Antibiotic Management and Early Discharge from Hospital

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Introduction
An evaluation tool was developed to allow bedside review of antibiotic use and infection management in medical and surgical patients.

This tool was designed to help assess whether patients with infections could be safely managed out of hospital with delivery of antibiotics (intravenous (IV) or oral) in the community.

The potential bed day savings realised from early discharge of antibiotic treated patients can be estimated using this tool.

Aim
To describe the potential clinical and economic impact of using an evaluation tool to help review antibiotic use and infection management to identify patients suitable for ongoing management in the community.

Method
Five hospital Trusts from across the United Kingdom participated in this study.

An evaluation tool was used to systematically review all patients on antibiotic treatment on medical and surgical wards, on a series of distinct days within each hospital.

Data were collected in relation to the following parameters:
Presenting diagnosis, social situation, microbiology results when available and details of current antibiotic prescribing; drug name, start date, route (IV +/- oral), whether an indication for the antibiotic, focus of infection and planned stop date or duration were recorded in medical notes.

A physician recorded the following interpretive data; whether antibiotic therapy was still required, continuing requirement for intravenous (IV) administration, possibility for IV/oral switch, suitability for discharge and requirement for community support.

Results
• A total of 380 patients were included in the study, 285 (75%) were acute medical patients, 95 (25%) were surgical patients and all were receiving antibiotics on the day of the evaluation.
• 234 patients (62%) were prescribed oral antibiotics alone
• 146 patients (38%) were treated with IV (± oral) antibiotics
• In 90 (24%) patients, it was considered possible to stop antibiotics immediately. 25 (28%) of these were on an IV (± oral) and 65 (72%) were on oral antibiotics.
• In the remaining 121 patients still on IV (± oral) antibiotics, 41 (34%) of patients could be switched from IV to an appropriate oral agent and the remaining 80 (66%) patients still required IV antibiotics.
• 95 (25%) of all patients were judged suitable to be managed outside the hospital setting, with 20 (21%) of these suitable patients requiring community support.

Post discharge patient review
• Data was available on the actual date of discharge in 282 patients and was used to assess potential bed day savings
• 45 of the 282 could have left hospital on the day of the evaluation with appropriate support in the community
• Subsequent discharge data indicated a potential bed day saving of 170 days
• Resulting in a potential cost saving of £42,500, based on an approximate hospital bed cost of £250/day

Key Findings
Stop - Almost a quarter of patients could have their antibiotics stopped immediately
Switch – A third of patients on IV (±oral) could be switched to oral only
OPAT – A quarter of IV patients could have their treatment managed outside the hospital
Bed day saving – 45 of 282 patients with discharge data available could have left hospital sooner with the appropriate community support

Conclusion
• A systematic approach to review of antibiotic use and infection management using an evaluation tool is an effective way of identifying patients who could be managed at home on IV or oral antibiotics.
• The financial and clinical benefits of using the evaluation tool are potentially significant and may result in improvement in the use of antibiotics, a reduction in the use of IV antibiotics, reduction in the cost of antibiotics, potential reduction in bed days, with probable reduction in the risk of health care-associated complications and infections.

Recommendation and next steps
• This study has shown the benefits of a systematic patient review of antibiotic use and infection management and recommends all hospitals have access to such a tool to identify suitable patients for early discharge.
• Improved resourcing of infection teams to deliver antibiotic management and early discharge is likely to be cost effective.
• The next step is to put this into practice to realise the actual benefits of systematically reviewing and subsequently discharging patients.
• Based on this work, the toolkit and development of standards of care for early discharge on IV/oral antibiotics will be a topic for a subgroup of the BSAC OPAT working party.

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