine control.
- Breathing; ensuring effective ventilation.
- Circulation with control of haemorrhage (tourniquets, traction splints, fasciotomy).
- Disability (AVPU) prevent secondary brain damage/burr holes?
- Rapid transport (ha ha!) to appropriate hospital.
- Overall scene management.
- Thankfully major trauma is rare.

Remote trauma



Casualty Evacuation



Casualty evacuation



Moribund with pneumonia



Scene safety



Scene Safety



Scene Safety



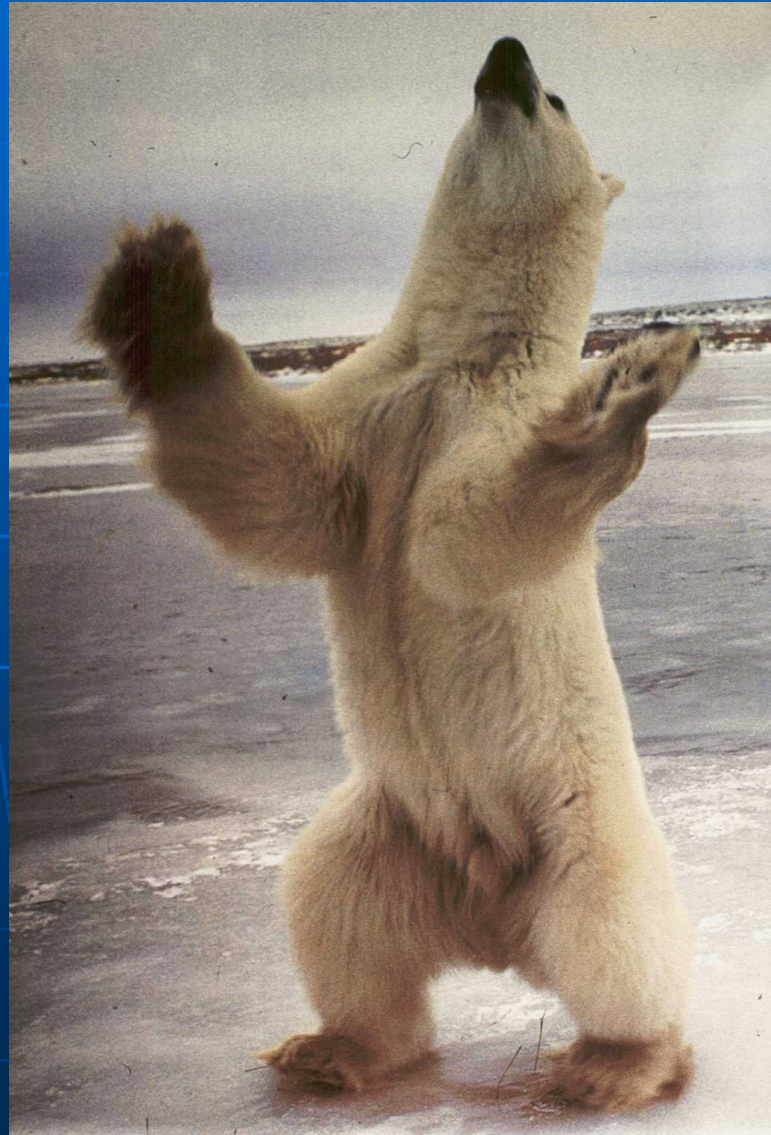
Scene Safety



Civil unrest



Animal Hazards



Animal Hazards



Common problems

- Gut upset (HAM)
- Soft tissue infections (trauma, bites)
- Respiratory infections
- Burns (thermal, UV & cold)
- Alcohol/drug withdrawal
- Psychiatric problems
- Environmental; heat, cold, altitude
- DEHYDRATION
- COMPLACENCY KILLS !!
- Concealment of medical problems

Dehydration

- V common & underestimated, esp at altitude; (AMS v similar to dehydration)
- Pee light yellow-clear
- Slow oral rehydration
- Rectal fluids ~700ml/day
- IV fluids: heavy, bulky, IV access
- Hyponatremia due over-hydration: cure with coke + pringles!

Problem Concealment

- Through fear of not being allowed to join trip
- Denial of problem & effects
- Knock on effects for other members
- Chemo on ice expectation
- Concealed psychiatric illness
- Raynauds on polar sledging trip
- 'No hands' climber needing his bum wiped
- Rectal leakage post colectomy on 60 day sledge trip
- If concealed from insurance company, their cover is void.

Frostbite after concealed laceration



One thing leads to another!

- Ascend too fast + get sunburnt
- Headache, nausea; can't drink
- Dehydration aggravates AMS
- Can't lie still due pain of sunburn
- Stumble around, fall in shitter, cutting leg
- No-one wants to come near you!
- Become more irritable; guide thinks you have HACE and sends you downhill
- Totally unnecessary ruination of trip.

One thing leads to another!

- Solo skier with navigational & traction problems
- Walks into crevasse zone & slots in
- Near death experience
- Saved by sat phone, able to give GPS location.
- Prolonged rescue, risking personnel & vehicles







One thing leads to another!

- Team of 5 descending Vinson
- Caught by bad weather in fatigued state.
- Incomplete glacier travel preparations.
- Crevasse fall leading to frostbite & loss of equipment.
- V poor comms
- 2 days to reach due storm: expecting bodies, another 3 days to reach base camp.
- Extensive preparations made for victim handling and prolonged CPR
- Guides nominated for alpine rescue award

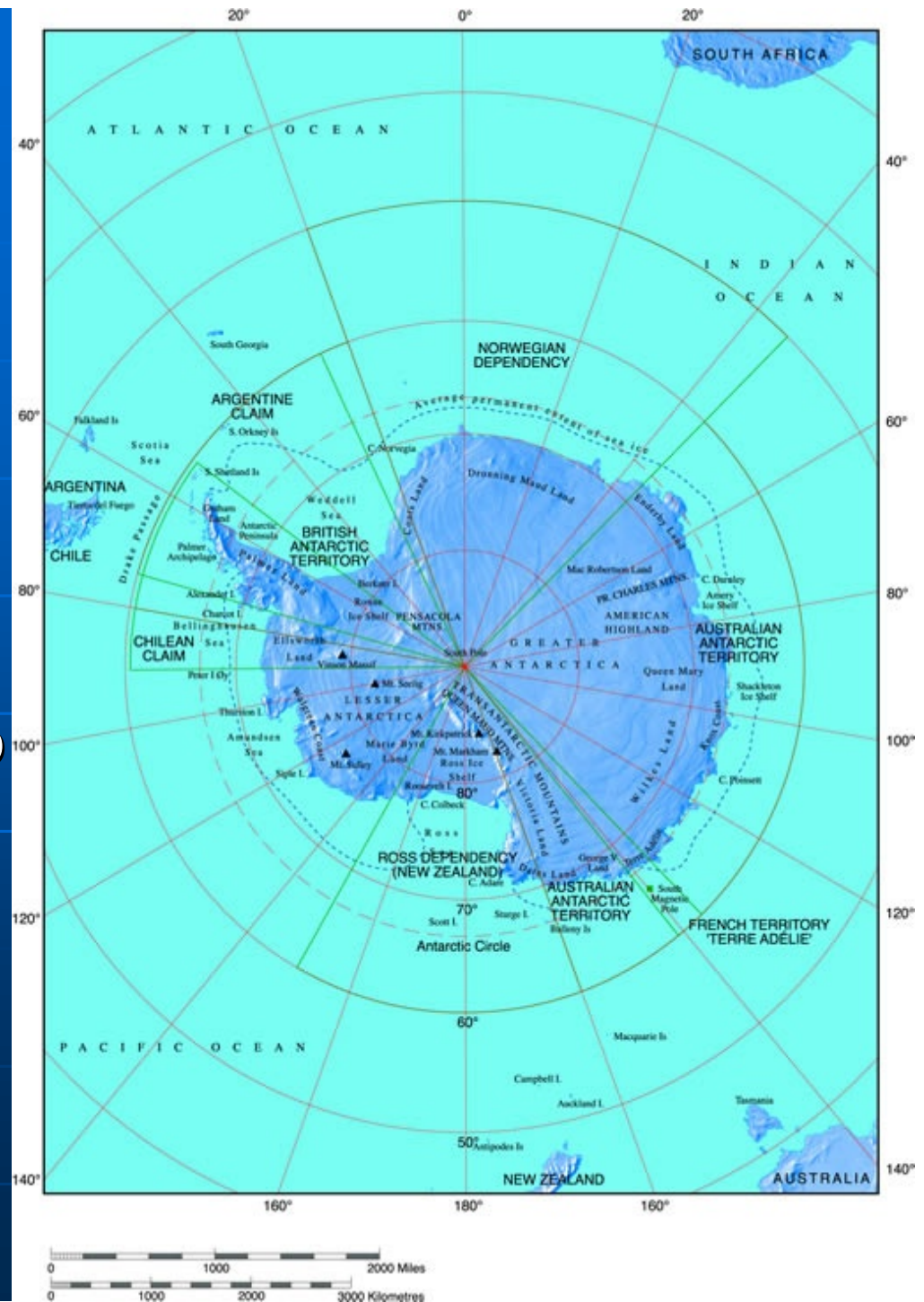






Antarctica

- Coldest, highest & driest desert on earth.
- Annual precip $< 2\text{cm/yr}$
- Always windy due to katabatic downflow from plateau.
- Land of penguins, dreams & disasters!



Medicine on ice

- High end, high expectation clients.
- Record setting attempts push endurance & nutrition to the limit.
- \$200,000 medical evac costs.
- Limited fly days due weather.
- Equipment failure common.





Med tent



South Pole camping



Infected frostbite



Frostbite Day1



Frostbite Day 9



Frostbite Day 43



Frostbite Day 70



Treatment of Frostbite

- Rewarm at 40C PROVIDING no risk of re-freeze.
- Clear, large blisters = good outcome; debride to reduce thromboxane load.
- Small, bloody blisters=poor outcome. Do not debride.
- Soft dressings
- NSAID + antibiotics + aloe vera gel
- No surgery for months!!!

Occupational hazards



Military



Heat illness



Rehydration



Casualty recovery



Mines etc widespread



High Altitude



Machermo Clinic: IPPG protect welfare of porters



PAC



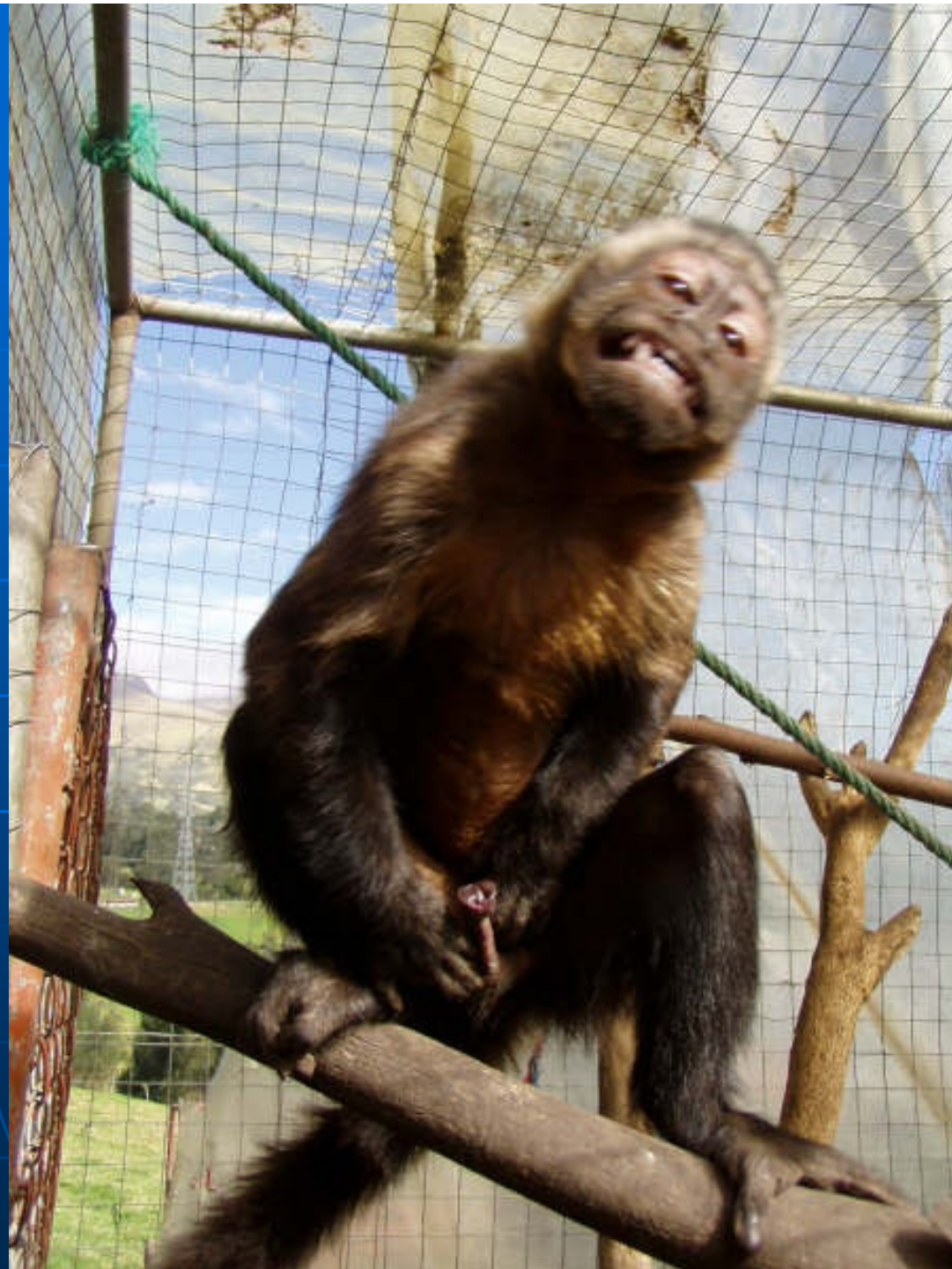
Everest Marathon





Sexual Health

- Significant risk of HIV, Hep A-Z, syphilis, crabs, lice etc
- Condoms + PCC
- Concern with OCP at high altitude
- Raise awareness, lower activity!!
- Matter rests in your own hands!



Dilemmas

- Diamox
- Rescue or abandon above 8000m
- Children pushed to set records?
- Responsibility of remote area travel given an increasing expectation of rescue at someone else's expense.
- Post trip follow-up??

Useful books

- High Altitude Medicine Handbook
- Oxford Handbook of Expedition & Wilderness Medicine
- Jim Duff's 1st Aid & Wilderness Medicine
- Auerbach's Wilderness Medicine (needs a porter to carry it)

Questions

