

## Louth: Antimicrobial Guidelines - Louth Hospitals: Antimicrobial Guidelines: Neonatal - Piperacillin/Tazobactam IV

### Neonatal - Piperacillin/Tazobactam IV

Antipseudomonal **penicillin** with broad spectrum of activity [1].

### MEDICATION SAFETY ISSUES

Piperacillin/Tazobactam is a **penicillin** antibiotic – always check for previous hypersensitivity reactions to penicillins, cephalosporins and other allergens before starting therapy [2].

### USES

Piperacillin/Tazobactam is a broad spectrum antibiotic. It is not licensed for use in children less than 2 years, however BNFC provides recommended dosing for neonates if required [1]. It should only be prescribed in NICU in OLOL following consultation with clinical microbiologist.

### PRESENTATION

Powder for solution for infusion. Each 4.5g vial contains 4g piperacillin (as sodium salt) and 0.5g tazobactam (as sodium salt). Each vial of piperacillin/tazobactam 4.5g contains 9.44 mmol of sodium [2].

### DOSAGE [1]

Age	Dose	Frequency
Neonate	90mg/kg	Every 8 hours
Child 1 – 3 months	90mg/kg	Every 6 to 8 hours

**Renal Impairment** : Dose reduction may be required – refer to BNFC and seek advice [1].

### RECONSTITUTION

**NB. There are TWO STEPS for reconstitution. BOTH Step 1 and Step 2 below must be followed.**

**Step 1** : Reconstitute 4.5g vial as per table below using the brand specific displacement value and shake until dissolved [2].

Brand	Displacement Volume [2]	Diluent to be added	Final Volume	Final Concentration
Piperacillin/Tazobactam 4.5g <b>Piperin® Rowex/Sandoz</b>	3.2mL	16.8mL WFI or NS	20mL	225mg/mL

**Step 2** : **Further dilute** 4mL of this solution with 6mL sodium chloride 0.9% or glucose 5% to a final volume of 10mL. The resulting solution contains piperacillin/tazobactam 90mg/mL. [1,3,4]

### ADMINISTRATION

Administer by IV infusion over 30 minutes [1-3].

### SAMPLE CALCULATION

2.8kg neonate under 7 days. Dose: 90mg/kg every 8 hours = 252mg every 8 hours.

**Step 1** : Reconstitute 4.5g vial as per table above to give a concentration of 225mg/mL.

**Step 2** : Withdraw 4mL of this solution and further dilute with 6mL sodium chloride 0.9% to a final volume of 10mL. The resulting solution contains 90mg/mL. Withdraw 2.8mL (252mg) and give over 30 minutes.

### STORAGE

Store unopened vials at room temperature below 25°C [3,5]. Once reconstituted, use immediately [2].

### MONITORING

- Monitor renal function – dose reduction may be required in renal impairment [1].
- Caution - high doses may lead to hypernatraemia owing to the high sodium content of the vials [1].
- Monitor FBC - leucopenia and neutropenia may occur, especially during prolonged therapy [2].
- Periodic liver function tests if treatment prolonged more than 10 days [4,5].

## ADVERSE EFFECTS

For all penicillins, common or very common adverse effects include diarrhoea, hypersensitivity, nausea, skin reactions, thrombocytopenia and vomiting [1]. Candida superinfection, insomnia and headache are also common with piperacillin/tazobactam [1,2]. Among the most serious adverse reactions, pseudo-membranous colitis and toxic epidermal necrolysis occur in 1 to 10 patients in 10,000 [2]. Please refer to BNFC or SPC for full information on adverse effects.

## REFERENCES

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3. Medusa Injectable Drugs Guide. Piperacillin with Tazobactam Intravenous – Paediatric Monograph, 2019. Available from [www.medusa.wales.nhs.uk](http://www.medusa.wales.nhs.uk) , accessed 24/11/2020.
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## Summary of Changes from Previous Versions

Date	Change
Feb 2021	This is the first version of this guideline.