

Warning: This chart was created by [SwallowStudy.com](http://SwallowStudy.com), and it is intended to be used as a resource or guide for Speech-Language Pathologists and other healthcare professionals. This is not a complete list of all medications that could cause dysphagia, dry mouth and/or central nervous system changes. This information should not be used as a substitute for consultation with the appropriate healthcare professionals (e.g., the patient's doctor & pharmacist).

## 1. Medications that Can Lead to a Dysphagia Side-Effect

| <b>Neuromuscular Blocking Agents / Direct effect on striated muscle</b> |                       |  |
|---|-----------------------|--|
| <b>Specific Drug Names:</b>   | <b>Also Known As:</b> | <b>Common Uses:</b>  |
| <b>Atracurium</b>   | Tracrium              | Muscle relaxation  |
| <b>Cisatracurium</b>  | Nimbex                | Muscle relaxation  |
| <b>Doxacurium</b>   | Nuromax               | Long-acting muscle relaxation  |
| <b>Mivacurium</b>   | Mivacron              | Short-acting muscle relaxation   |
| <b>Pancuronium</b>  | Pavulon               | Muscle relaxation  |
| <b>Pipecuronium</b>   | Arduan                | Muscle relaxation  |
| <b>Rocuronium</b>   | Zemuron               | Muscle relaxation  |
| <b>Succinylcholine</b>  | Anectine              | Muscle relaxation during surgery when using a ventilator; sometimes used during intubation |
| <b>Tubocurarine</b>   | Tubarine              | Muscle relaxation  |
| <b>Vecuronium</b>   | Norcuron              | Muscle relaxation (generally given before anesthesia)                                      |

| <b>Antipsychotic / Major Tranquilizers / Neuroleptics</b> |                       |  |
|---|-----------------------|--|
| <b>Examples of Typical/ Conventional:</b>                 | <b>Also Known As:</b> | <b>Common Uses:</b>  |
| <b>Chlorpromazine</b>                                     | Thorazine             | Treat psychotic disorders including schizophrenia, manic-depression, or severe behavioral problems |

|                                     |                       |  |
|-------------------------------------|-----------------------|--|
| <b>Haloperidol</b>                  | Haldol                | Treat schizophrenia and Tourette's syndrome (*per drugs.com should not be used for psychotic conditions related to dementia) |
| <b>Examples of Atypical/ Novel:</b> | <b>Also Known As:</b> | <b>Common Uses:</b>  |
| <b>Clozapine</b>                    | Clozaril              | Treat schizophrenia  |
| <b>Olanzapine</b>                   | Zyprexa               | Treat psychotic disorders including schizophrenia or bipolar disorder  |
| <b>Risperidone</b>                  | Risperdal             | Treat schizophrenia, bipolar disorder  |

| <b>Medications that can cause to Esophagitis / Esophageal Injury / GERD (con't)</b> |  |  |
|---|--|--|
| <b>Drug Classes:</b>  | <b>Examples (brand names):</b>   | <b>Common Uses:</b>  |
| <b>Bisphosphonate</b>   | Alendronate (Fosamax)<br>Etidronate<br>Ibandronate (Boniva)  | Postmenopausal osteoporosis, irregular bone growth   |
| <b>Antibiotics</b><br>Akhtar (2003)   | Doxycycline<br>Tetracycline<br>Clinamycin<br>Penicillin<br>Erythromycin<br>Ciprofloxacin<br>Lincomycin | Treat infections   |
| <b>Bronchodilator</b>   | Theophylline (Theo-24, Theo-Dur, Nophyl, etc)<br><br>Fluticasone/Salmeterol (Advair)                   | Bronchodilator<br>(When using inhalers, rinse mouth with water and spit out water to prevent thrush/sores) |

| <b>Medications that can cause to Esophagitis / Esophageal Injury / GERD (con't)</b>  |  |  |
|--|--|--|
| <b>Non-Steroidal Anti-Inflammatory (NSAIDS)</b>  | Ibuprofen (Advil)<br>Aspirin<br>Naproxen (Aleve)<br>Indomethacin (Indocin) | Analgesic, Anti-inflammatory                           |
| <b>Steroid (corticosteroid)</b>  | Methylprednisolone (Medrol)<br>Prednisone                                  | Anti-inflammatory, immune suppressant                  |
| <b>Anticholinergics</b>  | Emepronium Bromide   | Treats overactive bladder (can cause esophageal ulcer) |
| <b>Quinidine</b>   | Quinine or Quinidex  | Treats malaria, but also antiarrhythmias.              |
| <b>Alprenolol Chloride/<br/>Antihypertensive</b>   | Aptine   |  |
| <b>Minerals and others</b>   | Potassium Chloride<br>Ferrous Sulfate or succinate<br>Ascorbic acid        |  |
| <p><b><u>Factors that increase risk for the medication to cause esophageal injury, stricture and/or ulceration:</u></b><br/>Stoschus &amp; Allescher (1993)<br/>Akhtar (2003)</p>  |  |  |
| <ul style="list-style-type: none"> <li>• Taken at bedtime</li> <li>• Taken without enough fluid</li> <li>• Taken in supine position or in bed</li> <li>• Large pill size</li> <li>• Hx of cirrhosis &amp; portal hypertension</li> <li>• Geriatrics at increased risk</li> <li>• Enlargement of Left Atrium compressing esophagus</li> <li>• Thoracic surgery</li> <li>• Hx of Esophageal motility disorders &amp; strictures</li> </ul> |  |  |

| <b>Medications that can cause to Esophagitis / Esophageal Injury / GERD (con't)</b>  |   |   |
|--|---|---|
| <b>Drugs that can cause gastroesophageal reflux (listed below):</b>  | <b>Drugs that can decrease lower esophageal sphincter pressure (listed below):</b>  | <b>Other items that can decrease lower esophageal sphincter pressure (below):</b>   |
| <b>Bronchodilators</b><br><br><b>Antiangina meds (Nitroglycerin, Isosorbide mononitrate)</b><br><br><b>Calcium Channel blocker (Nifedipine, Diltiazem)</b><br><br><b>Anxiolytic (Alprazolam)</b> | Atropine (Atropar)<br><br>Dopamine<br><br>Butylscopolamine - spasmolytic, anticholinergic (Buscopan)<br><br>Theophylline<br><br>Nitrates<br><br>Calcium Antagonists | Alcohol<br><br>Fatty, fried foods<br><br><u>Hormones:</u><br>Cholecystokinin (stimulates digestion of fat and protein)<br>Glucagon<br>Progesterone<br><br>Chocolate<br><br>Mint |

**2. Medications that Can Lead to a Xerostomia / Dry Mouth Side-Effect:**

| <b>Anticholinergic with Antimuscarinic Effects &amp; Antispasmodics (Inhibiting parasympathetic nervous system)</b> |                       |   |
|---|-----------------------|---|
| <b>Specific Drug Names:</b>   | <b>Also Known As:</b> | <b>Common Uses:</b>   |
| <b>Atropine</b>   | Atropar               | Relief from gastrointestinal spasms; antidiarrheal; treating colitis; spastic bladder; diverticulitis |
| <b>Benztropine mesylate</b>   | Cogentin              | Treating Parkinson's Disease symptoms, including muscle spasms, stiffness, tremors, drooling          |
| <b>Hyoscyamine</b>  | Cytospaz              | Treating stomach, bowel and bladder spasms  |

| Anticholinergics (con't):       | Also known as:     | Common Uses:  |
|---------------------------------|--------------------|---|
| <b>Ipratropium</b>              | Atrovent           | Relaxes muscles in airways<br>Increases airflow to lungs                                      |
| <b>Tiotropium</b>               | Spiriva            | Treats asthma and COPD  |
| <b>Scopolamine (Antiemetic)</b> | Transderm-Scop     | Relieves nausea, vomiting and dizziness. Used to decrease secretion of fluids (i.e., saliva). |
| <b>Pirenzepine</b>              | Gastrozepin        | Treats peptic ulcers, reduces gastric acid secretions, reduces muscle spasm.                  |
| <b>Tolterodine</b>              | Detrol             | Urinary antispasmodic for overactive bladder  |
| <b>Hyoscyamine</b>              | Levsin             | Reduces muscle spasms in digestive system, and can be used to dry and reduces secretions      |
| <b>Diphenhydramine</b>          | Benadryl           | Treats allergy, hay fever, cold symptoms, itching, rashes. Can be used to treat insomnia.     |
| <b>Oxybutynin</b>               | Ditropan, Driptane | Treats overactive bladder   |
| <b>Emepronium Bromide</b>       | Emepronium Bromide | Treats overactive bladder   |

### More Medications with Potential Xerostomia Side-Effects

| Drug Classes:   | Examples (brand names):   | Common Uses:  |
|---|---|---|
| <b>Angiotensin-converting enzyme (ACE) inhibitors</b> | Lisinopril (Zestril, Prinivil, Tensopril, Hipril)<br>Captopril (Capoten),<br>Enalapril (Vasotec, Renitec) | Block the angiotensin converting enzyme to reduce blood pressure.<br><i>Serious side-effect:</i> angio-edema (swelling) - tongue? |
| <b>Antihypertensives</b>                              | Guanfacine (Tenex)<br>Clonidine (Catapres)<br>Terazosin (Hytrin)  | Treat high blood pressure   |

| <b>Drug Classes (xerostomia)</b>               | <b>Examples:</b>   | <b>Common Uses:</b>  |
|--|--|--|
| <b>Antinauseant/Antiemetic</b>                 | Meclizine (Antivert)<br>Dyphenhydramine (Dramamine)<br>Scopolamine   | Prevention of nausea.<br><i>Note:</i> Ondansetron (Zofran) is also used to prevent nausea/vomiting with potentially less dry mouth side-effects. |
| <b>Antidiarrheal</b>                           | Loperamide (ImmodiumAD)<br>Diphenoxylate with Atropine (Lomotil)   | Prevent diarrhea   |
| <b>Antihistamines and Decongestants</b>        | Diphenhydramine (Benadryl),<br>Pseudoephedrine (Sudafed)<br>Fexofenadine (Allegra)<br>Loratadine (Claritin)<br>Cetirizine (Zyrtec) | Treat the symptoms of allergic reactions (hay fever, hives, itchiness)   |
| <b>Diuretics</b>                               | Furosemide (Lasix)   | Increase the volume of urine to promote the excretion of salt and water from the kidneys/body. Used to treat heart failure & kidney disease.     |
| <b>Antianxiety</b>                             | Alprazolam (Xanax)<br>Lorazepam (Ativan)<br>Hydroxyzine (Atarax, Vistaril)<br>Oxazepam (Serax)<br>Diazepam (Valium)                | Treat anxiety  |
| <b>Selective Serotonin Reuptake Inhibitors</b> | Citalopram (Celexa),<br>Fluoxetine (Prozac),<br>Proxetine (Paxil),<br>Sertraline (Zoloft)<br>Venlafaxine (Effexor)                 | Block serotonin from being re-absorbed to regulate, mood; treat depression, stress, OCD, and anxiety   |
| <b>Other Antidepressants</b>                   | Bupropion (Wellbutrin)<br>Mirtazapine (Remeron)<br>Desyrel (Trazodone)   | Used to treat major depressive disorder.<br><i>Note:</i> Remeron is used to boost appetite   |

| <b>Drug Classes (xerostomia continued):</b>  | <b>Examples:</b>  | <b>Common Uses:</b>   |
|--|---|---|
| <b>Dopamine antagonists</b>  | Metoclopramide (Reglan)   | Increases gastric emptying and intestinal motility; Increases resting tone of LES.<br><i>Note:</i> also risk for extrapyramidal & Parkinsonian symptoms, which could last 2-3 months.<br>Half-life with healthy renal function: 5-6 hours.  |
| <b>Antiparkinsonian (dry mouth side-effect will vary depending on the sub-classes)</b> | <ol style="list-style-type: none"> <li>1. Levodopa with Carbidopa (Sinemet)</li> <li>2. Dopamine Agonists: Ropinirole (Requip) Pramipexole (Mirapex)</li> <li>3. Monoamine Oxidase B (MAO-B) Inhibitors Selegiline (Eldepryl) Rasagiline (Azilect)</li> <li>4. Benztopine (Cogentin)</li> </ol> | <ol style="list-style-type: none"> <li>1. Medication is converted into dopamine in brain.</li> <li>2. Mimic action of dopamine</li> <li>3. Reduce the breakdown of dopamine in brain.</li> <li>4. Treats symptoms or side effects of other drugs. Improves muscle control &amp; reduces stiffness.</li> </ol> |
| <b>Anticonvulsants/ Antiepileptic</b>  | Gabapentin (Neurontin)<br>Pregabalin (Lyrica)<br>Carbamazepine (Tegretol)<br>Lamotrigine (Lamictal)<br>Felbamate (Febatol)<br>Levetiracetam (Keppra)  | Used to help control seizures.<br>Gabapentin also used for restless leg syndrome.<br>Gabapentin & Pregabalin are used for shingles & neuropathic pain.  |
| <b>Typical or “Conventional” Antipsychotics/ 1st Generation</b>                        | Haloperidol (Haldol)<br>Chlorpromazine (Thorazine)<br>Thiothixene (Navane)<br>Perphenazine (Trilifon)<br>Fluphenazine (Permitil, Prolixin)  | Treat schizophrenia.<br>Control psychotic symptoms, sedate agitated patients.   |

| <b>Drug Classes (xerostomia)</b>                              | <b>Examples:</b>  | <b>Common Uses:</b>  |
|---|---|--|
| <b>Atypical or “Novel” Antipsychotics/<br/>2nd Generation</b> | Lurasidone (Latuda)<br>Olanzapine (Zyprexa)<br>Quetiapine (Seroquel)<br>Clozapine<br>Aripiprazole (Abilify)<br>Risperidone<br>Ziprasidone | Used to manage Schizophrenia.<br>Block Dopamine receptors<br><br>May be less likely to cause adverse reactions, like Extrapyrimal Symptoms (EPS) |
| <b>Opioids</b>  | Oxycodone<br>Hydromorphone (Dilaudid)<br>Hydrocodone/APAP (Vicodin)<br>Oxycodone/APAP (Percocet)<br>Fentanyl                              | Treatment of severe pain, when other treatments have not been adequate.  |

**3. Medications that Can Lead to CNS Depression ~ Confusion, Altered Mental Status (AMS), Drowsiness:**

| <b>Medications leading to Confusion/AMS/Drowsiness with increased risk for falls:</b> |  |   |
|---|--|---|
| <b>Drug Classes:</b>  | <b>Examples (brand names):</b>   | <b>Common Uses:</b>   |
| <b>Sedative &amp; Antiemetic</b>  | Droperidol (Inapsine)<br>Dyphenhydramine (Dramamine)<br>Dimenhydrinate (Meclizine)   | Reduce nausea and vomiting  |
| <b>Antiepileptic/Anticonvulsant drugs</b>   | Carbamazepine (Tegretol)<br>Gabapentin (Neurontin)<br>Pregabalin (Lyrica)<br>Phenobarbital (Luminal)<br>Phenytoin (Dilantin)<br>Valproic Acid (Depakote) | Prevent seizure, excessive neuronal firing.<br><i>Note:</i> Can cause sedation and unsteady gait. |
| <b>Steroids (corticosteroids)</b>   | Prednisone   | Treats inflammation   |



| <b>Drug Classes (CNS con't):</b>                                       | <b>Examples:</b>  | <b>Common Uses:</b>  |
|--|---|--|
| <b>Benzodiazepines/<br/>Sedative-Hypnotics</b>                         | Alprazolam (Xanax),<br>Clonazepam (Klonopin),<br>Clorazepate (Tranxene),<br>Diazepam (Valium),<br>Flurazepam (Dalmane)<br>Lorazepam (Ativan)<br>Temazepam (Restoril)<br>Triazolam (Halcion)<br>Quazepam (Doral)<br>Midazolam (Versed) | Treat anxiety, insomnia,<br>agitation, seizures,<br>muscle spasms, alcohol<br>dependence.<br><br><i>Note:</i> Midazolam<br>(Versed) is used before<br>surgery/procedures, like<br>EGD. Produces amnesia.     |
| <b>Narcotics/Opioids</b>   | Alfentanil (Alfenta),<br>Codeine,<br>Fentanyl (Duragesic),<br>Hydromorphone*<br>(Dilaudid),<br>Meperidine (Demerol),<br>Morphine* (Astramorph,<br>MS Contin),<br>Oxycodone (OxyContin,<br>Roxicodone)                                 | Relief of severe pain<br><br><i>*Note:</i> Do not confuse<br>Hydromorphone<br>(Dilaudid) with<br>Morphine - very<br>different. Morphine<br>could cause respiratory<br>depression or arrest if<br>error made! |
| <b>Neuromuscular Blocking<br/>Agents/Skeletal Muscle<br/>Relaxants</b> | Baclofen,<br>Cyclobenzaprine<br>(Flexeril),<br>Tizanidine (Zanaflex)  | Muscle relaxation and<br>pain relief (due to spasm<br>or chronic tension of<br>muscle)   |
| <b>Antiparkinsonian</b>  | Levodopa (with<br>Carbidopa - Sinemet)  | Can cause mental status<br>changes and dyskinesias   |

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Other References & Resources:

Drugs@FDA: <http://www.accessdata.fda.gov/scripts/cder/drugsatfda/index.cfm>

PubMedHealth: [www.ncbi.nlm.nih.gov/pubmedhealth](http://www.ncbi.nlm.nih.gov/pubmedhealth)

MedlinePlus: <https://www.nlm.nih.gov/medlineplus/druginformation.html>

[www.Drugs.com](http://www.Drugs.com)