



<b>DESCRIPTION</b>	<p>Piperacillin is a penicillin antibiotic which interferes with cell wall peptidoglycan synthesis by binding to penicillin-binding proteins resulting in cell lysis.<sup>1</sup></p> <p>Tazobactam is a beta-lactamase inhibitor it extends the spectrum of activity of piperacillin to cover many beta-lactamase producing organisms.</p> <p>Piperacillin with tazobactam is used in the treatment of mixed (aerobic and anaerobic) or nosocomial infections, especially if <i>P. aeruginosa</i> is involved. Also used in oncology patients for febrile neutropenia.<sup>2</sup></p>
<b>ChAMP INDICATIONS AND RESTRICTIONS</b>	<p><b>IV: Category B: Monitored</b> ChAMP team to be informed of use and will review if ongoing therapy is required and does not meet specified indications.</p> <p><b>Standard Indications:</b></p> <ul style="list-style-type: none"> <li>• Febrile neutropenia</li> <li>• Biliary sepsis</li> <li>• Suspected uncomplicated appendicitis</li> <li>• Peritonitis (due to perforated viscous and/or appendicitis)</li> <li>• Pneumonia (including hospital acquired and aspiration pneumonia)</li> <li>• Bites and clenched fist injuries</li> <li>• Wounds (including open fractures) with severe damage and/or soiling</li> <li>• Polymicrobial severe skin infection</li> <li>• Healthcare associated sepsis</li> </ul>
<b>FORMULATIONS</b>	<p>4g piperacillin/500mg tazobactam powder for injection vial (Tazopip®)</p>
<b>DOSAGE</b>	<p>The doses listed below fall within the standard range. Higher doses may be prescribed for certain situations. This should be in consultation with Infectious Diseases or Microbiology consultants.</p> <p style="text-align: center;"><b>Doses are based on the piperacillin component</b></p> <p><b>IV:</b> <b>Usual dose:</b> 100mg/kg/dose (maximum 4 grams) 8 hourly <b>Severe infections</b> (including febrile neutropenia): 100mg/kg/dose (maximum 4 grams) 6 hourly<sup>3</sup></p> <p><b>Neonates:</b> Not routinely used in neonates, contact Infectious Disease or Microbiology consultants for advice</p>
<b>DOSAGE ADJUSTMENT</b>	<p><b>Dosage adjustment required in renal impairment:</b> Dosage adjustment may be required in cases of impaired renal function (with creatinine clearance of less than 40mL/min).<sup>1</sup></p> <p><a href="http://cahs.hdwa.health.wa.gov.au/data/assets/pdf_file/0003/106986/01_Guidlines_for_calculating_CLcr.pdf">http://cahs.hdwa.health.wa.gov.au/data/assets/pdf_file/0003/106986/01_Guidlines_for_calculating_CLcr.pdf</a></p> <p>CrCl &gt; 40mL/minute : normal dosing CrCl 20 - 40mL/minute : 100% 8 hourly CrCl &lt;20mL/minute : 100% 12 hourly<sup>1</sup></p>
<b>RECONSTITUTION</b>	<p>Reconstitute each vial of Pipertaz® and Tazopip® brand with 37mL water for injection to give 100mg/mL of piperacillin</p>
<b>ADMINISTRATION</b>	<p><b>IV infusion:</b> Dilute to a concentration of 100mg/mL and infuse over 20 – 30 minutes<sup>5</sup></p> <p><b>Continuous infusion:</b> May be given over 24 hours by continuous infusion. Contact Pharmacy for advice.</p>
<b>MONITORING</b>	<p>Renal, hepatic and haematological function should be monitored weekly with prolonged therapy (i.e. longer than 7 days)<sup>2,4</sup></p>
<b>ADVERSE EFFECTS</b>	<p><b>Common:</b> Diarrhoea, nausea, local reaction with intravenous infusion (pain, burning, erythema, infiltration, swelling and induration at the injection site and</p>

	thrombophlebitis), anaphylaxis and immunologic reactions <sup>2</sup> <b>Rare:</b> Cholestatic hepatitis, bleeding abnormalities, hypokalaemia, black tongue, electrolyte disturbances, neurotoxicity, blood dyscrasias (eg neutropenia, which is related to dose and duration of treatment, thrombocytopenia) <sup>2</sup>
<b>COMPATIBLE FLUIDS</b>	Glucose 5% Sodium chloride 0.9% <sup>5</sup>
<b>PRECAUTIONS</b>	Piperacillin with tazobactam is contraindicated in patients with a history of severe allergy to penicillins, care should also be taken with cephalosporins, and carbapenems as cross reactivity may occur between penicillins, cephalosporins and carbapenems. <sup>2,5</sup> Beware of the high sodium content.
<b>COMMENTS</b>	IV aminoglycoside antibiotics are inactivated by IV cephalosporins, penicillins and teicoplanin. Administration of these agents should be separated by at least 1 hour. If this is not possible, (for example HITH patients) lines should be flushed well with sodium chloride 0.9% before and after giving each medication. <sup>4</sup> Each 4.5g vial contains 216mg (9.4mmol) of sodium. Tazopip <sup>®</sup> is the brand of piperacillin/tazobactam available at PMH. Tazocin <sup>®</sup> , Pipertaz and Piptazare alternative, equivalent brands.


**\*\*Please note:** The information contained in this guideline is to assist with the preparation and administration of **piperacillin with tazobactam**. Any variations to the doses recommended should be clarified with the prescriber prior to administration\*\*

## References

1. Therapeutic Guidelines Ltd. eTG complete [online]. West Melbourne: Therapeutic Guidelines Ltd; accessed online 10<sup>th</sup> April 2013.
2. Australian Medicines Handbook Pty Ltd. Australian Medicines Handbook [online] Adelaide (SA): Australian Medicines Handbook Pty Ltd accessed online 10<sup>th</sup> April 2013.
3. Kemp CA, McDowell JM, editors. Paediatric Pharmacopoeia 13<sup>th</sup> edition. Melbourne: Pharmacy Department, Royal Children's Hospital; 2005. p.219.
4. Taketomo CK, Hodding JH, Kraus DM, editors. Pediatric dosage handbook with international tradename index. 19<sup>th</sup> edition. Ohio: Lexi-Comp Inc;2012-2013. p. 1366-1368.
5. Burridge N, Deidun D, editors, Australian injectable drugs handbook, fifth edition [online]. Collingwood: The Society of Hospital Pharmacists of Australia; 2011. accessed online 10<sup>th</sup> April 2013.

## Disclaimer

The recommendations contained in this guideline provide direction for the use of **piperacillin with tazobactam** at Princess Margaret Hospital for Children in Perth, Western Australia. This guideline is intended for use at Princess Margaret Hospital for Children and is not necessarily suitable for use elsewhere. Princess Margaret Hospital (Child and Adolescent Health Service) accepts no liability for such use. The information provided is made available in good faith and is derived from sources believed to be reliable and accurate at the time of release. No assurance is given as to the accuracy of any information contained after publication on the Intranet. No part of this protocol may be reproduced, stored in a retrieval system or transmitted in any form, electronic, mechanical, photocopy or recording without prior permission of the publisher.

File Name and Path:	<a href="W:\Safety &amp; Quality\CAHS\CLOVERS MEDICAL Pharmacy\Procedures Protocols and Guidelines\ChAMP">W:\Safety &amp; Quality\CAHS\CLOVERS MEDICAL Pharmacy\Procedures Protocols and Guidelines\ChAMP</a>		
Document Owner:	Children's Antimicrobial Management Program (ChAMP)		
Reviewer / Team:	Children's Antimicrobial Management Program Pharmacist		
Document Sponsor:	PMCCU		
Date First Issued:	May 2013	Version:	3
Last Revised:	October 2014	Review Date:	August 2015
Endorsed by:	DTC	Date:	19 <sup>th</sup> August 2013
Standards Applicable:	NSQHS Standards: 		
<b>The accuracy of this document is not guaranteed when printed</b>			