



An *in-vitro* study to examine the activity of aztreonam-avibactam against carbapenem-resistant Gram-negative bacilli in a tertiary referral laboratory in Hong Kong



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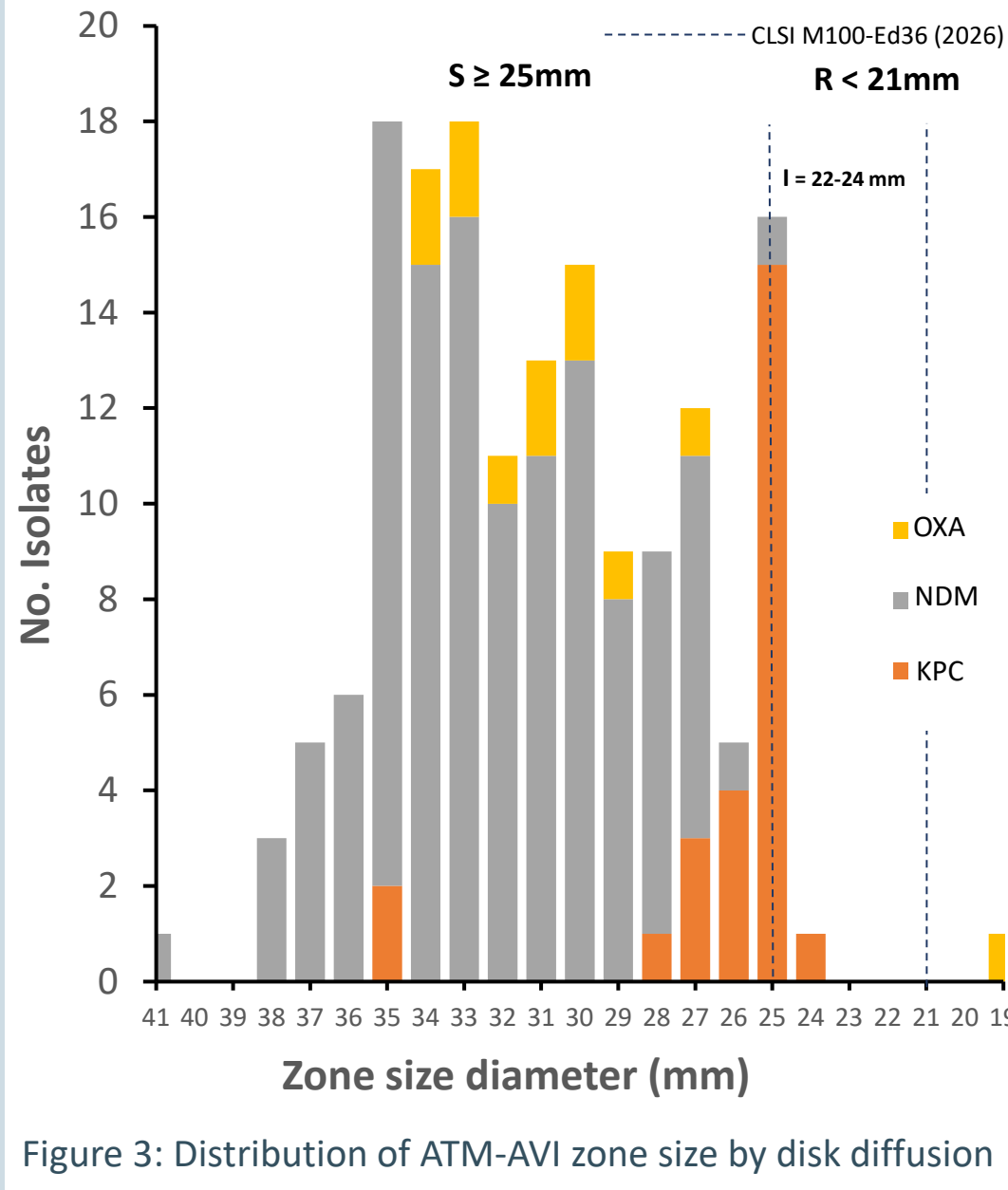
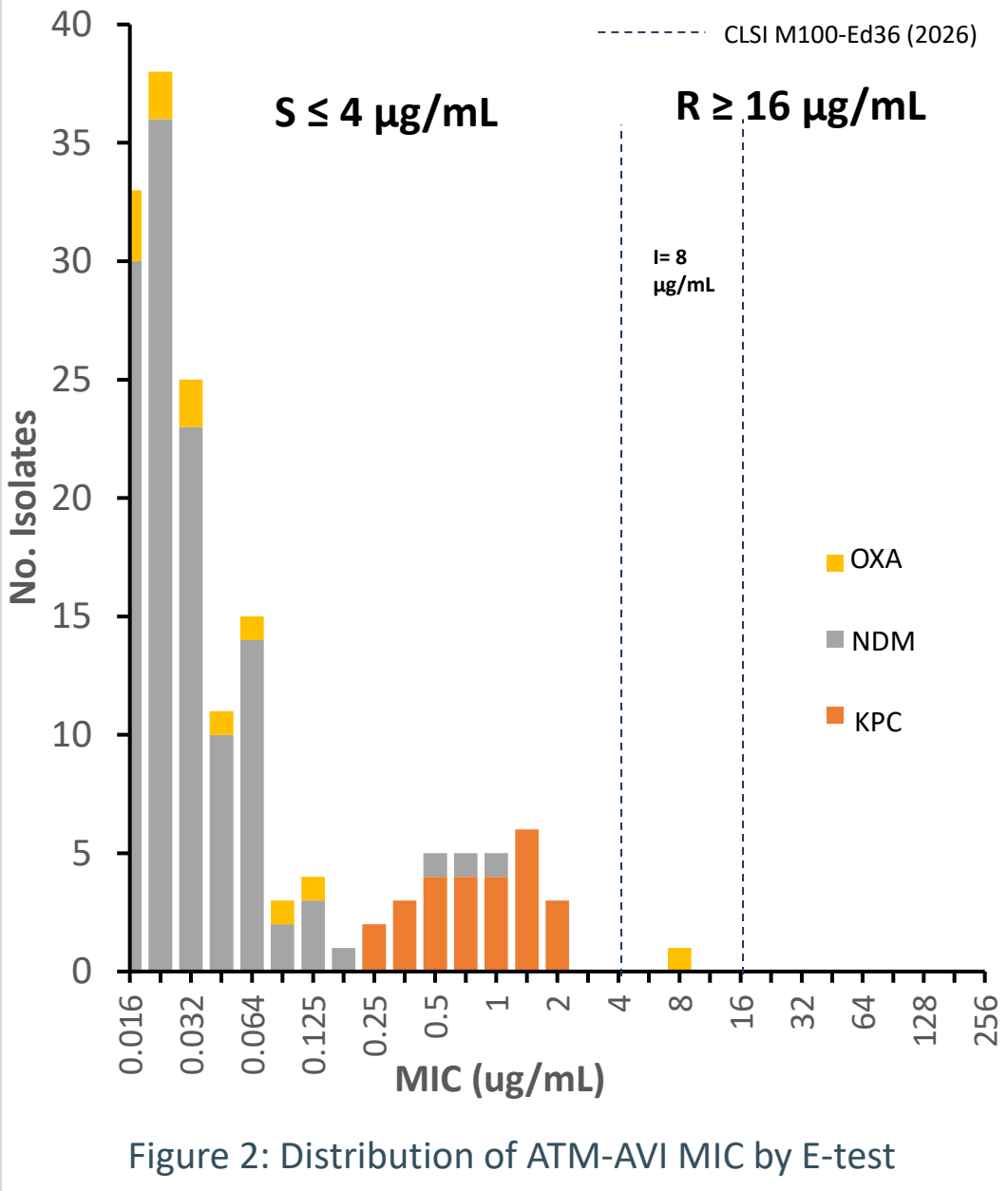
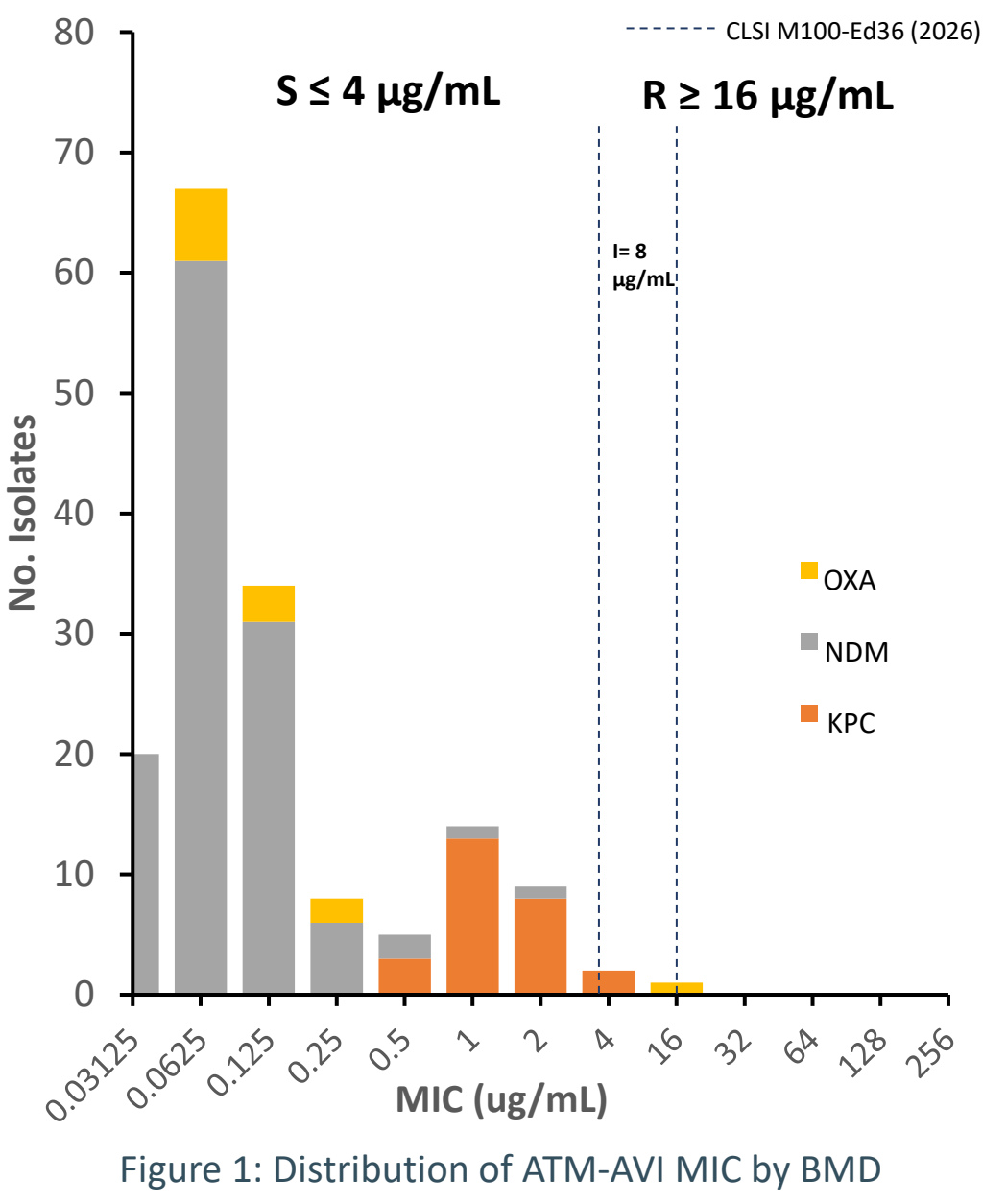
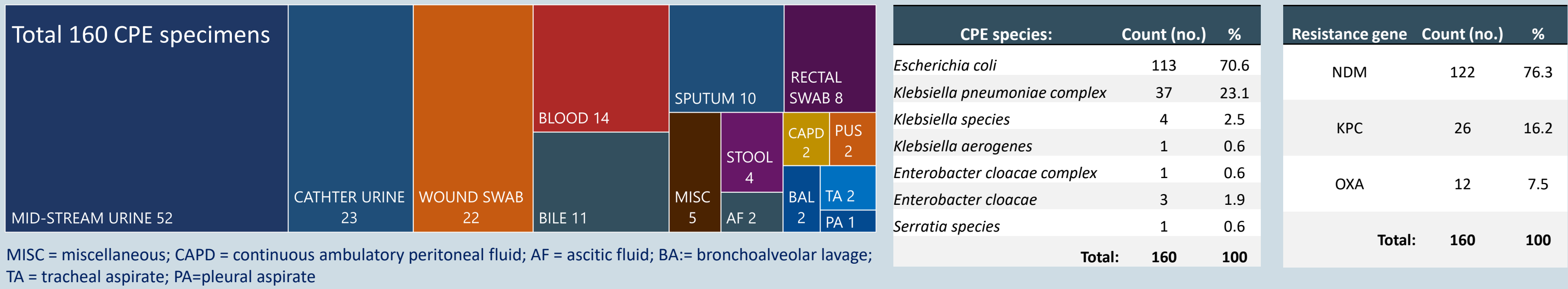
Background

- Carbapenemase-producing Enterobacterales (CPE) and *Stenotrophomonas maltophilia* pose significant challenges in tertiary care, with high morbidity and mortality.
- Metallo- β -lactamase (MBL)-producing Enterobacterales contributed to >70% of CPE cases locally and are difficult to treat, rendering most β -lactam/ β -lactamase inhibitor combinations ineffective.
- Aztreonam-avibactam (ATM-AVI) offers a promising solution: aztreonam is stable against MBL hydrolysis while avibactam inhibits serine β -lactamases.
- Local *in-vitro* data from Hong Kong remain scarce.

Methods

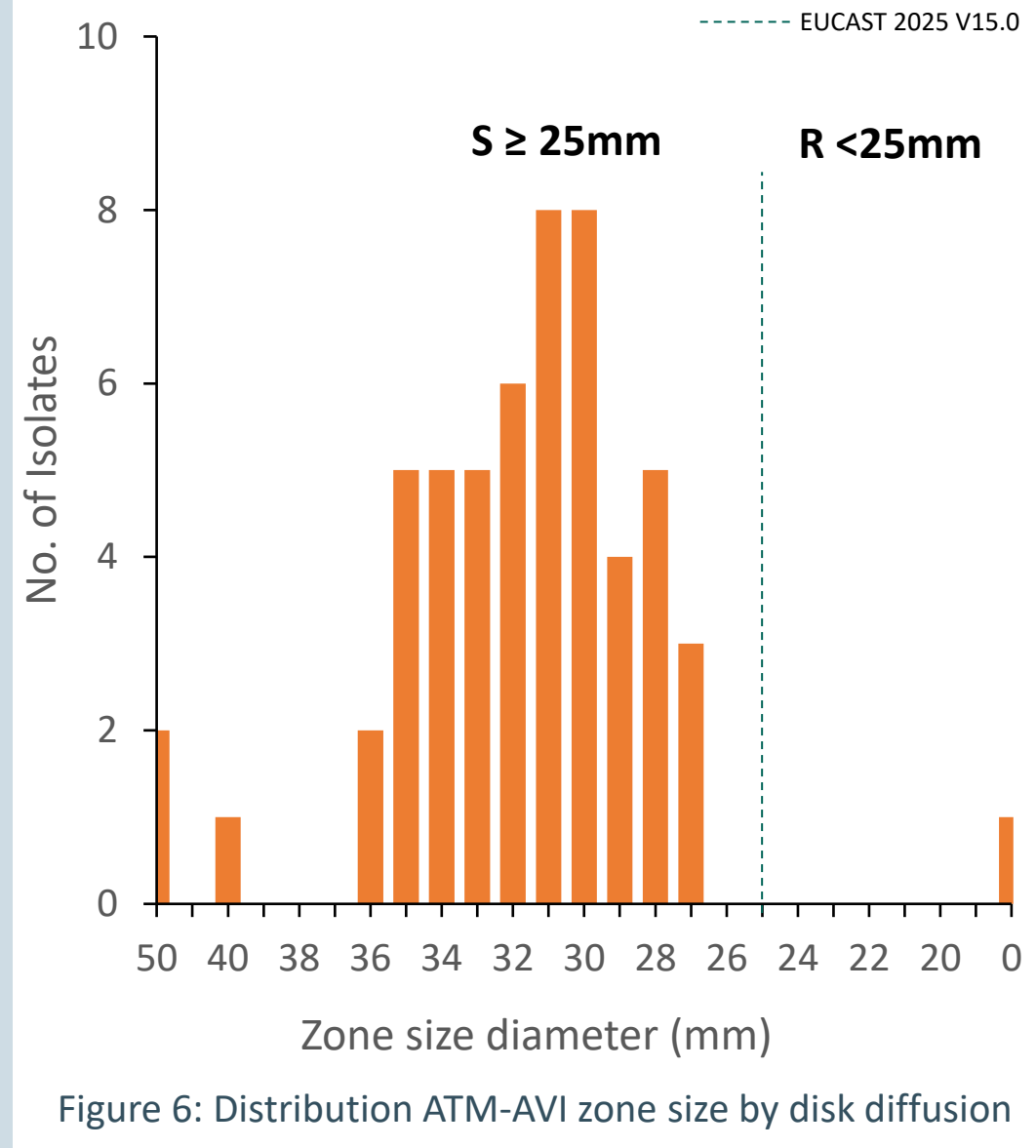
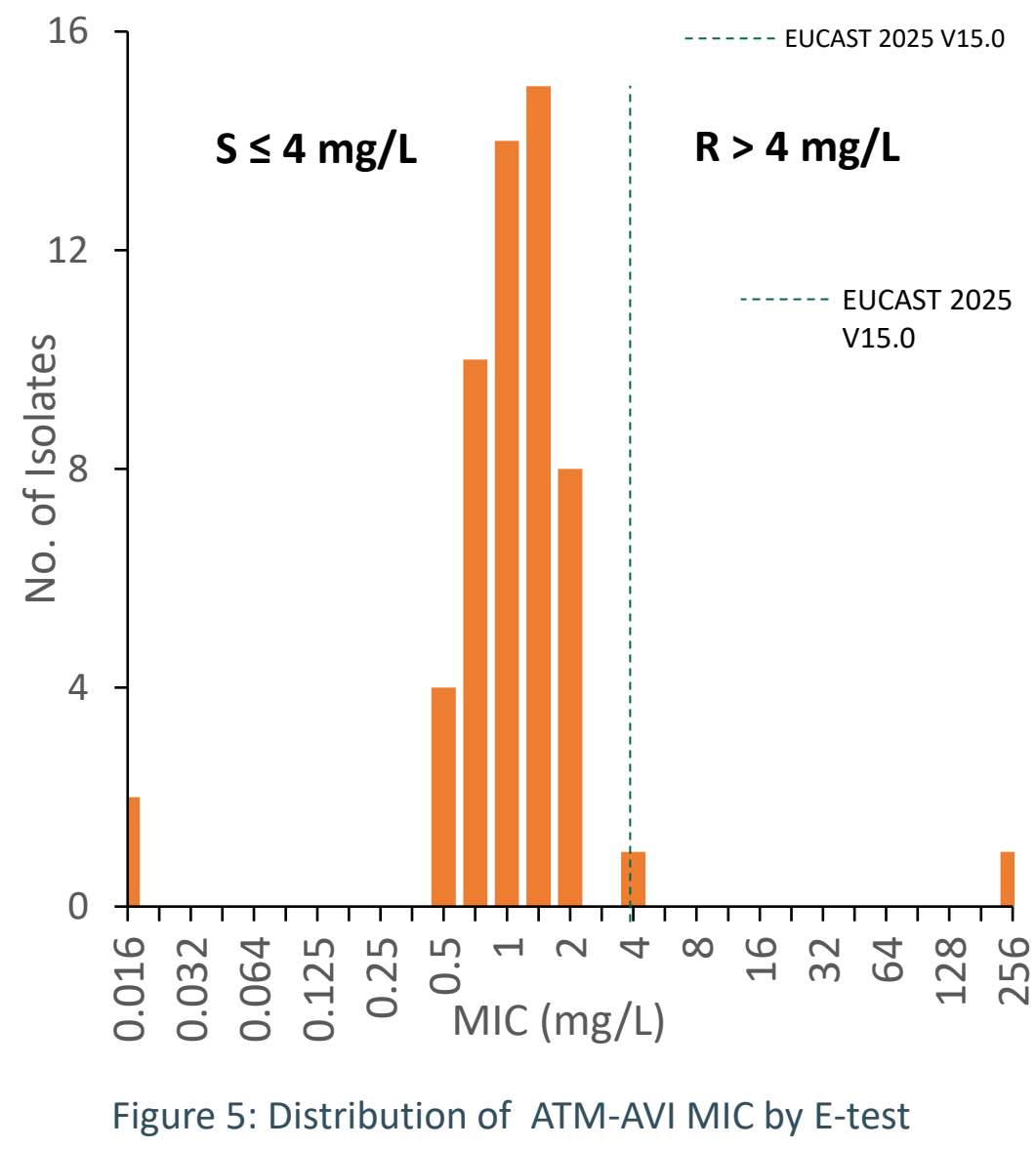
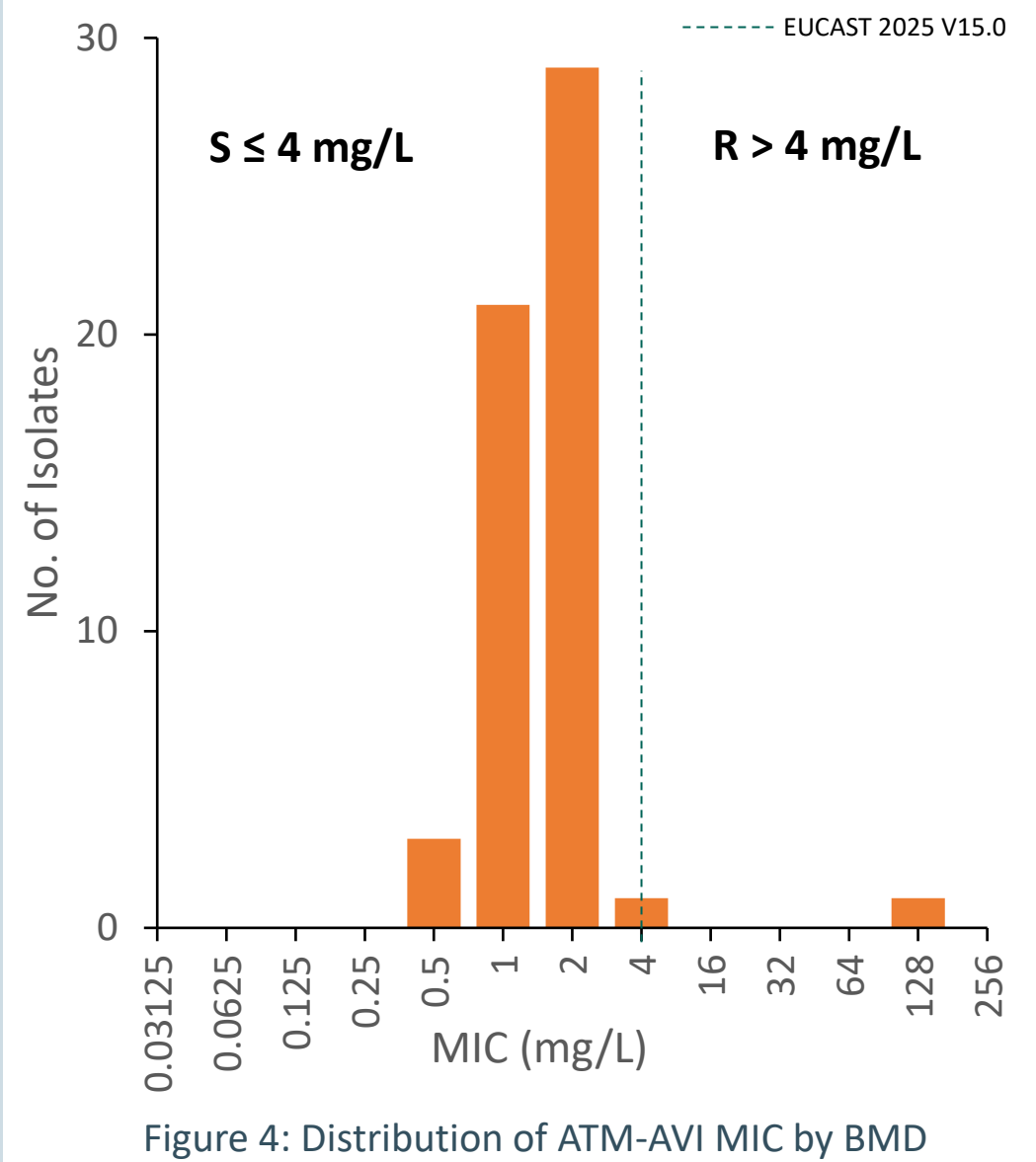
- Non-duplicate archived CPE isolates from clinical and surveillance samples, and *S. maltophilia* from clinical samples were analyzed.
- Susceptibility testing was performed by disk diffusion (DD; AZA 50 μ g disc), ETEST® (AZA 0.016/4–256/4 μ g/mL), and broth microdilution (BMD).
- CLSI 2026 breakpoints (MIC $\leq$ 4/4 μ g/mL, susceptible) were applied for CPE; EUCAST 2026 v16.0 ECOFF (MIC $\geq$ 8/4 mg/L, resistant) for *S. maltophilia*. (Fixed concentration of avibactam 4 μ g/mL; 4 mg/L)

CPE



- ATM-AVI susceptibility by BMD is 100% (122/122) for Class B CPE, and 99.4% (159/160) for all CPE.
- ATM-AVI susceptibility by BMD–ETEST® concordance is 99.4% (159/160).
- DD yielded one minor error, MIC₅₀ 0.0625 μ g/mL, MIC₉₀ 1 μ g/mL .

Stenotrophomonas maltophilia



Conclusion

- In-vitro* data demonstrated that ATM-AVI exhibits potent antimicrobial activity against MBL-producing Enterobacterales and *S. maltophilia* isolates in Hong Kong.**
- The susceptibility of ATM-AVI can be assessed reliably by methods other than BMD
- Consistently high susceptibility rates suggests that ATM-AVI is an important option for infections caused by MBL-producing Enterobacterales and by *S. maltophilia*.

Acknowledgements

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