PRESCRIBING INFORMATION

[Pr] Bacitracin for Injection, USP

50 000 IU / Vial

Powder for solution

For Topical or Intramuscular Use in Solution

Auro Pharma Inc
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CANADA

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ACTION AND CLINICAL PHARMACOLOGY

Bacitracin, an antibiotic substance derived from cultures of *Bacillus subtilis* (Tracey), exerts pronounced antibacterial action *in vitro* against a variety of gram-positive and a few gram-negative organisms.

However, among systemic diseases, only staphylococcal infections qualify for consideration of bacitracin therapy. Bacitracin is assayed against a standard and its activity is expressed in units, 1 mg, having a potency of not less than 50 units.

Susceptibility plate testing: If the Kirby-Bauer method of disc susceptibility is used, a 10-unit bacitracin disc should give a zone over 13 mm when tested against a bacitracin-susceptible strain of *Staphylococcus aureus*. Absorption of bacitracin following intramuscular injection is rapid and complete. A dose of 200 or 300 units/kg every six hours gives serum levels of 0.2 to 2 mcg/mL in individuals with normal renal function. The drug is excreted slowly by glomerular filtration. It is widely distributed in all body organs and is demonstrable in ascitic and pleural fluids after intramuscular injection.

INDICATIONS AND CLINICAL USE

The use of intramuscular Bacitracin for Injection, USP is indicated in the treatment of infants with pneumonia and empyema caused by staphylococci shown to be susceptible to the drug.

Bacitracin solutions, applied locally in the form of compresses or instillations, may be used once or twice daily in secondarily infected wounds, ulcers, pyodermas and other superficial skin infections and in superficial infections of the eye caused by bacitracin-susceptible organisms. Bacitracin solutions may be instilled into the nasal cavities or administered by inhalation as an aerosol in the treatment of bacitracin- susceptible infections of the upper and

lower respiratory tract. In severe or extensive infections, appropriate antibacterial therapy should be given in addition to local treatment with bacitracin.

To reduce the development of drug-resistant bacteria and maintain the effectiveness of Bacitracin for Injection, USP and other antibacterial drugs, Bacitracin for Injection, USP should be used only to treat infections that are proven or strongly suspected to be caused by susceptible bacteria. When culture and susceptibility information are available, they should be considered in selecting or modifying antibacterial therapy. In the absence of such data, local epidemiology and susceptibility patterns may contribute to the empiric selection of therapy.

CONTRAINDICATIONS

This drug is contraindicated in those individuals with a history of previous hypersensitivity or toxic reaction to it.

- Bacitracin for Injection, USP is contraindicated in patients who are hypersensitive to this drug or any ingredient in the formulation or component of the container.
- Bacitracin for Injection, USP is contraindicated in patients with impaired renal function, including those taking nephrotoxic drugs."

WARNINGS

Serious Warnings and Precautions

- There have been reports of nephrotoxicity, including renal failure in patients exposed to **bacitracin** (see **WARNINGS, Renal**).
- Serious hypersensitivity and/or anaphylactic reactions have been reported in patients exposed to **bacitracin** (see **WARNINGS: Hypersensitivity**).

General

Nephrotoxicity, hypersensitivity, and/or anaphylactic reactions have been reported in patients treated with bacitracin administered intramuscularly and through local exposure (see **INDICATIONS AND CLINICAL USE**).

Bacitracin for Injection, USP is not indicated as an irrigation solution for intraoperative prophylaxis nor for pre-soaking of medical devices or implants prior to surgery. Anaphylactic reactions and nephrotoxicity can occur when Bacitracin for Injection, USP is used in this manner.

Hypersensitivity

There have been reports of serious hypersensitivity, including anaphylaxis and/or allergic contact dermatitis, in patients exposed to bacitracin following intramuscular and local administration. These reactions may occur following the first dose.

Monitoring and Laboratory Tests

Close monitoring of renal function is recommended in patients treated with bacitracin Glomerular and tubular kidney function must be evaluated and checked before commencement of therapy, as well as during and after treatment.

Renal

Nephrotoxicity

There have been reports of nephrotoxicity in patients exposed to **bacitracin** via intramuscular and non-intramuscular routes. **Bacitracin for Injection, USP** may cause renal failure due to tubular and glomerular necrosis due to high systemic absorption. Intramuscular use should be restricted to infants with Staphylococcal pneumonia and empyema due to organisms shown to be susceptible to **Bacitracin for Injection, USP**

Renal function should be carefully determined prior to, and daily during therapy. **Bacitracin for Injection, USP should be used only where adequate laboratory facilities are available and when constant supervision of the patient is possible**. The recommended daily dose should not be exceeded and fluid intake and urinary output maintained at proper levels to avoid kidney toxicity. If renal toxicity occurs, the drug should be discontinued. Concurrent use of other nephrotoxic drugs should be avoided.

For Intramuscular Use

Nephrotoxity: Bacitracin for Injection, USP in parenteral (intramuscular) therapy may cause renal failure due to tubular and glomerular necrosis. Its use should be restricted to infants with staphylococcal pneumonia and empyema when due to organisms shown to be susceptible to bacitracin. It should be used only where adequate laboratory facilities are available and when constant supervision of the patient is possible.

Renal function should be carefully determined prior to and daily during therapy. The

recommended daily dose should not be exceeded and fluid intake and urinary output maintained at proper levels to avoid kidney toxicity. If renal toxicity occurs the drug should be discontinued. The concurrent use of other nephrotoxic drugs, particularly streptomycin kanamycin, polymyxin B, polymyxin E (colistin), neomycin, and viomycin, should be avoided.

Susceptibility/Resistance

Development of Drug Resistant Bacteria

Prescribing Bacitracin for Injection, USP in the absence of a proven or strongly suspected bacterial infection is unlikely to provide benefit to the patient and risks the development of drug-resistant bacteria.

PRECAUTIONS

See Warnings for precautions in regard to kidney toxicity associated with intramuscular use of Bacitracin for Injection, USP.

Adequate fluid intake should be maintained orally, or if necessary, by parenteral method.

As with other antibiotics, use of this drug may result in overgrowth of non-susceptible organisms, including fungi. If superinfection occurs, appropriate therapy should be instituted.

ADVERSE REACTIONS

Nephrotoxic reactions: Albuminuria, Cylindruria Azotemia. Rising blood levels without any increase in dosage.
Other reactions: Nausea and vomiting. Pain at site of injection. Skin rashes.

DOSAGE AND ADMINISTRATION

TO BE ADMINISTERED INTRAMUSCULARLY.

Infant dose:
For infants under 2500 grams - 900 units/kg/24 hours in 2 or 3 divided doses. For infants over 2500 grams - 1,000 units/kg/24 hours, in 2 or 3 divided doses. Intramuscular injections of the

solution should be given in the upper outer quadrant of the buttocks, alternating right and left and avoiding multiple injections in the same region because of the transient pain following injection.

Preparation of Solutions:

Should be dissolved in Sodium Chloride Injection containing 2 percent procaine hydrochloride. The concentration of the antibiotic in the solution should not be less than 5,000 units per mL nor more than 10,000 units per mL.

Diluents containing parabens should not be used to reconstitute bacitracin; cloudy solutions and precipitate formation have occurred. Reconstitution of the 50,000 unit vial with 9.8 mL of diluent will result in a concentration of 5,000 units per mL.

TO BE ADMINISTERED TOPICALLY.

Preparation of Solution:

Solutions for topical application are prepared by dissolving bacitracin in Sterile Water for Injection or Sodium Chloride Injection in amounts to give the following concentrations:

Skin	500 units per mL
Ophthalmic Solutions	500 to 1,000 units per mL
Intranasal Therapy	250 units per mL
Aerosol	500 to 1,000 units per mL

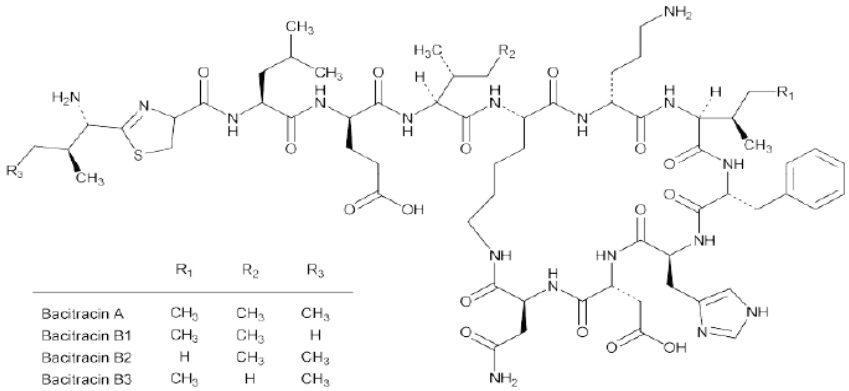
PHARMACEUTICAL INFORMATION

Drug Substance

Proper Name: Bacitracin

Chemical structure: $C_{66}H_{103}N_{17}O_{16}S$

Structural Formula:



	R_1	R_2	R_3
Bacitracin A	CH_3	CH_3	CH_3
Bacitracin B1	CH_3	CH_3	H
Bacitracin B2	H	CH_3	CH_3
Bacitracin B3	CH_3	H	CH_3

Molecular Weight: 1422.69 g/mol.

Description: White to pale buff powder, odorless or having a slight odor. Is hygroscopic.

Solubility: Freely soluble in water; soluble in alcohol, in methanol, and in glacial acetic acid, the solution in the organic solvents usually showing some insoluble residue; insoluble in acetone, in chloroform, and in ether.

pH: between 5.5 and 7.5, in a solution containing 10,000 Bacitracin Units per mL.

DESCRIPTION:

Before Reconstitution: White to pale buff color Lyophilized cake or powder

After Reconstitution: Clear dark yellow color solution essentially free from visible particles.

STABILITY AND STORAGE RECOMMENDATIONS:

Store unreconstituted Bacitracin in a refrigerator 2ºC to 8°C. Solutions are rapidly inactivated at room temperature but are stable for one week when stored in a refrigerator 2°C to 8°C.

Availability of Dosage Forms:

Bacitracin for Injection, USP is available in a vial containing 50,000 unit, packaged in cartons of 10's.

PART III: CONSUMER INFORMATION

Pr Bacitracin for Injection, USP

50000 IU/ Vial

Powder for solution

For Topical or Intramuscular Use in Solution

This leaflet is an addition to the Prescribing Information document and is designed specifically for Consumers. This leaflet is a summary and will not tell you everything about Bacitracin for Injection, USP. Contact your doctor or pharmacist if you have any questions about the drug.

ABOUT THIS MEDICATION

What the medication is used for:
Bacitracin for Injection, USP can be used by a healthcare professional in the treatment of infants with pneumonia and empyema (accumulation of pus in the chest) caused by staphylococci (bacteria) and administered by injection in the muscle. Bacitracin can also be used as a topically applied solution to treat infected wounds, ulcers, pyodermas and other superficial skin and eye infections under the supervision of a healthcare professional.

Antibacterial drugs like Bacitracin for Injection, USP treat only bacterial infections. They do not treat viral infections such as the common cold. Although you may feel better early in treatment, Bacitracin for Injection, USP should be used exactly as directed. Misuse or overuse of Bacitracin for Injection, USP could lead to the growth of bacteria that will not be killed by Bacitracin for Injection, USP (resistance). This means that Bacitracin for Injection, USP may not work for you in the future. Do not share your medicine.

What it does:
Bacitracin for Injection, USP is an antibiotic that treats against a variety of organisms.

When it should not be used:
Do not take Bacitracin for Injection, USP if you are:

- allergic to Bacitracin for Injection, USP
- allergic to any of the other ingredients in Bacitracin for Injection, USP or to a component of the container

What the medicinal ingredient is:
The active ingredient is bacitracin.

What the important nonmedicinal ingredients are:
Nitrogen and Water for Injection

What dosage forms it comes in:
Bacitracin for Injection, USP is available in a vial containing 50,000 units, packaged in cartons of 10's.

WARNINGS AND PRECAUTIONS

Serious Warnings and Precautions
Bacitracin for Injection, USP can cause serious side effects which include:

- **Damage to the kidneys including kidney failure**. Kidney failure is a condition where your kidneys stop working.
- Serious allergic reactions·

BEFORE Bacitracin is administered to you or you use Bacitracin topically, talk to your doctor or pharmacist if:

You have or have had kidney problems
Any allergies to this drug

Intramuscular bacitracin can cause kidney failure. Kidney function will be carefully determined by the doctor before and daily during your therapy. Contact your doctor immediately and stop taking Bacitracin if the signs of kidney problems occur, with symptoms such as urinating less than usual or not at all, blood in the urine, lower back pain, or painful urination.

As with other antibiotics, this drug may cause an overgrowth of non-susceptible organisms, including fungi. If a superinfection occurs, talk to your doctor to start appropriate treatment.

INTERACTIONS WITH THIS MEDICATION

Do not use Bacitracin for Injection, USP at the same time as other nephrotoxic drugs, especially streptomycin kanamycin, polymyxin B, polymyxin E (colistin), neomycin, and viomycin.

PROPER USE OF THIS MEDICATION

Usual dose:
Infant dose:
As determined by the doctor: For infants under 2500 grams – 900 units/kg/24 hours in 2 or 3 divided doses. For infants over 2500 grams – 1000 units/kg/24 hours in 2 or 3 divided doses, by intramuscular injection.

Preparation of Solutions for Intramuscular Use or Topical Use:
These are prepared by the doctor or pharmacist.
Overdose:
If you feel you have been administered too much Bacitracin for Injection, USP, contact your attending healthcare professional immediately.

If you think you have taken too much Bacitracin for Injection, USP, contact your healthcare professional, hospital emergency department or regional poison control centre immediately, even if there are no symptoms.

SIDE EFFECTS AND WHAT TO DO ABOUT THEM

Other reactions include nausea and vomiting, pain at injection site, and skin rashes.
Bacitracin for Injection, USP may cause abnormal blood test results. Your healthcare professional will decide when to perform blood tests and will interpret the results.

They will check your kidney function before you receive Bacitracin for Injection, USP and while you are receiving it

SERIOUS SIDE EFFECTS, HOW OFTEN THEY HAPPEN AND WHAT TO DO ABOUT THEM				
Symptom / effect		**Talk to your healthcare professional**		**Stop taking drug and get immediate medical help**
		Only if severe	**In all cases**	
Uncommon	**Damage to the kidneys including kidney failure:** back and abdominal pain, change in the colour of urine (pale or dark), blood in the urine, decrease in amount of urine produced, nausea, pain or discomfort when urinating, swelling of the legs and ankles, tiredness, weight gain.		√	√
	Allergic reactions: difficulty breathing or swallowing. feeling sick to your stomach or vomiting, hives, itchy skin, rash, skin blisters, swelling of your tongue or throat		√	√

This is not a complete list of side effects. For any unexpected effects while taking Bacitracin for Injection, USP contact your doctor or pharmacist.

HOW TO STORE IT

Store unreconstituted bacitracin in a refrigerator 2-8°C. Solutions are rapidly inactivated at room temperature but are stable for one week when stored in a refrigerator 2-8°C.

Reporting Side Effects

You can report any suspected side effects associated with the use of health products to Health Canada by:

- Visiting the Web page on Adverse Reaction Reporting (https://www.canada.ca/en/health-canada/services/drugs-health-products/medeffect-canada/adverse-reaction-reporting.html) for information on how to report online, by mail or by fax; or
- Calling toll-free at 1-866-234-2345.

NOTE: Contact your health professional if you need information about how to manage your side effects. The Canada Vigilance Program does not provide medical advice.

MORE INFORMATION

If you want more information about Bacitracin for Injection, USP:

- Talk to your healthcare professional
- Find the full product monograph that is prepared for healthcare professionals and includes this Patient Medication Information by visiting the Health Canada website (https://health-products.canada.ca/dpd-bdpp/index-eng.jsp); the manufacturer's website www.auropharma.ca, or by calling 1-855-648-6681.

This leaflet was prepared by

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