

**Table 4.4 Comparative activities of commonly used  $\beta$ -lactams against *S. pneumoniae* with different levels of penicillin susceptibility**

Agent	Penicillin MIC			
	$\leq 0.06 \mu\text{g/mL}$	$0.12\text{--}1 \mu\text{g/mL}$	$2 \mu\text{g/mL}$	$\geq 4 \mu\text{g/mL}$
Penicillin V	+++	+	-	-
Penicillin G	+++	+++	++	±
Ampicillin P.O.	+++	++	±	-
Ampicillin I.V.	+++	+++	++	±
Amoxicillin P.O.	+++	++	+	-
Piperacillin	+++	++	+	-
Ticarcillin	++	+	-	-
Cefotaxime	+++	+++	++	±
Ceftriaxone	+++	+++	++	±
Cefepime	+++	++	+	±
Cefuroxime I.V.	+++	++	+	-
Cefuroxime P.O.	+++	++	±	-
Cefpodoxime	+++	++	-	-
Ceftazidime	+++	+	-	-
Cefaclor	+++	-	-	-
Cefixime/ceftibuten	+++	-	-	-
Imipenem/meropenem	+++	+++	+	-

Penicillin MIC interpretation criteria ( $\mu\text{g/mL}$ ) for I.V. penicillin G: meningitis  $\leq 0.06$  sensitive,  $\geq 0.12$  resistant; nonmeningitis  $\leq 2$  sensitive, 4 intermediate and  $\geq 8$  resistant.

Approximate in vitro activity was indicated by: - inactive, + weak activity, ++ good activity, +++ excellent activity, ± variable or dose-dependent