

**St Vincent's Hospital / SydPath**  
**Drug Measurement Information Sheet**



<b>Cefepime</b>	4 <sup>th</sup> generation cephalosporin; bactericidal, inhibits bacterial cell wall synthesis <u>Active against:</u> Gram-negative organisms including <i>Pseudomonas aeruginosa</i> , Gram-positive organisms including methicillin sensitive <i>Staphylococcus aureus</i> and <i>Streptococcus spp.</i> , and some anaerobes. It has no activity against MRSA, VRE, or atypical organisms.									
<b>WHEN TO CONSIDER TDM</b>	Essential in any patients with impaired renal function, elderly or signs of neurotoxicity, particularly acute drowsiness or confusion. Consider in critically ill patients, especially those with sepsis, trauma, or burns.									
<b>PHARMACOKINETICS</b> (may be altered in critical illness and organ dysfunction)	<table><tr><td>Absorption</td><td>N/A – IV only</td></tr><tr><td>Protein binding</td><td>20 %</td></tr><tr><td>Clearance</td><td>Renal: 85% excreted unchanged</td></tr><tr><td>Elimination t½</td><td>Normal renal function: 2 hours CrCL &lt; 10mL/min and HD: 13.5 hours</td></tr></table>		Absorption	N/A – IV only	Protein binding	20 %	Clearance	Renal: 85% excreted unchanged	Elimination t½	Normal renal function: 2 hours CrCL < 10mL/min and HD: 13.5 hours
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<b>SAMPLE COLLECTION TIME</b>	Trough sample 24 hours after initiation or dose change									
<b>REQUESTING &amp; COLLECTION</b>	Collect 4 mL in a purple top (EDTA) tube (no gel separator). <b><u>Important information required on request form:</u></b> 1) Time and date and quantity of all doses given 2) Time of blood sample collection									
<b>HANDLING &amp; TRANSPORT</b>	Sample must be delivered to laboratory within 1 hour of collection. If not delivered to the lab within 2 hours of collection, centrifuge, separate plasma and freeze within 3 hours of collection.									
<b>AVAILABILITY</b>	Test generally performed 5 days a week. Specific days and timing should be confirmed with SydPath.									
<b>REFERENCE INTERVALS</b>	<b>Suggested Therapeutic Targets:</b> Empirical therapy targeting gram negative organisms (other than pseudomonas): trough 16 mg/L (based on EUCAST breakpoints). If empirically targeting pseudomonas contact microbiology for assistance. Directed therapy: > 4x the MIC of the organism Toxic Range: > 20mg/mL. Monitor for neurotoxicity including encephalopathy, drowsiness and seizures.									
<b>CONTACT</b>	Patient Results: (02) 8382 9100 Further information: <a href="http://www.syddpath.com.au">www.syddpath.com.au</a> - Test Database									
<b>INSTRUCTIONS FOR REFERRING LABORATORIES</b> Centrifuge, separate plasma within 3 hours of collection, store and transport plasma frozen.										
<b>Document approved: 24/5/2019</b>										

**References:**

<sup>1</sup> Australian Medicines Handbook.

<sup>2</sup> The Sanford Guide to Antimicrobial Therapy 2016 (46<sup>th</sup> Edition)

<sup>3</sup> Barbhuiya RH, Knupp CA, Forgue ST, et al: Pharmacokinetics of cefepime in subjects with renal insufficiency. Clin Pharmacol Ther 1990; 48:268-276.

<sup>4</sup> Huwyler T et al. Cefepime plasma concentrations and clinical toxicity: a retrospective cohort study. Clinical Microbiology and Infection 2017; 23:454-459

<sup>5</sup> Lamtho F et al. High Cefepime Plasma Concentrations and Neurological Toxicity in Febrile Neutropenic Patients with Mild Impairment of Renal Function. AAC 2010; 54(10) 4360-4367