EPEC-O

Education in **P**alliative and **E**nd-of-life **C**are - **O**ncology

Participant's Handbook

Medication Tables

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EPEC-O: Education in Palliative and End-of-life Care for Oncology.

ISBN: 0-9714180-9-8

The EPEC Project™ was created with the support of the American Medical Association and the Robert Wood Johnson Foundation. The EPEC-O curriculum is produced by The EPEC Project™ with major funding provided by the National Cancer Institute, with supplemental funding provided by the Lance Armstrong Foundation. The American Society of Clinical Oncology partners with the EPEC-O Project in dissemination of the EPEC-O Curriculum. Acknowledgment and appreciation are extended to Northwestern University's Feinberg School of Medicine, which houses The EPEC Project.

Special thanks to the EPEC-O Team, the EPEC-O Expert Panel, and all other contributors.

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Medication tables

The medication tables that follow list medications commonly used in palliative medicine. They may serve as a reference tool for clinicians in the United States.

Several caveats should be noted:

- the dosage forms may not be limited–the ones listed and will likely change over time
- only the common adverse effects (AE) and drug interactions are listed
- the listed trade names either represent the only product available, or one that is commonly known

For a complete, up–to–date list of the products available, adverse effects, and drug interactions, refer to the current PDR.

Adverse effects

Adverse effects may be allergic, idiosyncratic, or dose–related extensions of known effects. They may increase with the number of different medications and the dosage. In the presence of liver or renal failure, adverse effects may emerge if dosage/frequency is not adjusted downward. If adverse effects occur, reduce or stop offending medications and provide appropriate antidotes.

As medications may have many effects, they may also produce many different adverse effects. In some instances, they occur frequently enough–be grouped as below:

Adverse Effect Group	Possible Adverse Effects
anti–cholinergic AE	Dry mouth, decreased GI motility, constipation, tachycardia, urinary retention, mydriasis (= pupil dilatation), cycloplegia (= paralysis of ciliary muscle, of accommodation → blurred vision). May lead–restlessness, confusion, hallucinations, memory impairment and delirium. May precipitate acute glaucoma
CNS excitation	Euphoria, restlessness, agitation, vivid dreams, nightmares, hallucination, myoclonus (jerks/twitches), focal motor or grand mal seizures
Extra pyramidal (EPS)	Early effects (usually dose related): acute dystonic reactions: torticollis (= cervical muscle spasm → unnatural twisting of head), opisthotonos (= a tetanic spasm with head and heels bent backward, body bowed forward), tics, grimacing, dysarthria, oculogyric crisis. Rx diphenhydramine 25–50 mg PO: IM, IV q 4 h PRN parkinsonian reactions: tremor, bradykinesia, rigidity, abnormalities of gait and posture. Rx benztropine (Cogentin ®) 1–2 mg IV, IM acutely then 1–2 mg PO daily–bid akathisia: sense of constant motor restlessness. Rx benztropine 1–2 mg PO daily–bid Late effects: tardive dyskinesia: involuntary movements of lips, tongue, jaws, extremities. May persist indefinitely after medication is stopped. Antidopaminergic drugs may suppress these movements
Hypersensitivity	Rash, urticaria, bronchospasm, laryngeal or angioneurotic edema. In extreme cases, anaphylactic shock.
Signs of electrolyte imbalance, dehydration	Dry mouth, thirst, weakness, lethargy, drowsiness, restlessness, muscle pain/cramps, muscle fatigue, hypotension (may be orthostatic), oliguria, tachycardia, nausea/vomiting
Upper gastrointestinal (GI)	Nausea, vomiting, dyspepsia. May include erosions, ulceration, bleeding. Rx misoprostol 200 μg PO q 6 h or histamine H_2 receptor antagonists (see Antacids)

Abbreviations, Symbols

Routes of Administration	
PO	per os, by mouth
PR	per rectum, by the rectum
IM	intramuscular
IV	intravenous
SC	subcutaneous
SL	sublingual
TD	transdermal
Others	
COX–2	Cyclooxygenase–2 selective inhibitor. may have less gastrointestinal, renal, and anti–platelet adverse effects
ER	Extended/sustained release (extended/sustained release tablets must be taken intact, never broken or crushed)
IR	Immediate release (tabs are IR unless noted)
ODT	Orally dissolving tabs
MAOI	Monoamine oxidase inhibitor
NA	Not available
NS	Normal saline
NSAID	Nonsteroidal anti–inflammatory drug
PDR	Physicians' Desk Reference, Medical Economics Company, Inc., 1999
SSRI	Selective serotonin reuptake inhibitor
TCA	Tricyclic antidepressant
↑	Upper dose limited only by need and adverse effects
†	Fixed–dose combinations not recommended in young children
††	Dose varies depending on condition being treated
☺	Insufficient experience in the pediatric population. If these drugs need–be used, consultation is appropriate
☺☺	Insufficient experience in the pediatric Population for this indication, although the drug may be used for other reasons. If these drugs need–be used, consultation is appropriate

Medication information resources

Micromedex Healthcare Series, Thompson Healthcare, Inc. 2005

Goodman & Gilman's The Pharmacologic Basis of Therapeutics, Tenth Edition, McGraw-Hill Medical Publishing Division, 2001

American Hospital Formulary Service (AHFS) Drug Information 2005, American Society of Health-System Pharmacists, Bethesda, MD

Palliative Care Formulary, Second Edition, Radcliffe Medical Press, UK, 2002

Medication table – alphabetical index

This alphabetic index is included to assist in locating a specific medication in the tables that are sorted by Therapeutic Group Medications in the *miscellaneous* group appear at the end of the medication tables.

Generic name	Therapeutic group	Generic name	Therapeutic group	Generic name	Therapeutic group
Acetaminophen	Analgesic	Flurbiprofen	Analgesic	Nortriptyline	Depression
Acetylsalicylic acid (ASA)	Analgesic	Fosphenytoin	Miscellaneous	Octreotide	Diarrhea
Albuterol	Dyspnea	Furosemide	Ascites	Olanzapine	Delirium
Alginic acid	Nausea	Gabapentin	Pain	Omeprazole	Nausea
Alprazolam	Anxiety	Glycerin	Constipation	Ondansetron	Nausea
Aluminum or magnesium hydroxide	Constipation	Glycopyrrolate	Drying	Orphenadrine	Miscellaneous
Amitriptyline	Depression	Haloperidol	Delirium	Oxandrolone	Anorexia
Atropine	Drying	Hesperidins	Analgesic	Oxazepam	Anxiety
Attapulgite	Diarrhea	Hyaluronidase	Miscellaneous	Oxybutynin	Miscellaneous
Baclofen	Miscellaneous	Hydrocodone	Cough	Oxycodone	Analgesic
Belladonna & opium	Miscellaneous	Hydrocodone + Acetaminophen	Analgesic	Oxycodone + Acetaminophen	Analgesic
Bethanechol	Miscellaneous	Hydrocodone + Ibuprofen	Analgesic	Oxycodone + Aspirin combinations	Analgesic
Bisacodyl	Constipation	Hydromorphone	Analgesic	Paroxetine	Depression
Bismuth subsalicylate	Diarrhea	Hydroxyzine	Miscellaneous	Pemoline	Depression
Bupropion	Depression	Hyoscyamine	Drying	Perphenazine	Delirium
Capsaicin	Pain	Ibuprofen	Analgesic	Phenazopyridine	Miscellaneous
Carbamazepine	Pain	Imipramine	Depression	Phenobarbital	Sedation
Celecoxib	Analgesic	Indomethacin	Analgesic	Phenytoin	Miscellaneous
Chlorpromazine	Delirium	Ketoprofen	Analgesic	Piroxicam	Analgesic
Choline magnesium trisalicylate	Analgesic	Ketorolac	Analgesic	Prednisone	Steroids
Cimetidine	Nausea	Lactulose	Constipation	Prochlorperazine	Nausea
Clomipramine	Depression	Lansoprazole	Nausea	Promethazine	Nausea
Clonazepam	Anxiety	Levorphanol	Analgesic	Protriptyline	Depression
Codeine	Analgesic	Lidocaine	Pain	Psyllium	Constipation
Codeine + acetaminophen	Analgesic	Lidocaine + prilocaine	Pain	Quetiapine	Delirium
Cyclobenzaprine	Miscellaneous	Loperamide	Diarrhea	Quinine sulfate	Miscellaneous
Cyproheptadine	Miscellaneous	Lorazepam	Anxiety	Ranitidine	Nausea
Dantrolene	Miscellaneous	Magnesium citrate	Constipation	Risperidone	Delirium
Desipramine	Depression	Magnesium hydroxide	Constipation	Salsalate	Analgesic
Dexamethasone	Steroids	Meclizine	Miscellaneous	Scopolamine	Drying
Dextroamphetamine	Depression	Megestrol acetate	Anorexia	Sennosides	Constipation
Dextromethorphan	Cough	Methadone	Analgesic	Sertraline	Depression
Diazepam	Anxiety	Methocarbamol	Miscellaneous	Silver sulfadiazine	Skin
Diclofenac	Analgesic	Methylphenidate	Depression	Simethicone	Miscellaneous
Dicyclomine	Miscellaneous	Metoclopramide	Nausea	Sodium phosphate	Constipation
Diflunisal	Analgesic	Metolazone	Ascites	Sorbitol	Constipation
Diphenhydramine	Delirium	Metronidazole	Skin	Spironolactone	Ascites
Diphenoxylate	Diarrhea	Mexiletine	Pain	Sucralfate	Nausea
Docusate sodium or calcium	Constipation	Midazolam	Anxiety	Sulindac	Analgesic
Doxepin	Depression	Mineral Oil	Constipation	Theophylline	Dyspnea
Dronabinol	Nausea	Mirtazapine	Depression	Tramadol	Analgesic
Droperidol	Nausea	Misoprostol	Nausea	Trazodone	Depression
Etodolac	Analgesic	Morphine, ER	Analgesic	Trimethobenzamide	Nausea
Famotidine	Nausea	Morphine, IR	Analgesic	Trimipramine	Depression
Fentanyl	Analgesic	Nabumetone	Analgesic	Valproic acid	Pain
Flavoxate	Miscellaneous	Nandrolone decanoate	Anorexia	Venlafaxine	Depression
Flecainide	Pain	Naproxen	Analgesic	Zolpidem	Insomnia
Fludrocortisone acetate	Steroids	Nefazodone	Depression		
Fluoxetine	Depression	Nifedipine	Miscellaneous		

Common analgesics

Generic name	Trade name(s)	Dosage forms available	Time $_{Cmax}$	Elimination $t_{½}$	Route of elimination	Usual dosing	Recommended maximum dosing
Acetaminophen							
Acetaminophen (paracetamol)	Various, Tylenol ® Plain and Extra Strength are examples	tabs: 325, 500 mg elixir: 80 mg/0.8 ml, 160 mg/5 ml supp: 120, 325, 650 mg, 81 mg chew	PO: 1–2 hr PR: 107–288 minutes	2–4 hr in normal individuals	Liver metabolism: 25% on first pass through the liver Renal Excretion: 1%–4% unchanged	325–650 mg PO PR q 4 h routinely or PRN	650 mg PO PR q 4 h (4 g/24h)
NSAIDs and ASA							
Acetylsalicylic acid (ASA) (salicylic acid derivative)	Various, Aspirin ® is an example	caplets, tabs: 325, 500, 975 mg children's tab: 80 mg EC tabs: 81, 325, 500 mg elixir: 80 mg/ supp: 300, 600 mg	PO: buffered tablet: 20 minutes PO: effervescent solution: 15 minutes	4.7–9 hr (average 6 hr) The half-life is dose–related	Liver metabolism Renal Excretion: 5.6%–35.6%	325–650 mg PO, PR q 4 h routinely or PRN	650 mg PO PR q 4 h (5 g/24h)
Celecoxib (COX–2 selective)	Celebrex ®	cap:100, 200, 400 mg	PO: ≈ 3 hr	11 hr	Liver metabolism: extensive Renal Excretion: 27% Less than 3% of a dose is eliminated as unchanged drug Feces: 57%	100–200 mg PO bid	200 mg PO bid
Choline magnesium trisalicylate (salicylic acid derivative)	Trilisate ®	tab: 500, 750, 1000 mg salicylate elixir: 500 mg/5 ml	PO: tab: 1.5–2 hr Elixir:: 3.5 hr	2–12 hr Dose–dependent; higher doses produce longer half-life	Hydrolysis in GI–salicylates Liver metabolism Renal Excretion: 5.6%–35.6%	1–1.5 g PO q 12 h or 0.5–1.0 g PO q 8 h	1.5 g PO q 8 h (4.5 g/24h)
Diclofenac (acetic acid derivative)	Various, Cataflam ®, Voltaren ® are examples	IR tabs: 50 mg ER tabs: 25, 50, 75, 100 mg (with 200 mcg misoprostol: Arthrotec ® 50, 75 mg)	IR: (diclofenac potassium): 1 hr (range 0.33–2 hr) ER: (diclofenac sodium): 2 hr (range 1–4 hr) PR: 30 minutes	2 hr	Liver metabolism: extensive first–pass Renal Excretion: 65% Bile: 35%	IR: 50–75 mg PO PR q 6–8 h or ER 75–100 mg PO q 8–12 h	50 mg IR PO q 6 h or 75 mg ER PO q 8 h (225 mg/24h)

Generic name	Trade name(s)	Dosage forms available	Time $_{Cmax}$	Elimination $t_{½}$	Route of elimination	Usual dosing	Recommended maximum dosing
Diflunisal (salicylic acid derivative)	Various, Dolobid ® is an example	tabs: 500 mg	PO: 2–3 hr	8–12 hr Half-life is dependent on the dose	Liver metabolism: extensive Renal Excretion: 80%–90% Feces: less than 5%	250–500 mg PO q 8–12 h	500 mg PO q 8 h (1.5 g/24h)
Etodolac (acetic acid derivative)	Various, Lodine ® is an example	IR tabs: 200, 300, 400, 500 mg ER tabs: 400, 500, 600 mg	PO IR: 1–2 hr PO ER: 3–12 hr	6–7 hr	Liver metabolism: extensive Renal Excretion: 72% Feces: 16%	200–500 mg PO q 6–12 h	400 mg PO q 8 h ER: 1,200 mg daily
Flurbiprofen (propionic acid derivative)	Various, Ansaid ® is an example	tabs: 50, 100 mg	PO: 1.5–2 hr	5.7 hr	Liver metabolism: extensive Renal Excretion: 95%	50–100 mg PO q 12 h	200–300 mg/24h
Ibuprofen (propionic acid derivative)	Various, Motrin ® is an example	tabs: 200, 400, 600, 800 mg elixir: 40 mg/1 ml, 100 mg/5 ml	PO: 1.4–1.9 hr	1.8–2 hr	Liver metabolism: extensive Renal Excretion: Major route	200–800 mg PO q 6–8 h	800 mg PO q 6 h (3.2 g/24h)
Indomethacin (indole)	Various, Indocin ® is an example	IR tabs: 25, 50 mg ER tabs: 75 mg supp: 25 mg/5 ml	PO: 2 hr	4.5 hr	Liver metabolism: extensive Renal Excretion: 60% ≈ 26% eliminated as unchanged drug Feces: 33%	25–75 mg PO q 8–12 h or 75 mg ER PO q 12–24 h	50 mg PO q 6 h (200 mg/24h)
Ketoprofen (propionic acid derivative)	Various, Orudis ® is an example	cap: 12.5, 50, 75 mg ER tabs: 100, 200 mg	PO IR: 1.2–2 hr PO ER: 6.8–9.2 hr	2–4 hr ER is 5.4 +/– 2.2 hr	Liver metabolism Renal Excretion: 80%; Bile: up to 40%	150–200 mg PO/24h IR: q 6–8 h ER: q 12–24 h	75 mg PO q 6 h (300 mg/24h)
Ketorolac (acetic acid derivative)	Various, Toradol ® is an example	tab: 10 mg inj: 15, 30 mg/ml	PO: 44 minutes IM: 30–45 minutes IV: 1–3 minutes	5.6 hr	Liver metabolism Renal Excretion: 92% excreted in the urine; (60.6%) as unchanged drug Feces: 5.9%–6.3%	10 mg PO qid or 60 mg IM, IV loading dose, then 10–30 mg IM, IV q 6 h	40 mg PO/24h or 120 mg IM, IV /24h
Nabumetone	Various, Relafen ® is an example	tab: 500, 750 mg	PO: 3–6 hr	Nabumetone (pro–drug): unknown Active metabolite (6–methoxy–2–naphthylacetic acid): 24 hr	Liver metabolism: extensive Renal Excretion: 80% Feces: 10%	1–2 g PO q 12–24 h	1 g PO q 12 h (2 g/24h)

Generic name	Trade name(s)	Dosage forms available	Time $_{Cmax}$	Elimination $t_{½}$	Route of elimination	Usual dosing	Recommended maximum dosing
Naproxen (propionic acid derivative)	Various, Naprosyn ® is an example	IR tabs: 220, 275, 250, 375, 500, 550 mg ER tab: 375, 500 mg	PO IR: naproxen: 2–4 hr, naproxen sodium: 1–2 hr PO ER: 3 hr Topical, gel: 24 hr	12–15 hr	Liver metabolism: extensive Renal Excretion: 95%	250–500 mg PO q 8–12 h	500 mg PO q 8 h (1.5 g/24h)
Piroxicam (oxicam)	Various, Feldene ® is an example	caps: 10, 20 mg	PO: 3–5 hr	50 hr; range:30–86 hr	Liver metabolism: extensive Renal Excretion: moderate; 5%–10% of a dose is eliminated as unchanged drug Feces: small	10–20 mg PO q 12–24 h	20 mg PO q 12 h (40 mg/24h)
Salsalate (salicylic acid derivative)	Various, Disalcid ® is an example	tabs: 500, 750 mg	PO: 1.4 hr	1 hr	Liver metabolism: < 1% appears as unchanged salsalate. The remainder is excreted as salicylic acid or metabolites of salicylic acid.	1,000–1,500 mg PO bid	3,000 mg/day
Sulindac (indole)	Various, Clinoril ® is an example	tabs: 150, 200 mg	PO: 1 hr	Sulindac: 7.8 hr Active Metabolite: 16.4 hr	Liver metabolism: extensive Sulindac has no pharmacologic activity and must be metabolized–the pharmacologically active metabolite Renal Excretion: 50% Feces: 25%	150 mg PO q 12 h	200 mg PO q 12 h (400 mg/24h)
Opioids							
Codeine (alone) (methylmorphine, naturally occurring opioid metabolized into morphine)	Various	IR tabs: 15, 30, 60 mg elixir: 15 mg/5 ml inj: 15, 30 mg/ml	PO: 1–2 hr IM: 30 minutes PR: 30 minutes	2.5–3.5 hr	Liver metabolism: 24–89% (metabolized to morphine) Renal Excretion: 90% (3–16% of unchanged drug) Feces: about 5%	15–60 mg PO, SC, IM q 4 h routinely or q 1 h PRN	600 mg/24h

Generic name	Trade name(s)	Dosage forms available	Time $_{Cmax}$	Elimination $t_{½}$	Route of elimination	Usual dosing	Recommended maximum dosing
Codeine + acetaminophen combinations	Various, Tylenol # 3, 4 ® are examples	tabs: 30, 60 mg codeine + 325 mg acetaminophen (may include caffeine, butalbital)	Codeine: PO: 1–2 hr Codeine PR: 30 min APAP: PO: 1–2 hr APAP: PR: 107–288 min	Acetaminophen: 4 hr Codeine: 2.5–3.5 hr	Codeine and Acetaminophen: see above.	1–2 tabs PO q 4 h routinely or PRN	limited to 12 tabs/24h by acetaminophen
Fentanyl	Various, Duragesic,® Actiq,® Sublimaze ® are examples	patch: 25, 50, 75, 100 mcg/hr lozenge: 200, 400, 600, 800, 1200, 1600 mcg inj: 50 mcg/ml	Epidural: 30 minutes Transmucosal: 20–40 minutes Transdermal patch: 24–72 hr	≈ 4 hr Transdermal patch: 17 hr	Liver metabolism: to inactive metabolites Renal Excretion: 75% (metabolites); 10% (unchanged drug) Feces: 9%	patch: 25–↑ mcg/h q 72 h lozenge: 200 μg q 1 h titrate PRN	limited only by need and adverse effects
Hydrocodone + acetaminophen	Various, Vicodin,® Lortab,® Norco ® are examples	tabs: 5/500, 5/325, 7.5/325, 7.5/500, 7.5/750, 10/325, 10/500, 10/660 elixir: 7.5/500 in 15 ml	PO: 1.3 hr for hydrocodone	Hydrocodone: 3.8–4.5 hr Acetaminophen: see above	Liver metabolism: Acetaminophen: see above Hydrocodone: extensive active metabolites Renal excretion: 26%	1–2 tabs PO q 4–6 h routinely or PRN	limited to 4 g acetaminophen in 24 h
Hydrocodone + ibuprofen	Vicoprofen®	tab: 7.5/200	PO: within 2 hr (both components)	Hydrocodone 3.8–4.5 hr Ibuprofen 1.8–2 hr	Liver metabolism: see above Renal excretion: see above	1–2 tabs PO q 4–6 h routinely or PRN	limited–2,400 mg ibuprofen in 24 h
Hydromorphone	Various, Dilaudid,® Palladone® are examples	IR tabs: 2, 4, 8 mg ER capsules: 12, 16, 24, 32 mg elixir: 1 mg/ml inj: 1, 2, 4, 10 mg/ml powder: 250 mg/vial supp: 3 mg	PO IR: 48–60 minutes PO ER: 12 – 16.5 hr Epidural: 8 minutes	IR: ≈ 3-4 hr	Liver metabolism: extensive Renal excretion: As hydromorphone 1.3%–13.2% Conjugates: 22%–51%	1–↑ mg: PO q 4 h routinely or q 1 h PRN, SC, IM q 3 h routinely or q 30 min PRN, SC, IV q 1 h via infusion + breakthrough q 30 min PRN	limited only by need and adverse effects
Levorphanol	Levo–Dromoran®	tab: 2 mg	PO: 1 hr	11 hr; With chronic PO dosing, the half-life can be as long as 30 hr	Liver metabolism: extensive Renal excretion: extensive as conjugate	2–↑ mg PO q 6–8 h	limited only by need and adverse effects

Generic name	Trade name(s)	Dosage forms available	Time $_{Cmax}$	Elimination $t_{½}$	Route of elimination	Usual dosing	Recommended maximum dosing
Meperidine (pethidine) (synthetic opioid not related–morphine, Useful for rigors)	Various, Demerol ® is an example	tabs: 50, 100 mg inj: 50, 75, 100 mg/ml syrup: 10mg/1ml, 25 mg/1 ml, 50 mg/5 ml	PO: ≈ 1 hr IM: 25 minutes	Meperidine 3.2–3.7 hr Active metabolite: 24–48 hr	Liver metabolism: 50% first pass through the liver Renal Excretion: 0.5%–5.2% (average 2.2%) unchanged Active metabolite, normeperidine, excreted 0.6%–21% (average 6.2%) unchanged in the urine	50–150 mg PO IM, SC, IV q 4 h PRN NOT RECOMMENDED FOR CHRONIC DOSING as active metabolite, normeperidine may produce adverse effects	150 mg q 3–4 h, 900–1200 mg/24h
Methadone	Various, Dolophine ® is an example	tab: 5, 10, 40 mg elixir: 1, 2, 10 mg/ml	PO: 2–4 hr	Methadone: 23 hr Metabolite: 39.8–48 hr After a single PO dose, half-life is biphasic with an initial phase range of 12–24 hr and a secondary phase of up to 55 hr	Liver metabolism: 4 times greater after PO administration than after IM administration	5 mg PO q 8 h Titrate dose q 3–5 days due–delayed clearance	limited only by need and adverse effects
Morphine, IR	Various	IR tabs: 10, 15, 30 mg elixir: 1, 2, 20 mg/ml supps: 5, 10, 20, 30 mg inj: 1, 2, 8, 10, 15, 25, 50 mg/ml	Buccal: 5 hr (range 1.5–12 hr) Colostomy, suppository: 0.5–1 hr Epidural/Intrathecal: 5–10 minutes IV/IM: 10–60 minutes Inhalation (nebulized): 10–45 minutes PO IR: 1 hr PO ER: 8.4 hr PO ER: capsules (Avinza): 30 minutes PR: using PO ER: 5.4–6.7 hr PR: supp IR: 0.75–1 hr SC: 30 minutes	4 hr	Liver metabolism: ≈ 90% of a given dose is conjugated–morphine–3–glucuronide (M3G) and morphine–6–glucuronide (M6G-active) Renal Excretion: 90% (metabolites and free drug) within 24 hr The pharmacokinetics of morphine are altered in renal failure. Clearance is decreased. M3G and M6G accumulate several fold with associated risk of toxicity Feces: 7–10%	1–↑ mg: PO PR q 4 h Routinely or q 1 h PRN, SC, IM q 3h routinely or q 30 min PRN, or SC, IV q 1 h via infusion + breakthrough q 30 min PRN	limited only by need and adverse effects
Morphine, ER	capsule: Kadian ® tabs: Ora–Morph–ER,® MS– Contin ® Avinza®	Kadian ® capsules: 20, 50, 100 mg (q 12–24 h) MS–Contin ® tabs: 15, 30, 60, 100, 200 mg (q 8–12 h) Ora–Morph–ER ® tabs: 15, 30, 60, 100 mg (q 8–12 h) (Kadian ® capsules may be opened and pellets mixed with fluids or soft food)				10–↑ mg: PO/PR q 8–24 h routinely only (depending on product). Provide breakthrough doses using IR morphine q 1 h PRN.	limited only by need and adverse effects

Generic name	Trade name(s)	Dosage forms available	Time $_{Cmax}$	Elimination $t_{½}$	Route of elimination	Usual dosing	Recommended maximum dosing
Oxycodone (alone)	IR: various ER: OxyContin ®	IR tabs: 5, 10, 15, 30 mg ER tabs: 10, 20, 40, 80 mg elixir: 1, 20 mg/ml	PO IR: 1.6 hr PO ER: 2.1–3.2 hr	PO IR: 4 hr PO ER: 4.5–8 hr	Liver metabolism: extensive Renal Excretion: extensive with approximately 20% unchanged	5–↑ mg IR PO PR q 4 h routinely, or q 1 h PRN or 10–↑ mg ER PO q 12 h	limited only by need and adverse effects
Oxycodone + Acetaminophen combinations	Various, Percocet ® is an example	5 mg oxycodone + 325 mg acetaminophen 5/500,7.5/325, 7.5/500, 10/325, 10/650 (may include caffeine)	See above	4 hr for oxycodone 2–4 hr for acetaminophen	See above	1–2 tabs PO q 4 h routinely or PRN	limited to 12 tabs/24h by acetaminophen
Oxycodone + Aspirin combinations	Various, Percodan® is an example	5 mg oxycodone + 325 mg ASA (may include caffeine)	See above	Oxycodone: 4 hr ASA: 4.7–9	Renal Excretion: approximately 20% unchanged See above	1–2 tabs PO q 4 h routinely or PRN	limited to 12 tabs/24h by ASA
Tramadol	Ultram ®	tab: 50 mg	PO: 2 hr	Tramadol: 6.3 hr Metabolite: 7.4 hr	Liver metabolism: extensive Renal Excretion: 30% excreted in the urine as unchanged drug, 60% of the dose is excreted as metabolites	1–2 tabs PO q 6 h	2 tabs PO q 6 h

Extracted and updated from:

– Ferris FD, Flannery JS, McNeal HB et al, eds. Medication Table, in *Module 4: Palliative Care, A Comprehensive Guide for the Care of Persons With HIV Disease.* Toronto, Ontario: Mount Sinai Hospital and Casey House Hospice; 1995:162–166.

– *Physicians' Desk Reference*. Montvale, NJ: Medical Economics Company, Inc; 1999.

EQUIANALGESIC DOSES OF OPIOID ANALGESICS

ORAL/RECTAL DOSE (MG)	ANALGESIC	PARENTERAL DOSE (MG)
150	Codeine	50
–	Fentanyl	0.050
15	Hydrocodone	–
3	Hydromorphone	1
2	Levorphanol	1
150	Meperidine (pethidine)	50
15	Morphine	5
10	Oxycodone	–

When converting–or from transdermal fentanyl patches, published data suggest that a 25–μg patch is equivalent to 45–135 mg of oral morphine/24h. However, clinical experience suggests that most patients will use the lower end of the range of morphine doses, ie, for most patients 25 μg is ≈ 50 mg of oral morphine/24h

Other medications used in palliative care

Generic name	Trade name(s), dosage forms	Time Cmax	Elimination t½	Route of elimination	Adult doses	Pediatric doses	Adverse effects	Common interactions
Anorexia (appetite stimulants)								
Megestrol acetate Progestin for appetite stimulation	Megace ®: tabs: 20, 40 mg suspension: 40 mg/ml	PO: tablet: 1–3 hr PO: suspension: 3–5 hr	13–105 hr (mean 34 hr)	Liver metabolism: 5–8%. Renal Excretion: 57%–78% Feces: 8% and 30%	doses up–800 mg PO daily may be useful	☺	• gynecomastia • deep vein thrombophlebitis, pulmonary embolism • alopecia • hyperglycemia • dyspnea • vaginal bleeding following withdrawal	• none significant
Nandrolone decanoate Anabolic steroid	Deca–Durabolin ®: inj: 100, 200 mg/ml	IM: 24 hr	6–8 days	Liver metabolism: Renal excretion: unchanged Nandrolone and its metabolites	50–100 mg IM q 3–4 wk up–12 wk may repeat after 4-–wk rest	☺	• nausea, vomiting, peptic ulcer • diarrhea • increased or decreased libido	• PO: anticoagulants • oxyphenbutazone • insulin
Oxandrolone Anabolic steroid for weight gain	Various, Oxandrin ® is an example: tabs: 2.5, 10 mg	IM: 24 hr	6–8 days	Liver metabolism: Renal Excretion: unchanged Oxandrolone, 29%	2.5 mg bid–qid for 2–4 wk, then intermittently–maintain weight	≤ 0.1 mg/kg	• cholestatic jaundice • elevated liver function tests • virilization	• anticoagulants
Anxiety (anxiolytics)								
Alprazolam Benzodiazepine	Various, Xanax ® is an example: tabs: 0.25, 0.5, 1, 2 mg	PO: 0.8 to 2 hours	11.2 hours	Liver metabolism: extensive Renal Excretion: 80% Feces: 7%	0.25–0.5 mg bid-tid (max 4 mg/24 h)	☺	• drowsiness • ataxia • fatigue • confusion • weakness • dizziness	• CNS depressants • disulfiram • cimetidine • levodopa • anticonvulsants • psychotherapeutic agents

Generic name	Trade name(s), dosage forms	Time Cmax	Elimination t½	Route of elimination	Adult doses	Pediatric doses	Adverse effects	Common interactions
Clonazepam Benzodiazepine Long half-life	Various, Klonopin ® is an example: Tabs/wafers: 0.5, 1, 2, 0.125, 0.25 mg	PO: 1–4 hr PR: 10–30 minutes	30–40 hr	Liver metabolism: highly metabolized Renal Excretion: 0.5%–1%	0.25–3 mg PO q 8–12 h (max 20 mg/24h)	☺ ☺	• nausea • rash	• CNS depressants
Diazepam Benzodiazepine Long half-life	Various, Valium ® is an example: tabs: 2, 5, 10 mg elixir: 1, 5 mg/ml inj: 5 mg/ml PR gel: 5mg/unit PR supp:compounded	PO: 0.89–1.32 hr IV: 8 minutes IM: 1 hr PR gel:1.5 hr	0.83–2.25 days Active metabolites 40–194 hr	Liver metabolism extensive Renal Excretion: 75%	2–10 mg PO, IM, IV q 6–8h seizures: 5–10 mg IV q 5–10 min PRN	0.1–0.8 mg/kg/24h PO ÷ q 6 h	• drowsiness • confusion	• CNS depressants
Lorazepam Benzodiazepine Intermediate half-life	Various, Ativan ® is an example: tabs: 0.5, 1, 2 mg SL tabs: 0.5, 1, 2 mg solution: 2 mg/ml inj: 2, 4 mg/ml	PO: 2 hr IM: 1–3 hr SL: 60 minutes	12 hr Metabolites: 12–18 hr	Liver metabolism: 75% Renal Excretion: 88% Feces: 7%	sleep: 1–4 mg PO nightly PRN anxiolytic: 0.5–1 mg PO q 6–8 h (max 6 mg/24h) sedation: 1–4 mg PO q 1–4 h PRN (may require 20–50 mg/24h or more) seizures: 3–4 mg IV, SC, SL q 5–10 min PRN	☺ ☺	• drowsiness • confusion	• CNS depressants
Midazolam Benzodiazepine Short half-life	Versed ®: inj: 1, 2, 5 mg/ml	IM: 45 minutes PR: 20–50 minutes	1.8–6.4 hr	Liver metabolism: extensive Renal Excretion: 45%–57%	1–5 mg SC, IV, IM q 3h PRN or 0.5–5.0 mg/h SC continuous infusion seizures: 1–5 mg SC, IV, IM q 1 h PRN (generally used as an IV or SC infusion due–short half-life)	☺ ☺	• drowsiness • confusion	• CNS depressants

Generic name	Trade name(s), dosage forms	Time Cmax	Elimination t½	Route of elimination	Adult doses	Pediatric doses	Adverse effects	Common interactions
Oxazepam Benzodiazepine Moderate half-life	Various, Serax ® is an example: tabs: 10, 15, 30 mg	PO: 2–3 hr	2.8–8.6 hr	Liver Metabolism: moderate Renal Excretion: 50% unchanged drug	30–120 mg PO / 24 h (in divided doses)	☺ ☺	• drowsiness • confusion	• CNS depressants
Ascites (diuretics)								
Furosemide Loop diuretic	Various, Lasix ® is an example: tabs: 20, 40, 80 mg oral soln: 10 mg/ml inj: 10 mg/ml	PO: 60–120 minutes IV: 6–10 min	30–120 minutes	Liver metabolism: approximately 10% Renal Excretion: 60%–90% Bile: 6%–9% Feces: 7%–9%	20–240 mg PO / IV daily – bid	initial dose: 1–2 mg/kg/24h PO ÷ q 6–8 h (may increase up– 8 mg/kg/24h)	• bloating, epigastric distress • nausea/vomiting • hypersensitivity • gynecomastia	• antihypertensives • indomethacin • aminoglycosides • alcohol
Metolazone Diuretic	Various, Zaroxolyn ® is an example: tabs: 2.5, 5, 10 mg	8 hr	8–14 hr	Metabolism: site unspecified Renal Excretion: 56.1%	2.5–20 mg PO daily	☺ ☺	• tinnitus	• barbiturates • opioids
Spironolactone Diuretic	Various, Aldactone ® is an example: tabs: 25, 50, 100 mg	PO: 1–3 hr	1.3–1.4 hr Active metabolite: 8.9–23 hr	Liver metabolism: extent not reported Renal Excretion: 47%–57%	50–250 mg PO daily–bid	1–4 mg/kg/24h in 1, 2, 3, or 4 divided doses	• gynecomastia	• salicylates

Generic name	Trade name(s), dosage forms	Time Cmax	Elimination t½	Route of elimination	Adult doses	Pediatric doses	Adverse effects	Common interactions
Constipation (laxatives)								
Aluminum or Magnesium Hydroxide Antacids	Many tabs and liquids available over the counter.	Onset of action: dependent upon the ability of the antacid–solubilize in the stomach and react with the hydrochloric acid Aluminum hydroxide :Slow Magnesium hydroxide: Fast	Duration of action in fasting patients may range from 20 to 60 minutes. When given 1 hr after meals, the acid–neutralizing effect may be prolonged up to 3 hr	NA	15–30 ml or 1–2 tabs PO q 2 h PRN (avoid Mg if renal failure present, use Al)	infant: 2.5–5 ml PO q 1–2h child: 5–15 ml PO pc and nightly	• alkalosis • Mg can ➔ diarrhea • Al can ➔ constipation • Hypophosphatemia	• direct binding or elevated gastric pH may alter drug absorption, i.e., ACE inhibitors, benzodiazepines, cephalosporins, chlorpromazine, histamine H_2 receptor antagonists, corticosteroids, digoxin, hypoglycemics, PO: iron, isoniazid, ketoconazole, metronidazole, nitrofurantoin, NSAIDs, quinidine, salicylates, phenytoin, tetracycline, theophyllines, valproic acid, vitamins C, D
Bisacodyl Laxative	Various, Dulcolax ® is an example: tab: 5 mg supp: 10 mg enema: 10 mg in 5 ml	Initial response: PO: 6–12 hr PR: 15–60 minutes	NA	Renal Excretion: minimal Feces: extensive	5–10 mg PO / PR daily–tid	5–10 mg PR or 0.3 mg/kg PO PRN	• diarrhea • cramps • dehydration • electrolyte depletion • nausea/vomiting	• none significant
Docusate sodium or calcium Anionic surfactant that emulsifies, wets, and disperses feces	Various, Colace, ® Surfak ® are examples: caps, tabs: 50, 100, 240, 250 mg syrup: 20 mg/5 ml, 50 mg/5 ml drops: 10 mg/ml	Initial response: PO: 1–3 days	NA	Excreted in bile/feces	100–200 mg PO daily–tid	5 mg/kg/24h PO as a single daily dose	• mild abdominal cramping • bitter taste	• mineral oil

Generic name	Trade name(s), dosage forms	Time Cmax	Elimination t½	Route of elimination	Adult doses	Pediatric doses	Adverse effects	Common interactions
Glycerin Contact irritant laxative	Various: supp: 96% glycerin	Initial response: PR: 15–30 minutes	30–45 minutes	Liver metabolism: 80% Renal Excretion: 10%–20%	1 supp PR daily–bid	1/2–1 supp PR PRN	• rectal irritation	• none significant
Lactulose Osmotic laxative	Various: syrup: 10 g/15 ml	Initial response: PO: 24–48 hr	NA	Colon: extensive: lactulose is metabolized by colonic bacteria Renal Excretion: 3%	15–60 ml PO daily–tid	5–10 ml PO once daily	• flatulence • cramps • nausea	• antibiotics • PO: neomycin • antacids
Magnesium citrate Osmotic cathartic laxative that draws fluid into the gut, distends the intestine, and results in increased peristalsis	Various, Citro–Mag ® is an example: PO solution: 168 mEq mg/240 ml	Initial response: PO: 0.5–3 hr	NA	NA	50–150 ml PO daily–tid (not recommended)	4 ml/kg PO	• large watery stools • cramps • caution in renal patients	• none significant
Magnesium hydroxide Osmotic cathartic laxative	Phillips' Milk of Magnesia ®: liquid: 400 mg/5 ml tab: 311 mg	NA	NA	NA	15–30 ml PO daily–qid PRN	no information	• diarrhea	• none significant
Mineral Oil Irritant laxative that penetrates and softens feces and may interfere with water reabsorption	Various	Initial response: PO: 6–8 hr PR: 5–15 minutes	NA	Not absorbed	15–45 ml PO daily–bid	1 ml/kg PO nightly	• anal leakage • nausea • abdominal cramps • lipid pneumonia	• docusate salts • fat-soluble vitamins (A, E, D, K)

Generic name	Trade name(s), dosage forms	Time Cmax	Elimination t½	Route of elimination	Adult doses	Pediatric doses	Adverse effects	Common interactions
Psyllium Bulk–forming laxative	Various, Metamucil ® is an example: fiber wafers: 3.4 g unflavored powder: 7 g/tsp orange powder: 3.4 g/2 tsp	Not absorbed Initial response: PO: 12–24 hr (up–3 days)	NA	Not absorbed	1 packet (10 ml) daily–tid, or 1 tsp unflavored powder (2 of flavored) PO daily, or 2 wafers PO daily (must mix with at least 240 ml of water)	1/4–1/2 of adult dose	• ensure good fluid intake, dehydration will worsen constipation • hypersensitivity	• none significant
Sennosides Contact cathartic laxative that stimulates colonic peristalsis	Various, Senokot ® is an example: tab: 8.6 mg sup: 30 mg syrup: 1.7 mg/ml granules: 15 mg/tsp	Initial response: PO: 6–12 hr PR: 0.5 –2 hr	NA	Fecal and/or renal	1–2 tabs PO daily–tid (available combined with docusate)	3–10 ml of Senokot syrup PO bid	• nausea • abdominal cramps	• none significant
Sodium phosphate Osmotic cathartic laxative that draws fluid into the gut, distends the intestine, and results in increased peristalsis	Various, Fleet Enema ® is an example	Initial response: PR: 0.5–3 hr	NA	NA	1 enema PR daily–bid	one pediatric or adult Fleet enema PRN	• rectal irritation • abdominal cramps	• none significant
Sorbitol Osmotic laxative	Various: syrup: 10 g/15 ml	Initial response: PO: 0.5–3 hr	NA	Liver metabolism:–fructose	15–60 ml PO daily–tid	5–10 ml PO daily	• flatulence • cramps • nausea	• antibiotics • PO: neomycin • antacids
Cough (anti-tussives)								
Dextromethorphan Antitussive	Various combination preparations: cap: 30 mg syrup: 30 mg/5 ml	PO: 2–2.5 hr	1.4–3.9 hr Metabolites: 3.4–5.6 hr	Liver metabolism: rate of metabolism varies among individuals Renal excretion: extensive	15–45 mg PO q 4–6 h PRN (max 120 mg/24h)	1 mg/kg/24h ÷ q 6–8 h	• nausea/vomiting • dizziness • sedation • GI disturbances	• CNS depressants • MAOIs

Generic name	Trade name(s), dosage forms	Time Cmax	Elimination t½	Route of elimination	Adult doses	Pediatric doses	Adverse effects	Common interactions
Hydrocodone Antitussive opioid	Various, Hycodan ® is an example: tab: 5 mg syrup: 5 mg/5 ml	PO IR: 1.3 hr PO ER: 3.4 hr	3.8–4.5 hr	Liver metabolism: extensive Renal Excretion: 26%	5–10 mg PO q 4–6 h PRN	0.1 mg/kg PO q 4 h PRN	• lightheadedness • dizziness • sedation • nausea/vomiting • constipation • hypersensitivity	• CNS depressants • TCAs • MAOIs
Delirium (antipsychotics and EPS antidotes)								
Chlorpromazine Dopaminergic antiemetic, sedating neuroleptic, hiccups	Various, Thorazine ® is an example: tabs: 10, 25, 50, 100, 200 mg liquid: 100 mg/ml inj: 25 mg/ml supp: compounded	PO: 2.8 hr IM: 1–4 hr IV: 2–4 hr	6 hr	Liver metabolism: extensive PO: undergoes extensive first pass metabolism Renal Excretion: 23%	PO, PR, IM, IV q 6–12 h nausea, hiccups: 25–50 mg PO PR, IM, q 8–12 h PRN	antipsychotic dose: ☺ antiemetic: 2 mg/kg/24h PO, IV ÷ q 4–6 h	• haloperidol (not as sedating) • anticholinergic AE • EPS • sedation • hypotension • itchy	• CNS depressants • anticonvulsants • barbiturates • lithium
Diphenhydramine H_1 histamine receptor antagonist	Various, Benadryl ® is an example: caplets: 25, 50 mg elixir: 12.5 mg/5 ml children's liquid: 6.25 mg/5 ml inj: 50 mg/ml cream: 1, 2%	PO: 2–4 hr	4–8 hr Metabolites: 8.6–10 hr	Liver metabolism: 50% large first–pass effect	25–50 mg PO, IV tid–qid, or 10–50 mg IM, IV q 4 h PRN or Routinely (max 400 mg/24h)	5 mg/kg/24h PO IM, IV ÷ q 4–6 h PRN or routinely	• sedation • dizziness • confusion • nausea/vomiting • hypersensitivity • arrhythmias	• CNS depressants • Ephedrine • MAOIs
Haloperidol Dopaminergic antiemetic, nonsedating neuroleptic	Various, Haldol ® is an example: tabs: 0.5, 1, 2, 5, 10, 20 mg liquid: 2 mg/ml inj: 5 mg/ml	PO: 2–6 hr IM: 20 minutes	21 hr (range: 10–38 hr)	Liver metabolism: Renal Excretion: 33–40% Feces: 15%	0.5–5 mg PO SC, IM q 4–6 h PRN or routinely	☺	• diarrhea • sedation • hypotension • hypersensitivity	• alcohol • anticholinergics • barbiturates, β–blockers • cimetidine, clonidine • disulfiram • l–dopa, lithium • metoclopramide • meperidine • phenytoin • pyrimethamine • SSRIs, TCAs • trazodone, valproate • vitamin C

Generic name	Trade name(s), dosage forms	Time Cmax	Elimination t½	Route of elimination	Adult doses	Pediatric doses	Adverse effects	Common interactions
Olanzapine Atypical neuroleptic	Various, Zyprexa ® is an example: tabs: 2.5,, 5, 7.5, 10, 15, 20 mg ODT: 5,10 15, 20 mg Inj: 10 mg/vial	PO: 6 hr IM: 15–45 minutes	21–54 hr (mean 30 hr)	Liver metabolism: extensive Renal Excretion: 57% Feces: 30%	2.5 mg PO daily and advance to 5–10 mg/24h	☺ ☺	• dizziness • hypotension • hyperkinesia • somnolence • nausea	• levodopa • carbamazepine
Perphenazine Neuroleptic	Various, Trilafon ® is an example: tabs: 2, 4, 8, 16 mg concentrate: 16 mg/5 ml	PO: 4–8 hr	9.5 hr (range, 8.4–12.3 hr)	Liver Metabolism: extensive	8–16 mg PO bid–qid (max 64 mg/24h, 24 mg/24h in ambulatory patients)		• haloperidol (not as sedating) • anticholinergic AE • EPS • sedation • hypotension • itchiness	• CNS depressants • anticonvulsants • barbiturates • lithium
Quetiapine Atypical neuroleptic	Various, Seroquel ® is an example: tabs: 25, 100, 200, 300 mg	PO: 1.5 hr	6 hr	Liver metabolism: extensive first–pass Renal Excretion: 70%–73% Feces: 20–21%	25 mg PO bid and titrate	☺ ☺	• dizziness • hypotension • hyperkinesia • somnolence • nausea	• levodopa • carbamazepine
Risperidone Atypical neuroleptic	Various, Risperdal ® is an example: tabs: 0.25 , 0.5, 1 ,2, 3 ,4 mg ODT: 0.5, 1, 2 mg syrup: 1 mg/ml	PO tabs: 1–2 hr PO solution: 1 hr	PO: 20–30 hr Metabolites: 21–30 hr	Liver metabolism: extensive	0.5 mg PO bid and titrate weekly	☺ ☺	• EPS • dizziness • hypotension • hyperkinesia • somnolence • nausea	• levodopa • carbamazepine
Depression (antidepressants and stimulants)								
Amitriptyline Tricyclic antidepressant for neuropathic pain	Various, Elavil ® is an example: tabs: 10, 25, 50, 75, 100, 150 mg	PO: 4 hr	15 hr (range: 9–25 hr)	Liver metabolism: ≈50% of dose is metabolized to nortriptyline Renal excretion:	start with 10–25 mg PO nightly–tid and if no adverse effect, increase q 3–4 days in 25–mg increments	☺	• anti–cholinergic AE • arrhythmias, QRS prolongation • drowsiness • nausea/vomiting • orthostatic hypotension • seizures	• alcohol • anticoagulants • barbiturates • cimetidine • clonidine • CNS depressants • histamine H_2 receptor antagonists • MAOIs • sympathomimetics

Generic name	Trade name(s), dosage forms	Time Cmax	Elimination t½	Route of elimination	Adult doses	Pediatric doses	Adverse effects	Common interactions
Bupropion Antidepressant	Various, Wellbutrin,® Zyban ® are examples: caps: 75, 100 mg ER: 100, 150, 200 mg	PO IR: 2 hr PO ER: 3 hr	14 hr Metabolites: 20–37 hr	Liver metabolism: Considerable first pass effect Renal Excretion: 87% Feces: 10%	100 mg PO bid or 150 mg ER–start (max 300 mg/24h)	☺	• agitation • constipation • dizziness • dry mouth • headache • insomnia	• alcohol • anticoagulants, PO: • antidiabetic agents • antihistamines • benzodiazepines • β–blockers • carbamazepine
Clomipramine Tricyclic antidepressant for neuropathic pain	Anafranil® caps: 25, 50, 75 mg	PO: 2–6 hr	19 hr–37 hr Metabolite: 54–77 hr	Liver Metabolism: extensive first pass effect Renal Excretion: 51%–60% Feces: 24%–32%	25 mg PO daily and titrate	25 mg PO daily up–3 mg/kg or 100 mg daily, whichever is smaller	• anticholinergic AE • arrhythmias, QRS prolongation • drowsiness • nausea/vomiting • orthostatic hypotension • seizures	• alcohol • anticoagulants • barbiturates • cimetidine • clonidine • CNS depressants • histamine H_2 receptor antagonists • MAOIs • sympathomimetics
Desipramine Tricyclic antidepressant for neuropathic pain	Various, Norpramin ® is an example: tabs: 10, 25, 50, 75, 100, 150 mg	PO: 3–6 hr	14.3–24.7 hr	Liver metabolism: extensive first pass effect Renal Excretion: ≈ 70%	10–25 mg PO daily and titrate	☺	• anticholinergic AE • arrhythmias, QRS prolongation • drowsiness • nausea/vomiting • orthostatic hypotension • seizures	• alcohol • anticoagulants • barbiturates • cimetidine • clonidine • CNS depressants • histamine H_2 receptor antagonists • MAOIs • Sympathomimetics
Dextroamphetamine Stimulant	Various, Dexedrine ® is an example: tabs: 5, 10 mg ER: 5, 10, 15 mg	PO IR: tablets: 60–180 minutes PO ER: capsules: ≈ 7–8 hr	7–34 hr, mean 12 hr	Liver metabolism: extensive Renal Excretion: 17%–73%	5 mg PO q 9 am and noon–start and titrate (avoid late afternoon and evening doses as these can interfere with sleep)	☺ ☺	• nervousness • insomnia • dizziness • nausea/vomiting • cardiac effects • delirium • hypersensitivity	• MAOIs • pressor agents • guanethidine • bretylium • warfarin anticoagulants • TCAs • phenylbutazone

Generic name	Trade name(s), dosage forms	Time Cmax	Elimination t½	Route of elimination	Adult doses	Pediatric doses	Adverse effects	Common interactions
Doxepin Tricyclic antidepressant for neuropathic pain Prominent histamine H_1 receptor antagonist	Various, Sinequan ® is an example: caps: 10, 25, 50, 75, 100, 150 mg	PO: 30 – 60 minutes	8–25 hr mean: 16.8 hr Metabolites: 33.2–80.7 hr mean 51.3 hr	Liver metabolism: to active metabolite Renal Excretion: 0.5%	10–25 mg PO nightly and titrate	☺	• anticholinergic AE • arrhythmias, QRS prolongation • drowsiness • nausea/vomiting • orthostatic hypotension • seizures	• alcohol • anticoagulants • barbiturates • cimetidine • clonidine • CNS depressants • histamine H_2 receptor antagonists • MAOIs • sympathomimetics
Fluoxetine Selective serotonin reuptake inhibitor (SSRI) antidepressant	Prozac ®: caps: 10, 20, 40 mg liquid: 20 mg/5 ml 90 mg timed–release capsule	PO: 6–8 hr	4–6 days, chronic administration Metabolites: 4–16 days	Liver metabolism: extensive active metabolite, norfluoxetine Renal Excretion: 60% Feces: 12%	start with 2.5–5 mg PO nightly if no side–effects, increase gradually q 1wk (max 80 mg/ 24 h, may take 4–5 wk–realize effect, reduce dose for elderly, hepatic and renal failure)	☺	• astrenia • constipation, diarrhea • dizziness • dry mouth • headache • insomnia, somnolence	• alcohol • anticoagulants, PO: • antidiabetic agents • antihistamines • benzodiazepines • β–blockers • carbamazepine
Imipramine Tricyclic antidepressant for neuropathic pain	Various, Tofranil ® is an example: tabs: 10, 25, 50, 75, 100, 150 mg	PO: 1 hr	6–18 hr Metabolite: Desipramine 12–36 hr	Liver metabolism: extensive first–pass effect–desipramine Renal Excretion: 0.05–0.1% (desipramine only) Imipramine metabolites are excreted in urine	10–25 mg PO daily and titrate	☺ ☺	• anticholinergic AE • arrhythmias, QRS prolongation • drowsiness • nausea/vomiting • orthostatic hypotension • seizures	• alcohol • anticoagulants • barbiturates • cimetidine • clonidine • CNS depressants • histamine H_2 receptor antagonists • MAOIs • sympathomimetics

Generic name	Trade name(s), dosage forms	Time Cmax	Elimination t½	Route of elimination	Adult doses	Pediatric doses	Adverse effects	Common interactions
Methylphenidate Stimulant Antidepressant	Various, Ritalin ® is an example: IR tabs: 5, 10, 20 mg ER tabs: 20 mg ER caps: 10, 20, 30, 40 mg Concerta ER tab: 18, 27, 36, 54 mg	PO IR: 1–3 hr PO ER: 6–8 hr	PO: 2–7 hr; mean 3 hr	Liver metabolism: rapid and extensive Renal Excretion: less than 1% unchanged	5 mg PO q 9 am and noon–start and titrate 20–40 mg/24h reported (avoid late afternoon and evening doses as these can interfere with sleep)	☺ ☺	• nervousness • insomnia • dizziness • nausea/vomiting • cardiac effects • delirium • hypersensitivity	• MAOIs • pressor agents • guanethidine • bretylium • warfarin anticoagulants • TCAs • phenylbutazone
Mirtazapine Atypical antidepressant	Remeron ®: tabs: 7.5, 15, 30, 45 mg ODT: 15, 30, 45 mg	PO: 1.5–2 hr	20–40 hr	Liver metabolism: extensive Renal Excretion: 75% Feces: 15%	15 mg PO nightly	☺	• somnolence • dizziness • weight gain	• alcohol • diazepam
Nefazodone Antidepressant	Serzone ® : tabs: 50, 100, 150, 200, 250 mg	PO: 0.5–2 hr	1.9–5.3 hr Metabolites: 2–33 hr	Liver metabolism: extensive first pass metabolism Renal Excretion: 55% Feces: 20%–30%	100 mg PO bid and titrate	☺	• dizziness • drowsiness • dry mouth • headache • nausea • constipation • blurred vision • hypersensitivity	• anticholinergics • antihypertensives • CNS depressants • digoxin • cisapride • triazolobenzodiazepines • MAOIs • phenothiazines • phenytoin • SSRIs
Nortriptyline Tricyclic antidepressant for neuropathic pain	Various, Pamelor ® is an example: caps: 10, 25, 50, 75 mg solution: 10 mg/5 ml	PO: 1 hr	15–39 hr	Liver metabolism: extensive Renal Excretion: 2%	10–25 mg PO daily and titrate	☺ ☺	• anticholinergic AE • arrhythmias, QRS prolongation • drowsiness • nausea/vomiting • orthostatic hypotension • seizures	• alcohol • anticoagulants • barbiturates • cimetidine • clonidine • CNS depressants • histamine H_2 receptor antagonists • MAOIs • sympathomimetics

Generic name	Trade name(s), dosage forms	Time Cmax	Elimination t½	Route of elimination	Adult doses	Pediatric doses	Adverse effects	Common interactions
Paroxetine SSRI antidepressant	Paxil ®: IR tabs: 10, 20, 30, 40 mg ER tabs: 12.5, 25, 37.5 mg Suspension: 10 mg/5 ml	PO IR: 3–8 hr PO ER: 6–10 hr	15–22 hr	Liver metabolism: extensive Renal Excretion: 65%–67% Feces 36%–37%	start 20 mg PO nightly if no side effects, increase 10 mg PO q 1–2 wk (max 50 mg PO daily, may take 3–4 wk–realize effect, reduce dose for elderly, hepatic and renal failure)	☺	• asthenia • constipation, diarrhea • dizziness • dry mouth • headache • insomnia • somnolence	• MAOIs (avoid) • neuroleptics • nifedipine • pentazocine • phenothiazines • phenytoin • theophylline
Pemoline Stimulant	Various, Cylert ® is an example: tabs: 18.75, 37.5, 75 mg	PO: 2–4 hr	7–13 hr	Liver metabolism: N/A Renal Excretion: 50% (unchanged)	37.5 mg PO q am and titrate (112 mg/24h reported) (follow liver function tests)	☺ ☺	• liver failure • nervousness • insomnia • dizziness • nausea/vomiting • delirium • hypersensitivity	• MAOIs • pressor agents • guanethidine • bretylium • warfarin anticoagulants • TCAs • phenylbutazone
Protriptyline Tricyclic antidepressant for neuropathic pain	Vivactil ® tabs: 5, 10 mg	PO: 8–12 hr	54–198 hr	Liver metabolism: extensive Renal Excretion: slow rate of excretion (50% over 2 weeks)	5 mg PO tid and titrate	☺ ☺	• anticholinergic AE • arrhythmias, QRS prolongation • drowsiness • nausea/vomiting • orthostatic hypotension • seizures	• alcohol • anticoagulants • barbiturates • cimetidine • clonidine • CNS depressants • histamine H_2 receptor antagonists • MAOIs • sympathomimetics
Sertraline SSRI antidepressant	Zoloft ®: tabs: 25, 50, 100 mg conc. solution: 20 mg/ml	PO: 4–8 hr	24 hr Metabolites: 62–104 hr	Liver metabolism: extensive Renal Excretion: 40%–45% Feces: 40%–45%	start with 50 mg PO nightly, if no side effects, increase gradually q 1 wk (max 200 mg/24h)	☺	• asthenia • constipation, diarrhea • dizziness • dry mouth • headache • insomnia, somnolence	• alcohol • anticoagulants, PO: • antidiabetic agents • antihistamines • benzodiazepines • β–blockers • carbamazepine

Generic name	Trade name(s), dosage forms	Time Cmax	Elimination t½	Route of elimination	Adult doses	Pediatric doses	Adverse effects	Common interactions
Trazodone Antidepressant Sedative	Various, Desyrel ® is an example: tabs: 50, 100, 150, 300 mg	PO: 0.5–2 hr	7.1 hr	Liver metabolism: extensive Renal Excretion: 70%–75% Feces: 21%	start with 50 mg PO nightly, if no adverse effects, increase q 7 or more days up–400 mg/24h	☺	• dizziness • drowsiness • dry mouth • headache • nausea • priapism • no risk of withdrawal • hypersensitivity	• anticholinergics • antihypertensives • CNS depressants • digoxin • general anesthetics • MAOIs • phenothiazines • phenytoin • SSRIs
Trimipramine Tricyclic antidepressant for neuropathic pain	Surmontil ®: caps: 25, 50, mg	PO: 2 hr	23 hr	Liver metabolism: extensive	25 mg PO daily and titrate	☺ ☺	• anticholinergic AE • arrhythmias, QRS prolongation • drowsiness • nausea/vomiting • orthostatic hypotension • seizures	• alcohol • anticoagulants • barbiturates • cimetidine • clonidine • CNS depressants • histamine H_2 receptor antagonists • MAOIs • sympathomimetics
Venlafaxine Atypical antidepressant	Effexor ®: caps: 25, 37.5, 50, 75, 100 mg ER: 37.5, 75, 150 mg	PO IR: 1–2 hr PO ER: 5.5 hr	5 hr Metabolite: 11 hr	Liver metabolism: extensive first–pass effect to active metabolite Renal Excretion: 36%–60%	37.5 mg PO bid or 75 mg/24h ER. Start lower in some patients	☺	• asthenia • constipation, diarrhea • dizziness • dry mouth • headache • insomnia, somnolence	• alcohol • anticoagulants, PO: • antidiabetic agents • antihistamines • benzodiazepines • β–blockers • carbamazepine

Generic name	Trade name(s), dosage forms	Time Cmax	Elimination t½	Route of elimination	Adult doses	Pediatric doses	Adverse effects	Common interactions
Diarrhea (antidiarrheals)								
Attapulgite Antidiarrheal	Kaopectate®: tabs: 300 mg/chewable tab 600 mg/regular strength tab 750 mg/extra strength tab suspension: 600 mg/15 ml in children's 600 mg/15 ml in regular 750 mg/15 ml in extra strength	Not absorbed	NA	NA	30 ml or 2 tabs PRN (max 6 doses = 12 tabs/24h)	suspension: 3–6 y: 7.5 ml 6–12 y: 15 ml > 12 y: 30 ml	• none significant	• none significant
Bismuth subsalicylate Antidiarrheal	Various, Pepto–Bismol ® is an example: liquid: 17.6 mg/ml tab: 262 mg	PO: (salicylate): 1.8–5 hr	Bismuth: 21–72 days Salicylic Acid: 2–5 hr	Intestinal wall, extent unknown Renal Excretion: Bismuth, 0.003%; Salicylate 95% Feces: Bismuth, 99%	30 ml or 2 tabs PO q ½ h PRN (max 8 doses = 240 ml or 16 tabs/24h)	< 2 y: ☺ 2–4 y: 5 ml PO q ½ h PRN 5–9 y: 7.5 ml or ½ tab PO q ½ h PRN 10–14 y: 15 ml or 1 tab PO q ½ h PRN	• blackens tongue & feces • constipation	• direct binding or altered gastric pH may alter drug absorption, see antacids, Al or Mg hydroxide antacids
Diphenoxylate Synthetic opioid, related–meperidine Inhibits excessive gastric motility	Various in combination with atropine, Lomotil ® is an example: tabs: 2.5 mg with atropine 0.025 mg liquid: 2.5 mg/5 ml	PO: 2 hr	2.5 hr	Liver metabolism: extensive Renal Excretion: 14% Feces: 49%	2.5–5 mg PO daily–qid (max 20 mg/24h) (avoid in hepatic failure)	0.3–0.4 mg/kg/24h PO ÷ bid–qid	• uncommon	• may potentiate the effect of phenothiazines, barbiturates, TCAs

Generic name	Trade name(s), dosage forms	Time Cmax	Elimination t½	Route of elimination	Adult doses	Pediatric doses	Adverse effects	Common interactions
Loperamide Synthetic opioid, related–meperidine	Various, Imodium ® is an example: caplets: 2 mg caps: 2 mg liquid: 1 mg/5 ml	PO cap: 5 hr PO liquid: 2.5 hr	7–15 hr	Liver metabolism: significant first pass Renal Excretion: 1% Feces: 25%–40%	4 mg PO first dose then 2–4 mg after each unformed stool (max daily dose 16 mg/24h)	2 y or older: ≈ 0.2 mg/kg/24h PO ÷ bid–tid	• abdominal pain • constipation • dizziness • dry mouth • nausea/vomiting • hypersensitivity	• cholestyramine
Octreotide Synthetic octapeptide analogue of somatostatin. Inhibits secretion of the gastroenteropancreatic endocrine system, reducing volume of intestinal secretions	Sandostatin®: inj: 50, 100, 200, 500, 1000 μg LAR: 10, 20, 30 mg	SC: 15–30 minutes	1.5 hr	Liver metabolism: extensive Renal Excretion: 32%	100 μg SC q 8 h for 48 h or 10 μg/h continuous SC, IV infusion and titrate	1–10 mcg/kg bid–tid	• generally well tolerated	• cimetidine • cyclosporine
Drying (anticholinergics)								
Atropine Antimuscarinic anticholinergic	Various: inj: 0.1, 0.4, 0.5 1.0 mg/ml in multiple combination PO tablets	PO: 1 hour IM: 30 minutes	Biphasic: initial ~ 2 hours; final: 12.5 to 38 hours	Liver metabolism: 45% Renal excretion: 30-50% unchanged	0.4–0.6 mg SC, IM, IV q 3–4 h routinely or prn	0.01–0.02 mg/kg SC, IM, IV	• CNS and cardiac excitation (atropine only) • anticholinergic AE • photophobia • palpitations, tachycardia (atropine only) • constipation • difficulty urinating	• antacids, histamine H_2 receptor antagonists may interfere with absorption • amantadine, quinidine • haloperidol • phenothiazines • MAOIs • TCAs
Glycopyrrolate Anticholinergic	Robinul ®: tab: 1, 2 mg inj: 0.2 mg/ml	PO: 90 minutes IM: 10 minutes	2.2–33.4 minutes	Renal Excretion: 48.5%	0.1–0.4 mg IM, IV q 4–6 h PRN	☺	• anticholinergic AE	• antacids • slow K • levodopa • digoxin • phenothiazines • amantadine • antiparkinsonian agents • glutethimide

Generic name	Trade name(s), dosage forms	Time Cmax	Elimination t½	Route of elimination	Adult doses	Pediatric doses	Adverse effects	Common interactions
Hyoscyamine Antimuscarinic anticholinergic	Various, Levsin,® Cystospaz® are examples: tab: 0.125 mg drops: 0.125 mg ER: 0.375 mg	PO SR: 2.5 hr	3.5 hr ER: ≈ 7 hr	Renal Excretion: majority of hyoscyamine excreted unchanged in urine within 12 hr	0.125–0.25 mg PO SL q 4 h routinely or PRN (max 1.5 mg/24h)	2–10 y: 0.25–1.0 ml PO q 4 h routinely or PRN	• drowsiness (scopolamine) • nausea/vomiting • delirium, coma	• some antihistamines • digoxin • ketoconazole
Scopolamine Antimuscarinic anticholinergic	Various, Transderm–Scop ® is an example: inj: 0.4 mg/ml patch: contains 1.5 mg, releases 1.0 mg in 3 days	4 hr	9.5 hr	Liver metabolism: Extensive Renal Excretion: 1% (oral), 34% (transdermal)	0.3–0.6 mg SC, IV, IM q 4 h–8 h PRN or by continuous SC, IV infusion, or 1–2 patch(es) behind alternating ears q 72h (patch takes 12 h–achieve maximum blood levels, and 12 h after removal of last patch–clear scopolamine from the blood) (wash hands thoroughly after applying patch)	not indicated for children	• may precipitate acute confusion or dementia like picture, acute glaucoma. Discontinue immediately • contraindicated in the presence of dementia, delirium, or glaucoma • treat excess with physostigmine IV • hypersensitivity	• antacids, histamine H_2 receptor antagonists may interfere with absorption • amantadine, quinidine • haloperidol • phenothiazines • MAOIs • TCAs
Dyspnea (bronchodilators)								
Albuterol Inhaled ß adrenergic agonist	Various, Ventolin ® is an example: MDI: 6.8, 17–g canister = 100 μg/puff 0.5%, 0.83% inhalation solution syrup: 2 mg/5 ml tab: 2, 4 mg	Aerosol Inhalation: 3–4 hr SL: 2–3 hr ER: 6 hr PO: 1–4 hr	3–6.5 hr	Liver metabolism: to active metabolites 64%–98% Feces:1.2-7% after PO dose 10.2-12% after inhalation	2.5–5.0 mg solution diluted–4.0 ml with NS nebulized q 4 h PRN, or 2–3 puffs metered dose inhaler q 4 h PRN 2–4 mg PO tid–qid	0.03 ml/kg in 3 ml normal saline via nebulizer PRN child over 12: 2 mg PO qid	• tremor • nervousness • tachycardia	• CNS stimulants • levodopa • propranolol • MAOIs • TCAs

Generic name	Trade name(s), dosage forms	Time Cmax	Elimination t½	Route of elimination	Adult doses	Pediatric doses	Adverse effects	Common interactions
Theophylline Bronchodilator	Various, Theo–Dur® is an example: tabs: 100, 125, 200, 300, 450, 600 mg	PO once–a–day dosage form: 11 hr	6–12 hr, adults	Liver metabolism: extensive Renal Excretion: 10%–13%, adults	start with 200–300 mg PO q 12 h every 3 days, increase 50–100 mg q 12 h until response or toxicity (monitor blood levels)	6 wk–1 y: 6–15 mg/kg/24h ÷ q 6–8 h 1–12 y: 20 mg/kg/24h ÷ q 8–12 h 12–16 y: 18 mg/kg/24h ÷ q 12 h	• nervousness • restlessness • dizziness • insomnia • palpitations • nausea/vomiting	• adenosine • barbiturates • carbamazepine • phenytoin • rifampin • cimetidine
Insomnia (hypnotic sedatives)								
Zolpidem Nonbenzodiazepine hypnotic	Various, Ambien ® is an example: tabs: 5, 10 mg	1.6–2.0 hr	2–2.6 hr	Liver metabolism: extensive Renal Excretion: less than <1% 96% of a dose appears as metabolites in the bile, urine and feces	5–10 mg PO nightly	☺ ☺	• drowsiness • dizziness • lightheadedness	• CNS depressants
Nausea (antacids, antinauseants)								
Cimetidine H_2 receptor antagonist, antacid	Various, Tagamet ® is an example: tabs: 200, 300, 400, 800 mg liquid: 300 mg/5 ml inj: 300 mg/2 ml	PO: 45–90 minutes IM:15 minutes	2 hr Metabolites: 2.2 hr	Liver metabolism: extensive Renal Excretion: 48%–75% Feces: 2–3% Bile: less than 2%	300 mg PO qid ac + hs, or 400–600 mg PO q 12 h, or 800 mg PO nightly, or 300 mg IV q 6 h (max 2400 mg/24h , reduce dose for renal failure)	1–12 y: 20–25 mg/kg/24h PO: IV ÷ q 4–6 h < 1 y: 20 mg/kg/24h PO: IV ÷ q 4–6 h (reduce dose for renal failure)	• cognitive abnormalities, especially if hepatic or renal function is impaired • leukopenia, thrombocytopenia	• ketoconazole • hypoglycemics • theophylline • food, antacids, sucralfate • propantheline

Generic name	Trade name(s), dosage forms	Time Cmax	Elimination t½	Route of elimination	Adult doses	Pediatric doses	Adverse effects	Common interactions
Dronabinol Synthetic cannabinoid antiemetic and appetite stimulant	Marinol ®: caps: 2.5, 5, 10 mg	PO: 1 hr	19–36 hr Metabolites: 49–53 hr	Liver metabolism: extensive Renal Excretion: 10%–15% Feces: 35%–50%	2.5 mg PO q 8–12 h and titrate	☺	• ataxia, blurred vision • depression • dizziness, vertigo • drowsiness • dry mouth • headache • hallucinations • a cannabis "high" • hypersensitivity–marijuana	• alcohol • barbiturates • benzodiazepines • opioids
Droperidol Dopaminergic antiemetic	Inapsine® inj 2.5 mg/ml	IM: 2–4 hr IV: 2–4 hr	2 hr Metabolite: 8–12 hr	Liver metabolism: extensive Renal Excretion: 75% Feces: 22% (11–50%)	2.5–5 mg q 3–4 h	2–12 years of age: 0.05–0.06 mg/kg/dose IV/IM q 4–6 h	• diarrhea • sedation • hypotension • hypersensitivity	• alcohol • anticholinergics • barbiturates, β–blockers • cimetidine, clonidine • disulfiram • levodopa, lithium • metoclopramide • meperidine • phenytoin • pyrimethamine • SSRIs, TCAs • trazodone, valproate • vitamin C
Famotidine H_2 receptor antagonist	Various, Pepcid ® is an example: tabs: 10, 20, 40 mg inj: 10 mg/ml	PO: 1–3.5 hr	2.6–4 hr	Liver metabolism: 30%–35% Renal Excretion: 25%–70% Feces: 50%	20–40 mg PO daily, or 10–20 mg IV q 12 h	☺	• headache • malaise • dizziness, vertigo • somnolence • insomnia	• warfarin anticoagulants • benzodiazepines • β–blockers • TCAs • cephalosporins
Lansoprazole H^+, K^+–ATPase inhibitor	Prevacid ®: PO caps: 15, 30 mg Granule Packets: 15, 30 mg ODT: 15, 30 mg IV: 30 mg/vial	PO enteric–coated granules: 1.5–3 hr ODT: 1.8–2.0 hr	0.9–1.5 hr Metabolites: 3 hr	Liver metabolism: extensive Renal Excretion: 14%–25% Bile: 67%	15 – 30 mg PO daily	☺	• generally well tolerated	• phenytoin • warfarin anticoagulants • benzodiazepines • corticosteroids • digoxin • ketoconazole • sucralfate

Generic name	Trade name(s), dosage forms	Time Cmax	Elimination t½	Route of elimination	Adult doses	Pediatric doses	Adverse effects	Common interactions
Metoclopramide Dopaminergic antiemetic, prokinetic	Various, Reglan ® is an example: tabs: 5, 10 mg liquid: 1 mg/ml inj: 5 mg/ml	IV: 15 minutes PO: 60–160 minutes PR: 1–3 hr SC: 30 minutes	5–6 hr	Liver metabolism: Renal Excretion: 70%–85% Feces: 2%	5–10 mg PO IM, SC, IV tid–qid, ½ h ac and hs (reported as continuous SC, IV infusion)	0.5 mg/kg/24h PO tid–qid, ½ h ac + hs	• dizziness • gynecomastia, galactorrhea, amenorrhea • abdominal cramps • ⇑ risk of perforation if bowel obstructed • hypersensitivity	• alcohol, anticholinergics • barbiturates, β–blockers • cimetidine, clonidine • disulfiram, levodopa, lithium • metoclopramide • meperidine • phenytoin, pyrimethamine • SSRIs, TCAs • trazodone, valproate • vitamin C
Misoprostol Prostaglandin E1 analogue for gastric protection from NSAIDs	Cytotec ®: tabs: 100, 200 μg	PO: 9 – 15 minutes	20–40 minutes	Liver metabolism: extensive Renal Excretion: 80% Feces: 15%	100–200 μg PO q 6 h, after food 200 μg PO bid may be sufficient for NSAID prophylaxis (reduce in renal failure)	☺	• diarrhea, abdominal pain, flatulence • nausea/vomiting • headache	• salicylic acid
Omeprazole H^+, K^+–ATPase inhibitor	Prilosec ®: tab: 10, 20, 40 mg	PO: 0.5–3.5 hr	0.5–1 hr	Liver metabolism: extensive (inactive metabolites) Renal Excretion: 77% Bile: excretion of metabolites (16–19%)	20–40 mg PO daily (do not exceed 20 mg/24h with liver failure)	☺	• generally well tolerated	• phenytoin • warfarin anticoagulants • benzodiazepines • corticosteroids • digoxin • disulfiram • phenytoin
Ondansetron Serotonin 5–HT_3 receptor antagonist antiemetic	Zofran ®: tab: 4, 8 mg inj: 2 mg/ml soln: 4 mg/5 ml ODT: 4, 8 mg	PO: 1–2.2 hr IM: 0.38 hr IV: end of infusion (30 min)	3–5.5 hr	Liver metabolism: extensive Renal Excretion: 44%–60% Feces: 25%	4–16 mg PO, IV q 8 h	☺	• headache • constipation • flushing/warmth in the head or epigastrium • hypersensitivity	• CNS depressants • anticonvulsants • lithium

Generic name	Trade name(s), dosage forms	Time Cmax	Elimination t½	Route of elimination	Adult doses	Pediatric doses	Adverse effects	Common interactions
Prochlorperazine Dopaminergic antiemetic, phenothiazine neuroleptic	Various, Compazine® is an example: tabs: 5, 10 mg liquid: 5 mg/5 ml supp: 2.5, 5, 25 mg inj: 5 mg/ml	1.5–5 hr	6.8–9 hr	Liver metabolism: extensive	5–20 mg PO PR, IM, IV, PR q 4 h PRN or routinely	0.5 mg/kg/24h PO: PR ÷ bid–tid	• drowsiness • dizziness • hypotension • EPS	• alcohol, anticholinergics • barbiturates, β–blockers • cimetidine, clonidine • disulfiram, levodopa, lithium • metoclopramide • meperidine • phenytoin, pyrimethamine • SSRIs, TCAs • trazodone, valproate • vitamin C
Promethazine Histamine H_1 receptor antagonist antiemetic	Phenergan ® tab: 25, 50 mg supp: 12.5, 25, 50 mg syrup 6.25 mg/5 ml	IM: 2–3 hr inj: 25 mg/ ml	7–15 hr	Liver metabolism: extensive First pass metabolism	12.5–25 mg PO / PR q 4–6 h	0.5 mg/lb PO/PR q 4–6 h	• drowsiness • dry mouth • blurred vision	• CNS depressants • anticholinergics
Ranitidine H_2 histamine receptor antagonist antacid	Various, Zantac ® is an example: tabs: 75, 150, 300mg caps:150, 300mg inj: 25 mg/ml syrup: 15 mg/ ml	PO: 0.5–2 hr IM: 15 minutes	2–3 hr	Liver metabolism: Renal Excretion: 30%–70%	150 mg PO bid or 300 mg PO daily (300 mg PO bid may be used for up–4 wk–promote healing) 50 mg IV, IM q 6–8 h	2.5–3.8 mg/kg/24h PO ÷ bid	• nausea/vomiting • constipation • diarrhea • abdominal discomfort • drug–induced hepatitis • impotence • gynecomastia • hypersensitivity	• phenytoin • probenecid • procainamide • quinidine • acetaminophen

Generic name	Trade name(s), dosage forms	Time Cmax	Elimination t½	Route of elimination	Adult doses	Pediatric doses	Adverse effects	Common interactions
Sucralfate Polysaccharide that binds–ulcer tissue in the esophagus, duodenum and stomach–provide a barrier from acid	Various, Carafate ® is an example: tab: 1 g suspension: 1 g/10 ml	Initial response: 1 hr	Duration PO: 6 hr	Sucralfate is not metabolized; any amount of sucrose octasulfate and aluminum absorbed is excreted unchanged in the urine Renal Excretion: 0.5–2.2% Feces: 90%	1 g PO qid ac + HS 2 g PO q 12 h (may add antacids, but don't use within ½ h of sucralfate dose as acid is required–activate sucralfate)	☺	• constipation, diarrhea • nausea, gastric discomfort • dry mouth • pruritus • sleepiness, vertigo • AI buildup may occur with renal failure	• no antacids within ½ h of dose, no H_2 blockers • tetracycline • phenytoin • digoxin • ketoconazole • theophylline • ciprofloxacin • norfloxacin
Trimethobenzamide Antiemetic, unclear mechanism of action. Probably combination of dopaminergic and others	Tigan ® : caps:100, 250mg supp: 100, 200mg inj: 100 mg/ml	PO: 45 minutes IM: 30 minutes	7–9 hr	Liver metabolism: unknown Renal excretion: 50%–70%	250 mg PO q8h 200 mg PR q8h	30–90 lb child 100–200 mg PO q 6–8 h <30 lb child 100 mg supp PR tid	• drowsiness • dizziness • hypotension • EPS	• alcohol, anticholinergics • barbiturates, β–blockers • cimetidine, clonidine • disulfiram, levodopa, lithium • metoclopramide • meperidine • phenytoin, pyrimethamine • SSRIs, TCAs • trazodone, valproate • vitamin C
Pain (analgesics)								
Capsaicin Topical for neuropathic pain	Various, Zostrix ® is an example: cream: 0.025, 0.075%	Initial response: topical: 14–28 days	NA	NA	apply lightly–affected areas at least 3–4 times/24h (wash hands immediately) (optimal response within 14–28 days of continued application)	2 y or older: same as adults	• transient burning on application • avoid contact with eyes • do not apply–wounds or damaged skin • do not bandage	• none significant

Generic name	Trade name(s), dosage forms	Time Cmax	Elimination t½	Route of elimination	Adult doses	Pediatric doses	Adverse effects	Common interactions
Carbamazepine Antiepileptic, neuropathic pain	Various, Tegretol ® is an example: tab: 100, 200 mg ER: 100, 200, 400 mg suspension: 100 mg/5mL	PO IR: 4–5 hr PO chew tablets: 6 hr PO ER: 3–12 hr PO suspension: 1.5 hr	12–17 hr	Liver metabolism: 98% Renal Excretion: 72%	seizures: 100 mg PO bid–400 mg PO tid hiccups: 100–200 mg PO bid–tid (start low & increase q 3–4 days, monitor blood levels)	initial dose 10 mg/kg/24h ÷ bid–tid increase dose if necessary, up–30 mg/kg/24h	• aplastic anemia • cardiovascular effects • ataxia • blurred vision • confusion • drowsiness • vertigo • headache • hepatic effects • nausea/vomiting • hypersensitivity	• alcohol • calcium–channel blockers • corticosteroids • erythromycin, doxycycline • haloperidol • isoniazid • lithium • MAOIs (avoid) • metoclopramide • other anticonvulsants • psychoactive agents • theophylline • warfarin anticoagulants
Flecainide Class 1C antiarrhythmic for neuropathic pain	Tambocor ®: tabs: 50, 100, 150 mg	PO: 1.5–6 hr PO cap: 1–8 hr	7–22 hr	Liver metabolism: extensive Renal Excretion: 81%–90% Feces: 4%–6%	start with 50 mg PO q 12 h increase 50 mg q 12 h every 4 or more days (max 300 mg/24h) (adjust for hepatic or renal impairment)	☺	• may cause ventricular or other arrhythmias • CHF • dizziness • visual disturbances (blurred vision, diplopia, photophobia) • headache • nausea • dyspnea	• other antiarrhythmics • cimetidine • digoxin • propranolol • phenytoin • phenobarbital • rifampin • carbamazepine
Gabapentin Antiepileptic, for neuropathic pain	Neurontin ®: caps: 100, 300, 400, 600, 800mg syrup: 250 mg/5 ml	PO: 1.5–4 hr	5–7 hr	Not metabolized Renal Excretion: 76%–81% unchanged in the urine Feces: 10%–23%	100–300 mg PO tid and titrate (3,600 mg/24h has been reported)	☺	• somnolence • dizziness • fatigue	• alter for renal function • cimetidine • PO: contraceptives • antacids

Generic name	Trade name(s), dosage forms	Time Cmax	Elimination t½	Route of elimination	Adult doses	Pediatric doses	Adverse effects	Common interactions
Lidocaine Anesthetic:–relieve pain due–mucositis, oro–pharyngeal, perianal and skin lesions/ulcers. Endotracheal spray may be used during painful dressing changes	Various, Xylocaine ® is an example: topical liquid: 4% viscous: 2% oral & endotracheal spray: 10% jelly: 2% ointment: 5% Inj: 5, 10, 20 mg/ ml IV infusion: 8mg/ml in D5W	IM: 30 minutes–2 hr Initial response: topical (2% jelly): 3–5 minutes	1.5–2 hr Metabolites: 1–6 hr	Liver metabolism: 90% Renal Excretion: ≈90%	viscous: 15 ml PO q 3h PRN, gargle, spit or swallow (mix 50/50 with antacid–make more palatable) liquid/spray: apply–affected areas PRN jelly: apply–urethra before catheterization (max 200 mg/24h)	5–15 ml swish and spit q 4 h PRN (max 3 mg/kg/24h)	• no fluids or food within 60 min of PO: ingestion (interferes with second stage of swallowing) • systemic administration may cause CNS excitation or depression, ventricular or other arrhythmias • hypersensitivity	• bupivacaine if given systemically: • other antiarrhythmics, amiodarone • β–blockers • cimetidine • MAOIs • phenytoin • TMP–SMX
Lidocaine + Prilocaine Anesthetic combination–relieve pain associated with local procedures	EMLA ®: cream: 25 mg lidocaine and 25 mg prilocaine/gm patch: 1 g cream	topical, cream: 2–4 hr topical periodontal gel: 30 minutes	lidocaine 1–2 hr prilocaine 10–150 minutes	Liver metabolism: lidocaine (extensive), prilocaine (extent unknown) Renal Excretion: lidocaine 90%	apply patch, or a thick layer of cream. Cover with an occlusive dressing for at least 1 h prior–a painful procedure (may remain up to 5 hr)	apply as for adults (not recommended for infants < 6 months, or children 6–12 months receiving Rx for methemoglobin)	• mild local reactions, i.e., edema, itching, transient paleness, erythema, initial burning	• none significant
Mexiletine Class 1B arrhythmic used for neuropathic pain	Mexitil ®: caps: 150, 200 mg	PO: 1–4 hr IM: 15 minutes–2 hr	6–17 hr	Liver metabolism: extensive Renal Excretion: ≈8%–15%	start with 100 mg PO q 8 h, increase 100 mg q 8 h every 3 or more days (max 1200 mg/24h) (adjust for hepatic impairment)	☺	• may cause ventricular or other arrhythmias • upper GI distress • lightheadedness • tremor	• other antiarrhythmics • phenytoin, phenobarbital, rifampin, carbamazepine • cimetidine • theophylline • metoclopramide • avoid diets/medications that acidify urine • tobacco, smoking

Generic name	Trade name(s), dosage forms	Time Cmax	Elimination t½	Route of elimination	Adult doses	Pediatric doses	Adverse effects	Common interactions
Valproic acid Antiepileptic for neuropathic pain	Depakene,® Depakote ®: tabs: 125, 250, 500 mg syrup: 250 mg/5 ml soln: 250 mg/5 ml Valproate sodium inj: 100 mg/ ml Depakene capsules: 250 mg Depakote Enteric coated sprinkle capsules: 125mg Depakote ER release tab: 250, 500 mg	PO: valproic acid Capsules Depakene®: 1–4 hr PO: divalproex tablet: 4–8 hr PO: divalproex sprinkle capsule: 3.3–4.8 hr PO: divalproex sodium extended–release tablet: 4–17 hr PO: sodium valproate solution: 1.2 hr Intravenous, Depacon®: At the end of a 1 hr infusion PR: diluted Valproic acid syrup: 3.1 hr	6–17 hr	Liver metabolism: extensive Renal Excretion: 70%–80% Bile: 7% Lung: 2–18%	seizures: start at 15 mg/kg/24h, increase wkly by 5–10 mg/kg/24h up–max 60 mg/kg/24h (above 250mg, divide into 3 doses/24h) hiccups, neuropathic pain: 250 mg PO bid–qid	same as adult dosing	• ataxia, tremor, sedation • inhibition of platelet aggregation • nausea/vomiting • thrombocytopenia • hypersensitivity	• alcohol • antacids • ASA • barbiturates • clonazepam • phenytoin

Generic name	Trade name(s), dosage forms	Time Cmax	Elimination t½	Route of elimination	Adult doses	Pediatric doses	Adverse effects	Common interactions
Sedation (barbiturate)								
Phenobarbital Barbiturate antiepileptic and sedative	Various: tabs: 15, 30, 60, 100 mg elixir: 20 mg/5 ml inj: 65, 130 mg/ml	PO: 8–12 hr IM: 1 hr IV: 15 minutes	1.5–4.9 days	Liver metabolism: partial Renal Excretion: 21% unchanged	sedation: 100–130 mg PO, IM, IV q 6 h or by continuous infusion 1–5 mg/h (starting low and titrating upward until sedation is achieved) seizures: 60–120 mg IV, IM, PR q 10–20 min PRN	seizures: initial dose 20 mg/kg IV maintenance dose: children under 3 mo 5–6 mg/kg/24h ÷ bid children over 3 mo 3–5 mg/kg/24h ÷ bid	• drowsiness • headache • hypersensitivity • nausea/vomiting • diarrhea	• CNS depressants • anticoagulants • corticosteroids • antidepressants • griseofulvin • doxycycline • PO: contraceptives • Anticonvulsants
Skin (antibiotics)								
Metronidazole Topical and PO antibiotic particularly for malodorous skin ulcers	Various, Flagyl,® MetroGel ® are examples: tab: 250 mg caps: 375, 500, 750 mg cream: 10% vag inserts: 500 mg inj: 5mg/mL	PO: 1–2 hr IV: end of infusion PR: 3 hr Topical: 8–12 hr	6–14 hr	Liver metabolism: extensive Renal Excretion: 60%–80% Feces: 6%–15%	for skin ulcers apply layer of cream over affected area(s) tid–qid and if extensive, 250–500 mg PO/IV q 8 h	skin ulcers: as for adults	• anorexia • diarrhea • dry mouth • furred tongue • nausea/vomiting • neurologic deterioration • peripheral neuropathies • unpleasant, metallic taste • hypersensitivity	• alcohol • astemizole (avoid) • barbiturates • warfarin anticoagulants • disulfiram • lithium • terfenadine (avoid)
Silver sulfadiazine Topical antibiotic particularly for malodorous skin ulcers	Various: cream: 1%	NA	10 hr	Renal Excretion: 60%	apply layer of cream over affected area(s) bid (use with caution in hepatic or renal impairment)	same as for adults	• use with caution in patients sensitive–sulfa • leukopenia • hypersensitivity	• PO: hypoglycemics • phenytoin • cimetidine

Generic name	Trade name(s), dosage forms	Time Cmax	Elimination t½	Route of elimination	Adult doses	Pediatric doses	Adverse effects	Common interactions
Steroids (glucocorticoids and mineralocorticoids)								
Dexamethasone Glucocorticoid	Various, Decadron ® is an example: tabs: 0.5, 0.75, 2, 4, 6 mg elixir: 0.5 mg/ml inj: 4, 10 mg/ml	PO cap: 3.17 hr PO elixir: 10–60 minutes PO tabs: 1–2 hr	Plasma: 1.88–2.23 hr Biological duration of action: 36–54 hr	Liver metabolism: partial Renal Excretion: up to 65% Bile: small extent	0.5–8 mg PO, IV, IM, SC daily–q 6 h (single doses of 40–100 mg IV may be used–effect an acute response (dosage may need–be tapered slowly–avoid adrenocorticoid insufficiency on withdrawal)	††	• increased risk of infection, particularly opportunistic infections • gastritis, gastric ulceration/bleeding , nausea/vomiting • pancreatitis • wasting, particularly proximal muscles • thinning of skin, bowel (possible perforation), impaired wound healing • salt, water retention, hypertension, cushingoid state	• hepatic microsomal enzyme inducers • estrogens • NSAIDs • K^+ depleting drugs • anticholinesterase agents • PO: anticoagulants • Cyclosporine
Fludrocortisone acetate Mineralocorticoid	Florinef ®: tab: 0.1 mg	PO: 1.7 hr	3.5 hr	Liver metabolism: extensive	0.1 – 0.2 mg PO daily (may combine with glucocorticoid)	50–200 μg PO daily	• increased risk of infection, especially fungal, TB, other opportunistic infections • salt, water retention, hypertension • hypokalemia	• K^+ depleting drugs

Generic name	Trade name(s), dosage forms	Time Cmax	Elimination t½	Route of elimination	Adult doses	Pediatric doses	Adverse effects	Common interactions
Prednisone Glucocorticoid	Various: tabs: 1, 2.5, 5, 20, 50 mg Soln: 1, 5mg/ml	PO: 1.3 hr	Plasma: 2.6–3 hr Biological duration of action: 12–36 hr	Liver metabolism: extensive (metabolized to the biologically active steroid, prednisolone)	5–80 mg PO daily	††	• hyperglycemia • euphoria, insomnia, mood swings, personality changes–depression–psychosis • withdrawal may lead–adrenocortical insufficiency, flair in joint pain • may suppress reactions–skin tests • not–be used in presence of herpes zoster	• hepatic microsomal enzyme inducers • estrogens • NSAIDs • K^+ depleting drugs • anticholinesterase agents • PO: anticoagulants • Cyclosporine
Miscellaneous								
Baclofen Muscle relaxant	Various, Lioresal ® is an example: tabs: 10, 20 mg	PO: 2 hr	3–6.8 hr	Liver metabolism: limited Renal Excretion: 69%–85% Feces: 10 %	5–20 mg PO bid–tid (max 120 mg/24h)	☺	• nausea/vomiting • sedation • dizziness • weakness • neuropsychiatric disturbances • genitourinary effects	• CNS depressants
Belladonna & Opium Anticholinergic + opioid Relief of pain due–smooth muscle spasm	Various: belladonna/opium: 16.2/30 mg 16.2/60 mg	NA	NA	Renal excretion: Belladonna 33%	1 PR q 6 h PRN	☺	• anticholinergic AE • photophobia • constipation • difficulty urinating • somnolence	• antacids, histamine H_2 receptor antagonists may interfere with absorption • amantadine, quinidine • haloperidol • phenothiazines • MAOIs • TCAs

Generic name	Trade name(s), dosage forms	Time Cmax	Elimination t½	Route of elimination	Adult doses	Pediatric doses	Adverse effects	Common interactions
Bethanechol Cholinergic stimulant	Various, Urecholine® is an example: tabs: 5, 10, 25, 50 mg	NA	NA	Unknown	10–50 mg PO tid–qid, or 2.5–10 mg SC tid–qid	☺	• cholinergic stimulation, including sweating, salivation, flushing, decreased BP, nausea, abdominal pain, diarrhea, bronchospasm	• anticholinergic drugs • atropine • quinidine • procainamide • sympathomimetics
Cyclobenzaprine Muscle relaxant	Various, Flexeril ®is an example: tab: 5, 10 mg	PO: 3.9 hr	18 hr	Liver metabolism: extensive Renal Excretion: 1%	20–40 mg daily in divided doses (max 60 mg/24h)	☺	• drowsiness • dry mouth • dizziness • fatigue • nausea/vomiting • confusion	• TCAs • MAOIs • CNS depressants • anticholinergics
Cyproheptadine H_1 receptor antagonist	Various, Periactin ® is an example: tab: 4 mg syrup: 2 mg/5 ml	PO: 6–9 hr	16 hr	Liver metabolism: 57% Renal Excretion: 40% Feces: 2%–20%	4–20 mg PO ÷ q 4–6 h (max 32 mg/24h)	2–4 mg bid–tid depending on age and weight (max 16 mg/24h)	• sedation • dizziness • confusion • nausea/vomiting • arrhythmias • hypersensitivity	• CNS depressants • ephedrine • MAOIs
Dantrolene Muscle relaxant	Dantrium ®: caps: 25, 50, 100 mg inj: 20 mg/vial	PO: 4–8 hr	8.7 hr	Liver metabolism: 80% of the absorbed dose as metabolites	25–50 mg PO daily–qid	☺	• muscle weakness • slurred speech • drowsiness • dizziness • diarrhea • nausea/vomiting • malaise • hepatic effects	• verapamil • CNS depressants
Dicyclomine Anticholinergic antispasmodic	Various, Bentyl ®is an example: tabs: 10, 20 mg syrup: 10 mg/5 ml inj: 10 mg/ml	PO: 60–90 minutes	1.8 hr	Renal Excretion: 79.5% Feces: 8.4%	10–20 mg PO tid–qid	☺	• anticholinergic AE	• antacids • slow K • levodopa • digoxin • phenothiazines • amantadine • antiparkinsonian agents • glutethimide

Generic name	Trade name(s), dosage forms	Time Cmax	Elimination t½	Route of elimination	Adult doses	Pediatric doses	Adverse effects	Common interactions
Flavoxate Smooth muscle relaxant	Urispas ®: tab: 100 mg	Initial response PO: 55 minutes–2 hr	NA	Liver metabolism: Renal Excretion: 57%	100–200 mg PO tid–qid	☺	• nausea/vomiting • dry mouth • headache • drowsiness • confusion	• none significant
Fosphenytoin Antiepileptic injectable prodrug of phenytoin	Cerebyx ®: inj: dosed as phenytoin equivalents	IM: 30 minutes IV: immediate (at end of infusion)	Conversion half-life of fosphenytoin to phenytoin is 15 minutes Phenytoin: 12–28.9 hr	Liver metabolism: to phenytoin which is metabolized extensively (95%) Bile excretion	IM, SC, IV consult pharmacy for phenytoin equivalent determination	IM, SC, IV consult pharmacy for phenytoin equivalent determination	• ataxia, diplopia, dizziness, nystagmus • confusion, drowsiness, hallucinations • cardiovascular effects • constipation • depression • gingival hyperplasia • hematologic effects • hepatic dysfunction • hypotension • megaloblastic anemia • nausea/vomiting • hypersensitivity • avoid in pregnancy	• amiodarone, mexiletine, quinidine • antihistamines • benzodiazepines • carbamazepine, valproic acid • cimetidine • chloramphenicol • corticosteroids, salicylates • cyclosPO:rine • disulfiram • doxycycline • folic acid • isoniazid, rifampin • methadone • phenobarbital • TCAs, trazodone • theophylline
Hydroxyzine Histamine H_1 receptor antagonist	Various, Atarax,® Vistaril ® are examples: caps: 10, 25, 50, 100 mg inj: 25 mg/ml, 50 mg/ml syrup: 10 mg/5 ml	PO: 2 hr	3–20 hr Cetirizine: 25 hr	Liver metabolism: to Cetirizine, active	25 mg PO tid–qid PO/IV	2 mg/kg/24h PO ÷ tid–qid	• drowsiness • dry mouth • dizziness • headache • nausea/vomiting • bitter taste in mouth	• CNS depressants • anticholinergics • epinephrine

Generic name	Trade name(s), dosage forms	Time Cmax	Elimination t½	Route of elimination	Adult doses	Pediatric doses	Adverse effects	Common interactions
Meclizine Histamine H_1 receptor antagonist	Various, Antivert,® Bonine ® are examples: tab: 12.5, 25, 50 mg	Initial response: PO: 1 hr	6 hr	Liver metabolism: probable Renal excretion: Metabolites Fecal: unchanged drug	25–100 mg PO daily–qid	use ½ the adult dose	• drowsiness • dry mouth • blurred vision	• CNS depressants • anticholinergics
Methocarbamol Muscle relaxant	Various, Robaxin ® is an example: tabs: 500, 750 mg inj: 100 mg/ml	PO: 1–2 hr	0.9–2 hr	Liver metabolism: extensive	500 mg PO tid–qid (max 6000 mg/24h)	☺	• drowsiness • dizziness • headache • blurred vision • nausea/vomiting • hypersensitivity	• CNS depressants • anticholinergics • pyridostigmine
Nifedipine Calcium–channel blocker Hiccups	Various, Adalat,® Procardia ® are examples: IR tabs: 10, 20 mg ER tabs: 30, 60, 90 mg	PO IR: 20–45 minutes PO ER: 6 hr SL: 60 minutes	2–2.5 hr	Liver metabolism: extensive Renal Excretion: 70%–80% Bile/Feces: 20%	hiccups: 10–20 mg PO, SL q 8 h or 30–60 mg PO daily ER	hypertension: 0.5 mg/kg/24h PO: ÷ q 8 h, increase as needed up–1.5 mg/kg/24h	• dizziness • lightheadedness • headache • insomnia • palpitations • nausea/vomiting	• cimetidine • ranitidine • propranolol
Orphenadrine Muscle relaxant	Norflex ®: tab: 100 mg inj: 30 mg/ml	PO: 2–4 hr IM: 1 hr	13.2–20.1 hr	Liver metabolism: Renal Excretion: 60%	60 mg IM, IV q 12 h or 100 mg PO bid	☺	• anticholinergic AE • nausea/vomiting • headache • drowsiness	• propoxyphene • CNS depressants
Oxybutynin For relief of urinary urgency, frequency, leakage, incontinence associated with a neurogenic bladder	Various, Ditropan ® is an example: tab: 5 mg syrup: 5 mg/5 ml Oxytrol® Transdermal 3.9mg	PO: 1 hr TD: NA	1.1–2.3 hr	Liver metabolism: primary site Renal excretion: less than 0.1%	5 mg PO bid–tid (max dose 20 mg daily) 3.9 mg TD twice weekly	< 5rs: 0.5 mg/kg/24h PO ÷ qid > 5 y: 10–15 mg/24h ÷ bid–tid	• anticholinergic AE	• none significant

Generic name	Trade name(s), dosage forms	Time Cmax	Elimination t½	Route of elimination	Adult doses	Pediatric doses	Adverse effects	Common interactions
Phenazopyridine Anesthetic–relieve dysuria	Pyridium ®: tabs: 100, 200 mg	NA	NA	Liver Metabolism: Renal Excretion: 65%	200 mg PO tid	☺	• orange or red urine • mild upper GI upset other AE are rare, including: • headache • transient acute renal failure • methemoglobinemia • hypersensitivity	• none significant
Phenytoin Antiepileptic	Various, Dilantin ® is an example: caps: 30, 100 mg infatabs: 50 mg suspension: 30 or 125 mg/5 ml inj: 50 mg/ml	PO ER capsules: 4–12 hr IV with loading dose: 20–25 minutes	PO: 7–42 hr; value is variable due–the saturation kinetics IV: 10–15 hr	Liver metabolism: extent unknown Renal excretion: 2% Bile: most of the dose	seizures, hiccups: start with 100 mg PO/IV tid and adjust–achieve therapeutic blood levels (monitor blood levels) (if the person is unable–swallow and IV access is not possible, parenteral solutions may also be administered PR) (see fosphenytoin)	6 mo–3 y: 7–9 mg/kg/24h ÷ bid–tid 4–6 y: 6.5 mg/kg/24h ÷ bid–tid 7–9 y: 6 mg/kg/24h ÷ bid–tid 10–16 y: 3–5 mg/kg/24h ÷ bid–tid	• ataxia, diplopia, dizziness, nystagmus • confusion, drowsiness, hallucinations • cardiovascular effects • constipation • depression • gingival hyperplasia • hematologic effects • hepatic dysfunction • hypotension • megaloblastic anemia • nausea/vomiting • hypersensitivity • avoid in pregnancy	• amiodarone, mexiletine, quinidine • antihistamines • benzodiazepines • carbamazepine, valproic acid • cimetidine • chloramphenicol • corticosteroids, salicylates • cyclosPO:rine • disulfiram • doxycycline • folic acid • isoniazid, rifampin • methadone • phenobarbital • TCAs, trazodone • theophylline
Quinine sulfate For nighttime leg cramps	Various: tab:260, 325 mg	PO: 1–3.2 hr	4.1–11.1 hr	Renal Excretion: 12%–30%	200–300 mg PO nightly PRN	☺	• headache • nausea/vomiting • tinnitus • confusion • hypersensitivity	• mefloquine • cardiac glycosides, • cimetidine

Generic name	Trade name(s), dosage forms	Time Cmax	Elimination t½	Route of elimination	Adult doses	Pediatric doses	Adverse effects	Common interactions
Simethicone Antiflatulent, particularly for gastric gas	Various combinations with antacids tab: 80, 125 mg susp: 40 mg/0.6ml	Inert: not absorbed	NA	Feces: unchanged	as per antacid directions 40–120 mg PO qid PRN pc + hs (max daily dose = 500 mg)	see directions on bottle	• none significant	• none significant