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**Publishing Title: Reduction in Antimicrobial Use Following Implementation of a Electronic Medical Record Associated with a Decrease in Rate of Clostridium difficile Infection at a Tertiary-Care Hospital**

**Author Block:** PAUL P. COOK, MD<sup>1</sup>, MICHAEL GOOCH, RPh<sup>2</sup>, MICHELLE JORDAN, PharmD<sup>2</sup>, JOY BARWICK, MT(ASCP)<sup>2</sup>;  
<sup>1</sup>East Carolina University, Greenville, NC, <sup>2</sup>Pitt County Memorial Hospital, Greenville, NC.

**Abstract Body:** **Background:** The use of an electronic medical record (EMR) and computerized physician order entry (CPOE) that incorporates clinical decision support is recommended by the Infectious Diseases Society of America as a means of promoting judicious antimicrobial use. Our hospital adopted an EMR (EPIC/Healthspan) with CPOE in July, 2007. We sought to investigate the effect of this intervention on the use of antimicrobials and the rate of *Clostridium difficile* infection (CDI) at the institution.

**Methods:** Drug use in defined daily doses per 1000 patient days (DDD/1000 PD) was measured quarterly for 46 commonly prescribed antimicrobial agents 10 quarters before and 6 quarters after implementation of the EMR. Use of antimicrobial agents associated with a high risk of infection with CDI (i.e., clindamycin, cephalosporins, quinolones, macrolides, and penicillins) was also determined over the same time period. CDI was measured in cases per 1000 hospital patient days over the same time period. Antimicrobial use and CDI rate were compared before and after implementing the EMR using the Student t-test. Spearman correlation test was used to determine relationship between antimicrobial use and CDI.

**Results:** Compared to the 10 quarters prior to implementing the EMR, there was an 18% decrease in use of all antimicrobial agents ( $p=0.0003$ ). Use of cephalosporins decreased by 17.5% ( $p=0.0003$ ); use of penicillins decreased by 28.3% ( $p=0.0007$ ). Quinolone use decreased 56.8% ( $p=0.0001$ ); macrolide use decreased by 24% ( $p=0.02$ ); and clindamycin use decreased by 48.3% ( $p=0.005$ ). There was a 26.2% decrease in the rate of CDI following implementation of the EMR ( $p=0.01$ ). There was a statistically significant correlation of the following antimicrobial agents with the rate of CDI: quinolones ( $\rho=0.635$ ,  $p=0.008$ ); cephalosporins ( $\rho=0.766$ ,  $p=0.0005$ ); penicillins ( $\rho=0.501$ ,  $p=0.044$ ); and clindamycin ( $\rho=0.676$ ,  $p=0.004$ ).

**Conclusions:** Adoption of an EMR with CPOE was associated with a statistically significant decrease in both antimicrobial use as well as CDI at a tertiary-care hospital.

**Author  
Disclosure  
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