



JumpStart Stewardship



Implementing Antibiotic Stewardship in
Nursing Homes



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Jumping In!

Welcome, and congratulations on taking the first step on your journey to establish an antibiotic stewardship program (ASP) in your long-term care facility.

Antibiotic stewardship—a commitment to optimize antibiotic use to improve residents' health outcomes and save resources—is a key component of quality and safety improvement. US Centers for Disease Control and Prevention (CDC), the Agency for Healthcare Quality and Research, and the Washington and Idaho State Departments of Health recommend that all long-term care facilities establish and maintain an antibiotic stewardship program (ASP) to improve prescribing, reduce and prevent antibiotic resistant organisms and *Clostridium difficile* infections, promote better outcomes for residents, and save healthcare dollars. Antibiotic stewardship is so important that the Center for Medicare and Medicaid Services (CMS) mandates that all long-term care facilities implement an ASP by November 28, 2017. Stewardship requires leadership support, adequate resources, and a road map for getting started.

The purpose of this workbook is to provide nursing homes with guidance and tools to create a framework and strategic plan for implementing a feasible, right-size stewardship program tailored to their own unique characteristics.

Assessing Current State

To understand which of the stewardship strategies will work best for your antibiotic stewardship program (ASP), perform an assessment of your nursing home's current state of readiness. A current state assessment allows you to evaluate the present activities, resources, and structures of your facility to enable development or enhancement of an ASP. This analysis should be performed in the planning stages of an ASP—prior to its implementation—and periodically thereafter to determine if you have made progress. The main goals of this review are to identify the activities already underway within your facility, assess the available resources, and to understand the use of antibiotics and the scope or volume of antibiotic resistance in your facility (Joint Commission Resources, 2012). An additional goal of the assessment is to identify variations in practices and areas where standardization (such as in prescribing habits) may be beneficial as potential interventions of your ASP.

The following current state assessment is adapted for nursing homes from multiple well-recognized sources including the CDC's *Core Elements of Stewardship for Nursing Homes*, The Joint Commission Resources *Antibiotic Stewardship Toolkit*, and the Agency for Healthcare Research and Quality *Nursing Home Antimicrobial Stewardship Guide*. For best results, work with multiple knowledgeable people in your facility to determine the best answers to the questions (CDC, 2014).

Please note, if you are unable to obtain information for the current state assessment in the exact form requested, do your best to obtain a similar estimate. For example, if you are unable to obtain a rate of *Clostridium difficile* infections for a 12 month period, consider tracking the monthly rate over several months. If you do not have access to a pharmacy record system to review antibiotic orders, consider performing a chart review of 10-20 cases of urinary tract infections for each prescriber to estimate the most common antibiotics, and identify variation in prescribing. The goal is to get an idea of areas that could benefit from a closer look, or as a focus for a stewardship intervention.

Current State Assessment

To help you identify potential areas of focus for your antibiotic stewardship program, please assess your facility’s current state using this questionnaire.

FACILITY PROFILE

Last Calendar Year or Last 12 months	Number
Licensed Beds	
Admissions	
Resident days	
Average daily census	
Number of unique prescribers	
Clinical pharmacists (hours per month)	
	Average Daily Census
Residents with indwelling urinary catheters	
Residents with tracheostomy	
Residents with tracheostomy on ventilator	
Residents with pressure Injury <ul style="list-style-type: none"> • Stage 1-2 • Stage 3-4 Unable to determine	
Pressure Injuries <ul style="list-style-type: none"> • Stage 1-2 • Stage 3-4 Unable to determine	

MULTI-DRUG RESISTANT ORGANISMS (MDROs)

Last Calendar Year or Last 12 months	Number	Rate
<i>Clostridium difficile</i>		
Number of facility-onset <i>C. difficile</i> infections		
Number of community-onset <i>C. difficile</i> infections		
<i>Methicillin-Resistant Staphylococcus aureus (MRSA)</i>		
Number of non-duplicate MRSA isolates		
<i>Vancomycin-Resistant Enterococcus (VRE)</i>		
Number of non-duplicate VRE isolates		
<i>Multidrug-Resistant Gram-Negative Bacteria</i>		
Number of non-duplicate ESBL <i>Klebsiella</i> species isolates		
Number of non-duplicate ESBL <i>Escherichia coli</i>		
Number of non-duplicate ESBL <i>Pseudomonas aeruginosa</i> isolates		
Number of non-duplicate ESBL <i>Acinetobacter baumannii</i> isolates		
Number of non-duplicate ESBL <i>Proteus mirabilis</i> isolates		

Last Calendar Year or Last 12 months	Number	Rate
Multidrug-Resistant Gram-Negative Bacteria (continued)		
Number of non-duplicate carbapenem-resistant Enterobacteriaceae isolates		
Number of non-duplicate carbapenem-resistant <i>Pseudomonas aeruginosa</i> isolates		
Number of non-duplicate carbapenem-resistant <i>Acinetobacter baumannii</i> isolates		
Other MDROs of Concern		
(Write in name)		

CORE ELEMENTS OF ANTIBIOTIC STEWARDSHIP

LEADERSHIP SUPPORT		
<p>1. Can your facility demonstrate leadership support for antibiotic stewardship through one or more of the actions listed at right?</p>	<p><input type="checkbox"/> YES</p> <p><input type="checkbox"/> NO</p>	<p>If yes, indicate which actions (select all that apply)</p> <p><input type="checkbox"/> Written statement of leadership support to improve antibiotic use</p> <p><input type="checkbox"/> Antibiotic stewardship duties included in Medical Director position description</p> <p><input type="checkbox"/> Antibiotic stewardship duties included in Director of Nursing position description</p> <p><input type="checkbox"/> Leadership monitors whether antibiotic stewardship policies are followed</p> <p><input type="checkbox"/> Antibiotic use and resistance data are reviewed in quality/performance improvement meetings</p>
ACCOUNTABILITY		
<p>2. Has your facility identified one or more leaders for antibiotic stewardship activities?</p>	<p><input type="checkbox"/> YES</p> <p><input type="checkbox"/> NO</p>	<p>If yes, indicate who is accountable for stewardship activities (select all that apply)</p> <p><input type="checkbox"/> Medical Director</p> <p><input type="checkbox"/> Director or Assistant Director of Nursing Services</p> <p><input type="checkbox"/> Consultant pharmacist</p> <p><input type="checkbox"/> Infection Prevention and Control Officer / Infection Preventionist</p> <p><input type="checkbox"/> Quality Improvement Officer</p> <p><input type="checkbox"/> Staff Development Coordinator</p> <p><input type="checkbox"/> Other: _____</p>
DRUG EXPERTISE		
<p>3. Does your facility have access to individual(s) with antibiotic stewardship expertise?</p>	<p><input type="checkbox"/> YES</p> <p><input type="checkbox"/> NO</p>	<p>If yes, indicate who is accountable for stewardship activities (select all that apply)</p> <p><input type="checkbox"/> Consultant pharmacist</p> <p><input type="checkbox"/> Stewardship team at local hospital</p> <p><input type="checkbox"/> Infectious disease/stewardship consultant</p> <p><input type="checkbox"/> Medical Director</p> <p><input type="checkbox"/> Corporate support/nurse consultant</p> <p><input type="checkbox"/> Other: _____</p>

ACTIONS TO IMPROVE ANTIBIOTIC USE		
<p>4. Does your facility have policies to improve antibiotic prescribing/use ?</p>	<p><input type="checkbox"/> YES</p> <p><input type="checkbox"/> NO</p>	<p>If yes, indicate which policies are in place (select all that apply)</p> <ul style="list-style-type: none"> <input type="checkbox"/> Requirement for prescribers to document a dose, duration, and indication for all antibiotic prescriptions <input type="checkbox"/> Facility approved-algorithm for assessing residents <input type="checkbox"/> Facility-approved algorithms for appropriate diagnostic testing (e.g., obtaining cultures) for specific infections <input type="checkbox"/> Facility-specific treatment recommendations or order sets for one or more infectious syndrome <input type="checkbox"/> Antibiotic use limited to agents listed on the medication formulary <input type="checkbox"/> Pre-approval required for certain antibiotics <input type="checkbox"/> Other: _____
<p>5. Has your facility implemented practices to improve antibiotic use?</p>	<p><input type="checkbox"/> YES</p> <p><input type="checkbox"/> NO</p>	<p>If yes, indicate which practices are in place (select all that apply)</p> <ul style="list-style-type: none"> <input type="checkbox"/> Facility-approved algorithms or decision support tools are routinely used to assess residents suspected of having an infection (e.g., AHRQ UTI SBAR tool) <input type="checkbox"/> Delirium assessment tool is routinely used for residents to aid in differentiating infectious from non-infectious causes of delirium <input type="checkbox"/> Staff routinely communicate antibiotic use, infection and colonization status when residents are transferred to/from other healthcare facilities <input type="checkbox"/> Staff routinely use a local or facility-specific antibiogram to guide selection of an antibiotic treatment <input type="checkbox"/> Staff routinely review antibiotic orders in conjunction with culture results and an updated assessment of clinical symptoms within 72 hours of starting antibiotics (“antibiotic timeout”) in order to determine whether de-escalation or stopping therapy is indicated <input type="checkbox"/> Staff routinely document clinical assessment with all antibiotic starts <input type="checkbox"/> Staff routinely document whether residents with suspected UTI have signs and symptoms that meet the updated McGeer surveillance definition for UTI <input type="checkbox"/> Staff routinely use antibiotic order sets for common infectious syndromes to improve antibiotic use Indicate for which condition(s): _____ <input type="checkbox"/> Other: _____

ACTIONS TO IMPROVE ANTIBIOTIC USE (continued)		
<p>6. Does your consultant pharmacist support antibiotic stewardship activities?</p>	<p><input type="checkbox"/> YES</p> <p><input type="checkbox"/> NO</p>	<p>If yes, indicate activities performed by the consultant pharmacist (select all that apply)</p> <ul style="list-style-type: none"> <input type="checkbox"/> Reviews antibiotic courses for appropriateness of administration and/or indication <input type="checkbox"/> Establishes standards for clinical/laboratory monitoring for adverse drug events from antibiotic use <input type="checkbox"/> Reviews microbiology culture data to assess and guide antibiotic selection <p>If yes, how often do pharmacy consults occur?</p> <ul style="list-style-type: none"> <input type="checkbox"/> Monthly <input type="checkbox"/> Weekly <input type="checkbox"/> On antibiotic order <input type="checkbox"/> Other: _____
TRACKING: MONITORING ANTIBIOTIC PRESCRIBING, USE, AND RESISTANCE		
<p>7. Does your facility monitor one or more measures of antibiotic use?</p>	<p><input type="checkbox"/> YES</p> <p><input type="checkbox"/> NO</p>	<p>If yes, indicate which of the following are being tracked (select all that apply)</p> <ul style="list-style-type: none"> <input type="checkbox"/> Adherence to clinical assessment documentation (signs/symptoms, vital signs, physical exam findings) <input type="checkbox"/> Adherence to prescribing documentation (dose, duration, indication) <input type="checkbox"/> Adherence to facility-specific treatment recommendations <input type="checkbox"/> Regular point-prevalence surveys of antibiotic use <input type="checkbox"/> Number new antibiotic starts per 1,000 resident-days <input type="checkbox"/> Number antibiotic days of therapy per 1,000 resident-days (all antibiotic or by select antibiotic class) <input type="checkbox"/> Other: _____
<p>8. Does your facility monitor one or more outcomes of antibiotic use?</p>	<p><input type="checkbox"/> YES</p> <p><input type="checkbox"/> NO</p>	<p>If yes, indicate which of the following are being tracked (select all that apply)</p> <ul style="list-style-type: none"> <input type="checkbox"/> Monitors rates of <i>C. difficile</i> infection <input type="checkbox"/> Monitors rates of antibiotic-resistant organisms <input type="checkbox"/> Monitors rates of adverse drug events due to antibiotics <input type="checkbox"/> Other: _____

REPORTING TO STAFF ON IMPROVING ANTIBIOTIC USE AND RESISTANCE		
<p>9. Does your facility provide facility-specific reports on antibiotic use and outcomes to clinical providers and nursing staff?</p>	<p><input type="checkbox"/> YES</p> <p><input type="checkbox"/> NO</p>	<p>If yes, indicate which of the following are being tracked (select all that apply)</p> <ul style="list-style-type: none"> <input type="checkbox"/> Measures of antibiotic use at the facility <input type="checkbox"/> Measures of outcomes related to antibiotic use (i.e., <i>C. difficile</i> rates) <input type="checkbox"/> Report of facility antibiotic susceptibility patterns (within last 18 months) <input type="checkbox"/> Personalized feedback on antibiotic prescribing practices (to clinical providers) <input type="checkbox"/> Monitor documentation of clinical assessments <input type="checkbox"/> Other: _____
EDUCATION		
<p>10. Does your facility provide educational resources and materials about antibiotic resistance and opportunity for improving antibiotic use?</p>	<p><input type="checkbox"/> YES</p> <p><input type="checkbox"/> NO</p>	<ul style="list-style-type: none"> <input type="checkbox"/> If yes, indicate which groups receive these resources (select all that apply). Clinical providers (e.g., MDs, NPs, PAs, PharmDs) <input type="checkbox"/> Nursing staff (e.g., RNs, LPNs, CNAs) <input type="checkbox"/> Residents and families <input type="checkbox"/> Other: _____ <p>If yes, how often does your facility provide education on antibiotic stewardship? (select all that apply)</p> <ul style="list-style-type: none"> <input type="checkbox"/> At hire <input type="checkbox"/> Annually <input type="checkbox"/> Quarterly <input type="checkbox"/> Monthly <input type="checkbox"/> As Needed

This questionnaire was adapted from the CDC's *Core Elements of Antibiotic Stewardship Programs in Nursing Homes (2015)*

INFECTIOUS CLINICAL SYNDROME PROFILE

Please complete the following table for the three to five *most-often* diagnosed infectious clinical syndromes in your facility in the last year.

		Antibiotic Regimen Most Often Prescribed for the Infectious Syndrome		
Infectious Syndrome	Number of Cases	Antibiotic 1	Antibiotic 2	Antibiotic 3
		Drug: Dose: Route: Frequency: Duration:	Drug: Dose: Route: Frequency: Duration:	Drug: Dose: Route: Frequency: Duration:
		Drug: Dose: Route: Frequency: Duration:	Drug: Dose: Route: Frequency: Duration:	Drug: Dose: Route: Frequency: Duration:
		Drug: Dose: Route: Frequency: Duration:	Drug: Dose: Route: Frequency: Duration:	Drug: Dose: Route: Frequency: Duration:
		Drug: Dose: Route: Frequency: Duration:	Drug: Dose: Route: Frequency: Duration:	Drug: Dose: Route: Frequency: Duration:
		Drug: Dose: Route: Frequency: Duration:	Drug: Dose: Route: Frequency: Duration:	Drug: Dose: Route: Frequency: Duration:

ANTIBIOTIC-USE PROFILE

Please complete the tables below for the *most-often* prescribed intravenous and oral antibiotics in your facility.

IV Antibiotic	Utilization Last Calendar Year (grams)	Cost of Utilization Last Calendar Year	Notes

PO Antibiotic	Utilization Last Calendar Year (grams)	Cost of Utilization Last Calendar Year	Notes

Identifying Key Stakeholders

Stakeholders are a people or groups of people who can affect or be affected by the antibiotic stewardship program (ASP).

Identify stakeholders by starting with the individuals who will provide the resources to support the ASP, such as the operations team and finance staff. It is important for ASP teams to be aware of the expectations of stakeholders. Residents should also be considered as key stakeholders as they stand to gain the most from improved antibiotic use (Joint Commission Resources, 2012).

Key stakeholders are individuals who have a vested interest in an ASP, whether they stand to benefit from the program, participate in the program, or provide funding for the program, and who must be actively engaged for the program to be successful. ASP stakeholders typically include physicians, residents and their families, facility leaders, and pharmacists. (Joint Commission Resources, 2012).

To help identify **key** stakeholders, consider the following questions:

- *Does the stakeholder have a fundamental impact on your program's successful performance?*
- *Can you clearly identify what you want from the stakeholder?*
- *Can the program meet its goals without the stakeholder's support?*

Once you have identified the key stakeholders in your program, consider how best to strategically engage those stakeholders for support and success.

Stakeholder Identification Worksheet

ALL STAKEHOLDER IDENTIFICATION	Who? <i>(Name or Role)</i>	How?	When? <i>(Planning, Implementation, Ongoing, Evaluation)</i>
<p>Who is or may be affected by the program?</p>	<ol style="list-style-type: none"> 1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 	<ol style="list-style-type: none"> 1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 	<ol style="list-style-type: none"> 1. 2. 3. 4. 5. 6. 7. 8. 9. 10.
<p>Who is involved in the program's operations?</p>	<ol style="list-style-type: none"> 1. 2. 3. 4. 5. 	<ol style="list-style-type: none"> 1. 2. 3. 4. 5. 	<ol style="list-style-type: none"> 1. 2. 3. 4. 5.
<p>Who will benefit from the program?</p>	<ol style="list-style-type: none"> 1. 2. 3. 4. 5. 	<ol style="list-style-type: none"> 1. 2. 3. 4. 5. 	<ol style="list-style-type: none"> 1. 2. 3. 4. 5.

KEY STAKEHOLDER IDENTIFICATION: Which of the identified stakeholders above do we need to engage in the following efforts?				
Increase Credibility of the Program	Implement Key Program Interventions	Advocate for Organizational Changes to Embed the Program in Culture	Fund or Authorize Implementation, Continuation, or Expansion of the Program	Other Needs
KEY STAKEHOLDER ENGAGEMENT (“What’s in it for them?”)				
	List the key stakeholders identified above	What activities or outcomes of the program matter most to this stakeholder	How can we address this stakeholder's needs?	
1.				
2.				
3.				
4.				
5.				

Building Your Stewardship Team and Resources

For your ASP team to be successful and efficient, plan thoughtfully and specifically for your facility's individual personnel, resources, and other strengths. Depending on the size of the nursing home, the team may be small (two to three members) or large (five or six members).

The ASP team should be led by a knowledgeable and respected facility leader who has a foundational understanding of antibiotics and stewardship and enjoys providing education and guidance. The team should include, at a minimum, several individuals with different responsibilities in the nursing home such as medical director, charge nurse, director or assistant director of nursing, or infection preventionist. Consider including an information technology staff member (if your facility uses electronic health records), and outside consultants such as consultant pharmacist, prescribing clinician, or resident/family representative. Because stewardship is considered a safety and quality of care issue, the medical director may be the most appropriate person to set goals, monitor the effectiveness of interventions, and serve as liaison to the facility's medical staff and prescribers. The facility's infection preventionist, may perform the day-to-day data collection and review of infection data. The pharmacist may be able to monitor antibiotic use, and make recommendations for treatment based on nationally-recognized guidelines. The nurse leader may coordinate education for licensed and unlicensed nursing staff, set expectations for behavior and actions consistent with the ASP's goals, and help residents and families understand the ASP and its potential impact on the care provided in the facility.

The support and collaboration of facility administration, medical staff, local providers, and families and residents are also essential. It is almost impossible to sustain an ASP without a commitment from facility leadership indicating their support for the program and for monitoring antibiotic use. To be successful, stewardship duties should be included in the ASP team members' job descriptions and annual performance reviews. The facility should also support and provide annual stewardship education to the healthcare staff.

Team Identification Worksheet

Potential Team Member	What will be this person's role in ASP?	What are the anticipated ASP activities this person will be accountable for?	How many hours per week are anticipated for ASP activities for this person?	What needs of this person have to be met for him/her to serve effectively as a team member?
Physician				
Clinical pharmacist				
Nurse leader				
Infection preventionist				
Clinical microbiologist				
Staff representative				
Prescribing provider				
Staff development				
Other				
Other				

Committee Oversight

A key requirement for ASP success is regular and timely reporting of activities and progress towards goals. In the space below, sketch out the basic reporting structure that currently exists in your long-term care facility. Within the current structure, **is there a committee that can serve as the ASP oversight team, for example, the Quality Committee, or the Pharmacy and Therapeutics Committee?** If not, do you need to create a new committee specifically for ASP oversight? If so, how would the new committee report to the corporate leadership or governing board of your long-term care facility?

- Consider the following:
- Committee Name
 - Meeting Frequency
 - General Purpose
 - Constituency

Corporate Leadership or
Governing Board

Jump Start Stewardship

Building the Team

Committee Oversight

(Intentionally blank to allow you to sketch your facility's own committee reporting structure.)

Resource Needs Assessment

In addition to outlining the operational team members and reporting structure, consider other functional needs of your ASP as you get started in your first year of activities.

Resource	Needed	Frequency of Need	Description of Need	Potential Solutions	Estimated Cost
Education of team members	<input type="checkbox"/> YES <input type="checkbox"/> NO	<input type="checkbox"/> Once <input type="checkbox"/> Ongoing: _____ <small>(monthly, annually)</small>			
Office space for team	<input type="checkbox"/> YES <input type="checkbox"/> NO	<input type="checkbox"/> Once <input type="checkbox"/> Ongoing: _____ <small>(monthly, annually)</small>			
Information technology for ASP	<input type="checkbox"/> YES <input type="checkbox"/> NO	<input type="checkbox"/> Once <input type="checkbox"/> Ongoing: _____ <small>(monthly, annually)</small>			
Non-clinical time for team meetings	<input type="checkbox"/> YES <input type="checkbox"/> NO	<input type="checkbox"/> Once <input type="checkbox"/> Ongoing: _____ <small>(monthly, annually)</small>			
Printing/copying	<input type="checkbox"/> YES <input type="checkbox"/> NO	<input type="checkbox"/> Once <input type="checkbox"/> Ongoing: _____ <small>(monthly, annually)</small>			
Supplies	<input type="checkbox"/> YES <input type="checkbox"/> NO	<input type="checkbox"/> Once <input type="checkbox"/> Ongoing: _____ <small>(monthly, annually)</small>			
Graphic design/branding	<input type="checkbox"/> YES <input type="checkbox"/> NO	<input type="checkbox"/> Once <input type="checkbox"/> Ongoing: _____ <small>(monthly, annually)</small>			
	<input type="checkbox"/> YES <input type="checkbox"/> NO	<input type="checkbox"/> Once <input type="checkbox"/> Ongoing: _____ <small>(monthly, annually)</small>			
	<input type="checkbox"/> YES <input type="checkbox"/> NO	<input type="checkbox"/> Once <input type="checkbox"/> Ongoing: _____ <small>(monthly, annually)</small>			
	<input type="checkbox"/> YES <input type="checkbox"/> NO	<input type="checkbox"/> Once <input type="checkbox"/> Ongoing: _____ <small>(monthly, annually)</small>			

Selecting Interventions and Targets for Implementation

There are many effective strategies and tactics a long-term care facility may employ to improve antibiotic stewardship. Based on your current state assessment, select targets and interventions that are most appropriate to your individual facility and resident population.

Additionally, the following key factors should be considered when selecting antibiotic stewardship program (ASP) interventions: (Joint Commission Resources, 2012)

Impact

An ASP should focus its efforts on initiatives that make a significant positive impact on the quality, safety, and/or cost of resident care. The clinical and economic impacts are sometimes evaluated separately because some interventions may have a huge clinical impact but a negligible financial impact (for example, improving timely notification of critical lab reports to clinical providers) while others may have a significant financial impact but minimal clinical impact.

Political expediency

Long-term care facilities are political organizations, so individuals must be aware of the ramifications of certain decisions. For example, it is probably not wise for an ASP team to select a project that alienates the medical staff. Teams instead should look for win-win initiatives—those that achieve the goals of the ASP as well as the goals of others who are involved in resident care.

Resources required

An ASP should choose initiatives that are consistent with the resources at their disposal. If a lack of resources is the main deterrent to the implementation of many important initiatives, the ASP should use this fact to try to obtain the necessary resources, or select a goal that doesn't have large resource needs.

Ease of implementation

Some initiatives are easier to implement than others, regardless of the facility. An ASP should consider whether the potential benefits of the initiative are worth the effort. Some programs may need to start out small and expand as resources and acceptance increase.

Drivers of Optimal Antibiotic Use

The Institute for Healthcare Improvement (IHI) and U.S. Centers for Disease Control and Prevention suggest that the following framework may be used to identify one or more interventions to produce optimal, judicious antibiotic use. Over time, adding activities, interventions and actions addressing a variety of drivers will make your ASP more robust and effective. A “driver” is a leverage point for quality improvement; primary and secondary drivers are key steps or elements that will contribute to achieving the desired goal.

PRIMARY DRIVERS	SECONDARY DRIVERS	KEY CHANGE CONCEPTS
Leadership and Culture Change	Promote a culture of optimal antibiotic use within the facility	Engage administrative and clinical leadership to champion stewardship effort
Timely and Appropriate Initiation of Antibiotics	Promptly identify residents who require antibiotics	Develop a standardized process to identify residents who require antibiotics
	Obtain cultures prior to starting antibiotics	Create standardized protocols for ordering and obtaining cultures and other diagnostic tests prior to initiating antibiotics
	Do not give antibiotics with overlapping activity or combinations not supported by evidence or guidelines	Develop a way to inform clinicians about unnecessary combinations of antibiotics, including “double coverage”
	Determine allergies and tailor therapy accordingly	Choose antibiotic based on resident allergies
	Verify and document antibiotic allergies	Implement protocol for evaluating claim of antibiotic allergy
	Consider local antibiotic susceptibility patterns in selecting therapy	Develop a standardized process for antibiotic selection
	Start antibiotic treatment promptly	Develop processes that support prompt treatment of residents requiring antibiotics & ensure antibiotics are readily available
	Specify expected duration of therapy based on evidence and national and long-term care facility guidelines	Incorporate evidence-based guidelines for duration of antibiotics into standard protocols and/or computerized decision support
Appropriate Administration and De-escalation of Therapy	Make antibiotic therapy and start dates visible at point of care and in electronic health records, as applicable	Ensure a clear history of resident antibiotic use is obtained and available to all caregivers, including at transitions of care
	Administer antibiotics at the right dose, interval, and duration	Use order sets for common infectious syndromes

PRIMARY DRIVERS	SECONDARY DRIVERS	KEY CHANGE CONCEPTS
<p>Appropriate Administration and De-escalation of Therapy (continued)</p>	<p>Stop or de-escalate therapy promptly based on the culture and sensitivity results</p>	<p>Establish process for prompt notification of culture and antibiotic susceptibility results</p>
	<p>Reconcile and adjust antibiotics, as appropriate, at all transitions of care and changes in resident's condition</p>	<p>Look for all opportunities to stop or change (de-escalate or broaden) antibiotic therapy when resident's condition changes and/or when changing levels of care</p>
	<p>Monitor for toxicity reliably and adjust agent and dose promptly</p>	<p>Ensure appropriate monitoring and adjustment of agent</p>
<p>Data Monitoring, Transparency, and Stewardship</p>	<p>Monitor and report data on antibiotic use, antibiotic resistance, adverse drug events, <i>C. difficile</i> infections, costs, and adherence to the organization's recommended practices for culturing and prescribing</p>	<p>Establish retrospective or real-time monitoring and reporting systems & report data in ASP and performance improvement meetings</p>
	<p>Develop and make available expertise in antibiotic use</p>	<p>Cultivate relationships with local experts & develop a process for antibiotic formulary management</p>
	<p>Ensure pharmacy expertise is available to clinicians at the point of care</p>	<p>Create processes to ensure availability of pharmacy expertise</p>

ASP Interventions for Consideration

Consider which of the interventions might be right for your facility or ways you might modify or adapt one or more of the interventions to better fit your facility’s needs.

STRATEGY	INTERVENTION	NOTES
<p>Implement antibiotic prescribing and use policies</p>	<p>Require documentation of dose, duration, and indication of antibiotics</p>	<ul style="list-style-type: none"> • Use documentation to ensure that antibiotics can be modified as needed based on additional laboratory and clinical data and/or discontinued in a timely manner. • Specify the dose, route, duration, and indication, which includes both rationale (i.e., prophylaxis vs. therapeutic) and treatment site (i.e., urinary tract, respiratory tract), for every course of antibiotics. • Document prescribing elements for nursing home-initiated antibiotic courses as well as courses continued in the nursing home which were initiated by a transferring facility or emergency department.
	<p>Establish best practices for use of microbiology testing</p>	<ul style="list-style-type: none"> • Inappropriate use of microbiology tests in nursing homes may drive unnecessary antibiotic treatment, for example, urinalysis and culture in persons without signs localizing to the urinary tract, or “test of cure” for <i>C. difficile</i>. • Review current protocols and laboratory testing practices to ensure that laboratory tests are evidence-based and used correctly in your facility. • Consider using “General Guidelines for Urine Testing” from University of North Carolina at Chapel Hill, Infection Management and Antibiotic Stewardship available at https://nursinghomeinfections.unc.edu/files/2016/03/GeneralGuidelinesForUrineTesting.pdf

STRATEGY	INTERVENTION	NOTES
<p>Implement antibiotic prescribing and use policies (continued)</p>	<p>Optimize use of cultures for management of chronic wounds</p>	<ul style="list-style-type: none"> • Superficial wound swabs cannot differentiate bacterial colonization from infection and there may be a lack of correlation between organisms identified by superficial swab cultures compared with deep tissue cultures. • Review the indications for obtaining cultures in residents with chronic wounds (e.g., presence of purulent drainage) and assess the type of specimen submitted for culture (e.g., superficial swab vs. tissue specimen from debrided wound base) to identify opportunities for improving antibiotic use in residents with chronic wounds. • Review educational modules on assessment, communication and testing of skin wounds to determine need for antibiotics. SBAR tool for SSTI available at: https://www.ahrq.gov/sites/default/files/wysiwyg/nhguide/4_TK3_T2c-SBAR_SST_Final.pdf <p>Educational module for Nurses from University of North Carolina at Chapel Hill, Infection Management and Antibiotic Stewardship, Common Skin Dilemmas available at https://nursinghomeinfections.unc.edu/nurses/continuing-education/</p>
	<p>Develop facility-specific treatment recommendations</p>	<ul style="list-style-type: none"> • Facility-approved treatment recommendations, based on national guidelines and local susceptibilities, can optimize and standardize antibiotic selection and duration, particularly for common indications for antibiotic use such as pneumonia, urinary tract infection, and skin and soft tissue infections.
	<p>Review the antibiotic agents available in the facility</p>	<ul style="list-style-type: none"> • Review the antibiotic agents available in the facility, including an inventory of drugs accessible during off hours (e.g., emergency kit or overnight box), to ensure availability is not a barrier to use of preferred agents.

STRATEGY	INTERVENTION	NOTES
<p style="text-align: center;">Broad interventions to improve antibiotics</p>	<p>Develop and implement algorithms for the assessment of residents</p>	<ul style="list-style-type: none"> Use evidence-based guidance to assess and document residents suspected of having an infection, for example updated McGeer’s criteria (available in references, see Stone 2012).
	<p>Utilize a communication tool for residents suspected of having an infection</p>	<ul style="list-style-type: none"> Implement structured communication tools to guide nursing-physician interactions, including communication when residents are suspected of having an infection, which may improve the quality of the interaction and the subsequent management process when an infection is suspected. Examples for SBAR (Situation, Background, Assessment, Response) provider communication tools for respiratory, urinary, and skin and soft tissue infections are available at the following links: <ul style="list-style-type: none"> https://www.ahrq.gov/sites/default/files/wysiwyg/nhguide/4_TK1_T1-SBAR_UTI_Final.pdf https://www.ahrq.gov/sites/default/files/wysiwyg/nhguide/4_TK3_T2b-SBAR_LRI_Final.pdf https://www.ahrq.gov/sites/default/files/wysiwyg/nhguide/4_TK3_T2c-SBAR_SST_Final.pdf
	<p>Develop and disseminate a facility-specific report of antibiotic susceptibility to clinical providers.</p>	<ul style="list-style-type: none"> Work with consultant laboratory to create an antibiogram (a facility-specific summary of antibiotic susceptibility patterns from the organisms commonly isolated in microbiology cultures in the nursing home). The antibiogram should be disseminated to front-line nursing staff, clinical providers and consultant pharmacists as an educational tool and used to guide management and treatment decisions.

STRATEGY	INTERVENTION	NOTES
<p>Broad interventions to improve antibiotics (continued)</p>	<p>Perform antibiotic “time outs.”</p>	<ul style="list-style-type: none"> • An antibiotic time-out is a formal process for prompting reassessment of need for and choice of antibiotic as soon as additional data are available. • Clinical team should review antibiotics 48 to 72 hours after antibiotics are initiated to answer these key questions: <ul style="list-style-type: none"> – Does this resident have a bacterial infection that will respond to antibiotics? – If so, is the resident on the most appropriate antibiotic(s), dose, and route of administration? – Can the spectrum of the antibiotic be narrowed or the duration of therapy shortened (i.e., de-escalation)? – Would the resident benefit from additional infectious disease/ antibiotic expertise to ensure optimal treatment of the suspected or confirmed infection? • Implement a nurse-driven process for reevaluation of antibiotic therapy as soon as culture and sensitivity results are available.
	<p>Reduce prolonged antibiotic treatment courses for common infections</p>	<ul style="list-style-type: none"> • Short courses of antibiotics are effective for common infections. (Lutters 2008, Hepburn 2004, El Moussaoui 2006). Interventions to decrease antibiotic duration among nursing home residents may reduce the complications and adverse events associated with antibiotic exposure. • Use order sets for common infectious syndromes based on national guidelines to improve standardization of therapy using shortest effective course.
	<p>Use first line agents when possible by evaluating allergy claims</p>	<ul style="list-style-type: none"> • Evaluate resident claims of allergy and consider skin testing to improve antibiotic options. See CDC allergy evaluation guide at the following link: https://www.cdc.gov/getsmart/week/downloads/getsmart-penicillin-factsheet.pdf

STRATEGY	INTERVENTION	NOTES
<p>Pharmacy interventions to improve antibiotic use</p>	<p>Review antibiotic prescriptions</p>	<ul style="list-style-type: none"> • Consultant pharmacists should review dosing and administration data, indication, and justification of use to verify that antibiotics are used in accordance with facility-approved treatment guidelines and are appropriately adjusted for renal function and drug interactions.
	<p>Establish standards for laboratory testing</p>	<ul style="list-style-type: none"> • Monitor for adverse drug events related to use of antibiotics and other high risk medications such as warfarin. Review the CMS Adverse Drug Event Trigger Tool available at: https://www.cms.gov/Medicare/Provider-Enrollment-and-Certification/QAPI/downloads/adverse-drug-event-trigger-tool.pdf
	<p>Review microbiology culture results</p>	<ul style="list-style-type: none"> • Consultant pharmacists can give feedback to prescribing clinicians on initial antibiotic selection and subsequent modifications of therapy once culture results are available based on guidance developed in collaboration with physicians to help optimize antibiotic use.
<p>Systematic interventions to improve antibiotic use</p>	<p>Reduce use in asymptomatic bacteriuria</p>	<ul style="list-style-type: none"> • Antibiotic use for treatment of asymptomatic bacteriuria in nursing home residents does not confer any long-term benefits in preventing symptomatic urinary tract infections (UTI) or improving mortality, and may actually increase the incidence of adverse drug events and result in subsequent infections with antibiotic-resistant pathogens. • Implement a set of diagnostic testing and management algorithms to help providers differentiate asymptomatic bacteriuria from symptomatic UTI to reduce inappropriate antibiotic use for asymptomatic bacteriuria. See SBAR for UTI from AHRQ available at: https://www.ahrq.gov/sites/default/files/wysiwyg/nhguide/4_TK1_T1-SBAR_UTI_Final.pdf <p>Also, see revised McGeer’s criteria. (See Stone 2012 in references.)</p>

STRATEGY	INTERVENTION	NOTES
<p>Systematic interventions to improve antibiotic use (continued)</p>	<p>Reduce antibiotic prophylaxis for prevention of UTI</p>	<ul style="list-style-type: none"> • Very few studies support antibiotic use for UTI prophylaxis, especially in older adults. • Educate providers on the potential harm of antibiotics for UTI prophylaxis in order to achieve a reduction in unnecessary antibiotic exposure.
	<p>Optimize management of nursing home associated pneumonia</p>	<ul style="list-style-type: none"> • Implement algorithms for diagnosis and management of nursing home-associated pneumonia to help guide decision-making about use of antibiotics and need for hospital transfer. (See Carusone 2006, parts I and II, and Loeb 2006 available in references.) <p>See AHRQ SBAR for lower respiratory tract infection available at: https://www.ahrq.gov/sites/default/files/wysiwyg/nhguide/4_TK3_T2b-SBAR_LRI_Final.pdf</p>

These ASP interventions are curated from 1) Centers for Disease Control and Prevention (CDC) Core Elements of Antibiotic Stewardship for Nursing Homes, Appendix A; 2) Agency for Healthcare Research and Quality Nursing Home Antimicrobial Stewardship Guide, and 3) National Quality Forum National Quality Partners Playbook: Antibiotic Stewardship in Acute Care.

Feasibility of ASP Interventions Worksheet

Selection of specific interventions to implement should be tailored to areas (populations, units, infectious syndromes, drugs) with the most opportunity for improvement in your long-term care facility. Consider several potentially-feasible interventions targeted to such areas, then assess which might be the most supported by clinical staff using the worksheet below.

Score each factor on a scale from 0 to 5 relative to conditions specific to **your** long-term care facility. Sum across the rows for the score. Interventions with the highest scores should be considered for selection.

Intervention	Positive Clinical Impact 0 = None 5 = High	Beneficial Financial Impact 0 = None 5 = High	Political Expediency 0 = Impossible 5 = Win/Win	Resource Requirements 0 = Impossible 5 = Easy	Ease of Implementation 0 = Impossible 5 = Easy	Score

Making Your Intervention(s) Specific

Now that you have considered the drivers of stewardship, and identified interventions that may be feasible in your long-term care facility, commit to implementing one or more specific interventions. A “driver” is a leverage point for quality improvement; primary and secondary drivers are key steps or elements that will contribute to achieving the desired goal. (Look back at pages 29-30 for examples of primary and secondary drivers.)

PRIMARY DRIVER	STRATEGY OR SECONDARY DRIVER	INTERVENTION	TARGETED DRUG	TARGETED POPULATION	AIM
<i>Which primary driver will your intervention leverage?</i>	<i>Which strategy or secondary driver will your intervention leverage?</i>	<i>What change will you make?</i>	<i>What drugs or classes of drugs will your intervention apply to?</i>	<i>Which unit, population, infectious syndrome, or other segment will your intervention apply to?</i>	<i>What do you predict will happen if you successfully implement your intervention? (E.g., “30% reduction in urinalyses performed in residents without signs localizing to the urinary tract.”)</i>

Measuring Effectiveness: Data Sources and Key Metrics

Assessing quality improvement depends on accessing and tracking key metrics. To know the impact of a stewardship program, it's necessary to identify in advance what your baseline is and what changes you expect to see. It is also important to understand how thoroughly the intervention was implemented to ascertain whether sub-optimal change is due to an ineffective intervention or because it wasn't adequately enacted. Therefore, when measuring the effectiveness of your ASP, choose both process measures and outcome measures.

Track key metrics to demonstrate progress.

How widely a stewardship intervention is implemented in a facility will help determine how widely the metric data should be tracked. For example, if a stewardship intervention only affects residents in a ventilator unit, then consider monitoring antibiotic use, *C. difficile* and resistance only in the ventilator unit. The goal is to monitor a population that is likely to be affected by the intervention. If you implement a change in one unit, but monitor antibiotic use, *C. difficile* and resistance facility-wide, any observable change from the intervention may be diluted or obscured.

Another important step is to assess how completely your intervention is implemented with process measures. For example, if dose, duration and indication are required for each antibiotic prescription, assess the proportion of orders for which complete documentation is included. Alternatively, if your intervention is using your consulting pharmacist to conduct prospective audit and feedback, you may want to count the number and proportion of antibiotic orders that were audited. If your intervention is not adequately implemented, you may need to devote increased resources to implementation before evaluating outcome metrics such as antibiotic use, *C. difficile*, and resistance.

Remember that seasonal fluctuations may account for some changes over time so observing over a minimum of 1 year may be appropriate and then comparing the same months, or quarters, from year to year.

Report interventions and metrics regularly to the ASP team, and to leadership and appropriate nursing and medical staff at least annually. Adjustments to the ASP plan should be based on what you learn from your metrics.

Antibiotic Stewardship Measures for Consideration in Long-Term Care

The following suggestions are based on the CDC’s Core Elements of Antibiotic Stewardship in Nursing Homes, Appendix B: Measures of Antibiotic Prescribing, Use and Outcomes, available at this link: <http://www.cdc.gov/longtermcare/pdfs/core-elements-antibiotic-stewardship-appendix-b.pdf>. Not all of the measures will apply to your nursing home; they are dependent on the intervention selected by the ASP for implementation.

Process or Outcome Measure	Intervention	Metric	Measure
Process	Improve assessment of allergy	Percent completeness of assessment of allergy	<ul style="list-style-type: none"> Numerator: Number of reviewed charts with claim of allergy with complete documentation of allergy assessment Denominator: Number of reviewed charts with claim of allergy during the performance time period
Process	Improve clinical documentation	Percent completeness of documentation of clinical assessment at the time of the antibiotic prescription.	<ul style="list-style-type: none"> Numerator: Number of reviewed charts with complete documentation of resident’s clinical status, physical exam and/or laboratory findings at the time of the antibiotic prescription Denominator: Number of reviewed charts of residents with an antibiotic start during the performance time period
Process	Improve antibiotic prescribing documentation	Percent of antibiotic prescriptions with complete documentation (dose, route, duration, indication).	<ul style="list-style-type: none"> Numerator: Number of reviewed antibiotic prescriptions with complete documentation Denominator: Number of antibiotic prescriptions reviewed in the performance period

Process or Outcome Measure	Intervention	Metric	Measure
Process	Develop and implement facility-specific treatment guidelines	Percent of antibiotic prescriptions consistent with facility-specific treatment guidelines	<ul style="list-style-type: none"> • Numerator: Number of reviewed antibiotic prescriptions consistent with facility-specific treatment guidelines for the type of infection confirmed or suspected • Denominator: Number of antibiotic prescriptions reviewed in the performance period
Outcome	Improve antibiotic prescribing with expectation of reducing antibiotic use	<p><u>Antibiotic Use Point Prevalence</u></p> <p>Percent of residents on antibiotics at a single point in time. Consider using the following tool to develop monthly summary reports: http://www.ahrq.gov/sites/default/files/wysiwyg/nhguide/3_TK2_T3-Sample_Monthly_Summary_Reports_Final.pdf</p>	<p>On a single day:</p> <ul style="list-style-type: none"> • Numerator: Number of residents on an antibiotic • Denominator: Total number of residents in the facility <p><i>Point prevalence data can be stratified to measure antibiotic usage in a more focused way. For example, measure prevalence in short-stay vs. long-stay residents; or residents who were admitted on antibiotics vs. those who started antibiotics after admission.</i></p>
Outcome	Improve antibiotic	<u>Rate of new antibiotics started per 1,000 resident</u>	<ul style="list-style-type: none"> • Numerator: Number of new antibiotic

Process or Outcome Measure	Intervention	Metric	Measure
	prescribing with expectation of reducing antibiotic use	<u>days</u>	<p>prescriptions in the performance period</p> <ul style="list-style-type: none"> • Denominator: Number of resident-days (sum of the daily count of residents in the facility in the performance period) • Multiply result by 1,000 <p><i>Rates can be calculated for types of infections (UTIs or pneumonia, for example), or for individual prescribers for comparison, when the denominator is adjusted for the residents cared for by each prescriber.</i></p>
Outcome	Improve antibiotic prescribing with expectation of reducing antibiotic use	<p><u>Antibiotic Utilization Ratio (AUR)</u></p> <p>Days of antibiotic therapy per 1,000 resident days</p>	<ul style="list-style-type: none"> • Numerator: Sum of all antibiotic days for all residents in the facility during the performance period • Denominator: Number of resident days in the performance period • Multiply result by 1,000 <p>Antibiotic day is defined as the number of days on which residents receive at least one dose of a single antibiotic type. For example, a resident on a 7-day course of amoxicillin would have 7 antibiotic days (regardless of the number of doses per day). If, during that same 7-day period, the resident also received 4 days of ceftriaxone, the total antibiotic days for that resident would be 11 (7 of amoxicillin and 4 of ceftriaxone).</p>
Outcome	Improve antibiotic prescribing with		<ul style="list-style-type: none"> • Numerator: Number of residents with laboratory tests positive for <i>C. difficile</i> toxin

Process or Outcome Measure	Intervention	Metric	Measure
	expectation of reducing CDI	<u>C. difficile Rates</u> Facility-onset laboratory-identified <i>C. difficile</i> events per 10,000 resident days	performed on or after day 4 of admission to the facility <ul style="list-style-type: none"> • Denominator: Number of resident days in the performance period • Multiply result by 10,000
Outcome	Improve antibiotic prescribing with expectation of reducing MDROs	<u>Multi-Drug Resistant Organisms</u> Facility-onset laboratory-identified MDRO events per 1,000 resident days	<ul style="list-style-type: none"> • Numerator: Number of residents with laboratory tests positive for a targeted multi-drug resistant organism* performed on or after day 4 of admission to the facility • Denominator: Number of resident days in the performance period • Multiply result by 1,000 <p>* <i>Such targeted organisms may include Methicillin-resistant Staphylococcus aureus (MRSA), Vancomycin-resistant enterococcus (VRE), Carbapenem-resistant Enterobacteriaceae (CRE) and other extended-spectrum beta-lactamase producing Gram-negative bacteria (resistant to 3rd generation cephalosporins).</i></p>
Outcome	Improve antibiotic prescribing with expectation of	<u>Rate of Adverse Drug Events</u>	<ul style="list-style-type: none"> • Numerator: Number of residents that experienced an adverse drug event related to an antibiotic administered during the

Process or Outcome Measure	Intervention	Metric	Measure
	reducing ADEs	Antibiotic-related adverse drug events per 1,000 resident days	performance period <ul style="list-style-type: none"> • Denominator: Number of resident days in the performance period • Multiply result by 1,000
Outcome	Improve antibiotic prescribing with expectation of reducing hospital admissions	Hospital admissions per 1,000 resident days	Number of hospital admissions per 1,000 resident days during the performance period compared to same period in previous year.
Outcome	Improve antibiotic prescribing with expectation of reducing antibiotic costs	Antibiotic costs over time	Antibiotic stewardship has been shown to reduce hospital pharmacy costs by improving antibiotic use. While not yet studied in nursing homes, this metric may also be useful in assessing and justifying ASP activities in long-term care.
Outcome	Improve antibiotic prescribing with expectation of reducing antibiotic prescribing by individual clinicians	Track prescribing by clinician. (See http://www.ahrq.gov/sites/default/files/wysiwyg/nhguide/3_TK2_T4-Quarterly_or_Monthly_Prescribing_Profile_Final.pdf)	Providing feedback to prescribers about their prescribing, especially in comparison to peers or benchmarks, may be effective in reducing inappropriate antibiotic use.

Data Sources and Metrics Worksheet

Consider how you will monitor and evaluate your long-term care facility's progress toward goals. Can the data be efficiently and reliably collected and analyzed over time? Do the selected metrics reflect your stewardship program's activities and interventions?

INTERVENTION	METRIC <i>Indicate if Process Metric or Outcome Metric</i>	NUMERATOR	NUMERATOR DATA SOURCE <i>Include person accountable for providing data</i>	DENOMINATOR	DENOMINATOR DATA SOURCE <i>Include person accountable for providing data</i>	TIME PERIOD	REPORTED TO	FREQUENCY	GOAL

Identifying and Mitigating Barriers to Success

Culture and resources are critically important to the success of implementing ASP strategies, but these components can also be the biggest barriers to facilities getting started.

Challenges faced by an ASP can range from lack of leadership support, upfront costs, inadequate laboratory resources, physician push-back related to monitoring and restriction of antibiotic use, lack of access to infectious disease expertise, lack of physician champions, competing organizational initiatives, and sustaining momentum for program development.

Identify your facility's potential barriers:

- Financial considerations/cost
- Opposition from prescribers
- Resistance from leadership
- Other initiatives are higher priority
- Personnel shortages
- None of the above
- Other _____

Funding and Resources

Investing in personnel time is potentially the biggest step facility leaders can take to build a solid foundation for the program.

Dedicated FTE must be allocated for ASP work; key personnel to consider in the facility are a physician champion, infection preventionist, consulting pharmacist, and nurse leader. Without dedicated time, there will be a mismatch between workload and expectations for stewardship involvement, so making a priority to allocate ASP time to key staff is essential.

Communication and Relationships

In addition to resources, culture is an important key to successful stewardship programs. Productive relationships between the ASP team, facility leadership and staff are essential. Understanding the role that communication, behavior, and conflict management have during the course of getting a new program started is important. Be sure to build ASP strategies that can be integrated into existing facility culture.

SWOT Analysis

SWOT (Strengths/Weaknesses/Opportunities/Threats) analysis is a tool developed in the 1960s to help organizations develop strategic plans for optimizing success in implementing new businesses, projects, and other ventures with potential risk. To help you plan for your ASP's success, brainstorm about the following unique characteristics of your long-term care facility and ASP team.

<p>STRENGTHS <i>What do we do well?</i></p>	<p>WEAKNESSES <i>Where can we improve?</i></p>
<p>OPPORTUNITIES <i>What is occurring in our "external" environment that may create opportunity?</i></p>	<p>THREATS <i>What is occurring in our "external" environment that we should prepare for?</i></p>

Barriers and Mitigation Plan

Using the SWOT analysis on the previous page, list below three or four of the most likely and/or serious barriers/threats/weaknesses identified. Using your identified strengths and opportunities in the SWOT, and other strategies, list potential ways you can proactively mitigate the barriers to improve your ASP's success.

Potential Barrier to Success	Mitigation Strategy

Planning Your Interventions and Creating Timelines for Success

Don Berwick, former executive director of the Institute for Healthcare Improvement (IHI), and former head of the Centers for Medicare and Medicaid Services (CMS), has famously said, “Some is not a number. Soon is not a time.” Berwick’s point, of course, is that a project that lives interminably in the “planning” phase will never produce change, cannot move an organization towards improvement, and ultimately drains time, money, and energy from those involved in the project.

“Some is not a number. Soon is not a time.”

To jump-start a small scale project, setting realistic goals and committing to a timeline for specific events or milestones are ways to set expectations for actions and evaluate progress. The following sample worksheet is one tool for communicating the expectations and status of a project. The worksheet demonstrates how to plan implementation for one selected intervention for your ASP by outlining the steps, actions, events, or activities required to implement the intervention, and graph the timeline required for each step. Don’t get too far into the weeds; try to keep the number of steps to 10 or less. The worksheet also allows you to assign human resources to each step of implementation and to record the goals and tangible deliverables associated with the selected intervention.

Remember this is a planning tool. Consider the sequence of each step for the timeline. Does one step depend on completion of another step? Can more than one step occur simultaneously? Are the human resource needs well-balanced across the team, or if steps depend on just a few people, is the timeline and sequence of events appropriate with regard to workload and available resources?

Take a look at the example on the following page. Then you can use a new, blank tool to develop a plan for implementing your first AMS intervention. The antimicrobial stewardship implementation plan template is available at the following link: <http://www.doh.wa.gov/Portals/1/Documents/5000/420-192-AMSImplementationPlan.docx>.

Making Your Timeline and Plan Visible -- Example

Antimicrobial Stewardship Implementation Plan		Weeks																										Accountable personnel					
<p>Intervention: Use AHRQ "Suspected UTI SBAR" for all communications to prescribers about resident's potential UTI</p>		<p>Primary Driver</p> <p>Ensure timely and appropriate initiation of antibiotics</p> <p>Ensure appropriate administration and de-escalation of therapy</p> <p>Monitor data, improve transparency, & embed stewardship</p>																												<p>Owner: Dr. Noah Abx, ASP Team Lead</p> <p>Target implementation date: April 3, 2017</p>			
DO	List the major tasks for implementing the selected	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	A = Primary accountable person	B = Secondary accountable person				
	1. Develop draft UTI SBAR policy	X	X																									B	A				
	2. Seek policy approval from ASP Team			X																								A	B				
	3. Communicate goals and benefits to leadership				X																							A	B				
	4. Establish method of identifying residents for whom tool would be used					X	X																					A	B				
	5. Determine process and outcome metrics to track intervention, and begin tracking							X	X																			A	B				
	6. Communicate changes and expectations to bedside staff and prescribers.									X	X																	A	B				
	7. In-service for staff										X	X																A	B				
	8. Implement daily review and feedback												X	X	X	X	X	X	X	X	X	X						A	B				
	9. Evaluate effectiveness of intervention														X	X	X	X	X	X	X	X	X					A	B				
	10. Report metrics																							X				A	B				
	Date	Jan 2	Jan 9	Jan 16	Jan 23	Jan 30	Feb 6	Feb 13	Feb 20	Feb 27	Mar 6	Mar 13	Mar 20	Mar 27	Apr 3	Apr 10	Apr 17	Apr 24	May 1	May 8	May 15	May 22	May 29	Jun 5	Jun 12	Jun 19	Jun 26						
	Month/Day	Jan 2	Jan 9	Jan 16	Jan 23	Jan 30	Feb 6	Feb 13	Feb 20	Feb 27	Mar 6	Mar 13	Mar 20	Mar 27	Apr 3	Apr 10	Apr 17	Apr 24	May 1	May 8	May 15	May 22	May 29	Jun 5	Jun 12	Jun 19	Jun 26						
	TRACK (metrics to measure effectiveness of intervention)	BASELINE		YEAR 1 GOAL		DELIVER (Tangible products of implementation)																										Accountable personnel	
	Proportion of UTI treatments for whom SBAR tool used	0%		50%		Date of staff in-service and proportion of staff attending. Monthly review of metrics beginning 1/2/17. Report metrics monthly to ASP Team and quarterly to QPI. Track adherence to SBAR use on a daily basis. Structured assessment of activity at QPI meeting. Report metrics back to facility staff																										Noah Abx , MD, Medical Director	
	UTI antibiotic starts/month	14		7																												Annie Biotic, RN, DON	
	C. difficile facility onset ID events	16/10,000 pt-dy		8/10,000 pt-dy																												Yousso Culture, RN, IP	
																																Manny Enterobacter, Pharmacist	

Once you have decided upon one or more actions and made a timeline for completing them, be sure to have a strategic roll out of the intervention to your staff and providers. For each intervention, a procedure should be developed and communicated before implementing the intervention. The procedure should include:

1. The goal(s) of the intervention
2. What tools will be used
3. The date on which the procedures were issued or revised
4. How the intervention will be implemented
5. Identification of the staff responsible for the intervention
6. Required documentation signed by leadership authorized to approve the intervention
7. If applicable, a description of how information about the intervention will be communicated to prescribing clinicians and/or other facilities such as hospitals and laboratories
8. A description of how and when training for nursing staff and, if applicable, prescribing clinicians, will be conducted
9. A description of what quality monitoring will include.

See: http://www.ahrq.gov/sites/default/files/wysiwyg/nhguide/3_TK1_T5-Draft_Policies_and_Procedures_for_the_Antimicrobial_Stewardship_Program_final.pdf for a sample of a procedure.

Making the Business Case for Your Stewardship Program

As stated previously, it's virtually impossible to implement and sustain an ASP without a commitment from facility leaders indicating their support for the program, staffing and for monitoring antibiotic use. ASP implementation is a CMS requirement, but ASPs produce benefits, improving quality and safety of care for residents. In addition, data from hospitals shows that ASPs produce cost savings despite expenditures to establish and maintain an ASP. Though there are not many studies demonstrating cost savings from ASPs in long term care settings, it is reasonable to assume that at a bare minimum, having an ASP will prevent expenditures on unnecessary antibiotics, and avoid some costly *C. difficile* infections. Of course, improvement in your facility's reputation is a priceless benefit of an antibiotic stewardship program!

Putting It All Together: Project Charter and Strategic Plan

Now that you've selected one or more interventions, considered how you will measure your success, and outlined the critical steps required to implement one or more of your interventions, the final step is to create a basic ASP charter and strategic plan.

The ASP Charter is a document used to facilitate communication about your new ASP to facility leaders, staff, and prescribers. The charter states, in writing, your facility's commitment to work toward achieving the ASP's aim of promoting optimal, judicious use of antibiotics. Additionally, the charter provides readers with background information and purpose of the ASP, a summary of the business case and anticipated financial impact of the ASP, the activities and interventions the ASP will undertake, the composition and reporting structure of the ASP team, and the ASP's goals, metrics, and milestones.

The example that follows is a simple, fill-in-the-blank template you may use to create an ASP charter and strategic plan. Some sample language has been included for you, but you are welcome to tailor or customize the information to reflect your facility's unique ASP structure, activities, and goals.

After completing the ASP charter, present your ASP to your facility's executive and medical leadership for input and feedback. The tools and worksheets you have completed to this point may be used to provide more details of your plan. A critical step in developing an ASP is getting your leaders—especially those with the power to provide financial resources to support your ASP—to agree to your plan and sign the charter as a symbol of their commitment to achieving the ASP aim.

Once you have your leader's support, get started working your plan—adjusting as needed to achieve your goals, milestones, and aim.

Congratulations! You have jump-started a feasible, small-scale ASP.

In time, build on the success of your first, small-scale ASP by expanding the focus of the interventions, adding new interventions, and building more capacity into your team. Done thoughtfully, within a few years, you will have a comprehensive, robust antibiotic stewardship program to be proud of.

Antibiotic Stewardship Program (ASP) Charter and Strategic Plan

Facility Name	
----------------------	--

PROGRAM START DATE		PROPOSED DATE FOR PROGRAM EVALUATION AND CHARTER UPDATE	
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BACKGROUND AND PURPOSE	<p>Antibiotic resistance is a significant and progressively worsening problem at healthcare facilities around the world. This fact, combined with the lack of new antibiotic agents in the drug development pipeline, indicates that optimized, judicious management of antibiotics is necessary to preserve the antibiotics currently available. Such management has been shown to improve residents’ outcomes significantly by optimizing dosing for individuals, reducing toxicity, reducing potential development of resistant infections, and decreasing medication costs, while potentially preserving the therapeutic effectiveness of antibiotics for populations.</p> <p>Therefore, our facility commits to implementing a stewardship program to improve appropriate and judicious use of antibiotics. This charter provides an initial framework for our strategic approach to this aim and establishes accountability for the ASP’s activities and outcomes.</p>
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ASP AIM	<p>Our ASP aims to achieve safe, effective, and efficient resident care, while reducing adverse effects of inappropriate antibiotic use—including resistant infections and escalated drug costs—and improving satisfaction of our key stakeholders. The program expects the following results:</p> <ol style="list-style-type: none"> 1. 2. 3.
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GUIDING PRINCIPLES AND STRATEGIES	<p>The ASP’s strategic, guiding principles for achieving our aim include:</p> <ol style="list-style-type: none"> 1. Promoting a culture of optimal antibiotic use through dedicated leadership and positive culture change 2. Ensuring timely and appropriate <i>initiation</i> of antibiotics for recipients of care 3. Ensuring appropriate <i>administration</i> and <i>de-escalation</i> of therapy for recipients of care 4. Monitoring data for ASP effectiveness, ASP evaluation, and ASP-associated resident outcomes 5. Promoting a culture of transparency, reporting, and open communication
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ASP ACTIVITIES	To achieve the ASP aim, the following specific actions, activity, or interventions will be implemented. Additional interventions may be implemented, in time, as quantitative and qualitative data support such changes.	IMPLEMENTATION TARGET DATE
	1. Annual prescriber and staff education about the need for stewardship and effective interventions for optimizing antibiotic use	
	2.	
	3.	

ASP TEAM MEMBERS	NAME	KEY RESPONSIBILITIES	DEDICATED ASP HOURS PER WEEK
Physician Lead			
Pharmacist			
Infection Preventionist			
Nurse Leader			

OVERSIGHT COMMITTEE	REPORTING FREQUENCY	ASP EXECUTIVE SPONSOR

ASP Interventions	DESCRIPTION	TARGET DATE

COMMUNICATION PLAN	FREQUENCY	RESPONSIBLE LEAD/TEAM MEMBER	TOPIC
ASP Team Meetings			Operations and daily management issues
Oversight Committee			Approvals, progress on goals

METRICS/MEASURES	TYPE OF MEASURE (Process, Outcome or Balancing)	FREQUENCY	GOALS	OTHER DATA TRACKED OR MONITORED

APPROVAL	NAME	TITLE/ROLE/FUNCTION	DATE	SIGNATURE
Author				
Approved		Facility Executive		

References and Additional Resources for Stewardship

- Agency for Healthcare Research and Quality (AHRQ). (2016). Nursing Home Antimicrobial Stewardship Guide. Available at: <http://www.ahrq.gov/nhguide/index.html>, accessed on 11/23/2016.
- Agency for Healthcare Research and Quality (AHRQ). (2012). *Evaluation and research on antimicrobial stewardship's effect on Clostridium difficile (ERASE C. difficile) project*. Atlanta: CDC.
- Arizona Department of Health Services Healthcare Associated Infections (HAI) Advisory Committee. (2011). Retrieved from Antimicrobial Stewardship Subcommittee: <http://www.azdhs.gov/phs/oids/hai/advisory-committee/antimicrobial-stewardship.htm>
- Carusone SC, Loeb M, Lohfeld L. A clinical pathway for treating pneumonia in the nursing home: part I: the nursing perspective. *J Am Med Dir Assoc*. 2006;7(5):271-8.
- Carusone SC, Loeb M, Lohfeld L. A clinical pathway for treating pneumonia in the nursing home: part II: the administrators' perspective and how it differs from nurses' views. *J Am Med Dir Assoc*. 2006;7(5):279-286.
- CDC. (2015). *Core elements of antibiotic stewardship for nursing homes*. Atlanta, GA: US Department of Health and Human Services, CDC. <https://www.cdc.gov/longtermcare/prevention/antibiotic-stewardship.html>
- Dellit, T. H. (2007). Infectious Diseases Society of America and the Society for Healthcare Epidemiology of America Guidelines for developing an institutional program to enhance antimicrobial stewardship. *Clinical Infectious Diseases*, 44, 159-177.
- El Moussaoui R, de Borgie CA, van den Broek P, et al. Effectiveness of discontinuing antibiotic treatment after three days versus eight days in mild to moderate severe community-acquired pneumonia: randomised, double blind study. *BMJ*. 2006;332(7554):1355.
- Greater New York Hospital Association United Hospital Fund. (2011). Antimicrobial Stewardship. *Antimicrobial Stewardship Toolkit*. New York, NY. Retrieved from Greater New York Hospital Association: <http://www.gnyha.org/whatwedo/quality-patient-safety/infection-control-prevention/antimicrobial-stewardship>
- Hepburn MJ, Dooley DP, Skidmore PJ, Ellis MW, Starnes WF, Hasewinkle WC. Comparison of short-course (5 days) and standard (10 days) treatment for uncomplicated cellulitis. *Arch Intern Med*. 2004;164(15):1669-1674.
- High KP, Bradley SF, Gravenstein S, Mehr DR, Quagliarello VJ, Richards C, Yoshikawa TT. Clinical practice guideline for the evaluation of fever and infection in older adult residents of long-term care facilities: 2008 update by the Infectious Disease Society of America. *Clinical Infectious Diseases* 2009; 48:149–71.

- Institute for Healthcare Improvement (IHI) and Centers for Disease Control and Prevention (CDC). (2012). *Antibiotic Stewardship Driver Diagram and Change Package*. Boston: IHI.
- Johannsson, B. (2011). Improving antimicrobial stewardship: The evolution of programmatic strategies and. *Infect Control Hosp Epidemiol*, 2011(32), 367-374.
- Joint Commission Resources. (2012). *Antimicrobial Stewardship Toolkit*. Oak Brook: JCR. Retrieved January 18, 2016, from <http://www.jcrinc.com/antimicrobial-stewardship-toolkit/>
- Loeb M, Carusone SC, Goeree R et al. Effect of a clinical pathway to reduce hospitalizations in nursing home residents with pneumonia: a randomized controlled trial. *JAMA*. 2006;295(21):2503-10
- Lutters M, Vogt-Ferrier NB. Antibiotic duration for treating uncomplicated, symptomatic lower urinary tract infections in elderly women. *Cochrane Database Syst Rev*. 2008;(3):CD001535.
- Stone ND, Ashraf MS, Calder J, Crnich CJ, Crossley K, Drinka PJ, Gould CV, Juthani-Mehta M, Lautenbach E, Loeb M, Maccannell T, Malani PN, Mody L, Mylotte JM, Nicolle LE, Roghmann MC, Schweon SJ, Simor AE, Smith PW, Stevenson KB, Bradley SF; Society for Healthcare Epidemiology Long-Term Care Special Interest Group. Surveillance definitions of infections in long-term care facilities: revisiting the McGeer criteria. *Infect Control Hosp Epidemiol*. 2012 Oct;33(10):965-77. doi: 10.1086/667743.
- Wetzstein, G. (2000). Intravenous to oral (IV:PO) anti-infective conversion therapy. *Cancer Control*, 2000;7(2). Retrieved from http://www.medscape.com/viewarticle/408980_1

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