

TCA
SSRI
Other

Antibiotics	
ampicillin	✓
cefOXitin X	✓
clindamycin	✓
gentamicin (Oint & Sol'n NIHB covered)	✓
piperacillin X ⊗	✓
vancomycin ⊕ ⊕	✓

Antidepressants	
amitriptyline	ELAVIL ⊗
clomIPRAMINE	ANAFRANIL ⊗
desipramine	NORPRAMIN ⊗
doxepin >6mg	SINEQUAN ⊗
imipramine	TOFRANIL ⊗
nortriptyline	AVENTYL ⊗
-less anticholinergic effects than amitriptyline & imipramine	
trimipramine	SURMONTIL ⊗

citalopram ☆	CELEXA ✓
escitalopram ☆	CIPRALEX ✓
FLUoxetine	PROZAC ✓
fluvoxamine	LUVOX ✓
PARoxetine	PAXIL ⊗ ⊗
sertraline ☆	ZOLOFT ✓

buPROPion ☆	WELLBUTRIN, ZYBAN ✓
desvenlafaxine	PRISTIQ X ⊗ ✓
DULoxetine	CYMBALTA ✓
mirtazapine ☆	REMERON ✓
moclobemide ☆	MANERIN ✓
phenelzine	NARDIL ✓
traZODone ☆	TRAZOREL ✓
venlafaxine ☆	EFFEXOR ✓
In the elderly, citalopram & sertraline are the usually preferred SSRIs.	

Antihistamines/Antipruritics	
brompheniramine	COUGH & COLD PRODUCTS OTC X ⊗
chlorpheniramine	CHLOR-TRIPOLON OTC X ⊗
cyproheptadine	PERIACTIN OTC X ⊗
diphenhydRAMINE	BENADRYL OTC X ⊗
doxylamine	UNISOM X ⊗
hydrOXYzine	ATARAX X ⊗
pyrilamine	MIDOL, PAMPRIN OTC X ⊗
trimeprazine ⊕	PANECTYL ⊗ ⊗
triprolidine	COTRIND X ⊗

Preferred Alternatives: cetirizine REACTINE X ✓ & fexofenadine ALLEGRA X ✓ (controversial rating as medium/high activity), desloratadine AERIUS X ✓, loratadine CLARITIN X ✓.

Antimuscarinics	
darifenacin	ENABLEX ⊕ ⊕
fesoterodine	TOVIAZ ⊕ ⊕
flavoxate	URISPAS X
mirabegron ⊕	MYRBETRIQ ⊕ ⊕
oxybutynin	DITROPAN (X ⊗ on XL only)
propiverine	MICTORYL PEDIATRIC ⊕ ⊕
solifenacin	VESICARE On SPDP
tolterodine I-tartrate	DETROL LA On SPDP
tropium	TROSEC ⊕ ⊕

Antiparkinsonian	
amantadine	SYMMETREL ✓
benztropine mesylate	COGENTIN ⊗ ⊗
bromocriptine	PARLODEL ✓
carbidopa/levodopa ☆	SINEMET ✓
entacapone	COMTAN ✓
ethopropazine	PARSITAN ⊗ ⊗
phenelzine	NARDIL
pramipexole	MIRAPEX ✓
procyclidine	KEMADRIN ⊗ ⊗
selegiline	ELDEPRYL ⊕ ✓
trihexyphenidyl	ARTANE ⊗ ⊗

Antipsychotics	
ARIPiprazole ☆	ABILIFY ⊕ ⊕ & MAINTENA ⊕ ✓
asenapine	SAPHRIS (⊕-BPAD) ⊗
chlorproMAZINE	LARGACTIL ⊗
cloZAPine	CLOZARIL ⊕ ✓
flupentixol	FLUANXOL ⊗
fluPHENAZine	MODITEN ⊗
haloperidol	HALDOL ✓
loxapine	LOXAPAC ⊗
lurasidone ⊕	LATUDA ⊕ ⊕
methotrimeprazine	NOZINAN ⊗
OLANzapine	ZYPREXA ⊗
paliperidone	INVEGA (⊕ ⊕ on injection only) ✓
pericyazine	NEULEPTIL ⊗
perphenazine	TRILAFON ⊗
pimozide	ORAP ⊗
QUETiapine	SEROQUEL ⊗
risperidONE ☆	RISPERDAL (⊕ ⊕ on injection) ✓
trifluoperazine	STELAZINE ⊗
ziprasidone ☆	ZELDOX ✓
zuclopenthixol ⊕	CLOPIXOL ⊗

Antiseizure Drugs	
carBAMazepine	TEGRETOL ✓
divalproex ☆	EPIVAL ✓
OXcarbazepine	TRILEPTAL ⊕ ✓
valproic acid ☆	DEPAKENE ✓

Preferred Alternatives: divalproex EPIVAL, gabapentin NEURONTIN, lamotrigine LAMICTAL, levetiracetam KEPPRA.

Antispasmodics	
dicyclomine	FORMULEX, BENTYLOL ⊗ ⊗
glycopyrrolate	ROBINUL X ⊗ ⊕
hyoscine butylbromide	BUSCOPAN ⊗ ⊕

Benzodiazepines	
ALPRAZolam	XANAX half-life: ~12 hr ✓
chlordiazepOXIDE	LIBRIUM half-life: ~100 hr ⊗ ✓
clonazepam	RIVOTRIL half-life: ~34 hr ✓
clorazepate	TRANXENE half-life: ~100 hr ⊗ ✓
diazepam	VALIUM half-life: ~100 hr ✓
flurazepam	DALMANE half-life: ~100 hr ⊗ ✓
LORazepam ☆	ATIVAN half-life: ~15 hr ✓
midazolam	VERSED half-life: ~3 hr X ⊗ ✓
oxazepam ☆	SERAX half-life: ~8 hr ✓
temazepam ☆	RESTORIL half-life: ~11 hr ✓
triazolam	HALCION half-life: ~2 hr ✓

Avoid long- & ultra-short acting agents in the elderly. (Clonazepam ok, if long-acting required e.g. chronic anxiety)

Cardiovascular Agents	
atenolol	TENORMIN ✓
captopril	CAPOTEN ✓
chlorthalidone	GENERIC ONLY ✓
digoxin	LANOXIN, TOLOXIN ✓
diTIAZem ☆	CARDIZEM, TIAZAC ✓
dipyridamole	PERSANTINE, AGGRENOX ⊕ ✓
disopyramide	RYTHMODAN ⊗
furosemide	LASIX ✓
hydrALAZINE	APRESOLINE ✓
isosorbide	ISORDIL ✓
metoprolol ☆	LOPRESOR ✓
NIFEdipine	ADALAT ✓
quinIDine	GENERIC ONLY X ⊗ ✓
triarterene	DYRENIUM ✓
warfarin ☆	COUMADIN ✓

Gastrointestinal Agents	
atropine	LOMOTIL on SPDP, ⊗ ⊕ ⊗
belladonna	GENERIC ONLY X ⊗ ⊗
bisacodyl	BISACODYL X ✓ OTC
chlordiazepoxide/clidinium	LIBRAX X ⊗
cimetidine	TAGAMET ⊗
dicyclomine	BENTYLOL ⊗
dimenhyDRINATE	GRAVOL OTC
diphenoxylate/atropine	LOMOTIL on SPDP, ⊗ ⊕ ⊗
domperidone	MOTILIUM
famotidine ☆	PEPCID OTC & Rx ✓
loperamide	IMODIUM OTC

meclizine	BONAMINE ⊗
metoclopramide	MAXERAN ✓
nizatidine	AXID ✓
prochlorperazine	STEMETIL ⊗
promethazine	PHENERGAN OTC X ⊗ ⊗
raNITidine	ZANTAC OTC & Rx ✓
scopolamine	TRANSDERM V OTC on SPDP, ⊕ ⊗

Preferred Alternatives: bisacodyl X, PPIs, domperidone; famotidine, or ranitidine if ≤150mg/day

Respiratory Meds	
aclidinium bromide	TUDORZA GENUAIR ⊕ ⊕
aclidinium/formoterol	DUAKLIR GENUAIR ⊕ ⊕
fluticasone/salmeterol	ADVAIR ⊕ ⊕
ipratropium/salbutamol	ATROVENT/COMBIVENT ✓
glycopyrronium	SEEBRI BREEZHALER ⊕ ⊕
glycopyrronium/Indacaterol	ULTIBRO BREEZHALER ⊕ ⊕
pseudoephedrine	COUGH & COLD PRODUCTS OTC X ⊗
theophylline	THEOLAIR, UNIPHYL ✓
tiotropium	SPIRIVA ⊕ ⊕
tiotropium/olodaterol	INSPILOTTO ⊕ ⊕
umeclidinium	INCURSE ELLIPTA ⊕ ⊕
umeclidinium/vilanterol	ANORO ELLIPTA ⊕ ⊕
umeclidinium/vilanterol/fluticasone	TRELEGY ELLIPTA X ⊗

TO MINIMIZE SYSTEMIC EFFECTS OF INHALATIONAL MEDS: AVOID OVERUSE, USE AEROCHAMBER FOR IPRATROPIUM INHALER.

Immunosuppressants	
azaTHIOprine	IMURAN ✓
cyclosporine	NEORAL ⊕ ⊕ ✓
hydrocortisone	CORTEF
methylprednisolone	MEDROL
prednisone	WINPRED

Muscle Relaxants	
baclofen	LIORESAL (⊕ on intrathecal only) ✓
cyclobenzaprine	FLEXERIL ⊕ ⊕ ⊗
methocarbamol	ROBAXIN OTC X ⊗
orphenadrine	NORFLEX OTC X ⊗
tizANidine	ZANAFLEX ⊕ ⊕

Baclofen is the preferred agent of the above listed muscle relaxants however, it does display moderate to high anticholinergic activity.

Opioids	
meperidine	DEMEROL *Not for chronic use X ⊗ ⊗
codeine	(⊕ on controlled release only, ⊕, inj & liquid) ✓
fentaNYL	DURAGESIC ⊕ ⊕ ⊕
HYDROMorphone ☆	DILAUDID, HYDROMORPH CONTIN ⊕ on CR only ✓
morphine ☆	STATEX, M.O.S., KADIAN ⊕ ✓
oxyCODONE	SUPEDOL, OXY IR
traMADol ☆	OXYNEO ⊕ ⊕, ULTRAM, RALIVIA, TRIDURAL, ZYTRAM XL X ⊗

Preferred Alternatives: acetaminophen X, NSAIDs (e.g. ibuprofen, naproxen)

Miscellaneous	
busPIRone ⊕	BUSPAR ✓
celecoxib	CELEBREX
colchicine	GENERIC ONLY ✓
ketotifen ophthalmic	ZADITOR ⊕ ⊗ ✓
lithium	CARBOLITH, DURALITH ✓
metformin	GLUCOPHAGE, GLYCON, g
methotrexate	GENERIC ONLY
naratriptan	AMERGE ⊕ ✓
pancuronium	GENERIC ONLY X ⊗ ✓
SUMatriptan	IMITREX ⊕ ✓
ZOLMitriptan	ZOMIG ⊕ ✓

⊕ = Possible preferred alternatives
 ☆ = Denotes agents with anticholinergic activity that may be better tolerated than others. Whenever possible, anticholinergic drugs should be avoided, & the preferred agents used.
 ⊕ = Unable to confirm anticholinergic activity (black font)
 AChEI = Acetylcholinesterase Inhibitor (e.g. donepezil ARICEPT, galantamine REMINYL, rivastigmine EXELON) ⊕ ⊕
 CR = Controlled Release Formulation
 PPI = Proton Pump Inhibitor (e.g. rabeprazole)
 OTC = Over-the-counter
 ✓ = Saskatchewan Health finds co-administration of this agent with a AChEI acceptable
 ⊗ = If patient is currently on this medication, Saskatchewan Health will NOT cover AChEI

Drugs with Anticholinergic Effects ^{5:6-7:8}

Diseases associated with an essential cholinergic deficit include Alzheimer’s dementia, Lewy body dementia & to some extent other dementias (not frontal). Anticholinergic drugs worsen the deficit & are therefore highly problematic. **Donepezil** ^{ARICEPT}, **rivastigmine** ^{EXELON}, and **galantamine** ^{REMINYL} are reversible inhibitors of the enzyme acetylcholinesterase. Because of the mechanism of action, medications with anticholinergic effects can interfere with the activity of donepezil, rivastigmine and galantamine. The reverse page of this document contains a list of drugs with anticholinergic effects, with an emphasis on those with moderate to high activity. Drug coverage (in Sask.) may be affected if a patient is using a drug on this list concurrently with donepezil, rivastigmine or galantamine.

Not only is drug coverage of concern, the use of drugs with anticholinergic activity can increase the risk of adverse effects (e.g., cognitive dysfunction, delirium) in the elderly. Drugs with low anticholinergic activity may be good alternatives to drugs with more anticholinergic activity. For example, SSRIs with lower anticholinergic activity are preferred over tricyclics for treatment of depression in the elderly. However, it’s not just the use of single drugs with significant anticholinergic activity that can cause trouble. Individuals who take multiple medications with low anticholinergic activity may also have increased risk of adverse effects. In fact, even small increases in so-called anticholinergic burden or load increases the risk of morbidity & mortality in older individuals.⁹

Total Anticholinergic Load: both highly anticholinergic drugs plus others (e.g. digoxin, paroxetine, ranitidine) contribute to the anticholinergic load & cognitive impairment. Review each medication the patient is taking.

Spectrum of Anticholinergic Side-Effects

Mild	Moderate	Severe
<ul style="list-style-type: none"> Dryness of mouth (modest) 	<ul style="list-style-type: none"> Moderately disturbing dry mouth/thirst Speech problems Reduced appetite 	<ul style="list-style-type: none"> Difficulty chewing, swallowing, speaking Impaired perception of taste & texture of food Dental decay, periodontal disease, denture misfit Mucosal damage Malnutrition Respiratory infection
<ul style="list-style-type: none"> Mild dilatation of pupils 	<ul style="list-style-type: none"> Inability to accommodate Vision disturbances Dizziness 	<ul style="list-style-type: none"> Increased risk of accidents & falls leading to decreased function Exacerbation/precipitation of acute angle closure glaucoma
	<ul style="list-style-type: none"> Esophagitis Reduced gastric secretions, gastric emptying (atony) Reduced peristalsis, constipation 	<ul style="list-style-type: none"> Fecal impaction (in patients with constipation) Altered absorption of concomitant medications Paralytic ileus, pseudo-obstruction
<ul style="list-style-type: none"> Urinary hesitancy 		<ul style="list-style-type: none"> Urinary retention, urinary tract infection (in patients with urinary hesitancy)
	<ul style="list-style-type: none"> Increased heart rate 	<ul style="list-style-type: none"> Conduction disturbances supraventricular tachyarrhythmias Exacerbation of angina Congestive heart failure
<ul style="list-style-type: none"> Decreased sweating 		<ul style="list-style-type: none"> Thermoregulatory impairment leading to hyperthermia (heat stroke). {Additional risk if also on diuretic.}
<ul style="list-style-type: none"> Drowsiness Fatigue Mild amnesia Inability to concentrate 	<ul style="list-style-type: none"> Excitement Restlessness Confusion Memory impairment 	<ul style="list-style-type: none"> Profound restlessness & disorientation, agitation Hallucinations, delirium Ataxia, muscle twitching, hyperreflexia, seizures Exacerbation of cognitive impairment (in patients with dementia)

Tips to Deal with Anticholinergic Side-Effects

General approach:

- Identify the cause
- Discontinue unnecessary offending medications
- Reduce the dose
- Look for effective alternatives that are less likely to cause the side effect

Dry Mouth:

- 80% of the most commonly prescribed medications can cause dry mouth (e.g. incontinence meds, Parkinson’s meds, antidepressants, antipsychotics, NSAIDs, opioids, muscle relaxants, antihistamines, benzodiazepines, antihypertensives [clonidine, alpha-blockers, beta-blockers, calcium channel blockers, diuretics, ACE inhibitors]).
- When appropriate, instruct patients to take meds associated with dry mouth early in the day since salivary production is lowest at night
- Divided doses may also be less likely to cause dry mouth than a single large dose
- Consider therapeutic alternatives that are less likely to cause dry mouth
- Avoid: alcohol-containing mouthwashes, alcoholic beverages, caffeine, tobacco
- Swish mouth with water every 2 hours
- Drink plenty of fluids while eating to make swallowing easier; avoid foods that are hard to chew
- Chewing sugar-free gum or sucking on sugar-free candy mechanically stimulates salivation and can be recommended to promote salivation in patients with functioning salivary glands
- Nondrug options:** bedroom humidifier; artificial saliva or oral lubricants (**MOUTH KOTE, BIOTENE GEL, ORAL BALANCE GEL, MOI-STIR SPRAY** ▼ for Palliative care)
- Pharmacologic options: pilocarpine (muscarinic agonist) 5 to 10mg of pilocarpine 3 or 4 times daily to a max of 30mg daily – will cause salivation in patients with functioning salivary glands. Duration of action is 3 to 5 hours. Common side effects (dose-dependent): sweating, nausea, rhinitis, flushing, urinary frequency. CI: uncontrolled asthma, narrow-angle glaucoma, acute iritis. **Pilocarpine eye drops** cost significantly less than pilocarpine tablets and can be used orally for treatment of dry mouth. **4 drops of the 2% solution, directly on tongue or add to small amount of water & swish and swallow, 3 times daily** (can swish and spit to reduce systemic side effects).

Amantadine	152
Amitriptyline	152
ANAFRANIL	152
Anticholinergic	152
ARTANE	152
ATARAX	152
Atropine	152
AVENTYL	152
Baclofen	152
Belladonna	152
BENADRYL	152
BENTYLLOL	152
Benztropine	152
BONAMINE	152
Brompheniramine	152
BUSCOPAN	152
Carbamazepine	152
Chlordiazepoxide/Clidinium	152
Chlorpheniramine	152
Chlorpromazine	152
CHLOR-TRIPLON	152
Clomipramine	152
Clozapine	152
CLOZARIL	152
COGENTIN	152
COTRIDIN	152
Cyclobenzaprine	152
Cyproheptadine	152
Darifenacin	152
DEMEROL	152
Desipramine	152
DETROL	152
Dicyclomine	152
Dimenhydrinate	152
Diphenoxylate/Atropine	152
Disopyramide	152
DITROPAN	152
Doxylamine	152
ELAVIL	152
ENABLEX	152
Ethopropazine	152
Fesoterodine	152
Flavoxate	152
FLEXERIL	152
Fluphenazine	152
FORMULEX	152
Glycopyrrolate	152
GRAVOL	152
HALDOL	152
Haloperidol	152
Hydroxyzine	152
Hyoscine Butylbromide	152
Imipramine	152
IMODIUM	152
KEMADRIN	152
LARGACTIL	152
LIBRAX	152
LIORESAL	152
LOMOTIL	152
Loperamide	152
LOXAPAC	152
Loxapine	152
Meclizine	152
Meperidine	152
Methocarbamol	152
Methotrimeprazine	152
MICTORYL	152
MIDOL	152
MODITEN	152
NEULEPTIL	152
NORFLEX	152

NORPRAMIN	152
Nortriptyline	152
NOZINAN	152
Olanzapine	152
ORAP	152
Orphenadrine	152
Oxcarbazepine	152
Oxybutynin	152
Paroxetine	152
PARSITAN	152
PAXIL	152
PERIACTIN	152
Pericyazine	152
Perphenazine	152
PHENERGAN	152
Pimozide	152
Prochlorperazine	152
Procyclidine	152
Promethazine	152
Propiverine	152
Pseudoephedrine	152
Quetiapine	152
RALIVIA	152
Ranitidine	152
ROBAXIN	152
ROBINUL	152
RYTHMODAN	152
Scopolamine	152
SEROQUEL	152
SINEQUAN	152
Solifenacin	152
STELAZINE	152
STEMETIL	152
SUDAFED	152
SURMONTIL	152
SYMMETREL	152
TEGRETOL	152
THEOLAIR	152
Theophylline	152
Tizanidine	152
TOFRANIL	152
Tolterodine	152
TOVIAZ	152
Tramadol	152
TRANSDERM V	152
TRIDURAL	152
Trifluoperazine	152
Trihexyphenidyl	152
TRILAFON	152
TRILEPTAL	152
Trimipramine	152
Tripolidine	152
TROSEC	152
Trospium	152
ULTRAM	152
UNIPHYL	152
UNISOM	152
URISPAS	152
VESICARE	152
ZANAFLEX	152
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ZYPREXA	152
ZYTRAM	152

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