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# Wilderness Prehospital Emergency Medicine Drug Information

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This work represents a compilation of information about various drugs that may be included in a Wilderness Medical Kit. The intent of this document is to provide a brief (copy it onto 100% cotton paper and keep it in your back pack) yet sufficient amount of information about the drugs listed to allow a Wilderness EMT (under the supervision of a physician or veterinarian) to make an informed decision about the use of these medications in a clinical setting (i.e. before giving them to a patient). The information has been compiled from various sources (see References) and through information used by clinical practitioners. Efforts have been made to review this information and to keep it up to date with respect to currently accepted clinical practices (as of the date of this document). However, it is important to realize that notions of the clinical effectiveness, and useage of medications change with time as more information becomes available about them and their effects on the systems of the body. It is also important to note that the clinical effects of medications can be species dependent (what will cure one can kill another). It is the responsibility of every Wilderness EMT to contact a medical command physician or veterinarian (through regionally approved methods) before administering any medicine to any patient of any species. No information in this document should be considered a substitute for medical advice given by a physician or veterinarian. When in doubt, do no harm.

Pronunciation: Syllables that are stressed are followed by ('). The macron (ā) indicates a long vowel, the breve(ă) a short vowel. Without a diacritical mark a vowel ending a syllable is long (ta'bl), within a syllable is short (cat).

Alternate dosage in braces '{}'.  
'{ }'

Perscription drugs are marked by the symbol 'R' following the drug name.

**When the word dose is used without qualification (e.g. Pediatric, Dog, Horse, Llama) the dose is assumed to be for an adult human. When no dose is given for a drug then that drug is contraindicated.**

Nothing should be given by mouth to an unconscious patient.

A contraindication to any medication is patient hypersensitivity to that medication. This is assumed for all of the following and will not be listed under the contraindications for any medicine.

## Analgesics

NSAIDS can predispose to photo-toxic effects of the sun in sensitive individuals.

### *acetaminophen [Tylenol®]*

ă•sět'ă•mĭn'ō•fĕn [ti'len•awl]

- Availability:** tablet: 325 mg acetaminophen (OTC)
- Action:** analgesic (↑ of pain threshold), antipyretic (resets hypothalamic heat-regulating center), ↑ sweating, dilation of blood vessels, **not** a platelet inhibitor, **not** anti-inflammatory
- Indications:** minor aches, pains, headaches, fever
- Contraindications:** liver disease, previous max therapeutic dose within 4 hrs.
- Precautions:** OD (> 10 g adult; > 140 mg/kg child) may cause hepatic toxicity. Early symptoms: N/V, diaphoresis, malaise. For pain do not take for more than 10 days (adult) 5 days (child). For fever do not take for more than 3 days.
- Side Effects:** allergic reactions, hypoglycemia, jaundice
- Interactions:** alcohol, anticoagulants, oral contraceptives, diflunisal, metoclopramide, chlorpromazine
- Dose:** 325-1000 mg PO; q̄ 4-6h, PRN
- Pediatric Dose:** 10-15 mg/kg PO; q̄ 4h, PRN {(6-12 y) 160 mg PO; q.i.d., PRN}
- Dog Dose:** 25-30 mg/kg PO; q̄ 6h, PRN

### *aspirin (acetylsalicylic acid) [Bufferin®] (buffered) [Ecotrin®] (enteric coated)*

ăs'pĕrĭn (ă•sĕ'tĭl'săl'ĭ•sĭl'ĭk) []

- Availability:** tablet: 325 mg aspirin; adult chewable (children's) aspirin: 80 mg aspirin (OTC) in either buffered or enteric coated formulation
- Action:** inhibits prostaglandin synthesis of platelets, analgesic, antipyretic, anti-inflammatory
- Indications:** minor aches, pains, headaches, fever, arthritis, MI (prophylaxis), sunburn (+2 hr before exposure), Disseminated Intravascular Coagulation (DIC)
- Contraindications:** children < 6 y c̄ chicken pox or flu symptoms (Reye syndrome), last trimester of pregnancy, allergy to aspirin, asthma, gastric ulcers, suspected bleeding, renal insufficiency
- Precautions:** not c̄ prescription drugs (NSAIDs) for: arthritis, anticoagulants, gout (OK unless on other NSAIDs), diabetes (renal insufficiency)
- Side Effects:** gastritis(5%), heartburn(12%), N/V (8%), tinnitus and hyperthermia (signs of OD), ↑BP
- Interactions:** potentiates other analgesics (NSAIDs), anticoagulants, antacids may ↑ clearance
- Dose:**  
*antiplatelet (low):* 80-325 mg SL, PO; q̄ 24 hr, PRN  
*analgesic, antipyretic (intermediate):* 325-650 mg PO; q̄ 4 hr, PRN  
*anti-inflammatory (high):* 4-8 g/day
- Pediatric Dose:** (6-12 y) 160 mg PO; q.i.d., PRN
- Dog Dose:**  
*antiplatelet:* 0.5 mg/kg PO; b.i.d., PRN; *analgesic:* 10-20 mg/kg PO q̄ 12 h, PRN  
*antipyretic:* 10 mg/kg PO; b.i.d., PRN; *DIC:* 150-300 mg/20kg PO q̄ 24-48 h for 10 days  
*anti-inflammatory:* 40 mg/kg PO; q̄ 18 h, PRN {25-35 mg/kg PO; q̄ 8 h}
- Horse Dose:**  
*analgesic:* 25 mg/kg PO q̄ 12 h (one time), then 10 mg/kg PO q̄ 24h

***ibuprofen [Advil<sup>®</sup>, Nuprin<sup>®</sup>, Motrin<sup>®</sup>]***

i•bu'pro•fen [ad'vil]

- Availability:** tablet: 200 mg ibuprofen (OTC), 400, 600, 800 mg ibuprofen (R)
- Action:** inhibit PG synthesis of platelets, analgesic, antipyretic, anti-inflammatory
- Indications:** minor to moderate aches, pains, headaches, fever, primary dysmenorrhea, pain following dental extraction, arthritis, sunburn
- Contraindications:** pregnancy, allergy to aspirin, gastric ulcers, bleeding, diabetes c̄ renal insufficiency
- Precautions:** not c̄ prescription NSAIDs, blurred/diminished vision, scotomata (blind spot), changes in color vision, fluid retention, edema, aseptic meningitis, may promote asthma attack, For pain do not take for more than 10 days (adult) 5 days (child). For fever do not take for more than 3 days.
- Side Effects:** gastritis & antiplatelet (↓ compared to aspirin)
- Interactions:** potentiates other analgesics, anticoagulants
- Dose:** *arthritis:* 600 mg PO q.i.d., 800 mg PO t.i.d.  
*mild to moderate pain, dysmenorrhea:* 400 mg PO; q̄ 4 h, PRN
- Pediatric Dose:** (>12 y) 10 mg/kg PO; q̄ 4-6 h, PRN
- Note:** Cannot be used on the dog because it causes repeated and consistent vomiting even with used in enteric-coated formulations.

***ketorolac tromethamine [Toradol<sup>®</sup> R]***

trō•mēth'ă•mēn [tō rah•dol]

- Availability:** injection: 60 mg in 2 ml of NaCl (also 10% w/v alcohol)
- Action:** inhibit PG synthesis of platelets, analgesic, antipyretic, anti-inflammatory
- Indications:** major pain (short term management), pain following trauma
- Contraindications:** pregnancy, labor and delivery, diabetes c̄ renal insufficiency, GI bleed, EtoH-ism
- Precautions:** c̄ other NSAIDs, may promote asthma attack, do not use for > 7 days
- Side Effects:** may prolong bleeding time, edema (3-9%), nausea (12%), GI disorder (13%), diarrhea (3-9%), drowsiness (3-8%), dizziness (3-8%), H/A (17%), diaphoresis (3%), constipation (3%), dyspepsia (12%), insomnia (14%), nervousness (6%), pruritis (3-9%), dry mouth (9%)
- Interactions:** aspirin (↓ protein binding, use lower dose)
- Dose:** (lower end dose for pt < 50 kg, > 65 y, c̄ ↓ renal function)  
30-60 mg IM initially, then 15-30 mg IM, IV; q̄ 6h, PRN

***acetaminophen c̄ codeine phosphate [Tylenol #3<sup>®</sup> R]***

ă•sēt'ă•mīn'ō•fēn co'dēn fōs'fāt [ti'len•awl]

- Availability:** tablet: 30 mg codeine phosphate, & 300 mg acetaminophen
- Action:** peripherally (acetaminophen), with centrally (codeine) acting analgesic, antitussive (codeine)
- Indications:** moderate to moderately severe pain
- Contraindications:** hypersensitivity to components (including sulfite sensitivity)

**Precautions:**  $\bar{c}$  head injuries,  $\bar{c}$  acute abdominal conditions,  $\bar{c}$  ↓ hepatic & renal function,  $\bar{c}$  asthma (sulfite sensitivity)  
**Side Effects:** ↑ ICP, ↓ LOC, ↓ respirations, N/V, SOB, dizziness, light-headedness, constipation  
**Interactions:** potentiates other narcotics, MAO inhibitors, tricyclic antidepressants, alcohol, scopolamine HCl (paralytic ileus)  
**Dose:** 15-60 (360 max in 24h) mg codeine; 300-1000 (4000 max in 24h) mg acetaminophen;  $\bar{q}$  4h; PRN

**acetaminophen  $\bar{c}$  hydrocodone bitartrate [Vicodin<sup>®</sup>  $\mathcal{R}$ , Lortabs<sup>®</sup>  $\mathcal{R}$ , Anexsia<sup>®</sup>  $\mathcal{R}$ ]**

hī'drō•kō'dōn [vī'kō'dīn]

**Availability:** tablet: 500 mg acetaminophen, & 5 mg hydrocodone bitartrate  
**Action:** hydrocodone: opioid analgesic, antitussive; acetaminophen: analgesic, antipyretic  
**Indications:** moderate to moderately severe pain, canine upper respiratory infection (kennel cough)  
**Contraindications:** hypersensitivity to components  
**Precautions:**  $\bar{c}$  head injuries,  $\bar{c}$  acute abdominal conditions (???),  $\bar{c}$  ↓ hepatic & renal function  
**Side Effects:** allergic reaction to sulfite, ↑ ICP, ↓ LOC, ↓ respirations, N/V, light headedness, less constipating and more sedating than codeine, dries respiratory mucosa  
**Interactions:** potentiates other narcotics, alcohol, atropine (paralytic ileus), scopolamine HCl (paralytic ileus)  
**Dose:**  $\bar{i}$ - $\bar{ii}$  tablets PO  $\bar{q}$  4-6h, PRN  
**Dog Dose:**  $\bar{i}$  tablet/22 kg PO  $\bar{q}$  6-12h, PRN (0.22 mg/kg hydrocodone PO b.i.d.-t.i.d.)

**morphine sulfate  $\mathcal{R}$**

mor'fēn sul'fāt

**Availability:** ampul or Tubex<sup>®</sup>//tū'bek// (25 G x 1¼"): 10 mg in 1 mL  
**Action:** ↓ CNS, ↓ pain (max analgesic 60 min  $\bar{p}$  admin ???), peripheral vasodilation  
**Indications:** moderate to moderately severe pain, pulmonary edema  
**Contraindications:** hypersensitivity, undiagnosed abdominal pain, respiratory insufficiency or depression, CNS depression, bronchial asthma attack, head injury, ↑ intracranial pressure, hypovolemia  
**Precautions:** hypotension, ↓ respirations (have naloxone available)  
**Side Effects:** ↓ LOC, itching, N/V (Tx  $\bar{c}$  antihistamines), urinary retention ( 90%), constipation (drink fluids), drowsiness (titrate dosage to tolerable pain level), myosis  
**Side Effects Dog:** ↓ CNS, emetic, antitussive, myosis, may cause hypothermia, initially stimulates respirations, causes coronary vasoconstriction, will immediately defecate following injection  
**Side Effects Horse:** ↑ CNS, may cause hyperthermia, may cause mild colic  
**Interactions:** not  $\bar{c}$  MAO inhibitors, potentiated by alkalinizing agents, antihistamines, alcohol, and other narcotics, antagonized by acidifying agents  
**Dose:** IV: 2-5 mg, then 2 mg  $\bar{q}$  few min until ↓ pain or respiratory depression (max 10-30 mg in 4 h)  
IM: 5-15 mg based on pt weight  
**Pediatric Dose:** 0.1-0.2 mg/kg IV  
**Dog Dose:** analgesia: 0.5-1.0 mg/kg IV, IM, SQ; PRN

**Horse Dose:** *analgesia:* 0.22 mg/kg IM, slow IV; PRN

***naloxone hydrochloride [Narcan® B]***

nal•oks'ōn

**Availability:** ampul or prefilled syringe: 2.0 ml of 1.0 mg/ml  
**Action:** opioid antagonist, reverses effects of narcotics short term  
**Indications:** narcotic or synthetic analgesic OD, rule out narcotic in coma of unknown origin  
**Contraindications:** hypersensitivity  
**Precautions:** caution Ā narcotic dependency (cause withdrawl effects), short acting  
**Side Effects:** incidence low  
**Dose:** 1-2 mg IV, IM, ET  
**Pediatric Dose:** 0.01-0.1 mg/kg IV, IM, ET  
**Dog Dose:** 0.02-0.04 mg/kg IV, IM, & SQ  
**Horse Dose:** 0.01-0.02 mg/kg IV

***phenazopyridine hydrochloride [Pyridium® B]***

fēn'ā•zō•pēr'ī•dēn hī•drō•klō'rīd [py'rī'dī'ūm]

**Availability:** tablet: 100 mg phenazopyridine hydrochloride  
**Action:** urinary tract analgesic  
**Indications:** pain, burning, urgency, frequency arising from irritation of the lower UT caused by infection, trauma, passage of catheters  
**Contraindications:** hypersensitivity to drug, renal insufficiency  
**Precautions:** do not use for more than 2 days while treating UTI Ā antibacterials, discontinue Ā jaundice  
**Side Effects:** red or orange coloured urine, H/A, rash, itching, GI disturbance  
**Dose:** 200 mg t.i.d. p.c.

***oil of cloves [Eugenol®]***

[u'jen•ol]

**Availability:** 10 mL bottle (OTC)  
**Action:** short acting topical dental analgesic  
**Indications:** tooth ache  
**Precautions:** temporary measure only  
**Dose:** apply to effected tooth PRN

## Tranquilizers

***haloperidol [Haldol® B]***

hā'lō•pēr'ī•dōl [hal'dawl]

**Availability:** ampul or prefilled syringe: 1.0 mL of 5.0 mg/mL, tablet: 5 mg  
**Action:** tranquilizer (mechanism unknown)  
**Indications:** psychotic disorders (e.g. schizophrenia), behavioral problems (e.g. hyperexcitability especially in children), Tourette's Disorder

**Contraindications:** hypersensitivity, toxic CNS depression or comatose states, Parkinson's disease  
**Precautions:**  $\bar{c}$  CV disorders (could cause hypotension of angina),  $\bar{c}$  anticonvulsive therapy ( $\downarrow$  convulsive threshold)  
**Side Effects:** Tardive Dyskinesia, extrapyramidal symptoms, hypotension  
**Interactions:** CNS  $\downarrow$  potentiated by EtOH, other analgesics, and narcotics, may block vasopressor action of epinephrine,  $\uparrow$  interocular pressure  $\bar{c}$  atropine, scopolamine  
**Dose:** 2-5 mg  $\bar{q}$  4-8 h IM, 0.5-5.0 mg b.i.d. or t.i.d. PO, 5 mg  $\bar{q}$  20-30 min until effect achieved  
**Pediatric Dose:** (3-12 y, 15-40 kg) 0.05-0.15 mg/kg/day b.i.d. or t.i.d. PO

***diphenhydramine hydrochloride [Benadryl 25®]***

(see Antihistamines)

## Muscle relaxants

***cyclobenziprine hydrochloride [Flexeril® B]***

si'klō•ben'zī prn hī•drō•klō'rīd [flek]

**Availability:** tablet: 10 mg cyclobenziprine hydrochloride  
**Action:** acts within CNS at brain stem (as opposed to spinal cord levels), highly protein bound, excreted by kidneys  
**Indications:** skeletal muscle spasm (hyperactivity)  
**Contraindications:** hypersensitivity, hyperthyroidism, concomitant MAO (monoamine oxidase) inhibitors use, or within 14 days after discontinuation, acute recovery phase of MI,  $\bar{c}$  arrhythmias, heart blocks, conductance disturbances, CHF  
**Precautions:** not effective for muscle spasms associated  $\bar{c}$  cerebral or spinal cord disease, or children  $\bar{c}$  cerebral palsy, avoid EtOH  
**Side Effects:** chronotrope (atropine like), dry mouth (7-27%), blurred vision (1-3%), drowsiness (16-39%), dizziness (3-11%), constipation (1-3%), fatigue (1-3%), H/A (1-3%), N/V (1-3%), nervousness (1-3%)  
**Interactions:**  $\bar{c}$  MAO inhibitors, enhances effects of alcohol, opioids (codine, hydrocodone, morphine), haloperidol, barbiturates, and other CNS depressants  
**Dose:** 10 mg PO t.i.d. (use only for short periods, 2-3 weeks)

## Antihistamines

Virtually all H1 blockers have the same indications. Diphenhydramine is usually used for: bee stings, poison ivy, hypersensensitivity, anaphylaxis, and seasonal allergies. Others are generally used for seasonal allergies.

***diphenhydramine hydrochloride [Benadryl 25®]***

dī'fēn•hī'drā•mēn hī•drō•klō'rīd [bē'nā•drīl]

**Availability:** tablet: 25 mg diphenhydramine hydrochloride (OTC) ampul: 50 mg/mL in 1 mL vial  
**Action:** antihistamine (blocks H<sub>1</sub> receptors), sedation  
**Indications:** anaphylaxis //an'ah•fi•lak'sis//, allergies (rhinitis \\rī•nī'tis\\, sneezing, tearing, hives, itching), dystonic reactions due to phenothiazines //fe'no•thi'ah•zīdz//, motion sickness (antiemetic in small animals), sedation

**Contraindications:** asthma, glaucoma, COPD (if problems  $\bar{c}$  mucosal secretions), SOB, enlarged prostate, nursing mothers, caution  $\bar{c}$  hypertension  
**Side Effects:** dries bronchial secretions, palpitations, excitability in children, antitussive  
**Interactions:**  $\bar{c}$  hypnotics, sedatives, tranquilizers, EtOH to  $\uparrow$  sedation, potentiates effects of other antihistamines  
**Dose:** *allergies:* 25-50 mg  $\bar{q}$  4-6h PO, IM, IV  
*sedation:* 25-50 mg  $\bar{q}$  4h PO (losses sedative effect after 3-4 days) (elderly or enfeebled patients initial dose of  $\frac{1}{2}$  minimal dose is often effective)  
**Pediatric Dose:** ( $\uparrow$  20 lb) 12.5-25 mg 6-8h PO (max: 300 mg/day) {5 mg/kg/day}  
**Dog Dose:** *motion sickness & antiemetic:* 2-4 mg/kg PO  $\bar{q}$  8 h  
*urticaria & angioedema:* 2 mg/kg IM PRN ( $\bar{c}$  prednisone 2 mg/kg IM bid & epinephrine 0.05-0.2 mg SQ)  
*itching:* 25-50 mg PO b.i.d.-t.i.d., *distonic reactions:* 2-5 mg/kg IV

***chlorpheniramine maleate [Chlor-Trimeton®]***

klor'fēn·īr'ă·mēn [klor·tri'mē·ton]

**Availability:** tablet: 4 mg chlorpheniramine maleate  
**Action:** antihistamine (blocks H<sub>1</sub> receptors)  
**Indications:** allergies (rhinitis, sneezing, tearing)  
**Contraindications:** asthma, glaucoma, COPD (if problems  $\bar{c}$  mucosal secretions), SOB, enlarged prostate, nursing mothers, caution  $\bar{c}$  hypertension  
**Side Effects:** anticholinergic (dry mouth, urinary retention), sedation, drowsiness, excitability in children  
**Interactions:** potentiates effects of other antihistamines and depressant effects narcotics, not  $\bar{c}$  EtOH  
**Dose:** 4 mg  $\bar{q}$  4-6h PO  
**Pediatric Dose:** (6-11 y) 2 mg  $\bar{q}$  4-6h PO  
**Dog Dose:** 4-8 mg  $\bar{q}$  12h IV, IM, SC, PO (max: 0.5 mg/kg  $\bar{q}$  24h)

***chlorpheniramine maleate [Chlor-Trimeton® REPETABS®]***

**Availability:** tablet: 12 mg chlorpheniramine maleate (timed released formulation)  
**Dose:** (> 12y)  $\bar{i}$   $\bar{q}$  8-12h PO (do not exceed  $\bar{i}$  tablets in 24h)

***terfenadine [Seldane® R]***

[sēl'dān]

**Availability:** tablet: 60 mg terfenadine  
**Action:** antihistamine (blocks H<sub>1</sub> receptors; onset of action 1-2h)  
**Indications:** allergic reactions  
**Contraindications:** pregnancy, nursing women, not  $\bar{c}$  metronidazole (ketoconazol ?) and erythromycin (QT prolongation, ventricular arrhythmias, death)  
**Precautions:** store away from heat and direct sunlight  
**Side Effects:** anticholinergic (drying), ventricular arrhythmias (torsade de pointes) in OD  
**Interactions:** potentiates effects of other antihistamines

**Dose:** 60 mg b.i.d. PO  
**Pediatric Dose:** (> 12y) 60 mg b.i.d. PO  
**Dog Dose:** 4.5-10 mg/kg q̄ 12h PO

***astemizole [Hismanal® R]***

[his'ma•nal]

**Availability:** tablet: 10 mg astemizole  
**Action:** antihistamine (blocks peripheral H<sub>1</sub> receptors), non-sedating (does not cross blood-brain barrier)  
**Indications:** seasonal allergic rhinitis  
**Contraindications:** known hypersensitivity to drug, pregnancy, not c̄ ketoconazol or erythromycin  
**Precautions:** anticholinergic effects c̄ lower airway diseases (asthma), renal impairment, store away from heat and direct sunlight  
**Side Effects:** CNS, GI, anticholinergic  
**Interactions:** potentates effects of other antihistamines  
**Dose:** 10 mg q̄ 24h PO a.c., or +2h p.c., no additional intake +1h after dosing  
**Pediatric Dose:** (> 12y) same as Adult  
**Dog Dose:** 0.2 mg/kg q̄ 24h PO

## Motion Sickness

***meclizine hydrochloride [Bonine®, Antivert® R]***

mĕk'li•zĕn hĭ'drō•klō'rĭd [bō'nĕn]

**Availability:** tablet: 25 mg meclizine hydrochloride  
**Action:** antihistamine (blocks vasopressor response to histamine)  
**Indications:** N/V, & dizziness c̄ motion sickness  
**Contraindications:** asthma, glaucoma, emphysema, COPD, SOB, dyspnea, children < 12y, pregnant or nursing women  
**Precautions:** do not drive or operate machinery  
**Side Effects:** may cause drowsiness (especially c̄ alcohol, sedatives, & tranquilizers)  
**Dose:** 12.5-25-50 mg q̄ 24h (administer 1h before embarkation)  
**Pediatric Dose:** (> 12y) 25-50 mg q̄ 24h (administer 1h before embarkation)  
**Dog Dose:** 25 mg q̄ 24h PO (motion sickness: administer 1h before embarkation)

***dimenhydrinate [Dramamine®, Gravol® (Canada)]***

dĭ'mĕn•hĭ'drĭn•āt [drām'ă•mĕn]

**Availability:** tablet: 50 mg dimenhydrinate, ampul: 50 mg in 1 mL  
**Action:** depressant effect on hyperstimulated labyrinthine (internal ear) function  
**Indications:** Tx & prevention of N/V, vertigo, & motion sickness  
**Contraindications:** asthma, glaucoma, emphysema, COPD, SOB, dysuria (enlarged prostate), dyspnea, children < 2y  
**Precautions:** do not drive or operate machinery  
**Side Effects:** may cause drowsiness (especially c̄ alcohol, sedatives, & tranquilizers)

**Interactions:** antihistamines  
**Dose:** 50-100 mg  $\bar{q}$  4-6h (max: 400 mg/day)  
**Pediatric Dose:** (6-12y) 25-50 mg  $\bar{q}$  6-8h (max: 150 mg/day); (2-6y) 25 mg  $\bar{q}$  6-8h (max: 75 mg/day)  
**Dog Dose:** 4-8 mg/kg  $\bar{q}$  8h IV, IM, PO

***scopolamine hydrochloride (patch) [Transderm Scop® B]***

skō•pōl'ă•mēn hī•drō•klō'rid [trāns•derm scōp]

**Availability:** patch (circular flat disk): 1.5 mg scopolamine

**Action:**

**Indications:** to prevent N/V of motion sickness for 3 days

**Contraindications:** glaucoma, children, elderly, pregnant or nursing women

**Precautions:**  $\bar{c}$  metabolic, liver, kidney diseases, urinary, stomach, or intestinal obstructions, drug withdrawal symptoms if used > 3 days, limit contact  $\bar{c}$  water, do not reapply a disk once in use, wash hands after application

**Side Effects:** dryness of mouth (66%), drowsiness (17%), mydratic if applied to eye, psychosis

**Interactions:** codeine & hydrocodone (paralytic ileus)

**Dose:** 1 disc to dry area of skin behind ear (4h before needed) for 3 days

## Decongestants

***pseudoephedrine hydrochloride [Sudafed®]***

sū'dō•ep'ĩ•nef'rin hī•drō•klō'rid [sū'duh•fēd]

**Availability:** tablet: 30 mg pseudoephedrine hydrochloride (OTC)

liquid: 30 mg in 5 mL (1 tsp) pseudoephedrine hydrochloride (OTC)

**Action:** promotes nasal drainage

**Indications:** for relief of nasal congestion due to upper respiratory infection or allergy

**Contraindications:** caution  $\bar{c}$  underlying heart disease, HTN, thyroid disease, diabetes, enlarged prostate gland

**Side Effects:** tachycardia, dizziness, nervousness, sleeplessness, HTN

**Interactions:** not  $\bar{c}$  antihypertensive, antidepressant, or MAO inhibitors

**Dose:** 60 mg  $\bar{q}$  4-6h PO (max: 4 doses in 24h)

**Pediatric Dose:** (6-12 y) 30 mg  $\bar{q}$  4-6h PO; (2-6y use liquid) 15 mg  $\bar{q}$  4-6h PO

***pseudoephedrine hydrochloride [Sudafed®] 12 Hour***

**Availability:** tablet: 120 mg pseudoephedrine sulfate (OTC)

**Dose:** 1 tablet  $\bar{q}$  12h (same for pedi > 12 y)

***oxymetazoline hydrochloride [Afrin®]***

ok'sē•mēt'ah•zō'lēn hī•drō•klō'rid [a'frin]

**Availability:** nasal spray: 0.5 mg (0.05%) oxymetazoline hydrochloride per mL in 3 mL bottle

**Action:** sympathomimetic (constricts smaller arterioles of nasal passages)

**Indications:** for relief of nasal congestion  $\bar{c}$  due to upper respiratory infection or allergy

**Precautions:** do not use product for more than 3 days,  $\bar{c}$  CAD and angina  
**Dose:** 2-3 sprays  $\bar{c}$  head upright  $\bar{q}$  12h  
**Pediatric Dose:** (> 6y) 2-3 sprays  $\bar{c}$  head upright  $\bar{q}$  12h

## Steroids

### *prednisone* $\mathcal{R}$

pred'nĩ'sōn

**Availability:** tablet: 5, 10, 20 mg prednisone  
**Action:** anti-inflammatory  
**Indications:** emergency Tx of allergic reactions (anaphylaxis: urticaria & angioedema), asthma  
**Contraindications:** systemic fungal infections  
**Precautions:** use  $\bar{c}$  shingles involving the eye can cause corneal ulceration, enhanced effect  $\bar{c}$  hypothyroidism and cirrhosis,  $\bar{c}$  coexisting ulcerative diseases, GI bleed  
**Side Effects:** drug-induced secondary adrenocortical insufficiency (after 2 weeks), potential for psychic derangements aggravated by preexisting psychotic tendencies,  $\uparrow$  blood sugar (glucosuria)  
**Interactions:** potentates effects of other anti-inflammatory drugs  
**Dose:** Loading: 40-60 mg/day;  $\downarrow$  by 10mg/day after 3 days  
**Dog Dose:** *anti-inflammatory:* 0.5-1 mg/kg  $\bar{q}$  12-24h, then  $\bar{q}$  48h, IV, IM, PO  
*shock:* 15-30 mg/kg IV  $\bar{q}$  4-6h; *urticaria & angioedema:* 2 mg/kg PO, IM bid  
**Horse Dose:** 0.25-1.0 mg/kg b.i.d. IM, PO  
**Llama Dose:** 0.5-1.0 mg/kg b.i.d. PO (gradually  $\downarrow$  dosage to lowest effective dose given every other day)

### *dexamethasone* [Decadron<sup>®</sup> $\mathcal{R}$ , Hexadrol<sup>®</sup> $\mathcal{R}$ , Azeum<sup>®</sup> $\mathcal{R}$ ]

děk'să•mēth'ă•sōn []

**Availability:** ampul: 10 mg/mL dexamethasone in 10 mL LR/NS (also 4 mg/mL in 1 mL)  
**Class:** synthetic glucocorticoid //gloo'ko•kor'tĩ•koid// (steroid)  
**Action:** anti-inflammatory,  $\downarrow$  CE,  $\downarrow$  immune response  
**Indications:** cerebral edema, anaphylaxis ( $\bar{p}$  epinephrine and diphenhydramine)  
**Contraindications:** systemic fungal infections, hypersensitivity, febrile bacterial illness unless used  $\bar{c}$  antibiotic, adrenal hyperactivity (cushings).  
**Precautions:** 2-6 hr onset of action, protect from heat (15-30°C) & light  
**Side Effects:** GI bleeding, prolonged wound healing  
**Interactions:** potentates effects of other anti-inflammatory drugs  
**Dose:** 4-24 mg (may need stress dose if pt on chronic steroids)  
**Pediatric Dose:** 0.2-0.5 mg/kg  
**Dog Dose:** *Anti-inflammatory:* 0.1-0.2 mg/kg  $\bar{q}$  12-24h IV, IM, PO; *Shock:* 4-6 mg/kg slow IV  
*Endotoxemia secondary to Gastric Volvulus:* 5 mg/kg slow IV  
**Horse Dose:** *Anti-inflammatory:* 2.5-5 mg IV, IM; *Shock:* 4-6 mg/kg IV  
**Llama Dose:** *Anaphylaxis:* 2 mg/kg IV

### *hydrocortisone acetate* $\bar{c}$ *pramoxine HCL* [Pramosone<sup>®</sup> $\mathcal{R}$ ]

hī' drō•kor' tī•sōn c̄ prām•ōk' sēn [prām•ō•sōn]

**Availability:** tube: 1 oz hydrocortisone acetate 1% c̄ pramoxine HCL 1%  
**Action:** hydrocortisone (steroid: anti-inflammatory, anti-pruritic, vaso-constrictive), pramoxine (topical anesthetic)  
**Indications:** inflammation, severe itching of skin  
**Contraindications:** viral disease, circulatory impairment, hypersensitivity, do not use in eye  
**Precautions:** c̄ infection use appropriate antifungal or antibacterial agent, if favorable response does not occur promptly then discontinue, if occlusive dressings are used possibility exists for ↑ systemic absorption  
**Side Effects:** ↓ healing  
**Interactions:** caution c̄ systemic corticosteroids  
**Dose:** apply to affected area t.i.d. or q.i.d.

*triamcinolone acetonide [Kenalog 0.1%® R]*

trī'ām•sīn' ō•lōn []

**Availability:** tube: 1 mg triamcinolone acetonide/g of cream in 15g tube  
**Action:** steroid: anti-inflammatory, anti-pruritic, vaso-constrictive  
**Indications:** strong allergic reactions on the skin  
**Contraindications:** hypersensitivity, do not apply to face, do not apply when fungal infection suspected  
**Precautions:** occlusive dressings ↑↑ the precutaneous absorption (children are more susceptible to systemic toxicity)  
**Side Effects:** ↓ healing of wounds, ↑ bacterial and fungal growth  
**Interactions:** caution c̄ other systemic corticosteroids  
**Dose (All):** apply to affected area b.i.d., t.i.d.

## Gastrointestinal

*calcium carbonate [Tums®]*

kāl' sē•ūm kār' bōn•āt []

**Availability:** tables: 500 mg calcium carbonate  
**Action:** antacid  
**Indications:** hyperacidity, acid indigestion, heartburn, upset stomach  
**Contraindications:** alkalosis  
**Precautions:** do not administer within 1-2 h of tetracycline product dosing, administer slowly  
**Side Effects:** alkalosis, constipation  
**Interactions:** synergistic c̄ other antacids  
**Dose:** 0.5-1.0 g q̄ 1h (max: 8 g/day)  
**Pediatric Dose:**  
**Dog Dose:** 1-4 g/day PO

*petrolatum jelly [Vaseline®]*

**Availability:** tubes: 1-2 oz petrolatum jelly

**Action:** laxative (lubricates fecal material & intestinal mucosa, reduces reabsorption of water by intestinal mucosa, ↑ fecal bulk & ↓ intestinal transit time)  
**Indications:** constipation  
**Precautions:** administer between meals so as not to interfere with fat soluble vitamin absorption.  
**Dog Dose:** 2-60 ml PO  
**Note:** In the horse mineral oil is administered through a stomach tube.

***bismuth subsalicylate [Pepto-Bismol®]***

biz' müth süb'säl'is'il'ät [pëp'tö'bis'möl]

**Availability:** tablet: 262 mg bismuth subsalicylate, Liquid: 130 mg bismuth subsalicylate per tablespoon

**Action:** exact mechanism unknown

**Indications:** diarrhea, heartburn, indigestion, nausea

**Contraindications:** hypersensitivity to salicylates, children recovering from chicken pox or flu (vomiting is an early sign of Reye's Syndrome), pregnant or nursing women

**Precautions:** contains salicylates, caution  $\bar{c}$  anticoagulation, diabetes, & gout, diarrhea + fever

**Side Effects:** tinnitus (OD), temporary darkening of tongue and/or stool (green-black), constipation

**Interactions:** additive effect  $\bar{c}$  other salicylates (e.g. aspirin), hydrocortisone, tetracyclines, cipro (may be inactivated or absorption ↓)

**Dose:** *diarrhea prophylaxis:*  $\bar{ii}$  tablets q.i.d.

$\bar{ii}$  tablets  $\bar{q}$  ½-1h PO (max: 8 doses in 24h)

**Pediatric Dose:** (9-12y)  $\bar{i}$  tablet; (6-9y) 2/3 tablet; (3-6y) 1/3 tablet  $\bar{q}$  ½-1h PO (max: 8 doses in 24h); (0-3y) contraindicated: can cause severe constipation and impaction

**Dog Dose:** *diarrhea:* 20-50 mg/kg/day (in divided doses) PO

**Horse Dose:** *diarrhea:* 70 mg/kg PO tid-qid

***bisacodyl [Dulcolax®]***

[dul'co'lax]

**Availability:** tablet: 5 mg bisacodyl

**Action:** contact laxative acting on colonic mucosa to produce normal peristalsis of the colon

**Indications:** acute constipation, constipation  $\bar{c}$  pregnancy

**Contraindications:** acute surgical abdomen (unexplained abdominal pain, N/V)

**Precautions:** laxative dependence  $\bar{c}$  frequent use

**Interactions:** do not take within 1 hr of antacids or milk

**Dose:**  $\bar{ii}$ - $\bar{iii}$  tablets swallowed whole (at bedtime)

**Pediatric Dose:** (> 6 y)  $\bar{i}$  tablet swallowed whole

**Dog Dose:**  $\bar{i}$  tablet  $\bar{q}$  8-24h PO

***loperamine hydrochloride [Imodium® A-D]***

[]

**Availability:** capsule: 2 mg loperamine

**Action:** ↓ intestinal motility, & effects water and electrolyte movement through bowel

**Indications:** control and symptomatic relief of acute nonspecific diarrhea

**Contraindications:** hypersensitivity to drug, use for > 2 days, if accompanied by ↑ fever, blood in stool  
**Side Effects:** may ↓ speed at which enteric microbes are evacuated (prolonging illness)  
**Dose:** ̄ capsules, then ̄ capsule ̄ loose bowel movement (max: 4 capsules/day)  
**Pediatric Dose:** 2-5y (24-47 lb): ½ capsule ̄ loose bowel movement (max: 1½ capsules/day)  
 6-8y (48-59 lb): ̄ capsule, then ½ capsule ̄ loose bowel movement (max: 2 capsules/day)  
 9-11y (60-95 lb): ̄ capsule, then ½ capsule ̄ loose bowel movement (max: 3 capsules/day)  
**Dog Dose:** *diarrhea*: 0.1-0.2 mg/kg ̄ 8-12h PO {̄ capsule/25 kg body weight PO qid} (> 10 kg)

***prochlorperazine [Compazine® ℞]***

prō'klor·pēr'ă·zēn [komp'ăh·zēn]

**Availability:** tablet: 10 mg prochlorperazine; ampul: 5 mg/mL in 2 mL ampul  
**Action:** phenothiazide ̄ weak anticholinergic, strong extrapyramidal, & moderate sedative effects, antiemetic  
**Indications:** control of ↑ N/V, psychotic disorders (2<sup>nd</sup> line)  
**Contraindications:** comatose states, children < 2y or < 20 lb, ̄ CNS depressants, pregnant or nursing women, pt ̄ bone marrow depression, hypersensitivity to phenothiazide  
**Precautions:** extrapyramidal symptoms (EPS) can be confused ̄ CNS s/s of Reye's syndrome, or other encephalopathy, neuroleptic malignant syndrome (NMS), antiemetic action mask s/s of OD of other drugs, anticholinergic (caution ̄ glaucoma), interferes ̄ thermoregulation  
**Side Effects:** tardive dyskinesia (rhythmical involuntary movement of tongue, face, mouth, rarely extremities), thiazide diuretics ↑ orthostatic hypotension (pressor agents can cause paradoxical ↑ hypotension), agitation, insomnia, dystonias (muscle spasm: neck, back, carpo-pedal, tongue, jaw)  
**Interactions:** ↑ plasma levels ̄ propranolol, alpha-adrenergic blocker  
**Dose:** N/V: 5-10 mg PO t.i.d. or q.i.d. (max: 40 mg/day)  
*non-psychiatric anxiety*: 5 mg PO t.i.d. or q.i.d. (max: 20 mg/day)  
**Pediatric Dose:** N/V: 2½ mg/kg PO, PR b.i.d. or t.i.d. (max 1st day: 10 mg, max 2-5y: 20 mg/day, max 6-12y: 25 mg/day) [avoid use in young kids, administer ̄ fluids only]  
**Dog Dose:** 0.1-0.5 mg/kg ̄ 6-8h IM, SC

## Ophthalmic

***tetracaine hydrochloride (ophthalmic solution) [Pontocaine® ℞, Achromycin® ℞]***

tēt'ră·kăn hī'drō·klō'rīd [ak'ro·mī'sin]

**Availability:** 1 mL dropper bottle  
**Action:** local anesthetic of the ester linkage type (related to procaine)  
**Indications:** anesthetic for eye examination only  
**Contraindications:** hypersensitivity to drug  
**Precautions:** use for exam only, possible eye damage if used ̄ removal of an existing foreign body  
**Interactions:** not ̄ sulfonamides (inhibits action)  
**Dose (All):** ̄-̄ gtts X ̄ or ̄ (for exam only)

***cyclopentolate hydrochloride (ophthalmic solution) [Cyclogyl® ℞]***

sī'klō•pĕn'tō•lāt hī'drō•klō'rid []

- Availability:** liquid: 0.5%, 1%, 2% solution of cyclopentolate in 2 mL dropper bottle
- Action:** cycloplegic (paralysis of ciliary muscle) & mydriatic (dilation of pupil), rapid action but shorter duration than atropine
- Indications:** pain c̄ corneal abrasion, or if patching eye
- Contraindications:** hypersensitivity, glaucoma (narrow angle anterior chamber)
- Precautions:** may cause CSN disturbances (young), observe for 30 min post administration
- Side Effects:** alters vision, similar to other anticholinergic drugs
- Dose (All):** ĩ gtt in effected eye, followed by ĩ gtt in 5 min (infants use only 0.5% conc)

***sulfacetamide sodium [Sodium Sulamyd® Ophthalmic Ointment 10% ℞]***

sũf'fā•sĕt'ă•mīd [so'dĕ•ũm sũ'lăh•mīd]

- Availability:** ointment: 100 mg sulfacetamide sodium per gram ointment (3.5 g tube)
- Action:** bacteriostatic by competition for acids required for growth
- Indications:** bacterial infections of the cornea and conjunctiva, trachoma (chronic contagious conjunctivitis)
- Contraindications:** hypersensitivity to sulfonamides
- Precautions:** fungi may grow c̄ use, inactivated by some purulent exudates, store away from heat, darkens c̄ age & should be discarded, when a bacterio static agent is used eradication of infecting organism depends on host defenses
- Side Effects:** local irritation, stinging, burning (discontinue use)
- Interactions:** incompatible c̄ silver preparations
- Dose (All):** apply a ribbon ½" long (in pocket between eye and ↓ lid, then look down before closing lids) q.i.d. & @ bedtime

***polymyxin B-Bacitracin [Polysporin Ophthalmic Ointment ℞]***

pōl'ĕ•mīks'ĩn b bās'ĩ•trā'sīn [pōl'ĕ•spor'in]

- Availability:** ointment: polymyxin B sulfate and bacitracin zinc in white petroleum jelly (1/8 oz tube)
- Action:** bacteriosidal (gram +&- bacilli, gram - cocci)
- Indications:** superficial ocular infections involving the conjunctiva and/or cornea caused by susceptible organisms
- Contraindications:** hypersensitivity to components
- Precautions:** ophthalmic ointments may retard corneal healing, prolonged use may result in overgrowth of nonsusceptible organisms including fungi
- Dose (All):** apply a ribbon ½" long (in pocket between eye and ↓ lid, then look down before closing lids) q̄ 3-4 h & @ bedtime

***acetazolamide sodium [Diamox® ℞]***

as'et•ah•zol'ah•mīd [diā•mōx]

- Availability:** tablet: 250 mg acetazolamide sodium
- Action:** controls fluid secretion (carbonic anhydrase inhibitor)

<b>Indications:</b>	edema due to CHF, centrencephalic epilepsies, chronic open-angle glaucoma, acute mountain sickness in climbers attempting rapid ascent
<b>Contraindications:</b>	when Na, & K blood serum levels ↓, kidney, liver, adrenal dysfunction, hyperchloremic acidosis, 1 <sup>st</sup> trimester pregnancy
<b>Precautions:</b>	↑dose does not ↑diuresis (may ↑ drowsiness & paresthesias)
<b>Side Effects:</b>	minimal (paresthesias, loss of appetite, polyuria, drowsiness, confusion, photosensitivity)
<b>Interactions:</b>	aspirin (concomitant administration with high-dose aspirin may result in anorexia, tachypnea, lethargy, coma and death).
<b>Dose:</b>	<i>acute mountain sickness</i> : 500-1000 mg/day (divided doses) initiate dosing 24-48 hrs before ascent and continue for 48 hrs (or as necessary)

### **Fluorescein strips**

<b>Availability:</b>	strip
<b>Action:</b>	green coloration sticks to damaged tissue
<b>Indications:</b>	abrasions of the cornea and conjunctiva
<b>Contraindications:</b>	hypersensitivity
<b>Dose (All):</b>	touch inside lower lid of eye $\bar{c}$ end of strip moistened $\bar{c}$ $\bar{i}$ gtt $\bar{p}$ putting anesthetic into eye or flushing $\bar{c}$ saline, inspect under (cobalt blue) light

## **Cardiac/Respiratory**

### **albuterol (salbutamol) [Proventil® R, Ventolin® R]**

äl'bū•ter'ōl [pro•ven'tīl, vent'ō•lin]

<b>Availability:</b>	metered dose inhalation: 90 µg per inhalation
<b>Action:</b>	sympathetic agonist ( $\beta_2$ selective, bronchodilatation)
<b>Indications:</b>	asthma, bronchospasm (associated $\bar{c}$ COPD/bronchitis/emphysema)
<b>Contraindications:</b>	symptomatic tachycardia, hypersensitivity to drug
<b>Precautions:</b>	monitor vitals, EKG, caution $\bar{c}$ known heart disease
<b>Side Effects:</b>	palpitations, anxiety, headache, dizziness & sweating, tremor
<b>Interactions:</b>	potentates action of other sympathetic agonists (minimal)
<b>Dose:</b>	metered inhaler: 2 sprays (90 µg/spray) $\bar{q}$ 4-6h
<b>Pediatric Dose:</b>	(> 12y) 0.15 mg/kg in 2.5 mL NS

### **epinephrine 1:1000 (adrenalin) [EpiPen® R, Ana-kit® R]**

ep'ī•nef'rin (ă•drĕn'ă•lĭn) []

<b>Availability:</b>	auto-injector: 0.3 mg epinephrine per injection ampul: 1 mg/mL in 1 mL vial
<b>Action:</b>	sympathetic agonist (bronchodilatation, inotrope, chronotrope)
<b>Indications:</b>	emergency Tx of allergic reactions (anaphylaxis), bronchial asthma
<b>Contraindications:</b>	no absolute contraindications if indicated, tachyarrhythmias, hypertension
<b>Precautions:</b>	monitor vitals, and EKG; protect from light and cold, if $\bar{c}$ overuse of $\beta$ agonists it may cause cardiac arrest
<b>Side Effects:</b>	palpitations, tachycardia, anxiety, tremor, H/A, N/V, arrhythmias

<b>Interactions:</b>	potentates action of other sympathetic agonists, effects potentated by tricyclic antidepressants and MAO inhibitors
<b>Dose:</b>	0.3 - 0.5 mg SQ $\bar{q}$ 20 min
<b>Pediatric Dose:</b>	0.01 mg/kg to 0.3 mg SQ $\bar{q}$ 20 min
<b>Dog Dose:</b>	<i>bronchoconstriction &amp; anaphylaxis</i> : 0.02 mg/kg to 0.5 mg SQ, IM $\bar{q}$ 20-30 min
<b>Horse Dose:</b>	<i>anaphylaxis</i> : 3-8 mg per 450 kg IM, SQ

**nifedipine [Procardia<sup>®</sup> B, Adalat<sup>®</sup> B]**

ni•fed'ĩ•pēn [pro•kar'de•ah]

<b>Availability:</b>	capsule: 10 mg nifedipine
<b>Action:</b>	Ca <sup>+</sup> channel blocker, smooth muscle relaxant (arteriolar vasodilation), ↓ peripheral vascular resistance
<b>Indications:</b>	angina pectoris, severe hypertension, chilblain
<b>Contraindications:</b>	hypotension, hypersensitivity to drug
<b>Precautions:</b>	monitor vitals, may worsen CHF, <b>not <math>\bar{c}</math> IV <math>\beta</math> blockers</b>
<b>Side Effects:</b>	dizziness, flushing, N/V, headache, weakness, hypotension
<b>Interactions:</b>	↑ risk of CHF $\bar{c}$ $\beta$ blockers
<b>Dose:</b>	10 mg SL (puncture capsule and place under tongue, or swallow)
<b>Pediatric Dose:</b>	0.25-0.5 mg/kg SL

## Antimicrobials

A good rule of thumb is to give therapy for 2-3 days after the temperature is normal and other signs of infection have dissappeared. All PO antibiotics should be taken 1 hr before or 3 hrs after food and other meds (especially antacids) to aid absorption from the intestinal tract. Monitor for signs of anaphylaxis. Do not mix therapy unless instructed to by command physician.

**amoxicillin-clavulanate potassium [Augmentin<sup>®</sup> B, Clavamox<sup>®</sup> B]**

ă•möks'ĩ•sil'ĩn klă•vũ•lăn'ăt pō•tăs'ē•ũm [awg•mēn'tĩn]

<b>Availability:</b>	tablet: 250 or 500 mg amoxicillin $\bar{c}$ 125 mg clavulanic acid
<b>Action:</b>	antibiotic $\bar{c}$ broad spectrum of activity $\bar{c}$ clavulanic acid which protects amoxicillin from degradation by enzymes produced by some bacteria making it usefull on these bacteria
<b>Indications:</b>	lower respiratory infections, otitis media, sinusitis, skin infections, UTIs, prophylaxis for mammal bites to hands or punctures, good for aerobic, anaerobic gram +/-
<b>Contraindications:</b>	allergy to penicillin, mononucleosis (causes rash)
<b>Precautions:</b>	protect from humidity, store in temps < 24°C (75°F)
<b>Side Effects:</b>	diarrhea/loose stools (9%), nausea & urticaria (3%), vomiting & vaginitis (1%)
<b>Interactions:</b>	not $\bar{c}$ disulfiram [Antabuse <sup>®</sup> ] (produces unplesant reaction $\bar{c}$ EtoH), not $\bar{c}$ Allopurinol (rash)
<b>Dose:</b>	<i>otitis, pharyngitis</i> : 250 mg $\bar{q}$ 8h <i>respiratory infections, bites to hand, contaminated, or puncture wounds</i> : 500 mg $\bar{q}$ 8h
<b>Pediatric Dose:</b>	(< 40 kg) 20 mg/kg/day in divided doses $\bar{q}$ 8h <i>otitis media, sinusitis, lower respiratory infections</i> : 40 mg/kg/day in divided doses $\bar{q}$ 8h

**Dog Dose:** 12.5-25 mg/kg q̄ 12h PO (do not exceed 30 d therapy, use 500/125 mg formulation)  
**Note:** For the horse it is contraindicated due to ↑ of clavulanate acid.

***ciprofloxacin [Cipro® R]***

□  
**Availability:** tablet: 250, 500, 750 mg ciprofloxacin  
**Action:** broad spectrum antibiotic interferes c̄ bacteria reproduction  
**Indications:** lower respiratory, skin, bone, joint, & UTIs, infectious diarrhea, PID, sinusitis  
**Contraindications:** hypersensitivity to other quinolone class antibacterials (nalidixic acid, cinoxacin, & floxin), pregnant & nursing women, children, immature animals, not effective c̄ anaerobes  
**Precautions:** may cause CSN stimulation, discontinue c̄ hypersensitivity (skin rash, lip edema)  
**Side Effects:** crystalluria in animals c̄ alkaline urine (keep pt well hydrated), dizziness, lightheadedness, N/V, diarrhea  
**Interactions:** prolongs halflife of theophylline, antacids containing magnesium or aluminum can interfere c̄ absorption  
**Dose:** UTIs: 250 mg q̄ 12h; others: 500-750 mg q̄ 12h (continue +2days after s/s have disappeared; usually 1-2 weeks)  
**Dog Dose:** UTIs: 5-8 mg/kg q̄ 12h PO; skin & bone: 10-15 mg/kg q̄ 12h PO; **Contraindicated** in dogs < 1 y old and during pregnancy, causes lameness (lesions of the cartilage in weight bearing joints) in immature dogs.

***ceftriaxone sodium [Rocephin® R]***

[ro•sef'in]

**Availability:** vial: 1g ceftriaxone crystalline powder (IM/IV: reconstitute c̄ 3.6/9.6 mL LR 250/100 mg/mL conc)  
**Action:** 3<sup>rd</sup> generation cephalosporin antibiotic (inhibits cell wall synthesis), effective against aerobic and anerobic, gram +/-  
**Indications:** lower respiratory tract, skin, bone, joint, intra-abdominal, & UT infections, gonorrhea, PID, meningitis, surgical prophylaxis where procedure sterility is in question  
**Contraindications:** hypersensitivity to cephalosporin class antibiotics  
**Precautions:** do not exceed 2 mg/day c̄ hepatic & renal disease, GI disease (colitis),  
**Side Effects:** prolonged use causes overgrowth of nonsusceptible organisms  
**Dose:** 1-2 gm/day (in 2 divided doses) IV, IM for 4-14 days (+2 days after s/s of infection gone)  
*meningitis:* 100 mg/kg/day (max: 4gm/day); *gonorrhea:* 250 mg IM (x1)  
*surgical prophylaxis:* 1 gm ½-2 hr before surgery (x1)  
**Pediatric Dose:** 50-75 mg/kg/day (in 2 divided doses) IV, IM (max: 2 gm/day)

***erythromycin [Erythrocin® R]***

ě•rith' rō•mī'sin □

**Availability:** tablet: 250, 333 mg erythromycin  
**Action:** inhibition of protein synthesis in susceptible organisms

- Indications:** upper & lower respiratory tract (e.g. otitis media, pharyngitis) (streptococcus) (penicillin V is drug of choice in Tx of streptococcal pharyngitis), skin & soft tissue (staphylococcus aureus) infections of mild to moderate severity, intestinal amebiasis (2<sup>nd</sup> line to Flagyl)
- Contraindications:** hypersensitivity to drug, jaundice
- Precautions:** impaired hepatic function (excreted by liver)
- Side Effects:** GI (abdominal cramping, N/V, diarrhea), urticaria, ↑ growth of fungi (̄ long term use)
- Interactions:** ↑ theophylline levels (potential for toxicity), ↑ carbamazepine levels in children using this drug (toxicity: ataxia, dizziness, N/V), ↑ cyclosporine levels, ↑ vasospasm associated ̄ argotamine (Tx of migraine), terfenadine??, not ̄ Seldane<sup>®</sup> or Hismanol<sup>®</sup>, ↓ effect of Procaine [Novocain<sup>®</sup>], not ̄ hypoglycemic agents (induces hypoglycemia)
- Dose:** 1 g/day in divided doses (250 mg q.i.d.) for at least 10 days (dosage may be ↑ up to 4 or more g/day according to severity, b.i.d. not recommended > 1 g/day)
- Pediatric Dose:** 30-50 mg/kg/day in divided doses
- Dog Dose:** 10 mg/kg q̄ 8h PO {5-20 mg/kg q̄ 8-12h PO}
- Horse Dose:** 10 mg/kg q̄ 6h PO

***trimethoprim-sulfamethoxazole [Bactrim<sup>®</sup> B]***

trī•mēth'ō•přim sŭl'fā•mēth'ök'a•sōl [bāk•tr'īm]

- Availability:** tablets: 80 mg trimethoprim & 400 mg sulfamethoxazole
- Action:** act to interfere ̄ two sequential steps in the metabolism of certain bacteria
- Indications:** UTIs, acute otitis media (children), chronic bronchitis (adult), entritis, traveler's diarrhea, prostate infections, sinusitis, soft tissue (skin & muscle in vet med)
- Contraindications:** hypersensitivity to components (especially sulfonamides "sulfa drugs"), megaloblastic anemia, pregnant or nursing women, infants (< 2 months)
- Precautions:** ̄ hepatic or renal disease (excreted by kidneys), ̄ anticonvulsant therapy, in malnutrition states, ̄ severe allergies or bronchial asthma, keep pt hydrated to prevent crystalluria and stone formation (rare)
- Side Effects:** GI (N/V, anorexia), skin reactions (urticaria), neutropenia
- Interactions:** ↑ prothrombin time ̄ warfarin, ↓ clearance of Dilantin (anticonvulsant), ↑ free methotrexate \\mēth'ō•trēk'sāt\\ (Tx leukemia)
- Dose:** ̄ tablets q̄ 12h, for 10-14day (5day for entritis)
- Pediatric Dose:** 4 mg/kg trimethoprim & 20 mg/kg sulfamethoxazole (ī tablet/20 kg) q̄ 12h, for 10-14 days (5 days for entritis) (improved dosing??)
- Dog Dose:** 15 mg/kg q̄ 12h IM, PO {30 mg/kg q̄ 12-24h SC, PO}  
*skin infections:* 30 mg/kg q̄ 12 h (4-6 weeks)
- Horse Dose:** same as Dog

***doxycycline monohydrate [Monodox<sup>TM</sup> B, Vibramycin<sup>®</sup> B]***

dök'sē•sī'klēn [mon'ō•dōx]

- Availability:** capsule: 100 mg of doxycycline
- Action:** broad spectrum antibiotic in the tetracycline group (excreted by kidneys 40% in 72h) primarily bacteriostatic

<b>Indications:</b>	rocky moutain spotted fever, respiratory tract infections, urethral, rectal infections (chlamydia trachomatis), travelers diarrhea (prophylaxis or Tx), Lyme disease
<b>Contraindications:</b>	hypersensitivity to tetracyclines, pregnant & nursing women, children
<b>Precautions:</b>	may cause overgrowth of non-susceptible organisms (e.g. fungi), store at temp 15-30°C
<b>Side Effects:</b>	use during tooth development (last ½ of pregnancy to 8y) may cause yellow-gray-brown colouration of teeth, photosensitivity (↑ sunburn sensitivity), ↓ prothrombin activity, GI, skin not c̄ penicillin, absorption impaired c̄ antacids, barbiturates, carbamazepine, phentoin ↓ ½ life, not c̄ methoxyflurane (fatal renal toxicity), ↓ effectiveness of oral contraceptives, aspirin (give 1 hr before/after)
<b>Interactions:</b>	
<b>Dose:</b>	<i>diarrhea prophylaxis:</i> 100 mg q̄ 24h (for short trips 2 <sup>nd</sup> line to Bactrim or Cipro) 100 mg q̄ 12h for 7-12day
<b>Dog Dose:</b>	5 mg/kg PO; 2.5 mg/kg in 12h, then 2.5 mg/kg q̄ 24h for 7-10 days
<b>Horse Dose:</b>	3 mg/kg b.i.d. PO (has been associated with death when given IV)

**metronidazole [Flagyl® R]**

[flä'jyl]

<b>Availability:</b>	tablet: 250 mg metronidazole
<b>Action:</b>	antibacterial (anaerobes) and antiprotozoal (excreted by kidneys 60-80%)
<b>Indications:</b>	Tx of infections due to trichomonas vaginalis \trik'õ'mõ'näs\ or Giardia lamblia \jē'är'dē'ä läm•blī'ä\ (protozoa possessing flagella) (amebic dysentery), anaerobic bacterial infections (peritonitis, intra-abdominal abscess, liver abscess, skin, gynecologic, bone & joint, CNS, ↓ respiratory), for anaerobic gram - infections
<b>Contraindications:</b>	hypersensitivity to drug, 1 <sup>st</sup> trimester pregnancy
<b>Precautions:</b>	possible carcinogen, c̄ hepatic disease,
<b>Side Effects:</b>	nausea, convulsive sizers and peripheral neuropathy (parasthesia of extremity), mouth (metallic taste, furry tongue from <i>Candida</i> overgrowth), darkened urine, dysuria, polyuria, joint pains
<b>Interactions:</b>	not c̄ alcohol (abdominal cramps, N/V, H/A), ↑ anticoagulant effect of warfarin, phentoin or phenobarbital ↑ clearance, cimetidine ↓ clearance, not c̄ disulfiram [Antabuse®] (psychosis), terfenadine, ketoconazole?, not c̄ Seldane®
<b>Dose:</b>	<i>trichomoniasis:</i> 250 mg PO t.i.d. for 7 days {2 gm single dose} <i>amebiasis:</i> 750 mg PO t.i.d. for 5-10 days <i>anaerobic bacterial infections:</i> 7.5 mg/kg PO q̄ 6h (max: 4 g/day) for 7-10 days
<b>Pediatric Dose:</b>	<i>amebiasis:</i> 35-50 mg/kg/day PO t.i.d. for 10 days
<b>Dog Dose:</b>	<i>giardia &amp; trichomoniasis:</i> 30-60 mg/kg/day PO for 5-7 days {25 mg/kg PO b.i.d.} <i>amebiasis:</i> 60 mg/kg/day PO for 5 days <i>anaerobic bacterial infections:</i> 25-50 mg/kg PO q̄ 12h
<b>Horse Dose:</b>	<i>anaerobic bacterial infections:</i> 15-25 mg/kg q.i.d. IM, PO {20-25 mg/kg PO q̄ 12 h}

**miconazole nitrate [Monistat-derm® R, Micatin®]**

mī•kõn'ä•zõl nī'trät []

<b>Availability:</b>	tube: 15g (miconazole nitrate 2% conc)
<b>Action:</b>	topical anti-fungal (imidazole class)

**Indications:** athlete's foot (Tx till gone, could be for 1 month), vaginal yeast infections  
**Precautions:** discontinue use if irritation occurs, not for use in the eye  
**Side Effects:** contact dermatitis, itching, burning  
**Dose:** cover affected area b.i.d.

## Antitussive

### *dextromethorphan hydrobromide [Hold®]*

děks'trō•mēth'or•fān []

**Availability:** lozenge: 5.0 mg dextromethorphan HBr (10 in a plastic tube)  
**Action:** antitussive  
**Indications:** suppresses coughs for up to 4 hrs  
**Contraindications:** chronic cough, or where cough accompanied c̄ excessive sputum  
**Dose:** ñ lozenges q̄ 4 hr  
**Pediatric Dose:** (6-12 h) ï lozenge q̄ 4 hr  
**Dog Dose:** 0.5-2 mg/kg q̄ 6-8 h PO

### *acetaminophen c̄ codeine phosphate [Tylenol #3® R]*

(see Analgesics)

### *acetaminophen c̄ hydrocodone bitartrate [Vicodin® R, Lortabs® R, Anexsia® R]*

(see Analgesics)

## Others

### *lactated ringers [Hartman's Solution]*

**Availability:** 1L bag for IV administration  
**Action:** approximates the electrolyte concentration of blood (isotonic crystalloid)  
**Indications:** hypovolemia  
**Contraindications:** pulmonary edema (CHF), renal failure  
**Precautions:** monitor for circulatory overload  
**Dose:** *bolus:* 150-300 mL IV then reassess  
*KVO:* 10 mL/hr  
**Pediatric Dose:** *bolus:* 20 mL/kg IV, IO then reassess  
**Dog Dose:** *bolus:* 10-40 mL/kg IV, IO then reassess  
*maintenance:* 40-50 mL/kg/day IV  
**Horse Dose:** *bolus:* 5-10 L q̄ 30-60 min  
3-7% NaCl (hypertonic solution): 4-6 mL/kg

### *thiamine hydrochloride (vitamin B<sub>1</sub>)*

thi'ah•mēn

**Availability:** tablet: 300 mg, ampul: 100 mg in 1 mL  
**Action:** required for the metabolism of glucose

**Indications:** coma of unknown origin, alcoholism, delirium //dilir'ē•ŭm// tremens, adjunct in ethylene glycol poisoning therapy

**Dose:** 100 mg IV, IM; 300 mg PO

**Dog Dose:** 2 mg/kg IM, PO  $\bar{q}$  24 h  
*ethylene glycol toxicity:* 100 mg PO  $\bar{q}$  24 h (facilitate glyconate to nontoxic metabolites)

**Appendix A: Poison Control Centers (PCCs)**

The following table presents several well known national poison control centers. In addition, various regional centers may exist.

Rocky Mountain Poison Center	(800) 525-6115
Animal Poison Control Center (University of Illinois)	(217) 333-3611
National Pesticides Telecommunication Network (EPA)	(800) 858-7378
Oklahoma Poison Information Center (snake antivenin)	(800) 522-4611
Pittsburgh Poison Center (Pittsburgh, PA)	(412) 681-6669
Delaware Valley Regional Poison Control Center (Philadelphia, PA)	(215) 386-2100
Northwest Regional Poison Center, St. Vincent Health Center (Eire, PA)	(800) 822-3232

**Appendix B: Normal Values**

	Adult	Pedi	Dog	Horse	Llama
Rectal Temp °F(°C)	99.6(37.5)	99.6(37.5)	99.5(37.5) 102.5(39.2)	99(37.2)-101.3(38.5) 99.5-102.7 foal	
Heart Rate (beats/min)	60-100	85-205(<.25y) 100-190(.25-2y) 60-140(2-10y)	100-130	64-128 (<3m) 40-80 (3m-2y) 28-40 (>2y)	
Respiratory Rate	12-20	40(<.25y) 24(1y)	15-30	10-14	
Daily water consumption gal(L)			?-90 ml/kg	5-12(19-45)	
Urine output ml/kg/day	50 (ml/hr)	24-48	20-100/45	3-18	
Circulating blood volume	5-6 L				

**Appendix C: Common Ailments and Treatments**

- amebiasis                      infection due to ameba characterized by diarrhea, weakness, N/V. Usually treated with metronidazol, and tetracycline.
- live culture yogurt        prophylaxis for yeast infections when using ciprofloxacin

**Appendix D: Medical Abbreviations and Definitions**

agonists	increases, promotes
analgesic	↑ threshold of pain
anaphylaxis	acute allergic reaction characterized by angioedema and urticaria
angioedema	condition characterized by development of urticaria and edematous areas of skin, mucous membranes. Can be fatal if involving the airway.
antagonist	decreases
anticholinergic	effects: drying of mucus secretions, dilated pupils, increased heart rate
ataxia	inability to walk due to defective muscular coordination
athetosis	a condition in which slow, irregular, twisting, snake like movements occur in the upper extremities (esp. hands and fingers), performed involuntarily
$\bar{a}$	before
a.c., p.c.	before meals, after meals
antihistamine	blocks histamine release (group of drugs used to Tx allergy symptoms)
barbituates	
b.i.d.	twice a day
BP	blood pressure
$\bar{c}$	with
CHF	congestive heart failure
COPD	chronic obstructive pulmonary disease (bronchitis, emphysema)
chorea	a nervous condition marked by involuntary muscular twitching of the limbs or facial muscles
CNS	central nervous system
conjunctiva	whites of the eyes
contraindicated	inappropriate form of treatment
corticosteroids	group of drugs having an anti-inflammatory effect on tissue
crystalluria	appearance of crystals in urine, may occur after use of sulfonamides. can be prevented by keeping urine alkali
DT's	delirium tremens develops 2nd-3rd day of alcohol withdrawal, pt experience hallucinations, LOC, seizures (ominous sign)
diaphoresis	sweating
diuretic	drug that promotes water elimination through urination
dyspepsia	painful digestion characterized by vague abdominal discomfort, a sense of fullness $\bar{p}$ eating, heartburn, N/V, loss of appetite. symptoms may occur irregularly
dystonic	impaired muscle tone
dysmenorrhea	painful menstrual period ♀
dyspnea	difficulty breathing
dysuria	difficult or painful urination
edema	swelling
emetic	any agent that induces (causes) vomiting
enteric	pert. to small intestine
ethylene glycol	common component to automotive antifreeze, toxic to kidneys, s/s N/V, abdominal cramps, ataxia, vertigo, stupor, coma, death

ET	endotracheal
EtOH	ethyl alcohol (found in fermented drinks, wine, beer, etc.)
extrapyramidal	outside of the pyramidal tracts of the CNS. Symptoms include: tremors, chorea, athetosis, dystonia (e.g. Parkinsonism like).
GI	gastro-intestinal
gastritis	inflammation of the stomach (pain, tenderness, N/V, electrolyte changes)
glaucoma	disease characterized by increased ↑ pressure within the eye
gtt	drops (fluid measure)
H/A	headache
h	hour
HTN	hypertension, ↑ BP
hepatic	having to do with the liver
hypersensitivity	increased sensitivity, allergy
ICP	intracranial pressure
idiopathic	of unknown origin
IM	intramuscular
inflammation	tissue reaction to injury
IV	intravenously
jaundice	yellowness of the skin and conjunctiva due to bile pigment (liver problems)
kg	kilogram
loading (dose)	initial dosage of drug used to reach therapeutic levels in a minimum of time
LOC	level of consciousness
LR	lactated ringers solution
MAO	monoamine oxidase inhibitors (group of drugs used to Tx depression)
maintenance (dose)	dosage of drug required to maintain a desired effect
malaise	discomfort, uneasiness
mg	miligram
mL	milliLiter
myopic	causes constriction of pupil
mydratic	causes dilitation of pupil
n.p.o.	nothing by mouth
N/V	nausea and vomiting
NSAID	nonstroidal anti-inflammatory drugs
OD	over dose, left eye
OTC	over the counter (not perscription)
otitis media	infection of the inner ear
orthostatic	positional
$\bar{p}$	after
palpitations	a fealing of the heart racing or beating
parasthesia	numbness and tingling usually in extremities
Parkinsons Disease	
PG	prostaglandin
pharanitis	throat infection
pharmacokonetic	study of metabolism and action of drugs, especially absorption, action, & elimination

PID	pelvic Inflammatory disease (usually a sequela of gonorrhoeae)
PO	by mouth
potentate	to increase the effect of
precutaneous	from the surface of the skin
PRN	as needed
pruritis	severe itching
pyretic	having to do with fever
$\bar{q}$	every
q.i.d.	four times a day
renal	having to do with the kidneys
Reye's syndrome	
rhinitis	running nose
s/s	signs and symptoms
$\bar{s}$	without
sedation	calming or lowered level of consciousness
sequela	a condition following or resulting from a disease
sinusitis	inflammation of sinus.
SC	subcutaneously
SL	sublingual (under the tongue)
SOB	shortness of breath
Tardive Dyskinesia	a syndrome consisting of potentially irreversible, involuntary, dyskinetic movements especially of tongue, face, mouth, and jaw.
Tx	treat
t.i.d.	three times a day
tinnitus	ringing in ears (sign of aspirin OD)
tsp	teaspoon
tussive	relating to a cough
UTI	urinary track infection
urticaria	hives (raised red areas on the skin)
vertigo	sensation of moving around, or having objects moving around, in space
	male
♀	female
$\bar{i}$	one
$\bar{ii}$	two, etc.
Ⓛ	left
Ⓡ	right
↑, ↓	increase, decrease
	leading to
@	at

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