

Antimicrobial stewardship can improve the management of pneumonia

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BACKGROUND

Antimicrobial stewardship is recognised as a core component of the NHS for providing quality infection service to the patients. National guidelines provides framework to support antimicrobial stewardship programmes. Antimicrobial prescribers must follow local guidelines (where available) or national guidelines for prescribing most appropriate and shorter course of antibiotics. We studied the adherence to national guidance as stated by British Thoracic society (BTS) for the diagnosis and management of community acquired pneumonia (CAP) at the University Hospitals of North Midlands.

AIMS AND OBJECTIVES

BTS guidelines recommends chest radiograph within 4hrs of presentation to the hospital, complete septic screen and categorising severity of the pneumonia using CURB scoring. Further antimicrobial prescribing must be done in accordance with the severity of the CAP. We studied compliance with BTS guidelines for the antimicrobial prescribing in patients presenting with diagnosis of community acquired pneumonia in our busy University Hospital Acute Medical Unit (AMU).

METHODS

Thirty four patients presenting with diagnosis of CAP admitted between 29th May to 22nd June 2017 to AMU were included. We excluded patients with complex secondary effusions or empyema and those requiring ICU level of care. Data were collected prospectively which included demographics, blood results, imaging results, laboratory results from the clinical notes and hospital IT systems. CURB scoring was obtained from the case notes and calculated simultaneously for the purpose of this audit when it was not recorded in the case notes. We examined detailed antibiotic prescribing data from the prescription charts for each patient which included penicillin allergies history, cephalosporin use or any other alternative antibiotic use.

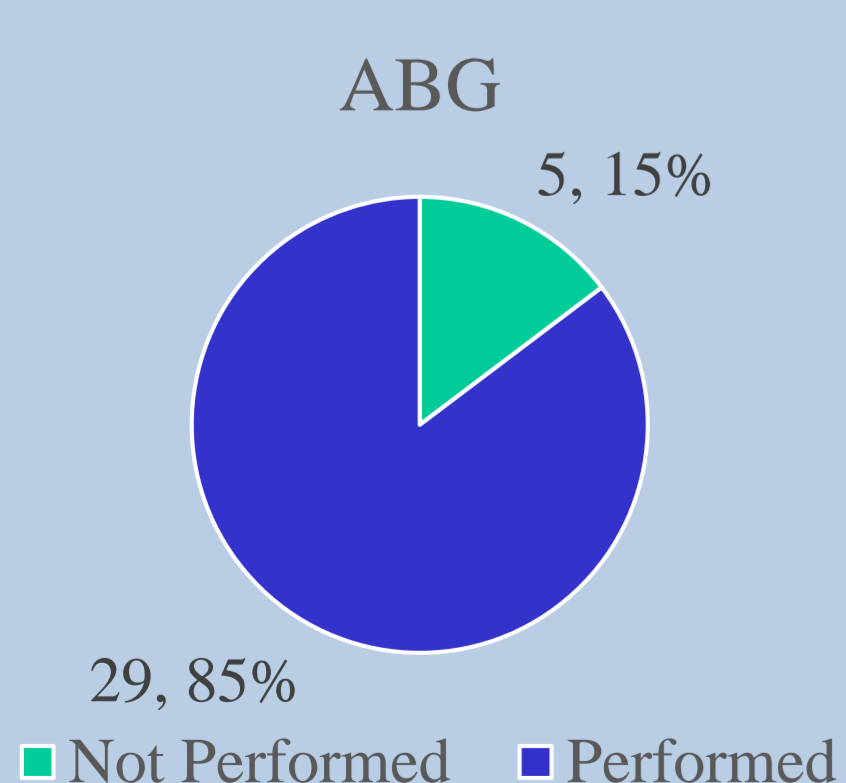
RESULTS

Among the 34 patients, 76% had a chest x-ray performed within 4 hours of admission. All patients had an MRSA swab of which 2 (6%) were positive. 4 (12%) had their smoking history recorded of which 2 (6%) were smokers and 2 (6%) were non-smokers.

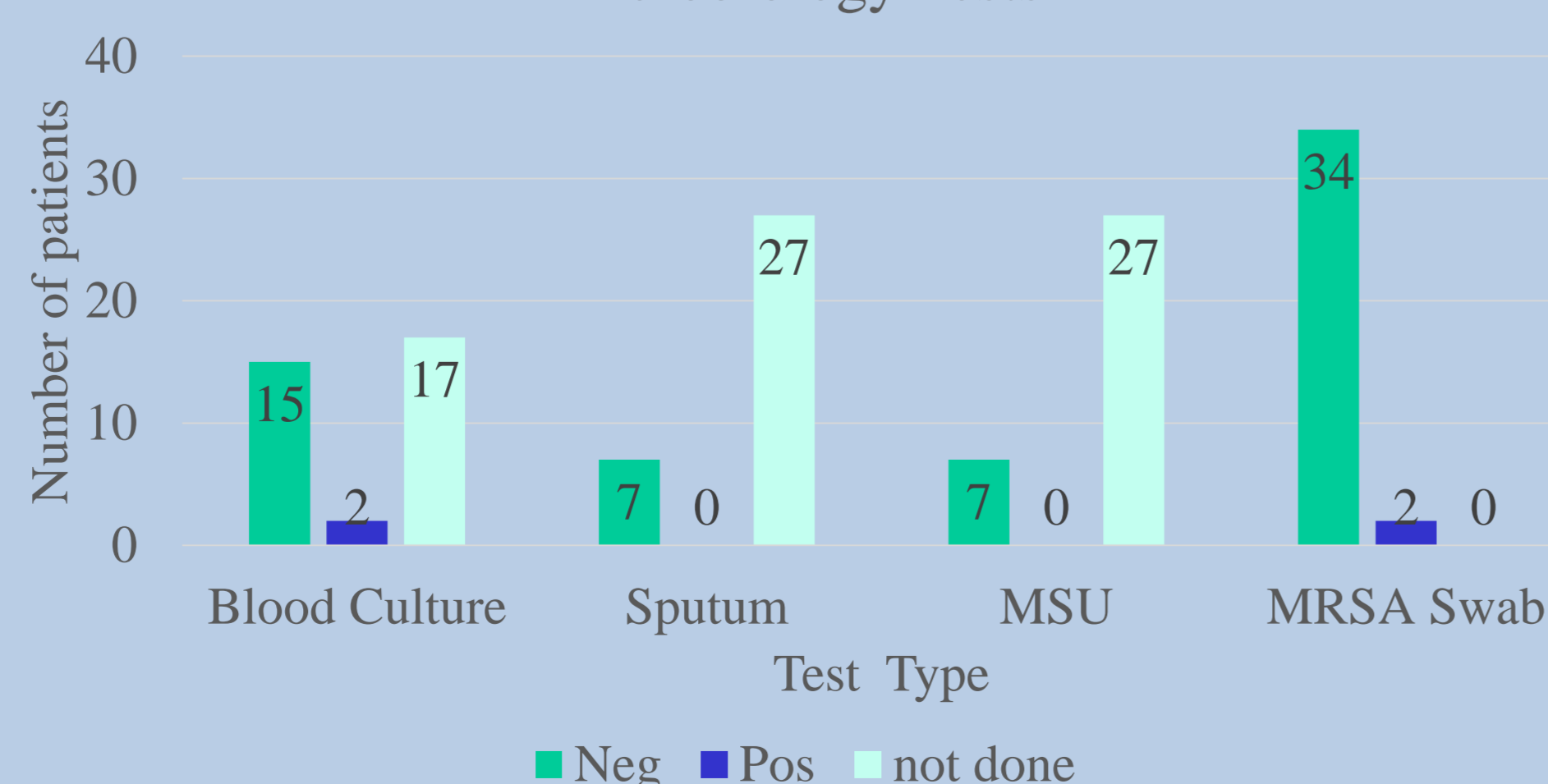
7 (21%) patients had a sputum sample collected for which none tested as positive. 17 (50%) of patients had a blood culture of which 2 (6%) were positive. 7 (21%) had MSU samples taken with none were positive. 29 (85%) of patients had an ABG performed. Only 2 (6%) patients had a documented CURB scoring. On our CURB scoring calculations, 8(24%), 19 (56%) and 7(20%) patients were identified under low, moderate and severe CAP categories respectively.

All patients had a documented penicillin allergy with 6 of these having a recorded allergy to penicillin. Out of the 34 patients co-amoxiclav + clarithromycin was given to 16 (47%) and Co-amoxiclav as a single antibiotic was given to 7 (21%) of patients. Of the 34 patients, 22 (65%) of antibiotic prescriptions did not meet BTS guidelines based on CURB scoring for severity of CAP.

Septic Screen

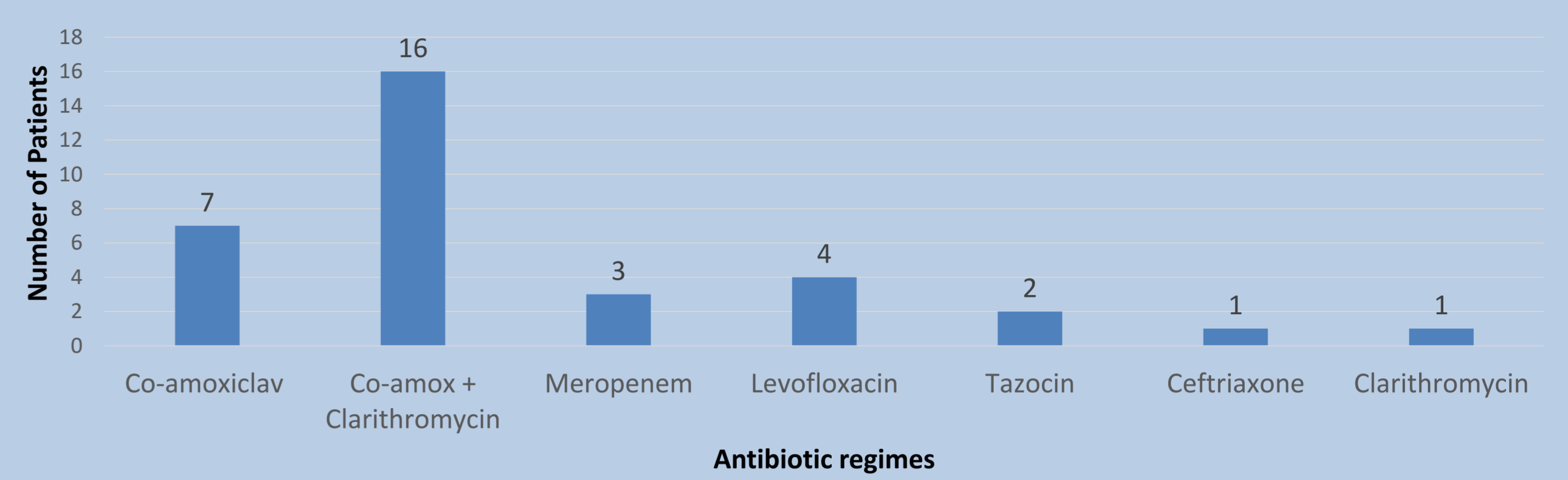


Microbiology Tests

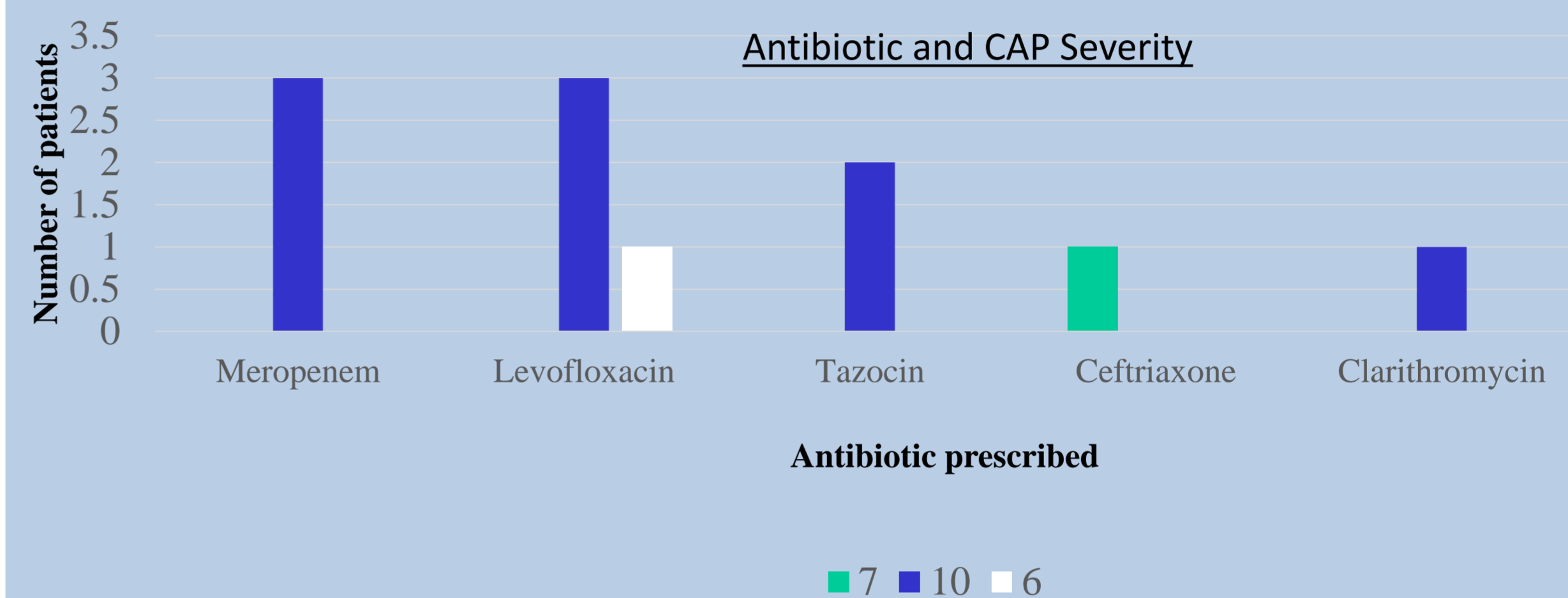


RESULTS

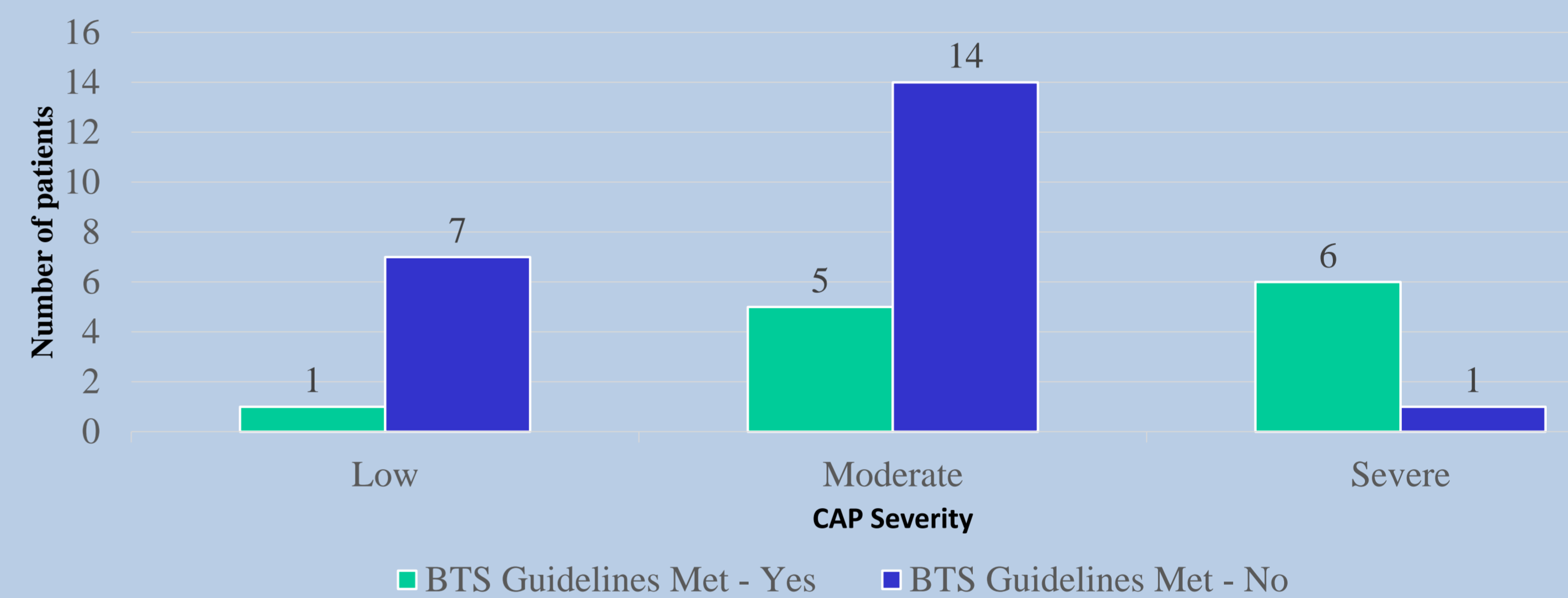
Antibiotic Prescriptions



Antibiotic and CAP Severity



Antibiotics prescribed for Severity of CAP vs BTS Guidelines



LIMITATIONS

BTS guidelines states, diagnosis of CAP is best performed through clinical judgement coupled with CURB scoring. We are unsure if all CAP patients were thought clinically to be severe even though CURB scoring was not attempted in all. Our CURB scoring alone cannot predict same. It was acknowledged that all patients may not be able to produce a sputum sample which is a common difficulty.

CONCLUSIONS

Our Trust guidelines are in compliance with National BTS guidelines. Choice of antibiotic varied significantly in our cohort compared with recommendations by BTS guidelines. There was a tendency to over-rate the severity while choosing the antibiotic agent. Calculating CURB score for all patients and choosing appropriate antibiotic based on CURB score will enable appropriate antimicrobial prescribing. This is likely to have a positive impact on antimicrobial stewardship programme for the Trust. More prospective studies with larger cohort are needed to address the above limitations and to study if CURB scoring corresponds to the clinician judgement for severity.

QUALITY IMPROVEMENT

We strongly recommend to follow national guidelines in order to strengthen antimicrobial stewardship. We suggest to use CURB scoring alongside the clinical judgement prior to antimicrobial prescribing.

BIBLIOGRAPHY

1. British Thoracic Society. Guidelines for the management of community acquired pneumonia in adults: update 2009. 2009; . <https://www.brit-thoracic.org.uk/document-library/clinical-information/pneumonia/adult-pneumonia/bts-guidelines-for-the-management-of-community-acquired-pneumonia-in-adults-2009-update/>