

Audit: Adherence to the Magnificent Seven Care Bundle on Antimicrobial usage.

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Introduction: Antimicrobial resistance threatens the prevention and treatment of an ever-increasing range of infections and leads to increased morbidity and costs of care. 30-40% of antibiotics prescribed in ICUs are unnecessary, inappropriate or suboptimal¹.

Objectives: We aimed to examine whether the ICU was meeting recommendations for antibiotic prescribing, according to the Magnificent Seven standards. In doing so, we aimed to look for ways of improving practice and patient outcomes, and to find practical ways of avoiding unnecessary antibiotic usage.

Methods: Notes of all patients commenced on antibiotics on ITU within a 3 week period were examined retrospectively. Interrogation looked for documented evidence of infection, an indication for antibiotics, evidence that blood cultures were taken prior to antibiotic doses, a planned duration for treatment, and a review of antibiotics at 48 hours.

Results: 21 patients were included, among which 20 errors were made. 90% occurred in 8 particular patients. All patients had documented evidence of infection. 1 patient did not have antibiotics reviewed, 19% had no cultures taken and 38% had no planned duration for treatment. 33% had no documented indication for the antibiotics.

Conclusions: Amongst staff, there was a lack of awareness of the Magnificent Seven standards. Ambiguity around which team member is responsible for antibiotic stewardship creates potential gaps in care. In some instances, a lack of regular review meant antibiotics were continued for longer than necessary, or despite negative microbiology results.

Recommendations included assigning a junior doctor to microbiology rounds, and training on the Magnificent Seven at staff inductions. CareVue is to be introduced on the ITU, with a specific microbiology section containing prompts. Authors recommended using serum procalcitonin testing to provide evidence of infection and to guide treatment^{2,3}. We hope to perform a PDSA re-audit to assess the impact of these changes.

References:

1. WHO 2017. *Antimicrobial resistance*. <http://www.who.int/mediacentre/factsheets/fs194/en/>
2. Jong et al 2016: *Efficacy and safety of procalcitonin guidance in reducing the duration of antibiotic treatment in critically ill patients; RCT open label trial*. *Lancet Infect Dis*. 2016 Jul;16(7):819-827.
3. Simon et al 2004: *Serum procalcitonin and CRP levels as markers of bacterial infection: A systematic review and meta-analysis*. *Clin Infect Dis*. 2004 Jul 15;39(2):206-17.