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EC MICROBIOLOGY
Editorial

More Resources are Necessary for Implement Antimicrobial Stewardship Programs

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Received: July 18, 2017; **Published:** July 19, 2017

Many institutions, societies and experts recommend the implementation of antimicrobial stewardship programs (ASP) to reduce antibiotic resistance, healthcare acquired infections and health care costs in hospitals and health care centers. In 2007, the Infectious Disease Society of America published guidelines for developing institutional programs to enhance antimicrobial stewardship [1], and the implementation of ASPs is included in the Global Action Plan on Antimicrobial Resistance [2].

Different antimicrobial stewardship programs can be developed depending on the country-specific health problems, program objectives, clinical setting, type of hospital and available resources. The primary goals of antimicrobial stewardship programs are to prevent the emergence of antimicrobial resistance; optimize the selection, dosing, and duration of antimicrobial therapy in individual patients; reduce adverse effects, including secondary infections; and reduce morbidity, mortality, length of hospitalization and health care costs [1,2]. ASPs have demonstrated their ability to achieve this goals by means of developing different types of interventions, such as antimicrobial use guidelines, prescriber education, antimicrobial restriction, prospective audit and feedback, and rapid diagnostic tests and technologies. Prospective audit with intervention and feedback, and formulary restriction and preauthorization are the core stewardship interventions, and other types of interventions can be used with the core ones for developing specific ASPs [1].

Different evaluative studies have found that ASPs can reduce antibiotic use, reduce inappropriate antibiotic use, reduce antimicrobial resistances, reduce *Clostridium difficile* infection rates, and improve clinical outcomes in hospitalized patients [3,4]. ASPs have demonstrated 22 - 36% antibiotic use reductions and annual savings of $200,000 to $900,000 [1,3].

A recent meta-analysis assessed the effectiveness of different stewardship interventions, including empirical treatment according to local or national guidelines, de-escalation of treatment, parenteral-to-oral switch, therapeutic drug monitoring, and restricted antimicrobial lists [5]. The study found that the stewardship interventions were effective in increasing clinical outcomes, and reducing adverse effects, treatment costs and antibiotic resistance rates [5].

A recent Cochran Review assessed the effectiveness of stewardship interventions enabling and restricting the use of antimicrobial drugs based on the analysis of 221 studies from North America, Europe, Asia, South America and Australia. The study found that ASPs reduced the duration of antibiotic treatment by 1.95 days, reduced the length of stay by 1.12 days, and increased the compliance with prescribing recommendations by 43 - 58% [6]. The ASPs effects were associated with a risk of death similar in both the intervention and control groups (11% in both arms), indicating that antibiotic use can likely be reduced without adversely affecting mortality [6].

Despite the known benefits of ASPs, only half of the hospitals in the United States and lower percentatges in other countries and regions of the world implemented antimicrobial stewardship interventions [7,8]. The main barriers for implementing ASPs in all hospitals include the lack of resources for implementing ASPs, the lack of adequate communication and health education activities for promoting and implementin ASPs, and the lack of specialiced personnel. More resources are therefore necessary for promoting and implementing ASP in all hospitals and health centers.

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Volume 9 Issue 6 July 2017