

Asthma Exacerbation

A plain-English guide for you and your family

WHAT IS HAPPENING

Asthma airways are jumpy. When they meet a trigger—cold air, running, cat fur, smoke, or a cold virus (rhinovirus is the most common)—three things happen fast. The ring of muscle around each airway squeezes tight. The airway lining puffs up. And thick mucus fills the tube. Now air cannot flow in or out easily. You wheeze (a high whistling sound), cough, feel your chest squeeze, and fight to catch your breath. Fast-acting inhalers like albuterol relax the muscle ring and open the pipe back up. Daily controller inhalers with inhaled steroids calm the swelling and stop attacks before they start. Learning what sets off your asthma and using your daily inhaler every single day—even when you feel fine—prevents most attacks and keeps your lungs safe.

What you might feel

- Wheeze (mostly when breathing out)
- Cough (often at night or after exercise)
- Chest tightness or pressure
- Shortness of breath (hard to get enough air)
- Prolonged breathing-out phase (takes longer to exhale)
- Using neck, shoulder, and rib muscles to breathe
- Speaking only a few words at a time or one word per breath
- Silent chest (no wheeze, almost no breath sounds)
- Confusion, extreme drowsiness, or blue lips and fingernails
- Fast heart rate and heavy sweating

Call the doctor right away if...

- Silent chest, speaking only one word at a time, blue skin, or confusion—life-threatening asthma; breathing may stop within minutes
- Carbon dioxide level holding steady or rising during a severe attack—the breathing muscles are exhausting and the lungs are starting to fail

- Little or no improvement after one hour of strong inhaled medicine and steroids—the attack is not responding to standard treatment
- History of being put on a breathing machine for asthma before, or any hospital admission for asthma in the past year—marks the person as high-risk for another severe attack
- Cannot lie flat or can only say one word per breath—the airways are severely blocked

What the care team will do

- Assess airway and work of breathing every 15 minutes during acute phase
- Continuous pulse ox + peak flow trend after each treatment
- Give steroids EARLY (first hour)
- Never leave a severe asthma patient alone
- Teach inhaler technique + trigger avoidance + written action plan on discharge

Medicines you may be given — and why

Albuterol (Ventolin, ProAir)

Albuterol is a rescue inhaler that opens tight airways fast. It locks onto tiny switches called beta-2 receptors on the muscle wrapped around your breathing tubes. When albuterol clicks in, the muscle relaxes like a fist opening, the airways widen, and air flows easier within 5 to 15 minutes.

Prednisone (oral) or methylprednisolone (IV)

Prednisone quiets the whole immune storm inside your airway walls. It shuts down the white blood cells (eosinophils) and chemical messengers (cytokines) that cause swelling, mucus, and inflammation. Relief starts in 4 to 6 hours and lasts for days, which prevents you from bouncing back to the emergency room.

Ipratropium bromide (Atrovent)

Ipratropium blocks a different tightening signal in the airways—acetylcholine, a nerve chemical that tells airway muscle to squeeze. By blocking muscarinic receptors (the switches acetylcholine uses), ipratropium prevents that squeeze and adds extra airway opening when combined with albuterol. Peak effect comes in 30 to 60 minutes.

Magnesium sulfate (IV)

Magnesium is a charged particle (cation) that calms overexcited muscle cells in the airways. It blocks calcium channels (the doors calcium uses to enter muscle cells) and helps push calcium

out, so the muscle cannot stay tight. Given through an IV, magnesium relaxes airways that have not responded enough to albuterol and steroids.

Oxygen (O₂)

During an asthma attack, tight airways trap air and block oxygen from reaching your blood. Giving extra oxygen through a mask or nasal prongs raises the oxygen level in the air you breathe (from 21 percent up to 100 percent), which pushes more oxygen molecules across the lung membrane into your blood. The goal is to keep oxygen saturation (SpO₂) at 93 to 95 percent or higher so your brain, heart, and other organs get enough fuel.

Where this information comes from

- Global Initiative for Asthma (GINA) 2024 Report
- NHLBI Expert Panel Report 4 (EPR-4) on Asthma Management 2020
- American Academy of Allergy, Asthma & Immunology (AAAAI)
- UpToDate Clinical Decision Support

Last reviewed: 2026-02-28