BENZYLPENICILLIN SODIUM

SYNONYMS Penicillin G sodium, crystalline penicillin

BRAND NAME BENPEN

DRUG CLASS Penicillin antibiotic

AVAILABILITY Vial contains 600 mg, 1.2 g or 3 g of benzylpenicillin as benzylpenicillin sodium.[1]
Each 600 mg of benzylpenicillin contains 1.8 mmol of sodium.[1]
600 mg is equivalent to 1 million units of benzylpenicillin.[1]

WARNING Contraindicated in patients with severe or non-severe immediate (IgE mediated) or delayed (T-cell mediated) hypersensitivity to penicillins

pH Solutions of 12–48 mg/mL in sodium chloride 0.9%: 5.4–5.8[2]
Solutions that are buffered to 6.5–7.5 have greater stability.[2]

PREPARATION & ADMINISTRATION

IM Injection Suitable. Reconstitute the 600 mg vial with 1.6 mL of water for injections or the 1.2 g vial with 3.2 mL of water for injections to make a concentration of 300 mg/mL.[1]

SUBCUT injection Not recommended

IV injection The recommended concentration for IV injection is 60 mg/mL because it is isotonic.[1]
Reconstitute the 600 mg vial with 5 mL of water for injections then dilute with a further 5 mL of water for injections.
Reconstitute the 1.2 g vial with 10 mL of water for injections then dilute with a further 10 mL of water for injections.
Inject slowly over 5 to 10 minutes. Doses over 1.2 g are usually given by infusion.
If a part-dose is required use the table below[1]:

Vial size	Volume of water for injections	Approximate concentration
600 mg	5.6 mL	100 mg/mL
1.2 g	11.2 mL	100 mg/mL
3 g	13 mL	200 mg/mL

Powder volume: 600 mg – 0.4 mL, 1.2 g – 0.8 mL, 3 g – 2 mL[1]

IV infusion Reconstitute the vial with 5–10 mL of water for injections. If a part-dose is required, use the table above. Dilute the dose in 100 mL of a compatible fluid and infuse over 30 minutes to 1 hour.[3]
The total daily dose (up to 14.4 g) may be given as a 24 hour continuous infusion in the community setting. The solution must be buffered to provide adequate stability. See STABILITY.

IV use for infants and children Dilute the dose to a maximum concentration of 60 mg/mL with a compatible fluid and infuse over at least 30 minutes.[1,4,5]

Other Suitable for intravitreal injection by an ophthalmologist. Very low doses are used and special preparation is required.[6]

STABILITY

Vial: store below 25 °C. Protect from light.[1]

Reconstituted solution: use immediately.

Infusion solution: use immediately.

For CoPAT use: buffered solutions of 15–60 mg/mL in sodium chloride 0.9% are stable for 24 hours at 37 °C. If prepared in a sterile production unit, stable for 7 days at 2 to 8 °C.[7,8] Use sodium citrate 4% to reconstitute the vial (8.2 mL of sodium citrate 4% for each 3 g of benzylpenicillin).[8]

COMPATIBILITY

Fluids Glucose 5%[1,2], Plasma-Lyte 148 via Y-site[9], sodium chloride 0.9%[1,2]

Y-site Some information is available.[2,10] No information for the buffered solution.

INCOMPATIBILITY

Fluids Fat emulsion[10]

Drugs Aminoglycosides: amikacin, gentamicin, tobramycin[1], aminophylline[10], dobutamine[10], ganciclovir[10], haloperidol lactate[10], heparin sodium[1], labetalol[10], metaraminol[1], noradrenaline (norepinephrine)[1], pentamidine[10], phenobarbital[10], phentolamine[10], prochlorperazine[2], promethazine[1,2], protamine sulfate[10], suxamethonium[10], thiopental sodium[1], tranexamic acid[10]

SPECIAL NOTES

Rapid IV injection of large doses may cause seizures.[11]

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