

## First Generation Antihistamines

First generation antihistamines act through antagonism of histamine H<sub>1</sub> receptors. They are indicated for allergies, nausea and vomiting, motion sickness, and anaphylaxis. Drugs in this class include diphenhydramine, or benadryl, promethazine, or phenergan, and chlorpheniramine. Side effects include sedation and anticholinergic effects.



PLAY PICMONIC

### Mechanism of Action

#### Histamine H<sub>1</sub> Receptor Antagonist

[History-man with \(1\) Wand in Ant-toga](#)

First generation antihistamines such as diphenhydramine, promethazine, and chlorpheniramine antagonize H<sub>1</sub> receptors in the CNS and peripheral nervous system. By antagonizing these receptors, these drugs prevent histamine from increasing vascular permeability.

### Indications

#### Allergies

[Allergy-alligator](#)

Allergies are mediated by a multitude of messenger molecules and factors, the most significant being histamine. Histamine acts on H<sub>1</sub> receptors to increase vascular permeability. Allergic swelling, urticaria, and rhinitis are histamine-mediated, and thus H<sub>1</sub> blockade will nullify these symptoms.

#### Nausea and Vomiting

[Vomiting](#)

H<sub>1</sub> receptors in the CNS play a role in the stimulation of nausea and vomiting. Blockade of these receptors by H<sub>1</sub> receptor antagonists can reduce nausea and vomiting.

#### Motion Sickness

[Sea sick](#)

H<sub>1</sub> receptors also play an important role in vestibular compensation and balance. Erroneous stimulation of these receptors during movement (or perceived movement, such as in virtual reality) can lead to motion sickness, which is characterized by nausea, vomiting, and/or autonomic symptoms. H<sub>1</sub> receptor blockers can alleviate these symptoms.

#### Anaphylaxis

[Anvil-axes](#)

Anaphylaxis is a potentially deadly disorder characterized by massive mast cell degranulation. It typically presents with urticaria, rash, respiratory distress and hypotension. As these effects are partially mediated by increased vascular permeability due to histamine release, antihistamines are indicated in the management of patients with anaphylaxis.

## Drug Names

### Diphenhydramine (Benadryl)

[Dolphin-hydra](#)

Diphenhydramine, or Benadryl, is an over-the-counter antihistamine used as a sedative, to treat hay fever/allergic reactions, and as an anti-tussive.

### Promethazine (Phenergan)

[Pro-moth-sailing](#)

Promethazine is a first generation H1 antagonist antihistamine and is used to treat allergies, nausea and vomiting, motion sickness, and can be used as a sedative.

### Chlorpheniramine

[Color-fin-mime](#)

Chlorpheniramine is a first generation H1 antagonist antihistamine and is used to treat allergies.

## Side Effects

### Sedation

[Sedation-dart](#)

First generation antihistamines are occasionally used as sedatives for patients experiencing insomnia, as H1 blockade in the CNS causes sedation. It is important to also remember that while some patients may take antihistamines specifically for this effect, for other patients taking antihistamines for other reasons this may represent an undesired side-effect.

### Anticholinergic Effects

[Ant-tie-cola](#)

First generation H1 antagonist antihistamines have some anti-cholinergic activity on muscarinic receptors which can cause dry mouth, tachycardia, among other side effects. These drugs should be used with caution in the elderly, as they increase fall risk.