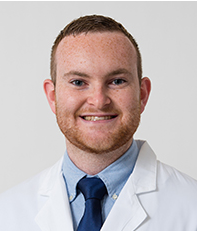
**Assessment of automated antibiotic timeout on broad-spectrum antibiotic usage**

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**Objective**  
The Centers for Disease Control lists “systemic evaluation of ongoing treatment need after a set period of initial treatment”, as a core element of hospital antibiotic stewardship programs. The objective of this quality improvement study was to determine the impact of an antibiotic timeout clinical decision support advisory on duration of broad-spectrum antibiotic use.

**Methods**  
A report in the electronic medical record identified patients who received select broad-spectrum antibiotics (piperacillin-tazobactam, cefepime or vancomycin) from April 1st-June 30th of 2019. The following data was collected: age, sex, date of admission, indication for antibiotic, date of antibiotic order, date of antibiotic order end, and date of discharge. On August 1st, 2019, the Antimicrobial Stewardship Program began prompting providers via an electronic alert to take an antibiotic timeout (ATO) after 72 hours of broad-spectrum antibiotic use. A post-ATO analysis was completed using identical data points from August 1st-October 31st, 2019 for comparative analysis with the pre-ATO data. The primary outcome was average duration of therapy for broad-spectrum antibiotics with secondary outcomes: hospital length of stay, and number of broad-spectrum antibiotics with a duration greater than 96 hours. It was determined that 251 patients per treatment arm would yield 80 percent power to detect a 1 day difference in average duration of broad-spectrum antibiotics with 95 percent confidence. A descriptive analysis of provider response to the alert from August 1st, 2019 to December 31st, 2019 was completed.

**Results**  
We assessed 300 broad spectrum antibiotic courses in each arm. The mean duration of broad spectrum antibiotics was not significantly different between the pre-ATO (68.80 hrs) and post-ATO (65.69 hrs) groups (p=0.076). Hospital length of stay was not significantly different between the pre-ATO (9 days) and post-ATO (7 days) groups (p=0.468). No significant difference was found between the number of broad-spectrum antibiotic courses with duration greater than 96 hours before and after ATO implementation. The descriptive analysis of provider response revealed that the ATO fired 11,974 times over the 5 month period.

**Conclusions**  
Our academic medical center is meeting a core element of hospital antibiotic stewardship programs by utilizing an ATO, but the available data does not yet support its ability to limit the duration of broad-spectrum antibiotics. Optimizations have been made to the ATO to hopefully limit alert fatigue and increase effectiveness, and a future reanalysis is warranted.