Taking an Antibiotic Timeout
Utilizing an Antibiotic Renewal Template for Automatic Approval of Vancomycin and Piperacillin-Tazobactam

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Abstract

The antibiotic timeout, in which a provider reviews antibiotic therapy 72-96h into treatment, is an antimicrobial stewardship strategy endorsed by the Centers for Disease Control. This approach accommodates the frequent need to institute broad-spectrum therapy during periods of clinical uncertainty when the relevant pathogens are yet to be identified while encouraging more specific treatment after microbiologic data become available and the clinical scenario is better.

• We devised a self-directed timeout program to guide providers to reconsider the combination of two commonly used broad-spectrum antibiotics (vancomycin and piperacillin-tazobactam) past day 3 of therapy.

Methods: Timeout Implementation

• The project was implemented starting in March 2013 at a tertiary care Veterans Affairs (VA) teaching hospital that has approximately 200 active medical, surgical, and intensive care unit beds and over 25,000 bed-days of care among 4,000 active medical and surgical admissions per year.

• The antibiotic timeout consisted of three primary components:
  • An antimicrobial dashboard report
  • An electronic timeout template
  • An educational and social marketing program.

• Prior to timeout implementation, continuation of vancomycin and piperacillin-tazobactam past 3 days required approval by the Infectious Diseases service consult, fellow, or attending physician. With the introduction of the antibiotic timeout, the need for approval by Infectious Diseases was waived, and approval was automatically given if the provider appropriately completed the antibiotic renewal template.

• Printouts of the antimicrobial dashboard report were distributed daily to providers to identify timeout-eligible patients.

• Approval of continuance via completion of the electronic timeout note template was for 2 to 4 days, depending on algorithms built into the template.

• All extensions of therapy beyond the duration specified by the timeout note template required Infectious Diseases approval.

Results

• Educational documents were developed and placed in an “Antibiotic Time Out” section of the Infectious Diseases inpatient site.

• Links to the educational documents and the electronic antimicrobial dashboard were also provided within the context of the antibiotic renewal templates, where appropriate. For example, when the provider is asked whether a patient can be converted to oral antimicrobial therapy, a link is provided to the document that gives options for that conversion.

• Multiple lectures were given to housestaff and attending staff prior to implementation, and clinical champions were identified to promote the program.

• Small notes were posted on computer screens in the housestaff team rooms of that floor/unit detailing instructions on the time out process approval, and flyers were posted on team room walls that encouraged de-escalation in the proper clinical settings and reinforced guidelines on when conversion from IV to oral antibiotic therapy was indicated.

Conclusions

• The antibiotic timeout is a novel antimicrobial stewardship intervention that we were able to fit into hospital workflow to allow for more efficient antimicrobial stewardship practices and respect provider autonomy.

• Although time out rates were associated with higher guideline-concordant antibiotic use and lower guideline-discordant continuations, this was more than balanced by higher overall antibiotic utilization.

• Findings regarding piperacillin-tazobactam timeout rates were more mixed.

• While it may seem paradoxical that guideline-discordant use of piperacillin-tazobactam time out programs led to overall continuations of vancomycin fell, we posit that the intervention increased provider confidence in their decisions to de-escalate antimicrobial therapy in ambiguous circumstances wherein they previously sought authorization for continuation from an antimicrobial steward.

• These findings and conclusions are solely the responsibility of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention, the Department of Health and Human Services, the Department of Veterans Affairs, or the United States government.