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# Building your Antibiotic Stewardship Program Phase 2: Actions to Support Optimal Antibiotic Use

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*ASP, C.difficile and MDROs*

July 12<sup>th</sup> , 2017  
3:00-4:00pm



# Agenda

Topic	Speaker
Welcome and Introductions	NYSPFP Staff
Review of ASP in HIIN <ul style="list-style-type: none"><li>• Rapid Cycle Improvement Phase 2</li><li>• Gap Analysis</li></ul>	NYSPFP Staff
Rapid Cycle Improvement - Actions to Support Antibiotic Use	David P. Calfee, MD, MS Waleed Javaid, MD, FACP, FIDSA Teresa Lubowski, Pharm.D., B.S.
Hospital Questions and Discussion	Hospital Participants Facilitated by NYSPFP Staff
2 Tools and Resources/Next Steps	NYSPFP Staff



# ASP/CDI/MDRO Initiative Overview

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## **GOAL:**

- Implement an antibiotic stewardship program (ASP)
- Reduce hospital multi-drug resistant organism (MDRO) infection and *Clostridium difficile* Infection (CDI) by 20%, from a 2015 baseline

## **OBJECTIVES**

- Hospitals will implement all elements of the Centers for Disease Control's (CDC) "Core Elements of Antibiotic Stewardship Programs" as part of the hospital's ASP program by September 2018
- Reduce CDI by 20% by September 2018
- Reduce MDRO infections, particularly MRSA, by 20% by September 2018



# Rapid Cycle Improvement Projects

## Antibiotic Stewardship Program

### Rapid Cycle Improvement Projects

#### Phase 1

- Leadership commitment
- Accountability
- Drug expertise

#### Phase 2

- Actions to support optimal antibiotic use

#### Phase 3


- Tracking and monitoring antibiotic prescribing, use, and resistance
- Reporting information on improving antibiotic use and resistance

Education of Clinicians and Patients and Families



# NYSPPF Tools and Resources

## Gap analysis



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Antibiotic Stewardship/MDRO/CDI  
Core Elements Gap Analysis

Source: NQF Antibiotic Stewardship in Acute Care


Facility Name: \_\_\_\_\_ Date: \_\_\_\_\_

**Instructions:** The following checklist is designed to complement the CDC core elements checklist. Once hospitals have identified the core elements they would like to work on, this checklist is to identify the strategies and interventions that correspond to the core element. This checklist should be used to systematically assess whether key strategies and interventions are present at your facility to ensure optimal antibiotic prescribing and limit overuse and misuse of antibiotics in hospitals. Facilities using this checklist should involve one or more knowledgeable staff to determine if the following principles and actions to improve antibiotic use are in place.

Upon completion, this document can become the basis for your facilities improvement plan.

CORE ELEMENTS	YES	NO	COMMENTS
<b>CORE ELEMENT 1: LEADERSHIP</b>			
Basic			
A. Issue formal board approved statement on the importance of ASP and include in annual report.			
B. Develop and distribute a newsletter column from the CEO/CMO and or chief of medical staff highlighting ASP and their commitment to improving antibiotic use.			
C. Dedicate specific salary support for ASP leaders based on size and population of the hospital.			
D. Include specific time commitment (NFE or hours/week, hours/month) in the job description of ASP leaders, and articulate targets and goals.			
E. Support funding for remote consultation or telemedicine with experts in antibiotic stewardship (e.g., infectious diseases physicians and pharmacists) if local resources are not available.			
F. Communicate regularly the importance of improving antibiotic use and the hospital's commitment to antibiotic stewardship.			
G. Share stories, speakers, and other resources that highlight how ASPs can improve patient outcomes.			

## Action planning tool



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Antibiotic Stewardship/MDRO/CDI  
Action Planning Tool

Action Plan developed from NQF Playbook. For Core Element Example of Implementation Strategies (Basic, Intermediate, and Advanced) see compiling page(s) number(s). [http://www.qualityforum.org/NQF/Antibiotic\\_Stewardship\\_Playbook.aspx](http://www.qualityforum.org/NQF/Antibiotic_Stewardship_Playbook.aspx)

Initiative: Antimicrobial Stewardship Program Hospital: \_\_\_\_\_

Administrative Champion: \_\_\_\_\_ Team Lead: \_\_\_\_\_

Lead Physician: \_\_\_\_\_ Nurse Lead: \_\_\_\_\_

Data Lead: \_\_\_\_\_ Other Team Member(s): \_\_\_\_\_

**Aim Statement:** \_\_\_\_\_

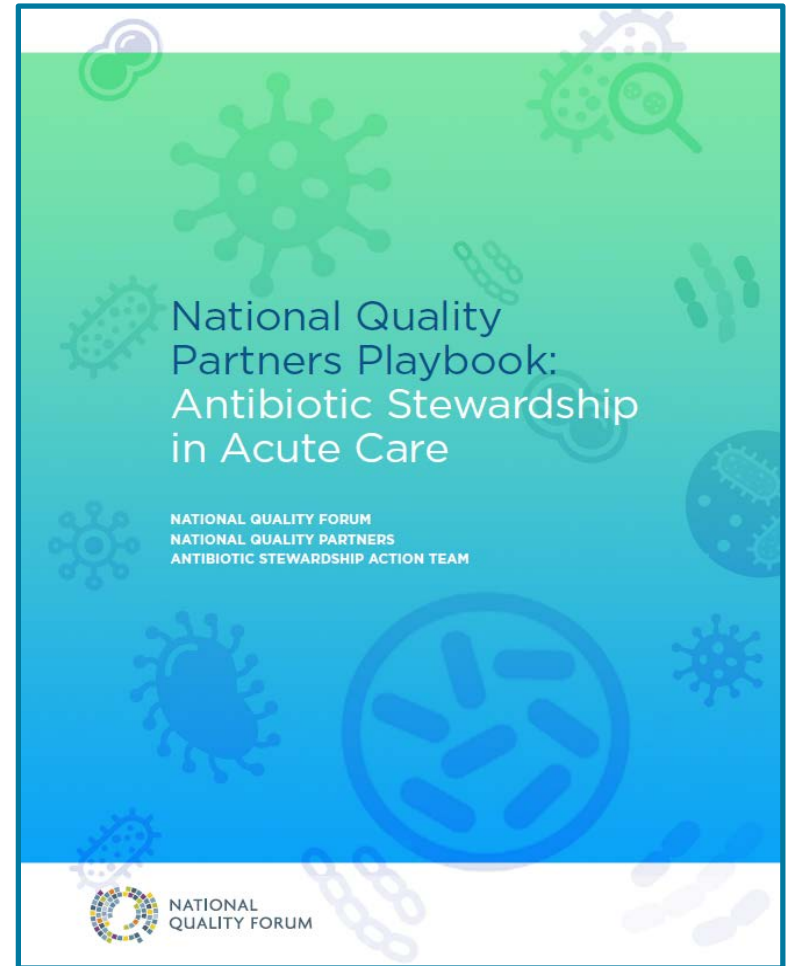
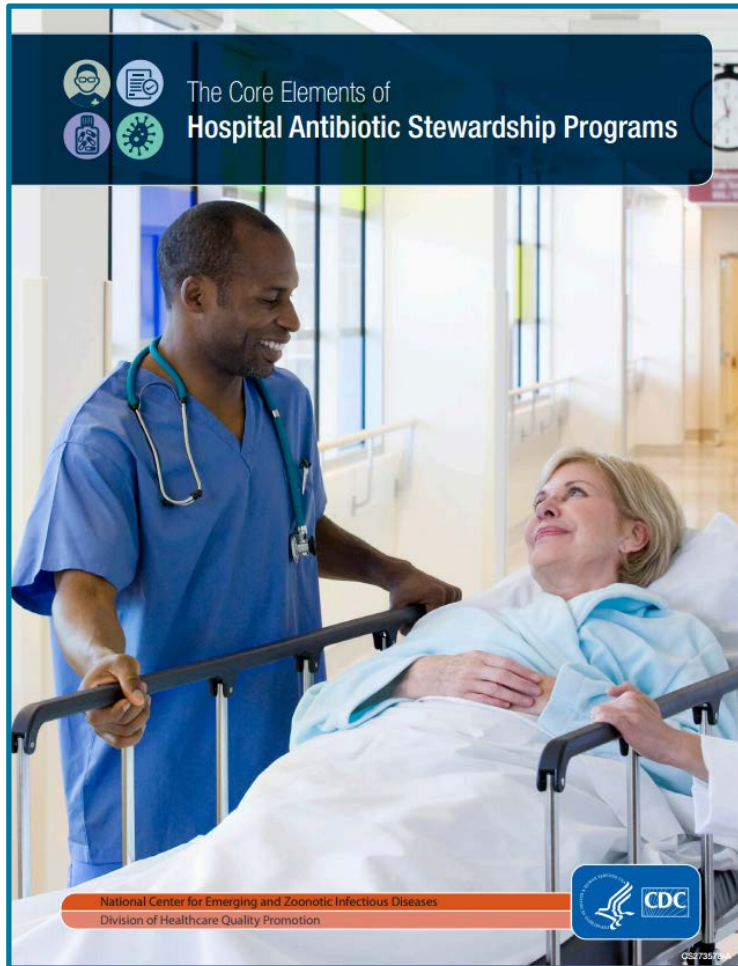
Consider each process change or key strategy below, and complete the worksheet components for implementing them. Add other strategies as appropriate for your hospital.

PROCESS CHANGE/KEY STRATEGY*	List Next Steps (How will you implement process change/key strategy?)	Resources/ Stakeholders available/needed? (Which department will be involved?)	Owner(s)	Completion Date (if not in place)	Measurement Strategy (What data will be used to monitor progress/back track of change?)
<b>PHASE 1</b>					
Core Element 1: Leadership Commitment – examples of implementation strategies pages 6-7 of the NQF playbook					
Facility leadership will provide a viable, written statement of support for the antibiotic stewardship program (ASP).					
Facility leadership will provide support (financial and time) for training and education on antibiotic stewardship (AS), ensure adequate staffing, and establish a clear communication strategy on AS.					
Facility leadership will provide sustained financial support and ensure that ASP team leaders have time to perform the functions of the program.					

Part of these strategies taken from: Health Research & Educational Trust (2013, June). Checklists to improve patient safety. Chicago, IL: Health Research & Educational Trust. Accessed at [www.hrea.org](http://www.hrea.org)



# CDC Core Elements/NQF





# ASP/*C. difficile*/MRSA Process Measure Survey

## Results: *Actions to Support Abx Use (Q2 2017)*

### Actions to Support Optimal Antibiotic Use: Policies

Does your facility have facility-specific treatment recommendations, based on national guidelines and local susceptibility, to assist with antibiotic selection for common clinical conditions?



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 antibiotic prescriptions?



% responding "Yes"

N=87



# CASP/*C. difficile*/MRSA Process Measure Survey

## Results: *Actions to Support Abx Use (Q2 2017)*

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### Actions to Support Optimal Antibiotic Use: Broad Interventions



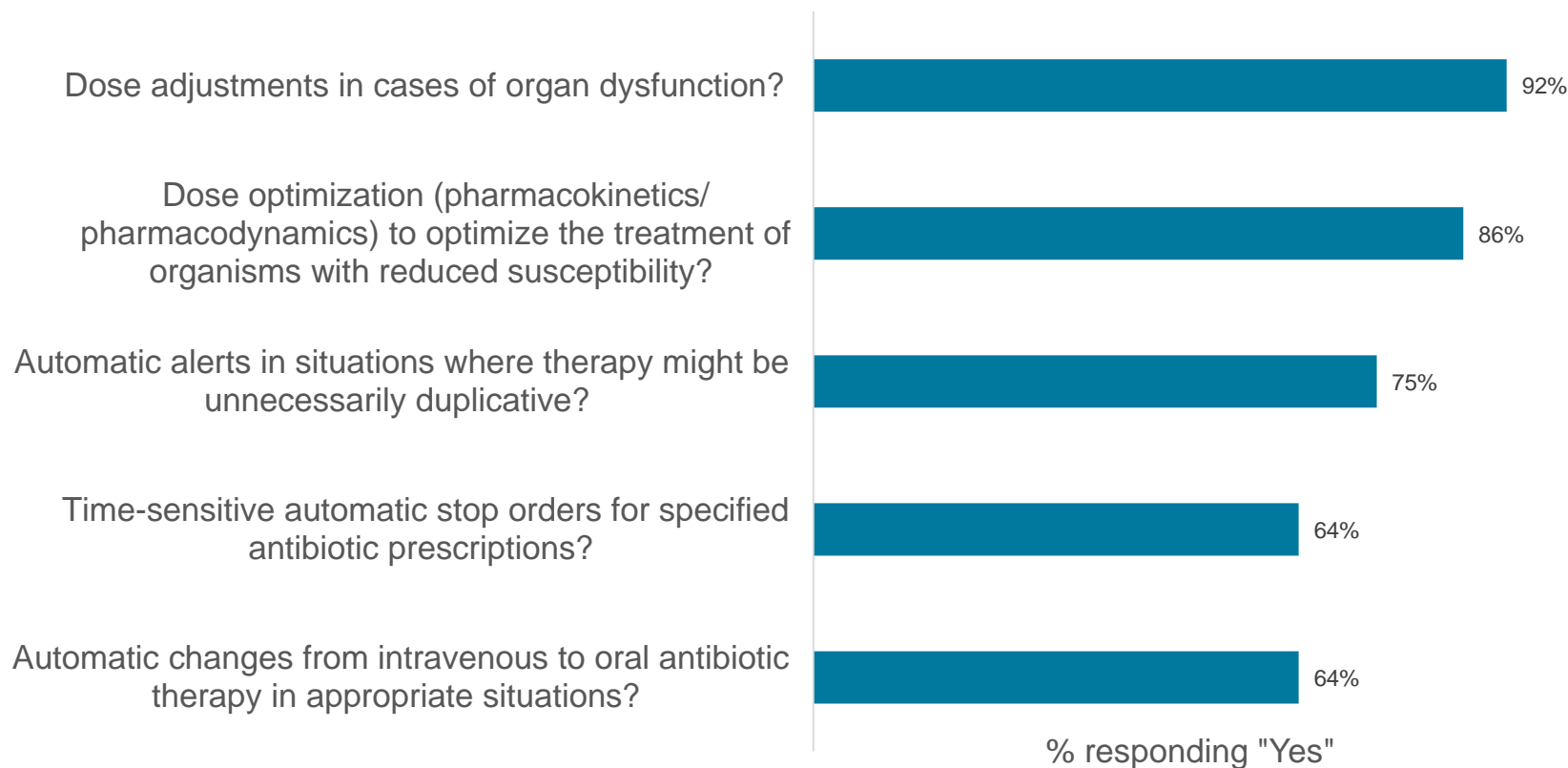




# ASP/*C. difficile*/MRSA Process Measure Survey

## Results: *Actions to Support Abx Use (Q2 2017)*

**Actions to Support Optimal Antibiotic Use:**  
 Are the following actions implemented in your facility?



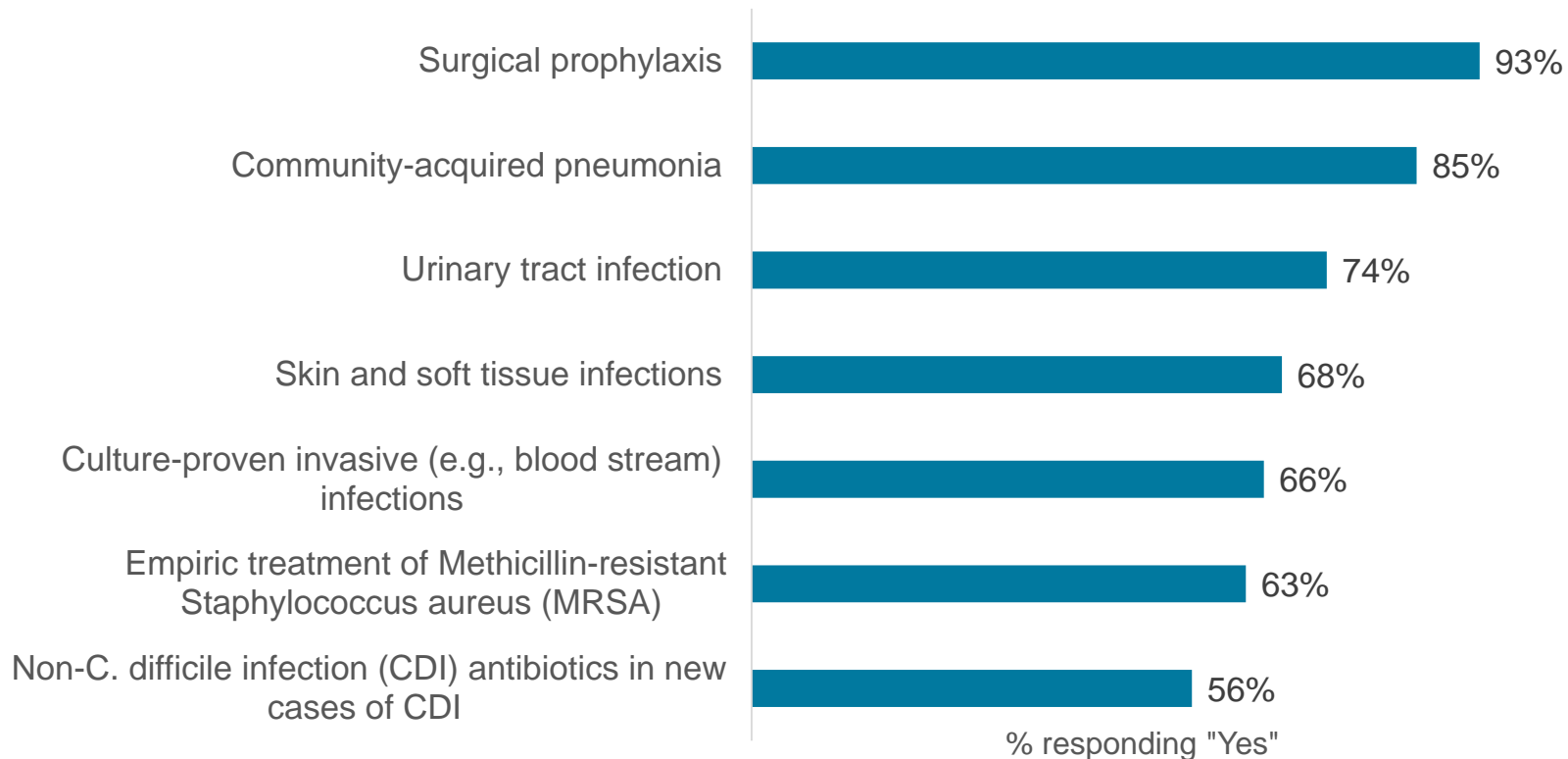


# ASP/*C. difficile*/MRSA Process Measure Survey

## Results: *Actions to Support Abx Use* (Q2 2017)

### Actions to Support Optimal Antibiotic Use:

Does your facility have specific interventions in place to ensure optimal use of antibiotics to treat the following common infections?



% responding "Yes"



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## Implementing Core Element 4: Actions to Support Optimal Antibiotic Use

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## FAQ 1: We don't know where to start to support prescriber's optimal antibiotic use – Help!

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- Optimal antibiotic use is driven by
  - Microbiology data
  - Formulary drug selections
  - Physician knowledge and comfort with certain antibiotics
  - Computerized vs paper order entry
  - Availability of order sets
  - Engagement from leadership, both hospital and prescriber
  - Availability of reference material, like guidelines, online searchable references etc.



## FAQ 1: (cont.)

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- Strategies include
  - Pre-prescription interventions:
    - Display of selective antibiotic information in culture results
    - Formulary drug selections
    - Order sets making it easier to use optimal antibiotics
    - Add indication field in EMR
    - Add mandatory entry for duration of therapy in EMR
  - Post-prescription interventions:
    - Prospective review and audit utilization
    - IV-PO conversion
    - Evaluation of duration of therapy based on indication



## FAQ 2: We don't have an ID physician to help us develop hospital-specific guidelines based on local susceptibility data – what should we do?

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- Hospital or Facility specific guidelines do not require ID physician
- ASP team members, pharmacy champion and microbiology lab champions can review pathogen or condition specific guidelines and review their hospital microbiology sensitivity data to determine most appropriate empiric antibiotic therapy



## FAQ 2: (cont. )

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- Steps
  - Identify a syndrome – for this example we will use Urinary track infection (UTI)
  - Identify the most common pathogen - causing the (UTI) in most cases, it will be E. Coli
  - Review the antibiogram from microbiology lab, preferably with the help of microbiology stewardship champion
  - List antibiotics that E.coli has > 80% sensitivity, in most cases, this will include cefazolin, nitrofurantoin, Bactrim and ciprofloxacin
  - Among the list of antibiotics, select ones with narrowest spectrum, (e.g. nitrofurantoin, cefazolin)
  - Develop guidance for empiric therapy based on above sensitivity data, and patient factors (nitrofurantoin can not be used in patients with renal insufficiency)



## FAQ 2: (cont. )

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Identify a syndrome

- For this example we will use Urinary tract infection

Identify the most common pathogen

- For urinary tract infection, in most cases it will be E.coli
- Microbiology Lab can help in identifying the pathogen

Review the antibiotic susceptibility data

- List antibiotics that the pathogen has > 80% sensitivity
- 80% is arbitrary cutoff

Select antibiotics with narrowest spectrum

- Nitrofurantoin
- Cefazolin

Consider patient specific issues

- For example: nitrofurantoin should not be used in patients with renal failure
- Patients may be allergic to beta lactams

Develop guidance based on above factors and severity of illness

- For example:
  - Cystitis > you may consider nitrofurantoin
  - Pyelonephritis > consider antibiotic that is effective in renal parenchyma, like ceftriaxone





## FAQ 3: What is the standardized antimicrobial administration ratio (SAAR) and how could it be helpful?

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### **SAAR:**

Generated from the NHSN Antimicrobial Use and Resistance (AUR) module: requires submission of antibiotic administration data from eMAR or bar coding medication record (BCMA).

A metric to analyze and report antimicrobial use data in summary form.

Calculated by dividing observed antimicrobial use (number of days of antimicrobial therapy) by predicted antimicrobial use.

Constructed using indirect standardization where predicted antimicrobial use days are based on nationally aggregated antimicrobial use data<sup>1</sup>



## FAQ 3: (cont. )

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SAARs are generated for five specific antimicrobial groupings.<sup>1</sup>

- Broad spectrum antibacterial agents predominantly used for hospital-onset/multidrug resistant infections
- Broad spectrum antibacterial agents predominantly used for community-acquired infections
- Anti-MRSA agents
- Antibacterial agents predominantly used for surgical site infection prophylaxis
- All antibacterial agents

SAARs are calculated separately for adult and pediatric units and wards.



## FAQ 3: (cont. )

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### **SAARs could be helpful to provide to providers and antimicrobial stewardship teams because:**

They can provide a mechanism to track changes in antimicrobial use over time and assess changes associated with ASP interventions.

- **Example: a new program to reduce unnecessarily long courses of surgical antibiotic prophylaxis**

They may help to identify groups of antibiotics that are being excessively prescribed or patient locations in which antibiotic administration is excessive.

NOTE: it is important to understand what an individual SAAR value does and does not mean (e.g., an SAAR >1 does not always mean that antibiotic use is inappropriate).



## FAQ 3: (cont.)

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Helpful Resource	Resource
CDC NHSN Antimicrobial Use and Resistance Module resources: training slides, protocol, etc.	<a href="http://www.cdc.gov/nhsn/acute-care-hospital/aur/index.html">www.cdc.gov/nhsn/acute-care-hospital/aur/index.html</a>
	<a href="https://www.cdc.gov/nhsn/pdfs/ps-analysis-resources/aur/au-qrg-saartables.pdf">https://www.cdc.gov/nhsn/pdfs/ps-analysis-resources/aur/au-qrg-saartables.pdf</a>
	<a href="https://www.ncbi.nlm.nih.gov/pubmed/28473007">https://www.ncbi.nlm.nih.gov/pubmed/28473007</a> (brief article describing use of SAAR to monitor impact of ASP activities)



## FAQ 4: How can we implement processes to review antibiotics prescribed after 24-72 hours?

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### Core ASP team interventions

- Case reviews at 24-72 hours
  - Drugs initially approved by ASP for empiric use
  - Patients with common infectious syndromes (e.g., CAP, UTI)
  - Electronic reports of antibiotic orders >24-72 hours in duration
  - Surveillance software



## FAQ 4: (cont.)

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Take advantage of other available resources:

- Prescribers, clinical pharmacists, bedside nurses
  - Antibiotic “time-outs”
- Electronic medical record
  - Electronic reminders
  - Clinical decision support
  - Stop orders



## FAQ 5: How can we implement processes to review antibiotics prescribed after 24-72 hours? (Cont.)

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### Helpful Resources:

Strategy	Resource
Antibiotic “time-outs”	<a href="http://annals.org/aim/article/1935743/antibiotic-self-stewardship-trainee-led-structured-antibiotic-time-outs-improve">http://annals.org/aim/article/1935743/antibiotic-self-stewardship-trainee-led-structured-antibiotic-time-outs-improve</a> <a href="https://www.ncbi.nlm.nih.gov/pubmed/27621509">https://www.ncbi.nlm.nih.gov/pubmed/27621509</a> <a href="https://med.stanford.edu/cme/courses/online/optimizing-antimicrobial-therapy.html">https://med.stanford.edu/cme/courses/online/optimizing-antimicrobial-therapy.html</a>
ASP implementation guidelines (IDSA and SHEA)	<a href="http://www.idsociety.org/Antimicrobial_Agents/">http://www.idsociety.org/Antimicrobial_Agents/</a>



## FAQ 6: Do you have a sample protocol for IV to PO Conversion?

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Resource	
Sample Protocols	Stanford Medicine-Inclusion/Exclusion Criteria <a href="http://med.stanford.edu/bugsanddrugs/guidebook.html">http://med.stanford.edu/bugsanddrugs/guidebook.html</a>
	SHEA (Guidelines and Worksheet)- <a href="https://www.shea-online.org/index.php/practice-resources/priority-topics/antimicrobial-stewardship/implementation-tools-resources">https://www.shea-online.org/index.php/practice-resources/priority-topics/antimicrobial-stewardship/implementation-tools-resources</a>
	New York Presbyterian Hospital- Criteria <a href="http://www.cumc.columbia.edu/dept/id/documents/IVtoPOPoliUpdate5-4-11.pdf">http://www.cumc.columbia.edu/dept/id/documents/IVtoPOPoliUpdate5-4-11.pdf</a>
	University of Rhode Island-Candidates and Contraindications <a href="http://web.uri.edu/pharmacy/files/2016-2017-CLEAN-Guide_Complete.pdf">http://web.uri.edu/pharmacy/files/2016-2017-CLEAN-Guide_Complete.pdf</a>

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## FAQ 6: What information should we be providing to patients and families on antimicrobials? Do you have any examples of materials that hospitals are using?

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- Antibiotic Stewardship Patient Education Topics-  
CDC Get Smart
  - Resistance
  - C-Difficile
  - MRSA
  - How to Dispose of Medications
  - Infection specific information



## FAQ 6: (cont.)

Useful Resources	
Sample Patient Education Material	University of Rochester- Urinary Tract Infection <a href="https://www.urmc.rochester.edu/encyclopedia/content.aspx?contenttypeid=85&amp;contentid=P01497">https://www.urmc.rochester.edu/encyclopedia/content.aspx?contenttypeid=85&amp;contentid=P01497</a>
	CDC Staying Safe in the Hospital- <a href="https://www.cdc.gov/drugresistance/protecting_yourself_family.html">https://www.cdc.gov/drugresistance/protecting_yourself_family.html</a>
	C-Difficile- Peggy Lillis Foundation <a href="http://peggyfoundation.org/c-diff-101/cdiff-101/">http://peggyfoundation.org/c-diff-101/cdiff-101/</a>
	CDC Resistance- <a href="https://www.cdc.gov/getsmart/community/about/antibiotic-resistance-faqs.html">https://www.cdc.gov/getsmart/community/about/antibiotic-resistance-faqs.html</a>



## FAQ 6: (cont.)

Useful Resources	
Sample Patient Education Material	FDA- Drug Disposal- <a href="https://www.fda.gov/forconsumers/consumerupdates/ucm101653.htm">https://www.fda.gov/forconsumers/consumerupdates/ucm101653.htm</a>
	University of Pittsburgh Medical Center- MRSA Patient Education- <a href="http://www.upmc.com/patients-visitors/education/infection-control/Pages/mrsa.aspx">http://www.upmc.com/patients-visitors/education/infection-control/Pages/mrsa.aspx</a>
	CDC MRSA Information for Patients- <a href="https://www.cdc.gov/mrsa/healthcare/patient/index.html">https://www.cdc.gov/mrsa/healthcare/patient/index.html</a>



## Other Useful Resources

Resource description:	Resource
Clinician Guide for Collecting Cultures	<a href="https://www.cdc.gov/getsmart/healthcare/implementation/clinicianguide.html">https://www.cdc.gov/getsmart/healthcare/implementation/clinicianguide.html</a>
The Sanford Guide to Antimicrobial Therapy 2016	<a href="http://www.sanfordguide.com/">http://www.sanfordguide.com/</a>
The critical role of the staff nurse in antimicrobial stewardship	<a href="https://academic.oup.com/cid/article/62/1/84/2462624/The-Critical-Role-of-the-Staff-Nurse-in">https://academic.oup.com/cid/article/62/1/84/2462624/The-Critical-Role-of-the-Staff-Nurse-in</a>
Step-by-step approach for development and implementation of hospital antibiotic policy and standard treatment guidelines	<a href="http://apps.who.int/medicinedocs/documents/s19184en/s19184en.pdf">http://apps.who.int/medicinedocs/documents/s19184en/s19184en.pdf</a>



## Other Useful Resources

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Resource description:	Resource
Society for Hospital Medicine Guide to Antibiotic Stewardship	<a href="https://www.hospitalmedicine.org/Web/Clinical_Topics/antimicro_steward.aspx">https://www.hospitalmedicine.org/Web/Clinical_Topics/antimicro_steward.aspx</a>
Management of Adults With Hospital-acquired and Ventilator-associated Pneumonia 2016	<a href="https://www.thoracic.org/statements/resources/tb-opi/hap-vap-guidelines-2016.pdf">https://www.thoracic.org/statements/resources/tb-opi/hap-vap-guidelines-2016.pdf</a>



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# Questions and Hospital Discussion

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# Next Steps

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- Save the Date:
    - NSYPFP ASP July Coaching Call
    - Wednesday, July 19, 3:00 – 3:30 p.m.
  - Watch for NYS Partnership for Patients announcements and upcoming events in your inbox
    - Hospitals participating in the RCIP will receive information on the monthly coaching call for July and August
    - Alert your NYSPFP PM if you would like to/continue to receive information on the coaching call
  - Work with PM to complete the gap analysis and action plan if not completed, and review additional tools available on the NYSPFP website
-