



# Creating an Antimicrobial Stewardship Program for Your ASC

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# Introductions

## **Angela Vassallo, MPH, MS, CIC, FAPIC**

*Nationally recognized expert in infection prevention*

- Certified in Infection Control (CIC) and Fellow of APIC (FAPIC)
- Association for Professionals in Infection Control and Epidemiology (APIC)
  - Chair: APIC Communications
  - Past-President: California and Los Angeles APIC chapters
- Assistant Professor, MPH and MHA programs
  - West Coast University
- Education
  - MPH, University of Texas Health Science Center, School of Public Health, Houston, TX
  - MS, Healthcare Management, West Coast University, Los Angeles, CA
  - BA, International Service, American University, Washington, D.C.

# Objectives

- Describe the need for antimicrobial stewardship in ambulatory surgery centers (ASCs).
- Implement the Centers for Disease Control and Prevention's (CDC's) targeted approach to antimicrobial stewardship.
- Use HSAG's antimicrobial stewardship checklist to create an ASC antimicrobial stewardship program (ASP).

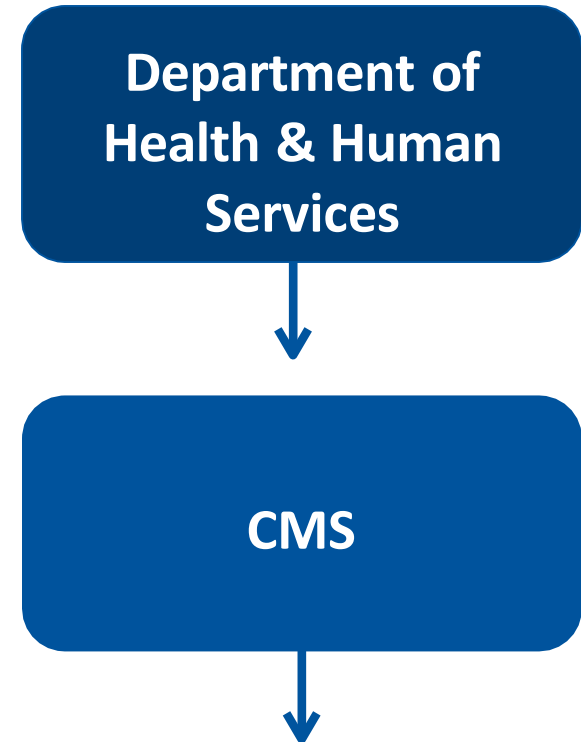




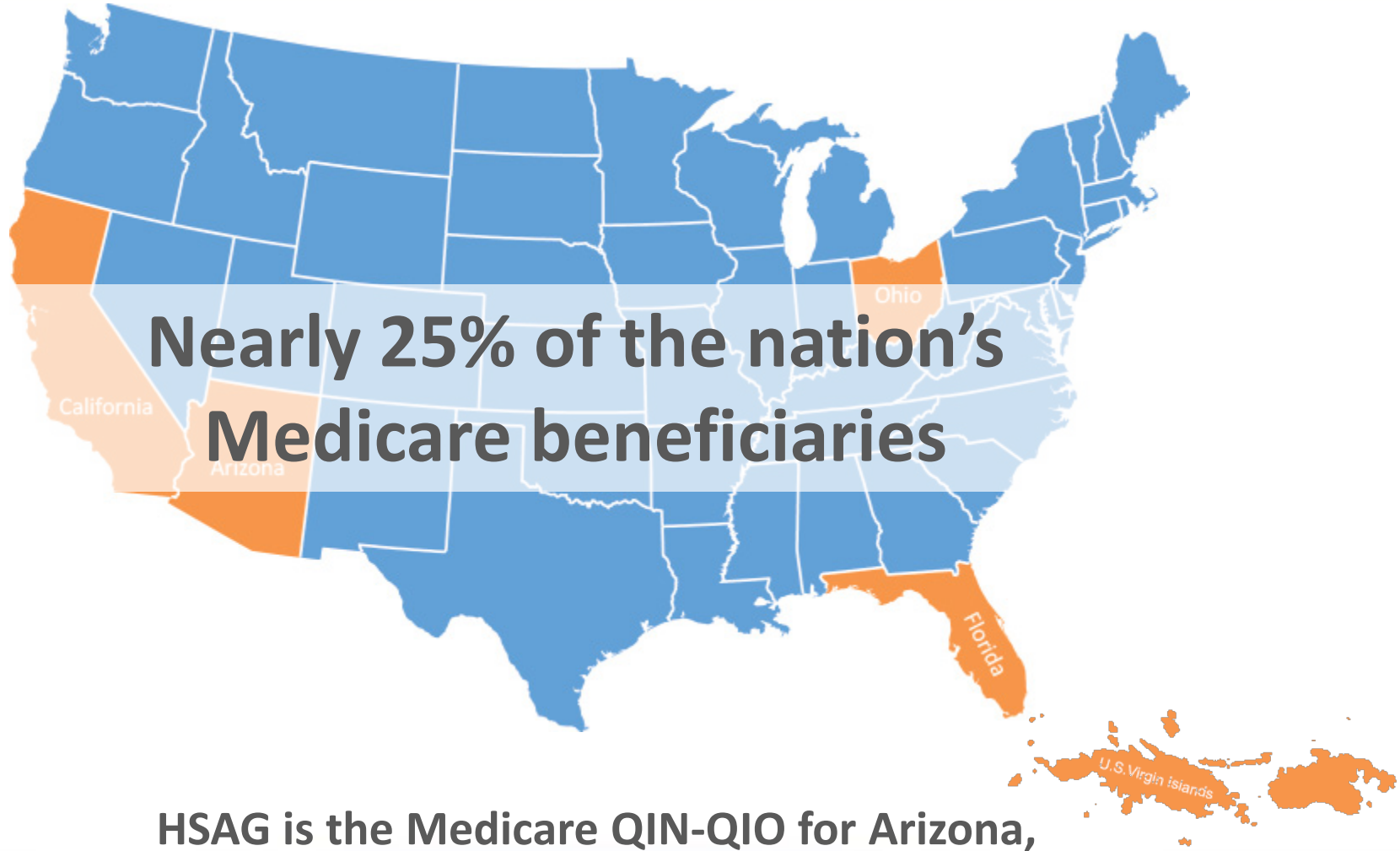
# HSAG Is a Quality Innovation Network-Quality Improvement Organization (QIN-QIO)

# HSAG Is a QIN-QIO

- Funded by the Centers for Medicare & Medicaid Services (CMS).
- Medicare QIN-QIO for Arizona, California, Florida, Ohio, and the U.S. Virgin Islands.
- Largest federal program dedicated to improving health quality at the community level.
- Dedicated to improving healthcare at the population level.
- Ensures that Medicare beneficiaries get the best quality healthcare.



# HSAG's QIN-QIO Territory



**HSAG is the Medicare QIN-QIO for Arizona, California, Florida, Ohio, and the U.S. Virgin Islands.**

# ASC Special Innovation Project



# HSAG's Knock Out Infections—ASC Infection Prevention Initiative







# 1

## What Is Antimicrobial Stewardship?

# Definitions

- The term **antimicrobial** encompasses the treatment options for all forms of microbes:
- Bacteria → Antibiotics
  - E. coli, Methicillin-resistant *Staphylococcus aureus*, carbapenem-resistant *Enterobacteriaceae*
- Fungi → Antifungals
  - *Candida auris*
- Viruses → Antivirals
  - Influenza



# Definitions (cont.)

“**Antimicrobial stewardship** is a coordinated program that promotes the appropriate use of antimicrobials (including antibiotics), improves patient outcomes, reduces microbial resistance, and decreases the spread of infections caused by multi-drug resistant organisms.”

– APIC



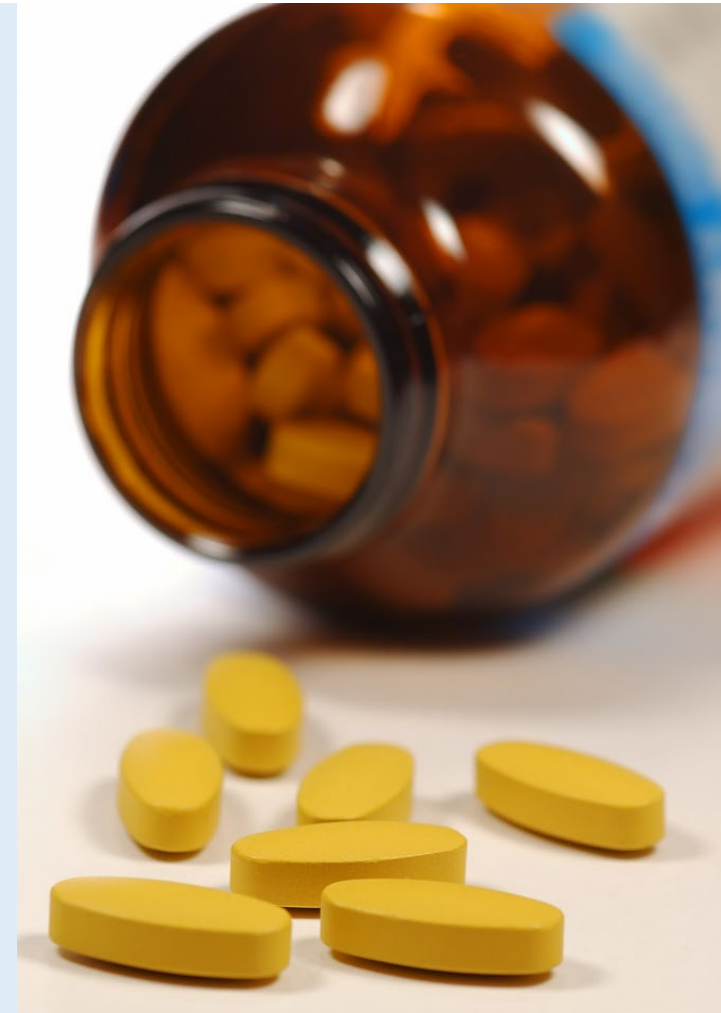


# 2

## Why Do ASCs Need ASPs When They Do Not Treat Patients?

# CDC: Antibiotic Use in Outpatient Settings

“Antibiotic use is the **most important modifiable driver of antibiotic resistance**, and antibiotic-resistant infections lead to higher healthcare costs, poor health outcomes, and more toxic treatments.”



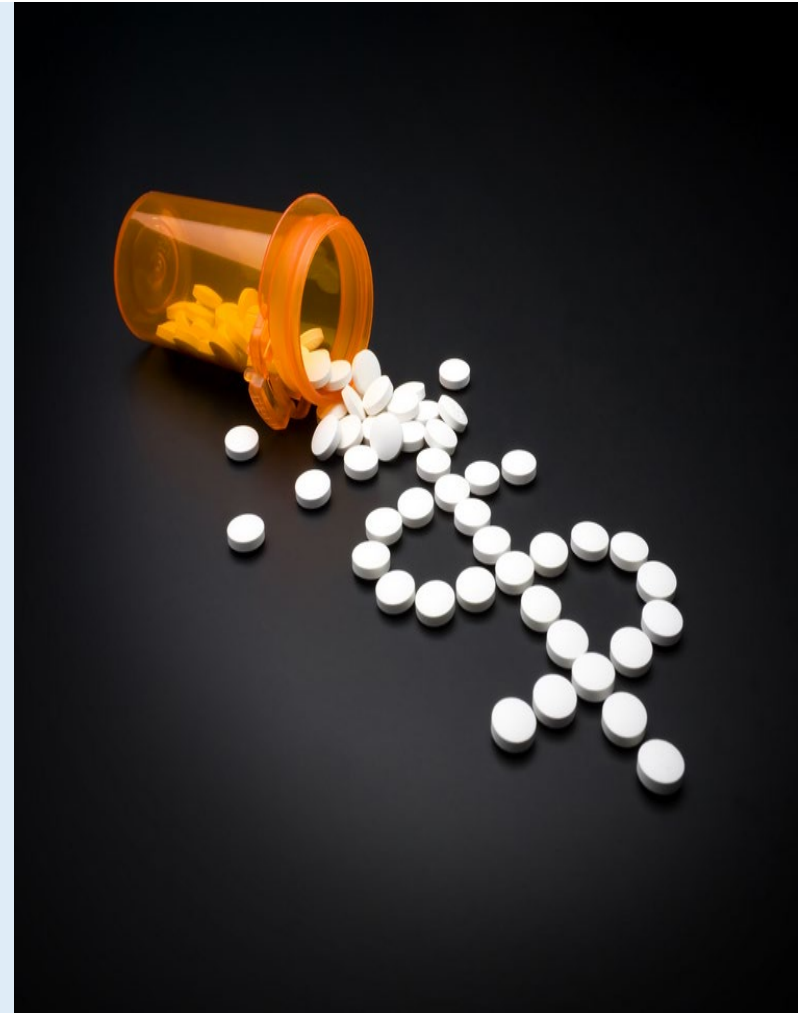
# CDC: Antibiotic Use in Outpatient Settings (cont.)

**At least 30% of antibiotic courses prescribed in the outpatient setting are unnecessary,** meaning that **no antibiotic is needed at all.** Most of this unnecessary use is for acute respiratory conditions, such as colds, bronchitis, sore throats caused by viruses, and some sinus and ear infections.



# CDC: Antibiotic Use in Outpatient Settings (cont.)

Total **inappropriate antibiotic use**, which includes **unnecessary antibiotic use plus inappropriate antibiotic selection, dosing, and duration**, may approach 50% of all outpatient antibiotic use.



# CDC: Antibiotic Use in Outpatient Settings (cont.)

Improving antibiotic prescribing can reduce harm. **A 10% decrease in inappropriate prescribing in the community can result in a 17% reduction in *Clostridium difficile* infection.**





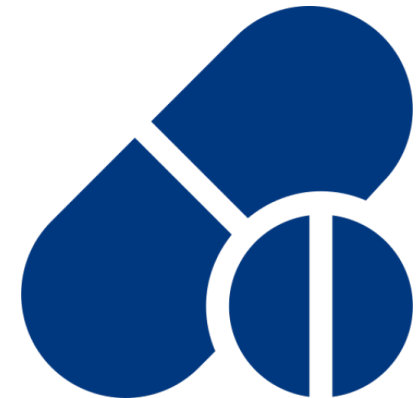
# Inappropriate Outpatient Prescribing

“In the United States in 2010–2011, there was an estimated annual antibiotic prescription rate per 1,000 population of 506, but only an estimated 353 antibiotic prescriptions were likely appropriate, supporting the need for establishing a goal for outpatient antibiotic stewardship.”

30% = ~~appropriate~~

# The Pressure to Prescribe

- Veterans Affairs Western New York Healthcare System
- Urinary tract infections (UTIs), bronchitis, **skin structure infections**, and sinusitis
- 80% of unnecessary drug use from four antibiotics:
  - Azithromycin
  - Ciprofloxacin
  - Amoxicillin/Clavulanate
  - Cephalexin





# The Death of Antibiotics: We're Running Out of Effective Drugs to Fight Off an Army of Superbugs

David H. Freedman



Freedman D. The Death of Antibiotics: We're Running Out of Effective Drugs to Fight Off an Army of Superbugs. *Newsweek Magazine*. May 15, 2019. Available at: <https://www.newsweek.com/2019/05/31/death-antibiotics-running-out-effective-drugs-fight-superbug-army-1423712.html>. Accessed on: June 3, 2019

# Newsweek: The Death of Antibiotics (cont.)

- Microbes evolve at a very rapid rate
  - **Human women** need approximately **15 years** to mature to produce offspring
  - **Microbes** like *E. coli* reproduce every **20 minutes**
- Microbes can experience enormous evolutionary change within a **few years**
  - Similar change for humans would take **millions of years**
- New antibiotic to market
  - **Resistance** will emerge within approximately **1 year**

# Newsweek: The Death of Antibiotics (cont.)

- Pharmaceutical antibiotic development
  - Approximate cost per drug = **\$2 billion**
  - Approximate time to develop = **10 years**
- Antimicrobial stewardship goals
  - Infrequent use = **Less is more!**
  - Shorter duration = **Shorter is better!**





# 3

## What Is the ASC's Role in Antimicrobial Stewardship?

# CDC: Core Elements of Outpatient Antimicrobial Stewardship



**Commitment**



**Action for Policy & Practice**



**Tracking & Reporting**



**Education & Expertise**

# Overview of the CDC's Core Elements of Outpatient Antibiotic Stewardship



**Commitment:** Demonstrate dedication to and accountability for optimizing antibiotic prescribing and patient safety.



**Action for policy and practice:** Implement at least one policy or practice to improve antibiotic prescribing, assess whether it is working, and modify as needed.



**Tracking and reporting:** Monitor antibiotic prescribing practices and offer regular feedback to clinicians, or have clinicians assess their own antibiotic use.



**Education and expertise:** Provide educational resources to clinicians and patients on antibiotic prescribing and ensure access to needed expertise on antibiotic prescribing.





# Surgical Site Infections (SSIs)

# CDC: SSI Prevention Guidelines

- **Hair removal**
  - Clipping not shaving.
  - Not in operating room!
- **Pre-op skin cleansing**
  - Chlorhexidine gluconate (CHG) based products.
- **Hand hygiene**
  - Everyone, even the circulator!
- **Surgical site skin prep**
  - Alcohol/CHG-based products for extended persistence.
- **Blood glucose monitoring**
- **Safe injection practices**
  - Disinfect the tops of med vials
  - One and Only Campaign
- **Antibiotic stewardship**
  - HSAG checklist for ASCs
- **Environmental cleaning**
  - Are staff trained?
  - Is there any monitoring of their processes?
- **Instrument sterilization**
  - Biological indicators (BI), chemical indicators (CI), failure plans
- **High-level disinfection**
  - Pre-cleaning
  - Is there an annual staff training? (This is *not* vendor in-services!)
- **Post-op patient instructions**
  - CDC patient handout on SSI reduction at discharge



# The Joint Commission Proposed New Requirements for Antimicrobial Stewardship

# CMS Infection Prevention Program Requirements

- Must have an **infection prevention program**
  - Must have a designated staff member who is trained in infection prevention
- Must follow **nationally recognized guidelines**
  - CDC
  - Association for periOperative Registered Nurses (AORN)
  - APIC





# CMS ASC Infection Control Surveyor Worksheet

Exhibit 351

**Ambulatory Surgical Center (ASC) INFECTION CONTROL SURVEYOR WORKSHEET**

*(Rev: 142, Issued: 07-17-15, Effective: 07-17-15, Implementation: 07-17-15)*

Name of State Agency or AO (please specify) \_\_\_\_\_

Instructions: The following is a list of items that must be assessed during the on-site survey, in order to determine compliance with the infection control Condition for Coverage. Items are to be assessed primarily by surveyor observation, with interviews used to provide additional confirming evidence of observations. In some cases information gained from interviews may provide sufficient evidence to support a deficiency citation.

The interviews and observations should be performed with the most appropriate staff person(s) for the items of interest (e.g., the staff person responsible for sterilization should answer the sterilization questions). A minimum of one surgical procedure must be observed during the site visit. The surveyor(s) must identify at least one patient and follow that case from registration to discharge to observe pertinent practices. For facilities that perform brief procedures, e.g., colonoscopies, it is preferable to follow at least two cases. When performing interviews and observations, any single instance of a breach in infection control would constitute a breach for that practice.

*Citation instructions are provided throughout this instrument, indicating the applicable regulatory provision to be cited on the Form CMS-2567 when deficient practices are observed.*

**PART 1 – ASC CHARACTERISTICS**

1. ASC Name \_\_\_\_\_

2. Address, State and Zip Code \_\_\_\_\_  
 Address  
 \_\_\_\_\_  
 City State Zip

3. 10-digit CMS Certification Number [ ][ ][ ][ ][ ][ ][ ][ ][ ][ ][ ]

4. What year did the ASC open for operation? [ ][ ][ ][ ]  
 Y Y Y Y

5. Please list date(s) of site visit: [ ][ ]/[ ][ ]/[ ][ ][ ][ ][ ] to [ ][ ]/[ ][ ]/[ ][ ][ ][ ][ ]  
 m m d d y y y Y m m d d y y y y

6. What was the date of the most recent previous federal (CMS) survey: [ ][ ]/[ ][ ]/[ ][ ][ ][ ][ ]  
 m m d d y y y y

7. Does the ASC participate in Medicare via accredited "deemed" status?  YES  
 NO

7a. If YES, by which CMS-recognized accreditation organization(s)?  Accreditation Association for Ambulatory Health Care (AAAHC)  
 American Associate for Accred. of Ambulatory Surgery Facilities (AAAASF)  
 American Osteopathic Association (AOA)  
 The Joint Commission (TJC)

14. Please indicate how the following services are provided: (fill in all that apply)

	Contract	Employee	Other	If Other, Please print:
Anesthesia/Analgesia	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
Environmental Cleaning	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
Linen	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
Nursing	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
Pharmacy	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
Sterilization/Reprocessing	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
Waste Management	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	

**INFECTION CONTROL PROGRAM**

15. Does the ASC have an explicit infection control program?  YES  
 NO

**NOTE!** If the ASC does not have an explicit infection control program, a condition-level deficiency related to 42 CFR 416.51 must be cited.

16. Does the ASC's infection control program follow nationally recognized infection control guidelines?  YES  
 NO

**NOTE!** If the ASC does not follow nationally recognized infection control guidelines, a deficiency related to 42 CFR 416.51(b) must be cited. Depending on the scope of the lack of compliance with national guidelines, a condition-level citation may also be appropriate.

16a. Is there documentation that the ASC considered and selected nationally-recognized infection control guidelines for its program?  YES  
 NO

**NOTE!** If the ASC cannot document that it considered and selected specific guidelines for use in its infection control program, a deficiency related to 42 CFR 416.51(b) must be cited. This is the case even if the ASC's infection control practices comply with generally accepted standards of practice/national guidelines. If the ASC neither selected any nationally recognized guidelines nor complies with generally accepted infection control standards of practice, then the ASC should be cited for a condition-level deficiency related to 42 CFR 416.51.

<p>16b. If YES to (a), which nationally-recognized infection control guidelines has the ASC selected for its program? (Select all that apply)</p>	<ul style="list-style-type: none"> <li><input type="radio"/> CDC/HICPAC Guidelines:             <ul style="list-style-type: none"> <li><input type="radio"/> Guideline for Isolation Precautions (CDC/HICPAC)</li> <li><input type="radio"/> Hand hygiene (CDC/HICPAC)</li> <li><input type="radio"/> Disinfection and Sterilization in Healthcare Facilities (CDC/HICPAC)</li> <li><input type="radio"/> Environmental Infection Control in Healthcare Facilities (CDC/HICPAC)</li> </ul> </li> <li><input type="radio"/> Perioperative Standards and Recommended Practices (AORN)</li> <li><input type="radio"/> Guidelines issued by a specialty surgical society / organization (List) Please specify (please limit to the space provided): <div style="border: 1px solid black; height: 40px; width: 100%; margin-top: 5px;"></div></li> <li><input type="radio"/> Others Please specify (please limit to the space provided): <div style="border: 1px solid black; height: 40px; width: 100%; margin-top: 5px;"></div></li> </ul>
<p>17. Does the ASC have a licensed health care professional qualified through training in infection control and designated to direct the ASC's infection control program? <input type="radio"/> YES <input type="radio"/> NO</p> <p style="font-size: small; background-color: yellow;">NOTE! If the ASC cannot document that it has designated a qualified professional with training (not necessarily certification) in infection control to direct its infection control program, a deficiency related to 42 CFR 416.51(b)(1) must be cited. Lack of a designated professional responsible for infection control should be considered for citation of a condition-level deficiency related to 42 CFR 416.51.</p>	
<p>17a. If YES, Is this person an: (Select only ONE bubble)</p>	<ul style="list-style-type: none"> <li><input type="radio"/> ASC employee</li> <li><input type="radio"/> ASC contractor</li> </ul>
<p>17b. Is this person certified in infection control (i.e., CIC) (Note: §416.50(b)(1) does <b>not</b> require that the individual be certified in infection control.)</p>	<ul style="list-style-type: none"> <li><input type="radio"/> YES</li> <li><input type="radio"/> NO</li> </ul>
<p>17c. If this person is NOT certified in infection control, what type of infection control training has this person received?</p>	
<p>17d. On average, how many hours per week does this person spend in the ASC directing the infection control program?</p>	<div style="display: flex; align-items: center; justify-content: center;"> <div style="border: 1px solid black; width: 30px; height: 30px; margin-right: 5px;"></div> <div style="border: 1px solid black; width: 30px; height: 30px; margin-right: 5px;"></div> <span>hours per week</span> </div> <p style="font-size: small; background-color: yellow;">(Note: §416.51(b)(1) does <b>not</b> specify the amount of time the person must spend in the ASC directing the infection control program, but it is expected that the designated individual spends sufficient time on-site directing the program, taking into consideration the size of the ASC and the volume of its surgical activity.)</p>





# 4

## The Solution: Implementing a Targeted Approach

# 1.0 Implementation

- Most ASCs have a **consulting pharmacist** who reviews medication use, rounds quarterly, and reports findings to the Medical Executive Committee.
  - Be sure to add antimicrobial review to list of tasks.
- Most ASCs have **minimal use of antimicrobials** for treatment.
  - This means that the list to review won't be very long!
- Most ASCs have **medical staff leaders** who want to keep the facility open and do well during regulatory surveys.
  - Keep track of this work in meeting minutes!

**With these elements in place, the framework for antimicrobial stewardship already exists.**

# HSAG Antimicrobial Stewardship Checklist for ASCs

Created in a step-wise fashion so ASCs can build their program from the foundation.

1. Leadership Support
2. Accountability
3. Policies
4. Interventions to Improve Antibiotic Use
5. Education



# HSAG Antimicrobial Stewardship Checklist for ASCs (cont.)



## Antimicrobial Stewardship Checklist for Ambulatory Surgery Centers (ASCs)

Leadership Support		
1. Does your facility have a formal, written statement of support from leadership that supports efforts to improve antimicrobial use (antimicrobial stewardship)?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
2. Does your facility receive any budgeted financial support for antimicrobial stewardship activities (e.g., support for salary, training, or IT support)?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Accountability		
3. Is there a physician leader responsible for program outcomes of stewardship activities at your facility?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
4. Is there a pharmacist leader responsible for working to improve antimicrobial use at your facility?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Policies		
5. Does your facility have a policy that requires prescribers to document in the medical record or during order entry a dose, duration, and indication for all antimicrobial prescriptions?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
6. Does your stewardship program monitor adherence to the policy (such as by monitoring dose, duration, and indication)?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
7. Does your facility have facility-specific treatment recommendations, based on national guidelines and local susceptibility, to assist with antimicrobial selection for common clinical conditions?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
8. Does your stewardship program monitor adherence to facility-specific treatment recommendations?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Interventions to Improve Antibiotic Use		
9. Do specified antimicrobial agents need to be approved by a physician or pharmacist prior to dispensing (i.e., pre-authorization) at your facility?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
10. Does a physician or pharmacist review courses of therapy for specified antimicrobial agents (i.e., prospective audit with feedback) at your facility?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Education		
11. Does your stewardship program provide education to clinicians and other relevant staff members on improving antimicrobial prescribing?	<input type="checkbox"/> Yes	<input type="checkbox"/> No

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This material was adapted by Health Services Advisory Group, the Medicare Quality Improvement Organization California, under contract with the Centers for Medicare & Medicaid Services (CMS), an agency of the U.S. Department of Health and Human Services, from material originally prepared by the Centers for Disease Control and Prevention (CDC). The contents presented do not necessarily reflect CMS policy. Publication No. CA-1150W-ASC-02282018-01

1. HSAG. Antimicrobial Stewardship Checklist for Ambulatory Surgery Centers (ASCs). Available at: <https://www.hsag.com/contentassets/98d1e68f70bc4240832eb3545b6050f6/rbrndcdhsagaschecklistforasc.pdf>.
2. CDC. Checklist for Core Elements of Hospital Antibiotic Stewardship Programs. Available at: <https://www.cdc.gov/antibiotic-use/healthcare/implementation/checklist.html>. Accessed on: June 3, 2019.



## 2.0 Monitoring Treatment

- Tracking basic use
  - Which antibiotic is the most frequently used?
  - Why was it chosen?
  - What is the indication for use?
- Duration
  - Why did the surgeon prescribe it for 14 days?
- Drug-Bug mismatch
  - Example: Vancomycin used to treat a wound infection for a patient with a history of Vancomycin resistant *enterococcus* (VRE).

***Which guidelines are followed to make these decisions?***

# Monitoring Treatment (cont.)

- Discuss prescribing profiles at medical staff member committees
  - Peer pressure and competition can help!
- Leadership approval for certain antimicrobials
  - This can be used to refine use and set facility standards.

***Which guidelines are followed to make these decisions?***

# 3.0 Treatment Guidelines

- **Infectious Diseases Society of America (IDSA) 2018 Clinical Practice Guideline for the Management of Outpatient Parenteral Antimicrobial Therapy.** Available at: <https://www.idsociety.org/globalassets/idsa/practice-guidelines/2018-opat-ciy745.pdf>.
  - The references in this document highlight key papers from the past 15-plus years.
- **IDSA Practice Guidelines.** Available at: [https://www.idsociety.org/PracticeGuidelines/?q=&ref=journalyear%3B%5B2018+TO+2018%5D%3BYear%2C#/date\\_na\\_dt/DESC/0/+/](https://www.idsociety.org/PracticeGuidelines/?q=&ref=journalyear%3B%5B2018+TO+2018%5D%3BYear%2C#/date_na_dt/DESC/0/+/).
  - This list is based on topic. Click the “view alphabetical list of guidelines” link.
- **IDSA and The Society for Healthcare Epidemiology of America (SHEA) Guidelines for Developing an Institutional Program to Enhance Antimicrobial Stewardship, 2007.** Available at: <https://academic.oup.com/cid/article/44/2/159/328413>.
  - This is an older document and was used to help develop guidelines for hospitals. We used it to inform HSAG’s checklist.

## 3.0 Treatment Guidelines (cont.)

- **Johns Hopkins Guidelines.** Available at:  
[https://www.hopkinsguides.com/hopkins/index/Johns\\_Hopkins\\_ABX\\_Guide/Antibiotics](https://www.hopkinsguides.com/hopkins/index/Johns_Hopkins_ABX_Guide/Antibiotics).
- **Sanford Guide.** Available at:  
<https://www.sanfordguide.com/>.
  - Most clinical environments will have at least one copy of these guidelines.



# References

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- CMS. Exhibit 351 Ambulatory Surgical Center (ASC) Infection Control Surveyor Worksheet. Available at: [https://www.cms.gov/Regulations-and-Guidance/Guidance/Manuals/downloads/som107\\_exhibit\\_351.pdf](https://www.cms.gov/Regulations-and-Guidance/Guidance/Manuals/downloads/som107_exhibit_351.pdf). Accessed on: June 4, 2019.
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- Agency for Healthcare Research and Quality (AHRQ). Toolkit 2: Monitor and Sustain Stewardship. Available at: <https://www.ahrq.gov/nhguide/toolkits/implement-monitor-sustain-program/toolkit2-monitor-sustain-program.html>. Accessed on: June 3, 2019.
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- Timothy H. Dellit, Robert C. Owens, John E. McGowan, Dale N. Gerding, Robert A. Weinstein, John P. Burke, W. Charles Huskins, David L. Paterson, Neil O. Fishman, Christopher F. Carpenter, P. J. Brennan, Marianne Billeter, Thomas M. Hooton, IDSA and SHEA Guidelines for Developing an Institutional Program to Enhance Antimicrobial Stewardship, *Clinical Infectious Diseases*, Volume 44, Issue 2, 15 January 2007, Pages 159–177, <https://doi.org/10.1086/510393>. Available at: <https://academic.oup.com/cid/article/44/2/159/328413>. Accessed on: June 4, 2019.



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