CONDITION

Antidiarrheal medicine overdose

Learn how antidiarrheal medicine overdose can affect breathing, heart rhythm, and other body systems, and when to contact Poison Control or seek emergency care.

WHAT IT IS
Poisoning from too much antidiarrheal medicine

BODY SYSTEM
Digestive, nervous, lungs and breathing, heart and circulation

MAIN SYMPTOMS
Severe sleepiness, slow breathing, irregular heartbeat, confusion

WHAT CAUSES IT
Accidental or intentional excessive dosing

HOW IT IS DIAGNOSED
Exposure assessment, ECG, blood tests

MAIN TREATMENT
Supportive and emergency toxicology care

CAN IT BE CURED?
Sometimes, depending on overdose severity

IS IT AN EMERGENCY?
Sometimes, with slow breathing, fainting, or seizures

LONG-TERM OUTLOOK
Most low-risk exposures managed successfully, serious complications after significant overdose

Overview

An antidiarrheal medicine overdose happens when someone takes more diarrhea medicine than the body can safely process. It may result from an accidental extra dose, a child getting into medicine, confusion about product ingredients, or intentional misuse.

Different antidiarrheal medicines cause different types of poisoning. Common examples include:

At recommended amounts, loperamide and diphenoxylate slow movement through the intestines. In an overdose, they can also affect the brain, breathing, and heart. Very high amounts of loperamide can cause dangerous changes in heart rhythm.

Bismuth subsalicylate contains a substance related to aspirin. Too much can cause salicylate

poisoning , which may affect breathing, body temperature, hearing, the brain, and the body's acid balance.

A possible overdose needs prompt professional guidance even if the person feels well. Some effects can be delayed.

In the United States, call Poison Control at 1-800-222-1222 or use the Poison Control online tool. The service is free and confidential. Outside the United States, contact the local poison information service or emergency medical system.

Call emergency services immediately if the person has:

Do not make the person vomit. Do not give home remedies unless a poison specialist or healthcare professional recommends them.

- Loperamide , an opioid-like medicine sold over the counter under brand names such as Imodium A-D.
- Diphenoxylate with atropine , a prescription medicine sometimes sold as Lomotil.
- Bismuth subsalicylate , the active ingredient in products such as Pepto-Bismol and some versions of Kaopectate.
- Trouble breathing, very slow breathing, or blue or gray lips
- Severe sleepiness, collapse, or inability to wake
- A seizure
- Fainting, chest discomfort, or a fast or irregular heartbeat
- Severe confusion or agitation
- Taken the medicine intentionally to cause self-harm

Symptoms

Symptoms depend on the medicine, amount taken, time since exposure, other substances involved, and the person's health. The absence of early symptoms does not always mean the exposure is safe.

An overdose of loperamide or diphenoxylate may cause marked sleepiness, confusion, small pupils, weak muscle tone, nausea, constipation, or a swollen abdomen. Breathing may become slow or shallow. Severe poisoning can lead to loss of consciousness.

Loperamide overdose can interfere with the heart's electrical system. This may cause palpitations, dizziness, fainting, low blood pressure, or cardiac arrest. An affected person may not recognize an abnormal rhythm before fainting.

Diphenoxylate is combined with atropine. Too much atropine may cause a dry mouth, hot or flushed skin, wide pupils, blurred vision, a rapid heartbeat, difficulty urinating, agitation, or hallucinations. A person may have a mixture of opioid-like sleepiness and atropine-related symptoms. Effects can be delayed and may last longer than expected.

Bismuth subsalicylate overdose may cause nausea, vomiting, stomach pain, sweating, ringing in the ears, reduced hearing, dizziness, or unusually fast and deep breathing. More serious salicylate poisoning can cause fever, dehydration, confusion, severe weakness, seizures, or loss of consciousness.

Bismuth can normally turn the tongue or stool black. By itself, this expected color change does not prove that an overdose has occurred. However, black, tar-like stool can also be a sign of digestive bleeding, particularly if it is sticky, foul-smelling, or accompanied by weakness or dizziness. A clinician should assess concerning symptoms.

Ongoing diarrhea may add to the problem by causing dehydration or abnormal levels of potassium and other electrolytes. Electrolytes are minerals that help regulate muscles, nerves, and heart rhythm.

Causes and risk factors

Accidental overdose can happen when doses are taken too close together or when someone does not realize that two products contain the same ingredient. Measuring errors with liquid medicine can also lead to an excessive amount.

Young children may swallow tablets or liquids that are not stored securely. Even when symptoms are absent, any unintended ingestion by a child should be discussed promptly with Poison Control.

Some people take very large amounts of loperamide in an attempt to feel opioid effects or reduce symptoms of opioid withdrawal. This use is unsafe. High amounts can produce severe heart rhythm problems, and taking additional loperamide because symptoms have not improved can increase the risk.

Risk may also be affected by:

A person may not know exactly which product was taken. Bringing the package, bottle, or a photograph of the label can help identify the active ingredient and strength.

- Use of several medicines or substances at the same time
- Heart, kidney, or liver disease
- Dehydration or low potassium or magnesium levels

- Medicines that alter loperamide breakdown or affect heart rhythm
- Repeated excessive use over several days
- Older age or very young age
- Difficulty reading labels, measuring liquids, or remembering doses

Diagnosis

Diagnosis begins with determining what was taken, how much may be missing, when it was taken, and whether alcohol, prescription medicines, or other substances were involved. Clinicians also ask about symptoms, medical conditions, and the reason for the exposure.

A physical examination checks alertness, pupil size, breathing, heart rate, blood pressure, temperature, hydration, and abdominal findings. Continuous monitoring may be needed when there is concern about breathing or heart rhythm.

An electrocardiogram , or ECG, records the heart's electrical activity. It is especially important after a large or uncertain loperamide exposure, or when the person has palpitations, fainting, or abnormal vital signs. Repeat ECGs may be needed because changes can develop over time.

Blood tests may measure electrolytes, kidney function, blood sugar, and the body's acid balance. If bismuth subsalicylate or another aspirin-related product was involved, clinicians may check the salicylate level more than once. A single early result may not show the highest level.

Testing for other substances may be appropriate when the product or amount is uncertain. Pregnancy testing may also guide care when relevant. Imaging is not routinely required, but it may be used if there are signs of aspiration, bowel blockage, injury, or another condition.

Treatment and management

Treatment depends on the active ingredient, estimated amount, symptoms, test results, and time since ingestion. Poison Control or a medical toxicologist-a doctor who specializes in poisoning-may help guide care.

Until professional advice is available, do not give another dose of diarrhea medicine. Do not induce vomiting. Keep the product container nearby and report the person's age, weight, symptoms, medicine name, strength, possible amount, and time of exposure.

If the person is not breathing normally, emergency services should be called and cardiopulmonary resuscitation started if a trained rescuer is available. An automated external

defibrillator, or AED, should be used when available and directed.

In a healthcare setting, treatment may include close observation, oxygen, intravenous fluids, and support for breathing or blood pressure. Activated charcoal , which can bind some medicines in the digestive tract, may be considered in selected cases. It is not safe for everyone and should only be used under professional direction.

Naloxone may reverse slowed breathing and severe sleepiness caused by the opioid-like effects of loperamide or diphenoxylate. Because the antidiarrheal medicine may last longer than naloxone, repeated treatment and continued observation may be necessary.

Serious loperamide-related heart rhythm problems require specialized emergency care. Treatment is based on the specific rhythm and ECG changes. It may involve correction of electrolytes, medicines that stabilize the heart's electrical activity, electrical shock, or advanced circulation support.

Treatment of salicylate poisoning may include intravenous fluids and sodium bicarbonate to reduce the amount of salicylate reaching tissues and help the kidneys remove it. Severe cases may require hemodialysis , a procedure that filters salicylate and excess acid from the blood. These treatments require careful laboratory and clinical monitoring.

Intentional overdose should also prompt a compassionate mental health and safety assessment once urgent medical needs are addressed.

Complications

Most low-risk exposures can be managed successfully when advice is obtained promptly. However, significant overdose can lead to serious complications.

Opioid-like effects may cause respiratory failure, meaning the person cannot breathe well enough without support. Vomit may enter the lungs when someone is very sleepy, causing aspiration and lung injury.

Loperamide can cause prolonged or unstable heart rhythms. These rhythms may reduce blood flow to the brain and other organs, leading to fainting, cardiac arrest, or organ injury.

Severe constipation can progress to ileus , a temporary stopping of normal intestinal movement. This may cause abdominal swelling, pain, vomiting, or difficulty passing stool or gas.

Salicylate poisoning can disrupt the body's acid balance and place stress on the lungs, brain, and kidneys. Possible complications include fluid in the lungs, seizures, severe confusion, kidney injury, and coma.

Dehydration and electrolyte abnormalities from diarrhea, vomiting, or poisoning may worsen weakness and heart rhythm problems. Rapid evaluation helps clinicians identify and correct these changes.

Follow up

Follow-up depends on the specific exposure. After assessing the product, amount, timing, symptoms, and health history, Poison Control may recommend home monitoring for a low-risk exposure. Follow those instructions closely rather than relying on a general online estimate.

People discharged from an emergency department should follow the written return precautions. Seek urgent reassessment for increasing sleepiness, vomiting, confusion, ringing in the ears, rapid breathing, abdominal swelling, trouble urinating, or new palpitations.

Call emergency services for fainting, a seizure, severe breathing difficulty, inability to wake, or chest symptoms with an irregular heartbeat.

Routine follow-up with a primary care clinician may be appropriate after repeated dosing errors, ongoing diarrhea, or abnormal kidney, electrolyte, or heart tests. Persistent diarrhea itself may need assessment, especially when accompanied by dehydration, blood in the stool, fever, or significant abdominal pain.

After an accidental exposure, review how medicines are measured and stored. Keep all products in their original child-resistant containers, out of sight and reach. Avoid combining diarrhea medicines unless a healthcare professional confirms that the ingredients can be used together.

If excessive use was related to opioid withdrawal, cravings, or self-harm, follow-up should include supportive treatment for those concerns. Evidence-based help is available, and seeking it is an important part of preventing another overdose.

Sources

- U.S. National Library of Medicine. Antidiarrheal medicine overdose. MedlinePlus Medical Encyclopedia.
- U.S. Food and Drug Administration. FDA Drug Safety Communication: FDA warns about serious heart problems with high doses of the antidiarrheal medicine loperamide (Imodium), including from abuse and misuse. Issued June 7, 2016; updated January 30, 2018.



- U.S. National Library of Medicine. Loperamide hydrochloride capsule: Drug label information. DailyMed.
- U.S. National Library of Medicine. Diphenoxylate hydrochloride and atropine sulfate tablet: Prescribing information. DailyMed.
- U.S. National Library of Medicine. Pepto-Bismol, bismuth subsalicylate suspension: Drug Facts label. DailyMed.
- American College of Medical Toxicology. Guidance Document: Management Priorities in Salicylate Toxicity. Journal of Medical Toxicology. 2015;11(1):149-152.
- Lavonas EJ, Akpunonu PD, Arens AM, et al. 2023 American Heart Association Focused Update on the Management of Patients With Cardiac Arrest or Life-Threatening Toxicity Due to Poisoning. Circulation. 2023;148(16):e149-e184.