

## Reflections From an Antimicrobial Stewardship Program

TO THE EDITOR—I sat at a Pharmacy and Therapeutics (P&T) meeting and listened to an oncologist argue for formulary approval of an expensive new drug for advanced prostate cancer. As an infectious diseases specialist, I would never prescribe the medicine as the complexities of its use are beyond the scope of my expertise. As I considered this, I thought about the use of antimicrobials and the fact that all physicians can prescribe them. Not only prescribe them, but also determine the dosing, spectrum, and duration of treatment.

The antimicrobial prescribing habits that many of us learned during training can be harmful, particularly in this age of antibiotic resistance. Habits are hard to break, and as a result, antimicrobials are often never discontinued in the hospital after being initiated for suspected infections, even after it's determined that no infections exist [1]. There's an overriding perception that antibiotics are benign. Many seem to be unaware of the relationship between the use of unnecessary antimicrobials and *Clostridium difficile* infection (CDI). Daily hospital use needs to be carefully scrutinized by experts. Antimicrobial stewardship programs hold promise in this endeavor [2].

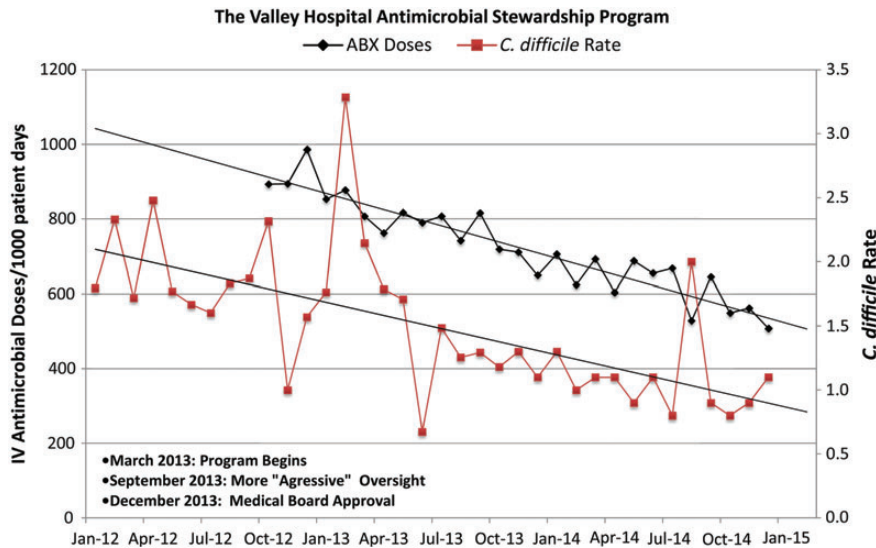
The high prevalence of asymptomatic bacteriuria is clearly a major reason for the frequency of indiscriminate use in the elderly, particularly in hospital emergency departments and nursing homes [3]. How often do we see the "dirty urine" get blamed for the "mental status change" in the absence of objective signs of infection? The alternative of gently hydrating the patient, searching for other causative factors, and withholding antibiotics is often not even a consideration [4]. Doubts are driven by improbable "what-ifs" as in "what if the patient becomes septic if I

don't give antibiotics"? But how many consider the potential harm equated with an unnecessary dose of ceftriaxone or levofloxacin? Many are afraid to "don't just do something, stand there." This fear is magnified by pressure from families, utilization reviewers, and the ever-present specter of litigation. Sadly, this scenario creates a perfect storm that accelerates the inexorable progression of antimicrobial resistance and facilitates the tenacity of *C. difficile*, potentially reducing the effectiveness of hospital environmental disinfection strategies.

My reflections from that P&T meeting compelled me to propose a more aggressive antibiotic stewardship program at our institution. We were struggling to reduce our CDI rates despite careful attention to environmental disinfection and early case detection by testing twice daily utilizing polymerase chain reaction.

The culture in our 460-bed community hospital has historically been one in which physicians generally don't welcome "interference" by outsiders such as an antibiotic stewardship team. Implementing a program in this climate was, at times, challenging. Although we had formulary restriction for certain antimicrobials, ceftriaxone was our most commonly used intravenous (IV) antimicrobial. Our first step was to reduce antimicrobial-ordering duration from 7 days to 4 days in early 2013. After review with an infectious diseases specialist, a dedicated pharmacist would also call the ordering physician after 48 hours of therapy to narrow therapy or discontinue it if no obvious infection was apparent.

Unfortunately, the pharmacist's attempts were often met with resistance. After determining that many doses of ceftriaxone were unnecessary, we proposed to hospital administration and the medical staff that our stewardship program have the authority to determine when all IV antimicrobial therapy could be changed to administration by mouth (without approval) or stopped altogether. If there was disagreement, an infectious



**Figure 1.** Relationship between total administered intravenous (IV) antimicrobial (ABX) doses and the rate of *Clostridium difficile* infection.

diseases specialist automatically consulted on the case and had the final word with respect to discontinuation. This process was passed formally through our medical board in December 2013.

Since then, we've significantly reduced indiscriminant use of IV antimicrobials and our rate of CDI has declined (Figure 1). Early skepticism among the medical staff has given way to a program that most have embraced.

Our antimicrobial stewardship process occurs daily, is performed by a pharmacist and infectious diseases physician, and is time consuming—it requires careful review of all clinical data and many phone calls. However, the administration of thousands of doses of ceftriaxone has been averted. Although our program is cutting costs, the real value of steward-

ship is in the reduction of CDI, improving hospital patient safety, and in the societal benefit of preserving our current antimicrobials. I hope that our experience can inspire others to do the same.

#### Note

**Potential conflict of interest.** Author certifies no potential conflicts.

The author has submitted the ICMJE Form for Disclosure of Potential Conflicts of Interest. Conflicts that the editors consider relevant to the content of the manuscript have been disclosed.

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**Clinical Infectious Diseases® 2015;60(10):1588–9**

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DOI: 10.1093/cid/civ073