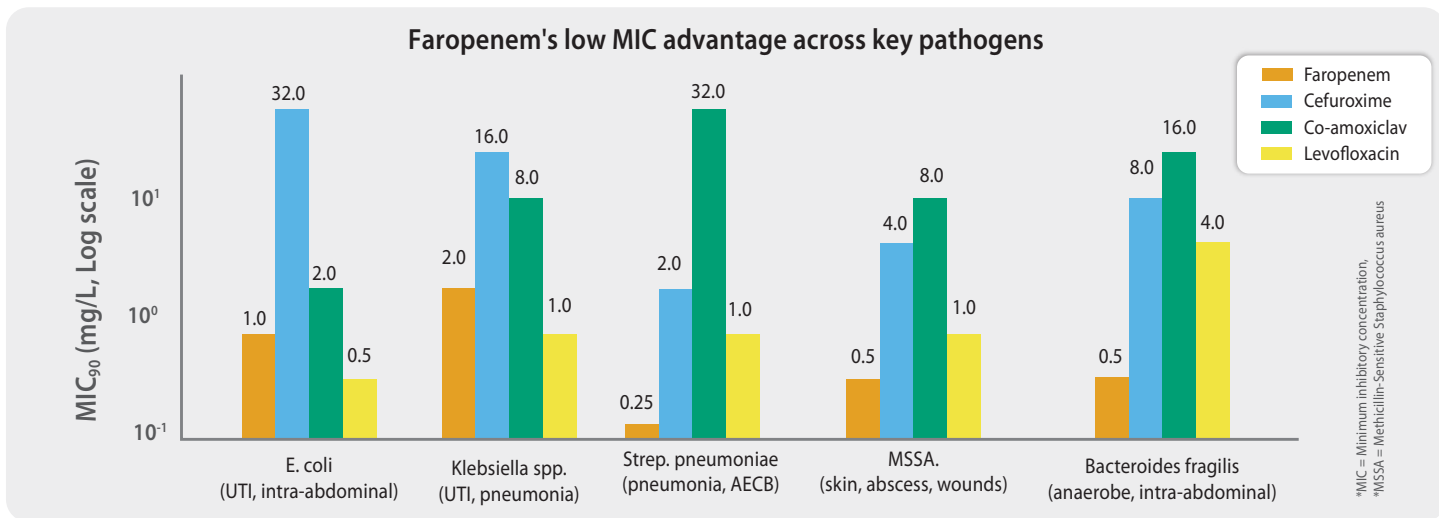


Faropenem for the management of infectious diseases- A systematic review of *in vitro* susceptibility tests and clinical studies

- ⚡ Infectious diseases remain a major global health burden, responsible for nearly 10 million deaths annually. The rising misuse of antibiotics has accelerated resistance, particularly via β -lactamase production and multidrug resistance, necessitating new effective agents.
- ⚡ Faropenem, the only orally available penem, offers broad-spectrum antibacterial activity and intrinsic stability against β -lactamases, with proven efficacy against both Gram-positive and Gram-negative pathogens.
- ⚡ This systematic review assessed *in vitro* and clinical evidence to compare faropenem's antimicrobial activity and resistance profile with other commonly used agents such as co-amoxiclav, levofloxacin and cefuroxime.

Study	Population	Intervention	Comparator	Outcome
Siebert et al.	561 adults with acute bacterial maxillary sinusitis (Europe, multicenter)	Faropenem 300 mg BID \times 7 days	Cefuroxime 250 mg BID \times 7 days	Clinical cure: 89% vs 88.4%; Bacteriological success: 91.5% vs 90.8%
Upchurch et al.	1106 adults with acute bacterial sinusitis (USA/Canada)	Faropenem 300 mg BID \times 7-10 days	Cefuroxime 250 mg BID \times 10 days	Clinical cure: 80.3% (7d), 81.8% (10d) vs 74.5%



Faropenem demonstrates robust antimicrobial activity across a wide spectrum of pathogens, including resistant strains, with MIC90 values often lower than comparators such as co-amoxiclav, cefuroxime and levofloxacin. Clinical evidence further supports its non-inferiority to cefuroxime in acute bacterial sinusitis with high cure rates and favorable safety. These findings establish faropenem as a strong oral therapeutic option for community-acquired respiratory and urinary infections, especially where resistance limits other antibiotics.

Ref.: Pal, Amitrajit & Pawar, Dattatray & Sharma, Akhilesh. (2025). Faropenem for the management of infectious diseases – A systematic review of *in vitro* susceptibility tests and clinical studies. Journal of Laboratory Physicians. 17. 1-17. 10.25259/JLP_215_2024.

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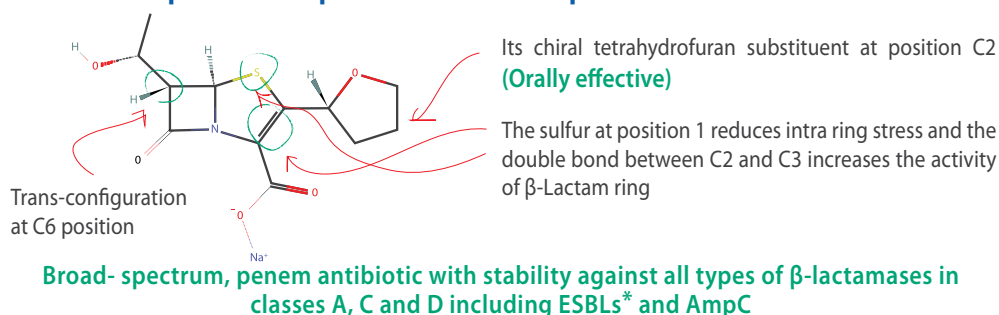


Antimicrobial resistance

- ⚡ Antimicrobial resistance (AMR) has been prioritized by the World Health Organization (WHO) as one of the top 10 global public health threats facing humanity.²
- ⚡ Resistance to beta-lactams is an alarming and growing phenomenon and, in turn, a public health challenge. Following are the mechanisms of resistance³ :
 - Inactivation by the production of beta-lactamases.
 - Decreased penetration to the target site (e.g., the resistance of *Pseudomonas aeruginosa*).
 - Alteration of target site Penicillin Binding Proteins (PBPs) (e.g., penicillin resistance in *pneumococci*).
 - Efflux from the periplasmic space through specific pumping mechanisms.

The key distinguishing features of faropenem⁴⁻⁷

Faropenem- a penem with unique chemical structure



Time, concentration and oxygen dependent **bactericidal effect** against **Aerobic, Anaerobic, Gram-positive & Gram-negative** bacteria.

Faropenem has shown lower MICs (Minimum Inhibitory Concentrations) than other beta-lactam antibiotics against certain bacteria.

	Bacteria	Faropenem			Amox - clav		Cefuroxime		Imipenem	
		MIC ₅₀	MIC ₉₀	Range	MIC ₅₀	MIC ₉₀	MIC ₅₀	MIC ₉₀	MIC ₅₀	MIC ₉₀
Gram (+)ve	<i>Staphylococcus aureus</i> (MS)	0.12	0.12	0.03–0.5	1	2	1	2	≤ 0.5	≤ 0.5
	<i>S. aureus</i> (MR)	>32	>32	0.12– >32	8	16	>32	>32	32	32
	<i>Staphylococcus epidermidis</i> (All)	0.12	0.5	0.06 – >128	1	8	0.5	16	0.016	16
	<i>S. epidermidis</i> (MS)	0.12	0.5	0.06 – 4	1	2	0.5	1	0.016	0.016
	<i>Streptococcus pyogenes</i>	0.03	0.03	≤ 0.015 – 0.06	0.03	0.03	≤ 0.015	≤ 0.015	≤ 0.008	≤ 0.008
	<i>Streptococcus pneumoniae</i>	0.008	0.25	≤ 0.004 – 2	0.03	0.5	≤ 0.12	4	≤ 0.5	≤ 0.5
Gram (-)ve	<i>Escherichia coli</i>	0.5	1	0.12 – 32	4	16	4	8	≤ 0.5	≤ 0.5
	<i>Haemophilus influenzae</i>	0.25	1	≤ 0.004 – 4	0.5	1	0.5	2	1	4
	<i>H. influenzae</i> (BLN)	0.25	1	≤ 0.004 – 4	0.5	1	0.5	2	1	2
	<i>Klebsiella pneumoniae</i>	0.5	2	0.25 – >32	2	8	4	>32	0.25	1

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