
ANTIHISTAMINES (Diphenhydramine, Doxylamine, Hydroxyzine) Fact Sheet [G]

BOTTOM LINE:

Antihistamines can be effective sleepers for some kids and are the most prescribed by pediatricians, although some patients may experience too much grogginess (“hangover”) in the morning or a paradoxical excitation. Good option to keep in your bag of tricks due to experience in kids and low risk of tolerance, dependence, or abuse.

PEDIATRIC FDA INDICATIONS:

- Diphenhydramine: **Insomnia** (12–17 years); allergies (20+ lbs); motion sickness (6+ years).
- Doxylamine: **Insomnia** (12+ years); rhinitis (12+ years).
- Hydroxyzine: **Anxiety** (6–17 years); pruritis (<6 years by weight).

ADULT FDA INDICATIONS:

Insomnia; allergies; motion sickness; anti-Parkinsonism.

OFF-LABEL USES:

EPS; nausea and vomiting (morning sickness).

DOSAGE FORMS:

- Diphenhydramine (G): Tablets, chewable tablets, caplets, capsules, and oral solutions, varies by brand: 25 mg, 50 mg. Available as Benadryl, Compoz, Nytol, Simply Sleep, Sleep-Eze, Sominex, Unisom SleepGels, Unisom SleepMelts, and generic.
- Doxylamine (G): Tablets: 25 mg. Available as NyQuil, Unisom SleepTabs, and generic.
- Hydroxyzine (G): Capsules: 25, 50, 100 mg; tablets: 10, 25, 50 mg; liquid: 10 mg/5 mL; injectable: 25 mg/mL, 50 mg/mL. Available as Atarax, Vistaril, and generic.

PEDIATRIC DOSAGE GUIDANCE:

- Diphenhydramine: Start 25 mg (use 12.5 mg in kids 6–11 years or 6.25 mg in kids 2–5 years) 30 minutes before bedtime. The dose required to induce sleep can be as low as 6.25 mg, but usual dose is 25 mg. Some older kids may require 50 mg at bedtime.
- Doxylamine: For insomnia in children 12+ years: 25 mg given 30 minutes before bedtime.
- Hydroxyzine: For children <6 years: 50 mg/day divided or 2 mg/kg/day divided every six to eight hours, or 15 mg/m²/day given in divided doses; for children ≥6 years: 50–100 mg/day divided, or 2 mg/kg/day divided every six to eight hours.

MONITORING: No specific monitoring of note.

COST: \$

SIDE EFFECTS:

- Most common: Dry mouth, ataxia, urinary retention, constipation, drowsiness, memory problems.
- Serious but rare: Blurred vision, tachycardia.

MECHANISM, PHARMACOKINETICS, AND DRUG INTERACTIONS:

- Histamine H1 antagonist.
- Metabolized by liver, primarily CYP2D6; t_{1/2}: for diphenhydramine, 3.5–9 hours; for doxylamine, 10 hours (12–15 hours in elderly); for hydroxyzine, 20–25 hours.
- Avoid use with other antihistamines or anticholinergics (additive effects).

EVIDENCE AND CLINICAL PEARLS:

- Controlled studies of diphenhydramine and placebo have reported mixed results. Two found it no better than placebo for sleep quality and maintenance in infants, children, and adolescents, while the third found improvement in sleep initiation and maintenance compared to placebo. One study in babies 6–15 months found diphenhydramine no better than placebo.
- These antihistamines non-selectively antagonize central and peripheral histamine H1 receptors. They also have secondary anticholinergic effects, which can cause side effects including dry mouth and urinary retention, as well as cognitive impairment in susceptible populations. Some kids may experience a paradoxical excitation.
- Tolerance may develop over time, necessitating use of higher doses. Best used as short-term sleep aid.
- Be aware that anticholinergic drugs are often used to treat or prevent EPS in patients taking antipsychotics; diphenhydramine is often chosen and dosed at night to take advantage of its sedative effect.

FUN FACT:

The name NyQuil is a portmanteau of “night” and “tranquil.”