Brand Names

AKOVAZ , Bronkaid, Emerphed, Primatene, REZIPRES

Indication Specific Dosing

For the treatment of clinically important hypotension occurring in the setting of anesthesia

Intravenous dosage (ephedrine hydrochloride)

Adults

4.7 to 9.4 mg ephedrine hydrochloride (3.8 to 7.7 mg ephedrine base) IV; may repeat as needed, not to exceed 47 mg ephedrine hydrochloride (38 mg ephedrine base) total dose.

Intravenous dosage (ephedrine sulfate)

Adults

5 to 10 mg ephedrine sulfate (3.8 to 7.7 mg ephedrine base) IV; may repeat as needed, not to exceed 50 mg ephedrine sulfate (38 mg ephedrine base) total dose.

For the treatment of mild symptoms of intermittent asthma

Oral dosage (tablets containing 12.5 mg of ephedrine hydrochloride)

Adults

1 to 2 tablets PO every 4 hours as needed. Max: 12 tablets/day. Guidelines for asthma treatment do not recommend use; prescribe a selective short-acting beta-agonist (SABA).

Children and Adolescents 12 to 17 years

1 to 2 tablets PO every 4 hours as needed. Max: 12 tablets/day. Guidelines for asthma treatment do not recommend use; prescribe a selective short-acting beta-agonist (SABA).

Oral dosage (tablets containing 25 mg of ephedrine sulfate)

Adults

1 tablet PO every 4 hours as needed. Max: 6 tablets/day. Guidelines for asthma treatment do not recommend use; prescribe a selective short-acting beta-agonist (SABA).

Children and Adolescents 12 to 17 years

1 tablet PO every 4 hours as needed. Max: 6 tablets/day. Guidelines for asthma treatment do not recommend use; prescribe a selective short-acting beta-agonist (SABA).

Contraindications And Precaution

Drug Interactions

The coadministration of certain medications may lead to harm and require avoidance or therapy modification; review all drug interactions prior to concomitant use of other medications.

Hypersensitivity

This medication is contraindicated in patients with a history of hypersensitivity to it or any of its components. Ephedrine is contraindicated for use in individuals with a known hypersensitivity to sympathomimetic amines. Individuals hypersensitive to other sympathomimetics may be hypersensitive to ephedrine.

Treatment-Related Restrictions of Use

The use of ephedrine for hypotension prophylaxis is associated with an increased risk of hypertension compared to the use of ephedrine for the treatment of hypotension.

closed-angle glaucoma

Ephedrine injection is contraindicated in individuals with closed-angle glaucoma. Use ephedrine tablets with caution in individuals with closed-angle glaucoma.

cardiac disease, hypertension, vasomotor instability

Use ephedrine with caution in individuals with hypertension, cardiac disease (including coronary artery disease, angina pectoris, and individuals receiving cardiac glycosides), cardiac arrhythmias, or vasomotor instability. Ephedrine may induce anginal pain in individuals with coronary insufficiency or ischemic heart disease and potentially fatal arrhythmias in individuals with organic heart disease or who are receiving drugs that sensitize the myocardium.

diabetes mellitus

Use ephedrine with caution in individuals with diabetes mellitus. Glycogenolysis in the liver is increased by ephedrine; however, typical ephedrine doses are unlikely to produce hyperglycemia.

hyperthyroidism

Avoid ephedrine use in patients with thyrotoxicosis, and use ephedrine with caution in patients with hyperthyroidism.

labor, obstetric delivery, pregnancy

Available data of ephedrine use during human pregnancy have not identified a drug-associated risk of major birth defects, miscarriage, or adverse maternal or fetal outcomes. Untreated hypotension associated with spinal anesthesia for cesarean section is associated with an increase in maternal nausea and vomiting. In animal studies, decreased fetal survival and fetal body weights were observed in the presence of maternal toxicity after intravenous ephedrine administration of 3.5 to 12 times the maximum recommended human dose (MRHD). No malformations or embryofetal adverse effects were observed when pregnant rats or rabbits were treated with intravenous ephedrine bolus doses of 1.9 to 12.4-times the MRHD during organogenesis. A decrease in uterine blood flow due to maternal hypotension may result in fetal bradycardia and acidosis. Metabolic acidosis (umbilical artery pH of 7.2 or less) at the time of delivery has been reported in newborns with maternal ephedrine exposure. Monitor newborns whose mothers were exposed to ephedrine during labor and obstetric delivery for signs and symptoms of metabolic acidosis. Monitor the infant's acid-base status to ensure any episode of acidosis is acute and reversible. The use of ephedrine to maintain maternal blood pressure during low or other spinal anesthesia for delivery can cause acceleration of fetal heart rate; do not use ephedrine in obstetrics when maternal blood pressure exceeds 130/80 mmHg or in the presence of other cardiovascular disorders.

renal failure, renal impairment

Monitor individuals with renal impairment or renal failure carefully after the initial bolus for prolonged effect and adverse reactions. Ephedrine and its metabolite are excreted in the urine. In individuals with renal impairment, excretion of ephedrine is likely to be affected with a corresponding increase in elimination half-life, which will lead to slow elimination of ephedrine and consequently prolonged pharmacological effect and potentially adverse reactions.

breast-feeding

Limited data indicate that ephedrine is excreted in human breast milk. No data are available regarding the effects of ephedrine on the breast-fed infant or milk production. Consider the developmental and health benefits of breast-feeding along with the mother's clinical need for ephedrine and any potential adverse effects on the breast-fed infant from ephedrine or the underlying maternal condition.

geriatric

In general, geriatric adults may be more sensitive to the sympathomimetic effects of agents such as ephedrine, but other reported clinical experience has not identified differences in responses between geriatric adults and younger individuals. In general, dose selection for an elderly adult should be cautious, usually starting at the low end of the dosing range. Ephedrine is known to be substantially excreted by the kidney, and the risk of adverse reactions to this drug may be greater in those with impaired renal function. Because older adults are more likely to have decreased renal function, care should be taken in dose selection, and it may be useful to monitor renal function.

prostatic hypertrophy

Use ephedrine tablets with caution in individuals with trouble urinating due to prostatic hypertrophy. Monitor individuals receiving repeated ephedrine injections for urinary retention, especially elderly male adults. Repeated injections of ephedrine may cause contraction of the bladder sphincter and interfere with voluntary urination.

Pregnancy And Lactation

Available data of ephedrine use during human pregnancy have not identified a drug-associated risk of major birth defects, miscarriage, or adverse maternal or fetal outcomes. Untreated hypotension associated with spinal anesthesia for cesarean section is associated with an increase in maternal nausea and vomiting. In animal studies, decreased fetal survival and fetal body weights were observed in the presence

of maternal toxicity after intravenous ephedrine administration of 3.5 to 12 times the maximum recommended human dose (MRHD). No malformations or embryofetal adverse effects were observed when pregnant rats or rabbits were treated with intravenous ephedrine bolus doses of 1.9 to 12.4-times the MRHD during organogenesis. A decrease in uterine blood flow due to maternal hypotension may result in fetal bradycardia and acidosis. Metabolic acidosis (umbilical artery pH of 7.2 or less) at the time of delivery has been reported in newborns with maternal ephedrine exposure. Monitor newborns whose mothers were exposed to ephedrine during labor and obstetric delivery for signs and symptoms of metabolic acidosis. Monitor the infant's acid-base status to ensure any episode of acidosis is acute and reversible. The use of ephedrine to maintain maternal blood pressure during low or other spinal anesthesia for delivery can cause acceleration of fetal heart rate; do not use ephedrine in obstetrics when maternal blood pressure exceeds 130/80 mmHg or in the presence of other cardiovascular disorders.

Interactions

Acarbose: (Moderate) Sympathomimetic agents and adrenergic agonists tend to increase blood glucose concentrations when administered systemically. Monitor for loss of glycemic control when pseudoephedrine, phenylephrine, and other sympathomimetics are administered to patients taking antidiabetic agents. Epinephrine and other sympathomimetics, through stimulation of alpha- and beta- receptors, increase hepatic glucose production and glycogenolysis and inhibit insulin secretion. Also, adrenergic medications may decrease glucose uptake by muscle cells. For treatment of cold symptoms, nasal decongestants may be preferable for short term, limited use (1 to 3 days) as an alternative to systemic decongestants in patients taking medications for diabetes.
Acebutolol: (Moderate) Monitor hemodynamic parameters and for loss of efficacy during concomitant sympathomimetic agent and beta-blocker use; dosage adjustments may be necessary. Concomitant use may antagonize the cardiovascular effects of either drug.
Acetaminophen; Aspirin, ASA; Caffeine: (Moderate) Caffeine is a CNS-stimulant and such actions are expected to be additive when coadministered with other CNS stimulants or psychostimulants like ephedrine. Adverse effects such as nervousness, irritability, insomnia, and/or cardiac arrhythmias are also possible when excessive dosages of caffeine are taken concurrently with ephedrine. Patients may also need to limit their intake of caffeine-containing beverages or foods (e.g., coffee, green tea, other teas, guarana, colas, or chocolate) to avoid caffeine-like side effects.
Acetaminophen; Caffeine: (Moderate) Caffeine is a CNS-stimulant and such actions are expected to be additive when coadministered with other CNS stimulants or psychostimulants like ephedrine. Adverse effects such as nervousness, irritability, insomnia, and/or cardiac arrhythmias are also possible when excessive dosages of

caffeine are taken concurrently with ephedrine. Patients may also need to limit their intake of caffeine-containing beverages or foods (e.g., coffee, green tea, other teas, guarana, colas, or chocolate) to avoid caffeine-like side effects.
Acetaminophen; Caffeine; Dihydrocodeine: (Moderate) Caffeine is a CNS-stimulant and such actions are expected to be additive when coadministered with other CNS stimulants or psychostimulants like ephedrine. Adverse effects such as nervousness, irritability, insomnia, and/or cardiac arrhythmias are also possible when excessive dosages of caffeine are taken concurrently with ephedrine. Patients may also need to limit their intake of caffeine-containing beverages or foods (e.g., coffee, green tea, other teas, guarana, colas, or chocolate) to avoid caffeine-like side effects.
Acetaminophen; Caffeine; Pyrilamine: (Moderate) Caffeine is a CNS-stimulant and such actions are expected to be additive when coadministered with other CNS stimulants or psychostimulants like ephedrine. Adverse effects such as nervousness, irritability, insomnia, and/or cardiac arrhythmias are also possible when excessive dosages of caffeine are taken concurrently with ephedrine. Patients may also need to limit their intake of caffeine-containing beverages or foods (e.g., coffee, green tea, other teas, guarana, colas, or chocolate) to avoid caffeine-like side effects.
Acetaminophen; Chlorpheniramine; Dextromethorphan; Pseudoephedrine: (Major) Pseudoephedrine can potentiate the effects and increase the toxicity of other sympathomimetics by adding to their sympathomimetic activity. Although no data are available, pseudoephedrine should be used cautiously in patients using significant quantities of other sympathomimetics.
Acetaminophen; Dextromethorphan; guaiFENesin; Pseudoephedrine: (Major) Pseudoephedrine can potentiate the effects and increase the toxicity of other sympathomimetics by adding to their sympathomimetic activity. Although no data are available, pseudoephedrine should be used cautiously in patients using significant quantities of other sympathomimetics.
Acetaminophen; Dextromethorphan; Pseudoephedrine: (Major) Pseudoephedrine can potentiate the effects and increase the toxicity of other sympathomimetics by adding to their sympathomimetic activity. Although no data are available, pseudoephedrine should be used cautiously in patients using significant quantities of other sympathomimetics.
Acetaminophen; Pseudoephedrine: (Major) Pseudoephedrine can potentiate the effects and increase the toxicity of other sympathomimetics by adding to their sympathomimetic activity. Although no data are available, pseudoephedrine should be used cautiously in patients using significant quantities of other sympathomimetics.
acetaZOLAMIDE: (Major) Acetazolamide or methazolamide can decrease excretion and enhance the effects of ephedrine. Carbonic anhydrase inhibitors increase the alkalinity of the urine, thereby increasing the amount of nonionized ephedrine available for renal tubular reabsorption. If concurrent use cannot be avoided, monitor for the appearance

of ephedrine-related toxicity.
Aclidinium; Formoterol: (Moderate) Caution and close observation should be used when formoterol is used concurrently with other adrenergic sympathomimetics, administered by any route, to avoid potential for increased cardiovascular effects.
Albuterol: (Major) Caution and close observation should be used when albuterol is used concurrently with other adrenergic sympathomimetics, administered by any route, to avoid potential for increased cardiovascular effects.
Albuterol; Budesonide: (Major) Caution and close observation should be used when albuterol is used concurrently with other adrenergic sympathomimetics, administered by any route, to avoid potential for increased cardiovascular effects. (Moderate) Ephedrine may enhance the metabolic clearance of corticosteroids. Decreased blood concentrations and lessened physiologic activity may necessitate an increase in corticosteroid dosage.
Aliskiren; hydroCHLOROthiazide, HCTZ: (Major) The cardiovascular effects of sympathomimetics, such as ephedrine, may reduce the antihypertensive effects produced by thiazide diuretics. Blood pressure and heart rates should be monitored closely to confirm that the desired antihypertensive effect is achieved.
Alogliptin: (Moderate) Sympathomimetic agents tend to increase blood glucose concentrations when administered systemically. Monitor for loss of glycemic control when sympathomimetics are administered to patients taking dipeptidyl peptidase-4 (DPP-4) inhibitors. Sympathomimetics, through stimulation of alpha- and beta-receptors, increase hepatic glucose production and glycogenolysis and inhibit insulin secretion. Also, adrenergic medications may decrease glucose uptake by muscle cells. For treatment of cold symptoms, nasal decongestants may be preferable for short term, limited use (1 to 3 days) as an alternative to systemic decongestants in patients taking medications for diabetes.
Alogliptin; metFORMIN: (Moderate) Sympathomimetic agents and adrenergic agonists tend to increase blood glucose concentrations when administered systemically. Monitor for loss of glycemic control when pseudoephedrine, phenylephrine, and other sympathomimetics are administered to patients taking antidiabetic agents. Epinephrine and other sympathomimetics, through stimulation of alpha- and beta- receptors, increase hepatic glucose production and glycogenolysis and inhibit insulin secretion. Also, adrenergic medications may decrease glucose uptake by muscle cells. For treatment of cold symptoms, nasal decongestants may be preferable for short term, limited use (1 to 3 days) as an alternative to systemic decongestants in patients taking medications for diabetes. (Moderate) Sympathomimetic agents tend to increase blood glucose concentrations when administered systemically. Monitor for loss of glycemic control when sympathomimetics are administered to patients taking dipeptidyl peptidase-4 (DPP-4) inhibitors. Sympathomimetics, through stimulation of alpha- and beta- receptors, increase hepatic glucose production and glycogenolysis and inhibit

insulin secretion. Also, adrenergic medications may decrease glucose uptake by muscle cells. For treatment of cold symptoms, nasal decongestants may be preferable for short term, limited use (1 to 3 days) as an alternative to systemic decongestants in patients taking medications for diabetes.
Alogliptin; Pioglitazone: (Moderate) Sympathomimetic agents tend to increase blood glucose concentrations when administered systemically. Monitor for loss of glycemic control when sympathomimetics are administered to patients taking dipeptidyl peptidase-4 (DPP-4) inhibitors. Sympathomimetics, through stimulation of alpha- and beta- receptors, increase hepatic glucose production and glycogenolysis and inhibit insulin secretion. Also, adrenergic medications may decrease glucose uptake by muscle cells. For treatment of cold symptoms, nasal decongestants may be preferable for short term, limited use (1 to 3 days) as an alternative to systemic decongestants in patients taking medications for diabetes. (Moderate) Sympathomimetic agents tend to increase blood glucose concentrations when administered systemically. Monitor for loss of glycemic control when sympathomimetics are administered to patients taking thiazolidinediones. Sympathomimetics, through stimulation of alpha- and beta-receptors, increase hepatic glucose production and glycogenolysis and inhibit insulin secretion. Also, adrenergic medications may decrease glucose uptake by muscle cells. For treatment of cold symptoms, nasal decongestants may be preferable for short term, limited use (1 to 3 days) as an alternative to systemic decongestants in patients taking medications for diabetes.
Alpha-blockers: (Moderate) Carefully monitor blood pressure in patients who have received both ephedrine and alpha-blockers; alpha-blockers antagonize the pressor effect of ephedrine.
Alpha-glucosidase Inhibitors: (Moderate) Sympathomimetic agents and adrenergic agonists tend to increase blood glucose concentrations when administered systemically. Monitor for loss of glycemic control when pseudoephedrine, phenylephrine, and other sympathomimetics are administered to patients taking antidiabetic agents. Epinephrine and other sympathomimetics, through stimulation of alpha- and beta- receptors, increase hepatic glucose production and glycogenolysis and inhibit insulin secretion. Also, adrenergic medications may decrease glucose uptake by muscle cells. For treatment of cold symptoms, nasal decongestants may be preferable for short term, limited use (1 to 3 days) as an alternative to systemic decongestants in patients taking medications for diabetes.
Ambrisentan: (Major) Sympathomimetics can antagonize the effects of vasodilators when administered concomitantly. Patients should be monitored for reduced efficacy if taking ambrisentan with a sympathomimetic.
aMILoride: (Major) The cardiovascular effects of sympathomimetics may reduce the antihypertensive effects produced by potassium-sparing diuretics. Blood pressure and heart rates should be monitored closely to confirm that the desired antihypertensive

effect is achieved.
aMILoride; hydroCHLOROthiazide, HCTZ: (Major) The cardiovascular effects of sympathomimetics may reduce the antihypertensive effects produced by potassium-sparing diuretics. Blood pressure and heart rates should be monitored closely to confirm that the desired antihypertensive effect is achieved. (Major) The cardiovascular effects of sympathomimetics, such as ephedrine, may reduce the antihypertensive effects produced by thiazide diuretics. Blood pressure and heart rates should be monitored closely to confirm that the desired antihypertensive effect is achieved.
Amitriptyline: (Major) Tricyclic antidepressants (TCAs) may markedly enhance the pressor response to certain sympathomimetic agents, such as ephedrine or ephedra. TCAs inhibit norepinephrine reuptake in adrenergic neurons, resulting in increased stimulation of adrenergic receptors. Clinically, the patient might experience hypertension, headache, tremor, palpitations, chest pain, or irregular heartbeat.
amLODIPine: (Major) The cardiovascular effects of sympathomimetics, such as ephedrine, may reduce the antihypertensive effects produced by calcium-channel blockers. Blood pressure and heart rates should be monitored closely to confirm that the desired antihypertensive effect is achieved.
amLODIPine; Atorvastatin: (Major) The cardiovascular effects of sympathomimetics, such as ephedrine, may reduce the antihypertensive effects produced by calcium-channel blockers. Blood pressure and heart rates should be monitored closely to confirm that the desired antihypertensive effect is achieved.
amLODIPine; Benazepril: (Major) The cardiovascular effects of sympathomimetics, such as ephedrine, may reduce the antihypertensive effects produced by angiotensin-converting enzyme inhibitors. Blood pressure and heart rates should be monitored closely to confirm that the desired antihypertensive effect is achieved. (Major) The cardiovascular effects of sympathomimetics, such as ephedrine, may reduce the antihypertensive effects produced by calcium-channel blockers. Blood pressure and heart rates should be monitored closely to confirm that the desired antihypertensive effect is achieved.
amLODIPine; Celecoxib: (Major) The cardiovascular effects of sympathomimetics, such as ephedrine, may reduce the antihypertensive effects produced by calcium-channel blockers. Blood pressure and heart rates should be monitored closely to confirm that the desired antihypertensive effect is achieved.
amLODIPine; Olmesartan: (Major) The cardiovascular effects of sympathomimetics, such as ephedrine, may reduce the antihypertensive effects produced by calcium-channel blockers. Blood pressure and heart rates should be monitored closely to confirm that the desired antihypertensive effect is achieved. (Moderate) The cardiovascular effects of sympathomimetics, such as ephedrine, may reduce the antihypertensive effects produced by angiotensin II receptor antagonists. Blood pressure and heart rates should be monitored closely to confirm that the desired antihypertensive effect is achieved.

amLODIPine; Valsartan: (Major) The cardiovascular effects of sympathomimetics, such as ephedrine, may reduce the antihypertensive effects produced by calcium-channel blockers. Blood pressure and heart rates should be monitored closely to confirm that the desired antihypertensive effect is achieved. (Moderate) The cardiovascular effects of sympathomimetics, such as ephedrine, may reduce the antihypertensive effects produced by angiotensin II receptor antagonists. Blood pressure and heart rates should be monitored closely to confirm that the desired antihypertensive effect is achieved.
amLODIPine; Valsartan; hydroCHLOROthiazide, HCTZ: (Major) The cardiovascular effects of sympathomimetics, such as ephedrine, may reduce the antihypertensive effects produced by calcium-channel blockers. Blood pressure and heart rates should be monitored closely to confirm that the desired antihypertensive effect is achieved. (Major) The cardiovascular effects of sympathomimetics, such as ephedrine, may reduce the antihypertensive effects produced by thiazide diuretics. Blood pressure and heart rates should be monitored closely to confirm that the desired antihypertensive effect is achieved. (Moderate) The cardiovascular effects of sympathomimetics, such as ephedrine, may reduce the antihypertensive effects produced by angiotensin II receptor antagonists. Blood pressure and heart rates should be monitored closely to confirm that the desired antihypertensive effect is achieved.
Amoxapine: (Major) Concomitant use of amoxapine with sympathomimetics should be avoided whenever possible; use with caution when concurrent use cannot be avoided. One drug information reference suggests that cyclic antidepressants potentiate the pharmacologic effects of direct-acting sympathomimetics, but decrease the pressor response to indirect-acting sympathomimetics, however, the data are not consistent.
Angiotensin II receptor antagonists: (Moderate) The cardiovascular effects of sympathomimetics, such as ephedrine, may reduce the antihypertensive effects produced by angiotensin II receptor antagonists. Blood pressure and heart rates should be monitored closely to confirm that the desired antihypertensive effect is achieved.
Angiotensin-converting enzyme inhibitors: (Major) The cardiovascular effects of sympathomimetics, such as ephedrine, may reduce the antihypertensive effects produced by angiotensin-converting enzyme inhibitors. Blood pressure and heart rates should be monitored closely to confirm that the desired antihypertensive effect is achieved.
Arformoterol: (Moderate) Caution and close observation should be used when arformoterol is used concurrently with other adrenergic sympathomimetics, administered by any route, to avoid potential for increased cardiovascular effects.
Aspirin, ASA; Butalbital; Caffeine: (Moderate) Caffeine is a CNS-stimulant and such actions are expected to be additive when coadministered with other CNS stimulants or psychostimulants like ephedrine. Adverse effects such as nervousness, irritability, insomnia, and/or cardiac arrhythmias are also possible when excessive dosages of caffeine are taken concurrently with ephedrine. Patients may also need to limit their

intake of caffeine-containing beverages or foods (e.g., coffee, green tea, other teas, guarana, colas, or chocolate) to avoid caffeine-like side effects.
Aspirin, ASA; Caffeine: (Moderate) Caffeine is a CNS-stimulant and such actions are expected to be additive when coadministered with other CNS stimulants or psychostimulants like ephedrine. Adverse effects such as nervousness, irritability, insomnia, and/or cardiac arrhythmias are also possible when excessive dosages of caffeine are taken concurrently with ephedrine. Patients may also need to limit their intake of caffeine-containing beverages or foods (e.g., coffee, green tea, other teas, guarana, colas, or chocolate) to avoid caffeine-like side effects.
Aspirin, ASA; Caffeine; Orphenadrine: (Moderate) Caffeine is a CNS-stimulant and such actions are expected to be additive when coadministered with other CNS stimulants or psychostimulants like ephedrine. Adverse effects such as nervousness, irritability, insomnia, and/or cardiac arrhythmias are also possible when excessive dosages of caffeine are taken concurrently with ephedrine. Patients may also need to limit their intake of caffeine-containing beverages or foods (e.g., coffee, green tea, other teas, guarana, colas, or chocolate) to avoid caffeine-like side effects.
Aspirin, ASA; Citric Acid; Sodium Bicarbonate: (Moderate) Sodium bicarbonate-induced urinary alkalization can increase the half-life of ephedrine.
Atenolol: (Moderate) Monitor hemodynamic parameters and for loss of efficacy during concomitant sympathomimetic agent and beta-blocker use; dosage adjustments may be necessary. Concomitant use may antagonize the cardiovascular effects of either drug.
Atenolol; Chlorthalidone: (Major) The cardiovascular effects of sympathomimetics, such as ephedrine, may reduce the antihypertensive effects produced by thiazide diuretics. Blood pressure and heart rates should be monitored closely to confirm that the desired antihypertensive effect is achieved. (Moderate) Monitor hemodynamic parameters and for loss of efficacy during concomitant sympathomimetic agent and beta-blocker use; dosage adjustments may be necessary. Concomitant use may antagonize the cardiovascular effects of either drug.
Atomoxetine: (Major) Due to the potential for increases in blood pressure and heart rate, atomoxetine should be used cautiously with drugs with significant vasopressor effects like ephedrine. Consider monitoring the patient's blood pressure and heart rate at baseline and regularly if vasopressors are coadministered with atomoxetine.
Atropine: (Moderate) Carefully monitor blood pressure in patients who have received both ephedrine and atropine; atropine augments the pressor effect of ephedrine.
Atropine; Difenoxin: (Moderate) Carefully monitor blood pressure in patients who have received both ephedrine and atropine; atropine augments the pressor effect of ephedrine.
Azelastine; Fluticasone: (Moderate) Ephedrine may enhance the metabolic clearance of corticosteroids. Decreased blood concentrations and lessened physiologic activity may necessitate an increase in corticosteroid dosage.

Azilsartan: (Moderate) The cardiovascular effects of sympathomimetics, such as ephedrine, may reduce the antihypertensive effects produced by angiotensin II receptor antagonists. Blood pressure and heart rates should be monitored closely to confirm that the desired antihypertensive effect is achieved.
Azilsartan; Chlorthalidone: (Major) The cardiovascular effects of sympathomimetics, such as ephedrine, may reduce the antihypertensive effects produced by thiazide diuretics. Blood pressure and heart rates should be monitored closely to confirm that the desired antihypertensive effect is achieved. (Moderate) The cardiovascular effects of sympathomimetics, such as ephedrine, may reduce the antihypertensive effects produced by angiotensin II receptor antagonists. Blood pressure and heart rates should be monitored closely to confirm that the desired antihypertensive effect is achieved.
Beclomethasone: (Moderate) Ephedrine may enhance the metabolic clearance of corticosteroids. Decreased blood concentrations and lessened physiologic activity may necessitate an increase in corticosteroid dosage.
Benazepril: (Major) The cardiovascular effects of sympathomimetics, such as ephedrine, may reduce the antihypertensive effects produced by angiotensin-converting enzyme inhibitors. Blood pressure and heart rates should be monitored closely to confirm that the desired antihypertensive effect is achieved.
Benazepril; hydroCHLOROthiazide, HCTZ: (Major) The cardiovascular effects of sympathomimetics, such as ephedrine, may reduce the antihypertensive effects produced by angiotensin-converting enzyme inhibitors. Blood pressure and heart rates should be monitored closely to confirm that the desired antihypertensive effect is achieved. (Major) The cardiovascular effects of sympathomimetics, such as ephedrine, may reduce the antihypertensive effects produced by thiazide diuretics. Blood pressure and heart rates should be monitored closely to confirm that the desired antihypertensive effect is achieved.
Beta-blockers: (Moderate) Monitor hemodynamic parameters and for loss of efficacy during concomitant sympathomimetic agent and beta-blocker use; dosage adjustments may be necessary. Concomitant use may antagonize the cardiovascular effects of either drug.
Betamethasone: (Moderate) Ephedrine may enhance the metabolic clearance of corticosteroids. Decreased blood concentrations and lessened physiologic activity may necessitate an increase in corticosteroid dosage.
Betaxolol: (Moderate) Monitor hemodynamic parameters and for loss of efficacy during concomitant sympathomimetic agent and beta-blocker use; dosage adjustments may be necessary. Concomitant use may antagonize the cardiovascular effects of either drug.
Bethanechol: (Moderate) Bethanechol offsets the effects of sympathomimetics at sites where sympathomimetic and cholinergic receptors have opposite effects.
Bexagliflozin: (Moderate) Sympathomimetic agents tend to increase blood glucose concentrations when administered systemically. Monitor for loss of glycemic control

when sympathomimetics are administered to patients taking SGLT2 inhibitors. Sympathomimetics, through stimulation of alpha- and beta- receptors, increase hepatic glucose production and glycogenolysis and inhibit insulin secretion. Also, adrenergic medications may decrease glucose uptake by muscle cells. For treatment of cold symptoms, nasal decongestants may be preferable for short term, limited use (1 to 3 days) as an alternative to systemic decongestants in patients taking medications for diabetes.
Bisoprolol: (Moderate) Monitor hemodynamic parameters and for loss of efficacy during concomitant sympathomimetic agent and beta-blocker use; dosage adjustments may be necessary. Concomitant use may antagonize the cardiovascular effects of either drug.
Bisoprolol; hydroCHLOROthiazide, HCTZ: (Major) The cardiovascular effects of sympathomimetics, such as ephedrine, may reduce the antihypertensive effects produced by thiazide diuretics. Blood pressure and heart rates should be monitored closely to confirm that the desired antihypertensive effect is achieved. (Moderate) Monitor hemodynamic parameters and for loss of efficacy during concomitant sympathomimetic agent and beta-blocker use; dosage adjustments may be necessary. Concomitant use may antagonize the cardiovascular effects of either drug.
Bretylium: (Moderate) Monitor blood pressure and heart rate closely when sympathomimetics are administered with bretylium. The pressor and arrhythmogenic effects of catecholamines are enhanced by bretylium.
Brimonidine; Timolol: (Moderate) Monitor hemodynamic parameters and for loss of efficacy during concomitant sympathomimetic agent and beta-blocker use; dosage adjustments may be necessary. Concomitant use may antagonize the cardiovascular effects of either drug.
Bromocriptine: (Moderate) One case report documented worsening headache, hypertension, premature ventricular complexes, and ventricular tachycardia in a post-partum patient receiving bromocriptine for lactation suppression who was subsequently prescribed acetaminophen; dichloralphenazone; isometheptene for a headache. A second case involved a post-partum patient receiving bromocriptine who was later prescribed phenylpropanolamine; guaifenesin and subsequently developed hypertension, tachycardia, seizures, sudden loss of vision, and cerebral vasospasm. Also, ergot alkaloids, which are chemically related to bromocriptine, should not be administered with other vasoconstrictors. Therefore, until more data become available, concurrent use of bromocriptine and some sympathomimetics such as vasopressors (e.g., norepinephrine, dopamine), cocaine, epinephrine, phenylpropanolamine, ephedra, ma huang, pseudoephedrine, amphetamines, and phentermine should be approached with caution.
Brompheniramine; Pseudoephedrine: (Major) Pseudoephedrine can potentiate the effects and increase the toxicity of other sympathomimetics by adding to their sympathomimetic activity. Although no data are available, pseudoephedrine should be

used cautiously in patients using significant quantities of other sympathomimetics.
Brompheniramine; Pseudoephedrine; Dextromethorphan: (Major) Pseudoephedrine can potentiate the effects and increase the toxicity of other sympathomimetics by adding to their sympathomimetic activity. Although no data are available, pseudoephedrine should be used cautiously in patients using significant quantities of other sympathomimetics.
Budesonide: (Moderate) Ephedrine may enhance the metabolic clearance of corticosteroids. Decreased blood concentrations and lessened physiologic activity may necessitate an increase in corticosteroid dosage.
Budesonide; Formoterol: (Moderate) Caution and close observation should be used when formoterol is used concurrently with other adrenergic sympathomimetics, administered by any route, to avoid potential for increased cardiovascular effects. (Moderate) Ephedrine may enhance the metabolic clearance of corticosteroids. Decreased blood concentrations and lessened physiologic activity may necessitate an increase in corticosteroid dosage.
Budesonide; Glycopyrrolate; Formoterol: (Moderate) Caution and close observation should be used when formoterol is used concurrently with other adrenergic sympathomimetics, administered by any route, to avoid potential for increased cardiovascular effects. (Moderate) Ephedrine may enhance the metabolic clearance of corticosteroids. Decreased blood concentrations and lessened physiologic activity may necessitate an increase in corticosteroid dosage.
Bumetanide: (Major) The cardiovascular effects of sympathomimetics, such as ephedrine, may reduce the antihypertensive effects produced by loop diuretics. Blood pressure and heart rates should be monitored closely to confirm that the desired antihypertensive effect is achieved.
Butalbital; Acetaminophen; Caffeine: (Moderate) Caffeine is a CNS-stimulant and such actions are expected to be additive when coadministered with other CNS stimulants or psychostimulants like ephedrine. Adverse effects such as nervousness, irritability, insomnia, and/or cardiac arrhythmias are also possible when excessive dosages of caffeine are taken concurrently with ephedrine. Patients may also need to limit their intake of caffeine-containing beverages or foods (e.g., coffee, green tea, other teas, guarana, colas, or chocolate) to avoid caffeine-like side effects.
Butalbital; Acetaminophen; Caffeine; Codeine: (Moderate) Caffeine is a CNS-stimulant and such actions are expected to be additive when coadministered with other CNS stimulants or psychostimulants like ephedrine. Adverse effects such as nervousness, irritability, insomnia, and/or cardiac arrhythmias are also possible when excessive dosages of caffeine are taken concurrently with ephedrine. Patients may also need to limit their intake of caffeine-containing beverages or foods (e.g., coffee, green tea, other teas, guarana, colas, or chocolate) to avoid caffeine-like side effects.
Butalbital; Aspirin; Caffeine; Codeine: (Moderate) Caffeine is a CNS-stimulant and such

actions are expected to be additive when coadministered with other CNS stimulants or psychostimulants like ephedrine. Adverse effects such as nervousness, irritability, insomnia, and/or cardiac arrhythmias are also possible when excessive dosages of caffeine are taken concurrently with ephedrine. Patients may also need to limit their intake of caffeine-containing beverages or foods (e.g., coffee, green tea, other teas, guarana, colas, or chocolate) to avoid caffeine-like side effects.
Caffeine: (Moderate) Caffeine is a CNS-stimulant and such actions are expected to be additive when coadministered with other CNS stimulants or psychostimulants like ephedrine. Adverse effects such as nervousness, irritability, insomnia, and/or cardiac arrhythmias are also possible when excessive dosages of caffeine are taken concurrently with ephedrine. Patients may also need to limit their intake of caffeine-containing beverages or foods (e.g., coffee, green tea, other teas, guarana, colas, or chocolate) to avoid caffeine-like side effects. (Moderate) Caffeine is a CNS-stimulant and such actions are expected to be additive when coadministered with other CNS stimulants or psychostimulants.
Caffeine; Sodium Benzoate: (Moderate) Caffeine is a CNS-stimulant and such actions are expected to be additive when coadministered with other CNS stimulants or psychostimulants like ephedrine. Adverse effects such as nervousness, irritability, insomnia, and/or cardiac arrhythmias are also possible when excessive dosages of caffeine are taken concurrently with ephedrine. Patients may also need to limit their intake of caffeine-containing beverages or foods (e.g., coffee, green tea, other teas, guarana, colas, or chocolate) to avoid caffeine-like side effects.
Calcium-channel blockers: (Major) The cardiovascular effects of sympathomimetics, such as ephedrine, may reduce the antihypertensive effects produced by calcium-channel blockers. Blood pressure and heart rates should be monitored closely to confirm that the desired antihypertensive effect is achieved.
Canagliflozin: (Moderate) Sympathomimetic agents tend to increase blood glucose concentrations when administered systemically. Monitor for loss of glycemic control when sympathomimetics are administered to patients taking SGLT2 inhibitors. Sympathomimetics, through stimulation of alpha- and beta- receptors, increase hepatic glucose production and glycogenolysis and inhibit insulin secretion. Also, adrenergic medications may decrease glucose uptake by muscle cells. For treatment of cold symptoms, nasal decongestants may be preferable for short term, limited use (1 to 3 days) as an alternative to systemic decongestants in patients taking medications for diabetes.
Canagliflozin; metFORMIN: (Moderate) Sympathomimetic agents and adrenergic agonists tend to increase blood glucose concentrations when administered systemically. Monitor for loss of glycemic control when pseudoephedrine, phenylephrine, and other sympathomimetics are administered to patients taking antidiabetic agents. Epinephrine and other sympathomimetics, through stimulation of alpha- and beta- receptors,

increase hepatic glucose production and glycogenolysis and inhibit insulin secretion. Also, adrenergic medications may decrease glucose uptake by muscle cells. For treatment of cold symptoms, nasal decongestants may be preferable for short term, limited use (1 to 3 days) as an alternative to systemic decongestants in patients taking medications for diabetes. (Moderate) Sympathomimetic agents tend to increase blood glucose concentrations when administered systemically. Monitor for loss of glycemic control when sympathomimetics are administered to patients taking SGLT2 inhibitors. Sympathomimetics, through stimulation of alpha- and beta- receptors, increase hepatic glucose production and glycogenolysis and inhibit insulin secretion. Also, adrenergic medications may decrease glucose uptake by muscle cells. For treatment of cold symptoms, nasal decongestants may be preferable for short term, limited use (1 to 3 days) as an alternative to systemic decongestants in patients taking medications for diabetes.

Candesartan: (Moderate) The cardiovascular effects of sympathomimetics, such as ephedrine, may reduce the antihypertensive effects produced by angiotensin II receptor antagonists. Blood pressure and heart rates should be monitored closely to confirm that the desired antihypertensive effect is achieved.

Candesartan; hydroCHLOROthiazide, HCTZ: (Major) The cardiovascular effects of sympathomimetics, such as ephedrine, may reduce the antihypertensive effects produced by thiazide diuretics. Blood pressure and heart rates should be monitored closely to confirm that the desired antihypertensive effect is achieved. (Moderate) The cardiovascular effects of sympathomimetics, such as ephedrine, may reduce the antihypertensive effects produced by angiotensin II receptor antagonists. Blood pressure and heart rates should be monitored closely to confirm that the desired antihypertensive effect is achieved.

Captopril: (Major) The cardiovascular effects of sympathomimetics, such as ephedrine, may reduce the antihypertensive effects produced by angiotensin-converting enzyme inhibitors. Blood pressure and heart rates should be monitored closely to confirm that the desired antihypertensive effect is achieved.

Captopril; hydroCHLOROthiazide, HCTZ: (Major) The cardiovascular effects of sympathomimetics, such as ephedrine, may reduce the antihypertensive effects produced by angiotensin-converting enzyme inhibitors. Blood pressure and heart rates should be monitored closely to confirm that the desired antihypertensive effect is achieved. (Major) The cardiovascular effects of sympathomimetics, such as ephedrine, may reduce the antihypertensive effects produced by thiazide diuretics. Blood pressure and heart rates should be monitored closely to confirm that the desired antihypertensive effect is achieved.

Carbidopa; Levodopa; Entacapone: (Major) Drugs known to be metabolized by catechol-O-methyltransferase, such as ephedrine or ephedra, ma huang should be administered cautiously in patients receiving entacapone. Concomitant use may result in increased

heart rates, possibly arrhythmias, and excessive changes in blood pressure.
Carbonic anhydrase inhibitors: (Major) Acetazolamide or methazolamide can decrease excretion and enhance the effects of ephedrine. Carbonic anhydrase inhibitors increase the alkalinity of the urine, thereby increasing the amount of nonionized ephedrine available for renal tubular reabsorption. If concurrent use cannot be avoided, monitor for the appearance of ephedrine-related toxicity.
Cardiac glycosides: (Moderate) Carefully monitor patients receiving cardiac glycosides and vasopressors concurrently due to the increased risk of arrhythmia.
Carteolol: (Moderate) Monitor hemodynamic parameters and for loss of efficacy during concomitant sympathomimetic agent and beta-blocker use; dosage adjustments may be necessary. Concomitant use may antagonize the cardiovascular effects of either drug.
Carvedilol: (Moderate) Monitor hemodynamic parameters and for loss of efficacy during concomitant sympathomimetic agent and beta-blocker use; dosage adjustments may be necessary. Concomitant use may antagonize the cardiovascular effects of either drug.
Cetirizine; Pseudoephedrine: (Major) Pseudoephedrine can potentiate the effects and increase the toxicity of other sympathomimetics by adding to their sympathomimetic activity. Although no data are available, pseudoephedrine should be used cautiously in patients using significant quantities of other sympathomimetics.
Chlophedianol; Dexchlorpheniramine; Pseudoephedrine: (Major) Pseudoephedrine can potentiate the effects and increase the toxicity of other sympathomimetics by adding to their sympathomimetic activity. Although no data are available, pseudoephedrine should be used cautiously in patients using significant quantities of other sympathomimetics.
chlordiazePOXIDE; Amitriptyline: (Major) Tricyclic antidepressants (TCAs) may markedly enhance the pressor response to certain sympathomimetic agents, such as ephedrine or ephedra. TCAs inhibit norepinephrine reuptake in adrenergic neurons, resulting in increased stimulation of adrenergic receptors. Clinically, the patient might experience hypertension, headache, tremor, palpitations, chest pain, or irregular heartbeat.
Chlorothiazide: (Major) The cardiovascular effects of sympathomimetics, such as ephedrine, may reduce the antihypertensive effects produced by thiazide diuretics. Blood pressure and heart rates should be monitored closely to confirm that the desired antihypertensive effect is achieved.
Chlorpheniramine; Dextromethorphan; Pseudoephedrine: (Major) Pseudoephedrine can potentiate the effects and increase the toxicity of other sympathomimetics by adding to their sympathomimetic activity. Although no data are available, pseudoephedrine should be used cautiously in patients using significant quantities of other sympathomimetics.
Chlorpheniramine; Ibuprofen; Pseudoephedrine: (Major) Pseudoephedrine can potentiate the effects and increase the toxicity of other sympathomimetics by adding to their sympathomimetic activity. Although no data are available, pseudoephedrine

should be used cautiously in patients using significant quantities of other sympathomimetics.
Chlorpheniramine; Pseudoephedrine: (Major) Pseudoephedrine can potentiate the effects and increase the toxicity of other sympathomimetics by adding to their sympathomimetic activity. Although no data are available, pseudoephedrine should be used cautiously in patients using significant quantities of other sympathomimetics.
chlorproMAZINE: (Major) Avoid use of ephedrine in patients receiving phenothiazines due to the risk of paradoxical vasodilation. Phenothiazines possess potent alpha-blocking properties, making the use of vasopressors with mixed alpha- and beta-agonist properties inappropriate. If a vasopressor is required, norepinephrine and phenylephrine are most appropriate.
Chlorthalidone: (Major) The cardiovascular effects of sympathomimetics, such as ephedrine, may reduce the antihypertensive effects produced by thiazide diuretics. Blood pressure and heart rates should be monitored closely to confirm that the desired antihypertensive effect is achieved.
Ciclesonide: (Moderate) Ephedrine may enhance the metabolic clearance of corticosteroids. Decreased blood concentrations and lessened physiologic activity may necessitate an increase in corticosteroid dosage.
Citric Acid; Potassium Citrate; Sodium Citrate: (Moderate) The renal elimination of ephedrine susceptible to changes in urinary pH. Potassium citrate is a urinary alkalinizing agent. Concomitant administration of ephedrine with urinary alkalinizers may increase the likelihood of adverse reactions.
Clevidipine: (Major) The cardiovascular effects of sympathomimetics, such as ephedrine, may reduce the antihypertensive effects produced by calcium-channel blockers. Blood pressure and heart rates should be monitored closely to confirm that the desired antihypertensive effect is achieved.
clomiPRAMINE: (Major) Tricyclic antidepressants (TCAs) may markedly enhance the pressor response to certain sympathomimetic agents, such as ephedrine or ephedra. TCAs inhibit norepinephrine reuptake in adrenergic neurons, resulting in increased stimulation of adrenergic receptors. Clinically, the patient might experience hypertension, headache, tremor, palpitations, chest pain, or irregular heartbeat.
cloNIDine: (Moderate) Carefully monitor blood pressure in patients who have received both ephedrine and clonidine; clonidine augments the pressor effect of ephedrine.
Cocaine: (Major) Avoid concomitant use of additional vasoconstrictor agents with cocaine. If unavoidable, prolonged vital sign and ECG monitoring may be required. Myocardial ischemia, myocardial infarction, and ventricular arrhythmias have been reported after concomitant administration of topical intranasal cocaine and vasoconstrictor agents during nasal and sinus surgery. The risk for nervousness, irritability, convulsions, and other cardiac arrhythmias may increase during coadministration.

Codeine; guaiFENesin; Pseudoephedrine: (Major) Pseudoephedrine can potentiate the effects and increase the toxicity of other sympathomimetics by adding to their sympathomimetic activity. Although no data are available, pseudoephedrine should be used cautiously in patients using significant quantities of other sympathomimetics.
Codeine; Phenylephrine; Promethazine: (Major) Avoid use of ephedrine in patients receiving phenothiazines due to the risk of paradoxical vasodilation. Phenothiazines possess potent alpha-blocking properties, making the use of vasopressors with mixed alpha- and beta-agonist properties inappropriate. If a vasopressor is required, norepinephrine and phenylephrine are most appropriate.
Codeine; Promethazine: (Major) Avoid use of ephedrine in patients receiving phenothiazines due to the risk of paradoxical vasodilation. Phenothiazines possess potent alpha-blocking properties, making the use of vasopressors with mixed alpha- and beta-agonist properties inappropriate. If a vasopressor is required, norepinephrine and phenylephrine are most appropriate.
Corticosteroids: (Moderate) Ephedrine may enhance the metabolic clearance of corticosteroids. Decreased blood concentrations and lessened physiologic activity may necessitate an increase in corticosteroid dosage.
Cortisone: (Moderate) Ephedrine may enhance the metabolic clearance of corticosteroids. Decreased blood concentrations and lessened physiologic activity may necessitate an increase in corticosteroid dosage.
Dapagliflozin: (Moderate) Sympathomimetic agents tend to increase blood glucose concentrations when administered systemically. Monitor for loss of glycemic control when sympathomimetics are administered to patients taking SGLT2 inhibitors. Sympathomimetics, through stimulation of alpha- and beta- receptors, increase hepatic glucose production and glycogenolysis and inhibit insulin secretion. Also, adrenergic medications may decrease glucose uptake by muscle cells. For treatment of cold symptoms, nasal decongestants may be preferable for short term, limited use (1 to 3 days) as an alternative to systemic decongestants in patients taking medications for diabetes.
Dapagliflozin; metFORMIN: (Moderate) Sympathomimetic agents and adrenergic agonists tend to increase blood glucose concentrations when administered systemically. Monitor for loss of glycemic control when pseudoephedrine, phenylephrine, and other sympathomimetics are administered to patients taking antidiabetic agents. Epinephrine and other sympathomimetics, through stimulation of alpha- and beta- receptors, increase hepatic glucose production and glycogenolysis and inhibit insulin secretion. Also, adrenergic medications may decrease glucose uptake by muscle cells. For treatment of cold symptoms, nasal decongestants may be preferable for short term, limited use (1 to 3 days) as an alternative to systemic decongestants in patients taking medications for diabetes. (Moderate) Sympathomimetic agents tend to increase blood glucose concentrations when administered systemically. Monitor for loss of glycemic

control when sympathomimetics are administered to patients taking SGLT2 inhibitors. Sympathomimetics, through stimulation of alpha- and beta- receptors, increase hepatic glucose production and glycogenolysis and inhibit insulin secretion. Also, adrenergic medications may decrease glucose uptake by muscle cells. For treatment of cold symptoms, nasal decongestants may be preferable for short term, limited use (1 to 3 days) as an alternative to systemic decongestants in patients taking medications for diabetes.
Dapagliflozin; sAXagliptin: (Moderate) Sympathomimetic agents tend to increase blood glucose concentrations when administered systemically. Monitor for loss of glycemic control when sympathomimetics are administered to patients taking dipeptidyl peptidase-4 (DPP-4) inhibitors. Sympathomimetics, through stimulation of alpha- and beta- receptors, increase hepatic glucose production and glycogenolysis and inhibit insulin secretion. Also, adrenergic medications may decrease glucose uptake by muscle cells. For treatment of cold symptoms, nasal decongestants may be preferable for short term, limited use (1 to 3 days) as an alternative to systemic decongestants in patients taking medications for diabetes. (Moderate) Sympathomimetic agents tend to increase blood glucose concentrations when administered systemically. Monitor for loss of glycemic control when sympathomimetics are administered to patients taking SGLT2 inhibitors. Sympathomimetics, through stimulation of alpha- and beta- receptors, increase hepatic glucose production and glycogenolysis and inhibit insulin secretion. Also, adrenergic medications may decrease glucose uptake by muscle cells. For treatment of cold symptoms, nasal decongestants may be preferable for short term, limited use (1 to 3 days) as an alternative to systemic decongestants in patients taking medications for diabetes.
Deflazacort: (Moderate) Ephedrine may enhance the metabolic clearance of corticosteroids. Decreased blood concentrations and lessened physiologic activity may necessitate an increase in corticosteroid dosage.
Desipramine: (Major) Tricyclic antidepressants (TCAs) may markedly enhance the pressor response to certain sympathomimetic agents, such as ephedrine or ephedra. TCAs inhibit norepinephrine reuptake in adrenergic neurons, resulting in increased stimulation of adrenergic receptors. Clinically, the patient might experience hypertension, headache, tremor, palpitations, chest pain, or irregular heartbeat.
Desloratadine; Pseudoephedrine: (Major) Pseudoephedrine can potentiate the effects and increase the toxicity of other sympathomimetics by adding to their sympathomimetic activity. Although no data are available, pseudoephedrine should be used cautiously in patients using significant quantities of other sympathomimetics.
dexAMETHasone: (Moderate) Ephedrine may enhance the metabolic clearance of corticosteroids. Decreased blood concentrations and lessened physiologic activity may necessitate an increase in corticosteroid dosage.
Dexbrompheniramine; Pseudoephedrine: (Major) Pseudoephedrine can potentiate the

effects and increase the toxicity of other sympathomimetics by adding to their sympathomimetic activity. Although no data are available, pseudoephedrine should be used cautiously in patients using significant quantities of other sympathomimetics.
Dexchlorpheniramine; Dextromethorphan; Pseudoephedrine: (Major) Pseudoephedrine can potentiate the effects and increase the toxicity of other sympathomimetics by adding to their sympathomimetic activity. Although no data are available, pseudoephedrine should be used cautiously in patients using significant quantities of other sympathomimetics.
Dexmethylphenidate: (Moderate) Methylphenidate derivatives can potentiate the actions of both exogenous (such as dopamine and epinephrine) and endogenous (such as norepinephrine) vasopressors. It is advisable to monitor cardiac function if these medications are coadministered. Vasopressors include medications such as epinephrine, dopamine, midodrine, and non-prescription medications such as pseudoephedrine and phenylephrine.
Dextromethorphan; guaiFENesin; Pseudoephedrine: (Major) Pseudoephedrine can potentiate the effects and increase the toxicity of other sympathomimetics by adding to their sympathomimetic activity. Although no data are available, pseudoephedrine should be used cautiously in patients using significant quantities of other sympathomimetics.
Dextromethorphan; quiNIDine: (Moderate) Carefully monitor blood pressure in patients who have received both ephedrine and quinidine; quinidine antagonizes the pressor effect of ephedrine.
Diazoxide: (Moderate) Use sympathomimetic agents with caution in patients receiving therapy for hypertension. Patients should be monitored to confirm that the desired antihypertensive effect is achieved. Sympathomimetics can increase blood pressure and heart rate, and antagonize the antihypertensive effects of vasodilators when administered concomitantly. Anginal pain may be induced when coronary insufficiency is present.
Diethylpropion: (Major) Diethylpropion has vasopressor effects. Coadministration with other vasopressors may have the potential for serious cardiac adverse effects such as hypertensive crisis and cardiac arrhythmias.
Digoxin: (Moderate) Carefully monitor patients receiving cardiac glycosides and vasopressors concurrently due to the increased risk of arrhythmia.
Dihydroergotamine: (Contraindicated) Concomitant use of ergotamine with vasopressors is contraindicated as due to the risk for a synergistic increase in blood pressure. Coadministration may also increase the risk for vasospasm which may lead to cerebral or peripheral ischemia.
dilTIAZem: (Major) The cardiovascular effects of sympathomimetics, such as ephedrine, may reduce the antihypertensive effects produced by calcium-channel blockers. Blood pressure and heart rates should be monitored closely to confirm that the desired

antihypertensive effect is achieved.
Dipeptidyl Peptidase-4 Inhibitors: (Moderate) Sympathomimetic agents tend to increase blood glucose concentrations when administered systemically. Monitor for loss of glycemic control when sympathomimetics are administered to patients taking dipeptidyl peptidase-4 (DPP-4) inhibitors. Sympathomimetics, through stimulation of alpha- and beta- receptors, increase hepatic glucose production and glycogenolysis and inhibit insulin secretion. Also, adrenergic medications may decrease glucose uptake by muscle cells. For treatment of cold symptoms, nasal decongestants may be preferable for short term, limited use (1 to 3 days) as an alternative to systemic decongestants in patients taking medications for diabetes.
Diphenoxylate; Atropine: (Moderate) Carefully monitor blood pressure in patients who have received both ephedrine and atropine; atropine augments the pressor effect of ephedrine.
DOPamine: (Moderate) Monitor blood pressure during concomitant use of dopamine and other vasopressors, such as ephedrine, due to the risk for severe hypertension.
Dorzolamide; Timolol: (Moderate) Monitor hemodynamic parameters and for loss of efficacy during concomitant sympathomimetic agent and beta-blocker use; dosage adjustments may be necessary. Concomitant use may antagonize the cardiovascular effects of either drug.
Doxazosin: (Moderate) Carefully monitor blood pressure in patients who have received both ephedrine and alpha-blockers; alpha-blockers antagonize the pressor effect of ephedrine.
Doxepin: (Major) Tricyclic antidepressants (TCAs) may markedly enhance the pressor response to certain sympathomimetic agents, such as ephedrine or ephedra. TCAs inhibit norepinephrine reuptake in adrenergic neurons, resulting in increased stimulation of adrenergic receptors. Clinically, the patient might experience hypertension, headache, tremor, palpitations, chest pain, or irregular heartbeat.
droNABinol: (Moderate) Concurrent use of dronabinol, THC with sympathomimetics may result in additive hypertension, tachycardia, and possibly cardiotoxicity. Dronabinol, THC has been associated with occasional hypotension, hypertension, syncope, and tachycardia. In a study of 7 adult males, combinations of IV cocaine and smoked marijuana, 1 g marijuana cigarette, 0 to 2.7% delta-9-THC, increased the heart rate above levels seen with either agent alone, with increases plateauing at 50 bpm.
Dulaglutide: (Moderate) Sympathomimetic agents tend to increase blood glucose concentrations when administered systemically. Monitor for loss of glycemic control when sympathomimetics are administered to patients taking incretin mimetics. Sympathomimetics, through stimulation of alpha- and beta- receptors, increase hepatic glucose production and glycogenolysis and inhibit insulin secretion. Also, adrenergic medications may decrease glucose uptake by muscle cells. For treatment of cold symptoms, nasal decongestants may be preferable for short term, limited use (1 to 3

days) as an alternative to systemic decongestants in patients taking medications for diabetes.
Empagliflozin: (Moderate) Sympathomimetic agents tend to increase blood glucose concentrations when administered systemically. Monitor for loss of glycemic control when sympathomimetics are administered to patients taking SGLT2 inhibitors. Sympathomimetics, through stimulation of alpha- and beta- receptors, increase hepatic glucose production and glycogenolysis and inhibit insulin secretion. Also, adrenergic medications may decrease glucose uptake by muscle cells. For treatment of cold symptoms, nasal decongestants may be preferable for short term, limited use (1 to 3 days) as an alternative to systemic decongestants in patients taking medications for diabetes.
Empagliflozin; Linagliptin: (Moderate) Sympathomimetic agents tend to increase blood glucose concentrations when administered systemically. Monitor for loss of glycemic control when sympathomimetics are administered to patients taking dipeptidyl peptidase-4 (DPP-4) inhibitors. Sympathomimetics, through stimulation of alpha- and beta- receptors, increase hepatic glucose production and glycogenolysis and inhibit insulin secretion. Also, adrenergic medications may decrease glucose uptake by muscle cells. For treatment of cold symptoms, nasal decongestants may be preferable for short term, limited use (1 to 3 days) as an alternative to systemic decongestants in patients taking medications for diabetes. (Moderate) Sympathomimetic agents tend to increase blood glucose concentrations when administered systemically. Monitor for loss of glycemic control when sympathomimetics are administered to patients taking SGLT2 inhibitors. Sympathomimetics, through stimulation of alpha- and beta- receptors, increase hepatic glucose production and glycogenolysis and inhibit insulin secretion. Also, adrenergic medications may decrease glucose uptake by muscle cells. For treatment of cold symptoms, nasal decongestants may be preferable for short term, limited use (1 to 3 days) as an alternative to systemic decongestants in patients taking medications for diabetes.
Empagliflozin; Linagliptin; metFORMIN: (Moderate) Sympathomimetic agents and adrenergic agonists tend to increase blood glucose concentrations when administered systemically. Monitor for loss of glycemic control when pseudoephedrine, phenylephrine, and other sympathomimetics are administered to patients taking antidiabetic agents. Epinephrine and other sympathomimetics, through stimulation of alpha- and beta- receptors, increase hepatic glucose production and glycogenolysis and inhibit insulin secretion. Also, adrenergic medications may decrease glucose uptake by muscle cells. For treatment of cold symptoms, nasal decongestants may be preferable for short term, limited use (1 to 3 days) as an alternative to systemic decongestants in patients taking medications for diabetes. (Moderate) Sympathomimetic agents tend to increase blood glucose concentrations when administered systemically. Monitor for loss of glycemic control when sympathomimetics are administered to patients taking

dipeptidyl peptidase-4 (DPP-4) inhibitors. Sympathomimetics, through stimulation of alpha- and beta- receptors, increase hepatic glucose production and glycogenolysis and inhibit insulin secretion. Also, adrenergic medications may decrease glucose uptake by muscle cells. For treatment of cold symptoms, nasal decongestants may be preferable for short term, limited use (1 to 3 days) as an alternative to systemic decongestants in patients taking medications for diabetes. (Moderate) Sympathomimetic agents tend to increase blood glucose concentrations when administered systemically. Monitor for loss of glycemic control when sympathomimetics are administered to patients taking SGLT2 inhibitors. Sympathomimetics, through stimulation of alpha- and beta- receptors, increase hepatic glucose production and glycogenolysis and inhibit insulin secretion. Also, adrenergic medications may decrease glucose uptake by muscle cells. For treatment of cold symptoms, nasal decongestants may be preferable for short term, limited use (1 to 3 days) as an alternative to systemic decongestants in patients taking medications for diabetes.

Empagliflozin; metFORMIN: (Moderate) Sympathomimetic agents and adrenergic agonists tend to increase blood glucose concentrations when administered systemically. Monitor for loss of glycemic control when pseudoephedrine, phenylephrine, and other sympathomimetics are administered to patients taking antidiabetic agents. Epinephrine and other sympathomimetics, through stimulation of alpha- and beta- receptors, increase hepatic glucose production and glycogenolysis and inhibit insulin secretion. Also, adrenergic medications may decrease glucose uptake by muscle cells. For treatment of cold symptoms, nasal decongestants may be preferable for short term, limited use (1 to 3 days) as an alternative to systemic decongestants in patients taking medications for diabetes. (Moderate) Sympathomimetic agents tend to increase blood glucose concentrations when administered systemically. Monitor for loss of glycemic control when sympathomimetics are administered to patients taking SGLT2 inhibitors. Sympathomimetics, through stimulation of alpha- and beta- receptors, increase hepatic glucose production and glycogenolysis and inhibit insulin secretion. Also, adrenergic medications may decrease glucose uptake by muscle cells. For treatment of cold symptoms, nasal decongestants may be preferable for short term, limited use (1 to 3 days) as an alternative to systemic decongestants in patients taking medications for diabetes.

Enalapril, Enalaprilat: (Major) The cardiovascular effects of sympathomimetics, such as ephedrine, may reduce the antihypertensive effects produced by angiotensin-converting enzyme inhibitors. Blood pressure and heart rates should be monitored closely to confirm that the desired antihypertensive effect is achieved.

Enalapril; hydroCHLOROthiazide, HCTZ: (Major) The cardiovascular effects of sympathomimetics, such as ephedrine, may reduce the antihypertensive effects produced by angiotensin-converting enzyme inhibitors. Blood pressure and heart rates should be monitored closely to confirm that the desired antihypertensive effect is

achieved. (Major) The cardiovascular effects of sympathomimetics, such as ephedrine, may reduce the antihypertensive effects produced by thiazide diuretics. Blood pressure and heart rates should be monitored closely to confirm that the desired antihypertensive effect is achieved.
Entacapone: (Major) Drugs known to be metabolized by catechol-O-methyltransferase, such as ephedrine or ephedra, ma huang should be administered cautiously in patients receiving entacapone. Concomitant use may result in increased heart rates, possibly arrhythmias, and excessive changes in blood pressure.
Eplerenone: (Major) The cardiovascular effects of sympathomimetics, such as ephedrine, may reduce the antihypertensive effects produced by eplerenone. Blood pressure and heart rates should be monitored closely to confirm that the desired antihypertensive effect is achieved.
Epoprostenol: (Major) Avoid use of sympathomimetic agents with epoprostenol. Sympathomimetics counteract the medications used to stabilize pulmonary hypertension, including epoprostenol. Sympathomimetics can increase blood pressure, increase heart rate, and may cause vasoconstriction resulting in chest pain and shortness of breath in these patients. Patients should be advised to avoid amphetamine drugs, decongestants (including nasal decongestants) and sympathomimetic anorexiants for weight loss, including dietary supplements. Intravenous vasopressors may be used in the emergency management of pulmonary hypertension patients when needed, but hemodynamic monitoring and careful monitoring of cardiac status are needed to avoid ischemia and other complications.
Ergotamine: (Contraindicated) Concomitant use of ergotamine with vasopressors is contraindicated as due to the risk for a synergistic increase in blood pressure. Coadministration may also increase the risk for vasospasm which may lead to cerebral or peripheral ischemia.
Ergotamine; Caffeine: (Contraindicated) Concomitant use of ergotamine with vasopressors is contraindicated as due to the risk for a synergistic increase in blood pressure. Coadministration may also increase the risk for vasospasm which may lead to cerebral or peripheral ischemia. (Moderate) Caffeine is a CNS-stimulant and such actions are expected to be additive when coadministered with other CNS stimulants or psychostimulants like ephedrine. Adverse effects such as nervousness, irritability, insomnia, and/or cardiac arrhythmias are also possible when excessive dosages of caffeine are taken concurrently with ephedrine. Patients may also need to limit their intake of caffeine-containing beverages or foods (e.g., coffee, green tea, other teas, guarana, colas, or chocolate) to avoid caffeine-like side effects.
Ertugliflozin: (Moderate) Sympathomimetic agents tend to increase blood glucose concentrations when administered systemically. Monitor for loss of glycemic control when sympathomimetics are administered to patients taking SGLT2 inhibitors. Sympathomimetics, through stimulation of alpha- and beta- receptors, increase hepatic

glucose production and glycogenolysis and inhibit insulin secretion. Also, adrenergic medications may decrease glucose uptake by muscle cells. For treatment of cold symptoms, nasal decongestants may be preferable for short term, limited use (1 to 3 days) as an alternative to systemic decongestants in patients taking medications for diabetes.
Ertugliflozin; metFORMIN: (Moderate) Sympathomimetic agents and adrenergic agonists tend to increase blood glucose concentrations when administered systemically. Monitor for loss of glycemic control when pseudoephedrine, phenylephrine, and other sympathomimetics are administered to patients taking antidiabetic agents. Epinephrine and other sympathomimetics, through stimulation of alpha- and beta- receptors, increase hepatic glucose production and glycogenolysis and inhibit insulin secretion. Also, adrenergic medications may decrease glucose uptake by muscle cells. For treatment of cold symptoms, nasal decongestants may be preferable for short term, limited use (1 to 3 days) as an alternative to systemic decongestants in patients taking medications for diabetes. (Moderate) Sympathomimetic agents tend to increase blood glucose concentrations when administered systemically. Monitor for loss of glycemic control when sympathomimetics are administered to patients taking SGLT2 inhibitors. Sympathomimetics, through stimulation of alpha- and beta- receptors, increase hepatic glucose production and glycogenolysis and inhibit insulin secretion. Also, adrenergic medications may decrease glucose uptake by muscle cells. For treatment of cold symptoms, nasal decongestants may be preferable for short term, limited use (1 to 3 days) as an alternative to systemic decongestants in patients taking medications for diabetes.
Ertugliflozin; SITagliptin: (Moderate) Sympathomimetic agents tend to increase blood glucose concentrations when administered systemically. Monitor for loss of glycemic control when sympathomimetics are administered to patients taking dipeptidyl peptidase-4 (DPP-4) inhibitors. Sympathomimetics, through stimulation of alpha- and beta- receptors, increase hepatic glucose production and glycogenolysis and inhibit insulin secretion. Also, adrenergic medications may decrease glucose uptake by muscle cells. For treatment of cold symptoms, nasal decongestants may be preferable for short term, limited use (1 to 3 days) as an alternative to systemic decongestants in patients taking medications for diabetes. (Moderate) Sympathomimetic agents tend to increase blood glucose concentrations when administered systemically. Monitor for loss of glycemic control when sympathomimetics are administered to patients taking SGLT2 inhibitors. Sympathomimetics, through stimulation of alpha- and beta- receptors, increase hepatic glucose production and glycogenolysis and inhibit insulin secretion. Also, adrenergic medications may decrease glucose uptake by muscle cells. For treatment of cold symptoms, nasal decongestants may be preferable for short term, limited use (1 to 3 days) as an alternative to systemic decongestants in patients taking medications for diabetes.

Esmolol: (Moderate) Monitor hemodynamic parameters and for loss of efficacy during concomitant sympathomimetic agent and beta-blocker use; dosage adjustments may be necessary. Concomitant use may antagonize the cardiovascular effects of either drug.
Ethacrynic Acid: (Major) The cardiovascular effects of sympathomimetics, such as ephedrine, may reduce the antihypertensive effects produced by loop diuretics. Blood pressure and heart rates should be monitored closely to confirm that the desired antihypertensive effect is achieved.
Ethiodized Oil: (Major) Do not administer non-ionic contrast media intra-arterially after the administration of vasopressors since they strongly potentiate neurologic effects.
Exenatide: (Moderate) Sympathomimetic agents tend to increase blood glucose concentrations when administered systemically. Monitor for loss of glycemic control when sympathomimetics are administered to patients taking incretin mimetics. Sympathomimetics, through stimulation of alpha- and beta- receptors, increase hepatic glucose production and glycogenolysis and inhibit insulin secretion. Also, adrenergic medications may decrease glucose uptake by muscle cells. For treatment of cold symptoms, nasal decongestants may be preferable for short term, limited use (1 to 3 days) as an alternative to systemic decongestants in patients taking medications for diabetes.
Felodipine: (Major) The cardiovascular effects of sympathomimetics, such as ephedrine, may reduce the antihypertensive effects produced by calcium-channel blockers. Blood pressure and heart rates should be monitored closely to confirm that the desired antihypertensive effect is achieved.
Fenoldopam: (Moderate) Use sympathomimetic agents with caution in patients receiving therapy for hypertension. Patients should be monitored to confirm that the desired antihypertensive effect is achieved. Sympathomimetics can increase blood pressure and heart rate, and antagonize the antihypertensive effects of vasodilators when administered concomitantly. Anginal pain may be induced when coronary insufficiency is present.
Fexofenadine; Pseudoephedrine: (Major) Pseudoephedrine can potentiate the effects and increase the toxicity of other sympathomimetics by adding to their sympathomimetic activity. Although no data are available, pseudoephedrine should be used cautiously in patients using significant quantities of other sympathomimetics.
Fludrocortisone: (Moderate) Ephedrine may enhance the metabolic clearance of corticosteroids. Decreased blood concentrations and lessened physiologic activity may necessitate an increase in corticosteroid dosage.
Flunisolide: (Moderate) Ephedrine may enhance the metabolic clearance of corticosteroids. Decreased blood concentrations and lessened physiologic activity may necessitate an increase in corticosteroid dosage.
fluPHENAZine: (Major) Avoid use of ephedrine in patients receiving phenothiazines due to the risk of paradoxical vasodilation. Phenothiazines possess potent alpha-blocking

properties, making the use of vasopressors with mixed alpha- and beta-agonist properties inappropriate. If a vasopressor is required, norepinephrine and phenylephrine are most appropriate.
Fluticasone: (Moderate) Ephedrine may enhance the metabolic clearance of corticosteroids. Decreased blood concentrations and lessened physiologic activity may necessitate an increase in corticosteroid dosage.
Fluticasone; Salmeterol: (Moderate) Caution and close observation should also be used when salmeterol is used concurrently with other adrenergic sympathomimetics, administered by any route, to avoid potential for increased cardiovascular effects. (Moderate) Ephedrine may enhance the metabolic clearance of corticosteroids. Decreased blood concentrations and lessened physiologic activity may necessitate an increase in corticosteroid dosage.
Fluticasone; Umeclidinium; Vilanterol: (Moderate) Administer sympathomimetics with caution with beta-agonists such as vilanterol. The cardiovascular effects of beta-2 agonists may be potentiated by concomitant use. Monitor the patient for tremors, nervousness, increased heart rate, or other additive side effects. (Moderate) Ephedrine may enhance the metabolic clearance of corticosteroids. Decreased blood concentrations and lessened physiologic activity may necessitate an increase in corticosteroid dosage.
Fluticasone; Vilanterol: (Moderate) Administer sympathomimetics with caution with beta-agonists such as vilanterol. The cardiovascular effects of beta-2 agonists may be potentiated by concomitant use. Monitor the patient for tremors, nervousness, increased heart rate, or other additive side effects. (Moderate) Ephedrine may enhance the metabolic clearance of corticosteroids. Decreased blood concentrations and lessened physiologic activity may necessitate an increase in corticosteroid dosage.
Formoterol: (Moderate) Caution and close observation should be used when formoterol is used concurrently with other adrenergic sympathomimetics, administered by any route, to avoid potential for increased cardiovascular effects.
Formoterol; Mometasone: (Moderate) Caution and close observation should be used when formoterol is used concurrently with other adrenergic sympathomimetics, administered by any route, to avoid potential for increased cardiovascular effects. (Moderate) Ephedrine may enhance the metabolic clearance of corticosteroids. Decreased blood concentrations and lessened physiologic activity may necessitate an increase in corticosteroid dosage.
Fosinopril: (Major) The cardiovascular effects of sympathomimetics, such as ephedrine, may reduce the antihypertensive effects produced by angiotensin-converting enzyme inhibitors. Blood pressure and heart rates should be monitored closely to confirm that the desired antihypertensive effect is achieved.
Fosinopril; hydroCHLOROthiazide, HCTZ: (Major) The cardiovascular effects of sympathomimetics, such as ephedrine, may reduce the antihypertensive effects

produced by angiotensin-converting enzyme inhibitors. Blood pressure and heart rates should be monitored closely to confirm that the desired antihypertensive effect is achieved. (Major) The cardiovascular effects of sympathomimetics, such as ephedrine, may reduce the antihypertensive effects produced by thiazide diuretics. Blood pressure and heart rates should be monitored closely to confirm that the desired antihypertensive effect is achieved.
Furosemide: (Major) The cardiovascular effects of sympathomimetics, such as ephedrine, may reduce the antihypertensive effects produced by loop diuretics. Blood pressure and heart rates should be monitored closely to confirm that the desired antihypertensive effect is achieved.
Glimepiride: (Moderate) Sympathomimetic agents tend to increase blood glucose concentrations when administered systemically. Monitor for loss of glycemic control when sympathomimetics are administered to patients taking sulfonylureas. Sympathomimetics, through stimulation of alpha- and beta- receptors, increase hepatic glucose production and glycogenolysis and inhibit insulin secretion. Also, adrenergic medications may decrease glucose uptake by muscle cells. For treatment of cold symptoms, nasal decongestants may be preferable for short term, limited use (1 to 3 days) as an alternative to systemic decongestants in patients taking medications for diabetes.
glipiZIDE: (Moderate) Sympathomimetic agents tend to increase blood glucose concentrations when administered systemically. Monitor for loss of glycemic control when sympathomimetics are administered to patients taking sulfonylureas. Sympathomimetics, through stimulation of alpha- and beta- receptors, increase hepatic glucose production and glycogenolysis and inhibit insulin secretion. Also, adrenergic medications may decrease glucose uptake by muscle cells. For treatment of cold symptoms, nasal decongestants may be preferable for short term, limited use (1 to 3 days) as an alternative to systemic decongestants in patients taking medications for diabetes.
glipiZIDE; metFORMIN: (Moderate) Sympathomimetic agents and adrenergic agonists tend to increase blood glucose concentrations when administered systemically. Monitor for loss of glycemic control when pseudoephedrine, phenylephrine, and other sympathomimetics are administered to patients taking antidiabetic agents. Epinephrine and other sympathomimetics, through stimulation of alpha- and beta- receptors, increase hepatic glucose production and glycogenolysis and inhibit insulin secretion. Also, adrenergic medications may decrease glucose uptake by muscle cells. For treatment of cold symptoms, nasal decongestants may be preferable for short term, limited use (1 to 3 days) as an alternative to systemic decongestants in patients taking medications for diabetes. (Moderate) Sympathomimetic agents tend to increase blood glucose concentrations when administered systemically. Monitor for loss of glycemic control when sympathomimetics are administered to patients taking sulfonylureas.

Sympathomimetics, through stimulation of alpha- and beta- receptors, increase hepatic glucose production and glycogenolysis and inhibit insulin secretion. Also, adrenergic medications may decrease glucose uptake by muscle cells. For treatment of cold symptoms, nasal decongestants may be preferable for short term, limited use (1 to 3 days) as an alternative to systemic decongestants in patients taking medications for diabetes.
glyBURIDE: (Moderate) Sympathomimetic agents tend to increase blood glucose concentrations when administered systemically. Monitor for loss of glycemic control when sympathomimetics are administered to patients taking sulfonylureas. Sympathomimetics, through stimulation of alpha- and beta- receptors, increase hepatic glucose production and glycogenolysis and inhibit insulin secretion. Also, adrenergic medications may decrease glucose uptake by muscle cells. For treatment of cold symptoms, nasal decongestants may be preferable for short term, limited use (1 to 3 days) as an alternative to systemic decongestants in patients taking medications for diabetes.
glyBURIDE; metFORMIN: (Moderate) Sympathomimetic agents and adrenergic agonists tend to increase blood glucose concentrations when administered systemically. Monitor for loss of glycemic control when pseudoephedrine, phenylephrine, and other sympathomimetics are administered to patients taking antidiabetic agents. Epinephrine and other sympathomimetics, through stimulation of alpha- and beta- receptors, increase hepatic glucose production and glycogenolysis and inhibit insulin secretion. Also, adrenergic medications may decrease glucose uptake by muscle cells. For treatment of cold symptoms, nasal decongestants may be preferable for short term, limited use (1 to 3 days) as an alternative to systemic decongestants in patients taking medications for diabetes. (Moderate) Sympathomimetic agents tend to increase blood glucose concentrations when administered systemically. Monitor for loss of glycemic control when sympathomimetics are administered to patients taking sulfonylureas. Sympathomimetics, through stimulation of alpha- and beta- receptors, increase hepatic glucose production and glycogenolysis and inhibit insulin secretion. Also, adrenergic medications may decrease glucose uptake by muscle cells. For treatment of cold symptoms, nasal decongestants may be preferable for short term, limited use (1 to 3 days) as an alternative to systemic decongestants in patients taking medications for diabetes.
Glycopyrrolate; Formoterol: (Moderate) Caution and close observation should be used when formoterol is used concurrently with other adrenergic sympathomimetics, administered by any route, to avoid potential for increased cardiovascular effects.
guaiFENesin; Pseudoephedrine: (Major) Pseudoephedrine can potentiate the effects and increase the toxicity of other sympathomimetics by adding to their sympathomimetic activity. Although no data are available, pseudoephedrine should be used cautiously in patients using significant quantities of other sympathomimetics.

hydrALAZINE: (Moderate) Use sympathomimetic agents with caution in patients receiving therapy for hypertension. Patients should be monitored to confirm that the desired antihypertensive effect is achieved. Sympathomimetics can increase blood pressure and heart rate, and antagonize the antihypertensive effects of vasodilators when administered concomitantly. Anginal pain may be induced when coronary insufficiency is present.
hydrALAZINE; Isosorbide Dinitrate, ISDN: (Moderate) Sympathomimetics can antagonize the antianginal effects of nitrates, and can increase blood pressure and/or heart rate. Anginal pain may be induced when coronary insufficiency is present. (Moderate) Use sympathomimetic agents with caution in patients receiving therapy for hypertension. Patients should be monitored to confirm that the desired antihypertensive effect is achieved. Sympathomimetics can increase blood pressure and heart rate, and antagonize the antihypertensive effects of vasodilators when administered concomitantly. Anginal pain may be induced when coronary insufficiency is present.
hydroCHLOROthiazide, HCTZ: (Major) The cardiovascular effects of sympathomimetics, such as ephedrine, may reduce the antihypertensive effects produced by thiazide diuretics. Blood pressure and heart rates should be monitored closely to confirm that the desired antihypertensive effect is achieved.
hydroCHLOROthiazide, HCTZ; Moexipril: (Major) The cardiovascular effects of sympathomimetics, such as ephedrine, may reduce the antihypertensive effects produced by angiotensin-converting enzyme inhibitors. Blood pressure and heart rates should be monitored closely to confirm that the desired antihypertensive effect is achieved. (Major) The cardiovascular effects of sympathomimetics, such as ephedrine, may reduce the antihypertensive effects produced by thiazide diuretics. Blood pressure and heart rates should be monitored closely to confirm that the desired antihypertensive effect is achieved.
Hydrocortisone: (Moderate) Ephedrine may enhance the metabolic clearance of corticosteroids. Decreased blood concentrations and lessened physiologic activity may necessitate an increase in corticosteroid dosage.
Ibuprofen; Pseudoephedrine: (Major) Pseudoephedrine can potentiate the effects and increase the toxicity of other sympathomimetics by adding to their sympathomimetic activity. Although no data are available, pseudoephedrine should be used cautiously in patients using significant quantities of other sympathomimetics.
Iloprost: (Major) Avoid use of sympathomimetic agents with iloprost. Sympathomimetics counteract the medications used to stabilize pulmonary hypertension, including iloprost. Sympathomimetics can increase blood pressure, increase heart rate, and may cause vasoconstriction resulting in chest pain and shortness of breath in these patients. Patients should be advised to avoid amphetamine drugs, decongestants (including nasal decongestants) and sympathomimetic anorexiants for weight loss, including dietary supplements. Intravenous vasopressors may be used in the emergency management of

pulmonary hypertension patients when needed, but hemodynamic monitoring and careful monitoring of cardiac status are needed to avoid ischemia and other complications.
Imipramine: (Major) Tricyclic antidepressants (TCAs) may markedly enhance the pressor response to certain sympathomimetic agents, such as ephedrine or ephedra. TCAs inhibit norepinephrine reuptake in adrenergic neurons, resulting in increased stimulation of adrenergic receptors. Clinically, the patient might experience hypertension, headache, tremor, palpitations, chest pain, or irregular heartbeat.
Incretin Mimetics: (Moderate) Sympathomimetic agents tend to increase blood glucose concentrations when administered systemically. Monitor for loss of glycemic control when sympathomimetics are administered to patients taking incretin mimetics. Sympathomimetics, through stimulation of alpha- and beta- receptors, increase hepatic glucose production and glycogenolysis and inhibit insulin secretion. Also, adrenergic medications may decrease glucose uptake by muscle cells. For treatment of cold symptoms, nasal decongestants may be preferable for short term, limited use (1 to 3 days) as an alternative to systemic decongestants in patients taking medications for diabetes.
Indacaterol; Glycopyrrolate: (Moderate) Administer sympathomimetics with caution with beta-agonists such as indacaterol. The cardiovascular effects of beta-2 agonists may be potentiated by concomitant use. Monitor the patient for tremors, nervousness, increased heart rate, or other additive side effects.
Indapamide: (Major) Sympathomimetics can antagonize the antihypertensive effects of vasodilators when administered concomitantly. Patients should be monitored to confirm that the desired antihypertensive effect is achieved.
Insulin Aspart: (Moderate) Sympathomimetic agents tend to increase blood glucose concentrations when administered systemically. Monitor for loss of glycemic control when sympathomimetics are administered to patients taking insulin. Sympathomimetics, through stimulation of alpha- and beta- receptors, increase hepatic glucose production and glycogenolysis and inhibit insulin secretion. Also, adrenergic medications may decrease glucose uptake by muscle cells. For treatment of cold symptoms, nasal decongestants may be preferable for short term, limited use (1 to 3 days) as an alternative to systemic decongestants in patients taking medications for diabetes.
Insulin Aspart; Insulin Aspart Protamine: (Moderate) Sympathomimetic agents tend to increase blood glucose concentrations when administered systemically. Monitor for loss of glycemic control when sympathomimetics are administered to patients taking insulin. Sympathomimetics, through stimulation of alpha- and beta- receptors, increase hepatic glucose production and glycogenolysis and inhibit insulin secretion. Also, adrenergic medications may decrease glucose uptake by muscle cells. For treatment of cold symptoms, nasal decongestants may be preferable for short term, limited use (1 to 3

days) as an alternative to systemic decongestants in patients taking medications for diabetes.
Insulin Degludec: (Moderate) Sympathomimetic agents tend to increase blood glucose concentrations when administered systemically. Monitor for loss of glycemic control when sympathomimetics are administered to patients taking insulin. Sympathomimetics, through stimulation of alpha- and beta- receptors, increase hepatic glucose production and glycogenolysis and inhibit insulin secretion. Also, adrenergic medications may decrease glucose uptake by muscle cells. For treatment of cold symptoms, nasal decongestants may be preferable for short term, limited use (1 to 3 days) as an alternative to systemic decongestants in patients taking medications for diabetes.
Insulin Degludec; Liraglutide: (Moderate) Sympathomimetic agents tend to increase blood glucose concentrations when administered systemically. Monitor for loss of glycemic control when sympathomimetics are administered to patients taking incretin mimetics. Sympathomimetics, through stimulation of alpha- and beta- receptors, increase hepatic glucose production and glycogenolysis and inhibit insulin secretion. Also, adrenergic medications may decrease glucose uptake by muscle cells. For treatment of cold symptoms, nasal decongestants may be preferable for short term, limited use (1 to 3 days) as an alternative to systemic decongestants in patients taking medications for diabetes. (Moderate) Sympathomimetic agents tend to increase blood glucose concentrations when administered systemically. Monitor for loss of glycemic control when sympathomimetics are administered to patients taking insulin. Sympathomimetics, through stimulation of alpha- and beta- receptors, increase hepatic glucose production and glycogenolysis and inhibit insulin secretion. Also, adrenergic medications may decrease glucose uptake by muscle cells. For treatment of cold symptoms, nasal decongestants may be preferable for short term, limited use (1 to 3 days) as an alternative to systemic decongestants in patients taking medications for diabetes.
Insulin Detemir: (Moderate) Sympathomimetic agents tend to increase blood glucose concentrations when administered systemically. Monitor for loss of glycemic control when sympathomimetics are administered to patients taking insulin. Sympathomimetics, through stimulation of alpha- and beta- receptors, increase hepatic glucose production and glycogenolysis and inhibit insulin secretion. Also, adrenergic medications may decrease glucose uptake by muscle cells. For treatment of cold symptoms, nasal decongestants may be preferable for short term, limited use (1 to 3 days) as an alternative to systemic decongestants in patients taking medications for diabetes.
Insulin Glargine: (Moderate) Sympathomimetic agents tend to increase blood glucose concentrations when administered systemically. Monitor for loss of glycemic control when sympathomimetics are administered to patients taking insulin.

Sympathomimetics, through stimulation of alpha- and beta- receptors, increase hepatic glucose production and glycogenolysis and inhibit insulin secretion. Also, adrenergic medications may decrease glucose uptake by muscle cells. For treatment of cold symptoms, nasal decongestants may be preferable for short term, limited use (1 to 3 days) as an alternative to systemic decongestants in patients taking medications for diabetes.
Insulin Glargine; Lixisenatide: (Moderate) Sympathomimetic agents tend to increase blood glucose concentrations when administered systemically. Monitor for loss of glycemic control when sympathomimetics are administered to patients taking incretin mimetics. Sympathomimetics, through stimulation of alpha- and beta- receptors, increase hepatic glucose production and glycogenolysis and inhibit insulin secretion. Also, adrenergic medications may decrease glucose uptake by muscle cells. For treatment of cold symptoms, nasal decongestants may be preferable for short term, limited use (1 to 3 days) as an alternative to systemic decongestants in patients taking medications for diabetes. (Moderate) Sympathomimetic agents tend to increase blood glucose concentrations when administered systemically. Monitor for loss of glycemic control when sympathomimetics are administered to patients taking insulin. Sympathomimetics, through stimulation of alpha- and beta- receptors, increase hepatic glucose production and glycogenolysis and inhibit insulin secretion. Also, adrenergic medications may decrease glucose uptake by muscle cells. For treatment of cold symptoms, nasal decongestants may be preferable for short term, limited use (1 to 3 days) as an alternative to systemic decongestants in patients taking medications for diabetes.
Insulin Glulisine: (Moderate) Sympathomimetic agents tend to increase blood glucose concentrations when administered systemically. Monitor for loss of glycemic control when sympathomimetics are administered to patients taking insulin. Sympathomimetics, through stimulation of alpha- and beta- receptors, increase hepatic glucose production and glycogenolysis and inhibit insulin secretion. Also, adrenergic medications may decrease glucose uptake by muscle cells. For treatment of cold symptoms, nasal decongestants may be preferable for short term, limited use (1 to 3 days) as an alternative to systemic decongestants in patients taking medications for diabetes.
Insulin Lispro: (Moderate) Sympathomimetic agents tend to increase blood glucose concentrations when administered systemically. Monitor for loss of glycemic control when sympathomimetics are administered to patients taking insulin. Sympathomimetics, through stimulation of alpha- and beta- receptors, increase hepatic glucose production and glycogenolysis and inhibit insulin secretion. Also, adrenergic medications may decrease glucose uptake by muscle cells. For treatment of cold symptoms, nasal decongestants may be preferable for short term, limited use (1 to 3 days) as an alternative to systemic decongestants in patients taking medications for

diabetes.
Insulin Lispro; Insulin Lispro Protamine: (Moderate) Sympathomimetic agents tend to increase blood glucose concentrations when administered systemically. Monitor for loss of glycemic control when sympathomimetics are administered to patients taking insulin. Sympathomimetics, through stimulation of alpha- and beta- receptors, increase hepatic glucose production and glycogenolysis and inhibit insulin secretion. Also, adrenergic medications may decrease glucose uptake by muscle cells. For treatment of cold symptoms, nasal decongestants may be preferable for short term, limited use (1 to 3 days) as an alternative to systemic decongestants in patients taking medications for diabetes.
Insulin, Inhaled: (Moderate) Sympathomimetic agents tend to increase blood glucose concentrations when administered systemically. Monitor for loss of glycemic control when sympathomimetics are administered to patients taking insulin. Sympathomimetics, through stimulation of alpha- and beta- receptors, increase hepatic glucose production and glycogenolysis and inhibit insulin secretion. Also, adrenergic medications may decrease glucose uptake by muscle cells. For treatment of cold symptoms, nasal decongestants may be preferable for short term, limited use (1 to 3 days) as an alternative to systemic decongestants in patients taking medications for diabetes.
Insulins: (Moderate) Sympathomimetic agents tend to increase blood glucose concentrations when administered systemically. Monitor for loss of glycemic control when sympathomimetics are administered to patients taking insulin. Sympathomimetics, through stimulation of alpha- and beta- receptors, increase hepatic glucose production and glycogenolysis and inhibit insulin secretion. Also, adrenergic medications may decrease glucose uptake by muscle cells. For treatment of cold symptoms, nasal decongestants may be preferable for short term, limited use (1 to 3 days) as an alternative to systemic decongestants in patients taking medications for diabetes.
Iobenguane I 123: (Major) Discontinue medications that decrease norepinephrine uptake, such as ephedrine, for at least 5 biological half-lives prior to iobenguane I 123 administration. Consider medication tapering or additional supportive therapy as appropriate to minimize the risk for precipitating ephedrine withdrawal symptoms. Medications that decrease the uptake of norepinephrine can cause false negative imaging results. Increasing the dose of iobenguane I 123 will not overcome any potential uptake limiting effect of this medication.
Iobenguane I 131: (Major) Discontinue sympathomimetics for at least 5 half-lives before the administration of the dosimetry dose or a therapeutic dose of iobenguane I-131. Do not restart sympathomimetics until at least 7 days after each iobenguane I-131 dose. Drugs that reduce catecholamine uptake or deplete catecholamine stores, such as sympathomimetics, may interfere with iobenguane I-131 uptake into cells and interfere

with dosimetry calculations resulting in altered iobenguane I-131 efficacy.
Iodixanol: (Major) Do not administer non-ionic contrast media intra-arterially after the administration of vasopressors since they strongly potentiate neurologic effects.
Ioflupane I 123: (Major) Hold ephedrine for 1 day, or at least 5 medication half-lives, prior to performing dopamine transporter (DAT) imaging with radiolabeled ioflupane. Ephedrine binds to the dopamine transporter which may interfere with striatal tracer binding and increase the risk for a false-positive scan.
Iohexol: (Major) Do not administer non-ionic contrast media intra-arterially after the administration of vasopressors since they strongly potentiate neurologic effects.
Iomeprol: (Major) Do not administer non-ionic contrast media intra-arterially after the administration of vasopressors since they strongly potentiate neurologic effects.
Ionic Contrast Media: (Major) The intravascular injection of a contrast medium should never be made after the administration of vasopressors since they strongly potentiate neurologic effects. Serious neurologic sequelae, including permanent paralysis, have been reported after cerebral arteriography, selective spinal arteriography, and arteriography of vessels supplying the spinal cord.
Iopamidol: (Major) Do not administer non-ionic contrast media intra-arterially after the administration of vasopressors since they strongly potentiate neurologic effects.
Iopromide: (Major) Do not administer non-ionic contrast media intra-arterially after the administration of vasopressors since they strongly potentiate neurologic effects.
Ioversol: (Major) Do not administer non-ionic contrast media intra-arterially after the administration of vasopressors since they strongly potentiate neurologic effects.
Ipratropium; Albuterol: (Major) Caution and close observation should be used when albuterol is used concurrently with other adrenergic sympathomimetics, administered by any route, to avoid potential for increased cardiovascular effects.
Irbesartan: (Moderate) The cardiovascular effects of sympathomimetics, such as ephedrine, may reduce the antihypertensive effects produced by angiotensin II receptor antagonists. Blood pressure and heart rates should be monitored closely to confirm that the desired antihypertensive effect is achieved.
Irbesartan; hydroCHLOROthiazide, HCTZ: (Major) The cardiovascular effects of sympathomimetics, such as ephedrine, may reduce the antihypertensive effects produced by thiazide diuretics. Blood pressure and heart rates should be monitored closely to confirm that the desired antihypertensive effect is achieved. (Moderate) The cardiovascular effects of sympathomimetics, such as ephedrine, may reduce the antihypertensive effects produced by angiotensin II receptor antagonists. Blood pressure and heart rates should be monitored closely to confirm that the desired antihypertensive effect is achieved.
Isocarboxazid: (Contraindicated) In general, sympathomimetics should be avoided in patients receiving MAOIs due to an increased risk of hypertensive crisis. This applies to sympathomimetics including stimulants for ADHD, narcolepsy or weight loss, nasal, oral,

and ophthalmic decongestants and cold products, and respiratory sympathomimetics (e.g., beta agonist drugs). Some local anesthetics also contain a sympathomimetic (e.g., epinephrine). In general, medicines containing sympathomimetic agents should not be used concurrently with MAOIs or within 14 days before or after their use.
Isophane Insulin (NPH): (Moderate) Sympathomimetic agents tend to increase blood glucose concentrations when administered systemically. Monitor for loss of glycemic control when sympathomimetics are administered to patients taking insulin. Sympathomimetics, through stimulation of alpha- and beta- receptors, increase hepatic glucose production and glycogenolysis and inhibit insulin secretion. Also, adrenergic medications may decrease glucose uptake by muscle cells. For treatment of cold symptoms, nasal decongestants may be preferable for short term, limited use (1 to 3 days) as an alternative to systemic decongestants in patients taking medications for diabetes.
Isosorbide Dinitrate, ISDN: (Moderate) Sympathomimetics can antagonize the antianginal effects of nitrates, and can increase blood pressure and/or heart rate. Anginal pain may be induced when coronary insufficiency is present.
Isosorbide Mononitrate: (Moderate) Sympathomimetics can antagonize the antianginal effects of nitrates, and can increase blood pressure and/or heart rate. Anginal pain may be induced when coronary insufficiency is present.
Isosulfan Blue: (Major) Do not administer non-ionic contrast media intra-arterially after the administration of vasopressors since they strongly potentiate neurologic effects.
Isradipine: (Major) The cardiovascular effects of sympathomimetics, such as ephedrine, may reduce the antihypertensive effects produced by calcium-channel blockers. Blood pressure and heart rates should be monitored closely to confirm that the desired antihypertensive effect is achieved.
Ketamine: (Moderate) Closely monitor vital signs when ketamine and ephedrine are coadministered; consider dose adjustment individualized to the patient's clinical situation. Ephedrine may enhance the sympathomimetic effects of ketamine.
Labetalol: (Moderate) Monitor hemodynamic parameters and for loss of efficacy during concomitant sympathomimetic agent and beta-blocker use; dosage adjustments may be necessary. Concomitant use may antagonize the cardiovascular effects of either drug.
Landiolol: (Moderate) Monitor hemodynamic parameters and for loss of efficacy during concomitant sympathomimetic agent and beta-blocker use; dosage adjustments may be necessary. Concomitant use may antagonize the cardiovascular effects of either drug.
Levalbuterol: (Major) Caution and close observation should be used when albuterol is used concurrently with other adrenergic sympathomimetics, administered by any route, to avoid potential for increased cardiovascular effects.
Levamlodipine: (Major) The cardiovascular effects of sympathomimetics, such as ephedrine, may reduce the antihypertensive effects produced by calcium-channel blockers. Blood pressure and heart rates should be monitored closely to confirm that

the desired antihypertensive effect is achieved.
Levobunolol: (Moderate) Monitor hemodynamic parameters and for loss of efficacy during concomitant sympathomimetic agent and beta-blocker use; dosage adjustments may be necessary. Concomitant use may antagonize the cardiovascular effects of either drug.
Levothyroxine: (Moderate) Monitor hemodynamic parameters during concomitant sympathomimetic agent and thyroid hormone use; dosage adjustments may be necessary. Concomitant use may increase the effects of sympathomimetics or thyroid hormone.
Levothyroxine; Liothyronine (Porcine): (Moderate) Monitor hemodynamic parameters during concomitant sympathomimetic agent and thyroid hormone use; dosage adjustments may be necessary. Concomitant use may increase the effects of sympathomimetics or thyroid hormone.
Linagliptin: (Moderate) Sympathomimetic agents tend to increase blood glucose concentrations when administered systemically. Monitor for loss of glycemic control when sympathomimetics are administered to patients taking dipeptidyl peptidase-4 (DPP-4) inhibitors. Sympathomimetics, through stimulation of alpha- and beta-receptors, increase hepatic glucose production and glycogenolysis and inhibit insulin secretion. Also, adrenergic medications may decrease glucose uptake by muscle cells. For treatment of cold symptoms, nasal decongestants may be preferable for short term, limited use (1 to 3 days) as an alternative to systemic decongestants in patients taking medications for diabetes.
Linagliptin; metFORMIN: (Moderate) Sympathomimetic agents and adrenergic agonists tend to increase blood glucose concentrations when administered systemically. Monitor for loss of glycemic control when pseudoephedrine, phenylephrine, and other sympathomimetics are administered to patients taking antidiabetic agents. Epinephrine and other sympathomimetics, through stimulation of alpha- and beta- receptors, increase hepatic glucose production and glycogenolysis and inhibit insulin secretion. Also, adrenergic medications may decrease glucose uptake by muscle cells. For treatment of cold symptoms, nasal decongestants may be preferable for short term, limited use (1 to 3 days) as an alternative to systemic decongestants in patients taking medications for diabetes. (Moderate) Sympathomimetic agents tend to increase blood glucose concentrations when administered systemically. Monitor for loss of glycemic control when sympathomimetics are administered to patients taking dipeptidyl peptidase-4 (DPP-4) inhibitors. Sympathomimetics, through stimulation of alpha- and beta- receptors, increase hepatic glucose production and glycogenolysis and inhibit insulin secretion. Also, adrenergic medications may decrease glucose uptake by muscle cells. For treatment of cold symptoms, nasal decongestants may be preferable for short term, limited use (1 to 3 days) as an alternative to systemic decongestants in patients taking medications for diabetes.

Linezolid: (Moderate) Linezolid may enhance the hypertensive effect of ephedrine. Closely monitor for increased blood pressure during coadministration. Linezolid is an antibiotic that is also a weak, reversible nonselective inhibitor of monoamine oxidase (MAO). Therefore, linezolid has the potential for interaction with adrenergic agents, such as ephedrine.
Liothyronine: (Moderate) Monitor hemodynamic parameters during concomitant sympathomimetic agent and thyroid hormone use; dosage adjustments may be necessary. Concomitant use may increase the effects of sympathomimetics or thyroid hormone.
Liraglutide: (Moderate) Sympathomimetic agents tend to increase blood glucose concentrations when administered systemically. Monitor for loss of glycemic control when sympathomimetics are administered to patients taking incretin mimetics. Sympathomimetics, through stimulation of alpha- and beta- receptors, increase hepatic glucose production and glycogenolysis and inhibit insulin secretion. Also, adrenergic medications may decrease glucose uptake by muscle cells. For treatment of cold symptoms, nasal decongestants may be preferable for short term, limited use (1 to 3 days) as an alternative to systemic decongestants in patients taking medications for diabetes.
Lisinopril: (Major) The cardiovascular effects of sympathomimetics, such as ephedrine, may reduce the antihypertensive effects produced by angiotensin-converting enzyme inhibitors. Blood pressure and heart rates should be monitored closely to confirm that the desired antihypertensive effect is achieved.
Lisinopril; hydroCHLOROthiazide, HCTZ: (Major) The cardiovascular effects of sympathomimetics, such as ephedrine, may reduce the antihypertensive effects produced by angiotensin-converting enzyme inhibitors. Blood pressure and heart rates should be monitored closely to confirm that the desired antihypertensive effect is achieved. (Major) The cardiovascular effects of sympathomimetics, such as ephedrine, may reduce the antihypertensive effects produced by thiazide diuretics. Blood pressure and heart rates should be monitored closely to confirm that the desired antihypertensive effect is achieved.
Lixisenatide: (Moderate) Sympathomimetic agents tend to increase blood glucose concentrations when administered systemically. Monitor for loss of glycemic control when sympathomimetics are administered to patients taking incretin mimetics. Sympathomimetics, through stimulation of alpha- and beta- receptors, increase hepatic glucose production and glycogenolysis and inhibit insulin secretion. Also, adrenergic medications may decrease glucose uptake by muscle cells. For treatment of cold symptoms, nasal decongestants may be preferable for short term, limited use (1 to 3 days) as an alternative to systemic decongestants in patients taking medications for diabetes.
Loop diuretics: (Major) The cardiovascular effects of sympathomimetics, such as

ephedrine, may reduce the antihypertensive effects produced by loop diuretics. Blood pressure and heart rates should be monitored closely to confirm that the desired antihypertensive effect is achieved.
Loratadine; Pseudoephedrine: (Major) Pseudoephedrine can potentiate the effects and increase the toxicity of other sympathomimetics by adding to their sympathomimetic activity. Although no data are available, pseudoephedrine should be used cautiously in patients using significant quantities of other sympathomimetics.
Losartan: (Moderate) The cardiovascular effects of sympathomimetics, such as ephedrine, may reduce the antihypertensive effects produced by angiotensin II receptor antagonists. Blood pressure and heart rates should be monitored closely to confirm that the desired antihypertensive effect is achieved.
Losartan; hydroCHLOROthiazide, HCTZ: (Major) The cardiovascular effects of sympathomimetics, such as ephedrine, may reduce the antihypertensive effects produced by thiazide diuretics. Blood pressure and heart rates should be monitored closely to confirm that the desired antihypertensive effect is achieved. (Moderate) The cardiovascular effects of sympathomimetics, such as ephedrine, may reduce the antihypertensive effects produced by angiotensin II receptor antagonists. Blood pressure and heart rates should be monitored closely to confirm that the desired antihypertensive effect is achieved.
Loxapine: (Major) Patients taking loxapine can have reduced pressor response to ephedrine, but ephedrine is preferred over epinephrine if a vasopressor agent is required.
Macitentan: (Major) Avoid use of sympathomimetic agents with macitentan. Sympathomimetics counteract the medications used to stabilize pulmonary hypertension, including macitentan. Sympathomimetics can increase blood pressure, increase heart rate, and may cause vasoconstriction resulting in chest pain and shortness of breath in these patients. Patients should be advised to avoid amphetamine drugs, decongestants (including nasal decongestants) and sympathomimetic anorexiants for weight loss, including dietary supplements. Intravenous vasopressors may be used in the emergency management of pulmonary hypertension patients when needed, but hemodynamic monitoring and careful monitoring of cardiac status are needed to avoid ischemia and other complications.
Macitentan; Tadalafil: (Major) Avoid use of sympathomimetic agents with macitentan. Sympathomimetics counteract the medications used to stabilize pulmonary hypertension, including macitentan. Sympathomimetics can increase blood pressure, increase heart rate, and may cause vasoconstriction resulting in chest pain and shortness of breath in these patients. Patients should be advised to avoid amphetamine drugs, decongestants (including nasal decongestants) and sympathomimetic anorexiants for weight loss, including dietary supplements. Intravenous vasopressors may be used in the emergency management of pulmonary hypertension patients when

needed, but hemodynamic monitoring and careful monitoring of cardiac status are needed to avoid ischemia and other complications.
Maprotiline: (Moderate) Use maprotiline and sympathomimetics together with caution and close clinical monitoring. Regularly assess blood pressure, heart rate, the efficacy of treatment, and the emergence of sympathomimetic/adrenergic adverse events. Carefully adjust dosages as clinically indicated. Maprotiline has pharmacologic activity similar to tricyclic antidepressant agents and may cause additive sympathomimetic effects when combined with agents with adrenergic/sympathomimetic activity.
Mecamylamine: (Major) The cardiovascular effects of sympathomimetics may reduce the antihypertensive effects produced by mecamylamine. Close monitoring of blood pressure or the selection of alternative therapeutic agents may be needed.
Meglitinides: (Moderate) Sympathomimetic agents and adrenergic agonists tend to increase blood glucose concentrations when administered systemically. Monitor for loss of glycemic control when pseudoephedrine, phenylephrine, and other sympathomimetics are administered to patients taking antidiabetic agents. Epinephrine and other sympathomimetics, through stimulation of alpha- and beta- receptors, increase hepatic glucose production and glycogenolysis and inhibit insulin secretion. Also, adrenergic medications may decrease glucose uptake by muscle cells. For treatment of cold symptoms, nasal decongestants may be preferable for short term, limited use (1 to 3 days) as an alternative to systemic decongestants in patients taking medications for diabetes.
Metaproterenol: (Major) Caution and close observation should also be used when metaproterenol is used concurrently with other adrenergic sympathomimetics, administered by any route, to avoid potential for increased cardiovascular effects.
metFORMIN: (Moderate) Sympathomimetic agents and adrenergic agonists tend to increase blood glucose concentrations when administered systemically. Monitor for loss of glycemic control when pseudoephedrine, phenylephrine, and other sympathomimetics are administered to patients taking antidiabetic agents. Epinephrine and other sympathomimetics, through stimulation of alpha- and beta- receptors, increase hepatic glucose production and glycogenolysis and inhibit insulin secretion. Also, adrenergic medications may decrease glucose uptake by muscle cells. For treatment of cold symptoms, nasal decongestants may be preferable for short term, limited use (1 to 3 days) as an alternative to systemic decongestants in patients taking medications for diabetes.
metFORMIN; sAXagliptin: (Moderate) Sympathomimetic agents and adrenergic agonists tend to increase blood glucose concentrations when administered systemically. Monitor for loss of glycemic control when pseudoephedrine, phenylephrine, and other sympathomimetics are administered to patients taking antidiabetic agents. Epinephrine and other sympathomimetics, through stimulation of alpha- and beta- receptors, increase hepatic glucose production and glycogenolysis and inhibit insulin secretion.

Also, adrenergic medications may decrease glucose uptake by muscle cells. For treatment of cold symptoms, nasal decongestants may be preferable for short term, limited use (1 to 3 days) as an alternative to systemic decongestants in patients taking medications for diabetes. (Moderate) Sympathomimetic agents tend to increase blood glucose concentrations when administered systemically. Monitor for loss of glycemic control when sympathomimetics are administered to patients taking dipeptidyl peptidase-4 (DPP-4) inhibitors. Sympathomimetics, through stimulation of alpha- and beta- receptors, increase hepatic glucose production and glycogenolysis and inhibit insulin secretion. Also, adrenergic medications may decrease glucose uptake by muscle cells. For treatment of cold symptoms, nasal decongestants may be preferable for short term, limited use (1 to 3 days) as an alternative to systemic decongestants in patients taking medications for diabetes.
metFORMIN; SITagliptin: (Moderate) Sympathomimetic agents and adrenergic agonists tend to increase blood glucose concentrations when administered systemically. Monitor for loss of glycemic control when pseudoephedrine, phenylephrine, and other sympathomimetics are administered to patients taking antidiabetic agents. Epinephrine and other sympathomimetics, through stimulation of alpha- and beta- receptors, increase hepatic glucose production and glycogenolysis and inhibit insulin secretion. Also, adrenergic medications may decrease glucose uptake by muscle cells. For treatment of cold symptoms, nasal decongestants may be preferable for short term, limited use (1 to 3 days) as an alternative to systemic decongestants in patients taking medications for diabetes. (Moderate) Sympathomimetic agents tend to increase blood glucose concentrations when administered systemically. Monitor for loss of glycemic control when sympathomimetics are administered to patients taking dipeptidyl peptidase-4 (DPP-4) inhibitors. Sympathomimetics, through stimulation of alpha- and beta- receptors, increase hepatic glucose production and glycogenolysis and inhibit insulin secretion. Also, adrenergic medications may decrease glucose uptake by muscle cells. For treatment of cold symptoms, nasal decongestants may be preferable for short term, limited use (1 to 3 days) as an alternative to systemic decongestants in patients taking medications for diabetes.
methazolAMIDE: (Major) Acetazolamide or methazolamide can decrease excretion and enhance the effects of ephedrine. Carbonic anhydrase inhibitors increase the alkalinity of the urine, thereby increasing the amount of nonionized ephedrine available for renal tubular reabsorption. If concurrent use cannot be avoided, monitor for the appearance of ephedrine-related toxicity.
Methohexital: (Major) General anesthetics may sensitize the myocardium to the effects of sympathomimetics, including ephedrine.
Methyldopa: (Major) The cardiovascular effects of sympathomimetics, such as ephedrine, may reduce the antihypertensive effects produced by methyldopa, Blood pressure should be monitored closely to confirm that the desired antihypertensive

effect is achieved.
Methylergonovine: (Moderate) Monitor for adverse effects if concomitant use of methylergonovine and vasoconstrictors, such as vasopressors, is necessary. Concomitant use may produce a synergistic increase in blood pressure and may also increase the risk for vasospasm which may lead to cerebral or peripheral ischemia.
Methylphenidate Derivatives: (Moderate) Methylphenidate derivatives can potentiate the actions of both exogenous (such as dopamine and epinephrine) and endogenous (such as norepinephrine) vasopressors. It is advisable to monitor cardiac function if these medications are coadministered. Vasopressors include medications such as epinephrine, dopamine, midodrine, and non-prescription medications such as pseudoephedrine and phenylephrine.
Methylphenidate: (Moderate) Methylphenidate derivatives can potentiate the actions of both exogenous (such as dopamine and epinephrine) and endogenous (such as norepinephrine) vasopressors. It is advisable to monitor cardiac function if these medications are coadministered. Vasopressors include medications such as epinephrine, dopamine, midodrine, and non-prescription medications such as pseudoephedrine and phenylephrine.
methylPREDNISolone: (Moderate) Ephedrine may enhance the metabolic clearance of corticosteroids. Decreased blood concentrations and lessened physiologic activity may necessitate an increase in corticosteroid dosage.
metOLazone: (Major) The cardiovascular effects of sympathomimetics, such as ephedrine, may reduce the antihypertensive effects produced by thiazide diuretics. Blood pressure and heart rates should be monitored closely to confirm that the desired antihypertensive effect is achieved.
Metoprolol: (Moderate) Monitor hemodynamic parameters and for loss of efficacy during concomitant sympathomimetic agent and beta-blocker use; dosage adjustments may be necessary. Concomitant use may antagonize the cardiovascular effects of either drug.
Metoprolol; hydroCHLOROthiazide, HCTZ: (Major) The cardiovascular effects of sympathomimetics, such as ephedrine, may reduce the antihypertensive effects produced by thiazide diuretics. Blood pressure and heart rates should be monitored closely to confirm that the desired antihypertensive effect is achieved. (Moderate) Monitor hemodynamic parameters and for loss of efficacy during concomitant sympathomimetic agent and beta-blocker use; dosage adjustments may be necessary. Concomitant use may antagonize the cardiovascular effects of either drug.
Miglitol: (Moderate) Sympathomimetic agents and adrenergic agonists tend to increase blood glucose concentrations when administered systemically. Monitor for loss of glycemic control when pseudoephedrine, phenylephrine, and other sympathomimetics are administered to patients taking antidiabetic agents. Epinephrine and other sympathomimetics, through stimulation of alpha- and beta- receptors, increase hepatic

glucose production and glycogenolysis and inhibit insulin secretion. Also, adrenergic medications may decrease glucose uptake by muscle cells. For treatment of cold symptoms, nasal decongestants may be preferable for short term, limited use (1 to 3 days) as an alternative to systemic decongestants in patients taking medications for diabetes.
Minoxidil: (Moderate) Use sympathomimetic agents with caution in patients receiving therapy for hypertension. Patients should be monitored to confirm that the desired antihypertensive effect is achieved. Sympathomimetics can increase blood pressure and heart rate, and antagonize the antihypertensive effects of vasodilators when administered concomitantly. Anginal pain may be induced when coronary insufficiency is present.
Moexipril: (Major) The cardiovascular effects of sympathomimetics, such as ephedrine, may reduce the antihypertensive effects produced by angiotensin-converting enzyme inhibitors. Blood pressure and heart rates should be monitored closely to confirm that the desired antihypertensive effect is achieved.
Mometasone: (Moderate) Ephedrine may enhance the metabolic clearance of corticosteroids. Decreased blood concentrations and lessened physiologic activity may necessitate an increase in corticosteroid dosage.
Monoamine oxidase inhibitors: (Contraindicated) In general, sympathomimetics should be avoided in patients receiving MAOIs due to an increased risk of hypertensive crisis. This applies to sympathomimetics including stimulants for ADHD, narcolepsy or weight loss, nasal, oral, and ophthalmic decongestants and cold products, and respiratory sympathomimetics (e.g., beta agonist drugs). Some local anesthetics also contain a sympathomimetic (e.g., epinephrine). In general, medicines containing sympathomimetic agents should not be used concurrently with MAOIs or within 14 days before or after their use.
Nadolol: (Moderate) Monitor hemodynamic parameters and for loss of efficacy during concomitant sympathomimetic agent and beta-blocker use; dosage adjustments may be necessary. Concomitant use may antagonize the cardiovascular effects of either drug.
Naproxen; Pseudoephedrine: (Major) Pseudoephedrine can potentiate the effects and increase the toxicity of other sympathomimetics by adding to their sympathomimetic activity. Although no data are available, pseudoephedrine should be used cautiously in patients using significant quantities of other sympathomimetics.
Nateglinide: (Moderate) Sympathomimetic agents and adrenergic agonists tend to increase blood glucose concentrations when administered systemically. Monitor for loss of glycemic control when pseudoephedrine, phenylephrine, and other sympathomimetics are administered to patients taking antidiabetic agents. Epinephrine and other sympathomimetics, through stimulation of alpha- and beta- receptors, increase hepatic glucose production and glycogenolysis and inhibit insulin secretion. Also, adrenergic medications may decrease glucose uptake by muscle cells. For

treatment of cold symptoms, nasal decongestants may be preferable for short term, limited use (1 to 3 days) as an alternative to systemic decongestants in patients taking medications for diabetes.
Nebivolol: (Moderate) Monitor hemodynamic parameters and for loss of efficacy during concomitant sympathomimetic agent and beta-blocker use; dosage adjustments may be necessary. Concomitant use may antagonize the cardiovascular effects of either drug.
NiCARdipine: (Major) The cardiovascular effects of sympathomimetics, such as ephedrine, may reduce the antihypertensive effects produced by calcium-channel blockers. Blood pressure and heart rates should be monitored closely to confirm that the desired antihypertensive effect is achieved.
NIFEdipine: (Major) The cardiovascular effects of sympathomimetics, such as ephedrine, may reduce the antihypertensive effects produced by calcium-channel blockers. Blood pressure and heart rates should be monitored closely to confirm that the desired antihypertensive effect is achieved.
niMODipine: (Major) The cardiovascular effects of sympathomimetics, such as ephedrine, may reduce the antihypertensive effects produced by calcium-channel blockers. Blood pressure and heart rates should be monitored closely to confirm that the desired antihypertensive effect is achieved.
Nisoldipine: (Major) The cardiovascular effects of sympathomimetics, such as ephedrine, may reduce the antihypertensive effects produced by calcium-channel blockers. Blood pressure and heart rates should be monitored closely to confirm that the desired antihypertensive effect is achieved.
Nitrates: (Moderate) Sympathomimetics can antagonize the antianginal effects of nitrates, and can increase blood pressure and/or heart rate. Anginal pain may be induced when coronary insufficiency is present.
Nitroglycerin: (Moderate) Sympathomimetics can antagonize the antianginal effects of nitrates, and can increase blood pressure and/or heart rate. Anginal pain may be induced when coronary insufficiency is present.
Nitroprusside: (Moderate) Use sympathomimetic agents with caution in patients receiving therapy for hypertension. Patients should be monitored to confirm that the desired antihypertensive effect is achieved. Sympathomimetics can increase blood pressure and heart rate, and antagonize the antihypertensive effects of vasodilators when administered concomitantly. Anginal pain may be induced when coronary insufficiency is present.
Non-Ionic Contrast Media: (Major) Do not administer non-ionic contrast media intra-arterially after the administration of vasopressors since they strongly potentiate neurologic effects.
Nortriptyline: (Major) Tricyclic antidepressants (TCAs) may markedly enhance the pressor response to certain sympathomimetic agents, such as ephedrine or ephedra. TCAs inhibit norepinephrine reuptake in adrenergic neurons, resulting in increased

stimulation of adrenergic receptors. Clinically, the patient might experience hypertension, headache, tremor, palpitations, chest pain, or irregular heartbeat.
Olmesartan: (Moderate) The cardiovascular effects of sympathomimetics, such as ephedrine, may reduce the antihypertensive effects produced by angiotensin II receptor antagonists. Blood pressure and heart rates should be monitored closely to confirm that the desired antihypertensive effect is achieved.
Olmesartan; amLODIPine; hydroCHLOROthiazide, HCTZ: (Major) The cardiovascular effects of sympathomimetics, such as ephedrine, may reduce the antihypertensive effects produced by calcium-channel blockers. Blood pressure and heart rates should be monitored closely to confirm that the desired antihypertensive effect is achieved. (Major) The cardiovascular effects of sympathomimetics, such as ephedrine, may reduce the antihypertensive effects produced by thiazide diuretics. Blood pressure and heart rates should be monitored closely to confirm that the desired antihypertensive effect is achieved. (Moderate) The cardiovascular effects of sympathomimetics, such as ephedrine, may reduce the antihypertensive effects produced by angiotensin II receptor antagonists. Blood pressure and heart rates should be monitored closely to confirm that the desired antihypertensive effect is achieved.
Olmesartan; hydroCHLOROthiazide, HCTZ: (Major) The cardiovascular effects of sympathomimetics, such as ephedrine, may reduce the antihypertensive effects produced by thiazide diuretics. Blood pressure and heart rates should be monitored closely to confirm that the desired antihypertensive effect is achieved. (Moderate) The cardiovascular effects of sympathomimetics, such as ephedrine, may reduce the antihypertensive effects produced by angiotensin II receptor antagonists. Blood pressure and heart rates should be monitored closely to confirm that the desired antihypertensive effect is achieved.
Olopatadine; Mometasone: (Moderate) Ephedrine may enhance the metabolic clearance of corticosteroids. Decreased blood concentrations and lessened physiologic activity may necessitate an increase in corticosteroid dosage.
Omeprazole; Sodium Bicarbonate: (Moderate) Sodium bicarbonate-induced urinary alkalization can increase the half-life of ephedrine.
Oxytocin: (Moderate) Carefully monitor blood pressure in patients who have received ephedrine and oxytocin. Serious hypertension has been reported when oxytocin was given 3 to 4 hours after prophylactic administration of a vasoconstrictor in conjunction with caudal anesthesia. Some patients have experienced a stroke.
Perindopril: (Major) The cardiovascular effects of sympathomimetics, such as ephedrine, may reduce the antihypertensive effects produced by angiotensin-converting enzyme inhibitors. Blood pressure and heart rates should be monitored closely to confirm that the desired antihypertensive effect is achieved.
Perindopril; amLODIPine: (Major) The cardiovascular effects of sympathomimetics, such as ephedrine, may reduce the antihypertensive effects produced by angiotensin-

converting enzyme inhibitors. Blood pressure and heart rates should be monitored closely to confirm that the desired antihypertensive effect is achieved. (Major) The cardiovascular effects of sympathomimetics, such as ephedrine, may reduce the antihypertensive effects produced by calcium-channel blockers. Blood pressure and heart rates should be monitored closely to confirm that the desired antihypertensive effect is achieved.
Perphenazine: (Major) Avoid use of ephedrine in patients receiving phenothiazines due to the risk of paradoxical vasodilation. Phenothiazines possess potent alpha-blocking properties, making the use of vasopressors with mixed alpha- and beta-agonist properties inappropriate. If a vasopressor is required, norepinephrine and phenylephrine are most appropriate.
Perphenazine; Amitriptyline: (Major) Avoid use of ephedrine in patients receiving phenothiazines due to the risk of paradoxical vasodilation. Phenothiazines possess potent alpha-blocking properties, making the use of vasopressors with mixed alpha- and beta-agonist properties inappropriate. If a vasopressor is required, norepinephrine and phenylephrine are most appropriate. (Major) Tricyclic antidepressants (TCAs) may markedly enhance the pressor response to certain sympathomimetic agents, such as ephedrine or ephedra. TCAs inhibit norepinephrine reuptake in adrenergic neurons, resulting in increased stimulation of adrenergic receptors. Clinically, the patient might experience hypertension, headache, tremor, palpitations, chest pain, or irregular heartbeat.
Phendimetrazine: (Major) Phendimetrazine is a phenylalkaline sympathomimetic agent. All sympathomimetics and psychostimulants, including other anorexiants, should be used cautiously or avoided in patients receiving phendimetrazine. The combined use of these agents may have the potential for additive side effects, such as hypertensive crisis or cardiac arrhythmia.
Phenelzine: (Contraindicated) In general, sympathomimetics should be avoided in patients receiving MAOIs due to an increased risk of hypertensive crisis. This applies to sympathomimetics including stimulants for ADHD, narcolepsy or weight loss, nasal, oral, and ophthalmic decongestants and cold products, and respiratory sympathomimetics (e.g., beta agonist drugs). Some local anesthetics also contain a sympathomimetic (e.g., epinephrine). In general, medicines containing sympathomimetic agents should not be used concurrently with MAOIs or within 14 days before or after their use.
PHENobarbital; Hyoscyamine; Atropine; Scopolamine: (Moderate) Carefully monitor blood pressure in patients who have received both ephedrine and atropine; atropine augments the pressor effect of ephedrine.
Phenothiazines: (Major) Avoid use of ephedrine in patients receiving phenothiazines due to the risk of paradoxical vasodilation. Phenothiazines possess potent alpha-blocking properties, making the use of vasopressors with mixed alpha- and beta-agonist properties inappropriate. If a vasopressor is required, norepinephrine and

phenylephrine are most appropriate.
Phenoxybenzamine: (Moderate) Carefully monitor blood pressure in patients who have received both ephedrine and alpha-blockers; alpha-blockers antagonize the pressor effect of ephedrine.
Phentermine: (Major) Because phentermine is a sympathomimetic and anorexic agent (i.e., psychostimulant) it should not be used in combination with other sympathomimetics. The combined use of these agents may have the potential for additive side effects, such as hypertensive crisis or cardiac arrhythmias.
Phentermine; Topiramate: (Major) Because phentermine is a sympathomimetic and anorexic agent (i.e., psychostimulant) it should not be used in combination with other sympathomimetics. The combined use of these agents may have the potential for additive side effects, such as hypertensive crisis or cardiac arrhythmias.
Phentolamine: (Moderate) Carefully monitor blood pressure in patients who have received both ephedrine and alpha-blockers; alpha-blockers antagonize the pressor effect of ephedrine.
Pindolol: (Moderate) Monitor hemodynamic parameters and for loss of efficacy during concomitant sympathomimetic agent and beta-blocker use; dosage adjustments may be necessary. Concomitant use may antagonize the cardiovascular effects of either drug.
Pioglitazone: (Moderate) Sympathomimetic agents tend to increase blood glucose concentrations when administered systemically. Monitor for loss of glycemic control when sympathomimetics are administered to patients taking thiazolidinediones. Sympathomimetics, through stimulation of alpha- and beta- receptors, increase hepatic glucose production and glycogenolysis and inhibit insulin secretion. Also, adrenergic medications may decrease glucose uptake by muscle cells. For treatment of cold symptoms, nasal decongestants may be preferable for short term, limited use (1 to 3 days) as an alternative to systemic decongestants in patients taking medications for diabetes.
Pioglitazone; Glimepiride: (Moderate) Sympathomimetic agents tend to increase blood glucose concentrations when administered systemically. Monitor for loss of glycemic control when sympathomimetics are administered to patients taking sulfonylureas. Sympathomimetics, through stimulation of alpha- and beta- receptors, increase hepatic glucose production and glycogenolysis and inhibit insulin secretion. Also, adrenergic medications may decrease glucose uptake by muscle cells. For treatment of cold symptoms, nasal decongestants may be preferable for short term, limited use (1 to 3 days) as an alternative to systemic decongestants in patients taking medications for diabetes. (Moderate) Sympathomimetic agents tend to increase blood glucose concentrations when administered systemically. Monitor for loss of glycemic control when sympathomimetics are administered to patients taking thiazolidinediones. Sympathomimetics, through stimulation of alpha- and beta- receptors, increase hepatic glucose production and glycogenolysis and inhibit insulin secretion. Also, adrenergic

medications may decrease glucose uptake by muscle cells. For treatment of cold symptoms, nasal decongestants may be preferable for short term, limited use (1 to 3 days) as an alternative to systemic decongestants in patients taking medications for diabetes.
Pioglitazone; metFORMIN: (Moderate) Sympathomimetic agents and adrenergic agonists tend to increase blood glucose concentrations when administered systemically. Monitor for loss of glycemic control when pseudoephedrine, phenylephrine, and other sympathomimetics are administered to patients taking antidiabetic agents. Epinephrine and other sympathomimetics, through stimulation of alpha- and beta- receptors, increase hepatic glucose production and glycogenolysis and inhibit insulin secretion. Also, adrenergic medications may decrease glucose uptake by muscle cells. For treatment of cold symptoms, nasal decongestants may be preferable for short term, limited use (1 to 3 days) as an alternative to systemic decongestants in patients taking medications for diabetes. (Moderate) Sympathomimetic agents tend to increase blood glucose concentrations when administered systemically. Monitor for loss of glycemic control when sympathomimetics are administered to patients taking thiazolidinediones. Sympathomimetics, through stimulation of alpha- and beta- receptors, increase hepatic glucose production and glycogenolysis and inhibit insulin secretion. Also, adrenergic medications may decrease glucose uptake by muscle cells. For treatment of cold symptoms, nasal decongestants may be preferable for short term, limited use (1 to 3 days) as an alternative to systemic decongestants in patients taking medications for diabetes.
Potassium Bicarbonate: (Moderate) The renal elimination of ephedrine susceptible to changes in urinary pH. Potassium citrate is a urinary alkalinizing agent. Concomitant administration of ephedrine with urinary alkalinizers may increase the likelihood of adverse reactions.
Potassium Chloride: (Moderate) The renal elimination of ephedrine susceptible to changes in urinary pH. Potassium citrate is a urinary alkalinizing agent. Concomitant administration of ephedrine with urinary alkalinizers may increase the likelihood of adverse reactions.
Potassium Citrate: (Moderate) The renal elimination of ephedrine susceptible to changes in urinary pH. Potassium citrate is a urinary alkalinizing agent. Concomitant administration of ephedrine with urinary alkalinizers may increase the likelihood of adverse reactions. (Minor) The renal clearance of certain drugs can be affected by the administration of sodium citrate due to urinary alkalinization. Drug-induced urinary alkalization can increase the half-life of ephedrine by increasing tubular reabsorption.
Potassium Citrate; Citric Acid: (Moderate) The renal elimination of ephedrine susceptible to changes in urinary pH. Potassium citrate is a urinary alkalinizing agent. Concomitant administration of ephedrine with urinary alkalinizers may increase the likelihood of adverse reactions.

Potassium-sparing diuretics: (Major) The cardiovascular effects of sympathomimetics may reduce the antihypertensive effects produced by potassium-sparing diuretics. Blood pressure and heart rates should be monitored closely to confirm that the desired antihypertensive effect is achieved.
Pramlintide: (Moderate) Sympathomimetic agents and adrenergic agonists tend to increase blood glucose concentrations when administered systemically. Monitor for loss of glycemic control when pseudoephedrine, phenylephrine, and other sympathomimetics are administered to patients taking antidiabetic agents. Epinephrine and other sympathomimetics, through stimulation of alpha- and beta- receptors, increase hepatic glucose production and glycogenolysis and inhibit insulin secretion. Also, adrenergic medications may decrease glucose uptake by muscle cells. For treatment of cold symptoms, nasal decongestants may be preferable for short term, limited use (1 to 3 days) as an alternative to systemic decongestants in patients taking medications for diabetes.
Prazosin: (Moderate) Carefully monitor blood pressure in patients who have received both ephedrine and alpha-blockers; alpha-blockers antagonize the pressor effect of ephedrine.
prednisoLONE: (Moderate) Ephedrine may enhance the metabolic clearance of corticosteroids. Decreased blood concentrations and lessened physiologic activity may necessitate an increase in corticosteroid dosage.
predniSONE: (Moderate) Ephedrine may enhance the metabolic clearance of corticosteroids. Decreased blood concentrations and lessened physiologic activity may necessitate an increase in corticosteroid dosage.
Procarbazine: (Major) Because procarbazine exhibits some monoamine oxidase inhibitory (MAOI) activity, sympathomimetic drugs should be avoided. As with MAOIs, the use of a sympathomimetic drug with procarbazine may precipitate hypertensive crisis or other serious side effects. In the presence of MAOIs, drugs that cause release of norepinephrine induce severe cardiovascular and cerebrovascular responses. In general, do not use a sympathomimetic drug unless clinically necessary (e.g., medical emergencies, agents like dopamine) within the 14 days prior, during or 14 days after procarbazine therapy. If use is necessary within 2 weeks of the MAOI drug, in general the initial dose of the sympathomimetic agent must be greatly reduced. Patients should be counseled to avoid non-prescription (OTC) decongestants and other drug products, weight loss products, and energy supplements that contain sympathomimetic agents.
Prochlorperazine: (Major) Avoid use of ephedrine in patients receiving phenothiazines due to the risk of paradoxical vasodilation. Phenothiazines possess potent alpha-blocking properties, making the use of vasopressors with mixed alpha- and beta-agonist properties inappropriate. If a vasopressor is required, norepinephrine and phenylephrine are most appropriate.
Promethazine: (Major) Avoid use of ephedrine in patients receiving phenothiazines due

to the risk of paradoxical vasodilation. Phenothiazines possess potent alpha-blocking properties, making the use of vasopressors with mixed alpha- and beta-agonist properties inappropriate. If a vasopressor is required, norepinephrine and phenylephrine are most appropriate.
Promethazine; Dextromethorphan: (Major) Avoid use of ephedrine in patients receiving phenothiazines due to the risk of paradoxical vasodilation. Phenothiazines possess potent alpha-blocking properties, making the use of vasopressors with mixed alpha- and beta-agonist properties inappropriate. If a vasopressor is required, norepinephrine and phenylephrine are most appropriate.
Promethazine; Phenylephrine: (Major) Avoid use of ephedrine in patients receiving phenothiazines due to the risk of paradoxical vasodilation. Phenothiazines possess potent alpha-blocking properties, making the use of vasopressors with mixed alpha- and beta-agonist properties inappropriate. If a vasopressor is required, norepinephrine and phenylephrine are most appropriate.
Propofol: (Moderate) Carefully monitor blood pressure in patients who have received both ephedrine and propofol; propofol augments the pressor effect of ephedrine.
Propranolol: (Moderate) Monitor hemodynamic parameters and for loss of efficacy during concomitant sympathomimetic agent and beta-blocker use; dosage adjustments may be necessary. Concomitant use may antagonize the cardiovascular effects of either drug.
Protriptyline: (Major) Tricyclic antidepressants (TCAs) may markedly enhance the pressor response to certain sympathomimetic agents, such as ephedrine or ephedra. TCAs inhibit norepinephrine reuptake in adrenergic neurons, resulting in increased stimulation of adrenergic receptors. Clinically, the patient might experience hypertension, headache, tremor, palpitations, chest pain, or irregular heartbeat.
Pseudoephedrine: (Major) Pseudoephedrine can potentiate the effects and increase the toxicity of other sympathomimetics by adding to their sympathomimetic activity. Although no data are available, pseudoephedrine should be used cautiously in patients using significant quantities of other sympathomimetics.
Pseudoephedrine; Triprolidine: (Major) Pseudoephedrine can potentiate the effects and increase the toxicity of other sympathomimetics by adding to their sympathomimetic activity. Although no data are available, pseudoephedrine should be used cautiously in patients using significant quantities of other sympathomimetics.
Quinapril: (Major) The cardiovascular effects of sympathomimetics, such as ephedrine, may reduce the antihypertensive effects produced by angiotensin-converting enzyme inhibitors. Blood pressure and heart rates should be monitored closely to confirm that the desired antihypertensive effect is achieved.
Quinapril; hydroCHLOROthiazide, HCTZ: (Major) The cardiovascular effects of sympathomimetics, such as ephedrine, may reduce the antihypertensive effects produced by angiotensin-converting enzyme inhibitors. Blood pressure and heart rates

should be monitored closely to confirm that the desired antihypertensive effect is achieved. (Major) The cardiovascular effects of sympathomimetics, such as ephedrine, may reduce the antihypertensive effects produced by thiazide diuretics. Blood pressure and heart rates should be monitored closely to confirm that the desired antihypertensive effect is achieved.
quiNIDine: (Moderate) Carefully monitor blood pressure in patients who have received both ephedrine and quinidine; quinidine antagonizes the pressor effect of ephedrine.
Racepinephrine: (Major) Racepinephrine is a sympathomimetic drug with agonist actions at both the alpha and beta receptors. Patients using racepinephrine inhalation are advised to avoid other non-prescription products containing sympathomimetics since additive adverse effects on the cardiovascular and nervous system are possible, some which may be undesirable. Side effects such as nausea, tremor, nervousness, difficulty with sleep, and increased heart rate or blood pressure may be additive. Patients should avoid use of non-prescription decongestants, such as phenylephrine and pseudoephedrine, while using racepinephrine inhalations. Patients should avoid dietary supplements containing ingredients that are reported or claimed to have a stimulant or weight-loss effect, such as ephedrine and ephedra, Ma huang, and phenylpropanolamine.
Ramipril: (Major) The cardiovascular effects of sympathomimetics, such as ephedrine, may reduce the antihypertensive effects produced by angiotensin-converting enzyme inhibitors. Blood pressure and heart rates should be monitored closely to confirm that the desired antihypertensive effect is achieved.
Rasagiline: (Moderate) The concomitant use of rasagiline and sympathomimetics was not allowed in clinical studies; therefore, caution is advised during concurrent use of rasagiline and sympathomimetics including stimulants for ADHD and weight loss, non-prescription nasal, oral, and ophthalmic decongestants, and weight loss dietary supplements containing Ephedra. Although sympathomimetics are contraindicated for use with other non-selective monoamine oxidase inhibitors (MAOIs), hypertensive reactions generally are not expected to occur during concurrent use with rasagiline because of the selective monoamine oxidase-B (MAO-B) inhibition of rasagiline at manufacturer recommended doses. One case of elevated blood pressure has been reported in a patient during concurrent use of the recommended dose of rasagiline and ophthalmic tetrahydrozoline. One case of hypertensive crisis has been reported in a patient taking the recommended dose of another MAO-B inhibitor, selegiline, in combination with ephedrine. It should be noted that the MAO-B selectivity of rasagiline decreases in a dose-related manner as increases are made above the recommended daily dose and interactions with sympathomimetics may be more likely to occur at these higher doses.
Regular Insulin: (Moderate) Sympathomimetic agents tend to increase blood glucose concentrations when administered systemically. Monitor for loss of glycemic control

when sympathomimetics are administered to patients taking insulin. Sympathomimetics, through stimulation of alpha- and beta- receptors, increase hepatic glucose production and glycogenolysis and inhibit insulin secretion. Also, adrenergic medications may decrease glucose uptake by muscle cells. For treatment of cold symptoms, nasal decongestants may be preferable for short term, limited use (1 to 3 days) as an alternative to systemic decongestants in patients taking medications for diabetes.

Regular Insulin; Isophane Insulin (NPH): (Moderate) Sympathomimetic agents tend to increase blood glucose concentrations when administered systemically. Monitor for loss of glycemic control when sympathomimetics are administered to patients taking insulin. Sympathomimetics, through stimulation of alpha- and beta- receptors, increase hepatic glucose production and glycogenolysis and inhibit insulin secretion. Also, adrenergic medications may decrease glucose uptake by muscle cells. For treatment of cold symptoms, nasal decongestants may be preferable for short term, limited use (1 to 3 days) as an alternative to systemic decongestants in patients taking medications for diabetes.

Repaglinide: (Moderate) Sympathomimetic agents and adrenergic agonists tend to increase blood glucose concentrations when administered systemically. Monitor for loss of glycemic control when pseudoephedrine, phenylephrine, and other sympathomimetics are administered to patients taking antidiabetic agents. Epinephrine and other sympathomimetics, through stimulation of alpha- and beta- receptors, increase hepatic glucose production and glycogenolysis and inhibit insulin secretion. Also, adrenergic medications may decrease glucose uptake by muscle cells. For treatment of cold symptoms, nasal decongestants may be preferable for short term, limited use (1 to 3 days) as an alternative to systemic decongestants in patients taking medications for diabetes.

Riociguat: (Major) Avoid use of sympathomimetic agents with riociguat. Sympathomimetics counteract the medications used to stabilize pulmonary hypertension, including riociguat. Sympathomimetics can increase blood pressure, increase heart rate, and may cause vasoconstriction resulting in chest pain and shortness of breath in these patients. Patients should be advised to avoid amphetamine drugs, decongestants (including nasal decongestants) and sympathomimetic anorexiants for weight loss, including dietary supplements. Intravenous vasopressors may be used in the emergency management of pulmonary hypertension patients when needed, but hemodynamic monitoring and careful monitoring of cardiac status are needed to avoid ischemia and other complications.

Rocuronium: (Minor) Ephedrine may reduce the onset time of neuromuscular blockade when used for intubation with rocuronium if given simultaneously with anesthetic induction.

Rosiglitazone: (Moderate) Sympathomimetic agents tend to increase blood glucose

concentrations when administered systemically. Monitor for loss of glycemic control when sympathomimetics are administered to patients taking thiazolidinediones. Sympathomimetics, through stimulation of alpha- and beta- receptors, increase hepatic glucose production and glycogenolysis and inhibit insulin secretion. Also, adrenergic medications may decrease glucose uptake by muscle cells. For treatment of cold symptoms, nasal decongestants may be preferable for short term, limited use (1 to 3 days) as an alternative to systemic decongestants in patients taking medications for diabetes.
Sacubitril; Valsartan: (Moderate) The cardiovascular effects of sympathomimetics, such as ephedrine, may reduce the antihypertensive effects produced by angiotensin II receptor antagonists. Blood pressure and heart rates should be monitored closely to confirm that the desired antihypertensive effect is achieved.
Safinamide: (Moderate) Severe hypertensive reactions, including hypertensive crisis, have been reported in patients taking monoamine oxidase inhibitors (MAOIs), such as safinamide, and sympathomimetic medications, such as ephedrine. If concomitant use of safinamide and ephedrine is necessary, monitor for hypertension and hypertensive crisis.
Salmeterol: (Moderate) Caution and close observation should also be used when salmeterol is used concurrently with other adrenergic sympathomimetics, administered by any route, to avoid potential for increased cardiovascular effects.
sAXagliptin: (Moderate) Sympathomimetic agents tend to increase blood glucose concentrations when administered systemically. Monitor for loss of glycemic control when sympathomimetics are administered to patients taking dipeptidyl peptidase-4 (DPP-4) inhibitors. Sympathomimetics, through stimulation of alpha- and beta-receptors, increase hepatic glucose production and glycogenolysis and inhibit insulin secretion. Also, adrenergic medications may decrease glucose uptake by muscle cells. For treatment of cold symptoms, nasal decongestants may be preferable for short term, limited use (1 to 3 days) as an alternative to systemic decongestants in patients taking medications for diabetes.
Selegiline: (Moderate) Monitor blood pressure for hypertension during concomitant use of selegiline and sympathomimetics such as ephedrine. The use of these drugs together may produce substantial elevations in blood pressure. If a hypertensive crisis occurs, selegiline should be discontinued and therapy to lower blood pressure should be instituted immediately.
Selexipag: (Major) Avoid use of sympathomimetic agents with selexipag. Sympathomimetics counteract the medications used to stabilize pulmonary hypertension, including selexipag. Sympathomimetics can increase blood pressure, increase heart rate, and may cause vasoconstriction resulting in chest pain and shortness of breath in these patients. Patients should be advised to avoid amphetamine drugs, decongestants (including nasal decongestants) and sympathomimetic

anorexiants for weight loss, including dietary supplements. Intravenous vasopressors may be used in the emergency management of pulmonary hypertension patients when needed, but hemodynamic monitoring and careful monitoring of cardiac status are needed to avoid ischemia and other complications.
Semaglutide: (Moderate) Sympathomimetic agents tend to increase blood glucose concentrations when administered systemically. Monitor for loss of glycemic control when sympathomimetics are administered to patients taking incretin mimetics. Sympathomimetics, through stimulation of alpha- and beta- receptors, increase hepatic glucose production and glycogenolysis and inhibit insulin secretion. Also, adrenergic medications may decrease glucose uptake by muscle cells. For treatment of cold symptoms, nasal decongestants may be preferable for short term, limited use (1 to 3 days) as an alternative to systemic decongestants in patients taking medications for diabetes.
Serdexmethylphenidate; Dexmethylphenidate: (Moderate) Methylphenidate derivatives can potentiate the actions of both exogenous (such as dopamine and epinephrine) and endogenous (such as norepinephrine) vasopressors. It is advisable to monitor cardiac function if these medications are coadministered. Vasopressors include medications such as epinephrine, dopamine, midodrine, and non-prescription medications such as pseudoephedrine and phenylephrine.
SGLT2 Inhibitors: (Moderate) Sympathomimetic agents tend to increase blood glucose concentrations when administered systemically. Monitor for loss of glycemic control when sympathomimetics are administered to patients taking SGLT2 inhibitors. Sympathomimetics, through stimulation of alpha- and beta- receptors, increase hepatic glucose production and glycogenolysis and inhibit insulin secretion. Also, adrenergic medications may decrease glucose uptake by muscle cells. For treatment of cold symptoms, nasal decongestants may be preferable for short term, limited use (1 to 3 days) as an alternative to systemic decongestants in patients taking medications for diabetes.
SITagliptin: (Moderate) Sympathomimetic agents tend to increase blood glucose concentrations when administered systemically. Monitor for loss of glycemic control when sympathomimetics are administered to patients taking dipeptidyl peptidase-4 (DPP-4) inhibitors. Sympathomimetics, through stimulation of alpha- and beta-receptors, increase hepatic glucose production and glycogenolysis and inhibit insulin secretion. Also, adrenergic medications may decrease glucose uptake by muscle cells. For treatment of cold symptoms, nasal decongestants may be preferable for short term, limited use (1 to 3 days) as an alternative to systemic decongestants in patients taking medications for diabetes.
Sodium Bicarbonate: (Moderate) Sodium bicarbonate-induced urinary alkalization can increase the half-life of ephedrine.
Sodium Citrate; Citric Acid: (Minor) The renal clearance of certain drugs can be affected

by the administration of sodium citrate due to urinary alkalinization. Drug-induced urinary alkalization can increase the half-life of ephedrine by increasing tubular reabsorption.
Solriamfetol: (Moderate) Monitor blood pressure and heart rate during coadministration of solriamfetol, a norepinephrine and dopamine reuptake inhibitor, and vasopressors. Concurrent use of solriamfetol and other medications that increase blood pressure and/or heart rate may increase the risk of such effects. Coadministration of solriamfetol with other drugs that increase blood pressure or heart rate has not been evaluated.
Sotagliflozin: (Moderate) Sympathomimetic agents tend to increase blood glucose concentrations when administered systemically. Monitor for loss of glycemic control when sympathomimetics are administered to patients taking SGLT2 inhibitors. Sympathomimetics, through stimulation of alpha- and beta- receptors, increase hepatic glucose production and glycogenolysis and inhibit insulin secretion. Also, adrenergic medications may decrease glucose uptake by muscle cells. For treatment of cold symptoms, nasal decongestants may be preferable for short term, limited use (1 to 3 days) as an alternative to systemic decongestants in patients taking medications for diabetes.
Sotalol: (Moderate) Monitor hemodynamic parameters and for loss of efficacy during concomitant sympathomimetic agent and beta-blocker use; dosage adjustments may be necessary. Concomitant use may antagonize the cardiovascular effects of either drug.
Spironolactone: (Major) The cardiovascular effects of sympathomimetics may reduce the antihypertensive effects produced by potassium-sparing diuretics. Blood pressure and heart rates should be monitored closely to confirm that the desired antihypertensive effect is achieved.
Spironolactone; hydroCHLOROthiazide, HCTZ: (Major) The cardiovascular effects of sympathomimetics may reduce the antihypertensive effects produced by potassium-sparing diuretics. Blood pressure and heart rates should be monitored closely to confirm that the desired antihypertensive effect is achieved. (Major) The cardiovascular effects of sympathomimetics, such as ephedrine, may reduce the antihypertensive effects produced by thiazide diuretics. Blood pressure and heart rates should be monitored closely to confirm that the desired antihypertensive effect is achieved.
St. John's Wort, Hypericum perforatum: (Major) St. John's wort, Hypericum Perforatum may reduce the neuronal uptake of monoamines and should be used cautiously with sympathomimetics or drugs with sympathomimetic-like actions.
Sulfonylureas: (Moderate) Sympathomimetic agents tend to increase blood glucose concentrations when administered systemically. Monitor for loss of glycemic control when sympathomimetics are administered to patients taking sulfonylureas. Sympathomimetics, through stimulation of alpha- and beta- receptors, increase hepatic glucose production and glycogenolysis and inhibit insulin secretion. Also, adrenergic medications may decrease glucose uptake by muscle cells. For treatment of cold

symptoms, nasal decongestants may be preferable for short term, limited use (1 to 3 days) as an alternative to systemic decongestants in patients taking medications for diabetes.
Telmisartan: (Moderate) The cardiovascular effects of sympathomimetics, such as ephedrine, may reduce the antihypertensive effects produced by angiotensin II receptor antagonists. Blood pressure and heart rates should be monitored closely to confirm that the desired antihypertensive effect is achieved.
Telmisartan; amLODIPine: (Major) The cardiovascular effects of sympathomimetics, such as ephedrine, may reduce the antihypertensive effects produced by calcium-channel blockers. Blood pressure and heart rates should be monitored closely to confirm that the desired antihypertensive effect is achieved. (Moderate) The cardiovascular effects of sympathomimetics, such as ephedrine, may reduce the antihypertensive effects produced by angiotensin II receptor antagonists. Blood pressure and heart rates should be monitored closely to confirm that the desired antihypertensive effect is achieved.
Telmisartan; hydroCHLOROthiazide, HCTZ: (Major) The cardiovascular effects of sympathomimetics, such as ephedrine, may reduce the antihypertensive effects produced by thiazide diuretics. Blood pressure and heart rates should be monitored closely to confirm that the desired antihypertensive effect is achieved. (Moderate) The cardiovascular effects of sympathomimetics, such as ephedrine, may reduce the antihypertensive effects produced by angiotensin II receptor antagonists. Blood pressure and heart rates should be monitored closely to confirm that the desired antihypertensive effect is achieved.
Terazosin: (Moderate) Carefully monitor blood pressure in patients who have received both ephedrine and alpha-blockers; alpha-blockers antagonize the pressor effect of ephedrine.
Terbutaline: (Major) Concomitant use of sympathomimetics with beta-agonists might result in additive cardiovascular effects such as increased blood pressure and heart rate.
Theophylline, Aminophylline: (Moderate) Concomitant use of theophylline and ephedrine may produce synergistic CNS effects, resulting in nausea, nervousness, and insomnia. Monitor the patient for worsening symptoms and manage according to clinical practice. (Moderate) Concurrent administration of theophylline or aminophylline with sympathomimetics can produce excessive stimulation manifested by skeletal muscle activity, agitation, and hyperactivity.
Thiazide diuretics: (Major) The cardiovascular effects of sympathomimetics, such as ephedrine, may reduce the antihypertensive effects produced by thiazide diuretics. Blood pressure and heart rates should be monitored closely to confirm that the desired antihypertensive effect is achieved.
Thiazolidinediones: (Moderate) Sympathomimetic agents tend to increase blood glucose concentrations when administered systemically. Monitor for loss of glycemic control when sympathomimetics are administered to patients taking thiazolidinediones.

Sympathomimetics, through stimulation of alpha- and beta- receptors, increase hepatic glucose production and glycogenolysis and inhibit insulin secretion. Also, adrenergic medications may decrease glucose uptake by muscle cells. For treatment of cold symptoms, nasal decongestants may be preferable for short term, limited use (1 to 3 days) as an alternative to systemic decongestants in patients taking medications for diabetes.
Thioridazine: (Major) Avoid use of ephedrine in patients receiving phenothiazines due to the risk of paradoxical vasodilation. Phenothiazines possess potent alpha-blocking properties, making the use of vasopressors with mixed alpha- and beta-agonist properties inappropriate. If a vasopressor is required, norepinephrine and phenylephrine are most appropriate.
Thiothixene: (Major) The alpha-adrenergic effects of adrenergic agonists like ephedrine, can be blocked during concurrent administration of thiothixene. This blockade can cause an apparently paradoxical condition called 'epinephrine reversal,' which can lead to severe hypotension, tachycardia, and, potentially, myocardial infarction.
Thyroid hormones: (Moderate) Monitor hemodynamic parameters during concomitant sympathomimetic agent and thyroid hormone use; dosage adjustments may be necessary. Concomitant use may increase the effects of sympathomimetics or thyroid hormone.
Timolol: (Moderate) Monitor hemodynamic parameters and for loss of efficacy during concomitant sympathomimetic agent and beta-blocker use; dosage adjustments may be necessary. Concomitant use may antagonize the cardiovascular effects of either drug.
Tirzepatide: (Moderate) Sympathomimetic agents tend to increase blood glucose concentrations when administered systemically. Monitor for loss of glycemic control when sympathomimetics are administered to patients taking incretin mimetics.
Sympathomimetics, through stimulation of alpha- and beta- receptors, increase hepatic glucose production and glycogenolysis and inhibit insulin secretion. Also, adrenergic medications may decrease glucose uptake by muscle cells. For treatment of cold symptoms, nasal decongestants may be preferable for short term, limited use (1 to 3 days) as an alternative to systemic decongestants in patients taking medications for diabetes.
Torsemide: (Major) The cardiovascular effects of sympathomimetics, such as ephedrine, may reduce the antihypertensive effects produced by loop diuretics. Blood pressure and heart rates should be monitored closely to confirm that the desired antihypertensive effect is achieved.
Trandolapril: (Major) The cardiovascular effects of sympathomimetics, such as ephedrine, may reduce the antihypertensive effects produced by angiotensin-converting enzyme inhibitors. Blood pressure and heart rates should be monitored closely to confirm that the desired antihypertensive effect is achieved.
Trandolapril; Verapamil: (Major) The cardiovascular effects of sympathomimetics, such

as ephedrine, may reduce the antihypertensive effects produced by angiotensin-converting enzyme inhibitors. Blood pressure and heart rates should be monitored closely to confirm that the desired antihypertensive effect is achieved. (Major) The cardiovascular effects of sympathomimetics, such as ephedrine, may reduce the antihypertensive effects produced by calcium-channel blockers. Blood pressure and heart rates should be monitored closely to confirm that the desired antihypertensive effect is achieved.
Tranylcypromine: (Contraindicated) In general, sympathomimetics should be avoided in patients receiving MAOIs due to an increased risk of hypertensive crisis. This applies to sympathomimetics including stimulants for ADHD, narcolepsy or weight loss, nasal, oral, and ophthalmic decongestants and cold products, and respiratory sympathomimetics (e.g., beta agonist drugs). Some local anesthetics also contain a sympathomimetic (e.g., epinephrine). In general, medicines containing sympathomimetic agents should not be used concurrently with MAOIs or within 14 days before or after their use.
Treprostinil: (Major) Avoid use of sympathomimetic agents with treprostinil. Sympathomimetics counteract the medications used to stabilize pulmonary hypertension, including treprostinil. Sympathomimetics can increase blood pressure, increase heart rate, and may cause vasoconstriction resulting in chest pain and shortness of breath in these patients. Patients should be advised to avoid amphetamine drugs, decongestants (including nasal decongestants) and sympathomimetic anorexiants for weight loss, including dietary supplements. Intravenous vasopressors may be used in the emergency management of pulmonary hypertension patients when needed, but hemodynamic monitoring and careful monitoring of cardiac status are needed to avoid ischemia and other complications.
Triamcinolone: (Moderate) Ephedrine may enhance the metabolic clearance of corticosteroids. Decreased blood concentrations and lessened physiologic activity may necessitate an increase in corticosteroid dosage.
Triamterene: (Major) The cardiovascular effects of sympathomimetics may reduce the antihypertensive effects produced by potassium-sparing diuretics. Blood pressure and heart rates should be monitored closely to confirm that the desired antihypertensive effect is achieved.
Triamterene; hydroCHLOROthiazide, HCTZ: (Major) The cardiovascular effects of sympathomimetics may reduce the antihypertensive effects produced by potassium-sparing diuretics. Blood pressure and heart rates should be monitored closely to confirm that the desired antihypertensive effect is achieved. (Major) The cardiovascular effects of sympathomimetics, such as ephedrine, may reduce the antihypertensive effects produced by thiazide diuretics. Blood pressure and heart rates should be monitored closely to confirm that the desired antihypertensive effect is achieved.
Tricyclic antidepressants: (Major) Tricyclic antidepressants (TCAs) may markedly enhance the pressor response to certain sympathomimetic agents, such as ephedrine or

ephedra. TCAs inhibit norepinephrine reuptake in adrenergic neurons, resulting in increased stimulation of adrenergic receptors. Clinically, the patient might experience hypertension, headache, tremor, palpitations, chest pain, or irregular heartbeat.
Trifluoperazine: (Major) Avoid use of ephedrine in patients receiving phenothiazines due to the risk of paradoxical vasodilation. Phenothiazines possess potent alpha-blocking properties, making the use of vasopressors with mixed alpha- and beta-agonist properties inappropriate. If a vasopressor is required, norepinephrine and phenylephrine are most appropriate.
Trimipramine: (Major) Tricyclic antidepressants (TCAs) may markedly enhance the pressor response to certain sympathomimetic agents, such as ephedrine or ephedra. TCAs inhibit norepinephrine reuptake in adrenergic neurons, resulting in increased stimulation of adrenergic receptors. Clinically, the patient might experience hypertension, headache, tremor, palpitations, chest pain, or irregular heartbeat.
Umeclidinium; Vilanterol: (Moderate) Administer sympathomimetics with caution with beta-agonists such as vilanterol. The cardiovascular effects of beta-2 agonists may be potentiated by concomitant use. Monitor the patient for tremors, nervousness, increased heart rate, or other additive side effects.
Valsartan: (Moderate) The cardiovascular effects of sympathomimetics, such as ephedrine, may reduce the antihypertensive effects produced by angiotensin II receptor antagonists. Blood pressure and heart rates should be monitored closely to confirm that the desired antihypertensive effect is achieved.
Valsartan; hydroCHLOROthiazide, HCTZ: (Major) The cardiovascular effects of sympathomimetics, such as ephedrine, may reduce the antihypertensive effects produced by thiazide diuretics. Blood pressure and heart rates should be monitored closely to confirm that the desired antihypertensive effect is achieved. (Moderate) The cardiovascular effects of sympathomimetics, such as ephedrine, may reduce the antihypertensive effects produced by angiotensin II receptor antagonists. Blood pressure and heart rates should be monitored closely to confirm that the desired antihypertensive effect is achieved.
Vasodilators: (Moderate) Use sympathomimetic agents with caution in patients receiving therapy for hypertension. Patients should be monitored to confirm that the desired antihypertensive effect is achieved. Sympathomimetics can increase blood pressure and heart rate, and antagonize the antihypertensive effects of vasodilators when administered concomitantly. Anginal pain may be induced when coronary insufficiency is present.
Verapamil: (Major) The cardiovascular effects of sympathomimetics, such as ephedrine, may reduce the antihypertensive effects produced by calcium-channel blockers. Blood pressure and heart rates should be monitored closely to confirm that the desired antihypertensive effect is achieved.

Adverse Reaction

bradycardia, hypertension, palpitations, sinus tachycardia

Reactive hypertension, palpitations, sinus tachycardia, bradycardia, ventricular ectopics, and R-R variability have been associated with ephedrine use.

dizziness, restlessness

Dizziness and restlessness have been associated with ephedrine use.

nausea, vomiting

Nausea and vomiting are associated with the use of ephedrine.

tolerance

Tolerance and tachyphylaxis can occur with repeated administration of ephedrine injection. Use an alternative pressor agent to mitigate low unsatisfactory response to ephedrine.

Description

Ephedrine is an injectable alpha- and beta-adrenergic agonist and a norepinephrine-releasing agent indicated for the treatment of clinically important hypotension occurring in the setting of anesthesia. Ephedrine is sometimes used to relieve acute bronchospasm; however, it is less effective than epinephrine for this purpose. Ephedrine sulfate oral tablet is indicated for the temporary relief of mild symptoms of intermittent asthma, including episodic wheezing, tightness of chest, and shortness of breath. Ephedrine will not provide asthma relief as quickly as an inhaled bronchodilator. Guidelines do not recommend the use of ephedrine for asthma. The most common adverse reactions associated with ephedrine include nausea, vomiting, and tachycardia.

Mechanism Of Action

Ephedrine is a sympathomimetic amine that acts directly as an agonist at alpha and beta-adrenergic receptors. It indirectly causes the release of norepinephrine from sympathetic neurons. Ephedrine stimulates heart rate and cardiac output and variably increases peripheral resistance resulting in an increase in blood pressure. Beta-adrenergic receptor activation in the lungs results in bronchodilation.

Pharmacokinetics

Ephedrine is administered intravenously. Small amounts of ephedrine are metabolized by the liver. Metabolites have been identified as p-hydroxyephedrine, p-hydroxynorephedrine, norephedrine and conjugates of these metabolites. Ephedrine and its metabolites are excreted primarily in the urine, mostly as unchanged drug. The elimination of ephedrine and its metabolites is enhanced by an acidic urinary pH. The elimination half-life of ephedrine is reported to be about 3 hours and 6 hours at a urinary pH of 5 or 6.3, respectively.

Affected cytochrome P450 isoenzymes and drug transporters: none

Administration

For storage information, see the specific product information within the How Supplied section.

Oral Administration

Avoid or limit foods or beverages that contain caffeine. Also avoid dietary supplements containing ingredients reported or claimed to have stimulant effect.

Injectable Administration

Visually inspect parenteral products for particulate matter and discoloration prior to administration whenever solution and container permit.

Intravenous Administration

Dilution, ephedrine HYDROCHLORIDE
The 47 mg/mL solution must be diluted prior to administration to a final concentration of 4.7 mg/mL.
Withdraw 47 mg (1 mL) and dilute with 9 mL of 5% Dextrose Injection or 0.9% Sodium Chloride Injection.
The 9.4 mg/mL solution can be used as provided or diluted prior to administration to a final concentration of 4.7 mg/mL.
Withdraw 47 mg (5 mL) and dilute with 5 mL of 5% Dextrose Injection of 0.9% Sodium Chloride Injection.
Do not dilute the premixed 4.7 mg/mL solution prior to administration.
Storage: Discard diluted solution after 4 hours at room temperature or 24 hours under refrigerated conditions.

Dilution, ephedrine SULFATE
The 50 mg/mL solution must be diluted prior to administration to a final concentration of 5 mg/mL.
Withdraw 50 mg (1 mL) and dilute with 9 mL of 5% Dextrose Injection or 0.9% Sodium Chloride Injection.
Do not dilute the premixed 25 mg/5 mL prefilled syringe prior to administration. The prefilled syringe is single-use only.

Administration
Administer by bolus IV injection.

Maximum Dosage Limits

- **Adults**
  150 mg/day PO; 47 mg ephedrine hydrochloride (38 mg ephedrine base) or 50 mg ephedrine sulfate (38 mg ephedrine base) IV total dose.
- **Geriatric**
  150 mg/day PO; 47 mg ephedrine hydrochloride (38 mg ephedrine base) or 50 mg ephedrine sulfate (38 mg ephedrine base) IV total dose.
- **Adolescents**
  150 mg/day PO.
- **Children**
  12 years: 150 mg/day PO.
  1 to 11 years: Safety and efficacy have not been established.
- **Infants**
  Safety and efficacy have not been established.
- **Neonates**
  Safety and efficacy have not been established.

Dosage Forms

- AKOVAZ 25mg/5mL Solution for Injection
- AKOVAZ 50mg/mL Solution for Injection
- AKOVAZ 50mg/mL Solution for Injection
- BRONKAID Max 25mg Caplet
- CVS Asthma Relief Maximum Strength 25mg Caplet
- CVS Bronchial Asthma Relief 12.5mg-200mg Tablet

- Emerphed 25mg/5mL Solution for Injection
- Emerphed 50mg/10mL Solution for Injection
- Ephedrine Hydrochloride Bulk powder
- Ephedrine Sulfate 10mg/1mL Solution for injection
- Ephedrine Sulfate 50mg/1mL Solution for injection
- Ephedrine Sulfate 5mg/1mL Solution for injection
- Ephedrine Sulfate Bulk powder
- Primatene 12.5mg Tablet
- Primatene 12.5mg-200mg Tablet
- Primatene 12.5mg-200mg Tablet
- Rezipres 47mg/10mL Solution for Injection
- Walgreens Asthma Relief 12.5mg Tablet
- Walgreens Asthma Relief 25mg Caplet
- Walgreens Bronchial Asthma Relief 12.5mg-200mg Tablet

Dosage Adjustment Guidelines

Hepatic Impairment

Specific guidelines for dosage adjustments in hepatic impairment are not available; it appears that no dosage adjustments are needed.

Renal Impairment

Specific guidelines for dosage adjustments in renal impairment are not available; it appears that no dosage adjustments are needed.