

Utility of Elastomeric Antibiotics in Outpatient Parenteral Antibiotic Therapy (OPAT):

Experience from Oxford University Hospitals

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Background

Outpatient parenteral antimicrobial therapy (OPAT) programmes are well established in a number of hospitals in the UK^{1,2}. In recent years, antibiotic delivery via elastomeric infusion devices have been introduced, facilitating and simplifying the OPAT use of antibiotics normally administered multiple times a day². At OUH, elastomeric antibiotics were introduced from 2020 onwards. We aim to evaluate the utility, efficacy and safety of elastomeric antibiotics at Oxford University Hospitals from October 2020 to April 2022.

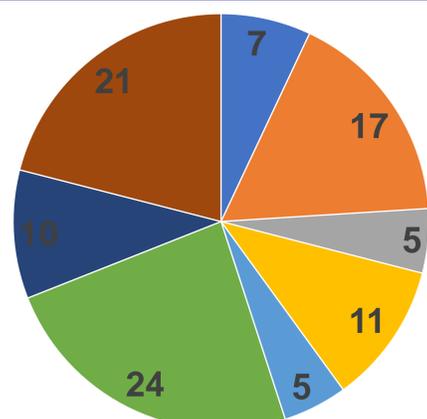
Methodology

All patients treated in the OPAT programme over 18 months were included in the service evaluation. Demographic, clinical and OPAT outcome data were extracted from electronic patient records. Differences between treatment periods were analysed and adverse events identified.

Results

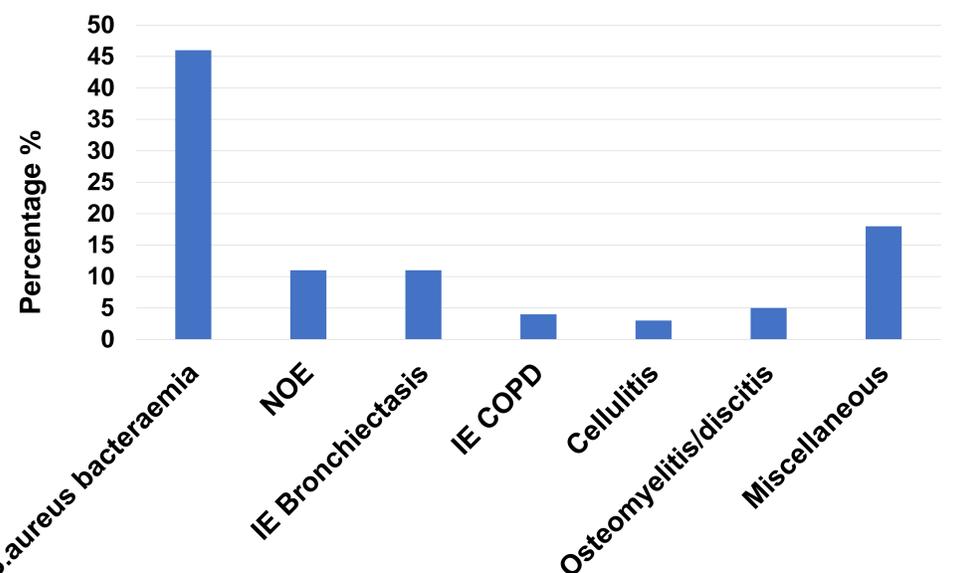
- 100 patients were included.
- 56% (56/100) were male.
- Mean age 67.3 years old (+/- 15.7).
- Most referrals were made through infectious diseases (24%), acute general medicine (17%), followed by ENT surgery (11%).
- The majority of referrals were due to *Staphylococcus aureus* bacteraemia 45% (45/100), necrotizing otitis externa 10% (10/100) followed by infective exacerbation of bronchiectasis.
- *Staphylococcus aureus* bacteraemia episodes were associated with infections of bone, joint and soft tissue or due to an unclear source.
- Elastomeric forms of antibiotics were used in all patients; flucloxacillin (55% (55/100)) and piperacillin-tazobactam (42% (42/100)) as monotherapy were used throughout the course of antibiotics. Three were on elastomeric antibiotics in conjunction with another antibiotic.
- Adverse events were rare (n = 9; 9%) in which 4 (4%) had drug related complications leading to discontinuation and switch of antibiotics and 6 (6%) had vascular catheter-related complications. When switched, antibiotics were switched to intravenous ceftriaxone (n = 2) and cefazolin (n = 1), exclusively from flucloxacillin.
- Antibiotics were completed successfully in 94/100 (94%)
- Mean (SD) OPAT treatment duration of 16.5 (+/- 9.7) days, ranging from 2-41 days.
- Total bed days saved were 1645 days.

Results 1: Referring specialty

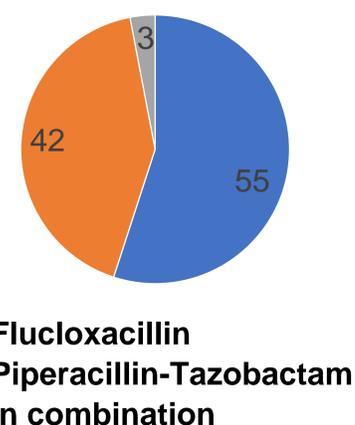


- Ambulatory
- Acute general medicine
- Complex medical units
- ENT
- Oncology
- Infectious diseases
- Respiratory
- Other

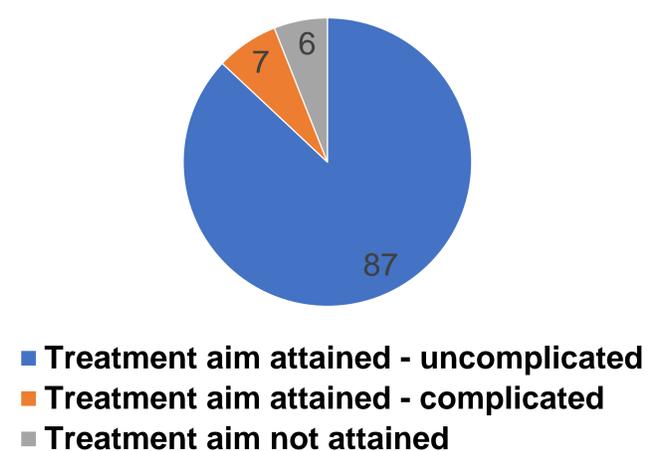
Results 2: Indication for antibiotics



Results 3: Elastomeric antibiotics



Results 4: Outcomes



Conclusion

This study demonstrated the successful implementation of antibiotics delivered via elastomeric infusion devices as part of the OPAT programme at OUH. Elastomeric antibiotics were effective and safe with significant cost savings. Adoption has reduced the amount of ceftriaxone use for *Staphylococcal* infections, allowing more targeted treatment with flucloxacillin and reducing risk of *Clostridioides difficile*-associated diarrhoea³. The development of additional antibiotic stability data will allow greater flexibility in the delivery of OPAT via elastomeric infusion devices in future.

References

1. Journal of Antimicrobial Chemotherapy, Volume 74, Issue 11, November 2019, Pages 3125–3127.
2. JAC-Antimicrobial Resistance, Volume 1, Issue 2, September 2019.
3. OPAT in the UK 2015-2019 from National Registry data - Journal of Antimicrobial Chemotherapy, Volume 77, Issue 5, May 2022, Pages 1481–1490