

# Wilderness and Rescue Medicine

By Jeffrey Isaac and David Johnson

## The Expedition Medical Kit – Example Medications

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**General:** These examples are offered as a starting point for discussion with your medical practitioner. His or her recommendations may differ. Amounts carried will vary with the duration of travel, number of people and expected use. Whenever possible seek professional medical advice before administering medications. For complete prescribing information, consult a reliable prescribing reference or written protocols provided by your medical professional.

**Selection of Medications:** There are various criteria including ease of use, previous experience and expense. A medication which is taken once a day is going to be easier to deal with than one taken four times a day. Intranasal, transbuccal or oral administration will usually be easier than an injection. When supplying a kit for use by a number of different people it is wise to stock medications with which everyone is familiar and is likely to have had some experience. Expense is less of a consideration since you're unlikely to use the medication frequently, but cost can become prohibitive when stocking for a lot of crew or a long expedition. Be prepared to discuss these factors with your medical practitioner.

All medications have side effects. All medications are capable of causing allergic reactions. Be sure to ask the patient about known drug allergies or experience with adverse side effects before administering medications

**Repackaging Medications:** Medications need to be packaged to save space and survive the backcountry or marine environment. Pills will not tolerate many days rolling at sea or bouncing in a backpack before turning to dust. Ask your pharmacist to package pills and capsules in smaller waterproof vials or jars with tight cotton packing on top to prevent motion. Add a few grains of dried rice to each vial to absorb moisture. You should keep the package insert for reference.

**Using Medications:** Giving any medication carries significant responsibility. For each medication that you carry you should know its indications, contraindications, precautions, side effects, dose, and route of administration. In some situations in the field, the common side effects may be unacceptable. In other cases, the side effects may be exactly what you need. Benadryl (diphenhydramine), for example, causes drowsiness. This may not be acceptable for the crewmember that must remain on watch, or a climber on a big wall, but is good therapy for somebody who needs to catch up on some much-needed sleep.

**Documentation:** Your medical kit should include copies of prescriptions for the controlled substances that you carry. Alternatively, a letter from your medical practitioner on office or hospital stationary listing the medications prescribed for your drug kit should be adequate. Any prescription medication dispensed or destroyed by the medical officer should be documented. In the absence of a specific sick bay log, the ships log should be used. Include any advice or authorization you have received by radio, telephone, or e-mail.

**Good Luck!** Your preparation for medical problems is every bit as important as any other life-safety issue on expedition. We sincerely hope that your travels are happy and healthy and that you never need the medical supplies you've so thoughtfully assembled.

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## Emergency Medications

albuterol inhaler (HFA): Rx inhaled bronchodilator.

Advantages: Easy to use and carry.

Disadvantages: Easy to overuse. Moderately expensive.

Use: Reverse bronchospasm and reduce wheezing in asthma and bronchitis.

Side Effects: nausea, palpitations, nervousness, high blood pressure.

Precautions: hypersensitivity to albuterol. Albuterol, as with all sympathomimetic amines, should be used with caution in patients with cardiovascular disorders, especially coronary insufficiency, cardiac arrhythmias, and hypertension; in patients with convulsive disorders, hyperthyroidism, or diabetes mellitus; and in patients who are unusually responsive to sympathomimetic amines. Clinically significant changes in systolic and diastolic blood pressure have been seen and could be expected to occur in some patients after use of any beta-adrenergic bronchodilator.

Administration: Up to two inhalations every 6 hours for relief of mild to moderate symptoms. Do not exceed recommended dose except in emergency (see asthma protocol). It is recommended to "test spray" Inhalation Aerosol into the air before using for the first time and in cases where the aerosol has not been used for a prolonged period of time.

For emergency use in severe asthma following epinephrine treatment; may give up to 6 – 10 puffs three times over next hour. See asthma protocols.



epinephrine 1:1000 solution: Rx vasoconstrictor, bronchodilator.

Advantages: Inexpensive, life-saving drug for anaphylaxis and asthma.

Disadvantages: Expensive when supplied in an Epi-Pen or Twinject autoinjector. Short shelf life.

Use: Emergency treatment of anaphylaxis and severe asthma. Followed by other medications. See anaphylaxis and asthma protocols.

Side Effects: agitation, tachycardia

Precautions: Can cause a heart attack to become worse (but, so can anaphylaxis and asthma).

Administration: For anaphylaxis give 0.3 mg epinephrine IM or SC. Follow immediately by 50 mg of diphenhydramine orally or IM, and 20 – 60 mg (depending on body weight) of prednisone orally for anaphylaxis. Epinephrine may be repeated every 5 minutes if necessary if improvement is slow or rebound reaction occurs. For severe asthma when albuterol inhaler is not working, give same dose of epinephrine and prednisone as for anaphylaxis. Diphenhydramine is not necessary or useful for asthma. See asthma and anaphylaxis protocols.

Note: The Twinject autoinjector offers two doses of epi. The familiar EpiPen offers only one dose. If you are using an autoinjector, the Twinject will be more cost effective. Be sure to read and understand the directions before you need it.



diphenhydramine (Benadryl) 25 mg capsules: OTC sedating antihistamine.

Advantages: Inexpensive, generic, well known, generally well-tolerated, wide spectrum of activity and use.

Disadvantages: Causes drowsiness in therapeutic dosages.

Use: Allergy and anaphylaxis. Itching. Nasal and sinus congestion. Nausea. Sea sickness. Insomnia. Anxiety.

Side Effects: primarily drowsiness. Can cause urinary retention in patients with prostate enlargement.

Precautions: May cause marked drowsiness; alcohol, sedatives, and tranquilizers may increase the drowsiness effect. Avoid alcoholic beverages while taking this product. Do not take this product if you are taking sedatives or tranquilizers, without first consulting your doctor. Use caution when driving a motor vehicle or operating machinery. **Do not use any other products containing diphenhydramine while using this product**

Administration: 25 – 50 mg every 6 hours. Give 50 – 100 mg immediately for anaphylaxis.

prednisone 5 mg tablets: Rx steroid anti-inflammatory.

Advantages: Inexpensive, easily available.

Disadvantages: Long term therapy (> 5 days) will require a tapered dose calculated by the prescribing practitioner. Redundant to Medrol dose pack.

Use: Inflammation not responding well to ibuprofen such as poison ivy, jellyfish stings. Asthma not responding to inhaler. Adjunct to the treatment of severe anaphylaxis after epinephrine and diphenhydramine.

Side Effects: Stomach upset, agitation.

Precautions: Do not use for infection unless combined with antibiotics.

Administration: 1 mg per kilogram of body weight up to 60 mg per day for most situations. Therapy for longer than 5 days should include a tapered dose.

naloxone (Narcan) 0.4 mg ampoules or vials for injection: opioid antagonist. Rx

Advantages: Reverses the effects of narcotics like fentanyl and morphine. No effects otherwise. Can be given by intranasal spray.

Disadvantages: None.



Use: Counteracting the effects of narcotics in overdose situations. May be recommended or required by your practitioner if prescribing narcotics.

Side Effects: May cause sudden consciousness in somebody who would be better off unconscious.

Precautions: Hypersensitivity to naloxone.

Administration: 0.4 to 2 mg IV or IN every 2 – 3 minutes as needed.



## Antibiotics

### cephalexin 500 mg capsules (Keflex): Rx cephalosporin antibiotic.

Advantages: Well known, broad spectrum, inexpensive.

Disadvantages: Twice a day dosing.

Use: skin and bone infections, prophylaxis in high-risk wounds like bites, deep or very dirty wounds, and open fractures. Can also be used for respiratory infections, urinary tract infections, ear infections.

Precautions: Hypersensitivity to cephalosporins. There is a 10% cross-reactivity with penicillin allergy.

Side Effects: Usually limited to diarrhea and stomach upset. Not frequent.

Administration: For established infection give two 500 mg capsules every 12 hours, usually for 7 days (2 grams/day). For less serious infections, give one 500 mg capsule every 12 hours for 7 days.

### azithromycin 250 mg tablets (Zithromax): Rx macrolide antibiotic.

Advantages: Effective for a variety of infections. Easy dosage and short course of therapy.

Disadvantages: moderately expensive

Use: Bronchitis, pneumonia, uncomplicated skin infections, pharyngitis, tonsillitis, ear infection, sinus infection, and travelers diarrhea. Can also be used to treat chlamydia and gonococcal urethritis.

Precautions: Hypersensitivity to "mycins".

Side Effects: Usually limited to diarrhea and stomach upset. Not frequent.

Administration: Take two tablets on the first day, then one each day for next 4 days. Tablets may be taken without regard to meals. Also available as 500 mg tablets to be taken once per day for 3 days. New dosing regimens allow for a single dose of one gram for some conditions. Traveler's diarrhea may respond to a single dose of 250mg, but normal course is 250 mg once a day for three days.

ceftriaxone (Rocephin) 1 gram vials for injection: Rx 3<sup>rd</sup> gen cephalosporin antibiotic.

Advantages: Broad spectrum, IM or IV dosing once or twice a day.

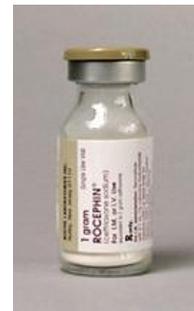
Disadvantages: Very expensive, injection is painful.

Use: Severe infections. Pelvic inflammatory disease, intra-abdominal infections. Joint infections, infections not responding to oral antibiotics.

Side Effects: Infrequent, usually limited to diarrhea.

Precautions: Hypersensitivity to cephalosporins.

Administration: Give one gram every 24 hours. May increase to one gram every 12 hours in severe infections. Using a 3 cc syringe and a 22 or 23 gauge x 1.5" needle, inject two ml of 1% plain lidocaine or sterile water into the vial and shake until powder is completely dissolved. Draw suspension back into the syringe and inject deep intramuscular (outer, upper quadrant of buttocks).



amoxicillin 250 mg chewable tablets: Rx penicillin antibiotic.

Advantages: Well known, inexpensive, well tolerated, can be used in pregnancy. Chewable tabs are useful for kids and adults. Can be crushed on applesauce or yogurt for fussy kids.

Disadvantages: Course is usually 10 days.

Use: First choice for uncomplicated urinary tract infections, ear infections, pharyngitis, tonsillitis, sinusitis, respiratory infections.

Side Effects: Infrequent, usually limited to diarrhea, stomach upset. May cause fine hypersensitivity rash.

Precautions: hypersensitivity to penicillins.

Administration: Dose varies depending on condition and patient. Kids: one tablet every 8 hours for 7 – 10 days for respiratory infections and ear infection. Dose can be doubled for sinusitis and resistant ear infections. Adults can take two tablets every 8 hours, or four tablets every 12 hours for sinusitis. This medication is inexpensive enough to buy a bottle of 250 tablets for an extended voyage.

fluconazole (Diflucan) tablets: Rx antifungal for vaginal yeast infections.

Advantages: One tablet treats the infection.

Disadvantages: Prescription medication, expensive. High incidence of drug interactions. If on other meds, seek medical advice before using.

Use: Vaginal yeast infections.

Side Effects: Headache, nausea, abdominal pain. Generally transient and not serious.

Precautions: will not treat bacterial vaginosis. Hypersensitivity to fluconazole.

erythromycin or gentamycin ophthalmic ointment: Rx macrolide antibiotic for eyes.

Advantages: Ointment is applied twice a day. More convenient than drops which are applied every 2 – 4 hours.

Disadvantages: Blurred vision for 30 minutes or so while the ointment spreads out in the eye.

Use: Eye infection with redness, yellow drainage, and mild eyelid swelling.

Side Effects: Infrequent, usually limited to increased eye irritation.

Precautions: hypersensitivity to “mycins”.

Administration: Gently turn the lower eye lid down and run a bead of ointment along the inside twice a day. Use for one full day following clearing of symptoms.

ciprofloxacin (Ciloxan) ophthalmic: Rx antibiotic eye drops.

Advantages: Covers dangerous pseudomonas infections and ulcerations of the eye that are not covered by erythromycin. Can also be used in the ear.

Disadvantages: Very expensive. Frequent administration, but when you need it there is no other way.

Use: Severe eye infections with obvious corneal ulceration, or severe infections not responding to erythromycin ointment.

Side effects: Infrequent. Blurring, sensitivity reactions.

Precautions: hypersensitivity to ciprofloxacin.

Administration: The recommended dosage regimen for the treatment of corneal ulcers is two drops of the Solution into the affected eye every 15 minutes for the first six hours and then two drops into the affected eye every 30 minutes for the remainder of the first day. On the second day, instill two drops in the affected eye hourly. On the third through the fourteenth

day, place two drops in the affected eye every four hours. Treatment may be continued after 14 days if corneal re-epithelialization has not occurred.

ciprofloxacin 750 mg tablets (Cipro): Rx fluoroquinolone antibiotic.

Advantages: Broad spectrum, covers marine pathogens (*vibrio* sp) and *Pseudomonas*. Now generic so not as expensive.

Disadvantages: Does not cover some staph and strep very well.

Use: Urinary tract infections, skin and soft tissue infections – particularly where contamination from rubber boots or wet suits is involved, or in wounds exposed to salt water. Sinusitis. Can also be used for prostatitis, respiratory infections, intra-abdominal infections. Also used for traveler's diarrhea.

Precautions: Hypersensitivity to "floxins". Can cause photosensitivity – avoid unprotected exposure to sunlight. Associated with increased risk of tendon rupture, especially in younger patients.

Side Effects: Diarrhea, stomach upset, agitation, insomnia.

Administration: For travelers diarrhea, give one 750 mg tablet every day for up to 3 days. One dose may do it. Otherwise, generally for use when other antibiotics have been ineffective. Give one 750 mg tablet every 12 hours with or without food.

levofloxacin (Levaquin) 750 mg tablets: Rx fluoroquinolone antibiotic.

Advantages: Very broad spectrum, covers marine pathogens (*vibrio* sp) and *Pseudomonas*. Covers bacteria typical in intraabdominal and pelvic infections.

Disadvantages: Extremely expensive.

Use: Covers same spectrum of problems as ciprofloxacin and beyond, but best reserved for high risk infections or those not responding to other antibiotics. Combine with metronidazole in the treatment of suspected pelvic inflammatory disease and intraabdominal infections.

Precautions: Hypersensitivity to "floxins". Can cause photosensitivity – avoid unprotected exposure to sunlight. Associated with increased risk of tendon rupture, especially in younger patients.

Side Effects: Diarrhea, stomach upset, agitation, insomnia.

Administration: For travelers diarrhea, give one 750 mg tablet every day for up to 3 days. One dose may do it. Otherwise, generally for use when other antibiotics have been ineffective. Give one 750 mg tablet every 12 hours with or without food.

neomycin/polymyxin B/hydrocortisone (Cortisporin) otic suspension:  
Rx combination antibiotic for external ear infections.

Use: Swimmers ear, evidenced by swollen, tender ear canal.

Side Effects: infrequent, usually increased irritation caused by sensitivity to Neomycin.

Precautions: hypersensitivity to mycins, polymixin, or hydrocortisone. Prolonged use may cause overgrowth of non-sensitive bacteria. Do not use as a preventive.

Administration: Clean ear canal with cotton swab. Have patient lie down with affected ear up. Instill 4 – 5 drops in the ear and have patient remain in place for about 30 minutes. Give 2 – 3 times a day for one full day following clearing of symptoms.

mupirocin (Bactroban) cream or ointment: Rx topical antibiotic.

Use: An effective topical antibiotic for small secondarily infected skin lesions. Good skin penetration; can be as effective as oral antibiotics for superficial infections. Treats most strains of MRSA.

Side Effects: burning, pain, itching, headache, rash, nausea.

Precautions: Avoid eyes. Discontinue if sensitization or irritation occurs. Avoid mucosal surfaces. Not for prolonged use.

Administration: Apply three times per day for up to 10 days. May cover cream with gauze pad or bandaid. Re-evaluate treatment if no response in 3-5 days.

trimethoprim/suphamethoxizole (Septra) DS tablets: Rx sulfonimide antibiotic

Advantages: Inexpensive antibiotic, treats MRSA.

Disadvantages: Several serious but rare adverse reactions.

Use: MRSA skin infections, Urinary tract infections, sinus infections.

Side Effects: Headache, nausea, vomiting, photosensitivity, diarrhea, dizziness, urticaria, lethargy.

Precautions: Hypersensitivity to sulfa drugs.

Administration: Usually one tablet every 12 hours for 10 days.

oseltamivir (Tamiflu) capsules 75mg: Rx

Advantages: Reduces duration and severity of influenza B. Only known treatment for bird flu (potential pandemic).

Disadvantages: Expensive. Must be given early in disease process. Prescription medication. If on other meds, seek medical advice before using. Several serious but rare adverse reactions.

Use: Suspected influenza. Treatment and prophylaxis.

Side Effects: Headache, nausea, vomiting, diarrhea, abdominal pain.

Precautions: Hypersensitivity to oseltamivir.

Administration: Treatment – 75mg every 12 hours for 5 days. Prophylaxis – 75mg daily for 10 days.

alovaquone/proguanil (Malarone) 250/100mg tabs: Rx

Advantages: Shorter post exposure course than doxycycline.

Disadvantages: Expensive. May users report bizarre dreams.

Use: Prophylaxis and treatment of malaria.

Side Effects: abdominal pain, nausea vomiting, headache, diarrhea, anorexia, dizziness, pruritis, oral ulceration, vivid dreams...etc. See complete list in drug reference.

Administration: Treatment – 4 tabs per day for 3 days. Prophylaxis – one tab every day beginning 2 days before exposure and continuing for 7 days after.

tinidazole (Tindamax) 500mg tabs: Rx antibiotic

Advantages: . Shorter duration of treatment and fewer side effects than alternative metronidazole for giardia and amebiasis.

Disadvantages: Expensive. Potentially serious side effects.

Use: Treatment of amebiasis, giardiasis, trichomoniasis.

Precautions: Do not drink alcohol while taking this drug. Caution if CNS disorder, blood dyscrasia, hepatic impairment. Carcinogenic. Use under direct professional medical control.

Side Effects: seizures, peripheral neuropathy, thrombocytopenia, bronchospasm, angioedema, Steven's Johnson syndrome, erythema multiforme, metallic taste, nausea and vomiting, anorexia, flatulence, UTI, pelvic pain, vaginal odor, URI and others.

Administration: Giardiasis – 2000 mg x one dose. Amebiasis and trichomoniasis – 2000mg qd x 3 – 5 days.

metronidazole (Flagyl) 500mg tablets: Rx antibiotic

Advantages: Treats giardiasis, amebiasis, trichomoniasis as well as serious intraabdominal bacterial infections.

Disadvantages: Expensive. Potentially serious side effects

Use: Treatment of amebiasis, giardiasis, trichomoniasis, bacterial vaginosis. Adjunct (with levofloxacin) in the treatment of suspected intraabdominal infections, pelvic inflammatory disease.

Precautions: Do not drink alcohol while taking this drug. Caution if CNS disorder, blood dyscrasia, hepatic impairment. Carcinogenic. Use under direct professional medical control.

Side Effects: seizures, peripheral neuropathy, thrombocytopenia, bronchospasm, angioedema, Steven's Johnson syndrome, erythema multiforme, metallic taste, nausea and vomiting, anorexia, flatulence, UTI, pelvic pain, vaginal odor, URI and others.

Administration: Giardiasis – 250mg po qd x 5 – 7 days. Amebiasis – 750 mg po tid x 5 – 10 days. Bacterial vaginosis – 500 mg po bid x 7 days. Intraabdominal or pelvic infections 500 mg po q6h to q8h x 7 – 14 days.

## **Pain Control**

### ibuprofen (Motrin, Advil): NSAID for pain, fever, and inflammation.

Advantages: Inexpensive, well known, very effective for mild to moderate pain, inflammation, and fever.

Disadvantages: Three times per day dosing, some people experience stomach upset.

Use: General pain reliever, reducing fever, reducing swelling in infection, injury, and sunburn.

Side Effects: Usually stomach upset.

Precautions: hypersensitivity to ibuprofen or other NSAIDs. Will increase bleeding. Can cause kidney problems in dehydrated patients.

Administration: 600 mg 6 – 8 hours with food and water. May be given in alternating doses with acetaminophen to increase pain relief and reduce inflammation.

### acetaminophen (Tylenol, Panadol, APAP): OTC analgesic for pain and fever.

Advantages: Inexpensive, well-known, well tolerated, very effective for pain and fever.

Disadvantage: Every 6 hour dosing. Does not reduce inflammation.

Use: General pain reliever, fever reducer. Not useful for swelling.

Side Effects: Infrequent. Causes less stomach upset than ibuprofen.

Precautions: hypersensitivity to acetaminophen.

Administration: One tablet every 6 hours as needed. May be given in alternating doses with ibuprofen to increase pain relief and reduce inflammation. Maximum daily dose is 3000mg.

### celecoxib (Celebrex): Rx NSAID for mild to moderate pain and inflammation.

Advantages: Actually a drug developed for arthritis, seems to work well for acute pain and inflammation from injury. Once a day dosing. Generally well tolerated.

Disadvantages: Not well known. Expensive. Prescription in U.S..

Use: Mild to moderate pain and inflammation, arthritis.

Side Effects: Stomach upset, uncommon.

Precautions: hypersensitivity to celecoxib. Stomach upset. Precautions warrant discussion with medical practitioner.

Administration: One 200 mg capsule daily.

APAP with oxycodone (Percocet): Rx combination acetaminophen and narcotic pain reliever

Advantage: Inexpensive. Good pain relief spectrum. Can be combined with ibuprofen.

Disadvantage: Side effects of narcotics. Street value. Controlled substance.

Use: Moderate to severe pain.

Side Effects: Drowsiness, slow reaction time, occasional stomach upset. Will cause constipation – give plenty of fiber and water.

Precautions: hypersensitivity to tylenol or oxycodone. Use with caution in situations where patient must remain alert. Do not give with additional tylenol.

Administration: One tablet every 6 hours for pain. May be given in alternating doses with ibuprofen to increase pain relief and reduce inflammation. Supplied in various strengths; 7.5/500, for example, indicates 7.5 mg of oxycodone and 500 mg of APAP.

morphine: Rx narcotic analgesic

Advantages: Can be given Sublingual, IM, IV, or intranasal. Good pain relief and sedation. Inexpensive.

Disadvantages: Street value, narcotic side effects. Controlled and Rx. Intranasal and sublingual administration is highly variable in result.

Use: Moderate to severe pain of injury or illness.

Side Effects: Drowsiness, slow reaction time, occasional stomach upset, impaired respiration if combined with other narcotics or given in too high a dose. Will cause constipation – give plenty of fiber and water.

Precautions: Can cause respiratory depression. Increase dose carefully. Be ready to provide ventilations if necessary. Best given under medical supervision or advice.

Administration: IV or IM. In adult titrate to response 2 to 4 mg at a time. Wait 20 – 30 minutes for maximum effect before giving more. Sublingual, one 15 mg tablet under the tongue for fast acting, short duration pain relief for procedures (variable response).

## fentanyl: Rx narcotic analgesic

**Advantages:** Fentanyl is a potent narcotic analgesic available for IV, IM, IN, transdermal, or transbuccal administration. It is less prone to cause nausea than morphine, and is very short acting unless administered in by transdermal patch. The transbuccal “fentanyl pop” (Actiq) offers an attractive option for use in remote and extreme environments where the use of IV and IM medications is difficult. The medication is held between the cheek and gum by the patient, who can self-regulate the amount of pain medication desired during extrication or painful procedures like shoulder reduction or wound cleaning. Anecdotally, military units report considerable success with fentanyl pops with combat casualties. There are a number of good studies showing success in the treatment of acute pain in the civilian setting as well. This author has found the 600 mcg dose to be effective at reducing pain to tolerable levels while not causing significant drowsiness or altered mental status. The most common side effect is nausea. Once the pop is removed the effects of the medication quickly disappear.

Fentanyl for injection can also be administered by the intranasal (IN) route using an atomizer attached to a syringe. The results are more predictable than morphine.

**Disadvantages:** High street value. Expensive. Atiq transbuccal fentanyl is indicated for breakthrough pain in cancer patients and other chronic pain syndromes and may be difficult to obtain for acute pain control. Don't expect your practitioner to be comfortable prescribing fentanyl unless she or he has experience with it.

**Use:** “Pops” for short term patient-regulated pain control.

**Side Effects:** Drowsiness, slow reaction time, constipation, impaired respiration if combined with other narcotics or given in too high a dose.

**Precautions:** As with any narcotic can cause respiratory depression. Increase dose carefully. Be ready to provide ventilations if necessary. Pop can cause airway obstruction – monitor the patient at all times. Whenever possible, give under medical supervision or advice. The use a fentanyl transdermal (skin) patch is not recommended for acute pain.

**Administration:** Consider Actiq transmucosal pops in the 600 microgram dose for adult use. For kids, consider 200 microgram dose. Fentanyl made for injection can be given by the intranasal route. A typical intranasal dose would be 2 micrograms per kilo of body weight. Specific instructions for use should be given by the prescribing practitioner.



lidocaine 1% for injection: Rx local anesthetic.

Use: Solvent for intramuscular Rocephin. Reduces pain during injection of this antibiotic. Can be used to infiltrate wounds prior to closure and cleaning by skilled persons.

Side Effects: CNS manifestations are excitatory and/or depressant and may be characterized by lightheadedness, nervousness, apprehension, euphoria, confusion, dizziness, drowsiness, tinnitus, blurred or double vision, vomiting, sensations of heat, cold or numbness, twitching, tremors, convulsions, unconsciousness, respiratory depression and arrest. Rare, usually associated with overdose.

Precautions: hypersensitivity to "caines". Do not inject more than 10 cc per use unless otherwise advised by a medical practitioner.

Administration: Inject 2 cc into vial or Rocephin powder, shake well, withdraw and inject deep intramuscular in outer/upper quadrant of buttock. Remember to aspirate before injecting to avoid intravenous administration. May be used in the eye for emergency procedures if no ophthalmic anesthetic is available (one or two drops).

lidocaine 2% viscous: Rx topical local anesthetic.

Use: Anesthetic for superficial pain. Can be applied prior to cleaning abrasions, superficial burns and minor lacerations. Can be used as a lubricant and anesthetic for urinary catheter insertion. A drop or two can be used to anesthetize the eye. A small amount swished around the mouth can be effective for tooth pain temporarily.

Side Effects: Unusual in topical application, but same as for injectible lidocaine: CNS manifestations are excitatory and/or depressant and may be characterized by lightheadedness, nervousness, apprehension, euphoria, confusion, dizziness, drowsiness, tinnitus, blurred or double vision, vomiting, sensations of heat, cold or numbness, twitching, tremors, convulsions, unconsciousness, respiratory depression and arrest. Rare, usually associated with overdose.

Precautions: hypersensitivity to "caines". Do not use for injection.

Administration: Apply to entire surface of wound or abrasion and cover to prevent drying. Do not use more than 10 cc for any one application. Leave in place for 20 minutes minimum to achieve good anesthesia. May be used in the eye for emergency procedures if no ophthalmic anesthetic is available (one or two drops).



lorazepam (Ativan) 1 mg tablets: Rx benzodiazepine anxiolytic.

Advantages: Inexpensive, well tolerated.

Disadvantages: Street value, abuse potential.

Use: Symptoms of acute anxiety. Useful as an adjunct to narcotics and NSAIDS in the treatment of pain.

Side Effects: Sedation, dizziness, weakness, unsteadiness, transient amnesia, memory impairment.

Precautions: see side effects. Avoid with primary depression or psychosis. Withdrawal symptoms with abrupt discontinuation. Can be habit forming.

Administration: For anxiety 2 – 5 mg twice or three times a day. As an adjunct to pain medication, 5 – 10 mg twice or three times a day.

## Nausea/Vomiting/Diarrhea

### ondansetron 4 or 8 mg ODT (Zofran). Rx antiemetic.

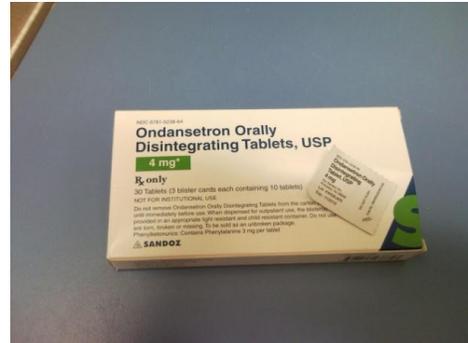
Advantages: ODT is “melt in the mouth” absorbed by the mucous membranes of the mouth. Does not cause drowsiness. Can be used in young children.

Disadvantages: expensive, short shelf life.

Use: Suppression of nausea and vomiting.

Precautions: Hypersensitivity to ondansetron. Caution if impaired liver function. Caution if abdominal surgery. Caution if PKU (ODT form).

Administration: Give 4 to 8 mg every 4 hours. Place tablet between gum and cheek and allow it to melt and be absorbed. Do not swallow tablet. For children give 2 – 4 mg every 4 hours as needed for nausea.



### promethazine injectable, tablets, suppositories (Phenergan). Rx antihistamine.

Advantages: Inexpensive. Sedating effect. Potentiates effects of narcotics.

Disadvantages: Should not be used in young children (less than 2 yrs old). Causes drowsiness. More drug interactions and adverse effects than ondansetron.

Use: Suppression of nausea and vomiting.

Precautions: Hypersensitivity to promethazine. Will cause drowsiness.

Administration: 12.5 to 25 mg every 6-8 hours IM, IV, po, or by rectal suppository for active vomiting. For motion sickness 25 mg every 12 hours.

### activated charcoal tablets

Advantages: Inexpensive. Available worldwide. Not absorbed by the intestine therefore no direct systemic effects. Very safe.

Use: Absorbs toxins in the gut. Useful for diarrhea, nausea, or food poisoning. A good initial treatment for traveler's diarrhea.

Side Effects: Turns your stool black.

Precautions: not definitive treatment for high-risk poisonings, seek advice and antidote.

Administration: 3 or 4 capsules or tablets with water.

loprimide 2mg tablets: reduces gut motility for the treatment of diarrhea.

Advantages: OTC in most places, inexpensive.

Use: Diarrhea

Side Effects: Abdominal cramping, gas.

Precautions: DO NOT USE IF DIARRHEA IS ACCOMPANIED BY HIGH FEVER (GREATER THAN 101°F), OR IF BLOOD OR MUCUS IS PRESENT IN THE STOOL, OR IF YOU HAVE HAD A RASH OR OTHER ALLERGIC REACTION TO LOPERAMIDE HCl

Administration: ADULTS AND CHILDREN 12 YEARS OF AGE AND OLDER: Take 4 teaspoonfuls (1 dosage cup) or 2 caplets after the first loose bowel movement and 2 teaspoonfuls or 1 caplet after each subsequent loose bowel movement but no more than 8 teaspoonfuls or 4 caplets a day for no more than 2 days.

CHILDREN 9-11 YEARS OLD (60-95 LBS): Take 2 teaspoonfuls (1/2 dosage cup) or 1 caplet after the first loose bowel movement and 1 teaspoonful or 1/2 caplet after each subsequent loose bowel movement but no more than 6 teaspoonfuls or 3 caplets a day for no more than 2 days.

CHILDREN 6-8 YEARS OLD (48-59 LBS): Take 2 teaspoonfuls (1/2 dosage cup) or 1 caplet after the first loose bowel movement and 1 teaspoonful or 1/2 caplet after each subsequent loose bowel movement but no more than 4 teaspoonfuls or 2 caplets a day for no more than 2 days.

ReliefBand: OTC electrical stimulation unit for nausea, seasickness

Advantages: Not a drug. No drug interactions. May be used in pregnancy.

Use: treatment and prevention of motion sickness

Side Effects: Long term use can cause irritation of the skin under the device if adequate electrode gel is not used.

Precautions: Don't use with pacemaker. Uses batteries; carry extras.

Administration: Worn like a wristwatch against the volar surface (underside) of the wrist. Adjust setting upward until electric impulse is just felt in the wrist and hand. Adjust upward only as needed to control nausea. ReliefBand comes in a prescription and non-prescription form. The only difference is that the prescription form may be covered by your health insurance policy. ReliefBand also comes in a disposable form providing about 60 hours of continuous use.



## Topical Medications

### hydrocortisone cream 1%: OTC or Rx topical steroid for inflammation.

Use: Skin rash, itching, inflammation such as jelly fish stings, poison ivy, etc.

Precautions: hypersensitivity to hydrocortisone. For external use only. Avoid contact with the eyes. If condition worsens, or if symptoms persist for more than 7 days or clear up and occur again within a few days, stop use of this product and do not begin use of any other hydrocortisone product unless you have consulted a doctor. Do not use in genital area if you have a vaginal discharge, consult a doctor. Do not use for the treatment of diaper rash, consult a doctor. Warnings For External Anal Itching Users: Do not exceed the recommended daily dosage unless directed by a doctor. In case of bleeding, consult a doctor promptly. Do not put this product into the rectum by using fingers or any mechanical device or applicator.

Administration: Apply a maximum of four times a day to affected area for up to 7 days.

### terbinafine (Lamisil) Cream: OTC antifungal cream for skin.

Advantages: Quick response and shorter duration of treatment than other topical antifungals.

Disadvantages: Not well known, expensive.

Use: Suspected fungal infections such as athlete's foot, jock itch, and ringworm.

Side Effects: generally limited to hypersensitivity reactions.

Precautions: Hypersensitivity to Terbinifine. Do not use for more than 2 weeks. For external use only. Do not use near eyes or for vaginal infections.

Administration: Apply twice a day for maximum of 10 days. Do not use occlusive dressings.

### permethrine topical (Nix) Cream Rinse: OTC topical treatment for lice.

Use: Eradicating body and scalp lice.

Side Effects: Hypersensitivity reactions to permetherin.

Precautions: hypersensitivity to permentherin.

Administration: Apply to hair after wash and towel dry. Saturate the hair and scalp. Wash off after 10 minutes. Remove nits with the comb provided. Repeat after 7 days if live lice are observed. Use Nix spray on upholstery and bedding.

miconazole (Monistat): OTC vaginal Suppositories for yeast infection.

Advantages: Non-prescription

Disadvantages: Messy, melts in hot weather. Is redundant to Diflucan tablet.

Use: Vaginal yeast infection.

Side Effects: Minimal, irritation if hypersensitive

Precautions: Will not treat bacterial vaginoses. Hypersensitivity to any components.

Administration: One suppository every day at bedtime for 3 – 7 days. Also comes in one dose version.

povidone iodine solution (Betadine) and swabsticks

Use: Antiseptic. Sterilize instruments and skin surfaces. Can be used to disinfect drinking water and water for wound irrigation.

Side Effects: Minor skin irritation if left on for prolonged period. Kills things, including healthy skin cells if used in wounds.

Precautions: Dilute to 1% or less for use in wounds. Don't use for drinking water for more than a few weeks.

Application: Can be used in full strength on intact skin before surgical procedures such as incising abscess or puncturing blister. Can be applied to intact skin around a wound before irrigation to avoid contamination of the wound from skin surface. Can be used to disinfect water for use as irrigation fluid or for drinking (up to 4 drops per liter of water). Can be used as a vaginal douche to treat yeast or bacterial vaginal infection (5 cc of betadine to a liter of water).

benzoin liquid or swabsticks

Use: Makes skin sticky for better adhesion of tape, steri-strips, and bioclusive dressings. Good for wet environment. Also will dry and harden blistered areas, but produces marked discomfort when applied.

Side Effects: Local skin irritation if allergy or sensitivity.

Precautions: Stings when allowed into or near open wounds. Be careful and warn your patient.

Application: Apply to area a few minutes before applying adhesive. Let dry.

## Other Medications

### methylprednisone (Medrol) dose pack: Rx steroid anti-inflammatory.

Advantages: Packaged in self-explanatory tapered dose.

Disadvantages: More expensive and packaging intensive than same number of prednisone pills in a vial.

Use: Inflammation not responding well to ibuprofen such as poison ivy, jellyfish stings. Asthma not responding to inhaler. Adjunct to the treatment of severe anaphylaxis after epinephrine and diphenhydramine.

Side Effects: Stomach upset, agitation.

Precautions: do not use for infection unless combined with antibiotics.

Administration: Tapering dose, follow instructions on dose pack. Finish entire course or therapy according to schedule once started.

### docusate sodium (Dulcolox) Suppositories: OTC laxative, rectal stimulant.

Use: Laxative

Side Effects: abdominal pain and cramping.

Precautions: Do not use laxative products when abdominal pain, nausea, or vomiting are present unless directed by a physician. If you have noticed a sudden change in bowel habits that persists over a period of 2 weeks, consult a physician before using a laxative. Restoration of normal bowel function by using this product may cause abdominal discomfort including cramps. Laxative products should not be used for a period longer than 1 week unless directed by a physician. Rectal bleeding or failure to have a bowel movement after use of a laxative may indicate a serious condition. If this occurs, discontinue use and consult your physician.

Administration: Adults and children 12 years of age and over: 1 suppository once daily. Remove foil wrapper. Lie on your side and, with pointed end first, push suppository high into the rectum so it will not slip out. Retain it for 15 to 20 minutes. If you feel the suppository must come out immediately, it was not inserted high enough and should be pushed higher. Children 6 – 12 years of age, ½ suppository. Expect results in 8-12 hours if taken at bedtime or within 6 hours if taken before breakfast.

famotidine (Pepcid) 20 mg tablets: OTC antihistamine H2.

Advantages: Inexpensive, non-prescription.

Disadvantages: No real disadvantage.

Use: Gastric acid problems; reflux, esophagitis, ulcer. Since it is an antihistamine covering different receptors, Pepcid can also be used as an adjunct in the treatment of anaphylaxis or allergic rash not responding well to diphenhydramine.

Side Effects: Headache, dizziness, constipation, diarrhea.

Precautions: Allergy to antihistamines.

Administration: 20 mg every 12 – 24 hours as needed to reduce symptoms. Higher doses may be given to control ulcers, but should be done with medical advice.

ipecac syrup: OTC to induce vomiting in toxic ingestions.

Use: induces vomiting to expel dangerous ingested toxins.

Side Effects: Persistent vomiting. Cramping.

Precautions: Vomiting is a high risk treatment. Use only when the risk associated with the toxin is greater than risk of persistent vomiting. Seek medical advice or call poison control if at all possible. Do not induce vomiting in cases of caustic ingestion, or in ingestion of petroleum products. Do not induce vomiting if airway cannot be controlled, or the patient is at risk for dehydration.

Administration: One tablespoon with a cup of warm water. Vomiting will occur within 20 minutes.

oxymetazoline (Afrin) nasal spray: OTC vasoconstrictor, nasal decongestant.

Use: reduce nasal congestion, reduces equalizing problems when diving and snorkeling. Will help stop nose bleeds.

Side Effects: dry mouth, palpitations

Precautions: Do not exceed recommended dose. Do not use for more than 3 days at a time.

Administration: one or two sprays every 12 hours.

sennosides (Senekot): OTC stool softener.

Use: Stool softener for constipation.

Side Effects: soft stool, diarrhea

Precautions: Will not work if constipation is caused by dehydration. Drink plenty of water

Administration: Two or three tablets with water.

scopolamine (Transderm Scop): Rx patch for motion sickness:

Use: treatment and prevention of motion sickness.

Side Effects: The most frequent adverse reaction was dryness of the mouth. This occurred in about two thirds of patients on drug. A less frequent adverse drug reaction was drowsiness, which occurred in less than one sixth of patients on drug. Transient impairment of eye accommodation, including blurred vision and dilation of the pupils, was also observed.

Precautions: Scopolamine should be used with caution in patients with pyloric obstruction or urinary bladder neck obstruction. Caution should be exercised when administering and antiemetic or antimuscarinic drug to patients suspected of having intestinal obstruction. Transderm Scop should be used with caution in the elderly or in individuals with impaired liver or kidney functions because of the increased likelihood of CNS effects. Caution should be exercised in patients with a history of seizures or psychosis, since scopolamine can potentially aggravate both disorders.

Administration: One patch applied to the skin behind the ear every 3 days.

Zanfel Cream (OTC)

Use: Relief of symptoms and healing of poison ivy and other contact plant dermatitis.