


Johns Hopkins ABX Guide



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Calculators

Johns Hopkins ABX Guide

Prime For You

Prime Journals

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This is the home page you will be automatically directed to; to access the ABX Guide – click this button

- All Topics
- Antibiotics
- Diagnosis
- Management
- Pathogens
- Vaccines
- Brand Names
- About the Johns Hopkins ABX Guide

You are able to look up information in several different ways – antibiotic, diagnosis, pathogen, etc.

Johns Hopkins ABX Guide

Search ABX Guide

- A B C D E F G H I J K L M N O P Q R S T U V W X Y Z
- 3TC
 - Abacavir
 - Abacterial meningitis
 - ABC
 - ABCD
 - Abdominal abscess
 - Abdominal actinomycosis
 - Abelcet
 - Abiotrophia species
 - ABLC
 - ABPA - Allergic bronchopulmonary aspergillosis
 - Abreva
 - Abscess, anal/rectal
 - Abscess, epidural
 - Abscess, hepatic
 - Abscess, intra-abdominal
 - Abscess, lung
 - Abscess, pancreatic
 - Abscess, pharyngeal space
 - Abscess, skin
 - Abscess, splenic
 - Absidia
 - Acalculous cholecystitis
 - Acanthamoeba
 - Acanthamoeba keratitis
 - Achromobacter species
 - Acinetobacter

You can also use the search bar to quickly find you topic (ex: pneumonia, pseudomonas, or ceftriaxone, etc.

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Once you create your own account, you can save favorites or notes for reference for yourself

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When looking at antibiotic:

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Meropenem

INDICATIONS

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NON-FDA APPROVED USES

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ADULT RENAL DOSING

DOSING FOR GLOMERULAR FILTRATION OF 50-80
DOSING FOR GLOMERULAR FILTRATION OF 10-50
DOSING FOR GLOMERULAR FILTRATION OF < 10 ML / MIN
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DOSING IN PERITONEAL DIALYSIS
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DOSING FOR DECREASED HEPATIC FUNCTION
PREGNANCY RISK
BREAST FEEDING COMPATIBILITY

COMMENTS

Basis for recommendation
References

Johns Hopkins ABX Guide → Brand Names

Meropenem

Edina Avdic, Pharm.D.

INDICATIONS

FDA

- Intra-abdominal infections caused by viridans group streptococci, *E. coli*, *K. pneumoniae*, *P. aeruginosa*, *B. fragilis*, *Bacteroides thetaiotaomicron*, and *Peptostreptococcus* species.
- Meningitis (children 3 months of age and older) caused by *S. pneumoniae*, *H. influenzae*, and *N. meningitidis*.
- Complicated skin and soft tissue infections caused by *S. aureus* (MSSA only), *S. pyogenes*, *Streptococcus agalactiae*, viridans group streptococci, *E. faecalis* (not VRE), *P. aeruginosa*, *E. coli*, *Proteus mirabilis*, *B. fragilis*, and *Peptostreptococcus* species.

NON-FDA APPROVED USES

- Hospital-acquired pneumonia
- Necrotizing pancreatitis
- Obstetric and gynecologic infections
- Febrile neutropenia
- Sepsis and bacteremia
- Endocarditis caused by Gram-negative organisms (*P. aeruginosa*)
- Infections caused by ESBL producing organisms
- Multidrug resistant Gram-negative infections

FORMS

brand name	preparation	manufacturer	route	form	dosage ^a	cost [*]
Merrem	Meropenem	Astra Zeneca	IV	vial	500 mg	Brand: \$40.26 Generic: \$4.8-15.34
			IV	vial	1000 mg	Brand: \$80.5 Generic: 11.52-28.92

^{*}Prices represent cost per unit specified, are representative of "Average Wholesale Price" (AWP).
^aDosage is indicated in mg unless otherwise noted.

USUAL ADULT DOSING

- Mild to moderate infections: 1 gm IV q8h
- Severe and CNS infections: 2 gm IV q8h
 - To enhance PK/PD parameters, some experts recommend extended infusion (over 3 hours) for severe infections and/or treatment of intermediately-resistant organisms (in combination with an aminoglycoside).
- Obese patients: 2 gm IV q8h (limited data)

ADULT RENAL DOSING

DOSING FOR GLOMERULAR FILTRATION OF 50-80

For each topic, the information is presented in a monograph with similar formatting. You can use the side bar to quickly go to different sections

Grapherence® [115]

Search PRIME PubMed

Related Topics

Meropenem/vaborbactam

more...

When Looking at Diagnosis:

The screenshot shows a medical website interface. At the top, there is a navigation bar with 'Home', 'Favorites', 'Notes', 'Prime PubMed', 'Mobile', and 'Browse' options. The user is logged in as 'Nebraska Medical Center' with a 'Log in' button. The main content area is titled 'Johns Hopkins ABX Guide → Diagnosis → Bone Joint → Osteomyelitis'. The page is for 'Osteomyelitis, Acute' by Sara Keller, M.D. The 'PATHOGENS' section lists various bacteria, including *Staphylococcus aureus*, *Coagulase-negative staphylococci*, *Streptococcus* species, *Enterococcus*, *Pseudomonas aeruginosa*, *Escherichia coli*, *Salmonella* species, *Serratia* species, and *Kingella kingae*. It also mentions 'Other Gram-negative enteric bacilli' and 'Much less common' organisms like anaerobes, *Cutibacterium acnes*, fungi, mycobacteria, and *Brucella*. 'Some typical settings' include hardware, IV drug use, sickle cell, diabetes, nail through sneaker, human bite, animal bite, and urinary tract infection. The 'CLINICAL' section discusses the distinction between acute (AOM) and chronic (COM) osteomyelitis, noting that AOM is most common in children and adults over 50. At the bottom, there is a 'Basis for recommendation' section with a reference to Berbari et al. (2015) and a 'References' section with a reference to Li et al. (2019). A right sidebar shows 'Related Topics' such as Cefepime, Linezolid, Osteomyelitis, Chronic, and others. A search bar for 'PRIME PubMed' and a 'Grapherence' badge are also visible.

When looking at a diagnosis, it will also be presented in a monographs format, and you can use the side bar quickly navigate through the page.

Provides helpful information on pathogens, empiric treatments, pathogen specific treatments, and clinical considerations

There are hyperlinks throughout the text that will direct you to more information as needed (ex: antibiotic, pathogen, additional diagnosis, etc.)

Basis for recommendation

1. Berbari EF, Kanj SS, Kowalski TJ, et al. 2015 Infectious Diseases Society of America (IDSA) Clinical Practice Guidelines for the Diagnosis and Treatment of Native Vertebral Osteomyelitis in Adults. *Clin Infect Dis*. 2015;61(6):e26-46. [PMID:26229122]
Comment: Updated clinical practice guidelines for vertebral osteomyelitis treatment in adults.

References

2. Li HK, Rombach I, Zambellas R, et al. Oral versus Intravenous Antibiotics for Bone and Joint Infection. *N Engl J Med*. 2019;380(5):425-436. [PMID:30699315]
Comment: Much discussed and debated first major RCT of oral vs IV antibiotics for bone and joint infections. Showing rates of relapse similar in two groups. However, implications around close monitoring of patients on oral antibiotics vs OPAT continue to be discussed. Few MRSA infections were

At the bottom of each page, they list reference and the resources that are the Basis for recommendation – the PMID is listed, making it easy to access literature/guidelines for additional information

When Looking at Pathogen:

Pseudomonas aeruginosa

- MICROBIOLOGY
- CLINICAL
- SITES OF INFECTION
- TREATMENT
 - General principles
 - Chemotherapy
 - Selected Drug Comments
- OTHER INFORMATION
 - Basis for recommendation
 - References
 - Media
 - Pseudomonas aeruginosa
 - Fig 1

Pseudomonas aeruginosa

Lisa A. Spacek, M.D., Ph.D.

MICROBIOLOGY

- Gram-negative non-fermenting, motile bacillus [Fig 1]; known for blue-green pus due to pyocyanin and pyoverdinin pigments.
- Non-fastidious organism; inhabits a variety of environments including soil and water, i.e., hot tubs, sinks, water faucets, respirators, disinfectants, and contact lens cleaning solution.
- Grows on a wide variety of media. Clinical isolates usually render smooth colonies on plates [Fig 2].
- Produces biofilm, toxins, and proteases.
- Drug resistance mechanisms include multiple pathways: chromosomal and inducible beta-lactamases, active efflux pumps, acquired genes and plasmid-mediated ESBLs (TEM, SHV, CTX-M), and altered permeability.[8][13]
 - Carbapenem-resistance mechanisms include:
 - Loss of outer membrane porin D (OprD) results in resistance to carbapenems.
 - The combined loss of OprD in combination with another mechanism, i.e., overexpression of AmpC beta-lactamase OR overexpression of efflux pumps, is a major determinant of resistance to carbapenems.[12]
 - Production of carbapenemases, esp. Ambler class B metallo-beta-lactamases (NDM, VIM, IMP).[4]
- Clinical utility of rapid molecular diagnostic platforms to detect genotype resistance to beta-lactam/beta-lactamase inhibitor combinations is limited by the complexity of non-tested determinants of beta-lactam resistance, such as OprD changes and drug efflux systems.[3]

CLINICAL

- Usually a nosocomial, opportunistic pathogen—especially in the setting of immunocompromised host or foreign body, central line, or urinary catheter.
 - Chronic colonizer of cystic fibrosis (CF) lung.
- Agent of pneumonia (ventilator-associated), UTI, bacteremia (neutropenia), post-neurosurgical meningitis, post-surgical infections, and hot-tub folliculitis.
- Ecthyma gangrenosum: infarcted skin lesions due to vascular invasion with heavy organism burden is uncommon, and seen mostly in immunosuppressed or critically ill patients.
- Risk factors include immunosuppression, diabetes mellitus, skin burns, cystic fibrosis, neutropenia, complement deficiency, and AIDS.
- Multidrug resistance (MDR): likely in those with recent abx therapy (past 90d), hospital stay > 4d, high rate of abx resistance associated with residence in a chronic care facility.[17]
- Historically associated with high mortality in the setting of:
 - Febrile neutropenia, bacteremia, pneumonia, and skin and soft tissue infections
 - Infected burn wounds with heavy bacterial growth in burn eschar

SITES OF INFECTION

- Respiratory: pneumonia (nosocomial, CF, AIDS), lung abscesses
- GI: UTI/urosepsis (complicated by the obstruction, manipulation, or foreign body)

Search PRIME PubMed

- #### Related Topics
- Mastoiditis
 - Colistimethate (colistin)
 - Otitis Externa
 - Norfloxacin
 - Ceftolozane/tazobactam
 - Polymyxin B
 - Paronychia
 - Ticarcillin + Clavulanic Acid
 - Cardiovascular Device Infections

Provides helpful clinical information and under microbiology, will give you an easy to understand review of any potential resistance that can be helpful.

Selected Drug Comments

- Cefiderocol is a synthetic conjugate with cephalosporin moiety to inhibit cell wall synthesis PLUS a siderophore moiety to enter cells via active iron transporters.[9]
- Taniborbactam is a next-generation beta-lactamase inhibitor with direct inhibitory activity against Ambler class A, B, C, and D enzymes. Combination of cefepime-taniborbactam demonstrates broad-spectrum rescue of cefepime activity against carbapenem-resistant P. aeruginosa.[2]

Drug	Recommendation
Amikacin	A traditional second drug used with anti-pseudomonal beta-lactams for wider empiric coverage. Renal (reversible) toxicity associated with a greater duration of treatment and higher doses. Monitor for otic (irreversible) toxicity which may be seen with > 3d of therapy. Has had the best susceptibility coverage of typically used aminoglycosides against P. aeruginosa at many institutions, although plazomicin may now be the leader.
Aztreonam	Anti-pseudomonal monobactam. Increasing resistance may limit effectiveness.
Cefepime	Fourth-generation cephalosporin with anti-pseudomonal and anti-S.

The Selected Drugs Comments Section can provide some helpful information for each potential antibiotic that can help with clinical decision making