Appropriateness of antibiotic use in hospitalized patients: a retrospective study at a large district hospital, East of England, UK

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Introduction
- Effective antibiotics are becoming increasingly limited and inappropriate antibiotic prescribing is a growing global health concern
- The use of antibiotics requires monitoring in order to preserve their future effectiveness.¹
- This retrospective study assessed the appropriateness of antibiotic therapy in adult patients within the acute hospital setting at West Hertfordshire Hospitals NHS trust.

Method
- Data was collected over a period of 2 months, using an audit tool.² (Figure 1)
  - Assessment of probable infection based on:
    - Patient observations and sepsis criteria
    - Biochemical inflammatory markers (white cell count and C-reactive protein)
    - Analysis of microbiological and radiological findings
  - Assessment of appropriateness of antibiotics was done by reviewing patients notes for the documented working diagnosis and final diagnosis as well as the choice of antibiotic and length of treatment for the documented indication.

Results
We reviewed 77 antibiotic courses across 45 patients. The most common indication was Respiratory Tract Infections (RTI) followed by Urinary tract infections (UTI) and Intra-abdominal infections (IAI). 7% of the cases the sources of infection was unknown (IUS) (figure 2)

A total of 86% of the courses were appropriately prescribed and 98% deemed non redundant and necessary.

Out of the 11 antibiotic courses which deemed to be inappropriate, 43% were given to unconfirmed diagnosis of RTI and UTI each (figure 4)

Discussion and conclusion
Our findings showed that in the majority of cases antibiotics were appropriately prescribed. However, there are number of cases whereby antibiotics were prescribed, despite infection not confirmed or identified.

A proportion of antibiotic courses were prescribed beyond the standard duration without documented reason for the longer duration of therapy.

In our experience, we found that this tool was useful to assess the appropriateness of antibiotic prescribing. However, the process was time consuming, subjective and required involvement of infection specialist for the accurate interpretation of the assessment.

We suggest to introduce a definition for antibiotic appropriateness in order to facilitate the use of this tool for benchmarking with other trusts.

REFERENCES
¹ World Health Organization Global strategy for containment of antimicrobial resistance 2011 Geneva, Switzerland WHO
² Estimating inappropriate antibiotic prescribing as non-essential days of therapy - results from an audit in a UK teaching hospital. ECCMID 2018 P0141

Figure 1: Audit tool to assess antibiotic appropriateness

Figure 2: Indications for antibiotics by infection type

Figure 3: Proportion of antibiotics prescribed with appropriate indication

Figure 4: Inappropriate antibiotic by infection type

Figure 5: Breakdown of non essential days of antibiotic therapy beyond the standard duration

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