CONDITION

Bacitracin zinc overdose

Learn how excessive bacitracin zinc exposure can happen, which symptoms to watch for, and when to contact Poison Control or seek emergency care.

WHAT IT IS
Poisoning from excessive bacitracin zinc exposure

BODY SYSTEM
Digestive system, skin and kidneys

MAIN SYMPTOMS
Nausea, vomiting, diarrhea, itchy rash

WHAT CAUSES IT
Excessive or unintended bacitracin exposure

HOW IT IS DIAGNOSED
Exposure history and clinical examination

MAIN TREATMENT
Supportive care

CAN IT BE CURED?
Sometimes - recovery depends on exposure severity

IS IT AN EMERGENCY?
Sometimes - trouble breathing or throat swelling

LONG-TERM OUTLOOK
Most small exposures resolve without lasting harm

Overview

Bacitracin zinc is an antibiotic like amoxicillin or doxycycline used on the skin to help prevent infection in minor cuts, scrapes, and burns. It is sold by itself and in combination antibiotic ointments. Some combination products also contain neomycin, polymyxin B, pain-relieving medicine, or other ingredients.

A bacitracin zinc overdose means that someone swallowed the medicine, used much more than directed, received it by the wrong route, or had enough exposure to cause harmful effects. Most accidental tastes or small swallows of a topical ointment do not cause severe poisoning. Mild stomach symptoms may occur. However, the risk depends on the product, amount, route of exposure, and person's health.

Bacitracin is not absorbed well through the digestive tract or intact skin. Absorption may be

greater when it is applied over large areas, placed on badly damaged skin, or used under a covering that traps the medicine against the skin. Serious kidney injury has been associated mainly with bacitracin given by injection rather than ordinary topical use. The U.S. Food and Drug Administration requested that manufacturers withdraw bacitracin for injection from the market in 2020 because of risks including kidney damage and severe allergic reactions.

Skin allergy is a more common concern with topical bacitracin than systemic poisoning. A person can become allergic after earlier exposure, even if the medicine caused no problem in the past.

If an exposure has just happened, contact Poison Control rather than waiting for symptoms. In the United States, call 1-800-222-1222 or use the Poison Control online tool. Outside the United States, contact your local poison information service.

Symptoms

Symptoms vary according to how the exposure occurred and whether the product contains other active ingredients.

After swallowing topical bacitracin, possible symptoms include:

A small accidental taste may cause no symptoms. Ointments can have a laxative effect because of their oily base, so loose stools may occur even when the antibiotic itself has not caused significant toxicity.

Skin reactions may develop where bacitracin was applied. Allergic contact dermatitis is a delayed skin allergy that can cause redness, itching, swelling, blisters, or oozing. It may look like the original wound is becoming infected or failing to heal. A rash can also spread beyond the treated area.

Rarely, bacitracin can cause anaphylaxis, a rapid and potentially life-threatening allergic reaction. Call emergency services immediately for:

Kidney injury is not expected from a small amount of topical ointment. When substantial systemic exposure occurs, possible signs include much less urine than usual, swelling, unusual tiredness, nausea, or confusion. These symptoms need prompt medical assessment but can have many causes.

- Nausea, vomiting, stomach discomfort, or diarrhea
- Irritation in the mouth or throat
- Coughing or choking if ointment enters the airway

- Symptoms caused by other ingredients in a combination product
- Trouble breathing, wheezing, or throat tightness
- Swelling of the lips, tongue, face, or throat
- Widespread hives accompanied by breathing problems, vomiting, dizziness, or weakness
- Collapse, severe confusion, a seizure, or inability to wake the person
- Persistent choking or difficulty breathing after swallowing the ointment

Causes and risk factors

Accidental swallowing is common when a young child finds an open tube or when someone mistakes an ointment for another product. A person may also swallow a small amount after applying it near the mouth.

Other exposure situations include using the medicine more often or over a larger area than the label directs, applying it to extensive burns or badly damaged skin, or placing it under an airtight dressing without medical guidance. Eye exposure can happen when ointment is used too close to the eye or transferred from the hands.

Risk may be higher when:

Using more ointment does not improve wound healing and can increase irritation or allergy risk. A wound that is worsening despite treatment may need medical evaluation rather than additional bacitracin.

The "zinc" in the name identifies the form of bacitracin used in many topical products. The risks of a typical exposure are assessed based on the entire formulation, not simply as a zinc exposure. This is one reason the product package is important when speaking with a poison specialist.

- The amount or exact product is unknown
- The product contains several medicines
- A large amount was swallowed
- The medicine was placed in the eye, injected, or used by another unintended route
- Bacitracin was applied to a large area of broken or burned skin
- The person already has reduced kidney function
- The person has had a previous rash or allergic reaction to bacitracin

- A young child, an older adult, or someone with serious health conditions was exposed

Diagnosis

There is no routine home test for bacitracin poisoning. A poison specialist or clinician will first ask about the circumstances of the exposure. Helpful details include the person's age and weight, the product name, its active ingredients, the estimated amount, the time of exposure, how it entered the body, and any symptoms.

Keep the tube, box, or a photograph of the label. Do not delay an emergency call while trying to collect information.

For a small, symptom-free exposure, Poison Control may determine that observation at home is appropriate. A person with persistent vomiting, breathing symptoms, a severe rash, an unintended injection, or substantial exposure may need an in-person examination.

In a healthcare setting, clinicians may check breathing, heart rate, blood pressure, hydration, skin findings, and urine output. Blood and urine tests may be used when there is concern about kidney function, dehydration, or another ingredient in the product. Testing can include creatinine, a blood marker used to estimate how well the kidneys are filtering. There is no widely used clinical blood level that confirms a topical bacitracin overdose.

A skin rash may require evaluation for allergic contact dermatitis, infection, or irritation from the wound itself. Patch testing, in which small amounts of possible allergens are placed on the skin under medical supervision, may sometimes help confirm a delayed bacitracin allergy after the immediate problem has resolved.

Treatment and management

Treatment depends on the route, amount, symptoms, and ingredients involved. Contact Poison Control for advice specific to the exposure.

For swallowed ointment, gently wipe out the mouth and offer a small amount of water if the person is awake and able to swallow normally. Do not make the person vomit. Vomiting can increase the risk that oily ointment will enter the lungs. Do not give activated charcoal, home remedies, or other treatments unless a poison specialist or healthcare professional recommends them.

If bacitracin gets on the skin in an excessive amount, remove contaminated clothing and wash the area with mild soap and water. Stop using the product if a new itchy, blistering, or spreading rash develops, and contact a clinician for advice. Do not apply additional antibiotic ointments to

treat a possible allergy, because some combination products contain related allergens.

For eye exposure, remove contact lenses if this can be done easily and rinse the eye with clean, lukewarm water. Contact Poison Control for guidance about how long to continue rinsing and whether an eye examination is needed. Persistent pain, redness, light sensitivity, or blurred vision should be assessed promptly.

Hospital care is supportive, meaning it focuses on treating the effects of the exposure while the body recovers. It may include:

Anaphylaxis requires immediate emergency treatment. People with severe kidney injury may need care from a kidney specialist. Dialysis may be used if kidney failure itself becomes severe, based on standard medical indications; it is not a routine treatment for topical bacitracin exposure.

If the exposure involved a combination ointment, treatment may change according to the other ingredients. The product label should therefore accompany the person to the emergency department when possible.

- Monitoring breathing, circulation, urine output, and kidney function
- Fluids for dehydration or low blood pressure
- Medicine to control significant nausea or vomiting
- Treatment for wheezing or an allergic reaction
- Specialist care for acute kidney injury or serious eye exposure

Complications

Most small topical or oral exposures resolve without lasting harm. Possible complications depend on the exposure and can include dehydration from repeated vomiting or diarrhea, skin damage from allergic contact dermatitis, or aspiration if ointment enters the lungs.

A severe allergic reaction can affect breathing and blood pressure. Once a bacitracin allergy is suspected or confirmed, future exposure may trigger another reaction.

Significant systemic absorption can injure the kidneys, although this is unusual with ordinary topical use. Kidney injury may disturb the body's balance of fluid and minerals. Recovery depends on the amount absorbed, the person's previous kidney health, and how quickly complications are treated.

Ongoing use on an allergic rash can delay healing because the reaction may be mistaken for infection. Scratching or damaged skin can also increase the chance of a secondary skin

infection.

Follow up

Follow the observation instructions provided by Poison Control or the treating clinician. After a minor exposure, routine follow-up may not be needed if the person remains well and symptoms resolve.

Arrange nonurgent medical follow-up if a treated wound is not improving, a localized rash continues after bacitracin is stopped, or there are questions about safer wound-care options. Plain petroleum jelly and a clean dressing may be suitable for some minor wounds, but wound care should be matched to the type and severity of the injury.

Promptly contact a clinician for repeated vomiting, ongoing diarrhea, worsening rash, facial swelling without breathing difficulty, reduced urination, or symptoms that are not improving as expected.

Seek emergency care for breathing difficulty, throat or tongue swelling, collapse, a seizure, inability to wake the person, severe confusion, or signs of a rapidly progressing allergic reaction.

After a suspected allergy, ask whether bacitracin should be added to the medical record as an allergy. Check labels carefully because bacitracin may appear in combination antibiotic products. A clinician or pharmacist can help identify alternatives when a topical antibiotic is truly needed.

Sources

- U.S. National Library of Medicine. "Bacitracin Zinc Overdose." MedlinePlus Medical Encyclopedia . Accessed March 8, 2025.
- National Capital Poison Center. "What Happens If You Swallow Antibiotic Ointment?" Poison Control . Accessed March 8, 2025.
- U.S. National Library of Medicine. "Bacitracin Zinc Ointment." DailyMed: U.S. National Library of Medicine Drug Label Database . Accessed March 8, 2025.
- U.S. Food and Drug Administration. "FDA Requests Withdrawal of Bacitracin for Injection from Market." January 31, 2020.
- Jacob SE, James WD. "From Road Rash to Top Allergen in a Flash: Bacitracin." Dermatologic Surgery . 2004;30(4 Part 1):521-524.