

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	⊗
pyrilamine	MIDOL, PAMPRIN	OTC X ⊗
trimeprazine	PANECTYL	⊗
triprolidine	COTRIDIN	X ⊗

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

Antimuscarinics/Incontinence Meds		
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	✓
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	⊗
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	⊗
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, AGGRENOL	✓
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	OTC X ▼
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	INSPILOT	⊗
umeclidinium	INCURSE ELLIPTA	⊗
umeclidinium/vilanterol	ANORO ELLIPTA	⊗
umeclidinium/vilanterol/fluticasone	TRELEGY ELLIPTA	⊗

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	⊗
morphine ☆	STATEX, M.O.S., KADIAN	⊗
oxyCODONE	SUPEDOL, OXY IR	⊗
traMADol ☆	ULTRAM, RALIVIA, TRIDURAL, ZYTRAM XL	⊗

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	154
Amitriptyline	154
ANAFRANIL	154
Anticholinergic	154
ARTANE	154
ATARAX	154
Atropine	154
AVENTYL	154
Baclofen	154
Belladonna	154
BENADRYL	154
BENTYLLOL	154
Benztropine	154
BONAMINE	154
Brompheniramine	154
BUSCOPAN	154
Carbamazepine	154
Chlordiazepoxide/Clidinium	154
Chlorpheniramine	154
Chlorpromazine	154
CHLOR-TRIPLON	154
Clomipramine	154
Clozapine	154
CLOZARIL	154
COGENTIN	154
COTRIDIN	154
Cyclobenzaprine	154
Cyproheptadine	154
Darifenacin	154
DEMEROL	154
Desipramine	154
DETROL	154
Dicyclomine	154
Dimenhydrinate	154
Diphenoxylate/Atropine	154
Disopyramide	154
DITROPAN	154
Doxylamine	154
ELAVIL	154
ENABLEX	154
Ethopropazine	154
Fesoterodine	154
Flavoxate	154
FLEXERIL	154
Fluphenazine	154
FORMULEX	154
Glycopyrrolate	154
GRAVOL	154
HALDOL	154
Haloperidol	154
Hydroxyzine	154
Hyoscine Butylbromide	154
Imipramine	154
IMODIUM	154
KEMADRIN	154
LARGACTIL	154
LIBRAX	154
LIORESAL	154
LOMOTIL	154
Loperamide	154
LOXAPAC	154
Loxapine	154
Meclizine	154
Meperidine	154
Methocarbamol	154
Methotrimeprazine	154
MICTORYL	154
MIDOL	154
MODITEN	154
NEULEPTIL	154
NORFLEX	154

NORPRAMIN	154
Nortriptyline	154
NOZINAN	154
Olanzapine	154
ORAP	154
Orphenadrine	154
Oxcarbazepine	154
Oxybutynin	154
Paroxetine	154
PARSITAN	154
PAXIL	154
PERIACTIN	154
Pericyazine	154
Perphenazine	154
PHENERGAN	154
Pimozide	154
Prochlorperazine	154
Procyclidine	154
Promethazine	154
Propiverine	154
Pseudoephedrine	154
Quetiapine	154
RALIVIA	154
Ranitidine	154
ROBAXIN	154
ROBINUL	154
RYTHMODAN	154
Scopolamine	154
SEROQUEL	154
SINEQUAN	154
Solifenacin	154
STELAZINE	154
STEMETIL	154
SUDAFED	154
SURMONTIL	154
SYMMETREL	154
TEGRETOL	154
THEOLAIR	154
Theophylline	154
Tizanidine	154
TOFRANIL	154
Tolterodine	154
TOVIAZ	154
Tramadol	154
TRANSDERM V	154
TRIDURAL	154
Trifluoperazine	154
Trihexyphenidyl	154
TRILAFON	154
TRILEPTAL	154
Trimipramine	154
Tripolidine	154
TROSEC	154
Trospium	154
ULTRAM	154
UNIPHYL	154
UNISOM	154
URISPAS	154
VESICARE	154
ZANAFLEX	154
ZANTAC	154
ZYPREXA	154
ZYTRAM	154

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