

Drowning

A plain-English guide for you and your family

WHAT IS HAPPENING

When someone is underwater, the body protects itself at first: the throat snaps shut (laryngospasm) to keep water out, and the person holds their breath. But if they stay under too long, the body can't hold on anymore. They gasp, and water rushes into the lungs. Once water is inside, it washes away surfactant — the slippery coating that keeps the tiny air sacs open — and it damages the thin walls where oxygen normally crosses into the blood. Now oxygen can't get in. The blood oxygen level drops, the brain and heart start to starve, and within minutes the heart can stop beating. If the person is rescued and revived in time, they are not out of danger yet: over the next few hours, the immune system can flood the injured lungs with inflammation and fluid, leading to acute respiratory distress syndrome (ARDS), which blocks oxygen all over again. Every weird finding — the gasping, the crackles in the lungs, the low oxygen — traces back to that one upstream problem: water in the lungs blocking oxygen from reaching the blood.

What you might feel

- The person was underwater or their face was in the water
- They cough hard and sound wet
- They breathe fast and work hard to breathe
- Crackling or bubbling sounds in the lungs when you listen with a stethoscope
- Low oxygen level on the pulse oximeter (the finger clip)
- Confusion or acting strange
- Blue or gray color to the lips, face, or fingernails (cyanosis)
- Vomiting
- Chest pain or tightness

Call the doctor right away if...

- Any trouble breathing or fast breathing that does not get better quickly
- Confusion, extreme sleepiness, or not responding normally

- Blue or gray color to the lips or face
- Coughing up pink or frothy spit (a sign of fluid building up in the lungs)
- Chest pain or very low oxygen level on the monitor

What the care team will do

- Check airway, breathing, and pulse immediately; start five rescue breaths before chest compressions if the person has no pulse.
- Apply a pulse oximeter and give high-flow oxygen by non-rebreather mask to keep oxygen saturation above 94 percent.
- Prepare for intubation (inserting a breathing tube) and mechanical ventilation if the patient has severe respiratory distress, low oxygen despite high-flow oxygen, or decreased level of consciousness.
- Place the patient on continuous cardiac monitoring and watch for arrhythmias (irregular heartbeats), especially if the water was cold.
- Keep the patient warm with blankets or a warming device and monitor core body temperature.
- Listen to lung sounds every 1 to 2 hours and watch for new crackles, wheezing, or decreased breath sounds.
- Monitor neurological status (level of consciousness, ability to follow commands, pupil reactions) every hour and report any confusion, sleepiness, or worsening mental status immediately.
- Keep the patient NPO (nothing by mouth) until you confirm they can protect their airway and are not vomiting.

Medicines you may be given — and why

Supplemental oxygen

Drowning fills the air sacs in the lungs with water, so oxygen cannot get into the blood. Giving extra oxygen through a mask or tube raises the amount of oxygen molecules that reach the few working air sacs. This helps bring blood oxygen levels back up while the lungs recover and push out the water.

Mechanical ventilation (invasive or non-invasive)

When drowning causes severe lung injury, the air sacs collapse or fill with fluid and the person cannot breathe well enough on their own. A ventilator (breathing machine) pushes air and oxygen into the lungs at a steady rhythm and pressure. This keeps oxygen moving into the blood and carbon dioxide moving out while the lungs slowly heal.

Antibiotics (if aspiration pneumonia or infection develops)

Drowning in dirty water (lake, river, ocean, pool with poor chlorine) can pull bacteria, fungi, or other germs deep into the lungs. These germs multiply in the flooded, damaged air sacs and cause infection (aspiration pneumonia). Antibiotics kill or stop the bacteria from growing, allowing the immune system to clear the infection.

Rewarming therapy (for hypothermia)

Cold water pulls heat out of the body much faster than cold air. When body temperature drops below 95°F (35°C), the heart, brain, and other organs slow down and can stop working.

Rewarming brings the core temperature back to normal by adding heat from outside (warm blankets, warm IV fluids, heated air) or from inside (machines that warm the blood directly). As the body warms, the organs wake up and start working again.

Where this information comes from

- Wilderness Medical Society Clinical Practice Guidelines for the Treatment and Prevention of Drowning (2019)
- American Heart Association Guidelines for Cardiopulmonary Resuscitation and Emergency Cardiovascular Care
- World Health Organization: Drowning Fact Sheet
- Centers for Disease Control and Prevention (CDC): Drowning Prevention

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