



# ESBL UTI in Bangladesh: Why an oral effective option matters?



## UTI burden is high in Bangladesh hospital practice

403/1750 urine samples were culture-positive, and *E. coli* was the dominant uropathogen (73.2%) isolated from patients at DMCH.

## ESBL is a major treatment challenge

Among key Enterobacterales isolates, 68.47% of *E. coli* & 50% of *K. pneumoniae* were ESBL producers, with low susceptibility to many commonly used UTI antibiotics.



### Study Design

Hospital-based microbiological study using urine culture, organism identification, ESBL detection, and antimicrobial susceptibility testing

Total samples	1750 urine samples
Total culture-positive isolates	403 culture-positive cases
Duration	6 months
Center	Dhaka Medical College Hospital

### Major ESBL producing pathogens among UTI patients in DMCH



### Key outcome

- *E. coli* was the leading isolate: 73.2%.
- ESBL production was high: *E. coli* 68.47%, *K. pneumoniae* 50%.
- Low susceptibility to many common antibiotics highlights the unmet need for effective ESBL-active options.

Ref.: Feng et al., Infectious Microbes & Diseases (2020) 2:1

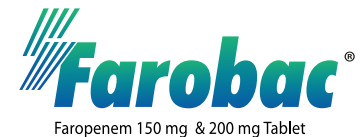
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# Faropenem-the novel oral penem



## Faropenem: a rational oral option against ESBL organisms<sup>2</sup>

Faropenem is an oral penem with reported activity against ESBL-producing *E. coli* & *Klebsiella spp.*; one JAC study found >95% of ESBL producers susceptible at  $\leq 2$  mg/L, while noting clinical utility depends on urinary exposure and further clinical evidence.

## Conclusion

- ⊖ ESBL-producing *E. coli* is a major UTI concern in Bangladesh.
- ⊖ Common empirical antibiotics showed low sensitivity, creating a clear unmet need.
- ⊖ Faropenem offers an oral ESBL-active option, supported by in-vitro and clinical evidence, where susceptibility and stewardship guidance support its use.

## Dosage & administration of faropenem

Indication	Dosage	Duration
Urinary tract infections	200 mg can be increased to 300 mg	7 to 14 days

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

	Bacteria	Faropenem			Amox - clav		Cefuroxime		Imipenem	
		MIC <sub>50</sub>	MIC <sub>90</sub>	Range	MIC <sub>50</sub>	MIC <sub>90</sub>	MIC <sub>50</sub>	MIC <sub>90</sub>	MIC <sub>50</sub>	MIC <sub>90</sub>
Gram (+ve)	<i>Staphylococcus aureus</i> (MS)	0.12	0.12	0.03–0.5	1	2	1	2	$\leq 0.5$	$\leq 0.5$
	<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	$\leq 0.015$ – 0.06	0.03	0.03	$\leq 0.015$	$\leq 0.015$	$\leq 0.008$	$\leq 0.008$
	<i>Streptococcus pneumoniae</i>	0.008	0.25	$\leq 0.004$ – 2	0.03	0.5	$\leq 0.12$	4	$\leq 0.5$	$\leq 0.5$
Gram (-ve)	<i>Escherichia coli</i>	0.5	1	0.12 – 32	4	16	4	8	$\leq 0.5$	$\leq 0.5$
	<i>Haemophilus influenzae</i>	0.25	1	$\leq 0.004$ – 4	0.5	1	0.5	2	1	4
	<i>H. influenzae</i> (BLN)	0.25	1	$\leq 0.004$ – 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

Ref: 1. Begum SA et al. Etiology of UTI and frequency of ESBL producing bacteria isolated from patients of Dhaka Medical College Hospital with their antimicrobial susceptibility pattern. J Dhaka Med Coll. 2016;25(1):26–31. ; 2. Faropenem evidence: Mushtaq S et al. Activity of faropenem against cephalosporin-resistant Enterobacteriaceae. J Antimicrob Chemother. 2007.

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