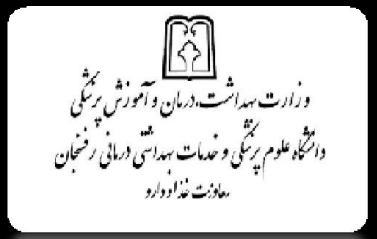
IN THE NAME OF GOD



GUIDELINE OF CARBAPENEMS

Carbapenems are useful for treatment of *moderate to severe* infections, including:

-hospital-acquired pneumonia

-intra-abdominal infections

-complicated urinary tract infections like nosocomial infections and ….

-bacteremia

-bone and soft tissue infections

-obstetrics and gynecological infections.

Carbapenems other than ertapenem are drugs of choice for treatment of infections caused by multidrug resistant strains of *A.baumannii* that remain susceptible to carbapenems;however,resistance to carbapenems is rapidly increasing.

Meropenem is the only carbapenem approved by FDA for treatment of bacterial meningitis. Imipenem should be avoided because of its propensity to cause seizures.

Mandell, Douglas, and Bennett's
Principles and Practice of
INFECTIOUS DISEASES

TABLE 75-4 Empirical Antibiotic Options for Patients with Severe Sepsis or Septic Shock

	SUSPECTED SOURCE				
	Lung	**Abdomen**	**Skin/Soft Tissue**	**Urinary Tract**	**Source Uncertain**
Major Community-Acquired Pathogens	*Streptococcus pneumoniae* *Haemophilus influenzae* *Legionella* *Chlamydia pneumoniae*	*Escherichia coli* *Bacteroides fragilis*	*Streptococcus pyogenes* *Staphylococcus aureus* Polymicrobial	*E. coli* *Klebsiella* species *Enterobacter* species *Proteus* spp. Enterococci	
Empirical Antibiotic Therapy	Moxifloxacin *or* levofloxacin *or* azithromycin *plus* cefotaxime *or* ceftazidime *or* cefepime *or* piperacillin-tazobactam	Imipenem *or* meropenem *or* doripenem *or* piperacillin-tazobactam ± aminoglycoside If biliary source: piperacillin-tazobactam, ampicillin-sulbactam, *or* ceftriaxone with metronidazole	Vancomycin *or* daptomycin *plus either* imipenem *or* meropenem *or* piperacillin-tazobactam; ± clindamycin (see text)	Ciprofloxacin *or* levofloxacin (if gram-positive cocci, use ampicillin *or* vancomycin ± gentamicin)	Vancomycin *plus either* doripenem *or* ertapenem *or* imipenem *or* meropenem
Major Commensal or Nosocomial Microorganisms	Aerobic gram-negative bacilli	Aerobic gram-negative rods Anaerobes *Candida* spp.	*Staphylococcus aureus* (? MRSA) Aerobic gram-negative rods	Aerobic gram-negative rods Enterococci	Consider MDRO if in area of high prevalence Consider echinocandin if neutropenic or indwelling intravascular catheter
Empirical Antibiotic Therapy	Imipenem *or* meropenem *or* doripenem *or* cefepime (if *Acinetobacter baumanii* or carbapenem-resistant *Klebsiella* in ICU, add colistin)	Imipenem *or* meropenem ± aminoglycoside (consider echinocandin)	Vancomycin *or* daptomycin *plus* imipenem-cilastatin *or* meropenem *or* cefepime, ± clindamycin	Vancomycin *plus* imipenem *or* meropenem *or* cefepime	Cefepime *plus* vancomycin ± caspofungin

Dosages for intravenous administration (normal renal function):

*Imipenem-cilastatin, 0.5-1.0 g q6-8h
*Meropenem, 1-2 g q8h
*Doripenem, 0.5 g q8h
Piperacillin-tazobactam, 3.375 g q4h or 4.5 g q6h
Vancomycin, load 25-30 mg/kg, then 15-20 q8-12h
Cefepime, 1-2 g q8h
Levofloxacin, 750 mg q24h
Ciprofloxacin, 400 mg q8-12h
Moxifloxacin, 400 mg qd
Ceftriaxone, 2.0 g q24h
Caspofungin, 70 mg, followed by 50 mg q24h
Colistin: loading dose = 5 mg/kg body weight. For maintenance dosing, see University of California, Los Angeles Dosing Protocol: www.infectiousdiseases-ucla-affiliated.org/Intranet/FILES/ColistinDosing.pdf

*Carbapenems are less susceptible to extended-spectrum β-lactamases; base choice on local resistance pattern.
ICU, intensive care unit; MDRO, multidrug-resistant organisms; MRSA, methicillin-resistant *Staphylococcus aureus*.
For MDRO, resistance usually includes carbapenems.

Mandell, Douglas, and Bennett's
Principles and Practice of
INFECTIOUS DISEASES

TABLE 70-4 Empirical Antibiotic Options for Patients with Severe Sepsis or Septic Shock

	Suspected Source				
	Lung	*Abdomen*	*Skin/Soft Tissue*	*Urinary Tract*	*Meninges*
Major community-acquired pathogens	*Streptococcus pneumoniae* *Haemophilus influenzae* *Legionella* *Chlamydophila pneumoniae*	*Escherichia coli* *Bacteroides fragilis*	*Streptococcus pyogenes* *Staphylococcus aureus* Polymicrobial	*E. coli* *Klebsiella* species *Enterobacter* species *Proteus* species Enterococci	*S. pneumoniae* *Neisseria meningitidis* *Listeria monocytogenes* *H. influenzae*
Empirical antibiotic therapy	Moxifloxacin *plus either* cefotaxime *or* ceftriaxone	Imipenem-cilastatin* *or* meropenem *or* piperacillin-tazobactam ± aminoglycoside	Vancomycin *plus either* imipenem *or* meropenem *or* piperacillin-tazobactam	Ciprofloxacin *or* levofloxacin (If gram-positive cocci, use ampicillin plus gentamicin)	Vancomycin plus ampicillin *plus either* ceftriaxone *or* cefepime
Major commensal or nosocomial microorganisms	Aerobic gram-negative bacilli	Aerobic gram-negative rods Anaerobes *Candida* species	*Staphylococcus aureus* (? MRSA) Aerobic gram-negative rods	Aerobic gram-negative rods Enterococci	Aerobic gram-negative rods Staphylococci
Empirical antibiotic therapy*	Imipenem-cilastatin* *or* meropenem *or* cefepime	Imipenem-cilastatin* *or* meropenem ± aminoglycoside (Consider amphotericin B)	Vancomycin *plus* imipenem-cilastatin* or meropenem or cefepime	Vancomycin *plus* imipenem-cilastatin* or meropenem or cefepime	Cefepime *plus* vancomycin

Dosages for intravenous administration (normal renal function):

Imipenem-cilastatin, 0.5 g q6h
Meropenem, 1.0 g q8h
Piperacillin-tazobactam, 3.375 g q6h
Vancomycin, 15 mg/kg q12h (if meningitis, 25 mg/kg q12h)
Cefepime, 1-2 g q8h
Ciprofloxacin, 400 mg q12h, Moxifloxacin 400 mg qd
Ceftriaxone, 2.0 g q24h (if meningitis, 2 g q12h)
Levofloxacin, 750 mg q24h
Gentamicin, 7 mg/kg q24h
Ampicillin, 2 g q4h
Cefotaxime, 2 g q4h

*Carbapenems are less susceptible to extended-spectrum beta-lactamases (ESBL); base choice on local resistance pattern.
MRSA, methicillin-resistant *S. aureus*.
Format adapted from Simon D, Trenholme G. Antibiotic selection for patients with septic shock. *Crit Care Clin*. 2000;16:215-230.

در عفونت هایی که اندیکاسیون استفاده از کارباپنم وجود ندارد و یا نیاز به استفاده empirical از کارباپنم ها نیست استفاده از پیپراسیلین/تازوباکتام گزینه بسیار مناسبی است به خصوص در عفونت های اکتسابی از جامعه.حتی استفاده از آمپی سیلین/سولباکتام در برخی مواد عفونت های خفیف و حساس توصیه شده است.

The End