

Influenza

A plain-English guide for you and your family

WHAT IS HAPPENING

Normally, the wet lining inside your nose, throat, and breathing tubes traps germs in sticky mucus and sweeps them out before they can multiply. Tiny hairs called cilia wave like grass in the wind, pushing the mucus up and out. Your immune system patrols constantly, ready to tag and destroy any virus that lands. That defense works against most everyday germs. But influenza A and B viruses are built to break through: they latch onto the cells in that wet lining, punch inside, hijack the cell's machinery to copy themselves thousands of times, then burst the cell open and spread to neighbors. Within hours, huge patches of lining are infected. Your immune system sounds the alarm and floods the area with fighters — that battle is what causes the sudden high fever (often 102–104°F), the deep muscle aches (especially in your back and legs), the pounding headache, the bone-tired feeling, and the dry cough as your lungs try to clear out dead cells and fluid. Most healthy people recover in one to two weeks, but the damaged lining stays raw and swollen for days, which lets bacteria that normally live quietly in your throat (like *Streptococcus pneumoniae* or *Staphylococcus aureus*) drift down into the lungs and start a second infection called bacterial pneumonia — that is why some people feel better for a few days, then suddenly spike a new fever and get short of breath. High-risk groups (adults over 65, pregnant women, kids under 5, and anyone with asthma, COPD, heart disease, diabetes, or a weak immune system) can go from mild flu to severe pneumonia in 24 to 48 hours, so they need antiviral medicine (oseltamivir or baloxavir) started within two days of symptoms to cut the virus off before it spreads too far. The yearly flu shot trains your immune system to recognize that season's strains so it can stop the virus at the door, before it ever punches into your cells.

What you might feel

- Sudden high fever (usually 100–104°F)
- Dry cough
- Muscle and body aches (myalgia)
- Severe fatigue and weakness
- Headache

- Chills and sweats
- Sore throat
- Stuffy or runny nose
- Shortness of breath or chest discomfort
- Confusion or severe drowsiness (especially in young children or older adults)

Call the doctor right away if...

- Trouble breathing, fast breathing, or chest pain when breathing
- Confusion, severe drowsiness, or trouble waking up
- Symptoms improve for a day or two, then suddenly get worse with new high fever or cough (may signal bacterial pneumonia on top of flu)
- Severe weakness or dizziness that makes it hard to stand
- In children: bluish lips or face, not drinking enough fluids, or being so irritable they don't want to be held

What the care team will do

- Check oxygen saturation with pulse oximeter and breathing rate every 4 hours
- Start oseltamivir 75 mg by mouth twice daily within 48 hours of symptom start
- Keep the patient in a single room and require masks for anyone entering for 5 days from symptom start
- Give acetaminophen 650 mg or ibuprofen 400 mg by mouth every 6 hours for fever above 100.4°F
- Push oral fluids to 2 liters per day and watch urine output and color every shift
- Teach the patient to watch for worsening shortness of breath, chest pain, confusion, or return of high fever after day 3
- Do not give aspirin to anyone under 18 years old with flu symptoms

Medicines you may be given — and why

Oseltamivir (Tamiflu)

Oseltamivir blocks neuraminidase, an enzyme (a tiny chemical tool) that the flu virus uses like scissors to cut itself free from an infected cell. Without it, new virus copies get stuck and cannot spread to more cells in your airways. This stops the infection from getting worse and shortens how long you feel sick.

Baloxavir (Xofluza)

Baloxavir blocks cap-dependent endonuclease, an enzyme the flu virus uses to steal a special cap from your cell's own messenger molecules (mRNA). The virus needs that stolen cap to make its own proteins and copy itself. When baloxavir blocks this theft, the virus cannot build new copies, so the infection stops spreading.

Zanamivir (Relenza)

Zanamivir blocks the same neuraminidase enzyme as oseltamivir, trapping new virus copies so they cannot spread. You breathe it in as a powder, so it goes straight to your airways where the flu virus is multiplying. This stops the infection from getting worse and shortens how long you are sick.

Peramivir (Rapivab)

Peramivir blocks neuraminidase just like oseltamivir, trapping new flu virus copies so they cannot spread. It is given as a one-time injection into a vein, so it is used when someone is too sick to swallow pills or needs hospital-level care.

Acetaminophen (Tylenol) or Ibuprofen (Advil, Motrin)

Acetaminophen lowers fever by acting on the hypothalamus (the brain's thermostat) to turn down your body's heat set-point. Ibuprofen does the same and also blocks COX enzymes, which make prostaglandins (chemicals that cause pain, fever, and swelling). Both ease the aches, headache, and fever that come with the flu, but they do NOT fight the virus itself.

Influenza vaccine (flu shot or nasal spray)

The flu vaccine teaches your immune system to recognize pieces of the flu virus (either killed virus proteins in the shot or a weakened live virus in the nasal spray). Your body makes antibodies and memory cells against those pieces. If the real flu virus shows up later, your immune system recognizes it instantly and attacks before it can make you sick, or at least makes the illness much milder.

Where this information comes from

- CDC seasonal influenza guidelines
- IDSA clinical practice guideline for seasonal influenza (2018)
- WHO influenza surveillance and monitoring
- Cochrane systematic reviews on influenza diagnosis and treatment

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