

## Antimicrobial Stewardship Training Resources and More!

### Introduction

Guidelines suggest that Antimicrobial Stewardship Program (ASP) leadership involve clinical pharmacists and physicians with infectious diseases (ID) training.<sup>1,2</sup> However, many hospitals do not have resources to hire specialized clinicians dedicated to antimicrobial stewardship.<sup>3</sup> Additionally, the supply of ID-trained physicians and pharmacists cannot match the demand for widespread implementation of robust antimicrobial stewardship programs.<sup>4</sup> Thus, many ASPs are led by front-line clinicians that may be seeking ways to gather skills, resources, and experiences to help them develop their local program. This newsletter reviews training programs available for clinicians who want to develop skills in antimicrobial stewardship.

Also, flu season is upon us! Thus, we added a brief review of baloxavir and some other news around DASON.

### Antimicrobial Stewardship Training Programs

#### [Society of Infectious Diseases Pharmacists \(SIDP\)](#)

SIDP currently offers two ACPE-accredited programs to provide education on the pharmacist's role in the appropriate use of antimicrobial agents: one acute care- and one long-term care-focused program. Both programs consist of three phases. Phase 1 (about 3 months and 24 continuing education (CE) credits) consists of self-study modules. Phase 2 (about 5 months and 6-9 CE credits) offers live webinars with relevant content and Q&A sessions. Phase 3 (about 4 months and 10 CE credits) involves participants completing a practice-based project reviewed by SIDP members focused on implementing, evaluating, or modifying some aspect of antimicrobial stewardship at their facility. Registration fees are required for each program.

#### [Making a Difference in Infectious Diseases \(MAD-ID\)](#)

MAD-ID currently offers two antimicrobial stewardship programs, a basic and advanced program. The basic program is designed to teach basic skills and provide an overview of antimicrobial stewardship practice needed to develop an ASP. The basic program awards 19 CE credits and contains three components: 1) internet-based learning module; 2) live programming with faculty; and 3) practical component/exercise. The advanced program is geared towards pharmacists, physicians, and other providers that already have basic antimicrobial stewardship experience and/or skills. The advanced program awards 16 CE credits and contains two components: 1) a didactic portion presented live at the MAD-ID Annual Meeting in May; and 2) practical component/exercise. Of note, completion of the basic program is not required as a prerequisite for the advanced program. Each program is designed to be completed within 18 months. Registration fees are required for each program.

#### [Centers for Disease Control and Prevention \(CDC\)](#)

The CDC recently developed an interactive, web-based antimicrobial stewardship training program designed for physicians, nurse practitioners, physician assistants, pharmacists, and nurses. This training program awards participants up to 8 CE credits and can be completed at your own pace. This program consists of four components: 1) antibiotic resistance and threats; 2) epidemiology of outpatient antibiotic use in the U.S. and opportunities for improvement; 3) antibiotic stewardship considerations for the management of common outpatient conditions; and 4) antibiotic stewardship in emergency departments, hospitals, and nursing homes. Unlike the programs offered by SIDP and MAD-ID, this program does not require a practice-based project. However, this program is available free of charge.

**Table 1.** Summary of Antimicrobial Stewardship Training Programs

Program	Target Audience	CE Credits	Travel Required	Project-based	Fee
SIDP	Pharmacists	40-43	No	Yes	Yes
MAD-ID	Pharmacists Providers: (MD, PA, NP)	16-19	Yes	Yes	Yes
CDC	Pharmacists Providers: (MD, PA, NP) Nurses	8	No	No	No

Overall, each program offers a unique training experience designed to enhance antimicrobial stewardship knowledge for clinicians (Table 1). While the CDC program is available free of charge, the SIDP and MAD-ID programs offer the unique opportunity to complete and receive feedback on a practice-based project at your site. In addition, SIDP and MAD-ID both offer basic- and advanced-level training programs to fit the specific needs of participants. In short, we believe that each program can enhance the knowledge of antimicrobial stewards at DASON community hospitals.

## dason news

- **MARK YOUR CALENDARS!** The [DASON/DICON Fall 2018 Symposium](#) will be held on Friday, November 16<sup>th</sup> at the Grandover Resort and Conference Center in Greensboro NC from 8:30AM-3:30PM – We look forward to seeing you there!
- **Antibiotic Awareness Week** will be observed on November 12-18! DASON will be sending out daily emails highlighting antimicrobial stewardship opportunities in community hospitals. We encourage you to develop a plan to disseminate these emails to clinicians at your hospital!

## Other Educational Resources: Focus on Free Podcasts and Webinars

Aside from formal antimicrobial stewardship training programs, there are many other resources that are available for practicing clinicians interested in learning more about stewardship. Here, we outline a few popular stewardship-focused podcasts and webinars:

### [Centers for Infectious Disease Research and Policy](#)

CIDRAP offers live webinars designed to provide an interactive opportunity to hear about various ID-related topics from world experts in the field. All webinars are available for free on the [CIDRAP YouTube Channel](#). In addition, CIDRAP offers monthly ID-focused podcasts.

### [Society of Infectious Diseases Pharmacists \(SIDP\)](#)

SIDP recently launched a new podcast miniseries called “The Itch” focused on penicillin allergy and skin testing.

### [Open Forum Infectious Diseases \(OFID\)](#)

OFID produces free podcasts that are structured as interviews with experts in the field and designed to keep listeners up date to with the latest research on the go.

## New Drug Approval:

With the first influenza-related death recently reported, we added a brief review Baloxavir marboxyl (XOFLUZA), an antiviral that received FDA-approval on October 24<sup>th</sup>, 2018 for treatment of uncomplicated influenza in patients 12 years or greater that have been symptomatic for no longer than 48 hours.<sup>5</sup>

Baloxavir, available in oral formulation only, is a selective inhibitor of influenza endonuclease that has activity against influenza A and B virus, including strains resistant to current antivirals.<sup>6</sup> This agent was approved on the basis of a randomized, double-blind, placebo- and oseltamivir-controlled trial including 1366 otherwise healthy outpatients with influenza-like illness and symptoms present for less than 48 hours.<sup>6</sup> In this trial, both baloxavir and oseltamivir comparably reduced the duration of flu symptoms on average by about 36 hours as compared with placebo.

## What Makes Baloxavir Different from Oseltamivir?

- **Single Dose Treatment:** Baloxavir is administered as a single, weight-based, oral dose.
- **Different Mechanism of Action:** baloxavir blocks influenza replication through inhibition of viral endonuclease as opposed to oseltamivir, which is a neuraminidase inhibitor.
- **Less side effects:** baloxavir-treated patients had fewer side effects (namely GI upset) as compared with oseltamivir-treated patients.
- **Selects for Resistance:** in clinical trials, baloxavir treatment induced the emergence of viral mutants with reduced susceptibility.<sup>7</sup>
- **Price:** a 5-day course of oseltamivir costs about \$50, whereas the anticipated cost of baloxavir is \$150 per course, regardless of the dose.
- **Inpatient Data:** At this time, no clinical trials evaluating the efficacy of baloxavir for treatment of hospitalized patients with influenza have been completed. Its role in treatment of severe influenza has not been studied.

Despite its novel mechanism of action, its efficacy in outpatients is comparable to oseltamivir, which is available in generic formulation for one-third of the price. Given the lack of data on hospitalized patients, baloxavir does not have clear advantages over oseltamivir for inpatient formularies.

## Take Home Message:

1. Antimicrobial stewards in community hospitals interested in learning more about antimicrobial stewardship program leadership should investigate available certificate training programs.
2. Take advantage of free antimicrobial stewardship educational resources on the web.
3. Baloxavir (XOFLUZA) was recently approved for treatment of uncomplicated influenza in patients 12 years or greater as a single oral dose. Clinical data available in outpatients showed similar outcomes to oseltamivir.

## References:

1. Dellit TH, Owens RC, McGowan JE, Jr., et al. Infectious Diseases Society of America and the Society for Healthcare Epidemiology of America guidelines for developing an institutional program to enhance antimicrobial stewardship. *Clin Infect Dis.* 2007;44(2):159-177.
2. Barlam TF, Cosgrove SE, Abbo LM, et al. Implementing an Antibiotic Stewardship Program: Guidelines by the Infectious Diseases Society of America and the Society for Healthcare Epidemiology of America. *Clin Infect Dis.* 2016;62(10):e51-77.
3. Doernberg SB, Abbo LM, Burdette SD, et al. Essential Resources and Strategies for Antibiotic Stewardship Programs in the Acute Care Setting. *Clin Infect Dis.* 2018;67(8):1168-1174.
4. Gauthier TP, Worley M, Laboy V, et al. Clinical infectious diseases pharmacists in the United States: a problem of both supply and demand. *Clin Infect Dis.* 2015;60(5):826-827.
5. FDA Press Announcement on Baloxavir marboxyl (XOFLUZA). Available at: <https://www.fda.gov/NewsEvents/Newsroom/PressAnnouncements/ucm624226.htm>.
6. Hayden FG, Sugaya N, Hirotsu N, et al. Baloxavir Marboxil for Uncomplicated Influenza in Adults and Adolescents. *N Engl J Med.* 2018;379(10):913-923.
7. Uyeki TM. A Step Forward in the Treatment of Influenza. *N Engl J Med.* 2018;379(10):975-977.