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# The beneficial effect of educational interventions on antimicrobial use in a time of shortage

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**Background:** In March 2017 there was a worldwide shortage of piperacillin-tazobactam due to an explosion in a Chinese pharmaceutical factory. At Hinchingbrooke Hospital (UK), interim guidelines were published with recommended alternative antibiotics. Additionally, piperacillin-tazobactam stocks were removed from wards excluding accident and emergency, intensive care, the cancer centre and the acute medical unit. Therefore, if still deemed necessary by clinicians despite the recommended alternatives, the policy stated that piperacillin-tazobactam required senior microbiological approval.

**Objectives:** To determine the level of compliance with interim guidelines both before and after simple interventions.

**Methods:** We conducted a closed loop audit to investigate the use of piperacillin-tazobactam and compliance with interim guidelines. The three outcomes measured were as follows: 1. correct compliance with interim guidelines; 2. number of patients switched from piperacillin-tazobactam within 24 hours; and 3. number of patients remaining on piperacillin-tazobactam with microbiology approval. Our intervention took place over one month; printed copies of interim guidelines were distributed and clinicians were reminded of the piperacillin-tazobactam shortage at teaching sessions. We measured the practice before and after our intervention. Data was analysed using Chi-square test for the

first two outcomes and Fisher's exact test for the third.

**Results:** 71 patients were included in the initial audit cycle and 104 in the second. There was a significant improvement in appropriate use of interim guidelines pre- vs. post-intervention: 62% vs. 86% ( $p < 0.05$ ). There was no significant reduction in the number of patients prescribed piperacillin-tazobactam without approval or the number changed from piperacillin-tazobactam within 24-hours; however, the trend showed improvement.

**Conclusions:** Our results suggest educational interventions improve prescribing practice and have a positive impact on antimicrobial stewardship. However, there was no reduction in absolute number of patients prescribed piperacillin-tazobactam without approval, suggesting physicians still choose piperacillin-tazobactam for their sickest patients despite the shortage.

## Biography

Alex Maughan completed Medical Degree at Bristol University. He completed his foundation year one training at Hinchingbrooke Hospital and is in the process of completing his second year in Royal Papworth Hospital. He takes active interest in Antimicrobial Stewardship by attending hospital committee meetings and involving himself in public awareness events.

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