

PREVALENCE OF EXTENDED SPECTRUM BETA-LACTAMASE-PRODUCING ENTEROBACTERIALES ASSOCIATED WITH ASYMPTOMATIC BACTERIURIA IN HOSPITAL SERI MANJUNG FROM 2022-2023.

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INTRODUCTION

Asymptomatic bacteriuria is a persistent colonization of bacteria in the urinary tract without symptoms. The widespread prevalence of Extended-Spectrum β -Lactamase-producing organisms (ESBL), namely *E. coli*, *Klebsiella pneumoniae*, *Proteus mirabilis*, and *Klebsiella oxytoca*, among asymptomatic bacteriuria cases is an extremely worrisome sign.¹ Asymptomatic bacteriuria caused by ESBL-producing organisms is often treated unnecessarily and accounts for a substantial burden of unnecessary antimicrobial use as well as antimicrobial resistance.¹

OBJECTIVE

To determine the prevalence of asymptomatic bacteriuria associated with ESBL-producing organisms in hospitalized and outpatients at Hospital Seri Manjung.

METHODS

A lab-based retrospective study was conducted at Hospital Seri Manjung, analysing 1270 positive urine culture samples of hospitalized and outpatients for a period of two years (2022–2023). Data was obtained from the patient's laboratory request forms with clinical history, the isolated organisms, and antimicrobial susceptibility testing. Bacteria were identified using conventional biochemical methods, and antimicrobial susceptibility testing (AST) was performed by the Kirby-Bauer method following Clinical Laboratory Standard Institute (CLSI) guidelines. The gram-negative isolates resistant to ceftazidime and cefotaxime were confirmed for ESBL production using a double-disc synergy test (DDST).

RESULTS

A total of 1270 positive urine culture reports from hospitalized and outpatients from 2022–2023 were analysed in the HSM microbiology lab. 14.6% (186/1270) urine cultures were isolated with extended spectrum beta lactamase (ESBL)-producing organisms. 51.6% (96/186) ESBL producing organisms were isolated from asymptomatic bacteriuria cases. Among the asymptomatic bacteriuria cases, *E. coli* was the most frequently isolated (about 67.2% of organisms), followed by *Klebsiella pneumoniae* (25.4%) and *Proteus mirabilis* (7.4%). All ESBL organisms remained susceptible to the carbapenem group.

REFERENCES

¹ Babypadmini S, Appalaraju B, Extended spectrum β -lactamases in urinary isolates of *Escherichia coli* and *Klebsiella pneumoniae*-prevalence and susceptibility pattern in a tertiary care hospital *Indian J Med Microbiol* 2004 22(3):172-74.

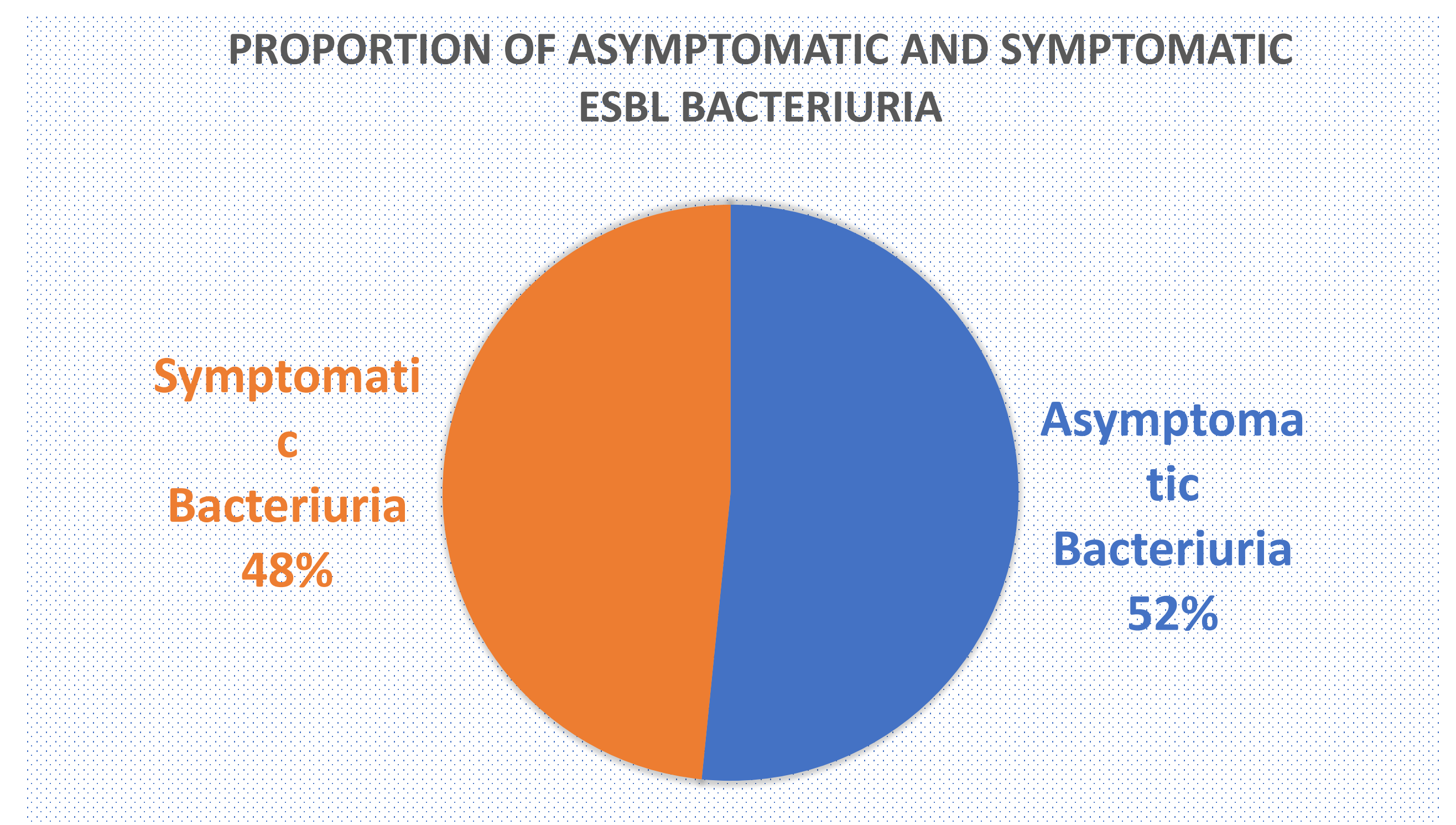


Figure 1 Proportion of asymptomatic and symptomatic bacteriuria

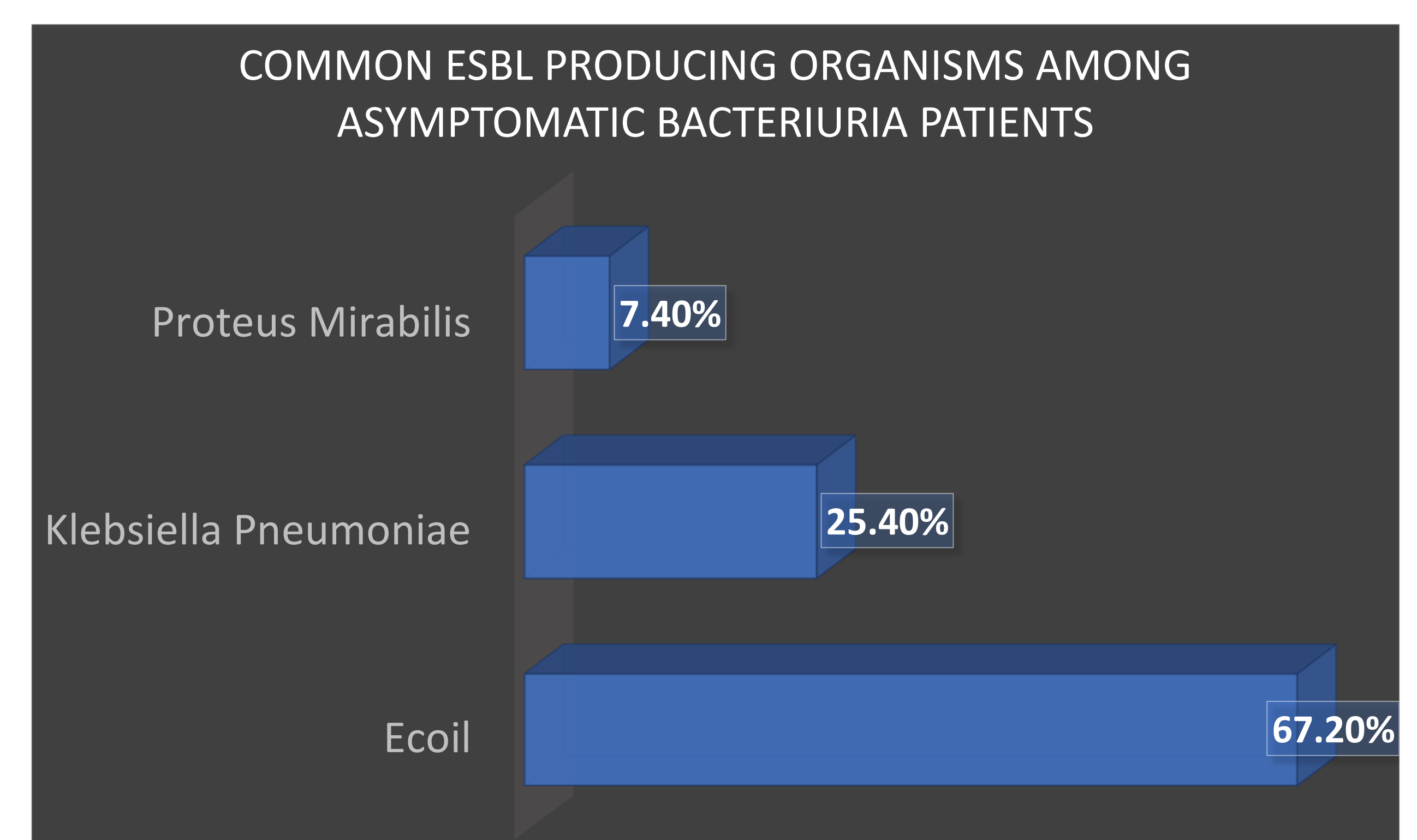


Figure 2 Common ESBL producing organisms among asymptomatic bacteriuria

CONCLUSION

The present study revealed that a high proportion of ESBL-producing organisms are present in the urine culture of asymptomatic bacteriuria cases. This study suggests a need for strong indications for urine culture sampling in clinical settings to prevent unnecessary broad-spectrum antibiotic usage. Mismanagement of those asymptomatic bacteriuria patients with broad-spectrum antibiotics promotes antimicrobial resistance, antimicrobial-related adverse events, and increased health care costs. Thus, concerted efforts in the control of the use of extended-spectrum antibiotics should be made so as to avoid the high prevalence of human reservoirs of ESBL-producing organisms.