

TO: Medical and Pharmacy Staff

FROM: Elizabeth D. Hermsen, Pharm.D., M.B.A., BCPS-ID, Mark Rupp, M.D., and Trevor VanSchooneveld, M.D.

RE: Carbapenem Formulary Changes

What is changing?

Imipenem/cilastatin (Primaxin) is no longer on the formulary at The Nebraska Medical Center. Meropenem (Merrem) and ertapenem (Invanz) have been added to the formulary.

Can I use these drugs for the same indications as imipenem?

Carbapenems are broad-spectrum antibiotics that possess activity against Gram-positive, Gram-negative, and anaerobic organisms. Notably, carbapenems maintain activity against extended-spectrum beta-lactamase (ESBL)-producing organisms and are the drugs of choice for systemic infections due to such organisms. An important difference in the spectra of activity among the carbapenems is ertapenem's lack of activity against *Pseudomonas* and *Acinetobacter* species.

Reasonable uses of ertapenem include intra-abdominal infections, complicated skin/soft tissue infections, diabetic foot infections, community-acquired pneumonia, complicated urinary tract infections, and acute pelvic infections where broad-spectrum therapy is necessary but *Pseudomonas* or *Acinetobacter* are not suspected.

The clinical efficacy appears to be comparable for meropenem and imipenem across multiple indications. Thus, meropenem can be used for the same indications as imipenem. In contrast to imipenem, meropenem may be used to treat meningitis in pediatrics and adults when necessary.

How do I dose ertapenem and meropenem?

In adults with normal renal function:

Ertapenem is administered as 1 g IV once daily, infused over 30 minutes.

Meropenem is administered as 500 mg IV q6h, infused over 30 minutes for most indications. A lower dose, 500 mg IV q8h, is indicated for complicated skin/soft tissue infections. Patients with meningitis, cystic fibrosis, and/or microorganisms with a meropenem/imipenem MIC of 4mg/L should receive 2 g IV q8h, infused over 30 minutes.

In pediatrics with normal renal function:

Ertapenem is administered as 15 mg/kg IV q12h in children and infants ≥ 3 months old.

Meropenem is administered in neonates and pediatric patients (< 50kg) as follows:

Infection	Meropenem (mg/kg)		Max dose
Sepsis and other indications	Neonates 7 days & under	20 q12hr	--
	Neonates over 7 days/Children	20 q8hr	500 mg
Meningitis, cystic fibrosis, microorganisms with reported meropenem MIC of 4 mg/L	Neonates 7 days & under	40 q12hr	--
	Neonates over 7 days/Children	40 q8hr	2 g

NOTE: An automatic therapeutic interchange and dosing substitution policy has been approved for meropenem. Pharmacists will automatically interchange imipenem medication orders to meropenem and automatically adjust the dose of meropenem based on the above recommendations. Renal dosage adjustments will be made in accordance with the Antimicrobial Renal Dosage Adjustment policy.

Please contact us with any questions or concerns.

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