

Medications Commonly Administered in the School Setting

Below are descriptions of medications most commonly administered in the school setting, their purpose, and potential side effects. The medication information and the side effects listed are not comprehensive. For complete information regarding a specific medication, use a reputable drug reference such as the resource listed at the end of this document. Because side effects can be serious, contact the school nurse and the parent/guardian when they are observed. For severe side effects that may present a possible life-threatening reaction, such as anaphylaxis, call 911 or emergency medical services immediately.

All prescription and over-the-counter (OTC) medicine containers will indicate a generic name on the label and many will also display a brand name. The medicines listed as examples below begin with the generic name followed by the brand name; example: diphenhydramine = Benadryl. An appendix listed by generic name can be found at the end of this document.

Over-the-counter Medications

Even though over-the-counter medications are available without a prescription, it is important to note that they still have risks. Some interact with other medicines, supplements, foods, or drinks. Others cause problems for individuals with certain medical conditions. Special care should be taken when administering over-the-counter medications to children to not exceed the dose recommended on the label and to monitor symptoms and side effects. For this reason, any previous doses should be confirmed with the parent to ensure that a dose given at school is not given too soon after a dose was given at home.

Allergy

Antihistamines (examples: diphenhydramine = Benadryl; loratadine = Claritin; cetirizine = Zyrtec; chlorpheniramine = Chlor-Trimeton)

Purpose: Relieve sneezing, runny nose, and red, irritated, itchy, watery eyes caused by allergy and the common viral cold infection.

Possible Side Effects: Dry mouth, nose or throat; nausea, vomiting, loss of appetite, constipation; drowsiness, dizziness, excitement, nervousness; increased chest congestion; vision problems.

Pain Relievers

Nonsteroidal Anti-Inflammatory Drugs (NSAIDs) (examples: ibuprofen = Advil, Motrin; naproxen = Aleve)

Purpose: Treat mild to moderate pain from headaches, muscle aches, menstrual periods, common cold virus, toothaches, and backaches; to relieve pain, tenderness, swelling, and stiffness caused by arthritis.

Side effects: Stomach pain, nausea, loss of appetite, constipation, diarrhea, gas or bloating, unexplained weight gain; dizziness, nervousness, excessive tiredness, confusion, aggression; ringing in the ears; headache, stiff neck, fever, flu-like symptoms; yellowing of the skin or eyes, pale skin; difficult or painful urination, cloudy, discolored or bloody urine, back pain; blisters, rash, itching, hives, difficulty breathing or swallowing, hoarseness, or swelling of the eyes, face, throat, arms, hands, feet, ankles, or lower legs. These medications increase the risk of heart attack and stroke.

Analgesics/Antipyretics (example: acetaminophen = Tylenol)

Purpose: Relieve mild to moderate pain from headaches, muscle aches, menstrual periods, cold viruses and sore throats, toothaches, backaches, and reactions to vaccinations, and to reduce fever.

Side effects: Rash, itching, hives, and red, peeling or blistering skin; hoarseness, swelling of the face, throat, lips, eyes, hands, feet, ankles or lower legs; difficulty breathing or swallowing. Overdose symptoms include nausea, vomiting, loss of appetite; flu-like symptoms, sweating, extreme tiredness; unusual bleeding or bruising, yellowing of the skin or eyes. Taking too much acetaminophen can cause severe liver damage.

Prescription Medicines

Antibiotics

Examples: amoxicillin = Amoxil; cephalexin = Keflex

Purpose: Treat certain bacterial infections such as pneumonia, bronchitis, and infections of the bone, ears, nose, throat, urinary tract, reproductive system, and skin.

Possible Side Effects: Vomiting, diarrhea; allergic reaction with mild to severe skin rash to difficulty breathing, swallowing or wheezing; yellowing of the skin or eyes, unusual bleeding or bruising.

Asthma and Chronic Lung Disease

Before administering for the first time, read the manufacturer instructions that accompany the medication and follow the steps carefully; incorrect use can result in inadequate dosing and possible worsening of student's condition.

Short-acting bronchodilator inhalers (examples: albuterol = Ventolin, Proventil, ProAir)

Purpose: Open airways to the lungs quickly in order to make breathing easier; used to prevent and treat wheezing, shortness of breath, cough, and chest tightness caused by lung diseases such as asthma.

Possible Side effects: Tremors, nervousness, and fast, pounding, or irregular heartbeat.

Know: This medication should improve breathing symptoms within 15-20 minutes. If not, contact the school nurse and parent/guardian. If breathing condition worsens, call 911 or emergency medical services.

Long-acting bronchodilator inhalers (examples: formoterol = Foradil; salmeterol = Serevent)

Purpose: Open airways in the lungs over time; prevent wheezing, shortness of breath, coughing, and chest tightness related to asthma. DO NOT USE TO TREAT SUDDEN EPISODES OF COUGH, WHEEZE, OR SHORTNESS OF BREATH.

Possible Side Effects: Tremors, nervousness, headache, dizziness, nausea.

Anti-inflammatory inhalers (examples: fluticasone = Flovent; budesonide = Pulmicort; beclomethasone = QVAR)

Purpose: Decrease swelling and irritation in the airways to make breathing easier; used to prevent chest tightness, wheezing, and coughing caused by asthma. DO NOT USE TO TREAT SUDDEN EPISODES OF COUGH, WHEEZE, OR SHORTNESS OF BREATH.

Possible Side Effects: Loss of appetite, stomach pain, difficulty falling asleep or staying asleep, anxiety.

Combination Inhalers (examples: fluticasone + salmeterol = Advair; budesonide + formoterol = Symbicort)

Purpose: These inhalers contain both long-acting bronchodilator and anti-inflammatory medicines. Find

the purpose identified in both categories above. DO NOT USE TO TREAT SUDDEN EPISODES OF COUGH, WHEEZE, OR SHORTNESS OF BREATH.

Possible Side Effects: See information above for long-acting bronchodilators and anti-inflammatory inhalers.

Anticholinergic inhalers (examples: ipratropium = Atrovent; albuterol+ ipratropium = Combivent; tiotropium = Spiriva)

Purpose: Open airways in the lungs to make breathing easier and to prevent or treat wheezing, shortness of breath, coughing, and chest tightness in chronic obstructive pulmonary disease and chronic bronchitis. DO NOT USE TO TREAT SUDDEN EPISODES OF COUGH, WHEEZE, OR SHORTNESS OF BREATH. Combivent is a combination of anticholinergic and short-acting bronchodilator medicines.

Possible Side effects: Dizziness, fast, or pounding heartbeat. For Combivent, see information listed above for short acting bronchodilators as well.

Corticosteroids (examples: prednisone = Prednisone Intensol, Sterapred; prednisolone = Pediapred, Orapred)

Purpose: Oral anti-inflammatory used to reduce swelling in the airways caused by asthma.

Possible Side Effects: Headache, nausea, increased appetite, extreme changes in mood, changes in personality, difficulty falling asleep or staying asleep, thin or fragile skin, slowed healing of cuts and bruises, seizures, depression, loss of contact with reality.

Leukotriene inhibitors (example: montelukast = Singulair)

Purpose: Prevent wheezing, chest tightness, difficulty breathing, and coughing caused by asthma; prevent bronchospasm during exercise; and to treat sneezing, stuffy, runny, itchy nose due to allergy.

Possible Side Effects: Headache, dizziness.

Behavioral/Central Nervous System Health

Many of these medications are Schedule II controlled medicines, must be kept in a locked location, and have a documented count at all times.

Anti-anxiety (example: diazepam = Valium)

Purpose: Relieve anxiety and muscle spasms, also used in treatment for panic attacks and Irritable Bowel Syndrome.

Possible Side Effects: Drowsiness, dizziness, tiredness, weakness, dry mouth.

Anticonvulsants (examples: carbamazepine = Tegretol, Carbatrol, Epitol; valproic acid = Depakote, Depakene, Valproate Sodium; levetiracetam = Keppra; lamotrigine = Lamictal; oxcarbazepine = Trileptal; gabapentin = Neurontin)

Purpose: Reduce abnormal electrical activity in the brain to control seizures in patients with epilepsy. Some of the medications listed are also used to prevent migraines, aggressive behavior with Attention Deficit Hyperactivity Disorder (ADHD), or bipolar disorder. Gabapentin also treats restless legs syndrome.

Possible Side Effects: Drowsiness, headache, dizziness; unsteadiness, loss of coordination, extreme tiredness, lack of energy, muscle weakness, stiff neck, difficulty speaking and moving, uncontrollable shaking of a part of the body, stiff neck, uncontrollable movements of the eyes, muscle weakness, aching or tightening; numbness/burning and/or tingling in the hands or feet; anxiety, agitation, mood swings, abnormal thinking, loss of contact with reality, confusion, problems with memory, agitation or

hostility, nervousness, depression or suicidal thoughts, hallucinations, seizures worse than usual, difficulty thinking or concentrating, loss of consciousness; flu-like symptoms: sore throat, fever, chills, and other signs of infection; painful sores in mouth or around eyes, back, joint or chest pain; vision changes, sensitivity to light, ringing in the ears; yellowing of the skin or eyes, dark red or cola-colored urine, unusual bruising or bleeding; unusual thirst, nausea, pain in the upper right part of the stomach; hives, hoarseness, difficulty breathing or swallowing, fast heartbeat, shortness of breath, swelling of the face, throat, tongue, lips, eyes, hands, feet, ankles, or lower legs. Lamotrigene may cause serious rashes, with blistering or peeling of the skin, that require immediate medical care.

Antidepressants (examples: bupropion = Wellbutrin, Zyban, Aplenzin)

Purpose: Increase certain types of activity in the brain to treat depression, seasonal affective disorder (SAD), bipolar, ADHD, and help smoking cessation.

Possible Side Effects: Drowsiness, anxiety, excitement, difficulty falling asleep, or staying asleep; dizziness, headache; uncontrollable shaking of a part of the body, loss of appetite, weight loss, constipation, changes in sense of taste; excessive sweating, frequent urination; ringing in the ears; seizures, confusion, hallucinations, irrational fears, suicidal thoughts; chest pain and rapid, pounding, or irregular heartbeat.

Antidepressants: Selective Serotonin and Norepinephrine Reuptake Inhibitors (example: venlafaxine = Effexor)

Purpose: Increase natural substances in the brain to treat depression, as well as anxiety disorders.

Possible Side Effects: Drowsiness, dizziness, nightmares, yawning; change in ability to taste food, loss of appetite, weight loss; uncontrollable shaking of a part of the body, problems with coordination, muscle tightness, twitching or severe stiffness; sweating, hot flashes or flushing; unusual bruising or bleeding; ringing in the ear, enlarged pupils; seizures, confusion, hallucinations, loss of consciousness, suicidal thoughts; chest pain, and fast, pounding, or irregular heartbeat.

Antidepressants: Selective Serotonin Reuptake Inhibitors (examples: sertraline = Zoloft; paroxetine = Paxil; citalopram = Celexa; escitalopram = Lexapro; fluoxetine = Prozac)

Purpose: Increase natural substances in the brain; above medicines may treat depression, obsessive-compulsive disorder, anxiety and panic disorders, premenstrual dysphoric disorder, some eating disorders, ADHD, or Post-Traumatic Stress Disorder (PTSD).

Possible Side Effects: Decreased appetite, weight changes, changes in ability to taste food, dry mouth; drowsiness, dizziness, excessive tiredness, headache, yawning; uncontrollable shaking of a part of the body, muscle weakness, tightness or pain; excessive sweating, flushing; nervousness, difficulty with concentration and memory, confusion, seizures, hallucinations, loss of consciousness, suicidal thoughts; sensitivity to light; tenderness or swelling of joints, abnormal bleeding or bruising; lump or tightness in throat, fast or irregular heartbeat, fainting, chest pain, difficulty breathing or swallowing.

Anti-manic Agents (example: lithium = Lithobid)

Purpose: Decrease abnormal activity in the brain to treat bipolar disorder.

Possible Side Effects: Headache, fainting, dizziness or lightheadedness; fine hand and other movements that are difficult to control, unusual tiredness or weakness; loss of appetite, weight changes, dry mouth or excessive saliva in the mouth, change in the ability to taste food, excessive thirst, frequent urination; restlessness, depression, confusion, blackouts, seizures, hallucinations; shortness of breath, chest tightness, and fast, slow, irregular, or pounding heartbeat.

Atypical antipsychotics (examples: aripiprazole = Abilify; olanzapine = Zyprexa; quetiapine = Seroquel; risperidone = Risperdal)

Purpose: Change activity of certain natural substances in the brain to treat schizophrenia, bipolar disorder and depression. Risperidone is also used to treat aggression and self-injury with autism disorder. Abilify may also be used in treatment of Tourette's syndrome.

Possible Side Effects: Headache, nervousness, drowsiness, dizziness, difficulty falling asleep or staying asleep; weight gain, increased appetite, increased saliva, dry mouth; muscle or joint pain, weakness, difficulty walking, unusual movements of the body or face, tightening of the neck muscles; restlessness, unusual behavior, depression, suicidal thoughts, irritability, confusion, anxiety, agitation, seizures, and difficulty thinking, concentrating, speaking or using language; changes in vision; discolored skin, excessive sweating, unusual bleeding or bruising; tightness in the throat, chest pain, and slow, fast, or irregular heartbeat.

Central nervous system stimulants (examples: amphetamine + dextroamphetamine = Adderall; dextroamphetamine = Dexedrine; methylphenidate = Ritalin, Concerta; lisdexamfetamine = Vyvanse)

Purpose: Change certain natural substances in the brain to treat ADHD. Some of these medicines may also be used to treat narcolepsy or binge eating.

Possible Side Effects: Headache, dizziness, fainting; dry mouth, loss of appetite, weight loss; difficulty falling asleep or staying asleep, excessive tiredness; uncontrolled shaking of a part of the body, muscle tightness, motor or verbal tics; changes in vision; nervousness, restlessness, slow or difficult speech, believing things that are not true, unusually suspicious of others, hallucinations, abnormally excited, aggressive behavior, agitation, irritability, mood swings, depression, seizures; hoarseness, fast, or pounding heartbeat, shortness of breath, chest pain.

Centrally Acting Alpha-Agonist Hypotensive Agents (examples: clonidine = Catapres , Kapvay)

Purpose: Decrease heart rate and relax blood vessels to treat hypertension, also may be used to treat ADHD by affecting the part of the brain that controls attention and impulsivity; also used in treatment of dysmenorrhea, Tourette's syndrome, and smoking cessation.

Possible Side Effects: Dry mouth, tiredness, weakness, headache, nervousness.

Centrally Acting Alpha 2a-Adrenergic Receptor Agonists (examples: guanfacine = Intuniv, Tenex)

Purpose: Decrease heart rate and relax blood vessels to treat hypertension; also may be used to treat ADHD by affecting the part of the brain that controls attention and impulsivity.

Possible Side Effects: Dry mouth, tiredness, weakness, headache, irritability, decreased appetite, blurred vision, slow heart rate.

Conventional Antipsychotics (examples: haloperidol; chlorpromazine – no brand names currently for these medicines)

Purpose: Decrease abnormal activity in the brain to treat schizophrenia and other psychotic disorders, bipolar disorder, motor and verbal tics, and severe aggressive behavior.

Possible Side Effects: Drowsiness, dizziness, headache, difficulty falling asleep or staying asleep; dry mouth, increased saliva; uncontrollable eye movements or any part of the body, blank facial expression, muscle stiffness, and unusual, slowed or shuffling walk; pupil changes, vision changes; yellowing of the skin or eyes, unusual bleeding or bruising; restlessness, agitation, nervousness, mood changes, confusion, seizures; fast or irregular heartbeat, tightness in the throat or neck.

Selective Norepinephrine Reuptake Inhibitors (example: atomoxetine = Strattera)

Purpose: Increase levels of norepinephrine, a natural substance in the brain that is needed to control behavior; used to treat ADHD: increase ability to pay attention, decrease impulsiveness and hyperactivity.

Possible Side Effects: Weight loss; excessive tiredness, dizziness, headache; mood swings, hallucinations, and seizures; slow or difficult speech, muscle pain, weakness or numbness of an arm or leg, burning or tingling in the hands, arms, feet, or legs; yellowing of skin or eyes; difficulty swallowing or breathing.

Medicines for Emergency Conditions

These medications are not addressed in the *Medication Administration: Training for Unlicensed School Staff* eLearning module; they are included here because awareness of their purpose and side effects may be useful for school staff to know.

Anaphylaxis

Alpha- and Beta-Adrenergic agonists (example: epinephrine = Epi-Pen, Auvi-Q, Adrenaclick)

Purpose: Treat life-threatening allergic reactions caused by insect bites or stings, foods, medications, latex, and other causes by relaxing the muscles in the airways and tightening the blood vessels.

Side effects: Nausea, vomiting, sweating, dizziness, nervousness, anxiety, restlessness, weakness, tremors, pale skin, difficulty breathing, and pounding, fast, or irregular heartbeat.

Diabetic Hypoglycemia

Glucagon

Purpose: Raise very low blood glucose and is used in an emergency when a person with diabetes is hypoglycemic and unresponsive. Glucagon is a hormone naturally produced in the pancreas. It is administered by injection.

Side effects: Nausea, vomiting, rash, itching, difficulty breathing, loss of consciousness.

Seizure

Benzodiazepines (example: diazepam rectal gel = Diastat)

Purpose: Stop cluster seizures (episodes of increased seizure activity) in people who are diagnosed with a seizure disorder. Diazepam works by calming abnormal over-activity in the brain. It is administered rectally.

Side effects: Drowsiness, dizziness, headache, lack of coordination, difficulty breathing.

Resources for drug information

Additional resources to learn more about specific medications including adverse reactions, interactions, and toxicity can be obtained by utilizing reputable online resources, reference books, and/or by contacting the school nurse, pharmacist, or health care provider. The resource used for this document is the National Institute of Health, Library of Medicine at <https://www.nlm.nih.gov/medlineplus/>.

Appendix

<u>Generic Name</u>	<u>Category/ Drug Class</u>
abilify	Behavioral
acetaminophen	Over-the-Counter/Analgesic-Antipyretic
albuterol	Asthma/Short-acting bronchodilator
amoxicillin	Antibiotic
amphetamine	Behavioral/Central nervous system stimulant
aripiprazole	Behavioral/Atypical antipsychotic
atomoxetine	Behavioral/Selective norepinephrine reuptake inhibitor
beclomethasone	Asthma/Anti-inflammatory
budesonide	Asthma/Anti-inflammatory
bupropion	Behavioral/Antidepressant
carbamazepine	Behavioral/Anticonvulsant
cephalexin	Antibiotic
cetirizine	Over-the-counter/Allergy/Antihistamine
chlorpheniramine	Over-the-counter/Allergy/Antihistamine
chlorpromazine	Behavioral/Conventional antipsychotic
citalopram	Behavioral/Selective serotonin reuptake inhibitor
clonidine	Behavioral/Centrally acting alpha-agonist hypotensive agent
dextroamphetamine	Behavioral/Central nervous system stimulant
diastat	Emergency/Benzodiazepine
diphenhydramine	Over-the-counter/Allergy/Antihistamine
diazepam	Behavioral/Benzodiazepine
epinephrine	Emergency/Alpha- and Beta-Adrenergic agonist
escitalopram	Behavioral/Selective serotonin reuptake inhibitor
fluoxetine	Behavioral/Selective serotonin reuptake inhibitor
formoterol	Asthma/Long-acting bronchodilator
fluticasone	Asthma/Anti-inflammatory
gabapentin	Behavioral/Anticonvulsant
glucagon	Emergency Hormone
guanfacine	Behavioral/Centrally acting alpha 2a-adrenergic receptor agonist
haloperidol	Behavioral/Conventional antipsychotic
ibuprofen	Over-the-Counter/Nonsteroidal Anti-inflammatory
ipratropium	Asthma/Anticholinergic
lamotrigine	Behavioral/Anticonvulsant
levetiracetam	Behavioral/Anticonvulsant
lisdexamphetamine	Behavioral/Central nervous system stimulant
lithium	Behavioral/Antimanic
loratadine	Over-the-counter/Allergy/Antihistamine
methylphenidate	Behavioral/Central nervous system stimulant
montelukast	Asthma/Luekotriene inhibitor
Naproxen	Over-the-Counter/Nonsteroidal Anti-inflammatory
olanzapine	Behavioral/Atypical antipsychotic
oxcarbazepine	Behavioral/Anticonvulsant
paroxetine	Behavioral/ Selective serotonin reuptake inhibitor
prednisolone	Asthma/Corticosteroid

prednisone	Asthma/Corticosteroid
quetiapine	Behavioral/Atypical antipsychotic
risperidone	Behavioral/Atypical antipsychotic
salmeterol	Asthma/Long-acting bronchodilator
sertraline	Behavioral/Selective serotonin reuptake inhibitor
tiotropium	Asthma/Anticholinergic
valproic acid	Behavioral/Anticonvulsant
venlafaxine	Behavioral/Antidepressant