

## ADVERSE EVENTS ASSOCIATED WITH COMMON INTERVENTIONS (Part 5 of 5)

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	Clinical Use	Adverse Events	Notes on Mechanism	Historical and Clinical Notes
<b>Renal/Urological</b>				
Acetazolamide (Diamox)	Glaucoma, idiopathic intracranial hypertension, congestive heart failure, altitude sickness, periodic paralysis, epilepsy ( <a href="https://www.ncbi.nlm.nih.gov/books/NBK532282/#article-17077.s5">https://www.ncbi.nlm.nih.gov/books/NBK532282/#article-17077.s5</a> ).	Fatigue, nausea, vomiting, abdominal pain, diarrhea, paresthesia, black stools, decreased libido, tinnitus, taste alteration, depression, bitter or metallic taste, metabolic acidosis, hyponatremia, hypokalemia, kidney stones, SJS, aplastic anemia, agranulocytosis, toxic epidermal necrolysis, fulminant hepatic necrosis, fatigue, abdominal pain, nausea, vomiting, paresthesia ( <a href="https://www.ncbi.nlm.nih.gov/books/NBK532282/#article-17077.s5">https://www.ncbi.nlm.nih.gov/books/NBK532282/#article-17077.s5</a> ).	Carbonic anhydrase inhibitor, anticonvulsant; Diuretic ( <a href="https://www.drugs.com/mtm/acetazolamide.html">https://www.drugs.com/mtm/acetazolamide.html</a> , <a href="https://www.ncbi.nlm.nih.gov/books/NBK532282/#article-17077.s5">https://www.ncbi.nlm.nih.gov/books/NBK532282/#article-17077.s5</a> ).	Carbonic anhydrase is found in the proximal tubule of the nephron and red blood cells ( <a href="https://www.ncbi.nlm.nih.gov/books/NBK532282/#article-17077.s5">https://www.ncbi.nlm.nih.gov/books/NBK532282/#article-17077.s5</a> ).
Allopurinol (Zyloprim, Alopurin, Lopurin)	Gout, kidney stones ( <a href="https://www.drugs.com/allopurinol.html">https://www.drugs.com/allopurinol.html</a> ).	Nausea, diarrhea, drowsiness, rash, itching, hives, peeling, blistering, shedding skin, red or purple spots on skin, painful urination, blood in the urine, irritation of the eyes, swelling, fever, flu-like symptoms, swollen glands, yellowing of the skin or eyes, pain in the upper right part of the stomach, nausea, vomiting, extreme tiredness ( <a href="https://medlineplus.gov/druginfo/meds/a682673.html#i-forget">https://medlineplus.gov/druginfo/meds/a682673.html#i-forget</a> ).	Antigout agent, antihyperuricemia agent ( <a href="https://www.drugs.com/allopurinol.html">https://www.drugs.com/allopurinol.html</a> ).	Also used to treat high levels of uric acid that build up when tumors break down with chemotherapy ( <a href="https://medlineplus.gov/druginfo/meds/a682673.html#i-forget">https://medlineplus.gov/druginfo/meds/a682673.html#i-forget</a> ).
Amiloride (Midamor)	Hypokalemia, high blood pressure, congestive heart failure ( <a href="https://www.drugs.com/mtm/amiloride.html">https://www.drugs.com/mtm/amiloride.html</a> ).	Headache, heartburn, loss of appetite, nausea, diarrhea, vomiting, gas, dry mouth, thirst, numbness, tingling, confusion, muscle weakness, stomach pain, cramps, fast heartbeat, signs of dehydration and electrolyte imbalance, yellowing of the skin or eyes, chest pain, rash, itching, hives, difficulty breathing or swallowing ( <a href="https://medlineplus.gov/druginfo/meds/a615029.html#side-effects">https://medlineplus.gov/druginfo/meds/a615029.html#side-effects</a> ).	Potassium-sparing diuretic ( <a href="https://www.drugs.com/mtm/amiloride.html">https://www.drugs.com/mtm/amiloride.html</a> ).	Usually used in combination with other diuretics ( <a href="https://medlineplus.gov/druginfo/meds/a615029.html#side-effects">https://medlineplus.gov/druginfo/meds/a615029.html#side-effects</a> ).
Bethanechol (Urecholine, Duvoid)	Difficulty urinating caused by surgery, drugs, or other factors ( <a href="https://medlineplus.gov/druginfo/meds/a682849.html#side-effects">https://medlineplus.gov/druginfo/meds/a682849.html#side-effects</a> ).	Upset stomach, vomiting, dizziness, sweating or flushing, SOB, fainting, slow hear rate (under 50 bpm) ( <a href="https://medlineplus.gov/druginfo/meds/a682849.html#side-effects">https://medlineplus.gov/druginfo/meds/a682849.html#side-effects</a> ).	Genitourinary tract agent; Parasympathomimetic drug ( <a href="https://www.drugs.com/mtm/bethanechol.html">https://www.drugs.com/mtm/bethanechol.html</a> , <a href="https://www.ncbi.nlm.nih.gov/books/NBK560587/">https://www.ncbi.nlm.nih.gov/books/NBK560587/</a> ).	Used for managing nonobstructive urinary retention-related disorders ( <a href="https://www.ncbi.nlm.nih.gov/books/NBK560587/">https://www.ncbi.nlm.nih.gov/books/NBK560587/</a> ).
Bumetanide	Edema; Heart, kidney, liver disease ( <a href="https://medlineplus.gov/druginfo/meds/a684051.html">https://medlineplus.gov/druginfo/meds/a684051.html</a> ).	Hyperuricemia, hypochloremia, hypokalemia, azotemia, hyponatremia, hyperglycemia, increased serum creatinine, muscle weakness, hearing impairment, hypotension, encephalopathy, renal failure ( <a href="https://www.ncbi.nlm.nih.gov/books/NBK559181/#article-32870.s5">https://www.ncbi.nlm.nih.gov/books/NBK559181/#article-32870.s5</a> ).	Diuretic ( <a href="https://www.ncbi.nlm.nih.gov/books/NBK559181/#article-32870.s5">https://www.ncbi.nlm.nih.gov/books/NBK559181/#article-32870.s5</a> ).	FDA approved for managing various edematous conditions secondary to cardiac failure or hepatic/renal disease ( <a href="https://www.ncbi.nlm.nih.gov/books/NBK559181/#article-32870.s5">https://www.ncbi.nlm.nih.gov/books/NBK559181/#article-32870.s5</a> ).

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	Clinical Use	Adverse Events	Notes on Mechanism	Historical and Clinical Notes
Captopril (Capoten)	High blood pressure, left ventricular dysfunction after myocardial infarction, diabetic nephropathy ( <a href="https://www.ncbi.nlm.nih.gov/books/NBK535386/#article-18835.s5">https://www.ncbi.nlm.nih.gov/books/NBK535386/#article-18835.s5</a> ).	Paroxysmal cough, proteinuria, renal insufficiency or failure, nephrotic syndrome, polyuria, oliguria, urinary frequency, neutropenia or agranulocytosis with myeloid hypoplasia, rash with pruritus and occasionally with fever, arthralgia, eosinophilia, angina pectoris, myocardial infarction, Raynaud syndrome, congestive heart failure, dysgeusia, anaphylactoid and related reactions, angioedema including intestinal angioedema, flushing, pallor, tachycardia, chest pain, palpitations, hypotension, hyperkalemia ( <a href="https://www.ncbi.nlm.nih.gov/books/NBK535386/#article-18835.s5">https://www.ncbi.nlm.nih.gov/books/NBK535386/#article-18835.s5</a> ).	ACE inhibitor ( <a href="https://www.drugs.com/captopril.html">https://www.drugs.com/captopril.html</a> ).	Should not be used by patients who are pregnant ( <a href="https://www.drugs.com/captopril.html">https://www.drugs.com/captopril.html</a> ).
Chlorthalidone (Hygroton, Thalitone)	High blood pressure, edema, calcium nephrolithiasis ( <a href="https://www.ncbi.nlm.nih.gov/books/NBK553174/#article-57164.s5">https://www.ncbi.nlm.nih.gov/books/NBK553174/#article-57164.s5</a> ).	Electrolyte derangement, hypersensitivity reaction, precipitation of acute gout attacks, GI effects, paresthesias, dizziness, headaches, hematologic reactions, orthostatic hypotension, purpura, photosensitivity, rash, urticaria, necrotizing angitis, Lyell syndrome, hyperglycemia, glycosuria, hyperuricemia, muscle spasm, weakness, restlessness, impotence ( <a href="https://www.ncbi.nlm.nih.gov/books/NBK553174/#article-57164.s5">https://www.ncbi.nlm.nih.gov/books/NBK553174/#article-57164.s5</a> ).	Thiazide diuretic ( <a href="https://www.drugs.com/mtm/chlorthalidone.html">https://www.drugs.com/mtm/chlorthalidone.html</a> ).	FDA approved since 1960 to manage hypertension; First-line agent for hypertension ( <a href="https://www.ncbi.nlm.nih.gov/books/NBK553174/#article-57164.s5">https://www.ncbi.nlm.nih.gov/books/NBK553174/#article-57164.s5</a> ).
Desmopressin (DDAVP, Nocdurna)	Nighttime bed-wetting, central diabetes insiduous, increased thirst caused by head surgery or head trauma, hemophilia A, diabetes insipidus, Willebrand disease, uremic bleeding ( <a href="https://www.drugs.com/mtm/desmopressin.html">https://www.drugs.com/mtm/desmopressin.html</a> ).	Hyponatremia (may precipitate seizures), headaches, tachycardia, facial flushing ( <a href="https://www.ncbi.nlm.nih.gov/books/NBK554582/#article-20407.s5">https://www.ncbi.nlm.nih.gov/books/NBK554582/#article-20407.s5</a> ).	Antidiuretic hormone; Manmade version of hormone that occurs naturally in pituitary ( <a href="https://www.drugs.com/mtm/desmopressin.html">https://www.drugs.com/mtm/desmopressin.html</a> ).	Created in 1977 ( <a href="https://www.ncbi.nlm.nih.gov/books/NBK554582/#article-20407.s5">https://www.ncbi.nlm.nih.gov/books/NBK554582/#article-20407.s5</a> ).
Doxazosin (Cardura)	Benign prostatic hyperplasia, high blood pressure, ureteral stones, PTSD-associated nightmares ( <a href="https://www.ncbi.nlm.nih.gov/books/NBK557459/#article-20694.s5">https://www.ncbi.nlm.nih.gov/books/NBK557459/#article-20694.s5</a> ).	Orthostatic hypotension, syncope, dizziness, fatigue, headache, weakness, tachycardia, upper respiratory tract infection, edema, rhinitis, dyspnea, allergic reaction ( <a href="https://www.ncbi.nlm.nih.gov/books/NBK557459/#article-20694.s5">https://www.ncbi.nlm.nih.gov/books/NBK557459/#article-20694.s5</a> ).	Alpha-adrenoreceptor antagonist; Antiadrenergic agent, peripherally acting; Quinazoline derivative ( <a href="https://www.drugs.com/doxazosin.html">https://www.drugs.com/doxazosin.html</a> , <a href="https://www.ncbi.nlm.nih.gov/books/NBK557459/#article-20694.s5">https://www.ncbi.nlm.nih.gov/books/NBK557459/#article-20694.s5</a> ).	BPH symptoms may include difficulty beginning the flow of urine, weak stream, need to urinate frequently or urgently ( <a href="https://www.webmd.com/drugs/2/drug-3750-8060/doxazosin-oral/doxazosin-oral/details">https://www.webmd.com/drugs/2/drug-3750-8060/doxazosin-oral/doxazosin-oral/details</a> ).
Ethacrynic acid (Edecrin, Edecrin Sodium)	Edema in patients with congestive heart failure, liver disease, kidney disorder such as nephrotic syndrome ( <a href="https://www.drugs.com/mtm/ethacrynic-acid.html">https://www.drugs.com/mtm/ethacrynic-acid.html</a> ).	Decrease in mean arterial pressure, reduced cardiac index, reflex tachycardia, immediate volume depletion that can be life-threatening, azotemia, uremia, orthostatic hypotension, shock, hypokalemic metabolic acidosis, magnesium depletion, digoxin toxicity in heart failure patients, ototoxicity, transient hearing loss, transient tinnitus, vertigo, permanent hearing loss (including bilateral deafness), GI effects, pancreatitis, hepatitis, increase in serum uric acid, acute gout ( <a href="https://www.ncbi.nlm.nih.gov/books/NBK558988/#article-21382.s5">https://www.ncbi.nlm.nih.gov/books/NBK558988/#article-21382.s5</a> ).	Loop diuretic ( <a href="https://www.drugs.com/mtm/ethacrynic-acid.html">https://www.drugs.com/mtm/ethacrynic-acid.html</a> ).	Ototoxicity can be seen after only one use, especially with IV delivery ( <a href="https://www.ncbi.nlm.nih.gov/books/NBK558988/#article-21382.s5">https://www.ncbi.nlm.nih.gov/books/NBK558988/#article-21382.s5</a> ).

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Furosemide (Lasix)	Volume overload and edema secondary to congestive heart failure exacerbation, liver failure, renal failure, nephrotic syndrome ( <a href="https://www.ncbi.nlm.nih.gov/books/NBK499921/#article-22006.s5">https://www.ncbi.nlm.nih.gov/books/NBK499921/#article-22006.s5</a> ).	Hepatic encephalopathy in patients with cirrhosis, pancreatitis, jaundice, increased liver enzymes, anorexia, oral and gastric irritation, cramping, diarrhea, constipation, nausea, vomiting, severe anaphylactic or anaphylactoid reactions (e.g., with shock), systemic vasculitis, interstitial nephritis, necrotizing angiitis, ototoxicity, paresthesias, vertigo, dizziness, headache, blurred vision, xanthopsia, aplastic anemia, thrombocytopenia, agranulocytosis, hemolytic anemia, leukopenia, anemia, eosinophilia, toxic epidermal necrolysis, SJS, erythema multiforme, drug rash with eosinophilia and systemic symptoms, acute generalized exanthematous pustulosis, exfoliative dermatitis, bulbous pemphigoid, purpura, photosensitivity, rash, pruritus, urticaria, aggravation of orthostatic hypotension with alcohol or barbiturates or narcotics, increase in cholesterol and triglyceride serum levels, acute kidney injury due to fluid loss, hyperglycemia, hyperuricemia, hypokalemia, hypomagnesemia ( <a href="https://www.ncbi.nlm.nih.gov/books/NBK499921/#article-22006.s5">https://www.ncbi.nlm.nih.gov/books/NBK499921/#article-22006.s5</a> ).	Loop diuretic ( <a href="https://www.drugs.com/furosemide.html">https://www.drugs.com/furosemide.html</a> ).	Has been in use for decades; Clinicians must be aware of updates regarding indications and administration to minimize adverse effects ( <a href="https://www.ncbi.nlm.nih.gov/books/NBK499921/#article-22006.s5">https://www.ncbi.nlm.nih.gov/books/NBK499921/#article-22006.s5</a> ).
Hydrochlorothiazide	High blood pressure; Edema due to congestive heart failure, cirrhosis of the liver, kidney disorders, steroids or estrogen ( <a href="https://www.drugs.com/hydrochlorothiazide.html">https://www.drugs.com/hydrochlorothiazide.html</a> ).	Weakness, orthostatic hypotension, pancreatitis, jaundice, nausea, vomiting, sialadenitis, abdominal cramping, diarrhea, constipation, gastric irritation, aplastic anemia, agranulocytosis, leukopenia, hemolytic anemia, thrombocytopenia, necrotizing angiitis, pneumonitis, pulmonary edema, photosensitivity, fever, urticaria, erythema multiforme, exfoliative dermatitis, TEN, purpura, muscle spasm, vertigo, dizziness, paresthesias, headache, restlessness, transient blurred vision, xanthopsia, impotence, azotemia (in patients with renal dysfunction), electrolyte and/or fluid imbalances, exacerbation of systemic lupus erythematosus, transient myopia and acute-angle closure glaucoma, hyperuricemia leading to acute gout, hyperglycemia, increase in cholesterol and triglycerides ( <a href="https://www.ncbi.nlm.nih.gov/books/NBK430766/#article-23072.s5">https://www.ncbi.nlm.nih.gov/books/NBK430766/#article-23072.s5</a> ).	Thiazide diuretic ( <a href="https://www.drugs.com/hydrochlorothiazide.html">https://www.drugs.com/hydrochlorothiazide.html</a> ).	Known to unmask latent diabetes ( <a href="https://www.ncbi.nlm.nih.gov/books/NBK430766/#article-23072.s5">https://www.ncbi.nlm.nih.gov/books/NBK430766/#article-23072.s5</a> ).
Losartan (Cozaar)	High blood pressure, diabetic nephropathy ( <a href="https://www.ncbi.nlm.nih.gov/books/NBK526065/#article-707.s5">https://www.ncbi.nlm.nih.gov/books/NBK526065/#article-707.s5</a> ).	Hyperkalemia, renal insufficiency, angioedema, cough, fatigue, hypoglycemia, anemia, UTI, chest pain, weakness, diarrhea, upper respiratory tract infection, hypotension, dizziness, cellulitis, gastritis, nausea, angioedema, edema, swelling, hypotension in hypovolemic patients, asthenia, headache, malaise, nausea, abdominal pain, hyperkalemia, back pain, worsening renal failure ( <a href="https://www.ncbi.nlm.nih.gov/books/NBK526065/#article-707.s5">https://www.ncbi.nlm.nih.gov/books/NBK526065/#article-707.s5</a> ).	Angiotensin receptor blocker ( <a href="https://www.drugs.com/losartan.html">https://www.drugs.com/losartan.html</a> ).	Renoprotective in type 2 diabetes mellitus ( <a href="https://www.ncbi.nlm.nih.gov/books/NBK526065/#article-707.s5">https://www.ncbi.nlm.nih.gov/books/NBK526065/#article-707.s5</a> ).
Mannitol (Osmitrol)	Intracranial pressure and brain mass, intraocular pressure, acute renal failure, promotion of excretion of toxic substances or materials or metabolites ( <a href="https://www.ncbi.nlm.nih.gov/books/NBK470392/#article-24732.s5">https://www.ncbi.nlm.nih.gov/books/NBK470392/#article-24732.s5</a> ).	Masking or worsening of dehydration, precipitation of heart failure, new or worsened electrolyte abnormalities, vascular and end-organ damage due to precipitation into crystals at low temperatures, worsened cerebral edema ( <a href="https://www.ncbi.nlm.nih.gov/books/NBK470392/#article-24732.s5">https://www.ncbi.nlm.nih.gov/books/NBK470392/#article-24732.s5</a> ).	Diuretic ( <a href="https://www.drugs.com/mtm/mannitol-injection.html">https://www.drugs.com/mtm/mannitol-injection.html</a> ).	Frequent doses can cause mannitol to leach across the blood-brain barrier ( <a href="https://www.ncbi.nlm.nih.gov/books/NBK470392/#article-24732.s5">https://www.ncbi.nlm.nih.gov/books/NBK470392/#article-24732.s5</a> ).

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Metolazone	Salt and water retention accompanying congestive heart failure or kidney disease ( <a href="https://www.ncbi.nlm.nih.gov/books/NBK534203/#article-32881.s5">https://www.ncbi.nlm.nih.gov/books/NBK534203/#article-32881.s5</a> ).	Hyperuricemia, electrolyte imbalances, impaired glucose tolerance, increased serum cholesterol and triglycerides, orthostatic hypotension, acute kidney injury, agranulocytosis, photosensitization, aplastic anemia, SJS, toxic epidermal necrolysis, deteriorating renal function, BRASH syndrome, drug-induced cholestasis and hepatotoxicity ( <a href="https://www.ncbi.nlm.nih.gov/books/NBK534203/#article-32881.s5">https://www.ncbi.nlm.nih.gov/books/NBK534203/#article-32881.s5</a> ).	Thiazide diuretic ( <a href="https://www.drugs.com/mtm/metolazone.html">https://www.drugs.com/mtm/metolazone.html</a> ).	Increases in serum cholesterol and triglycerides have returned to normal or baseline after one year of therapy ( <a href="https://www.ncbi.nlm.nih.gov/books/NBK534203/#article-32881.s5">https://www.ncbi.nlm.nih.gov/books/NBK534203/#article-32881.s5</a> ).
Mirabegron (Myrbetriq)	Overactive bladder, neurogenic detrusor overactivity ( <a href="https://www.mayoclinic.org/drugs-supplements/mirabegron-oral-route/description/drg-20075675">https://www.mayoclinic.org/drugs-supplements/mirabegron-oral-route/description/drg-20075675</a> ).	Hypertension, nasopharyngitis, UTI, dry mouth, tachycardia, headache, back pain, dizziness, palpitations, atrial fibrillation, urticarial reaction, joint pain, swelling, angioedema, increase in residual urine volume, urinary retention, constipation, dysuria ( <a href="https://www.ncbi.nlm.nih.gov/books/NBK538513/#article-38808.s5">https://www.ncbi.nlm.nih.gov/books/NBK538513/#article-38808.s5</a> ).	Beta-3 receptor agonist; Causes detrusor muscle relaxation ( <a href="https://www.ncbi.nlm.nih.gov/books/NBK538513/#article-38808.s5">https://www.ncbi.nlm.nih.gov/books/NBK538513/#article-38808.s5</a> ).	FDA approved in 2012 for treatment of overactive bladder ( <a href="https://www.ncbi.nlm.nih.gov/books/NBK538513/#article-38808.s5">https://www.ncbi.nlm.nih.gov/books/NBK538513/#article-38808.s5</a> ).
Oxybutynin (Ditropan)	Overactive bladder ( <a href="https://www.ncbi.nlm.nih.gov/books/NBK499985/#article-26487.s5">https://www.ncbi.nlm.nih.gov/books/NBK499985/#article-26487.s5</a> ).	Dry mouth, dizziness, constipation, somnolence, nausea, blurred vision, urinary hesitation, urinary retention, dyspepsia, dry eyes, diarrhea, application site reactions ( <a href="https://www.ncbi.nlm.nih.gov/books/NBK499985/#article-26487.s5">https://www.ncbi.nlm.nih.gov/books/NBK499985/#article-26487.s5</a> ).	Urinary antispasmodic ( <a href="https://www.drugs.com/oxybutynin.html">https://www.drugs.com/oxybutynin.html</a> ).	Adverse effects are often dose related ( <a href="https://www.ncbi.nlm.nih.gov/books/NBK499985/#article-26487.s5">https://www.ncbi.nlm.nih.gov/books/NBK499985/#article-26487.s5</a> ).
Potassium citrate (Urocit-K, Twin-K)	Kinney stones ( <a href="https://www.drugs.com/mtm/potassium-citrate.html">https://www.drugs.com/mtm/potassium-citrate.html</a> ).	Allergic reaction, severe vomiting, stomach pain, high blood potassium, signs of stomach bleeding, upset stomach, nausea, vomiting, diarrhea ( <a href="https://www.drugs.com/mtm/potassium-citrate.html">https://www.drugs.com/mtm/potassium-citrate.html</a> ).	Urinary pH modifier ( <a href="https://www.drugs.com/mtm/potassium-citrate.html">https://www.drugs.com/mtm/potassium-citrate.html</a> ).	Not approved for patients under 18 years old ( <a href="https://www.drugs.com/mtm/potassium-citrate.html">https://www.drugs.com/mtm/potassium-citrate.html</a> ).
Ramipril (Altace)	High blood pressure, prevention of heart failure progression after myocardial infarction ( <a href="https://www.ncbi.nlm.nih.gov/books/NBK537119/#article-28226.s5">https://www.ncbi.nlm.nih.gov/books/NBK537119/#article-28226.s5</a> ).	Dry cough, postural hypotension, elevated serum creatinine, hyperkalemia, anxiety-like symptoms, angioedema, hypoperfusion, movement disorders, onycholysis, oral disorders ( <a href="https://www.ncbi.nlm.nih.gov/books/NBK537119/#article-28226.s5">https://www.ncbi.nlm.nih.gov/books/NBK537119/#article-28226.s5</a> ).	ACE inhibitor ( <a href="https://www.drugs.com/ramipril.html">https://www.drugs.com/ramipril.html</a> ).	May harm the fetus if taken during pregnancy ( <a href="https://medlineplus.gov/druginfo/meds/a692027.html">https://medlineplus.gov/druginfo/meds/a692027.html</a> ).
Sevelamer (Renagel, Renvela)	Prevention of hypocalcemia caused by elevated phosphorus ( <a href="https://www.drugs.com/mtm/sevelamer.html">https://www.drugs.com/mtm/sevelamer.html</a> ).	Diarrhea, vomiting, nausea, stomach pain, gas, heartburn, new or worsening constipation, black or tarry stools, red blood in stools ( <a href="https://medlineplus.gov/druginfo/meds/a601248.html#side-effects">https://medlineplus.gov/druginfo/meds/a601248.html#side-effects</a> ).	Phosphate binder ( <a href="https://www.drugs.com/mtm/sevelamer.html">https://www.drugs.com/mtm/sevelamer.html</a> ).	Used in the context of chronic kidney disease and dialysis ( <a href="https://www.drugs.com/mtm/sevelamer.html">https://www.drugs.com/mtm/sevelamer.html</a> ).

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	Clinical Use	Adverse Events	Notes on Mechanism	Historical and Clinical Notes
Sodium polystyrene sulfonate (Kalexate, Kayexalate, Kionex)	Hyperkalemia ( <a href="https://www.drugs.com/mtm/sodium-polystyrene-sulfonate.html">https://www.drugs.com/mtm/sodium-polystyrene-sulfonate.html</a> ).	Diarrhea, nausea, vomiting, loss of appetite, ischemic colonic necrosis, constipation, seizures, confusion, muscle weakness, abdominal pain, irregular heartbeat ( <a href="https://www.ncbi.nlm.nih.gov/books/NBK559206/#article-29201.s5">https://www.ncbi.nlm.nih.gov/books/NBK559206/#article-29201.s5</a> ).	Cation exchange resin ( <a href="https://www.drugs.com/mtm/sodium-polystyrene-sulfonate.html">https://www.drugs.com/mtm/sodium-polystyrene-sulfonate.html</a> ).	Not typically the first-line treatment for hyperkalemia ( <a href="https://www.ncbi.nlm.nih.gov/books/NBK559206/#article-29201.s5">https://www.ncbi.nlm.nih.gov/books/NBK559206/#article-29201.s5</a> ).
Solifenacin (VESIcare)	Overactive bladder ( <a href="https://medlineplus.gov/druginfo/meds/a605019.html#side-effects">https://medlineplus.gov/druginfo/meds/a605019.html#side-effects</a> ).	Dry mouth, constipation, stomach pain, upset stomach, vomiting, heartburn, dry eyes, blurred vision, dry skin, constipation lasting longer than 3 days, painful or frequent urination, bloody or cloudy urine, back pain, swelling, hoarseness, difficulty breathing or swallowing, rash, hives, itching, hallucinations, confusion, headache, extreme tiredness ( <a href="https://medlineplus.gov/druginfo/meds/a605019.html#side-effects">https://medlineplus.gov/druginfo/meds/a605019.html#side-effects</a> ).	Urinary antispasmodic; Antimuscarinic ( <a href="https://www.drugs.com/mtm/solifenacin.html">https://www.drugs.com/mtm/solifenacin.html</a> , <a href="https://medlineplus.gov/druginfo/meds/a605019.html#side-effects">https://medlineplus.gov/druginfo/meds/a605019.html#side-effects</a> ).	VESIcare LS used to treat neurogenic detrusor overactivity in children 2 years and older ( <a href="https://medlineplus.gov/druginfo/meds/a605019.html#side-effects">https://medlineplus.gov/druginfo/meds/a605019.html#side-effects</a> ).
Tamsulosin (Flomax)	Enlarged prostate ( <a href="https://medlineplus.gov/druginfo/meds/a698012.html#side-effects">https://medlineplus.gov/druginfo/meds/a698012.html#side-effects</a> ).	Sleepiness, difficulty falling asleep or staying asleep, weakness, back pain, diarrhea, runny or stuffy nose, pain or pressure in the face, signs of infection, blurred vision, difficulty ejaculating, painful erection that lasts for hours, rash, itching, hives, swelling ( <a href="https://medlineplus.gov/druginfo/meds/a698012.html#side-effects">https://medlineplus.gov/druginfo/meds/a698012.html#side-effects</a> ).	Alpha-adrenoreceptor antagonist ( <a href="https://www.drugs.com/tamsulosin.html">https://www.drugs.com/tamsulosin.html</a> ).	Used to improve urination in men with benign prostatic hyperplasia ( <a href="https://www.drugs.com/tamsulosin.html">https://www.drugs.com/tamsulosin.html</a> ).
Terazosin (Hytrin)	Benign prostatic hyperplasia, essential hypertension, nephrolithiasis ( <a href="https://www.ncbi.nlm.nih.gov/books/NBK545208/">https://www.ncbi.nlm.nih.gov/books/NBK545208/</a> ).	Dizziness, headache, weakness, postural hypotension, nasal congestion, first-dose syncope, orthostatic hypotension, priapism, atrial fibrillation, anaphylaxis, intraoperative floppy iris syndrome ( <a href="https://www.ncbi.nlm.nih.gov/books/NBK545208/#article-42967.s5">https://www.ncbi.nlm.nih.gov/books/NBK545208/#article-42967.s5</a> ).	Alpha-adrenoreceptor antagonist; antiadrenergic agent, peripherally acting ( <a href="https://www.drugs.com/terazosin.html">https://www.drugs.com/terazosin.html</a> ).	Many adverse effects explainable due to blockade of alpha-1 adrenergic receptors ( <a href="https://www.ncbi.nlm.nih.gov/books/NBK545208/#article-42967.s5">https://www.ncbi.nlm.nih.gov/books/NBK545208/#article-42967.s5</a> ).
Tolterodine (Detrol)	Overactive bladder ( <a href="https://medlineplus.gov/druginfo/meds/a699026.html">https://medlineplus.gov/druginfo/meds/a699026.html</a> ).	Dry mouth, dry eyes, constipation, headache, blurred vision, drowsiness, increase in heart rate, tachycardia, palpitations, cardiac rhythm disorders, depression, cognitive impairment, confusion, dizziness ( <a href="https://www.ncbi.nlm.nih.gov/books/NBK557858/#article-30241.s5">https://www.ncbi.nlm.nih.gov/books/NBK557858/#article-30241.s5</a> ).	Antimuscarinic ( <a href="https://medlineplus.gov/druginfo/meds/a699026.html">https://medlineplus.gov/druginfo/meds/a699026.html</a> ).	Can cross the blood-brain barrier ( <a href="https://www.ncbi.nlm.nih.gov/books/NBK557858/#article-30241.s5">https://www.ncbi.nlm.nih.gov/books/NBK557858/#article-30241.s5</a> ).
Tolvaptan (Jynarque, Samsca)	Slows decline of kidney function in autosomal dominant polycystic kidney disease (Jynarque); Hyponatremia in heart failure and certain hormone imbalances (Samsca) ( <a href="https://www.drugs.com/mtm/tolvaptan.html">https://www.drugs.com/mtm/tolvaptan.html</a> ).	Thirst, dry mouth, frequent or excessive urination, heartburn, decreased appetite, diarrhea, inability to drink normally, dizziness, faintness, decreased urination, weakness, drowsiness, confusion, weight loss, rapid or pounding heartbeats, swelling, hoarseness, hives ( <a href="https://medlineplus.gov/druginfo/meds/a620041.html#side-effects">https://medlineplus.gov/druginfo/meds/a620041.html#side-effects</a> ).	Vasopressin antagonist ( <a href="https://www.drugs.com/mtm/tolvaptan.html">https://www.drugs.com/mtm/tolvaptan.html</a> ).	May cause liver damage serious enough to require transplantation or cause death ( <a href="https://medlineplus.gov/druginfo/meds/a620041.html#side-effects">https://medlineplus.gov/druginfo/meds/a620041.html#side-effects</a> ).

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	Clinical Use	Adverse Events	Notes on Mechanism	Historical and Clinical Notes
Torsemide (Demadex, Soaanz)	Heart failure, renal disease, cirrhosis ( <a href="https://www.ncbi.nlm.nih.gov/books/NBK559175/#article-89548.s5">https://www.ncbi.nlm.nih.gov/books/NBK559175/#article-89548.s5</a> ).	Electrolyte disturbances, hypotension, renal failure, ototoxicity, hyperuricemia, pancreatitis, SJS, toxic epidermal necrolysis, photosensitivity reaction, GI symptoms, CNS effects, diuretic resistance ( <a href="https://www.ncbi.nlm.nih.gov/books/NBK559175/#article-89548.s5">https://www.ncbi.nlm.nih.gov/books/NBK559175/#article-89548.s5</a> ).	Loop diuretic ( <a href="https://www.drugs.com/mtm/torsemide.html">https://www.drugs.com/mtm/torsemide.html</a> ).	Patients should not use this drug if they are allergic to sulfa drugs ( <a href="https://www.drugs.com/mtm/torsemide.html">https://www.drugs.com/mtm/torsemide.html</a> ).
Triameterene (Dyrenium)	Edema ( <a href="https://www.ncbi.nlm.nih.gov/books/NBK557650/#article-30575.s5">https://www.ncbi.nlm.nih.gov/books/NBK557650/#article-30575.s5</a> ).	Dizziness, fatigue, headache, dry mouth, hyperkalemia, dehydration, nausea, vomiting, rash, diarrhea, muscle cramps, weakness, xerostomia, azotemia, hyperuricemia, naphylaxis, ventricular arrhythmias, hyperkalemia, drug-induced interstitial nephritis, acute renal failure due to nephrotoxicity, thrombocytopenia, megaloblastic anemia, hepatotoxicity, nephrolithiasis in patients with history of kidney stones, urolithiasis, hypersensitivity, acute hepatic injury, rash, drug fever, jaundice ( <a href="https://www.ncbi.nlm.nih.gov/books/NBK557650/#article-30575.s5">https://www.ncbi.nlm.nih.gov/books/NBK557650/#article-30575.s5</a> ).	Potassium-sparing diuretic ( <a href="https://www.drugs.com/triamterene.html">https://www.drugs.com/triamterene.html</a> ).	In use since 1964 ( <a href="https://www.ncbi.nlm.nih.gov/books/NBK557650/#article-30575.s5">https://www.ncbi.nlm.nih.gov/books/NBK557650/#article-30575.s5</a> ).
<b>Reproductive</b>				
Clomiphene (Clomid, Serophene)	Anovulatory or oligo-ovulatory infertility, induction of ovulation for patients who wish to conceive ( <a href="https://www.ncbi.nlm.nih.gov/books/NBK559292/#article-19616.s5">https://www.ncbi.nlm.nih.gov/books/NBK559292/#article-19616.s5</a> ).	Headache, dizziness, exacerbation of psychiatric illnesses, gynecomastia, testicular tumor, vasomotor flushing, GI disturbance, mastalgia, nausea, vomiting, ovarian enlargement, blurred vision, scintillating scotoma, abnormal uterine bleeding, pelvic pain, hypertriglyceridemia, ovarian hyperstimulation, multiple pregnancies, thrombocytopenia, pancreatitis, risk of ovarian cancer after prolonged use, increased risk of malignant melanoma, severe visual disturbance, hepatic damage ( <a href="https://www.ncbi.nlm.nih.gov/books/NBK559292/#article-19616.s5">https://www.ncbi.nlm.nih.gov/books/NBK559292/#article-19616.s5</a> ).	Synthetic ovulation stimulant ( <a href="https://www.drugs.com/clomiphene.html">https://www.drugs.com/clomiphene.html</a> ).	Patients likely to benefit are patients with PCOS, post-oral-contraceptive amenorrhea, amenorrhea-galactorrhea syndrome, psychogenic amenorrhea, secondary amenorrhea ( <a href="https://www.ncbi.nlm.nih.gov/books/NBK559292/#article-19616.s5">https://www.ncbi.nlm.nih.gov/books/NBK559292/#article-19616.s5</a> ).
Copper intrauterine device (ParaGard)	Pregnancy prevention ( <a href="https://www.drugs.com/paragard.html#side-effects">https://www.drugs.com/paragard.html#side-effects</a> ).	Risk of ectopic pregnancy, risk of intrauterine pregnancy, life-threatening infection, pelvic inflammatory disease, endometriosis, embedment, perforation, expulsion, changes in bleeding, reactions after placement or removal, anemia, backache, painful periods, pain during sex, vaginal discharge, prolonged periods, spotting, pain, cramping, vaginal irritation ( <a href="https://www.drugs.com/paragard.html#side-effects">https://www.drugs.com/paragard.html#side-effects</a> ).	Copper wire produces an inflammatory reaction that is toxic to sperm and eggs ( <a href="https://www.mayoclinic.org/tests-procedures/paragard/about/pac-20391270">https://www.mayoclinic.org/tests-procedures/paragard/about/pac-20391270</a> ).	Does not contain hormones, can be removed by healthcare provider at any time, must be removed on or before 10 years from date of insertion ( <a href="https://www.drugs.com/paragard.html">https://www.drugs.com/paragard.html</a> ).

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	Clinical Use	Adverse Events	Notes on Mechanism	Historical and Clinical Notes
Danazol (Danocrine)	Endometriosis, uterine fibroids, fibrocystic breast disease, hematologic disease ( <a href="https://www.ncbi.nlm.nih.gov/books/NBK564344/#article-42951.s5">https://www.ncbi.nlm.nih.gov/books/NBK564344/#article-42951.s5</a> ).	Weight gain, GI symptoms, elevated liver function tests, joint pain, muscle spasm, lethargy, headache, depression, intermenstrual bleeding, breast atrophy, flushes, hirsutism, decreased breast size, acne, hair loss, oily skin, oily hair, menstrual irregularities, hoarseness, swelling and edema, elevated blood pressure, stroke, thrombotic and thrombophlebotic events, pseudotumor cerebri (benign intracranial hypertension), peliosis hepatitis, benign hepatic adenoma, elevated hepatic enzymes, decreased HDL cholesterol, increased LDL cholesterol ( <a href="https://www.ncbi.nlm.nih.gov/books/NBK564344/#article-42951.s5">https://www.ncbi.nlm.nih.gov/books/NBK564344/#article-42951.s5</a> ).	Antigonadotropic agent ( <a href="https://www.drugs.com/danazol.html">https://www.drugs.com/danazol.html</a> ).	Concurrent use with statins reported to cause rhabdomyolysis ( <a href="https://www.ncbi.nlm.nih.gov/books/NBK564344/#article-42951.s5">https://www.ncbi.nlm.nih.gov/books/NBK564344/#article-42951.s5</a> ).
Dutasteride (Avodart)	Benign prostatic hyperplasia ( <a href="https://www.drugs.com/mtm/dutasteride.html">https://www.drugs.com/mtm/dutasteride.html</a> ).	Inability to have or maintain erection, decrease in sex drive, problems with ejaculation, changes in breasts, swelling, difficulty breathing or swallowing, peeling skin, possible increased risk of developing high-grade prostate cancer ( <a href="https://medlineplus.gov/druginfo/meds/a603001.html#side-effects">https://medlineplus.gov/druginfo/meds/a603001.html#side-effects</a> ).	5a reductase inhibitor ( <a href="https://www.drugs.com/mtm/dutasteride.html">https://www.drugs.com/mtm/dutasteride.html</a> ).	For use in men only ( <a href="https://www.drugs.com/mtm/dutasteride.html">https://www.drugs.com/mtm/dutasteride.html</a> ).
Ethinyl estradiol	Symptoms of low estrogen levels after menopause, prostate cancer, abnormal menstrual cycles ( <a href="https://www.drugs.com/cdi/ethinyl-estradiol.html#side-effects">https://www.drugs.com/cdi/ethinyl-estradiol.html#side-effects</a> ).	Allergic reaction, liver problems, chest pain or pressure, SOB, very upset stomach, vomiting, weakness on one side of the body, trouble speaking or thinking, change in balance, drooping on one side of the face, blurred eyesight, swelling, warmth, numbness, change of color, pain in leg or arm, signs of high blood pressure, passing out, changes in eyesight, changes in how contact lenses feel in the eyes, spotting, vaginal bleeding that is very bad or does not go away, lump in breast, breast pain or soreness, nipple discharge, low mood (depression), mood changes ( <a href="https://www.drugs.com/cdi/ethinyl-estradiol.html#side-effects">https://www.drugs.com/cdi/ethinyl-estradiol.html#side-effects</a> ).	Estrogen ( <a href="https://www.drugs.com/cdi/ethinyl-estradiol.html">https://www.drugs.com/cdi/ethinyl-estradiol.html</a> ).	Should not be taken during pregnancy ( <a href="https://www.drugs.com/cdi/ethinyl-estradiol.html#side-effects">https://www.drugs.com/cdi/ethinyl-estradiol.html#side-effects</a> ).
Ethinyl estradiol + Drospirenone (Yaz)	Prevention of pregnancy ( <a href="https://www.drugs.com/yaz.html#side-effects">https://www.drugs.com/yaz.html#side-effects</a> ).	May raise blood clot risk for smokers over 35; Allergic reaction, sudden numbness or weakness (especially on one side of the body), sudden severe headache, slurred speech, problems with vision or balance, pain, warmth, swelling in one or both legs, SOB, rapid breathing, sudden coughing, coughing up blood, sudden vision loss of blurred vision, chest pain or pressure, pain spreading to jaw or shoulder, nausea, sweating, liver problems, increased blood pressure, swelling in hands or ankles or feet, change in pattern or severity of migraine headaches, symptoms of depression, vomiting, breast tenderness, feeling tired or irritable, weight gain, skin darkening or pigmentation changes, changes in menstrual periods, decreased sex drive ( <a href="https://www.verywellhealth.com/yaz-drospirenone-and-ethinyl-estradiol-oral-5271778">https://www.verywellhealth.com/yaz-drospirenone-and-ethinyl-estradiol-oral-5271778</a> , <a href="https://www.drugs.com/yaz.html#side-effects">https://www.drugs.com/yaz.html#side-effects</a> ).	Combination of progesterone and estrogen, female hormones that prevent ovulation ( <a href="https://www.drugs.com/yaz.html#side-effects">https://www.drugs.com/yaz.html#side-effects</a> ).	Also used to treat moderate acne in women at least 14 years old and menstruating ( <a href="https://www.drugs.com/yaz.html#side-effects">https://www.drugs.com/yaz.html#side-effects</a> ).
Ethinyl estradiol + Norgestimate (Ortho Tri-Cyclen)	Prevention of pregnancy ( <a href="https://www.drugs.com/ortho-tri-cyclen.html">https://www.drugs.com/ortho-tri-cyclen.html</a> ).	Allergic reaction, stroke, blood clot, heart attack, liver problems, severe headache, pounding in neck or ears, swelling, changes in pattern or severity of migraine headaches, breast lump, symptoms of depression, stomach pain, gas, nausea, vomiting, breast tenderness, acne, darkening of facial skin, nervousness, mood changes, problems with contact lenses, changes in weight, breakthrough bleeding, vaginal itching or discharge, rash ( <a href="https://www.drugs.com/ortho-tri-cyclen.html#side-effects">https://www.drugs.com/ortho-tri-cyclen.html#side-effects</a> ).	Contraceptive; Ethinyl estradiol and norgestimate ( <a href="https://www.drugs.com/mtm/ethinyl-estradiol-and-norgestimate.html">https://www.drugs.com/mtm/ethinyl-estradiol-and-norgestimate.html</a> ).	The Ortho Tri-Cyclen brand name has been discontinued in the U.S. ( <a href="https://www.drugs.com/ortho-tri-cyclen.html">https://www.drugs.com/ortho-tri-cyclen.html</a> ).

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	Clinical Use	Adverse Events	Notes on Mechanism	Historical and Clinical Notes
Etonogestrel implant (Nexplanon)	Pregnancy prevention ( <a href="https://www.drugs.com/mtm/etonogestrel-implant.html">https://www.drugs.com/mtm/etonogestrel-implant.html</a> ).	Allergic reaction, warmth, redness, swelling, oozing, severe pain or cramping in pelvic area, stroke, blood clot, heart attack, increased blood pressure, jaundice, breast lump, symptoms of depression, changes in menstrual periods, vaginal itching or discharge, acne, mood changes, weight gain, back pain, menstrual cramps, nausea, stomach pain, breast pain, headache, dizziness, flu-like symptoms, sore throat ( <a href="https://www.drugs.com/mtm/etonogestrel-implant.html#side-effects">https://www.drugs.com/mtm/etonogestrel-implant.html#side-effects</a> ).	Contraceptive, progestin ( <a href="https://www.drugs.com/cdi/etonogestrel.html">https://www.drugs.com/cdi/etonogestrel.html</a> ).	Medicine contained small plastic rod implanted in the skin of the upper arm, rod can remain in place for up to 3 years ( <a href="https://www.drugs.com/mtm/etonogestrel-implant.html#side-effects">https://www.drugs.com/mtm/etonogestrel-implant.html#side-effects</a> ).
Finasteride (Propecia, Proscar)	Benign prostatic hyperplasia, male pattern hair loss ( <a href="https://www.drugs.com/mtm/finasteride.html">https://www.drugs.com/mtm/finasteride.html</a> ).	Loss of libido, erectile dysfunction, decreased ejaculatory volume, gynecomastia, orthostatic hypotension, post-finasteride syndrome, impact on fertility, dizziness, weakness, dyspnea, rhinitis, skin rash ( <a href="https://www.ncbi.nlm.nih.gov/books/NBK513329/#article-21771.s5">https://www.ncbi.nlm.nih.gov/books/NBK513329/#article-21771.s5</a> ).	Competitive inhibitor of types II and III 5-alpha-reductase isoenzyme; Inhibits testosterone conversion to DHT ( <a href="https://www.ncbi.nlm.nih.gov/books/NBK513329/#article-21771.s5">https://www.ncbi.nlm.nih.gov/books/NBK513329/#article-21771.s5</a> ).	Persistent sexual dysfunction may lead to suicidality and adverse psychological events ( <a href="https://www.ncbi.nlm.nih.gov/books/NBK513329/#article-21771.s5">https://www.ncbi.nlm.nih.gov/books/NBK513329/#article-21771.s5</a> ).
Goserelin implant (Zoladex)	Prostate cancer, breast cancer, endometriosis, preparation for endometrial ablation ( <a href="https://www.drugs.com/goserelin.html">https://www.drugs.com/goserelin.html</a> ).	Allergic reaction, worsening of tumor symptoms (short time), pain, bruising, swelling, redness, oozing, bleeding, dizziness, trouble breathing, lightheadedness, high blood sugar, high calcium, heart attack symptoms, signs of a blood clot, hot flashes, sweating, painful urination, mood changes, increased or decreased interest in sex, changes in sexual function, fewer erections than normal, headache, swelling in hands or feet, vaginal dryness or itching or discharge, changes in breast size, acne, mild skin rash or itching ( <a href="https://www.drugs.com/zoladex.html#side-effects">https://www.drugs.com/zoladex.html#side-effects</a> ).	GnRH, antineoplastic ( <a href="https://www.drugs.com/goserelin.html">https://www.drugs.com/goserelin.html</a> ).	Can harm an unborn baby or cause birth defects ( <a href="https://www.drugs.com/zoladex.html#side-effects">https://www.drugs.com/zoladex.html#side-effects</a> ).
Histrelin implant (Vantas)	Advanced prostate cancer, central precocious puberty ( <a href="https://medlineplus.gov/druginfo/meds/a601146.html">https://medlineplus.gov/druginfo/meds/a601146.html</a> ).	Allergic reaction, bone pain, numbness or weakness in legs or feet, painful or difficult urination, blood in urine, seizure, increased pressure in the skull, mental problems, constipation, urination problems, breast swelling, hot flashes, feeling tired, erectile dysfunction (impotence), decreased testicle size, pain, redness, bruising, swelling, skin irritation where impact was inserted ( <a href="https://www.drugs.com/vantas.html#side-effects">https://www.drugs.com/vantas.html#side-effects</a> ).	GnRH antagonist ( <a href="https://medlineplus.gov/druginfo/meds/a601146.html">https://medlineplus.gov/druginfo/meds/a601146.html</a> ).	Manmade form of a hormone that regulates many processes in the body ( <a href="https://www.drugs.com/vantas.html#side-effects">https://www.drugs.com/vantas.html#side-effects</a> ).
Levonorgestrel	Pregnancy prevention ( <a href="https://medlineplus.gov/druginfo/meds/a610021.html">https://medlineplus.gov/druginfo/meds/a610021.html</a> ).	Menstrual abnormalities, amenorrhea, dysmenorrhea, oligomenorrhea, headaches, acne, nausea, vomiting, ovarian cysts, weight gain, depression, low libido ( <a href="https://www.ncbi.nlm.nih.gov/books/NBK539737/#article-24232.s5">https://www.ncbi.nlm.nih.gov/books/NBK539737/#article-24232.s5</a> ).	Emergency contraceptive; Progestin ( <a href="https://medlineplus.gov/druginfo/meds/a610021.html">https://medlineplus.gov/druginfo/meds/a610021.html</a> ).	For the emergency contraceptive, timing of ingestion plays a significant role in efficacy ( <a href="https://www.ncbi.nlm.nih.gov/books/NBK539737/#article-24232.s5">https://www.ncbi.nlm.nih.gov/books/NBK539737/#article-24232.s5</a> ).

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	Clinical Use	Adverse Events	Notes on Mechanism	Historical and Clinical Notes
Leuprolide (Eligard)	Prostate cancer, endometriosis, uterine fibroids ( <a href="https://www.drugs.com/leuprolide.html">https://www.drugs.com/leuprolide.html</a> ).	Local pain at the injection site, weight change, mood changes, skin rash, acne vulgaris, seborrhea, vaginal discharge, vaginal hemorrhage, vaginitis, anaphylactic reactions, flushing, hot flashes, headaches, migraines, alopecia, nausea, vomiting, diarrhea, GI upset, fatigue, edema, insomnia, upper respiratory infection, fever, nasal congestion, altered mood, weight gain, vaginitis, testicular atrophy, weakness, dizziness, hyperlipidemia, hyperglycemia, impotence, decreased libido, dermatological changes, arthropathy, reduced fertility, amenorrhea ( <a href="https://www.ncbi.nlm.nih.gov/books/NBK551662/#article-24223.s5">https://www.ncbi.nlm.nih.gov/books/NBK551662/#article-24223.s5</a> ).	GnRH, antineoplastic ( <a href="https://www.drugs.com/leuprolide.html">https://www.drugs.com/leuprolide.html</a> ).	The device looks like a 1.5” coffee stirrer and is implanted under the skin ( <a href="https://chemocare.com/chemotherapy/drug-info/Leuprolide.aspx">https://chemocare.com/chemotherapy/drug-info/Leuprolide.aspx</a> ).
Medroxyprogesterone acetate	Abnormal uterine bleeding, amenorrhea, hot flashes, reduction of uterine cancer risk ( <a href="https://www.webmd.com/drugs/2/drug-8674/medroxyprogesterone-oral/details">https://www.webmd.com/drugs/2/drug-8674/medroxyprogesterone-oral/details</a> ).	Nausea, bloating, breast tenderness, headache, change in vaginal discharge, mood swings, blurred vision, dizziness, drowsiness, weight gain or loss, unusual vaginal bleeding, mood or mental changes, swelling of hands or feet, frequent or burning or painful urination, breast lumps, dark patches on the face or skin, yellowing of the eyes or skin, unusual tiredness, blood clots, chest or jaw or left arm pain, weakness on one side of the body, trouble speaking, sudden vision changes, confusion, sudden severe headache, severe dizziness, fainting, trouble breathing, coughing up blood, pain or redness or swelling or weakness of the arms or legs, calf pain or swelling that is warm to the touch, very serious allergic reaction ( <a href="https://www.webmd.com/drugs/2/drug-8674/medroxyprogesterone-oral/details">https://www.webmd.com/drugs/2/drug-8674/medroxyprogesterone-oral/details</a> ).	Progestin ( <a href="https://www.webmd.com/drugs/2/drug-8674/medroxyprogesterone-oral/details">https://www.webmd.com/drugs/2/drug-8674/medroxyprogesterone-oral/details</a> ).	Sometimes used with an estrogen as a combination hormone replacement therapy in women after menopause; Should be used for the shortest possible length of time at the lowest effective dose ( <a href="https://www.webmd.com/drugs/2/drug-8674/medroxyprogesterone-oral/details">https://www.webmd.com/drugs/2/drug-8674/medroxyprogesterone-oral/details</a> ).
Mestranol and norethindrone	Prevention of pregnancy ( <a href="https://www.drugs.com/mtm/mestranol-and-norethindrone.html">https://www.drugs.com/mtm/mestranol-and-norethindrone.html</a> ).	Allergic reaction, signs of a stroke, signs of a blood clot, heart attack symptoms, vision changes, change in severity or pattern of migraine headaches, swelling in hands or ankles or feet, breast lump, symptoms of depression, nausea, vomiting, breast tenderness or swelling, freckles or darkening of facial skin, increased hair growth, loss of scalp hair, changes in weight or appetite, problems with contact lenses, vaginal itching or discharge, changes in menstrual periods, decreased sex drive ( <a href="https://www.drugs.com/mtm/mestranol-and-norethindrone.html#side-effects">https://www.drugs.com/mtm/mestranol-and-norethindrone.html#side-effects</a> ).	Contraceptive; Combination drug that contains female hormones that prevent ovulation ( <a href="https://www.drugs.com/mtm/mestranol-and-norethindrone.html">https://www.drugs.com/mtm/mestranol-and-norethindrone.html</a> ).	Should not be used by patients who are currently pregnant or recently had a baby ( <a href="https://www.drugs.com/mtm/mestranol-and-norethindrone.html">https://www.drugs.com/mtm/mestranol-and-norethindrone.html</a> ).
Methyltestosterone	Delayed puberty, breast cancer ( <a href="https://www.webmd.com/drugs/2/drug-7039/methyltestosterone-oral/details">https://www.webmd.com/drugs/2/drug-7039/methyltestosterone-oral/details</a> ).	Allergic reaction, changes in skin color, increased or ongoing erection, SOB (even with mild exertion), swelling, rapid weight gain, liver problems, development of male characteristics in women, acne, changes in menstrual periods, male-pattern hair growth (e.g., on the chin or chest), hoarse or deepened voice, enlarged clitoris, breast swelling, headache, anxiety, depressed mood, numbness or tingly feeling, increased or decreased interest in sex ( <a href="https://www.drugs.com/mtm/methyltestosterone.html#side-effects">https://www.drugs.com/mtm/methyltestosterone.html#side-effects</a> ).	Androgen ( <a href="https://www.webmd.com/drugs/2/drug-7039/methyltestosterone-oral/details">https://www.webmd.com/drugs/2/drug-7039/methyltestosterone-oral/details</a> ).	Manmade form of testosterone; Should not be used during pregnancy ( <a href="https://www.drugs.com/mtm/methyltestosterone.html">https://www.drugs.com/mtm/methyltestosterone.html</a> ).

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	Clinical Use	Adverse Events	Notes on Mechanism	Historical and Clinical Notes
Mifepristone	Termination of pregnancy ( <a href="https://medlineplus.gov/druginfo/meds/a600042.html">https://medlineplus.gov/druginfo/meds/a600042.html</a> ).	Fetal death, anaphylactic reactions, toxic epidermal necrolysis, angioedema, teratogenesis, hypokalemia, peripheral edema, hypertension, dyspnea, constipation, hypoglycemia, vaginal bleeding, uterine contractions, stomatitis, hot flashes, endometrial hyperplasia, anemia, adrenocortical insufficiency, palpitations, hypotension, nausea, abdominal pain, fever, vomiting, fatigue, headache, diarrhea, dizziness, sinusitis, pharyngitis, GERD, malaise, insomnia, maculopapular rash, pruritis, pelvic pain, chills, menstrual irregularity, emotional lability, syncope ( <a href="https://www.ncbi.nlm.nih.gov/books/NBK557612/#article-25142.s5">https://www.ncbi.nlm.nih.gov/books/NBK557612/#article-25142.s5</a> ).	Antagonist of glucocorticoid and progesterone receptors, at low doses selective antagonist of progesterone ( <a href="https://www.ncbi.nlm.nih.gov/books/NBK557612/#article-25142.s5">https://www.ncbi.nlm.nih.gov/books/NBK557612/#article-25142.s5</a> ).	Only available through restricted Mifeprex Risk Evaluation and Mitigation Strategies (REMS) Program ( <a href="https://medlineplus.gov/druginfo/meds/a600042.html">https://medlineplus.gov/druginfo/meds/a600042.html</a> ).
Minoxidil (Loniten)	Hypertension; Topical form (Rogaine) promotes hair growth ( <a href="https://www.drugs.com/mtm/minoxidil.html">https://www.drugs.com/mtm/minoxidil.html</a> ).	Minoxidil-induced telogen effluvium, skin irritation, scaly changes of the scalp, isolated pruritus, allergic contact dermatitis, localized or generalized hypertrichosis ( <a href="https://www.ncbi.nlm.nih.gov/books/NBK482378/#article-25181.s5">https://www.ncbi.nlm.nih.gov/books/NBK482378/#article-25181.s5</a> ).	Vasodilator ( <a href="https://www.drugs.com/mtm/minoxidil.html">https://www.drugs.com/mtm/minoxidil.html</a> ).	First designed for treatment of severe refractory hypertension in the 1970s, topical form developed for alopecia in 1987 ( <a href="https://www.ncbi.nlm.nih.gov/books/NBK482378/#article-25181.s5">https://www.ncbi.nlm.nih.gov/books/NBK482378/#article-25181.s5</a> ).
Oxytocin (Pitocin, Syntocinon)	Induction of labor, strengthening uterine contractions, bleeding control after childbirth, stimulation of contractions in incomplete or threatened miscarriage ( <a href="https://www.drugs.com/mtm/oxytocin.html">https://www.drugs.com/mtm/oxytocin.html</a> ).	Erythema at the site of injection, intensified contractions, more frequent contractions, nausea, vomiting, stomach pain, and loss of appetite. Serious adverse effects that require monitoring after oxytocin administration include cardiac arrhythmias, seizures, anaphylaxis, confusion, hallucinations, extreme increase in blood pressure, blurred vision ( <a href="https://www.ncbi.nlm.nih.gov/books/NBK507848/#article-26498.s5">https://www.ncbi.nlm.nih.gov/books/NBK507848/#article-26498.s5</a> ).	Uterotonic agent ( <a href="https://www.drugs.com/mtm/oxytocin.html">https://www.drugs.com/mtm/oxytocin.html</a> ).	Approved by the FDA for two specific obstetric timeframes (antepartum and postpartum) ( <a href="https://www.ncbi.nlm.nih.gov/books/NBK507848/#article-26498.s5">https://www.ncbi.nlm.nih.gov/books/NBK507848/#article-26498.s5</a> ).
Nafarelin (Synarel)	Endometriosis, precocious puberty ( <a href="https://medlineplus.gov/druginfo/meds/a601082.html">https://medlineplus.gov/druginfo/meds/a601082.html</a> ).	Acne, breast enlargement, vaginal bleeding (menstruation should stop with this medication), mood swings, increase in pubic hair, body odor, seborrhea, nasal irritation, headache, hot flashes, insomnia, change in weight, vaginal dryness or discharge, change in sex drive, oily skin, muscle aches, rhinitis, depression, stomach pain not related to menstruation, SOB or difficulty breathing, chest pain, rash, severe itching ( <a href="https://medlineplus.gov/druginfo/meds/a601082.html#side-effects">https://medlineplus.gov/druginfo/meds/a601082.html#side-effects</a> ).	GnRH ( <a href="https://www.drugs.com/cdi/nafarelin.html">https://www.drugs.com/cdi/nafarelin.html</a> ).	Comes as a nasal spray ( <a href="https://medlineplus.gov/druginfo/meds/a601082.html#side-effects">https://medlineplus.gov/druginfo/meds/a601082.html#side-effects</a> ).

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	Clinical Use	Adverse Events	Notes on Mechanism	Historical and Clinical Notes
Norethindrone	Endometriosis, abnormal periods or bleeding, prevention of pregnancy ( <a href="https://medlineplus.gov/druginfo/meds/a604034.html#side-effects">https://medlineplus.gov/druginfo/meds/a604034.html#side-effects</a> ).	Irregular vaginal bleeding or spotting, changes in menstrual flow, enlarged or tender breasts, nausea, vomiting, bloating, weight changes, difficulty falling asleep or staying asleep, acne, brown patches on face, hair loss, growth of hair on face, loss of vision, blurred vision, double vision, bulging eyes, migraine headache, pain or warmth or heaviness in the back of the lower leg, SOB, coughing up blood, sudden sharp or crushing chest pain, heaviness in chest, slow or difficult speech, dizziness or faintness, weakness or numbness of arm or leg, swelling, yellowing of the skin or eyes, depression, mood swings, missed periods, sudden or severe pain in the abdomen, hives, rash, itching, difficulty breathing or swallowing ( <a href="https://medlineplus.gov/druginfo/meds/a604034.html#side-effects">https://medlineplus.gov/druginfo/meds/a604034.html#side-effects</a> ).	Contraceptive, progestin ( <a href="https://www.drugs.com/mtm/norethindrone.html">https://www.drugs.com/mtm/norethindrone.html</a> ).	May control a condition but will not cure it ( <a href="https://medlineplus.gov/druginfo/meds/a604034.html#side-effects">https://medlineplus.gov/druginfo/meds/a604034.html#side-effects</a> ).
Tadalafil (Cialis)	Erectile dysfunction, benign prostatic hyperplasia, pulmonary arterial hypertension ( <a href="https://medlineplus.gov/druginfo/meds/a604008.html#side-effects">https://medlineplus.gov/druginfo/meds/a604008.html#side-effects</a> ).	Headache, indigestion, heartburn, nausea, diarrhea, flushing, pain, cough, sudden decrease or loss of vision, blurred vision, changes in color vision, sudden decrease or loss of hearing, ringing in ears, erection that lasts longer than 4 hours, dizziness, chest pain, hives, rash, difficulty breathing or swallowing, swelling, blistering or peeling skin, sudden loss of some or all vision (in some cases permanent) ( <a href="https://medlineplus.gov/druginfo/meds/a604008.html#side-effects">https://medlineplus.gov/druginfo/meds/a604008.html#side-effects</a> ).	Impotence agent, PDE inhibitor ( <a href="https://www.drugs.com/tadalafil.html">https://www.drugs.com/tadalafil.html</a> , <a href="https://medlineplus.gov/druginfo/meds/a604008.html#side-effects">https://medlineplus.gov/druginfo/meds/a604008.html#side-effects</a> ).	Taking tadalafil with nitrate medicine can cause sudden and serious decrease in blood pressure ( <a href="https://www.drugs.com/tadalafil.html">https://www.drugs.com/tadalafil.html</a> ).
Testosterone oral (Jatenzo)	Hormone replacement therapy in adult men with medical conditions with low or no testosterone ( <a href="https://www.drugs.com/jatenzo.html">https://www.drugs.com/jatenzo.html</a> ).	Allergic reaction, increased blood pressure, swelling, pain or swelling in breasts, breathing problems or stopping during sleep, unusual changes in mood or behavior, new or worsening depression, thoughts about hurting self, liver problems, signs of blood clot in the lung, signs of blood clot deep in the body, worsening symptoms of enlarged prostate, increased red blood cell counts, enlarged prostate, erections that are more frequent or last longer than usual, increased blood pressure, nausea, heartburn, burping, diarrhea, headache, swelling in lower legs ( <a href="https://www.drugs.com/jatenzo.html#side-effects">https://www.drugs.com/jatenzo.html#side-effects</a> ).	Androgen, anabolic steroid ( <a href="https://www.drugs.com/mtm/testosterone-oral.html">https://www.drugs.com/mtm/testosterone-oral.html</a> ).	Liquid-filled capsule containing testosterone; Will not enhance athletic performance ( <a href="https://www.drugs.com/jatenzo.html">https://www.drugs.com/jatenzo.html</a> ).
Ulipristal	Pregnancy prevention ( <a href="https://medlineplus.gov/druginfo/meds/a610020.html">https://medlineplus.gov/druginfo/meds/a610020.html</a> ).	Painful menstrual periods, spotting or bleeding between menstrual periods, nausea, tiredness, headache, dizziness, severe lower abdominal pain (3 to 5 weeks after taking this drug), rash or itching or hives or swelling of the eyes or face or tongue or throat ( <a href="https://medlineplus.gov/druginfo/meds/a610020.html#side-effects">https://medlineplus.gov/druginfo/meds/a610020.html#side-effects</a> ).	Progestin ( <a href="https://medlineplus.gov/druginfo/meds/a610020.html#side-effects">https://medlineplus.gov/druginfo/meds/a610020.html#side-effects</a> ).	Used as emergency contraceptive, should not be used to prevent pregnancy on a regular basis ( <a href="https://medlineplus.gov/druginfo/meds/a610020.html#side-effects">https://medlineplus.gov/druginfo/meds/a610020.html#side-effects</a> ).
<b>Respiratory</b>				

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	Clinical Use	Adverse Events	Notes on Mechanism	Historical and Clinical Notes
Albuterol (ProAir)	Bronchospasm ( <a href="https://www.ncbi.nlm.nih.gov/books/NBK482272/#article-17330.s5">https://www.ncbi.nlm.nih.gov/books/NBK482272/#article-17330.s5</a> ).	Tremors, nervousness, insomnia, nausea, fever, bronchospasm, vomiting, headache, dizziness, cough, allergic reactions, otitis media, epistaxis, increased appetite, urinary tract infections, dry mouth, gas, hyperhidrosis, pain, dyspepsia, hyperactivity, chills, lymphadenopathy, ocular pruritus, sweating, conjunctivitis, dysphonia, increased blood pressure, may cause hypokalemia, increased blood glucose, prolonged QTc interval, ST-segment depression ( <a href="https://www.ncbi.nlm.nih.gov/books/NBK482272/#article-17330.s5">https://www.ncbi.nlm.nih.gov/books/NBK482272/#article-17330.s5</a> ).	Adrenergic bronchodilator ( <a href="https://www.drugs.com/albuterol.html">https://www.drugs.com/albuterol.html</a> ).	Tremors and nervousness mostly seen in children 2 to 6 years old ( <a href="https://www.ncbi.nlm.nih.gov/books/NBK482272/#article-17330.s5">https://www.ncbi.nlm.nih.gov/books/NBK482272/#article-17330.s5</a> ).
Albuterol + Ipratropium (DuoNeb, Combivent)	Prevention of bronchospasm in patients with COPD ( <a href="https://www.drugs.com/duoneb.html">https://www.drugs.com/duoneb.html</a> ).	Allergic reaction, wheezing, choking, breathing problems, chest pain, fast or pounding heartbeats, fluttering in chest, tremors, nervousness, swelling, blurred vision, tunnel vision, eye pain, seeing halos around lights, painful or difficult urination, low potassium, headache, trouble breathing, cold symptoms ( <a href="https://www.drugs.com/duoneb.html#side-effects">https://www.drugs.com/duoneb.html#side-effects</a> ).	Bronchodilator combination ( <a href="https://www.drugs.com/mtm/albuterol-and-ipratropium-inhalation.html">https://www.drugs.com/mtm/albuterol-and-ipratropium-inhalation.html</a> ).	DuoNed brand name discontinued in the U.S. ( <a href="https://www.drugs.com/duoneb.html">https://www.drugs.com/duoneb.html</a> ).
Beclomethasone	Asthma in adults and children 5 years of age or older ( <a href="https://medlineplus.gov/druginfo/meds/a681050.html">https://medlineplus.gov/druginfo/meds/a681050.html</a> ).	Headache, sore throat, runny or stuffy nose, back pain, nausea, cough, difficult or painful speech, rash, hives, itching, swelling, hoarseness, difficulty breathing or swallowing, changes in vision; In children: possible slowed growth ( <a href="https://medlineplus.gov/druginfo/meds/a681050.html#if-i-forget">https://medlineplus.gov/druginfo/meds/a681050.html#if-i-forget</a> ).	Corticosteroid; Decreases swelling and irritation in the airways ( <a href="https://medlineplus.gov/druginfo/meds/a681050.html">https://medlineplus.gov/druginfo/meds/a681050.html</a> ).	Comes as an aerosol to inhale by mouth using an inhaler ( <a href="https://medlineplus.gov/druginfo/meds/a681050.html#if-i-forget">https://medlineplus.gov/druginfo/meds/a681050.html#if-i-forget</a> ).
Benralizumab (Fasenra)	Asthma in adults and children ages 12 and older (whose asthma is not controlled with current medication) ( <a href="https://medlineplus.gov/druginfo/meds/a618002.html#side-effects">https://medlineplus.gov/druginfo/meds/a618002.html#side-effects</a> ).	Headache, sore throat, wheezing or difficulty breathing, hives, rash, flushing, swelling, fainting, dizziness ( <a href="https://medlineplus.gov/druginfo/meds/a618002.html#side-effects">https://medlineplus.gov/druginfo/meds/a618002.html#side-effects</a> ).	Interleukin inhibitor ( <a href="https://www.drugs.com/benralizumab.html">https://www.drugs.com/benralizumab.html</a> ).	Injectable medication ( <a href="https://medlineplus.gov/druginfo/meds/a618002.html#side-effects">https://medlineplus.gov/druginfo/meds/a618002.html#side-effects</a> ).
Benzonatate (Tessalon Pearls)	Cough ( <a href="https://medlineplus.gov/druginfo/meds/a682640.html#side-effects">https://medlineplus.gov/druginfo/meds/a682640.html#side-effects</a> ).	Nausea, constipation, drowsiness, headache, dizziness, stuffy nose, feeling chilly, burning in the eyes, rash or hives, itching, tightening of the throat, difficulty breathing or swallowing, numbness of the chest, confusion, hallucinations ( <a href="https://medlineplus.gov/druginfo/meds/a682640.html#side-effects">https://medlineplus.gov/druginfo/meds/a682640.html#side-effects</a> ).	Antitussive; Non-narcotic, numbs the throat and lungs ( <a href="https://www.drugs.com/benzonatate.html">https://www.drugs.com/benzonatate.html</a> ).	Comes as a liquid-filled capsule ( <a href="https://medlineplus.gov/druginfo/meds/a682640.html#side-effects">https://medlineplus.gov/druginfo/meds/a682640.html#side-effects</a> ).
Bosentan (Tracleer)	Pulmonary arterial hypertension in adults and children at least 3 years old ( <a href="https://www.drugs.com/mtm/bosentan.html">https://www.drugs.com/mtm/bosentan.html</a> ).	Headache, flushing, syncope, hepatic dysfunction, cough, dyspnea, respiratory tract infections, chest pain, hypotension, sinusitis, dizziness, worsening of PAH, fluid retention, transient decrease in sperm count, decreases in hemoglobin and hematocrit ( <a href="https://www.ncbi.nlm.nih.gov/books/NBK542293/#article-18462.s5">https://www.ncbi.nlm.nih.gov/books/NBK542293/#article-18462.s5</a> ).	Antagonizes endothelin receptors in the lung tissue, causing smooth muscle along the pulmonary vasculature to relax ( <a href="https://www.ncbi.nlm.nih.gov/books/NBK542293/#article-18462.s5">https://www.ncbi.nlm.nih.gov/books/NBK542293/#article-18462.s5</a> ).	Risk of embryo-fetal toxicity ( <a href="https://www.ncbi.nlm.nih.gov/books/NBK542293/#article-18462.s5">https://www.ncbi.nlm.nih.gov/books/NBK542293/#article-18462.s5</a> ).

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	Clinical Use	Adverse Events	Notes on Mechanism	Historical and Clinical Notes
Budesonide	Inflammatory diseases affecting the airways and GI tract ( <a href="https://www.ncbi.nlm.nih.gov/books/NBK563201/#article-18681.s5">https://www.ncbi.nlm.nih.gov/books/NBK563201/#article-18681.s5</a> ).	Paradoxical bronchospasm, localized infections of the oral cavity and pharynx, high risk for acquiring TB infection with long-term inhalation, hypersensitivity reaction, nasopharyngitis, nasal congestion, pharyngitis, rhinitis allergic, viral upper respiratory tract infection, nausea, viral gastroenteritis, otitis media, conjunctivitis., toothache, oropharyngeal pain, cough, dysphonia, back pain, procedural pain, throat irritation, back pain, headache, suppression of the HPA axis; Unmasking or flare-up of medical conditions suppressed by systemic glucocorticoid treatment; Hypercortisolism (with prolonged high doses), metabolic abnormalities, osteoporosis, osteonecrosis, cataract, glaucoma, eosinophilic conditions, peptic ulcer, proximal myopathy of the limbs, pseudotumor cerebra with reduced dose or withdrawal; In pediatric patients: reduced linear growth velocity ( <a href="https://www.ncbi.nlm.nih.gov/books/NBK563201/#article-18681.s5">https://www.ncbi.nlm.nih.gov/books/NBK563201/#article-18681.s5</a> ).	Glucocorticoid, inhaled corticosteroid ( <a href="https://www.drugs.com/mtm/budesonide.html">https://www.drugs.com/mtm/budesonide.html</a> ).	It is not known whether this drug will harm an unborn baby ( <a href="https://www.drugs.com/mtm/budesonide.html">https://www.drugs.com/mtm/budesonide.html</a> ).
Cetirizine (Zyrtec)	Allergic rhinitis, urticaria ( <a href="https://www.ncbi.nlm.nih.gov/books/NBK549776/#article-19266.s5">https://www.ncbi.nlm.nih.gov/books/NBK549776/#article-19266.s5</a> ).	Somnolence, fatigue, pharyngitis, dizziness, dry mouth, daytime sleepiness, headache, abdominal pain, conjunctival hyperemia, instillation site pain, transient reversible hepatic transaminase elevations, hepatitis with elevated bilirubin, severe hypotension, anaphylaxis, hemolytic anemia, cholestasis, orofacial dyskinesia, glomerulonephritis, hepatitis, stillbirth, thrombocytopenia, ocular hyperemia, decreased visual acuity ( <a href="https://www.ncbi.nlm.nih.gov/books/NBK549776/#article-19266.s5">https://www.ncbi.nlm.nih.gov/books/NBK549776/#article-19266.s5</a> ).	Antihistamine ( <a href="https://www.drugs.com/cetirizine-hcl.html">https://www.drugs.com/cetirizine-hcl.html</a> ).	Children are more likely than adults to experience headaches while taking this medication ( <a href="https://www.ncbi.nlm.nih.gov/books/NBK549776/#article-19266.s5">https://www.ncbi.nlm.nih.gov/books/NBK549776/#article-19266.s5</a> ).
Dextromethorphan	Cough ( <a href="https://www.ncbi.nlm.nih.gov/books/NBK538216/#article-20426.s5">https://www.ncbi.nlm.nih.gov/books/NBK538216/#article-20426.s5</a> ).	Nausea, GI discomfort, drowsiness, dizziness, euphoria, visual hallucinations, persecutory delusions, agitation, drunk feeling, high, nausea and vomiting, nystagmus ( <a href="https://www.ncbi.nlm.nih.gov/books/NBK538216/#article-20426.s5">https://www.ncbi.nlm.nih.gov/books/NBK538216/#article-20426.s5</a> ).	Antitussive ( <a href="https://www.drugs.com/dextromethorphan.html">https://www.drugs.com/dextromethorphan.html</a> ).	FDA approved in 1958 as a cough suppressant ( <a href="https://www.ncbi.nlm.nih.gov/books/NBK538216/#article-20426.s5">https://www.ncbi.nlm.nih.gov/books/NBK538216/#article-20426.s5</a> ).
Diphenhydramine (Benadryl)	Hay fever, allergies, common cold; Cough caused by minor throat or airway irritation; Motion sickness, insomnia, abnormal movements in early stage parkinsonian syndrome or due to medication side effects ( <a href="https://medlineplus.gov/druginfo/meds/a682539.html">https://medlineplus.gov/druginfo/meds/a682539.html</a> ).	Drowsiness, dizziness, impaired coordination, headache, epigastric discomfort, thickened bronchial secretions, dry mucous membranes, paradoxical CNS stimulation, constipation, euphoria, ataxia, dysuria, urinary retention, hypotension, blurred vision, diplopia, palpitations, tachycardia, photosensitivity, diaphoresis, erectile dysfunction, early menses, anorexia, anaphylaxis, anaphylactoid reaction, QT prolongation, hemolytic anemia, thrombocytopenia, agranulocytosis, leukopenia, pancytopenia, arrhythmias, seizures, toxic psychosis, acute labyrinthitis, heatstroke, possible post renal obstruction, CNS depression, potentiated effect of sedatives such as alcohol, increased risk of fall in elderly patients ( <a href="https://www.ncbi.nlm.nih.gov/books/NBK526010/#article-20535.s5">https://www.ncbi.nlm.nih.gov/books/NBK526010/#article-20535.s5</a> ).	Antagonizes the H1 receptor ( <a href="https://www.ncbi.nlm.nih.gov/books/NBK526010/#article-20535.s3">https://www.ncbi.nlm.nih.gov/books/NBK526010/#article-20535.s3</a> ).	Should be used with caution in patients with asthma, hyperthyroidism, cardiovascular disease, hypertension, or increased ocular pressure ( <a href="https://www.ncbi.nlm.nih.gov/books/NBK526010/#article-20535.s5">https://www.ncbi.nlm.nih.gov/books/NBK526010/#article-20535.s5</a> ).

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	Clinical Use	Adverse Events	Notes on Mechanism	Historical and Clinical Notes
Epoprostenol (Flolan, Veletri)	Pulmonary arterial hypertension ( <a href="https://www.drugs.com/mtm/epoprostenol.html">https://www.drugs.com/mtm/epoprostenol.html</a> ).	Dizziness, jaw pain, muscle and bone pain, headache, nausea, vomiting, diarrhea, flushing, anxiety, nervousness, agitation, rash, SOB, wheezing, difficulty breathing, coughing up blood, unusual bleeding or bruising, fever, chills, signs of infection, dizziness, fainting ( <a href="https://medlineplus.gov/druginfo/meds/a622042.html#side-effects">https://medlineplus.gov/druginfo/meds/a622042.html#side-effects</a> ).	Prostaglandin ( <a href="https://www.drugs.com/mtm/epoprostenol.html">https://www.drugs.com/mtm/epoprostenol.html</a> ).	Continuous IV infusion ( <a href="https://medlineplus.gov/druginfo/meds/a622042.html#side-effects">https://medlineplus.gov/druginfo/meds/a622042.html#side-effects</a> ).
Fluticasone oral inhalation	Difficulty breathing, chest tightness, wheezing, coughing caused by asthma in adults and children ( <a href="https://medlineplus.gov/druginfo/meds/a601056.html">https://medlineplus.gov/druginfo/meds/a601056.html</a> ).	Headache, stuffy or runny nose, hoarseness, toothache, sore or irritated throat, painful white patches in mouth or throat, fever, ear infection, hives, rash, itching, swelling, difficulty breathing or swallowing, cough, SOB; In children: possible slowed growth ( <a href="https://medlineplus.gov/druginfo/meds/a601056.html#side-effects">https://medlineplus.gov/druginfo/meds/a601056.html#side-effects</a> ).	Corticosteroid ( <a href="https://medlineplus.gov/druginfo/meds/a601056.html#side-effects">https://medlineplus.gov/druginfo/meds/a601056.html#side-effects</a> ).	Taken by mouth using an inhaler ( <a href="https://medlineplus.gov/druginfo/meds/a601056.html#side-effects">https://medlineplus.gov/druginfo/meds/a601056.html#side-effects</a> ).
Formoterol (inhalation)	Chronic obstructive pulmonary disease ( <a href="https://medlineplus.gov/druginfo/meds/a602023.html#side-effects">https://medlineplus.gov/druginfo/meds/a602023.html#side-effects</a> ).	Nervousness, headache, uncontrollable shaking of part of the body, dry mouth, muscle cramps, nausea, vomiting, diarrhea, extreme tiredness, dizziness, difficulty falling asleep or staying asleep, stuffed or runny nose, sore throat, swelling, difficulty swallowing or breathing, hives, rash, itching, fast or pounding or irregular heartbeat, chest pain, fainting ( <a href="https://medlineplus.gov/druginfo/meds/a602023.html#side-effects">https://medlineplus.gov/druginfo/meds/a602023.html#side-effects</a> ).	Adrenergic bronchodilator ( <a href="https://www.drugs.com/mtm/formoterol-inhalation.html">https://www.drugs.com/mtm/formoterol-inhalation.html</a> ).	Taken by mouth using a nebulizer ( <a href="https://medlineplus.gov/druginfo/meds/a602023.html#side-effects">https://medlineplus.gov/druginfo/meds/a602023.html#side-effects</a> ).
Guaifenesin (Robitussin)	Chest congestion ( <a href="https://medlineplus.gov/druginfo/meds/a682494.html#side-effects">https://medlineplus.gov/druginfo/meds/a682494.html#side-effects</a> ).	Headache, nausea, vomiting ( <a href="https://medlineplus.gov/druginfo/meds/a682494.html#side-effects">https://medlineplus.gov/druginfo/meds/a682494.html#side-effects</a> ).	Expectorant; Thins the mucus in air passages ( <a href="https://www.drugs.com/guaifenesin.html">https://www.drugs.com/guaifenesin.html</a> , <a href="https://medlineplus.gov/druginfo/meds/a682494.html#side-effects">https://medlineplus.gov/druginfo/meds/a682494.html#side-effects</a> ).	Available in both prescription and nonprescription products ( <a href="https://www.webmd.com/drugs/2/drug-3350-118/guaifenesin-oral/guaifenesin-oral/details">https://www.webmd.com/drugs/2/drug-3350-118/guaifenesin-oral/guaifenesin-oral/details</a> ).
Iloprost	Pulmonary arterial hypertension ( <a href="https://medlineplus.gov/druginfo/meds/a612032.html">https://medlineplus.gov/druginfo/meds/a612032.html</a> ).	Flushing, cough, blurred vision, nausea, vomiting, headache, tightening of the jaw muscles making it hard to open the mouth, difficulty falling asleep or staying asleep, tongue pain, difficulty breathing, bubbly or wheezing or gasping sound with breathing, coughing up pink or frothy sputum, grey-blue color of lips or skin ( <a href="https://medlineplus.gov/druginfo/meds/a612032.html#side-effects">https://medlineplus.gov/druginfo/meds/a612032.html#side-effects</a> ).	Vasodilator ( <a href="https://medlineplus.gov/druginfo/meds/a612032.html#side-effects">https://medlineplus.gov/druginfo/meds/a612032.html#side-effects</a> ).	Inhaled by mouth six to nine times a day ( <a href="https://medlineplus.gov/druginfo/meds/a612032.html#side-effects">https://medlineplus.gov/druginfo/meds/a612032.html#side-effects</a> ).
Ipratropium	Chronic obstructive lung disease ( <a href="https://www.ncbi.nlm.nih.gov/books/NBK544261/#article-23760.s5">https://www.ncbi.nlm.nih.gov/books/NBK544261/#article-23760.s5</a> ).	Bronchitis, nausea, mouth dryness, skin flushing, dyspnea, symptoms of common cold, dizziness, sinusitis, dyspepsia, back pain, UTI, tachycardia, arrhythmias, hypersensitivity reaction, paradoxical bronchospasms, anaphylaxis, closed-angle glaucoma, upper respiratory infections, epistaxis, pharyngitis, headache, xerostomia, change of taste, nausea, nasal irritation, hypersensitivity reaction ( <a href="https://www.ncbi.nlm.nih.gov/books/NBK544261/#article-23760.s5">https://www.ncbi.nlm.nih.gov/books/NBK544261/#article-23760.s5</a> ).	Anticholinergic bronchodilator ( <a href="https://www.drugs.com/pro/ipratropium.html">https://www.drugs.com/pro/ipratropium.html</a> ).	Possibly acceptable for use during pregnancy ( <a href="https://www.rxlist.com/consumer_ipratropium_atrovent_atrovent_hfa/drugs-condition.htm">https://www.rxlist.com/consumer_ipratropium_atrovent_atrovent_hfa/drugs-condition.htm</a> ).

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Ivacaftor and lumacaftor (Orkambi)	Cystic fibrosis in adults and children at least 1 year old ( <a href="https://www.drugs.com/orkambi.html">https://www.drugs.com/orkambi.html</a> ).	Allergic reaction, SOB, tightness in chest, liver problems, breathing problems, feeling tired, nausea, gas, diarrhea, rash, flu symptoms, changes in menstrual periods, cold symptoms ( <a href="https://www.drugs.com/orkambi.html#side-effects">https://www.drugs.com/orkambi.html#side-effects</a> ).	CFTR combination ( <a href="https://www.drugs.com/mtm/ivacaftor-and-lumacaftor.html">https://www.drugs.com/mtm/ivacaftor-and-lumacaftor.html</a> ).	Only for use given a certain gene mutation related to cystic fibrosis ( <a href="https://www.drugs.com/orkambi.html">https://www.drugs.com/orkambi.html</a> ).
Ketotifen	Asthma ( <a href="https://www.mayoclinic.org/drugs-supplements/ketotifen-oral-route/description/drg-20064435">https://www.mayoclinic.org/drugs-supplements/ketotifen-oral-route/description/drg-20064435</a> ).	Drowsiness, dizziness, trouble sleeping, flu-like symptoms, unusual weight gain, stomach pain, rash, unusual bleeding or bruising, irritability, unusual excitability or nervousness ( <a href="https://www.medicinenet.com/ketotifen-oral_tablet/article.htm#SideEffects">https://www.medicinenet.com/ketotifen-oral_tablet/article.htm#SideEffects</a> ).	Mast cell stabilizer ( <a href="https://www.drugs.com/cons/ketotifen.html">https://www.drugs.com/cons/ketotifen.html</a> ).	Not effective for prevention or treatment of acute asthma attacks ( <a href="https://www.drugs.com/cons/ketotifen.html">https://www.drugs.com/cons/ketotifen.html</a> ).
Mepolizumab	Severe asthma, HES, EPGA ( <a href="https://www.drugs.com/mtm/mepolizumab.html">https://www.drugs.com/mtm/mepolizumab.html</a> ).	Pain or redness or swelling or warmth or burning or itching at site of injection, headache, dry and itchy skin with or without red or scaly rashes, back pain, muscle spasms, mouth or throat pain, joint pain, nasal dryness, wheezing or difficulty breathing, SOB, cough, chest tightness, flushing, hives, rash, swelling, difficulty swallowing, fainting, dizziness ( <a href="https://medlineplus.gov/druginfo/meds/a615058.html#side-effects">https://medlineplus.gov/druginfo/meds/a615058.html#side-effects</a> ).	Interleukin inhibitor ( <a href="https://www.drugs.com/mtm/mepolizumab.html">https://www.drugs.com/mtm/mepolizumab.html</a> ).	For use by children 6 years and older and adults whose asthma is not currently controlled by asthma medication(s) ( <a href="https://medlineplus.gov/druginfo/meds/a615058.html#side-effects">https://medlineplus.gov/druginfo/meds/a615058.html#side-effects</a> ).
Montelukast (Singulair)	Chronic asthma, prevention of exercise-induced bronchoconstriction ( <a href="https://www.ncbi.nlm.nih.gov/books/NBK459301/#article-25257.s5">https://www.ncbi.nlm.nih.gov/books/NBK459301/#article-25257.s5</a> ).	Neuropsychiatric events, anxiety, depression, aggressiveness, agitation, attention and memory impairment, sleeping disorders (insomnia, somnambulism, dream anomalies), seizures, paresthesia, hypoesthesia, suicidal thoughts and behavior, systemic eosinophilia sometimes associated with vasculitis, headaches, fever, fatigue, upper respiratory signs, otitis, cough, pneumonia, wheezing, conjunctivitis, GI symptoms, influenza, varicella, pruritus, eczema and atopic dermatitis, angioedema, urticaria, skin rash, bruising, erythema multiforme, erythema nodosum, toxic epidermal necrolysis, SJS, arthralgia, myalgia, anaphylaxis, eosinophilic infiltration of the liver, liver toxicity ( <a href="https://www.ncbi.nlm.nih.gov/books/NBK459301/#article-25257.s5">https://www.ncbi.nlm.nih.gov/books/NBK459301/#article-25257.s5</a> ).	Leukotriene modifier ( <a href="https://www.drugs.com/cdi/montelukast-tablets.html">https://www.drugs.com/cdi/montelukast-tablets.html</a> ).	Not a fast-acting rescue medicine for asthma ( <a href="https://www.drugs.com/montelukast.html">https://www.drugs.com/montelukast.html</a> ).
Omalizumab	Asthma, chronic hives, nasal polyps ( <a href="https://www.drugs.com/omalizumab.html">https://www.drugs.com/omalizumab.html</a> ).	Boxed warning for anaphylaxis, injection-site reactions, viral infection, upper respiratory tract infection, sinusitis, headache, pharyngitis, possibly Churg-Strauss, transient hair loss ( <a href="https://www.ncbi.nlm.nih.gov/books/NBK545183/#article-26162.s5">https://www.ncbi.nlm.nih.gov/books/NBK545183/#article-26162.s5</a> ).	Selectively binds to the C-epsilon-3 locus, the domain at which IgE binds to Fc-epsilon-RI, decreasing levels of the immunoglobulin ( <a href="https://www.ncbi.nlm.nih.gov/books/NBK545183/#article-26162.s5">https://www.ncbi.nlm.nih.gov/books/NBK545183/#article-26162.s5</a> ).	Administered via subcutaneous injection ( <a href="https://www.ncbi.nlm.nih.gov/books/NBK545183/#article-26162.s5">https://www.ncbi.nlm.nih.gov/books/NBK545183/#article-26162.s5</a> ).

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	Clinical Use	Adverse Events	Notes on Mechanism	Historical and Clinical Notes
Phenylephrine	Colds, allergies, hay fever, sinus congestion and pressure ( <a href="https://medlineplus.gov/druginfo/meds/a606008.html#side-effects">https://medlineplus.gov/druginfo/meds/a606008.html#side-effects</a> ).	Nausea, vomiting, headache, nervousness in an awake patient, baroreceptor-mediated reflex bradycardia ( <a href="https://www.ncbi.nlm.nih.gov/books/NBK534801/#article-27119.s5">https://www.ncbi.nlm.nih.gov/books/NBK534801/#article-27119.s5</a> ).	Decongestant, vasopressor ( <a href="https://www.drugs.com/mtm/phenylephrine.html">https://www.drugs.com/mtm/phenylephrine.html</a> ).	Relieves symptoms but will not speed recovery ( <a href="https://medlineplus.gov/druginfo/meds/a606008.html#side-effects">https://medlineplus.gov/druginfo/meds/a606008.html#side-effects</a> ).
Pseudoephedrine	Colds, allergies, hay fever, sinus congestion and pressure ( <a href="https://medlineplus.gov/druginfo/meds/a682619.html#side-effects">https://medlineplus.gov/druginfo/meds/a682619.html#side-effects</a> ).	Restlessness, nausea, vomiting, weakness, headache, nervousness, dizziness, difficulty sleeping, stomach pain, difficulty breathing, fast or pounding or irregular heartbeat ( <a href="https://medlineplus.gov/druginfo/meds/a682619.html#side-effects">https://medlineplus.gov/druginfo/meds/a682619.html#side-effects</a> ).	Decongestant ( <a href="https://www.drugs.com/pseudoephedrine.html">https://www.drugs.com/pseudoephedrine.html</a> ).	Should not be given to children under 4 years old ( <a href="https://www.drugs.com/pseudoephedrine.html">https://www.drugs.com/pseudoephedrine.html</a> ).
Reslizumab (Cinqair)	Asthma ( <a href="https://medlineplus.gov/druginfo/meds/a616023.html#side-effects">https://medlineplus.gov/druginfo/meds/a616023.html#side-effects</a> ).	May increase risk of developing certain cancers ( <a href="https://medlineplus.gov/druginfo/meds/a616023.html#side-effects">https://medlineplus.gov/druginfo/meds/a616023.html#side-effects</a> ).	Interleukin inhibitor; Monoclonal antibody, reduces certain type of white blood cell that may contribute to asthma ( <a href="https://www.drugs.com/mtm/reslizumab.html">https://www.drugs.com/mtm/reslizumab.html</a> , <a href="https://medlineplus.gov/druginfo/meds/a616023.html#side-effects">https://medlineplus.gov/druginfo/meds/a616023.html#side-effects</a> ).	Given by IV in a healthcare setting ( <a href="https://medlineplus.gov/druginfo/meds/a616023.html#side-effects">https://medlineplus.gov/druginfo/meds/a616023.html#side-effects</a> ).
Salmeterol	Chronic obstructive pulmonary disease ( <a href="https://www.ncbi.nlm.nih.gov/books/NBK557453/#article-94310.s5">https://www.ncbi.nlm.nih.gov/books/NBK557453/#article-94310.s5</a> ).	Upper respiratory infection or inflammation, oral candidiasis, pharyngitis, bronchitis, dysphonia, headaches, cough, nausea, and vomiting. In patients with chronic obstructive pulmonary disease, the most common adverse effects include pneumonia, throat irritation, viral respiratory infections, oral candidiasis, dysphonia, headaches, musculoskeletal pains, immediate hypersensitivity reactions, urticaria, rash, angioedema, bronchospasm, headache, tremor, anaphylaxis, angina, tachycardia, hypertension, hypotension, arrhythmia, palpitation, and fatigue. These undesirable pharmacologic effects are predominantly a result of reflex activation in response to peripheral vasodilation, hypoxemia, hypokalemia, direct stimulation of cardiac beta-adrenoceptors, paradoxical bronchospasm, laryngeal spasm, throat swelling, increased risk of cardiac failure in COPD ( <a href="https://www.ncbi.nlm.nih.gov/books/NBK557453/#article-94310.s5">https://www.ncbi.nlm.nih.gov/books/NBK557453/#article-94310.s5</a> ).	Adrenergic bronchodilator; Beta-2 adrenergic agonist ( <a href="https://www.drugs.com/cdi/salmeterol.html">https://www.drugs.com/cdi/salmeterol.html</a> , <a href="https://www.ncbi.nlm.nih.gov/books/NBK557453/#article-94310.s5">https://www.ncbi.nlm.nih.gov/books/NBK557453/#article-94310.s5</a> ).	Most severe adverse effects characterized by excessive beta-adrenergic stimulation of the heart ( <a href="https://www.ncbi.nlm.nih.gov/books/NBK557453/#article-94310.s5">https://www.ncbi.nlm.nih.gov/books/NBK557453/#article-94310.s5</a> ).
Sildenafil (Viagra)	Pulmonary arterial hypertension, erectile dysfunction ( <a href="https://www.drugs.com/sildenafil.html">https://www.drugs.com/sildenafil.html</a> ).	Prolonged erection lasting more than 4 hours, non-arteritic anterior ischemic optic neuropathy (NAION) in males over age 50, headaches, flushing, dyspepsia, nasal congestion, back pain, myalgia, nausea, dizziness, rash, changes in color vision, alterations in light perception, hazy vision, ototoxicity, epistaxis, sudden loss of hearing or decrease in hearing, dizziness, tinnitus ( <a href="https://www.ncbi.nlm.nih.gov/books/NBK558978/#article-97463.s5">https://www.ncbi.nlm.nih.gov/books/NBK558978/#article-97463.s5</a> ).	PDE-5 inhibitor ( <a href="https://www.ncbi.nlm.nih.gov/books/NBK558978/#article-97463.s5">https://www.ncbi.nlm.nih.gov/books/NBK558978/#article-97463.s5</a> ).	This drug has systemic vasodilatory effects ( <a href="https://www.ncbi.nlm.nih.gov/books/NBK558978/#article-97463.s5">https://www.ncbi.nlm.nih.gov/books/NBK558978/#article-97463.s5</a> ).

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	Clinical Use	Adverse Events	Notes on Mechanism	Historical and Clinical Notes
Terbutaline	Asthma, chronic bronchitis, emphysema ( <a href="https://medlineplus.gov/druginfo/meds/a682144.html#side-effects">https://medlineplus.gov/druginfo/meds/a682144.html#side-effects</a> ).	Uncontrollable shaking of part of the body, nervousness, dizziness, drowsiness, difficulty falling asleep or staying asleep, weakness, headache, nausea, sweating, dry mouth, increased difficulty breathing, tightening of the throat, fast or pounding or irregular heartbeat, chest pain, seizures ( <a href="https://medlineplus.gov/druginfo/meds/a682144.html#side-effects">https://medlineplus.gov/druginfo/meds/a682144.html#side-effects</a> ).	Beta agonist ( <a href="https://medlineplus.gov/druginfo/meds/a682144.html">https://medlineplus.gov/druginfo/meds/a682144.html</a> ).	Should not be used to stop or prevent premature labor in pregnant women; Can cause serious side effects or death in pregnant women when used for this purpose ( <a href="https://medlineplus.gov/druginfo/meds/a682144.html#side-effects">https://medlineplus.gov/druginfo/meds/a682144.html#side-effects</a> ).
Theophylline	Asthma, bronchitis, emphysema ( <a href="https://www.drugs.com/mtm/theophylline.html">https://www.drugs.com/mtm/theophylline.html</a> ).	Nausea and vomiting, headache, increased stomach acid secretion, gastroesophageal reflux, CNS symptoms, seizures, convulsions and cardiac arrhythmias at high serum concentrations ( <a href="https://www.ncbi.nlm.nih.gov/books/NBK519024/#article-30036.s5">https://www.ncbi.nlm.nih.gov/books/NBK519024/#article-30036.s5</a> ).	Methylxanthine ( <a href="https://www.drugs.com/mtm/theophylline.html">https://www.drugs.com/mtm/theophylline.html</a> ).	Very narrow therapeutic window; Interaction with various other drugs has led to limitation of use ( <a href="https://www.ncbi.nlm.nih.gov/books/NBK519024/#article-30036.s5">https://www.ncbi.nlm.nih.gov/books/NBK519024/#article-30036.s5</a> ).
Tiotropium (Spiriva)	Chronic obstructive pulmonary disease ( <a href="https://www.ncbi.nlm.nih.gov/books/NBK541127/#article-42962.s5">https://www.ncbi.nlm.nih.gov/books/NBK541127/#article-42962.s5</a> ).	Pharyngitis, bronchitis, sinusitis, dry mouth, cough, headaches, insomnia, cataract, blurry vision, epistaxis, rhinitis, laryngitis, dysphagia, gingivitis, chest pain and palpitations, joint swelling, abdominal pain, gastroesophageal reflux disease, paralytic ileus of the intestine, abnormal liver function test, dysuria, urinary retention, angioedema, dry skin, herpes zoster, dehydration, worsening of urinary retention; In combination therapy with olodaterol: nasopharyngitis, cough, back pain, dehydration, dizziness, insomnia, glaucoma, elevated intraocular pressure, vision blurred, epistaxis, dry mouth, pharyngitis, dysphonia, bronchospasm, laryngitis, sinusitis, atrial fibrillation, palpitations, supraventricular tachycardia, tachycardia, hypertension, oropharyngeal candidiasis, dysphagia, gastroesophageal reflux disease, gingivitis, glossitis, stomatitis, paralytic ileus of the intestine, hypokalemia, constipation, urinary retention, dysuria, rash, pruritus, dry skin, edema, arthralgia, joint swelling ( <a href="https://www.ncbi.nlm.nih.gov/books/NBK541127/#article-42962.s5">https://www.ncbi.nlm.nih.gov/books/NBK541127/#article-42962.s5</a> ).	Anticholinergic bronchodilator; Second generation long-acting muscarinic antagonist medication ( <a href="https://www.drugs.com/mtm/tiotropium-inhalation.html">https://www.drugs.com/mtm/tiotropium-inhalation.html</a> , <a href="https://www.ncbi.nlm.nih.gov/books/NBK541127/#article-42962.s5">https://www.ncbi.nlm.nih.gov/books/NBK541127/#article-42962.s5</a> ).	Also used to prevent asthma attacks in adults and children at least 6 years old ( <a href="https://www.drugs.com/mtm/tiotropium-inhalation.html">https://www.drugs.com/mtm/tiotropium-inhalation.html</a> ).

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	Clinical Use	Adverse Events	Notes on Mechanism	Historical and Clinical Notes
Umeclidinium	Chronic obstructive pulmonary disease ( <a href="https://medlineplus.gov/druginfo/meds/a614024.html">https://medlineplus.gov/druginfo/meds/a614024.html</a> ).	Joint or muscle pain, runny nose, sore throat, cough, rash, hives, itching, swelling, coughing, wheezing, chest tightness beginning after inhalation of the drug, eye pain, redness, discomfort, blurred vision, seeing halos or bright colors around lights sometimes along with nausea and vomiting, difficulty urinating, urination in a weak stream or drops, frequent or painful urination, fast or irregular heartbeat ( <a href="https://medlineplus.gov/druginfo/meds/a614024.html#side-effects">https://medlineplus.gov/druginfo/meds/a614024.html#side-effects</a> ).	Anticholinergic bronchodilator ( <a href="https://www.drugs.com/mtm/umeclidinium.html">https://www.drugs.com/mtm/umeclidinium.html</a> ).	Should not be used during a sudden COPD attack, a short-acting inhaler should be prescribed for this purpose ( <a href="https://medlineplus.gov/druginfo/meds/a614024.html#side-effects">https://medlineplus.gov/druginfo/meds/a614024.html#side-effects</a> ).
Zafirlukast (Accolate)	Chronic asthma ( <a href="https://www.ncbi.nlm.nih.gov/books/NBK557844/#article-42999.s5">https://www.ncbi.nlm.nih.gov/books/NBK557844/#article-42999.s5</a> ).	Eosinophilia with vasculitis, eosinophilia, rash, worsening asthma, cardiac issues, neuropathy, severe hepatic failure, signs of hepatitis, fulminant hepatitis, hepatic failure, liver transplantation, death, depression, insomnia, increased respiratory tract infection, dizziness, headache, hallucinations, abnormal dreams, nausea, diarrhea, abdominal pain, vomiting, dyspepsia, transaminase elevation, symptomatic hepatitis, hyperbilirubinemia, progressive hepatic failure, pain, asthenia, injury, fever, respiratory tract infection in patients 55 or older with coadministration of inhaled corticosteroids, m enorrhagia, thrombocytopenia, alopecia, bruising, pruritis, urticaria, angioedema, rashes, granulomatosis, agranulocytosis, eosinophilia, eosinophilic pneumonia, Churg-Strauss-related syndrome ( <a href="https://www.ncbi.nlm.nih.gov/books/NBK557844/#article-42999.s5">https://www.ncbi.nlm.nih.gov/books/NBK557844/#article-42999.s5</a> ).	Leukotriene modifier ( <a href="https://www.drugs.com/mtm/zafirlukast.html">https://www.drugs.com/mtm/zafirlukast.html</a> ).	FDA approved for adults and children 5 years and older ( <a href="https://www.ncbi.nlm.nih.gov/books/NBK557844/#article-42999.s5">https://www.ncbi.nlm.nih.gov/books/NBK557844/#article-42999.s5</a> ).
Zileuton (Zyflo)	Chronic asthma (patients age 12 and older) ( <a href="https://www.ncbi.nlm.nih.gov/books/NBK448202/#article-31467.s5">https://www.ncbi.nlm.nih.gov/books/NBK448202/#article-31467.s5</a> ).	Liver toxicity, jaundice, right upper abdominal pain, edema, pruritus, sleep disorders, changes in behavior, frequent headaches, upper respiratory tract infections, diarrhea, myalgia, dyspepsia, sinusitis, nausea, headache, abdominal pain, pharyngolaryngeal pain, decrease in white blood cell count ( <a href="https://www.ncbi.nlm.nih.gov/books/NBK448202/#article-31467.s5">https://www.ncbi.nlm.nih.gov/books/NBK448202/#article-31467.s5</a> ).	Leukotriene modifier ( <a href="https://www.drugs.com/mtm/zileuton.html">https://www.drugs.com/mtm/zileuton.html</a> ).	Serum alanine aminotransferase (ALT) concentration must be obtained before treatment due to possibility of liver toxicity ( <a href="https://www.ncbi.nlm.nih.gov/books/NBK448202/#article-31467.s5">https://www.ncbi.nlm.nih.gov/books/NBK448202/#article-31467.s5</a> ).
<b>Surgical</b>				
Atracurium	Addition to general anesthesia to facilitate intubation ( <a href="https://www.ncbi.nlm.nih.gov/books/NBK499995/">https://www.ncbi.nlm.nih.gov/books/NBK499995/</a> ).	Flushing and erythema, bradycardia, bronchospasm, dyspnea, hypotension, laryngospasm, tachycardia, urticaria, wheezing, mean arterial pressure fall ( <a href="https://www.ncbi.nlm.nih.gov/books/NBK499995/#article-17959.s5">https://www.ncbi.nlm.nih.gov/books/NBK499995/#article-17959.s5</a> ).	Non-depolarizing neuromuscular blocking drug of the benzylisoquinolinium class ( <a href="https://www.ncbi.nlm.nih.gov/books/NBK499995/#article-17959.s5">https://www.ncbi.nlm.nih.gov/books/NBK499995/#article-17959.s5</a> ).	Majority of adverse reactions are related to histamine release ( <a href="https://www.ncbi.nlm.nih.gov/books/NBK499995/#article-17959.s5">https://www.ncbi.nlm.nih.gov/books/NBK499995/#article-17959.s5</a> ).

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	Clinical Use	Adverse Events	Notes on Mechanism	Historical and Clinical Notes
Benzocaine	Pain control management for dental procedures, infiltrative anesthesia, minor traumas ( <a href="https://www.ncbi.nlm.nih.gov/books/NBK541053/#article-18219.s5">https://www.ncbi.nlm.nih.gov/books/NBK541053/#article-18219.s5</a> ).	Methemoglobinemia, hypotension, bradycardia, cardiac arrest, convulsions, drowsiness, dizziness, edema, allergic reactions, hypersensitivity reactions, tenderness, itchiness, edema to the applied area, sensitization ( <a href="https://www.ncbi.nlm.nih.gov/books/NBK541053/#article-18219.s5">https://www.ncbi.nlm.nih.gov/books/NBK541053/#article-18219.s5</a> ).	Topical anesthetic ( <a href="https://www.drugs.com/mtm/benzocaine-topical.html">https://www.drugs.com/mtm/benzocaine-topical.html</a> ).	Many brands and forms available; Not approved for use in children under 2 years old ( <a href="https://www.drugs.com/mtm/benzocaine-topical.html">https://www.drugs.com/mtm/benzocaine-topical.html</a> ).
Bupivacaine	Numbing during or after surgery or other procedures, childbirth, or dental work ( <a href="https://www.mayoclinic.org/drugs-supplements/bupivacaine-injection-route/description/drg-20406723">https://www.mayoclinic.org/drugs-supplements/bupivacaine-injection-route/description/drg-20406723</a> ).	Allergic reaction, feeling anxious, restlessness, confusion, dizziness, drowsiness, feeling faint, ringing in ears, problems with speech or vision, metallic taste in mouth, numbness or tingling around mouth, muscle twitching, tremors, seizure (convulsions), weak or shallow breathing, fast heart rate, gasping, feeling unusually hot, slow heart rate, weak pulse, little or no urination, methemoglobinemia, weakness, long-lasting numbness or tingling, restlessness or drowsiness, tremors, headache, blurred vision, fast or slow heartbeats, breathing problems, chills or shivering, back pain, nausea, vomiting ( <a href="https://www.drugs.com/mtm/bupivacaine.html#side-effects">https://www.drugs.com/mtm/bupivacaine.html#side-effects</a> ).	Local injectable anesthetic ( <a href="https://www.drugs.com/mtm/bupivacaine.html">https://www.drugs.com/mtm/bupivacaine.html</a> ).	Given as epidural injection into spinal column ( <a href="https://www.drugs.com/mtm/bupivacaine.html#side-effects">https://www.drugs.com/mtm/bupivacaine.html#side-effects</a> ).
Chloroprocaine	Neuraxial anesthesia, peripheral nerve block, obstetric anesthesia ( <a href="https://www.ncbi.nlm.nih.gov/books/NBK532901/#article-31501.s5">https://www.ncbi.nlm.nih.gov/books/NBK532901/#article-31501.s5</a> ).	Pain, hypotension, bradycardia, nausea, headache, hypotension, nausea, significant patient anxiety, akathisia, brainstem dysfunction may occur with associated loss of consciousness and apnea, cauda equina syndrome, urinary retention, severe lower extremity burning pain, leg weakness, loss of sensation in the buttock and bilateral thighs, anaphylaxis, allergic reactions ( <a href="https://www.ncbi.nlm.nih.gov/books/NBK532901/#article-31501.s5">https://www.ncbi.nlm.nih.gov/books/NBK532901/#article-31501.s5</a> ).	Local injectable anesthetic ( <a href="https://www.drugs.com/pro/chloroprocaine.html">https://www.drugs.com/pro/chloroprocaine.html</a> ).	Most common application is in the obstetric setting ( <a href="https://www.ncbi.nlm.nih.gov/books/NBK532901/#article-31501.s5">https://www.ncbi.nlm.nih.gov/books/NBK532901/#article-31501.s5</a> ).
Cisatracurium (Nimbex)	General anesthesia facilitating tracheal intubation and providing skeletal muscle relaxation during surgery ( <a href="https://www.ncbi.nlm.nih.gov/books/NBK539842/#article-19570.s5">https://www.ncbi.nlm.nih.gov/books/NBK539842/#article-19570.s5</a> ).	Bradycardia, hypotension, bronchospasm, rash, anaphylaxis, prolonged neuromuscular blockade, myopathy ( <a href="https://www.ncbi.nlm.nih.gov/books/NBK539842/#article-19570.s5">https://www.ncbi.nlm.nih.gov/books/NBK539842/#article-19570.s5</a> ).	Neuromuscular blocking agent ( <a href="https://www.drugs.com/mtm/cisatracurium.html">https://www.drugs.com/mtm/cisatracurium.html</a> ).	Given as an infusion into a vein ( <a href="https://www.drugs.com/mtm/cisatracurium.html">https://www.drugs.com/mtm/cisatracurium.html</a> ).
Desflurane	Induction or maintenance of anesthesia in adults, maintenance of anesthesia in pediatric patients following induct with another agent ( <a href="https://www.ncbi.nlm.nih.gov/books/NBK537106/#article-20404.s5">https://www.ncbi.nlm.nih.gov/books/NBK537106/#article-20404.s5</a> ).	Decrease in blood pressure, increase in heart rate, decrease in cerebral metabolic rate, increase in intracranial pressure, dose-related depression in electroencephalogram (EEG) activity, increased rate of emergence delirium, transient but clinically significant elevation in heart rate and blood pressure ( <a href="https://www.ncbi.nlm.nih.gov/books/NBK537106/#article-20404.s5">https://www.ncbi.nlm.nih.gov/books/NBK537106/#article-20404.s5</a> ).	General anesthetic ( <a href="https://www.drugs.com/cdi/desflurane.html">https://www.drugs.com/cdi/desflurane.html</a> ).	Not associated with nephrotoxicity, as is the case with other inhalation anesthetic agents ( <a href="https://www.ncbi.nlm.nih.gov/books/NBK537106/#article-20404.s5">https://www.ncbi.nlm.nih.gov/books/NBK537106/#article-20404.s5</a> ).
Enflurane	Induction and maintenance of general anesthetics ( <a href="https://www.ncbi.nlm.nih.gov/books/NBK554595/">https://www.ncbi.nlm.nih.gov/books/NBK554595/</a> ).	Decreased blood pressure, concentration-dependent decrease in the heart and increased left atrial pressure, bronchodilation, increased cerebral blood flow, decreased cerebral vascular resistance and cerebral metabolic rate for oxygen, paroxysmal epileptiform discharges, cardiac arrhythmias, postoperative nausea and vomiting, respiratory irritation, agitation (emergence delirium) or postoperative delirium ( <a href="https://www.ncbi.nlm.nih.gov/books/NBK554595/#article-21133.s5">https://www.ncbi.nlm.nih.gov/books/NBK554595/#article-21133.s5</a> ).	Halogenated inhaled anesthetic ( <a href="https://www.ncbi.nlm.nih.gov/books/NBK554595/#article-21133.s5">https://www.ncbi.nlm.nih.gov/books/NBK554595/#article-21133.s5</a> ).	Most widely used inhalation between the late '60s and most of the '80s ( <a href="https://www.ncbi.nlm.nih.gov/books/NBK554595/#article-21133.s5">https://www.ncbi.nlm.nih.gov/books/NBK554595/#article-21133.s5</a> ).

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	Clinical Use	Adverse Events	Notes on Mechanism	Historical and Clinical Notes
Halothane	Anesthesia ( <a href="https://go.drugbank.com/drugs/DB01159">https://go.drugbank.com/drugs/DB01159</a> ).	Malignant hyperthermia, hepatitis ( <a href="https://go.drugbank.com/drugs/DB01159">https://go.drugbank.com/drugs/DB01159</a> ).	General anesthetic ( <a href="https://www.drugs.com/pro/halothane.html">https://www.drugs.com/pro/halothane.html</a> ).	Nitrous oxide often given concomitantly, supplemental neuromuscular blocking agents may be required ( <a href="https://go.drugbank.com/drugs/DB01159">https://go.drugbank.com/drugs/DB01159</a> ).
Isoflurane	Induction and maintenance of general anesthesia ( <a href="https://www.ncbi.nlm.nih.gov/books/NBK532957/#article-23782.s5">https://www.ncbi.nlm.nih.gov/books/NBK532957/#article-23782.s5</a> ).	Precipitous drops in blood pressure due to dose-dependent peripheral vasodilation ( <a href="https://www.ncbi.nlm.nih.gov/books/NBK532957/#article-23782.s5">https://www.ncbi.nlm.nih.gov/books/NBK532957/#article-23782.s5</a> ).	General anesthetic; Volatile anesthetic ( <a href="https://www.drugs.com/cdi/isoflurane.html">https://www.drugs.com/cdi/isoflurane.html</a> , <a href="https://www.ncbi.nlm.nih.gov/books/NBK532957/#article-23782.s5">https://www.ncbi.nlm.nih.gov/books/NBK532957/#article-23782.s5</a> ).	Should be carefully titrated to the patient's hemodynamics ( <a href="https://www.ncbi.nlm.nih.gov/books/NBK532957/#article-23782.s5">https://www.ncbi.nlm.nih.gov/books/NBK532957/#article-23782.s5</a> ).
Ketamine	General anesthesia (alone or in combination with other medications) ( <a href="https://www.ncbi.nlm.nih.gov/books/NBK470357/#article-23876.s5">https://www.ncbi.nlm.nih.gov/books/NBK470357/#article-23876.s5</a> ).	Nausea, vomiting, dizziness, diplopia, drowsiness, dysphoria, confusion, emergence phenomenon, hallucinations, anaphylaxis, breathing difficulties, facial or lip or throat or tongue swelling, hives, arrhythmias, blood pressure frequently elevated, bradycardia, hypotension, left ventricular dysfunction in patients with heart failure, respiratory and cardiac arrest, anorexia, nausea, vomiting, muscle stiffness and spasms/tonic-clonic movements resembling seizures, enhanced skeletal muscle tone, confusion, seizures, diplopia, increased intraocular pressure, nystagmus, amnesia, anxiety, confusion, depression, disorientation, dysphoria, dissociative state (patients may not be able to speak or respond purposefully to verbal commands), emergence phenomena/delirium (6% to 12% in different studies and can last for up to 3 hours) including hallucinations or flashbacks or unusual thoughts, extreme fear, excitement, irrational behavior, insomnia, physical and psychological dependence, addiction when used recreationally, apnea, increased laryngeal and tracheal secretions, laryngospasm, airway obstruction in infants (may not be drug-related), respiratory depression, local pain or erythema or morbilliform rash at the site of injection ( <a href="https://www.ncbi.nlm.nih.gov/books/NBK470357/#article-23876.s5">https://www.ncbi.nlm.nih.gov/books/NBK470357/#article-23876.s5</a> ).	Dissociative injected anesthetic ( <a href="https://www.drugs.com/illicit/ketamine.html">https://www.drugs.com/illicit/ketamine.html</a> ).	Schedule III non-narcotic approved by the FDA as a general anesthetic ( <a href="https://www.medicalnewstoday.com/articles/302663">https://www.medicalnewstoday.com/articles/302663</a> ).
Mepivacaine	Local anesthetic for epidural or spinal block, anesthesia for dental procedures ( <a href="https://www.drugs.com/mtm/mepivacaine.html">https://www.drugs.com/mtm/mepivacaine.html</a> ).	Allergic reaction, numbness, tingling, metallic taste, ringing in ears, blurred vision, slurred speech, headache, confusion, depression, severe drowsiness, feeling faint, slow heart rate, weak pulse, weak or shallow breathing, fever, neck stiffness, increased sensitivity to light, tremors or muscle twitching, feeling anxious or restless, ongoing numbness, weakness, loss of movement in legs or feet, loss of bladder or bowel control, loss of feeling in lower stomach or groin or genitals, painful or difficult urination, fast heart rate, rapid breathing, feeling hot, anxiety, feeling restless or excited, depression, dizziness, tremors, blurred vision, ringing in ears ( <a href="https://www.drugs.com/mtm/mepivacaine.html#side-effects">https://www.drugs.com/mtm/mepivacaine.html#side-effects</a> ).	Local injectable anesthetic ( <a href="https://www.drugs.com/mtm/mepivacaine.html">https://www.drugs.com/mtm/mepivacaine.html</a> ).	Spinal numbing medicines can have long-lasting or permanent effects on body processes ( <a href="https://www.drugs.com/mtm/mepivacaine.html">https://www.drugs.com/mtm/mepivacaine.html</a> ).

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	Clinical Use	Adverse Events	Notes on Mechanism	Historical and Clinical Notes
Methoxyflurane	Emergency relief of moderate to severe trauma pain in conscious adult patients ( <a href="https://pubmed.ncbi.nlm.nih.gov/27738897/">https://pubmed.ncbi.nlm.nih.gov/27738897/</a> ).	Long-term kidney problems when given at high doses, liver problems, allergic reaction, dizziness, passing out, slow heartbeat, mood changes, memory problems or loss, inability to focus, malignant hyperthermia, headache, feeling sleepy, upset stomach ( <a href="https://www.drugs.com/cdi/methoxyflurane.html">https://www.drugs.com/cdi/methoxyflurane.html</a> ).	General anesthetic ( <a href="https://www.drugs.com/cdi/methoxyflurane.html">https://www.drugs.com/cdi/methoxyflurane.html</a> ).	Should not be given to a child ( <a href="https://www.drugs.com/cdi/methoxyflurane.html">https://www.drugs.com/cdi/methoxyflurane.html</a> ).
Midazolam	Relaxation before minor surgery, dental work, or other medical procedure; Management of acute seizures ( <a href="https://www.drugs.com/mtm/midazolam.html">https://www.drugs.com/mtm/midazolam.html</a> , <a href="https://www.ncbi.nlm.nih.gov/books/NBK537321/#article-25118.s5">https://www.ncbi.nlm.nih.gov/books/NBK537321/#article-25118.s5</a> ).	Hiccoughs, cough, nausea, vomiting, thrombophlebitis, thrombosis, pain on injection, anterograde amnesia, drowsiness, ataxia, falls, confusion in the elderly, residual hangover effect, impairment of cognitive and psychomotor abilities, impaired coordination during driving, hypotension, tachycardia, infusion syndrome, respiratory depression, paradoxical effects, involuntary movements, verbalization, uncontrollable crying, aggressive behavior, severe respiratory depression and death even at therapeutic doses (when used concomitantly with other CNS depressants), lasting memory deficits with long-term use, benzodiazepine withdrawal syndrome in neonate when taken during pregnancy, tolerance after four weeks of use, withdrawal syndrome with rapid taper, status epilepticus with sudden discontinuation ( <a href="https://www.ncbi.nlm.nih.gov/books/NBK537321/#article-25118.s5">https://www.ncbi.nlm.nih.gov/books/NBK537321/#article-25118.s5</a> ).	Benzodiazepine ( <a href="https://www.drugs.com/mtm/midazolam.html">https://www.drugs.com/mtm/midazolam.html</a> ).	A child should only receive this medication in a hospital or doctor's office equipped to monitor heart and lungs ( <a href="https://medlineplus.gov/druginfo/meds/a609003.html">https://medlineplus.gov/druginfo/meds/a609003.html</a> ).
Neostigmine	Reversal of effects of non-depolarizing neuromuscular blocking agents after surgery ( <a href="https://www.ncbi.nlm.nih.gov/books/NBK470596/">https://www.ncbi.nlm.nih.gov/books/NBK470596/</a> ).	Bradycardias, bronchoconstriction, bronchospasm, increased secretions, miosis, nausea, increased peristalsis, fetal bradycardia, anticholinesterase-associated muscle weakness, decreases in upper airway dilator muscle tone, impairment of respiratory muscles like the diaphragm, reductions in minute volume ( <a href="https://www.ncbi.nlm.nih.gov/books/NBK470596/#article-25690.s5">https://www.ncbi.nlm.nih.gov/books/NBK470596/#article-25690.s5</a> ).	Cholinergic muscle stimulant, genitourinary tract agent; Reversibly inhibits acetylcholinesterase ( <a href="https://www.drugs.com/mtm/neostigmine.html">https://www.drugs.com/mtm/neostigmine.html</a> , <a href="https://www.ncbi.nlm.nih.gov/books/NBK470596/">https://www.ncbi.nlm.nih.gov/books/NBK470596/</a> ).	Most adverse effects related to cholinergic activity of the drug ( <a href="https://www.ncbi.nlm.nih.gov/books/NBK470596/#article-25690.s5">https://www.ncbi.nlm.nih.gov/books/NBK470596/#article-25690.s5</a> ).
Pancuronium	Neuromuscular blocking ( <a href="https://www.ncbi.nlm.nih.gov/books/NBK538346/#article-26582.s5">https://www.ncbi.nlm.nih.gov/books/NBK538346/#article-26582.s5</a> ).	Increased heart rate, increased mean arterial pressure, increased cardiac output, persistent weakness syndromes in critically ill patients, intraoperative recall (without the use of sufficient anesthetic agents) ( <a href="https://www.ncbi.nlm.nih.gov/books/NBK538346/#article-26582.s5">https://www.ncbi.nlm.nih.gov/books/NBK538346/#article-26582.s5</a> ).	Neuromuscular blocking agent ( <a href="https://www.drugs.com/cdi/pancuronium.html">https://www.drugs.com/cdi/pancuronium.html</a> ).	Has no anesthetic, amnestic, or analgesic properties ( <a href="https://www.ncbi.nlm.nih.gov/books/NBK538346/#article-26582.s5">https://www.ncbi.nlm.nih.gov/books/NBK538346/#article-26582.s5</a> ).
Prilocaine	Numbing before dental care ( <a href="https://www.drugs.com/cdi/prilocaine.html">https://www.drugs.com/cdi/prilocaine.html</a> ).	Allergic reaction, signs of methemoglobinemia, signs of too much acid in the blood, burning, numbness, tingling feeling that is not normal, numbness or tingling in or around the mouth that lasts or gets worse, dizziness or passing out, feeling lightheaded, sleepiness, confusion, blurred eyesight, slow heartbeat, sweating, ringing in ears, low mood (depression), nervousness and excitability, trouble breathing, slow breathing, shallow breathing, seizures, shakiness, twitching, change in balance, restlessness, anxiety, feeling hot or cold ( <a href="https://www.drugs.com/cdi/prilocaine.html#side-effects">https://www.drugs.com/cdi/prilocaine.html#side-effects</a> ).	Local injectable anesthetic ( <a href="https://www.drugs.com/cdi/prilocaine.html">https://www.drugs.com/cdi/prilocaine.html</a> ).	Risk of methemoglobinemia may be raised in patients with G6PD deficiency, heart problems, or lung problems ( <a href="https://www.drugs.com/cdi/prilocaine.html#side-effects">https://www.drugs.com/cdi/prilocaine.html#side-effects</a> ).

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Procaine	Analgnesia before procedural intervention ( <a href="https://www.ncbi.nlm.nih.gov/books/NBK551556/#article-27761.s5">https://www.ncbi.nlm.nih.gov/books/NBK551556/#article-27761.s5</a> ).	Hypersensitivity, anaphylactoid-like symptomatology, urticaria, pruritus, erythema, laryngeal edema, tachycardia, nausea, vomiting, dizziness, syncope, perspiration, hyperthermia, heart block, arrhythmia, hemodynamic instability, heart failure, cardiac arrest, tinnitus, blurred vision, dizziness, akathisia, anxiety, tremors, seizures, coma, unconsciousness, respiratory arrest ( <a href="https://www.ncbi.nlm.nih.gov/books/NBK551556/#article-27761.s5">https://www.ncbi.nlm.nih.gov/books/NBK551556/#article-27761.s5</a> ).	Local injectable anesthetic ( <a href="https://www.drugs.com/mtm/procaine.html">https://www.drugs.com/mtm/procaine.html</a> ).	Adverse effects are similar to those of other aminoester anesthetics ( <a href="https://www.ncbi.nlm.nih.gov/books/NBK551556/#article-27761.s5">https://www.ncbi.nlm.nih.gov/books/NBK551556/#article-27761.s5</a> ).
Propofol	Procedural sedation, monitored anesthesia care, induction agent for general anesthesia ( <a href="https://www.ncbi.nlm.nih.gov/books/NBK430884/#article-27816.s5">https://www.ncbi.nlm.nih.gov/books/NBK430884/#article-27816.s5</a> ).	Transient local pain at injection site, hypotension, myoclonus, EKG changes (QT interval prolongation), discolored urine ( <a href="https://www.ncbi.nlm.nih.gov/books/NBK430884/#article-27816.s5">https://www.ncbi.nlm.nih.gov/books/NBK430884/#article-27816.s5</a> ).	General anesthetic ( <a href="https://www.drugs.com/propofol.html">https://www.drugs.com/propofol.html</a> ).	Safe for use in pregnancy but will cross placenta, may be associated with neonatal CNS and respiratory depression ( <a href="https://www.ncbi.nlm.nih.gov/books/NBK430884/#article-27816.s5">https://www.ncbi.nlm.nih.gov/books/NBK430884/#article-27816.s5</a> ).
Rocuronium	Muscle relaxation for surgery and ventilation of the lungs in elective and emergent situations ( <a href="https://www.ncbi.nlm.nih.gov/books/NBK539888/#article-43329.s5">https://www.ncbi.nlm.nih.gov/books/NBK539888/#article-43329.s5</a> ).	IgE-induced anaphylaxes, residual neuromuscular weakness, residual neuromuscular blockade (where the effects of the block do not completely reverse) with increased risks of postoperative respiratory dysfunction or need for mechanical ventilation or increase length of hospital stay, critical illness myopathy and polyneuropathy ( <a href="https://www.ncbi.nlm.nih.gov/books/NBK539888/#article-43329.s5">https://www.ncbi.nlm.nih.gov/books/NBK539888/#article-43329.s5</a> ).	Neuromuscular blocking agent ( <a href="https://www.drugs.com/mtm/rocuronium.html">https://www.drugs.com/mtm/rocuronium.html</a> ).	Fast-acting and reversible ( <a href="https://www.ncbi.nlm.nih.gov/books/NBK539888/#article-43329.s5">https://www.ncbi.nlm.nih.gov/books/NBK539888/#article-43329.s5</a> ).
Ropivacaine (Naropin)	Surgical anesthesia, acute pain management, epidural block for cesarean section ( <a href="https://www.ncbi.nlm.nih.gov/books/NBK532924/#article-43447.s5">https://www.ncbi.nlm.nih.gov/books/NBK532924/#article-43447.s5</a> ).	Hypotension, nausea, vomiting, bradycardia, headache; In children 1-15 months: nausea, vomiting; In neonates following use in women undergoing cesarean section or labor: fetal bradycardia, neonatal jaundice, unspecified neonatal complications ( <a href="https://www.ncbi.nlm.nih.gov/books/NBK532924/#article-43447.s5">https://www.ncbi.nlm.nih.gov/books/NBK532924/#article-43447.s5</a> ).	Local injectable anesthetic ( <a href="https://www.drugs.com/mtm/ropivacaine.html">https://www.drugs.com/mtm/ropivacaine.html</a> ).	Increased risk of methemoglobinemia if patient has G6PD deficiency, hear problems, lung problems ( <a href="https://www.drugs.com/mtm/ropivacaine.html">https://www.drugs.com/mtm/ropivacaine.html</a> ).
Sevoflurane	Induction and maintenance of general anesthesia in adults and pediatric patients for inpatient and outpatient surgery ( <a href="https://www.ncbi.nlm.nih.gov/books/NBK534781/#article-43312.s5">https://www.ncbi.nlm.nih.gov/books/NBK534781/#article-43312.s5</a> ).	Dose-dependent reduction in blood pressure and cardiac output, coughing, apnea, laryngospasm, respiratory side effects, bronchodilation, blunting of the hypoxia/hypercapnia ventilatory response, reverse hypoxic pulmonary vasoconstriction, dose-dependent vasodilation of cerebral vasculature, reduced cerebral metabolic rate, increased cerebral blood flow and intracranial pressure, hypotension, emergence delirium and agitation, nausea, vomiting, tachycardia, bradycardia, hypertension, breath-holding, apnea, anaphylaxis, anaphylactoid reaction, cardiac arrhythmias, QT prolongation, increased intracranial pressure, hepatotoxicity, electrolyte disturbances, malignant hyperthermia ( <a href="https://www.ncbi.nlm.nih.gov/books/NBK534781/#article-43312.s5">https://www.ncbi.nlm.nih.gov/books/NBK534781/#article-43312.s5</a> ).	General anesthetic; Halogenated inhalation anesthetic ( <a href="https://www.drugs.com/cdi/sevoflurane.html">https://www.drugs.com/cdi/sevoflurane.html</a> , <a href="https://www.ncbi.nlm.nih.gov/books/NBK534781/#article-43312.s5">https://www.ncbi.nlm.nih.gov/books/NBK534781/#article-43312.s5</a> ).	For hypnosis, amnesia, analgesia, akinesia, and autonomic blockade ( <a href="https://www.ncbi.nlm.nih.gov/books/NBK534781/#article-43312.s5">https://www.ncbi.nlm.nih.gov/books/NBK534781/#article-43312.s5</a> ).

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	Clinical Use	Adverse Events	Notes on Mechanism	Historical and Clinical Notes
Succinylcholine	Muscle relaxation during surgery or supported breathing ( <a href="https://www.drugs.com/cdi/succinylcholine.html#side-effects">https://www.drugs.com/cdi/succinylcholine.html#side-effects</a> ).	Allergic reaction, high potassium level, high or low blood pressure, chest pain or pressure, slow heartbeat, muscle pain or weakness, dark urine, trouble passing urine, twitching, change in eyesight, eye pain, malignant hyperthermia ( <a href="https://www.drugs.com/cdi/succinylcholine.html#side-effects">https://www.drugs.com/cdi/succinylcholine.html#side-effects</a> ).	Neuromuscular blocking agent ( <a href="https://www.drugs.com/cdi/succinylcholine.html">https://www.drugs.com/cdi/succinylcholine.html</a> ).	Serious and sometimes deadly muscle problems, high potassium levels, and abnormal heartbeat have occurred in children and teens ( <a href="https://www.drugs.com/cdi/succinylcholine.html">https://www.drugs.com/cdi/succinylcholine.html</a> ).
Tetracaine topical	Topical ophthalmic anesthetic for short procedures on the surface of the eye or ears or nose, spinal anesthesia ( <a href="https://www.ncbi.nlm.nih.gov/books/NBK535437/#article-43328.s5">https://www.ncbi.nlm.nih.gov/books/NBK535437/#article-43328.s5</a> ).	CNS toxicity, circumoral numbness, tinnitus, blurry vision, dizziness, hyperexcitability, depressive phenomena, seizures, comatose state before hemodynamic collapse, dose-dependent decreases in cardiac contractility, increased duration of PR and QRS intervals progressing to sinus bradycardia then to asystole, ventricular arrhythmia, cauda equina syndrome, painful lumbosacral radiculopathy lasting up to 10 days, allergic reactions ( <a href="https://www.ncbi.nlm.nih.gov/books/NBK535437/#article-43328.s5">https://www.ncbi.nlm.nih.gov/books/NBK535437/#article-43328.s5</a> ).	Topical anesthetic ( <a href="https://www.drugs.com/mtm/tetracaine-topical.html">https://www.drugs.com/mtm/tetracaine-topical.html</a> ).	Used for a variety of purposes since the early 1930s ( <a href="https://www.ncbi.nlm.nih.gov/books/NBK535437/#article-43328.s5">https://www.ncbi.nlm.nih.gov/books/NBK535437/#article-43328.s5</a> ).
Thiopental (Pentothal)	Relaxation before general anesthesia with inhaled medication ( <a href="https://www.drugs.com/mtm/thiopental.html#side-effects">https://www.drugs.com/mtm/thiopental.html#side-effects</a> ).	Allergic reaction, ongoing drowsiness, weak or shallow breathing, slow heartbeats, chills, shivering, sneezing, coughing, tight feeling in throat, bronchospasm ( <a href="https://www.drugs.com/mtm/thiopental.html#side-effects">https://www.drugs.com/mtm/thiopental.html#side-effects</a> ).	General anesthetic; Barbiturate, slows activity of the brain and nervous system ( <a href="https://www.drugs.com/mtm/thiopental.html">https://www.drugs.com/mtm/thiopental.html</a> , <a href="https://www.drugs.com/mtm/thiopental.html#side-effects">https://www.drugs.com/mtm/thiopental.html#side-effects</a> ).	FDA pregnancy category C ( <a href="https://www.drugs.com/mtm/thiopental.html#side-effects">https://www.drugs.com/mtm/thiopental.html#side-effects</a> ).
Tubocurarine	Skeletal muscle relaxation (now rarely used) ( <a href="https://tmedweb.tulane.edu/pharmwiki/doku.php/tubocurarine">https://tmedweb.tulane.edu/pharmwiki/doku.php/tubocurarine</a> ).	Allergic reactions, histamine release (causing bronchospasm, hypotension, salivary secretions), ganglionic blockade (hypotension) ( <a href="https://tmedweb.tulane.edu/pharmwiki/doku.php/tubocurarine">https://tmedweb.tulane.edu/pharmwiki/doku.php/tubocurarine</a> ).	Neuromuscular blocking agent ( <a href="https://go.drugbank.com/drugs/DB01199">https://go.drugbank.com/drugs/DB01199</a> ).	First identified curare alkaloid, first isolated in 1935, used clinically to induce neuromuscular blockade during surgeries, especially involving the abdomen; Largely replaced by safer and more pharmacokinetically favorable blockers ( <a href="https://go.drugbank.com/drugs/DB01199">https://go.drugbank.com/drugs/DB01199</a> ).

**A general note:** This table is intended to be non-exhaustive (it does not cover, e.g., every medication used by healthcare providers or every adverse event that any given medication might cause). According to U.S. government statistics in November 2021, there were over 20,000 prescription drug products approved by the Food and Drug Administration (FDA) for marketing, and the FDA was overseeing more than 6,700 different medical device product categories (source: <https://www.fda.gov/about-fda/fda-basics/fact-sheet-fda-glance>). This table does not provide medical advice and is not a substitute for advice from a medical professional. Please also independently verify that information in this table remains up-to-date. The table was last updated on February 28, 2023.

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	Clinical Use	Adverse Events	Notes on Mechanism	Historical and Clinical Notes
Vecuronium	Facilitation of endotracheal intubation during general anesthesia, surgical relaxation, paralysis to facilitate mechanical ventilation in the intensive care setting ( <a href="https://www.ncbi.nlm.nih.gov/books/NBK493143/#article-31044.s5">https://www.ncbi.nlm.nih.gov/books/NBK493143/#article-31044.s5</a> ).	Skeletal muscle weakness, extended muscle paralysis leading to respiratory insufficiency or apnea, prolonged paralysis (seen in long-term use), bronchospasm, respiratory depression, apnea, anaphylaxis (in rare instances life-threatening), hypersensitivity reaction, hypotension, edema, sinus tachycardia, erythema, urticaria, flushing, pruritus, skin rash ( <a href="https://www.ncbi.nlm.nih.gov/books/NBK493143/#article-31044.s5">https://www.ncbi.nlm.nih.gov/books/NBK493143/#article-31044.s5</a> ).	Neuromuscular blocking agent ( <a href="https://www.drugs.com/mtm/vecuronium.html">https://www.drugs.com/mtm/vecuronium.html</a> ).	Favorable safety profile compared to other nondepolarizing neuromuscular blocking agents ( <a href="https://www.ncbi.nlm.nih.gov/books/NBK493143/#article-31044.s5">https://www.ncbi.nlm.nih.gov/books/NBK493143/#article-31044.s5</a> ).
<b>Toxicological</b>				
Atropine	Antidote for overdose of cholinergic drugs or mushroom poisoning ( <a href="https://www.rxlist.com/atropine-drug.htm">https://www.rxlist.com/atropine-drug.htm</a> ).	Xerostomia, blurred vision, photophobia, tachycardia, flushing, hot skin, constipation, difficulty with urination, anhidrosis, delirium, coma, hypersensitivity reactions, skin rash that could progress to exfoliation ( <a href="https://www.ncbi.nlm.nih.gov/books/NBK470551/#article-17983.s5">https://www.ncbi.nlm.nih.gov/books/NBK470551/#article-17983.s5</a> ).	Anticholinergic, antispasmodic ( <a href="https://www.rxlist.com/atropine-drug.htm">https://www.rxlist.com/atropine-drug.htm</a> ).	Originally synthesized from <i>Atropa belladonna</i> plant ( <a href="https://www.ncbi.nlm.nih.gov/books/NBK470551/#article-17983.s5">https://www.ncbi.nlm.nih.gov/books/NBK470551/#article-17983.s5</a> ).
Leucovorin	Side effects of large doses or accidental overdose of medications that reduce effects of folic acid in the body ( <a href="https://www.drugs.com/mtm/leucovorin.html">https://www.drugs.com/mtm/leucovorin.html</a> ).	Allergic reactions ( <a href="https://www.ncbi.nlm.nih.gov/books/NBK553114/#article-24206.s5">https://www.ncbi.nlm.nih.gov/books/NBK553114/#article-24206.s5</a> ).	Folinic acid ( <a href="https://www.drugs.com/mtm/leucovorin.html">https://www.drugs.com/mtm/leucovorin.html</a> ).	FDA pregnancy category C ( <a href="https://www.ncbi.nlm.nih.gov/books/NBK553114/#article-24206.s5">https://www.ncbi.nlm.nih.gov/books/NBK553114/#article-24206.s5</a> ).
Physostigmine (Antilirium)	Reverses effects of drugs/substances that interfere with nerve-muscle communication; Anti-muscarinic toxicity, glaucoma ( <a href="https://www.drugs.com/mtm/physostigmine.html">https://www.drugs.com/mtm/physostigmine.html</a> , <a href="https://www.ncbi.nlm.nih.gov/books/NBK545261/">https://www.ncbi.nlm.nih.gov/books/NBK545261/</a> ).	Cholinergic crisis, bradycardia, hypotension, seizures, hallucinations, anaphylaxis, respiratory depression or edema or arrest, pulmonary edema, cardiac arrest or paralysis, syncope, bronchospasm, paralysis, nausea, vomiting, diarrhea, abdominal cramps, lacrimation, dyspnea, miosis, sweating, muscle weakness or cramps, rhinorrhea, fasciculations, urinary urgency or frequency, palpitations, blurred vision, restlessness, hypersalivation, symptomatic bradycardia, bradycardic-asystolic arrest, ventricular fibrillation ( <a href="https://www.ncbi.nlm.nih.gov/books/NBK545261/#article-27198.s5">https://www.ncbi.nlm.nih.gov/books/NBK545261/#article-27198.s5</a> ).	Tertiary amine, reversible cholinergic medication ( <a href="https://www.ncbi.nlm.nih.gov/books/NBK545261/#article-27198.s5">https://www.ncbi.nlm.nih.gov/books/NBK545261/#article-27198.s5</a> ).	Originates from the Calabar bean ( <a href="https://www.ncbi.nlm.nih.gov/books/NBK545261/">https://www.ncbi.nlm.nih.gov/books/NBK545261/</a> ).