Median time to first dose of antibiotics for life-threatening conditions

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Introduction

The Australian Commission on Safety and Quality in Health Care Clinical Care Standard (CCS) for antimicrobial stewardship expects patients with life-threatening conditions due to a suspected bacterial infection to receive prompt antibiotic treatment.

A recommended indicator is defined as the median time from first clinical contact to the first dose of antibiotics for patients with suspected bacterial meningitis; or for patients requiring admission to an intensive care unit (ICU) for suspected sepsis, when admitted to ICU from the emergency department.

Methodology

All admissions with relevant ICD-10-AM codes admitted to any Epworth facility within the 13 month period Dec 2017-Dec 2018 were screened.

suspected bacterial meningitis
G00.0 to G00.9 or G01

suspected sepsis [any code or in combination]:
A40.0 to A40.9, A41.0 to A41.9, A42.7, A54.8, B00.7, B37.7, O75.3, O85, P36.0 to P36.9, P37.52, R65.0 to R65.3, T80.2, T81.42 and/ or T88.0

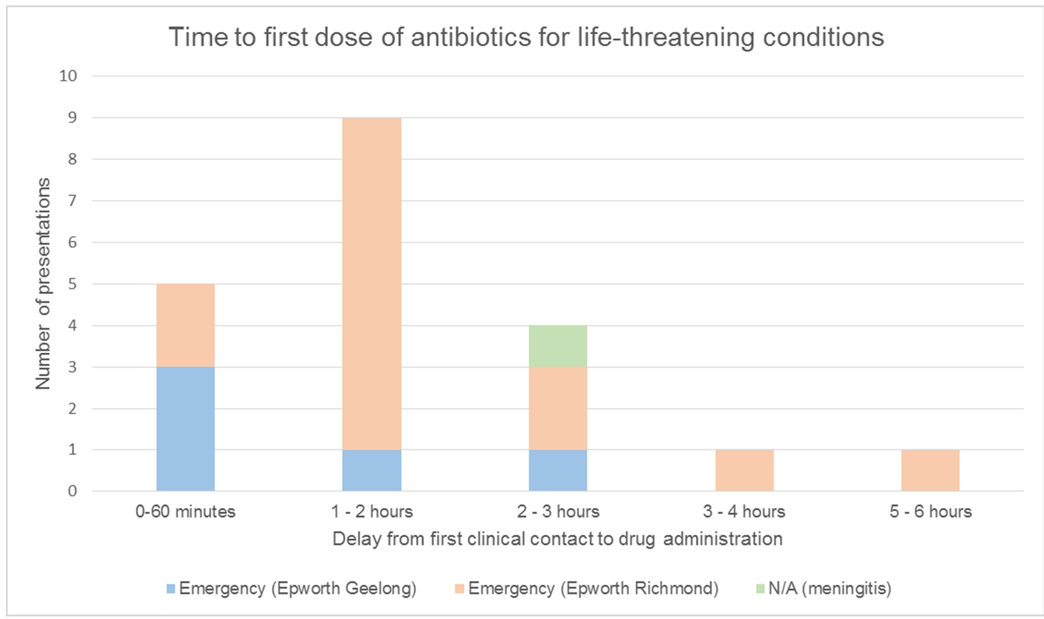
Times of first clinical contact, and of administration of first antibiotics were retrieved from the scanned medical record. First clinical contact can be a general practitioner (GP), ambulance service or emergency department (ED).

Results

298 admissions were identified as coded with one or more of the listed codes, then screened for inclusion. 278 admissions were excluded (93%), most for patients that were coded for sepsis but never admitted to an ICU (230), or were admitted to an ICU from a ward, rather than an ED (38).

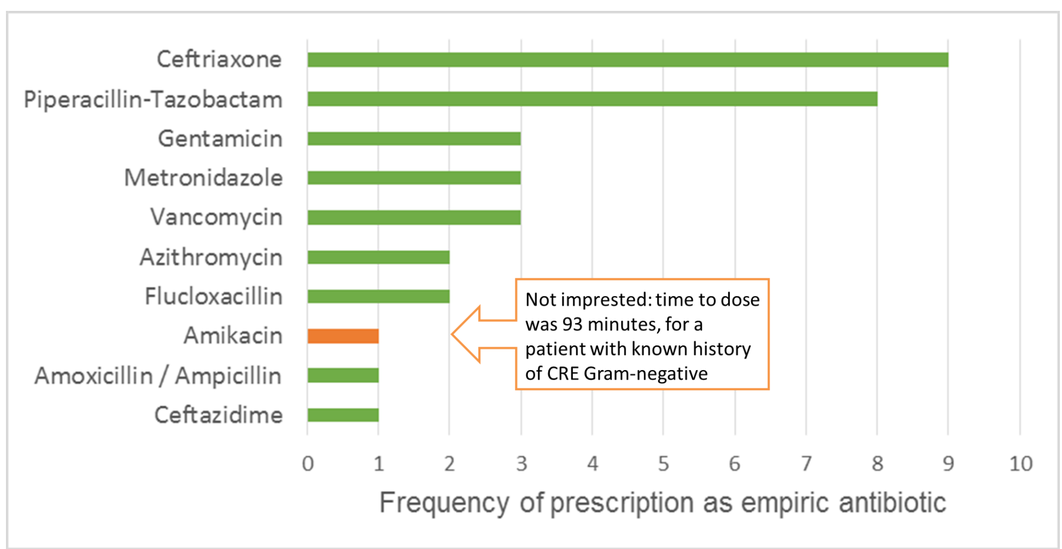
Times of first clinical contact, and of administration of first dose of antibiotics were retrieved from the medical record for 20 eligible admissions, yielding a median time of 140 minutes (20 – 353 minutes).

18/20 (90%) patients were administered their first dose within three hours of first clinical contact.



A secondary assessment was made for nine admissions where a causative microorganism was eventually identified. The median time to the first dose of antibiotic **with activity** against that microorganism was 104 mins. (22 – 442mins).

Most empiric antimicrobial prescriptions were drugs maintained on routine ED imprest, which limits the impact of pharmacy supply on delay to administration



Conclusions

Time to first dose of antibiotics was usually (70% of admissions) sooner that two hours after first clinical contact, which may include time from review by LMO, or ambulance service.

Most presentations for which relevant ICD-10 codes were applied were not treated for severe sepsis (shock) requiring care in an ICU (vasopressors, etc.). There is inconsistent use of terminology such as sepsis in medical documentation, and a wider range of codes are also used to classify meningitis-type diagnoses than listed in the CCS, potentially leading to an incomplete sample.