



DESCRIPTION	<p>Ticarcillin is a penicillin antibiotic which interferes with cell wall peptidoglycan synthesis by binding to penicillin-binding proteins resulting in cell lysis.¹</p> <p>Clavulanic acid is a beta-lactamase inhibitor, it extends the spectrum of activity of ticarcillin to cover many beta-lactamase producing organisms.¹</p> <p>Ticarcillin/clavulanic acid is used in the treatment of mixed (aerobic and anaerobic) or nosocomial infections, especially if <i>P. aeruginosa</i> is involved.</p>
ChAMP INDICATIONS AND RESTRICTIONS	<p>Category B: Monitored ChAMP team to be informed of use and will review if ongoing therapy is required and does not meet specified indications.</p> <p>Standard Indications:</p> <ul style="list-style-type: none"> • Cystic fibrosis exacerbation • Non-Cystic fibrosis bronchiectasis
FORMULATIONS	<p>3g ticarcillin with 100mg clavulanic acid powder for injection vial</p>
DOSAGE	<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;">All doses are based on the ticarcillin component</p> <p>IV: Usual dose: 50mg/kg/dose (maximum of 3g) 6 hourly Severe infections: 50mg/kg/dose (maximum of 3g) 4 hourly Cystic fibrosis: 100mg/kg/dose (maximum of 6g) 8 hourly³</p> <p>Neonates: Please refer to neonatal clinical care drug protocols Neonatology Clinical Care Unit - Drug Protocols - Services A — Z - Women and Newborn Health Service</p>
DOSAGE ADJUSTMENT	<p>Dosage adjustment required in renal impairment: Dosage adjustment may be required in cases of impaired renal function (with creatinine clearance of less than 60mL/min).¹ http://cahs.hdwa.health.wa.gov.au/data/assets/pdf_file/0003/106986/01_Guidlines_for_calculating_CLcr.pdf</p> <p>CrCl >60mL/minute: normal dosing CrCl 30-60mL/minute : 100% dose 6 hourly CrCl 10-30mL/min : 100% dose 8 to 12 hourly CrCl <10mL/minute : 100% dose 12 hourly¹</p>
RECONSTITUTION	<p>Reconstitute each vial with 28mL water for injection to give 100mg/mL of ticarcillin.^{4,5}</p>
ADMINISTRATION	<p>IV infusion: Dilute to a concentration of 100mg/mL or weaker and infuse over 30 minutes⁴</p> <p>Continuous infusion: May be given over 24 hours by continuous infusion. Contact Pharmacy for advice.</p>
MONITORING	<p>Renal, hepatic and haematological function should be monitored weekly with prolonged therapy (i.e. longer than 7 days)^{2,6}</p>
ADVERSE EFFECTS	<p>Common: Diarrhoea, nausea, local reaction with intravenous infusion (pain, burning, erythema, infiltration, swelling and induration at the injection site and thrombophlebitis), anaphylaxis and immunologic reactions^{2,4}</p>

	Rare: Cholestatic hepatitis, bleeding abnormalities, hypokalaemia, black tongue, electrolyte disturbances, neurotoxicity, blood dyscrasias (eg neutropenia, which is related to dose and duration of treatment, thrombocytopenia) ²
COMPATIBLE FLUIDS	Glucose 5% Sodium chloride 0.9% Hartmann's ⁴
PRECAUTIONS	Ticarcillin/clavulanic acid 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. ^{2,4} Beware of the high sodium content.
COMMENTS	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. ⁴ Each 3.1g contains 359mg (15.6mmol) of sodium and 20mg (0.5mmol of potassium) ⁴


****Please note:** The information contained in this guideline is to assist with the preparation and administration of **ticarcillin/clavulanic acid**. 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 10th April 2013.
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4. Burrige N, Deidun D, editors, Australian injectable drugs handbook, fifth edition [online]. Collingwood: The Society of Hospital Pharmacists of Australia; 2011. accessed online 10th April 2013.
5. Standard procedures for the reconstitution and administration of intravenous drugs [Internet] Pharmacy Department: Princess Margaret Hospital; [updated April 2012; cited 10th April 2013]. Available from: http://cahs.hdwa.health.wa.gov.au/_data/assets/pdf_file/0006/38760/IV_DRUGS_Reconstitution_and_Administration_Protocol_Oct2012.pdf
6. Taketomo CK, Hodding JH, Kraus DM, editors. Pediatric dosage handbook with international tradename index. 19th edition. Ohio: Lexi-Comp Inc;2012-2013. p. 1644-1646.

Disclaimer

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File Name and Path:	W:\Safety & Quality\CAHS\CLOVERS MEDICAL Pharmacy\Procedures Protocols and Guidelines\ChAMP		
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:	2
Last Revised:	August 2013	Review Date:	August 2015
Endorsed by:	DTC	Date:	19 th August 2013
Standards Applicable:	NSQHS Standards: 		
The accuracy of this document is not guaranteed when printed			