



Antimicrobial/Antibiotic Drug Case Study

Study of 180 U.S. Hospitals on Antibiotic Over-Prescribing Impact Reveals Steps U.S. Hospitals Can Take to Combat Antibiotic Overuse and Reduce Use by 11.4%

THE CHALLENGE:

Though antibiotics have transformed the practice of medicine, the Centers for Disease Control and Prevention (CDC) warn that 20-50% of all antibiotics prescribed in U.S. acute care hospitals are either unnecessary or inappropriate. The misuse of antibiotics has contributed to the growing problem of antibiotic resistance, which has become one of the most serious threats to public health.¹ More than two million people are infected with antibiotic-resistant organisms each year, resulting in approximately 23,000 deaths annually.² According to the World Health Organization (WHO), antimicrobial resistance threatens the effective prevention and treatment of an ever-increasing range of infections caused by bacteria, parasites, viruses and fungi.³

In response, the Joint Commission published a new Medication Management (MM) standard for hospitals, critical access hospitals and nursing care centers, which became effective January 1, 2017, emphasizing the need to reduce use of inappropriate antimicrobials in all health care settings, and requiring hospitals to have an antimicrobial stewardship program that is based on current scientific literature.⁴

The Centers for Medicare and Medicaid Services (CMS) proposed new rule (June 2016) requires hospitals to reduce antibiotic use in order to participate in Medicare or Medicaid and states that hospitals must appoint designated, qualified leaders for those antimicrobial stewardship programs.^{5,6}

To support hospital and health systems in meeting the Joint Commission standard and the CMS proposed rule, Comprehensive Pharmacy Services (CPS) launched the first of its kind *Antimicrobial Stewardship Solution*, based on an expansive study of 180 U.S. hospitals through its Antimicrobial Stewardship Pilot Program.

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¹Centers for Disease Control and Prevention. *Core Elements of Hospital Antibiotic Stewardship Programs*. Accessed August 15, 2016. <https://www.cdc.gov/getsmart/healthcare/implementation/core-elements.html>

²Centers for Disease Control and Prevention. *Antibiotic Resistance Threats in the United States, 2013*. Atlanta, GA: CDC; 2013. Accessed April 4, 2017. <https://www.cdc.gov/drugresistance/pdf/ar-threats-2013-508.pdf>

³World Health Organization. *Antimicrobial Resistance*. (Updated: Apr 2015.) Accessed April 4, 2017. <http://www.who.int/mediacentre/factsheets/fs194/en/#>

⁴Approved: *New Antimicrobial Stewardship Standard*. Accessed April 24, 2017. https://www.jointcommission.org/assets/1/6/New_Antimicrobial_Stewardship_Standard.pdf

⁵CMS.gov. *CMS Issues Proposed Rule that Prohibits Discrimination, Reduces Hospital-Acquired Conditions, and Promotes Antibiotic Stewardship in U.S. Hospitals*. Accessed April 24, 2017. <https://www.cms.gov/Newsroom/MediaReleaseDatabase/Fact-sheets/2016-Fact-sheets-items/2016-06-13.html>

⁶Becker's Hospital Review. *Infection Control & Clinical Quality: CMS' proposed rule for hospitals: Reduce antibiotic use or exit Medicare*. Accessed April 24, 2017. <http://www.beckershospitalreview.com/quality/cms-proposed-rule-for-hospitals-reduce-antibiotic-use-or-exit-medicare.html>



THE ANTIMICROBIAL STEWARDSHIP PILOT PROGRAM

The CPS Antimicrobial Stewardship Pilot Program studied 180 hospital facilities across the U.S. from January 1, 2014 through December 31, 2014. The pilot included 45 facilities with antibiotic drug spend greater than \$10 per patient per day and 135 facilities with drug spend less than \$10 per patient per day. The program targeted achieving a 10% reduction in antibiotic use. Combined, these health facilities spent \$23,736,031.26 on antibiotics in 2014, and by the end of the study, antibiotic expenditures dropped in every category.

RESULTS:

To achieve 10% reduction in antibiotic use, the 45 facilities with antibiotics greater than \$10 per metric had to spend \$2,373,603 less on antibiotics during the evaluation period, compared to the baseline. By applying CPS' Antimicrobial Stewardship guidelines for a one year period, participating facilities realized significant reductions in antibiotic consumption both clinically and financially, even with 3 to 4 % drug inflation occurring.

Savings were \$2,709,204.34, a reduction of 11.4%. As seen below, all facilities combined saved \$3,386,111.29 from the baseline period.

	Baseline	Evaluation	Difference
All PAPD	9.20	7.92	-1.28
All PD	19.59	18.65	-0.94
Greater than 10 PAPD	14.11	12.26	-1.85
Greater than 10 PD	27.51	25.70	-1.81



RECOMMENDATIONS FOR AN ANTIMICROBIAL STEWARDSHIP PROGRAM

The best performing sites in the pilot had the following minimum elements in place that constitute a successful antimicrobial stewardship program. These four elements are based on proprietary components in the CPS Antimicrobial Stewardship program.

- 1) A multidisciplinary team that includes pharmacy, and an identified antimicrobial stewardship leader
- 2) An antimicrobial stewardship policy and associated procedures that include the requirement that metrics be reported for recording and evaluation
- 3) A stewardship education and training initiative for clinicians and other relevant staff
- 4) Antibigram in place

Following the pilot, CPS developed its Antimicrobial Bundle that is designed to address all of the antibiotic stewardship requirements and regulations from CMS, CDC and the Joint Commission. The Antimicrobial Bundle's education initiative offers a Pharmacist Antimicrobial Stewardship Certificate (PhAST) that includes more than twenty hours of comprehensive and intensive antibiotic stewardship education sessions.

We can help power your Antimicrobial Stewardship Program today.

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A serious public health threat is getting worse.
ONLY YOU CAN STOP IT.

Drug resistant bacteria is threatening patient health and needs to be stopped. This sounds like a job for a superhero. But it doesn't take super powers to put an end to overuse and misuse of antibiotics. It just takes some help from superhero sidekicks, a trusted team of partners, CPS. We can arm you with a multi-step Antimicrobial Stewardship Program based on best practices and over 50 years of expertise. The results have led to millions in cost savings and increased patient safety for our clients. **NOW THAT'S A DYNAMIC DUO.**



We can help power your Antimicrobial Stewardship Program. Contact your superhero sidekick today.

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