



AHRQ Safety Program for Improving Antibiotic Use

Guide to Sustainability Planning: Long-Term Care Facilities



Introduction

Johns Hopkins Medicine and NORC at the University of Chicago partnered with the Agency for Healthcare Research and Quality to improve antibiotic prescribing practices in long-term care facilities through the AHRQ Safety Program for Improving Antibiotic Use. The AHRQ Safety Program aims to foster team-based relationships and assist facilities with attaining the necessary skills to implement effective antibiotic stewardship programs.

Goal of This Guide

The goal of this guide is to help your facility continue to apply what health care providers have learned through the AHRQ Safety Program. The guide is both a tool for discussion and a template for action. It is designed to help your organization create your own effective and lasting sustainability plan tailored to the specific needs of your facility, manage competing priorities, and identify communication strategies to facilitate efforts in sustaining change. The plan will provide you with strategies to help incorporate the changes you have made in antibiotic prescribing practices through the AHRQ Safety Program into everyday practice.

The intended audience for this plan is the Antibiotic Stewardship Team and frontline health care providers.

The plan describes six components to consider when you are addressing sustainability of the Safety Program.¹⁻¹⁰

These are:

1. Leadership
2. Culture of Improvement
3. Hardwiring Change
4. Data Collection and Feedback
5. Assessment
6. Resources

1. Leadership

Sustainability requires ongoing supportive leadership. The facility's leadership needs to prioritize quality of care initiatives as a high priority, providing support and recognizing successes. A senior executive partner should work with the Antibiotic Stewardship Team to provide direct support and to assist in obtaining resources, as needed. This person should also remain involved with the Antibiotic Stewardship Team during the sustainment period, providing support as needs change moving forward. He or she should support and attend antibiotic stewardship committee meetings and be given at least a quarterly, brief update on ongoing activities of the stewardship program. Frontline staff need to work closely with the Antibiotic Stewardship Team and become "self-stewards" by recognizing antibiotic-related adverse events, understanding how to analyze the causes of these events, and finding multidisciplinary solutions. Administrators should be familiar with antibiotic stewardship-related regulatory requirements and with criteria in checklists for agencies ranking long-term care facilities such as the Centers for

Medicare & Medicaid Services and the National Quality Forum, and they should assure that the facility is in compliance with all requirements.

Best outcomes are most likely to occur when the Antibiotic Stewardship Team shares common goals and is motivated to reach them. It is up to clinical or thought leaders in each facility to ensure their frontline staff (e.g., physicians, pharmacists, nurses, nurse practitioners, physician assistants, technicians, certified nurse assistants) understand the importance of appropriate antibiotic prescribing and the potential harm caused by inappropriate antibiotic prescribing. With clear aims, leaders of the Antibiotic Stewardship Team can continue ongoing and new initiatives in the sustainability stage to establish change into the organizational structure. The Antibiotic Stewardship Team should check in with frontline staff regularly (e.g., monthly, every other month) and provide antibiotic usage data, education as needed, and assistance in designing solutions to perceived problems. Clinical staff should feel comfortable reaching out to the Antibiotic Stewardship Team directly when needing additional input related to the diagnosis and treatment of infections. Frontline clinicians are encouraged to continue to implement an antibiotic time out on a regular basis for all residents receiving antibiotics to ensure that a discussion happens for the ongoing need for antibiotics.

Leaders of the Antibiotic Stewardship Team should also be open to input and feedback and to help problem solve if strategies don't turn out to be a good fit.⁷ Antibiotic Stewardship Team leaders should be able to motivate staff when deviations from the Safety Program occur—for example, not using the Four Moments of Antibiotic Decision Making construct. Finally, Antibiotic Stewardship Team leaders should ensure new personnel have access to the educational toolkit and learn how to incorporate the principles learned into their daily practice.

2. Culture of Improvement and a Deeply Engaged Staff

The root of improvement lies in the safety culture within the facility.¹⁰

The Comprehensive Unit-based Safety Program (CUSP) helps facilities *adapt* their culture to recognize opportunities to improve patient safety. The AHRQ Safety Program for Improving Antibiotic Use includes several important elements of CUSP. This adaptive portion of the AHRQ Safety Program has been designed to improve both patient safety and the culture of safety around antibiotic decision-making. There are five Webinars discussing key adaptive concepts:

- Partnering with a senior executive
- Improving antibiotic use is a patient safety issue
- Improving communication and teamwork around antibiotic prescribing
- Identifying targets to improve antibiotic use
- Changing the system to improve patient safety

As with all presentations related to the AHRQ Safety Program, these presentations are available on the project Web site. It is encouraged that existing staff periodically review these presentations to remind themselves of the five key adaptive concepts. New hires, particularly those with leadership and

management roles, are strongly encouraged to view or listen to the presentations and/or narrated presentations and implement the adaptive concepts in daily activities.

3. Hardwiring Change

The changes in practice made during the implementation period need to become embedded in the daily routine so they are no longer perceived as new. This assures the changes will be sustained.

Focusing on the Safety Program's toolkit, specifically the Four Moments of Antibiotic Decision Making, will give teams the structure needed both during the implementation period and later during the sustainability period of the Safety Program. Syndrome-specific topics (e.g., urinary tract infections, respiratory infections) that comprise the majority of antibiotic prescribing in long-term care facilities are addressed in the Safety Program's educational toolkit. Each of these topics addresses clinical cases that are commonly encountered in the long-term care setting. Incorporation of material from the Webinars into daily practice will ensure the use of best practices in guiding decision making. Make sure that interventions your facility chooses to focus on align with state requirements or mandates and with published guidelines, such as the revised McGeer's criteria,¹¹ which provides specific criteria for infection surveillance in long-term care. By doing this, facilities can ensure staff members are not confused about specific requirements or required to perform extra work to meet two separate criteria.

Communication is key to both implementing and sustaining change. Techniques to improve communication, both among staff members and between staff members and residents and their families are covered in the course materials. These techniques also should be practiced, maintained, and periodically reviewed.

Sustaining teamwork and culture change around antibiotic prescribing are both essential to hardwiring change. The Antibiotic Stewardship Team acting on its own is not sufficient to change prescribing practices. Everyone in the facility who is involved in prescribing antibiotics and caring for residents receiving antibiotics should become familiar with the educational toolkit. The Antibiotic Stewardship Team should continue to meet with frontline staff (at least quarterly) to discuss opportunities to improve antibiotic prescribing. The Web site includes a [Four Moments of Antibiotic Decision Making Form](#); it is encouraged to complete 5–10 of these forms each month as a point of dialogue to discuss issues related to residents actively receiving antibiotic therapy.

4. Data Collection and Feedback

Collecting and sharing data on outcomes is also important to implementation and sustainability. The Antibiotic Stewardship Team should monitor the use of antibiotics and *Clostridioides difficile* rates. Monthly data collection on days of antibiotic therapy per 1,000 resident days (or 1,000 days present if the ability to submit to the National Health and Safety Network Antibiotic Use and Resistance program exists), data on *C. difficile* laboratory events per 10,000 resident-days, and number of urine cultures sent, and continued use of Four Moments of Antibiotic Decision Making Review Form is encouraged.

As you think of evaluating your antibiotic stewardship program, you may want to consider process measures and clinical measures. Process measures demonstrate that your facility is doing activities related to antibiotic stewardship. They answer the question, "What does your organization do to support antibiotic stewardship?" Examples of process measures include antibiotic usage data (e.g., days

of therapy, number of starts), the number of urine cultures ordered or positive *C. difficile* tests, completing 5–10 Four Moments of Antibiotic Decision Making Review Forms each month and using the Staff Safety Assessment tool to get feedback from frontline staff 1–2 times each year. Share process measures with frontline staff and administrators to let them know that their ongoing efforts are meaningful and making a difference to resident care.

Clinical measures assess how antibiotic stewardship efforts influence resident care. They answer the question, “How does your antibiotic stewardship program improve the care and safety of our residents?” Some clinical measures relate to individual prescribers, such as the number of antibiotics prescribed, the number of broad-spectrum agents used, or the number of residents given an antibiotic for a urinary tract infection without a concomitant urine culture being ordered or without a record that the prescriber reviewed the results of urine cultures. If possible, try to give individualized feedback to providers responsible for prescribing antibiotics. This feedback can help providers identify successes and recognize ways to improve their antibiotic prescribing practices. It can also help change misconceptions and opinions about antibiotic prescribing and demonstrates to them that their clinical decisions are noticed and meaningful. Other outcomes measures reflect on the facility as a whole, such as rates of *C. difficile* infection (CDI), adverse events associated with antibiotic use, infection recurrence, hospital readmission rates or the number of residents given antibiotics for asymptomatic bacteriuria. Depending on the intervention, you should pick realistic and feasible clinical outcomes of interest to both clinicians and senior executives. It is important to understand and communicate the limitations with certain measures. For example, changes in rates of CDI and hospital readmissions often take time to show significant change.

Interventions aimed at feasible targets, such as focusing on one particular syndrome, are more likely to have sustainable and significant results. It is challenging to address everything at once. Starting small and celebrating successes is a good way to build a program over time.

For example, you may choose to select CDI as an outcome. *C. difficile* infections are a result of both antibiotic practices and infection control lapses. Even with changes in antibiotic prescribing, it may be difficult to see changes in CDI rates. They are strongly associated with certain antibiotics like fluoroquinolones, third- and fourth-generation cephalosporins (e.g., ceftriaxone and cefepime), and clindamycin. If your intervention is targeting other types of antibiotics, you may not see a change in CDI rates. Additionally, *C. difficile* tests are occasionally inappropriately ordered for patients who do not have symptoms of CDI in which a positive test indicates colonization rather than infection. As you think more about possible clinical measures, keep in mind potential limitations. It is important to remember that most stewardship interventions will not include enough residents to show changes in most or all of these outcome measures over a short time frame. Pick a realistic outcome. Even if you do not find a significant improvement, if you can show no worsening of outcomes with your intervention, that is often sufficient. An example of this would be an intervention that decreases the use of fluoroquinolones and does not lead to increased mortality or hospital readmissions. Ask your clinicians what data they want to see; this way you are both giving and receiving feedback.

5. Assessment

It is not enough to simply collect data. Integrating regular and routine review of your data into facility workflow is crucial to implementation and sustainability success. It is important to emphasize maintaining early gains through continued administrative support of the program.

The Antibiotic Stewardship Team should periodically review antibiotic use data (and associated costs if feasible) with facility administration. When reviewing antibiotic use, it is anticipated that antibiotic use may initially decrease and eventually (after several years) remain stable. It is important to ensure that “broad-spectrum” antibiotics (e.g., fluoroquinolones) are stable or decreasing and anticipate that more “narrow-spectrum” antibiotics (e.g., amoxicillin, cephalexin) may increase or stay the same. An increase in broad-spectrum antibiotic use may be appropriate, but should trigger a deeper dive (likely by the Antibiotic Stewardship Team in conjunction with frontline staff) to better understand why the increase was observed and if changes need to be made to prescribing practices. It is equally important to celebrate and share your successes! This can help the team garner support for the program.

6. Resources

Look back at your opportunities and successes for change and growth. Why and how did they take place? What happened with efforts that were not successful or took a long time to make successful? How did your team overcome barriers? Did you encounter unexpected pitfalls? How can you continue best practices or make necessary adjustments? What inputs to your processes are required? Some examples of inputs are: team involvement, time, leadership support, and financing.

Questions to consider:

- What did it take to accomplish change? (Examples: formation of a stewardship team, time, clinician and staff buy-in and support, etc.)
- What are you lacking? (Examples: time, money, training, etc.)
- Whose involvement was necessary to accomplish changes? (Examples: facility leadership, medical directors, clinicians, staff, etc.)

Summary

This table summarizes the key sustainability components presented throughout this guide. This table can help to guide your discussions and remind you of questions you need to consider and components to include when planning your sustainability efforts.

Sustainability Component	Questions To Ask	Components
Leadership	<ul style="list-style-type: none"> • Has an Antibiotic Stewardship Team been identified to continue stewardship activities? • Do you have an engaged senior executive with whom the Antibiotic Stewardship Team meets quarterly (or more often) to discuss progress and needs? • Does the Antibiotic Stewardship Team have adequate resources from leadership to assist frontline staff with improving their antibiotic use? 	<ul style="list-style-type: none"> • Antibiotic Stewardship Teams need the necessary resources to sustain activities, particularly as more units in the facility are exposed to the AHRQ Safety Program and will require guidance by the Stewardship Team.
Culture of Improvement and Deeply Engaged Staff	<ul style="list-style-type: none"> • Do clinical staff understand and know their role in the program? • Does the Antibiotic Stewardship Team understand their role in the program? • Does staff feel concerns related to antibiotic use have been addressed? 	<ul style="list-style-type: none"> • The leader needs to assure that everyone is clear on performance activities and their role in the project. • Opportunities for all stakeholders to express their views about the program and planned activities need to be facilitated.
Hardwiring Change	<ul style="list-style-type: none"> • Is your team multidisciplinary? • Does your team understand the importance of periodically reviewing the educational toolkit to refresh the concepts learned from the Safety Program? 	<ul style="list-style-type: none"> • Use the Four Moments of Antibiotic Decision Making Review Form to practice the Four Moments of antibiotic prescribing on 5–10 residents each month to understand what changes may need to occur in guiding the treatment of future residents.
Data Collection and Feedback	<ul style="list-style-type: none"> • What processes are in place for the Antibiotic Stewardship Team to continue collecting antibiotic use data (and CDI rates)? • How is the Antibiotic Stewardship Team sharing data with administration and frontline staff? 	<ul style="list-style-type: none"> • To maintain your focus on the changes you have made and others you could make in the future, continue data collection processes. • Continue to share data with providers and staff to help them retain focus.
Assessment	<ul style="list-style-type: none"> • Do your process measures provide useful information? • Is there a plan in place if outcome data worsens? • Is there a plan in place if outcome data improves? 	<ul style="list-style-type: none"> • Celebrate and share successes! • Examine practices during the times of change— what went well and what did not (and why).
Resources	<ul style="list-style-type: none"> • What did it take to accomplish change? • Whose involvement was necessary to accomplish changes? 	<ul style="list-style-type: none"> • Determine what resources you need to have to accomplish the changes you want (e.g., time, clinician and staff involvement, money, etc.). • Assure people who have helped move the project forward remain involved in the project.

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