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Clinical Prediction Score Validation for Extended-spectrum β -lactamase (ESBL) producing Enterobacteriaceae Urinary Tract Infection Among Hospitalized Patients in St. Luke's Medical Center, Quezon City, Philippines

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Objectives: Extended-spectrum β -lactamase (ESBL) production development of Enterobacteriaceae in urinary tract infection is a commonly encountered drug resistance problem in hospital and clinics. Clinicians should identify patients at elevated risk to develop ESBL infection prior to considering carbapenem use of broad-spectrum antibiotic to minimize the cost of treatment and control further development of drug resistance. Among all scoring systems, the ESBL Thailand score by Kengla, K., et al, 2016 is an extensive tool that predicts the risk of ESBL Enterobacteriaceae UTI.

Methods: The study included 712 adult patients with *Enterobacteriaceae* UTI from September 2017 to December 2018. Data based on the scoring tool by Kengla, K., et. Al, 2016 were reviewed from the computerized medical database. The discriminative ability of the clinical prediction tool to predict ESBL positivity was evaluated using the area under the receiver operating characteristic curve (AUC).

Results: The clinical prediction tool had a calculated AUC for predicting ESBL Enterobacteriaceae urine culture positivity in the present study is 0.830 ($p < 0.001$) hence ESBL Thailand scoring tool by can discriminate ESBL positive Enterobacteriaceae from non-ESBL Enterobacteriaceae urine test results. Moreover, it is accurate in predicting the ESBL positive urine culture as the accuracy obtained is 82.58% (95% CI 79.60% to 85.30%). Sensitivity of the high-risk score in predicting ESBL positivity is 69.31% (95% CI 62.21% to 75.8%), while specificity 87.38 (95% CI 84.23% to 90.10%).

Conclusions: ESBL Thailand estimated patient-specific risk with high discrimination. Potential incorporation of the tool to clinical practice may improve adequacy of empirical antimicrobial therapy and reduce carbapenem utilization and exposure.