

DRAFT: 5 September 1994

Wilderness  
Prehospital Emergency Medicine  
Drug Information (Pocket Version)

## Analgesics

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

### ***acetaminophen [Tylenol®]***

ă•sēt'ă•mīn'ō•fēn [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'pēr•īn (ă•sē'tīl•sāl'ī•sīl'īk) []

**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®, Nuprin®, Motrin®]***

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  $\bar{c}$  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 ( $\downarrow$  compared to aspirin)
- Interactions:** potentates 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;  $\bar{q}$  4 h, PRN
- Pediatric Dose:** (>12 y) 10 mg/kg PO;  $\bar{q}$  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  $\bar{c}$  renal insufficiency, GI bleed, EtoH-ism
- Precautions:**  $\bar{c}$  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 ( $\downarrow$  protein binding, use lower dose)
- Dose:** (lower end dose for pt < 50 kg, > 65 y,  $\bar{c}$   $\downarrow$  renal function)  
30-60 mg IM initially, then 15-30 mg IM, IV;  $\bar{q}$  6h, PRN

### ***acetaminophen $\bar{c}$ hydrocodone bitartrate [Vicodin<sup>®</sup> R, Lortabs<sup>®</sup> R, Anexsia<sup>®</sup> 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 (???),  $\bar{c}$   $\downarrow$  hepatic & renal function
- Side Effects:** allergic reaction to sulfite,  $\uparrow$  ICP,  $\downarrow$  LOC,  $\downarrow$  respirations, N/V, light headedness, less constipating and more sedating than codeine, dries respiratory mucosa
- Interactions:** potentates 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 R***

mor'fēn sul'fāt

- Availability:** ampul or Tubex<sup>®</sup>//tū'bek's// (25 G x 1¼"): 10 mg in 1 mL
- Action:**  $\downarrow$  CNS,  $\downarrow$  pain (max analgesic 60 min  $\bar{p}$  admin ???), peripheral vasodilation
- Indications:** moderate to moderately severe pain, pulmonary edema
- Contraindications:** hypersensitivity, undignosed abdominal pain, respiratory insufficiency or depression, CNS depression, bronchial asthma attack, head injury,  $\uparrow$  intracranial pressure, hypovolemia
- Precautions:** hypotension,  $\downarrow$  respirations (have naloxone available)
- Side Effects:**  $\downarrow$  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:**  $\downarrow$  CNS, emetic, antitussive, myosis, may cause hypothermia, initially stimulates respirations, causes coronary vasoconstriction, will immediately defecate following injecton
- Side Effects Horse:**  $\uparrow$  CNS, may cause hyperthermia, may cause mild colic

- Interactions:** not  $\bar{c}$  MAO inhibitors, potentated by alkalizing agents, antihistamines, alcohol, and other narcotics, antagonized by acidifying agents
- Dose:** IV: 2-5 mg, then 2 mg  $\bar{q}$  few min until  $\downarrow$  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  $\bar{c}$  narcotic dependency (cause withdrawal 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'rid [py'ri'dī•ŭm]

- 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  $\bar{c}$  antibacterials, discontinue  $\bar{c}$  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  $\downarrow$  potentated by EtOH, other analgesics, and narcotics, may block vasopressor action of epinephrine,  $\uparrow$  interocular pressure  $\bar{c}$  atropine, scopolamine

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**Dose:** 2-5 mg q̄ 4-8 h IM, 0.5-5.0 mg b.i.d. or t.i.d. PO, 5 mg q̄ 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

## Muscle relaxants

### *cyclobenziprine hydrochloride [Flexeril® R]*

si'klō•ben'zī'prn hī•drō•klō'rid [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, c̄ arrhythmias, heart blocks, conductance disturbances, CHF

**Precautions:** not effective for muscle spasms associated c̄ cerebral or spinal cord disease, or children c̄ 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:** c̄ 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, hypersensitivity, anaphylaxis, and seasonal allergies. Others are generally used for seasonal allergies.

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

dī'fēn•hī'drā•mēn hī•drō•klō'rid [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•fī'lak'sis//, allergies (rhinitis \rī'nī'tīs\, 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 c̄ mucosal secretions), SOB, enlarged prostate, nursing mothers, caution c̄ hypertension

**Side Effects:** dries bronchial secretions, palpitations, excitability in children, antitussive

**Interactions:** c̄ hypnotics, sedatives, tranquilizers, EtOH to ↑ sedation, potentiates effects of other antihistamines

**Dose:** *allergies:* 25-50 mg q̄ 4-6h PO, IM, IV

*sedation:* 25-50 mg q̄ 4h PO (losses sedative effect after 3-4 days) (elderly or enfeebled patients initial dose of ½ minimal dose is often effective)

**Pediatric Dose:** (↑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 q̄ 8 h

*urticaria & angioedema:* 2 mg/kg IM PRN (c̄ prednisone 2 mg/kg IM bid & epinephrine 0.05-0.2 mg SQ)

*itching:* 25-50 mg PO b.i.d.-t.i.d., *dystonic reactions:* 2-5 mg/kg IV

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

klor'fēn•īr'ā•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 c̄ mucosal secretions), SOB, enlarged prostate, nursing mothers, caution c̄ hypertension

**Side Effects:** anticholinergic (dry mouth, urinary retention), sedation, drowsiness, excitability in children

**Interactions:** potentiates effects of other antihistamines and depressant effects narcotics, not c̄ EtOH

**Dose:** 4 mg q̄ 4-6h PO

**Pediatric Dose:** (6-11 y) 2 mg q̄ 4-6h PO

**Dog Dose:** 4-8 mg q̄ 12h IV, IM, SC, PO (max: 0.5 mg/kg q̄ 24h)

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

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

**Motion Sickness**

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

mĕk'li·zĕn hĭ·drō·klō'rid [bō'nĕn]

**Availability:** tablet: 25 mg meclizine hydrochloride  
**Action:** antihistamine (blocks vasopressor response to histamine)  
**Indications:** N/V, & dizziness  $\bar{c}$  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  $\bar{c}$  alcohol, sedatives, & tranquilizers)  
**Dose:** 12.5-25-50 mg  $\bar{q}$  24h (administer 1h before embarkation)  
**Pediatric Dose:** (> 12y) 25-50 mg  $\bar{q}$  24h (administer 1h before embarkation)  
**Dog Dose:** 25 mg  $\bar{q}$  24h PO (motion sickness: administer 1h before embarkation)

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

skō·pōl'ă·mĕn hĭ·drō·klō'rid [trăns·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:**  $\dot{\bar{i}}$  disc to dry area of skin behind ear (4h before needed) for 3 days

**Decongestants**

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

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

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

ok'sĕ·mĕt'ah·zō'lĕn hĭ·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* $\mathcal{R}$**

**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:** potentiates 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> $\mathcal{R}$ ]**

**Availability:** ampul: 10 mg/mL dexamethasone in 10 mL LR/NS (also 4 mg/mL in 1 mL)  
**Class:** synthetic glucocorticoid //gloo'ko'kor'ti'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:** potentiates 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> $\mathcal{R}$ ]**

hi'drō'kor'ti'sōn  $\bar{c}$  prām'ōk'sēn [prām'ō'sōn]

**Availability:** tube: 1 oz hydrocortisone acetate 1%  $\bar{c}$  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:**  $\bar{c}$  infection use appropriate antifungal or antibacterial agent, if favorable response does not occur promptly then discontinue, if occlusive dressings are used possibility exists for  $\uparrow$  systemic absorption  
**Side Effects:**  $\downarrow$  healing  
**Interactions:** caution  $\bar{c}$  systemic corticosteroids  
**Dose:** apply to affected area t.i.d. or q.i.d.

***triamcinolone acetonide [Kenalog 0.1%® R]***

tri'äm·sîn'ð·lôn []

- 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 ¯ other systemic corticosteroids  
**Dose (All):** apply to affected area b.i.d., t.i.d.

## Gastrointestinal

***calcium carbonate [Tums®]***

käl'sē·üm kär'bôn·ät []

- 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 ¯ other antacids  
**Dose:** 0.5-1.0 g q 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 [pēp·tō·bīs'mōl]

- 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 ¯ anticoagulation, diabetes, & gout, diarrhea + fever  
**Side Effects:** tinnitus (OD), temporary darkening of tongue and/or stool (green-black), constipation  
**Interactions:** additive effect ¯ other salicylates (e.g. aspirin), hydrocortisone, tetracyclines, cipro (may be inactivated or absorption ↓)  
**Dose:** *diarrhea prophylaxis:* ̄ tablets q.i.d.  
̄ tablets q ½-1h PO (max: 8 doses in 24h)  
**Pediatric Dose:** (9-12y) ̄ tablet; (6-9y) 2/3 tablet; (3-6y) 1/3 tablet 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<sup>®</sup> A-D]***

**Availability:** capsule: 2 mg loperamine  
**Action:**  $\downarrow$  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  $\uparrow$  fever, blood in stool  
**Side Effects:** may  $\downarrow$  speed at which enteric microbes are evacuated (prolonging illness)  
**Dose:**  $\bar{ii}$  capsules, then  $\bar{i}$  capsule  $\bar{p}$  loose bowel movement (max: 4 capsules/day)  
**Pediatric Dose:** 2-5y (24-47 lb):  $\frac{1}{2}$  capsule  $\bar{p}$  loose bowel movement (max: 1  $\frac{1}{2}$  capsules/day)  
 6-8y (48-59 lb):  $\bar{i}$  capsule, then  $\frac{1}{2}$  capsule  $\bar{p}$  loose bowel movement (max: 2 capsules/day)  
 9-11y (60-95 lb):  $\bar{i}$  capsule, then  $\frac{1}{2}$  capsule  $\bar{p}$  loose bowel movement (max: 3 capsules/day)  
**Dog Dose:** diarrhea: 0.1-0.2 mg/kg  $\bar{q}$  8-12h PO { $\bar{i}$  capsule/25 kg body weight PO qid} (> 10 kg)

### ***prochlorperazine [Compazine<sup>®</sup> B]***

prō'klor•pēr'ă•zēn [komp'ăh•zēn]

**Availability:** tablet: 10 mg prochlorperazine; ampul: 5 mg/mL in 2 mL ampul  
**Action:** phenothiazide  $\bar{c}$  weak anticholinergic, strong extrapyramidal, & moderate sedative effects, antiemetic  
**Indications:** control of  $\uparrow$  N/V, psychotic disorders (2<sup>nd</sup> line)  
**Contraindications:** comatose states, children < 2y or < 20 lb,  $\bar{c}$  CNS depressants, pregnant or nursing women, pt  $\bar{c}$  bone marrow depression, hypersensitivity to phenothiazide  
**Precautions:** extrapyramidal symptoms (EPS) can be confused  $\bar{c}$  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  $\bar{c}$  glaucoma), interferes  $\bar{c}$  thermoregulation  
**Side Effects:** tardive dyskinesia (rhythmical involuntary movement of tongue, face, mouth, rarely extremities), thiazide diuretics  $\uparrow$  orthostatic hypotension (pressor agents can cause paradoxical  $\uparrow$  hypotension), agitation, insomnia, dystonias (muscle spasm: neck, back, carpo-pedal, tongue, jaw)  
**Interactions:**  $\uparrow$  plasma levels  $\bar{c}$  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: 2  $\frac{1}{2}$  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  $\bar{c}$  fluids only]  
**Dog Dose:** 0.1-0.5 mg/kg  $\bar{q}$  6-8h IM, SC

## **Ophthalmic**

### ***tetracaine hydrochloride (ophthalmic solution) [Pontocaine<sup>®</sup> B, Achromycin<sup>®</sup> B]***

tēt' ră•kān hī' drō•klō' rīd [ak'ro•mī' sin]

**Availability:** 1 mL dropper bottle  
**Action:** local anesthetic of the esterlinkage type (related to procaine)  
**Indications:** anesthetic for eye examination only  
**Contraindications:** hypersensitivity to drug  
**Precautions:** use for exam only, possible eye damage if used  $\bar{s}$  removal of an existing foreign body  
**Interactions:** not  $\bar{c}$  sulfonamides (inhibits action)

Dose (All):  $\dot{\text{i}}\text{-}\ddot{\text{ii}}$  gtt X  $\dot{\text{i}}$  or  $\ddot{\text{ii}}$  (for exam only)

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

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  $\bar{\text{c}}$  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):**  $\dot{\text{i}}$  gtt in effected eye, followed by  $\dot{\text{i}}$  gtt in 5 min (infants use only 0.5% conc)

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

pōl'ē•mīks'īn b bās•ī•trā'sīn [pōl'ē•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 1/2" long (in pocket between eye and ↓ lid, then look down before closing lids)  $\bar{\text{q}}$  3-4 h & @ bedtime

***acetazolamide sodium [Diamox® B]***

as'et•ah•zol'ah•mīd [dīa•mōx]

- Availability:** tablet: 250 mg acetazolamide sodium
- Action:** controls fluid secretion (carbonic anhydrase inhibitor)
- Indications:** edema due to CHF, centrencephalic epilepsies, chronic open-angle glaucoma, acute mountain sickness in climbers attempting rapid ascent
- Contraindications:** when Na, & K blood serum levels ↓, kidney, liver, adrenal dysfunction, hyperchloremic acidosis, 1<sup>st</sup> trimester pregnancy
- Precautions:** ↑ dose does not ↑ diuresis (may ↑ drowsiness & paresthesias)
- Side Effects:** minimal (paresthesias, loss of appetite, polyuria, drowsiness, confusion, photosensitivity)
- Interactions:** aspirin (concomitant administration with high-dose aspirin may result in anorexia, tachypnea, lethargy, coma and death).
- Dose:** acute mountain sickness: 500-1000 mg/day (divided doses) initiate dosing 24-48 hrs before ascent and continue for 48 hrs (or as necessary)

***Fluorescein strips***

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

**Cardiac/Respiratory**

***albuterol (salbutamol) [Proventil® B, Ventolin® B]***

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

- Availability:** metered dose inhalation: 90 μg per inhalation
- Action:** sympathetic agonist ( $\beta_2$  selective, bronchodilatation)
- Indications:** asthma, bronchospasm (associated  $\bar{\text{c}}$  COPD/bronchitis/emphysema)

**Contraindications:** symptomatic tachycardia, hypersensitivity to drug  
**Precautions:** monitor vitals, EKG, caution  $\bar{c}$  known heart disease  
**Side Effects:** palpitations, anxiety, headache, dizziness & sweating, tremor  
**Interactions:** potentiates action of other sympathetic agonists (minimal)  
**Dose:** metered inhaler: 2 sprays (90  $\mu$ g/spray)  $\bar{q}$  4-6h  
**Pediatric Dose:** (> 12y) 0.15 mg/kg in 2.5 mL NS

**epinephrine 1:1000 (adrenalin) [EpiPen<sup>®</sup> R, Ana-kit<sup>®</sup> R]**

ep'ĩ·nef'rin (ã·drẽn'ã·lĩn) []

**Availability:** auto-injector: 0.3 mg epinephrine per injection ampul: 1 mg/mL in 1 mL vial  
**Action:** sympathetic agonist (bronchodilatation, inotrope, chronotrope)  
**Indications:** emergency Tx of allergic reactions (anaphylaxis), bronchial asthma  
**Contraindications:** no absolute contraindications if indicated, tachyarrhythmias, hypertension  
**Precautions:** monitor vitals, and EKG; protect from light and cold, if  $\bar{c}$  overuse of  $\beta$  agonists it may cause cardiac arrest  
**Side Effects:** palpitations, tachycardia, anxiety, tremor, H/A, N/V, arrhythmias  
**Interactions:** potentiates action of other sympathetic agonists, effects potentated by tricyclic antidepressants and MAO inhibitors  
**Dose:** 0.3 - 0.5 mg SQ  $\bar{q}$  20 min  
**Pediatric Dose:** 0.01 mg/kg to 0.3 mg SQ  $\bar{q}$  20 min  
**Dog Dose:** bronchoconstriction & anaphylaxis: 0.02 mg/kg to 0.5 mg SQ, IM  $\bar{q}$  20-30 min  
**Horse Dose:** anaphylaxis: 3-8 mg per 450 kg IM, SQ

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

ni'fed'ĩ·pẽn [pro·kar'de·ah]

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

**ciprofloxacin [Cipro<sup>®</sup> R]**

**Availability:** tablet: 250, 500, 750 mg ciprofloxacin  
**Action:** broad spectrum antibiotic interferes  $\bar{c}$  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  $\bar{c}$  anaerobes  
**Precautions:** may cause CSN stimulation, discontinue  $\bar{c}$  hypersensitivity (skin rash, lip edema)  
**Side Effects:** crystalluria in animals  $\bar{c}$  alkaline urine (keep pt well hydrated), dizziness, lightheadness, N/V, diarrhea  
**Interactions:** prolongs halflife of theophylline, antacids containing magnesium or aluminum can interfere  $\bar{c}$  absorption  
**Dose:** UTIs: 250 mg  $\bar{q}$  12h; others: 500-750 mg  $\bar{q}$  12h (continue +2days after s/s have dissappeared; usually 1-2 weeks)  
**Dog Dose:** UTIs: 5-8 mg/kg  $\bar{q}$  12h PO; skin & bone: 10-15 mg/kg  $\bar{q}$  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® B]**

[ro•sef in]  
**Availability:** vial: 1g ceftriaxone crystalline powder (IM/IV: reconstitute  $\bar{c}$  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  $\bar{c}$  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  $\frac{1}{2}$ -2 hr before surgery (x1)  
**Pediatric Dose:** 50-75 mg/kg/day (in 2 divided doses) IV, IM (max: 2 gm/day)

**erythromycin [Erythrocin® B]**

ě•rith rō•mí 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,  $\uparrow$  growth of fungi ( $\bar{c}$  long term use)  
**Interactions:**  $\uparrow$  theophylline levels (potential for toxicity),  $\uparrow$  carbamazepine levels in children using this drug (toxicity: ataxia, dizziness, N/V),  $\uparrow$  cyclosporine levels,  $\uparrow$  vasospasm associated  $\bar{c}$  argotamine (Tx of migraine), terfenadine??, not  $\bar{c}$  Seldane® or Hismanol®,  $\downarrow$  effect of Procaine [Novocain®], not  $\bar{c}$  hypoglycemic agents (induces hypoglycemia)  
**Dose:** 1 g/day in divided doses (250 mg q.i.d.) for at least 10 days (dosage may be  $\uparrow$  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  $\bar{q}$  8h PO {5-20 mg/kg  $\bar{q}$  8-12h PO}  
**Horse Dose:** 10 mg/kg  $\bar{q}$  6h PO

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

mí•kōn'ă•zōl ní trāt []  
**Availability:** tube: 15g (miconazole nitrate 2% conc)  
**Action:** 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  $\bar{c}$  excessive sputum  
**Dose:**  $\bar{n}$  lozenges  $\bar{q}$  4 hr  
**Pediatric Dose:** (6-12 h)  $\bar{i}$  lozenge  $\bar{q}$  4 hr  
**Dog Dose:** 0.5-2 mg/kg  $\bar{q}$  6-8 h PO

## 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  $\bar{q}$  30-60 min  
           3-7% NaCl (hypertonic solution): 4-6 mL/kg

### Thiamine hydrochloride (vitamin B<sub>1</sub>)

**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)

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

	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				