

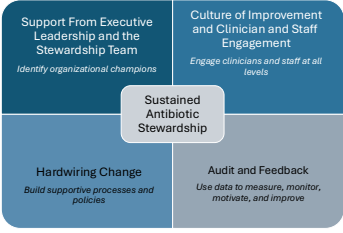
AHRQ Safety Program for Telemedicine: Improving Antibiotic Use

Sustaining Stewardship Activities

Slide Title and Commentary	Slide Number and Slide
Sustaining Stewardship Activities SAY: Welcome to the presentation titled, “Sustaining Stewardship Activities.”	Slide 1 AHRQ Safety Program for Telemedicine: Improving Antibiotic Use Sustaining Stewardship Activities  AHRQ Pub. No. 2027-0021 October 2020
Objectives SAY: By the end of this presentation, participants will be able to— • Develop sustainability plans for antibiotic stewardship activities over the subsequent 1–2 years in telemedicine • Identify targets for future antibiotic stewardship efforts based on antibiotic prescribing patterns in a telemedicine practice • Understand the importance of completing a gap analysis on an annual basis to identify targets for improvement for antibiotic stewardship efforts in telemedicine	Slide 2 Objectives By the end of this presentation, participants will be able to— • Develop sustainability plans for antibiotic stewardship activities over subsequent 1–2 years in telemedicine • Identify targets for future antibiotic stewardship efforts based on antibiotic prescribing patterns in a telemedicine practice • Understand the importance of completing a gap analysis on an annual basis to identify targets for improvement for antibiotic stewardship efforts in telemedicine  Sustainability 2
What Comes Next After Implementing Changes? SAY: After telemedicine practices have worked hard to implement changes to improve antibiotic prescribing, it is important to sustain these changes. Keeping the momentum going is important. Finding new targets for improvement after initial steps are completed can keep practice members engaged.	Slide 3 What Comes Next After Implementing Changes? • You’ve made changes to improve antibiotic prescribing in your practice • Keep up the good work and celebrate successes! • Keep up the momentum • Find new targets for improvement   Sustainability 3

Slide Title and Commentary	Slide Number and Slide
CDC Core Elements of Outpatient Antibiotic Stewardship Programs SAY: The Centers for Disease Control and Prevention (CDC) have published the Core Elements of Outpatient Antibiotic Stewardship Programs, which includes telemedicine practices. Having these seven core elements can help ensure sustainability of antibiotic stewardship. The first is leadership commitment, including support from senior leadership and administrators to dedicate necessary human, financial, and information technology resources. The second is accountability: telemedicine practices should designate a leader or co-leaders responsible for the antibiotic stewardship program development, management, and outcomes. The third is antibiotic stewardship expertise, or bringing antibiotic stewardship experts to telemedicine. The fourth is action, or implementing interventions in your telemedicine practice, such as clinical decision support or audit and feedback, to improve antibiotic use. The fifth is tracking, or monitoring antibiotic prescribing, the impact of interventions, and other important outcomes. The sixth is reporting, or regularly reporting data on antibiotic prescribing and outcomes to telemedicine practice clinicians, staff, and leadership. The seventh is education for clinicians, staff, patients, and families on optimal antibiotic prescribing, adverse events, and antibiotic resistance. We suggest taking steps to ensure your telemedicine practice has these Core Elements.	Slide 4 CDC Core Elements of Outpatient Antibiotic Stewardship Programs¹ 1. Leadership commitment 2. Accountability 3. Stewardship expertise 4. Action 5. Tracking 6. Reporting 7. Education AHRQ Safety Program for Telemedicine: Improving Antibiotic Use  Sustainability 4

Slide Title and Commentary	Slide Number and Slide
Implementation Steps SAY: To implement and sustain antibiotic stewardship, telemedicine practices can take these eight steps. First, support from senior leadership should be obtained to ensure the appropriate practice members have the necessary protected time to lead efforts and to assist with the necessary information technology resources for reviewing ongoing antibiotic prescription data. Second, core practice leaders, such as a clinician lead and an administrative lead, should be identified and recognized by other members of the telemedicine practice as the leaders of antibiotic stewardship efforts. Third, the case that antibiotic stewardship is a safety issue should be made to all members of the telemedicine practice including physicians, advanced practitioners, nurses, medical assistants, administrators, and pharmacists so that they are committed to working together to improve antibiotic decision making. Fourth, the antibiotic stewardship leads should determine how to access antibiotic prescription data. In addition, they should identify approaches to accessing clinician-specific and infectious condition-specific antibiotic prescription data. Moreover, a process of generating antibiotic prescribing data should be developed to monitor changes in antibiotic prescribing over time. Fifth, the telemedicine practice should work together to improve communication skills with patients and standardize antibiotic prescribing approaches across the practice. Sixth, the telemedicine practice should determine which infectious conditions to prioritize for intervention and provide education around the best practices in the diagnosis and treatment of these infectious conditions. Seventh, the antibiotic stewardship leads should monitor antibiotic prescribing data and report the data back to the telemedicine practice members. Data that focuses on telemedicine practice initiatives, such as particular targeted infectious conditions, should be highlighted. The eighth step is to develop a sustainability plan.	Slide 5 Implementation Steps² 1. Obtain support from senior leadership 2. Identify core practice members who have led or will lead antibiotic stewardship efforts such as a clinician lead and an administrative lead 3. Make the case that antibiotic stewardship is a patient safety issue to the whole telemedicine practice 4. Learn how to access antibiotic prescription data 5. Improve communication skills with patients and standardize antibiotic prescribing across the telemedicine practice 6. Develop a list of prioritized infectious conditions to target and discuss best practices in diagnosis and treatment of these infectious conditions 7. Monitor and report back antibiotic prescribing data 8. Develop a sustainability plan AHRQ Safety Program for Telemedicine: Improving Antibiotic Use  Sustainability 5

Slide Title and Commentary	Slide Number and Slide
Sustainability Plan Guidance SAY: The sustainability plan is available on the toolkit website and provides guidance on factors to consider when developing an antibiotic stewardship sustainability plan for telemedicine practices. The document considers four components of sustainability. First is ensuring support from executive leadership and the antibiotic stewardship team. This involves identifying organizational champions who can support and advocate for antibiotic stewardship efforts. Second is developing a culture of improvement and staff engagement. This means that all clinicians and staff should understand their roles and responsibilities related to improving appropriate antibiotic prescribing, and developing plans to keep clinicians and staff involved. Third is hardwiring change. To hardwire change, telemedicine practices should build processes and policies that support appropriate antibiotic prescribing. Fourth is audit and feedback of data. This involves using data to measure and monitor prescribing, to motivate clinicians, and to ensure antibiotic prescribing continues to improve over time. Telemedicine practices and the antibiotic stewardship leads should consider each of these components when building a sustainability plan.	Slide 6 Sustainability Plan Guidance  AHRQ Safety Program for Telemedicine: Improving Antibiotic Use Sustainability 6

Slide Title and Commentary

Telemedicine Practice Sustainability Plan

SAY:

The telemedicine practice's initial antibiotic stewardship sustainability plan should include an approximate outline of the month-to-month plans over 1 to 2 years. Examples of elements to include are which infectious conditions to focus on, what order the conditions should be addressed, approximately how much time will be spent on each condition, how frequently antibiotic prescription data should be reviewed as a telemedicine practice, and how often practicewide meetings should occur. Add activities that address the four components of sustainability, such as approaches to engaging leadership over time and the types of interventions the telemedicine practice is planning.

A [sustainability plan template](#) is available as part of the toolkit. Telemedicine practices are encouraged to use whatever format or process works best for their setting.

The initial sustainability plan should be discussed with telemedicine practice members. After consensus is reached, it should be reviewed with senior leadership.

Ongoing Sustainability Plans

SAY:

After the above steps have been completed, the sustainability plan should be updated every 1–2 years. The updated sustainability plan should continue to have month-to-month plans outlining stewardship goals for the subsequent 1–2 years.

To successfully execute these efforts, telemedicine practices must continue to set aside protected time or effort to focus on stewardship activities and dedicated opportunities to disseminate information and data to telemedicine practice members, even after the initial 2-year period.

Slide Number and Slide

Slide 7

Telemedicine Practice Sustainability Plan

- Develop month-to-month plan for 1–2 years covering—
 - Infectious conditions to focus on
 - Order of conditions to focus on
 - Time spent on each condition
 - Frequency of review of antibiotic prescription data
 - Frequency of meetings across the telemedicine practice
- Develop with discussion from telemedicine practice members, then present to senior leadership



Consider using the sustainability plan template (sample above)

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Sustainability 7

Slide 8

Ongoing Sustainability Plans

- Update sustainability plan every 1–2 years
- Continue to set aside protected time for the telemedicine practice to focus on stewardship activities and disseminate information and data



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Sustainability 8

Slide Title and Commentary

Evidence for Sustainability

SAY:

Consider this example that highlights the importance of sustaining antibiotic stewardship approaches. In a cluster-randomized controlled trial of ambulatory pediatric practices, practices were enrolled into one of two arms.

Practices in the intervention arm received a 1-hour education session followed by a year of practice-level antibiotic prescribing data that allowed the practices to compare themselves with other practices around prescribing for upper respiratory tract infections and sinusitis. Practices in the control arm did not receive any targeted education or periodic reports on their antibiotic use.

At the end of the 1-year study period, practices in the intervention group experienced a 50 percent reduction in inappropriate antibiotic use compared to the control group, demonstrating the importance of implementing interventions coupled with measuring and reporting associated changes in antibiotic use.

Post-Intervention: Intervention Group Prescribes Less

SAY:

After the 1-year study period, the quarterly antibiotic prescribing data reports were discontinued. As can be seen in this slide, the intervention group's antibiotic prescription practices reverted back to the preintervention period after the intervention and was similar to that of the control group.

This study emphasizes the importance of developing a plan to ensure maintenance of effective antibiotic prescribing practices even after focus shifts to other initiatives.

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Slide 9

Evidence for Sustainability³

Research study: Intervention practices experienced a 50 percent reduction in inappropriate antibiotic use compared with control practices.

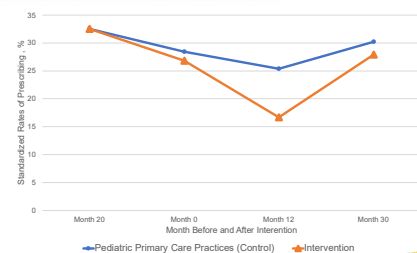
Intervention Practices	Control Practices
1-hour education session focusing on upper respiratory tract infections and sinusitis - Quarterly review of antibiotic prescribing rates compared with other practices	- No educational session - No review of antibiotic prescribing rates with practice members

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Sustainability 9

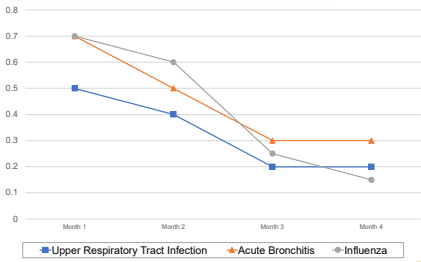
Slide 10

Post-Intervention: Intervention Group Prescribes Less⁴



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Sustainability 10

Slide Title and Commentary	Slide Number and Slide
Proportion of Acute Respiratory Tract Visits with Antibiotic Prescriptions SAY: Certain stewardship activities should be included as ongoing components of the sustainability plan even several years into the telemedicine practice’s antibiotic stewardship work. Importantly, telemedicine practices should continue to review antibiotic prescription data and feed data back to clinicians at least quarterly. If antibiotic use unexpectedly increases, additional interventions may be necessary. On the slide is a chart of a hypothetical telemedicine practice’s prescribing pattern for upper respiratory tract infection, acute bronchitis, and influenza. These are three of the “never antibiotics” diagnoses—that is, diagnoses for which antibiotics are never expected to be necessary. In this example, the proportion of visits in which antibiotics were prescribed went down over time, suggesting that while there is always room for further improvement, additional efforts to reduce antibiotic prescribing for these conditions may not be as pressing as for some other conditions. To know this, it would therefore be important to continue to monitor the data. Review the total number of visits for each of these diagnoses. Then, review the proportion of these visits for which an antibiotic was prescribed. Consider such a review on a monthly or quarterly basis.	Slide 11 Proportion of Acute Respiratory Tract Visits With Antibiotic Prescriptions  Continue to review antibiotic prescribing data and feed this data back to practice members at least quarterly. AHRQ Safety Program for Telemedicine: Improving Antibiotic Use Sustainability 11

Slide Title and Commentary

The Iterative Nature of Stewardship

SAY:

This slide represents hypothetical changes in antibiotic prescriptions over time for patients with a diagnosis of influenza.

In this example, after the telemedicine practice implemented changes in how it approaches patients with influenza presenting over telemedicine, the practice had a decrease in the proportion of influenza visits for which antibiotics were prescribed, from approximately 60 percent in November to 20 percent the following March. However, during the subsequent influenza season, percentages increased from 20 percent in November to 60 percent by January.

After reviewing these data, the stewardship team should refocus efforts on influenza rather than moving on to a new infectious condition to target. Consider once again presenting the educational content to the telemedicine practice, such as the [influenza clinician guide](#). Discuss issues such as when to recommend that patients use at-home rapid influenza testing or when to refer for in-clinic rapid influenza testing, how influenza results will be communicated to patients, who should be offered antiviral treatment, and what symptomatic treatment the practice will recommend for patients with influenza.

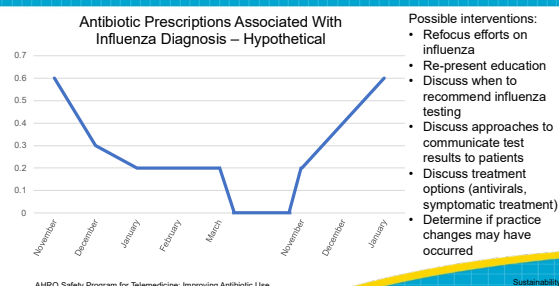
Consider investigating whether any other changes could have negatively impacted antibiotic prescribing for influenza, such as new staff or changes in influenza testing results that led to antibiotic prescriptions.

Similarly, after re-education efforts occur, if the stewardship team still notices an unacceptably high rate of antibiotic prescribing for influenza, consider additional interventions. Examples might include working with information technologists to develop an electronic link to the [influenza clinician guide](#), which includes the diagnostic criteria for when a clinical diagnosis of influenza is reasonable. Similarly, information technology staff may be able to develop an alert in the electronic health record reminding clinicians that antibiotics are generally unnecessary for influenza when an influenza diagnosis is entered. The stewardship team might consider identifying approaches to enable telemedicine patients to have at-home influenza testing.

Slide Number and Slide

Slide 12

The Iterative Nature of Stewardship



Slide Title and Commentary	Slide Number and Slide
Gap Analysis SAY: While identifying new targets for the stewardship team, consider completing a telemedicine practice gap analysis at least every 1–2 years to evaluate existing stewardship activities and to define areas for further improvement that will inform the sustainability plan. A gap analysis tool is available on the toolkit website. The questions labeled “fundamental” on the gap analysis tool indicate components that all telemedicine practices should have in place. The questions labeled “enhanced” indicate components that may further enhance antibiotic stewardship activities. If fundamental components are missing or if the team is not performing core interventions, the tool should help telemedicine antibiotic stewardship teams determine how to manage these deficiencies, including meeting with senior leadership to discuss the need for additional resources before moving on to enhanced items. If the telemedicine practice is missing some of the enhanced items included in the gap analysis (for example, “Does your practice have access to an antibiogram?”) discuss whether implementation of these items might be of benefit to the practice and what resources would be needed to operationalize them.	Slide 13 Gap Analysis • Perform gap analysis every 1-2 years to define areas for further improvement • Use the gap analysis to inform the sustainability plan • Components of gap analysis divided into— ◦ Fundamental: components all antibiotic stewardship teams should have in place ◦ Enhanced: components that may further enhance antibiotic stewardship activities AHRQ Safety Program for Telemedicine: Improving Antibiotic Use  Sustainability 13

Slide Title and Commentary	Slide Number and Slide
Take-Home Messages SAY: After taking initial steps to establish antibiotic stewardship in a telemedicine practice, ongoing stewardship efforts are needed to ensure optimal antibiotic prescribing. There are four components to consider for sustainability: (1) support from executive leadership and the stewardship team, (2) culture of improvement and staff engagement, 3) hardwiring change, and (4) audit and feedback. An initial sustainability plan should include a month-to-month description that addresses the order of the conditions to focus on, the approximate amount of time that will be spent on each condition, the frequency of antibiotic prescription data review, and the frequency of meetings. New sustainability plans should be developed approximately every year after the initial steps are implemented. Measuring antibiotic prescriptions by agent, provider, and condition can inform infectious condition targets to include in the sustainability plan. Similarly, completion of an annual gap analysis can inform ongoing or new stewardship efforts to include in the sustainability plan.	Slide 14 Take-Home Messages ✓ Ongoing stewardship efforts are needed to ensure optimal antibiotic prescribing. ✓ Four components to consider for sustainability: 1) Support from executive leadership and the stewardship team, 2) Culture of improvement and staff engagement, 3) Hardwiring change, and 4) Audit and feedback. ✓ Initial sustainability plan should have a month-to-month description to address the order of the conditions to focus on, the time to spend on each condition, frequency of antibiotic prescription data review, and frequency of meetings. ✓ Update sustainability plans every 1-2 years. ✓ Antibiotic prescription data can help inform infectious condition targets to include in the sustainability plan. ✓ Complete an annual gap analysis. AHRQ Safety Program for Telemedicine: Improving Antibiotic Use Sustainability 14
Disclaimer SAY: Please review this disclaimer.	Slide 15 Disclaimer • The findings and recommendations in this presentation are those of the authors, who are responsible for its content, and do not necessarily represent the views of AHRQ. No statement in this presentation should be construed as an official position of AHRQ or of the U.S. Department of Health and Human Services. • Participants have an implied responsibility to use the newly acquired information to enhance patient outcomes and their own professional development. The information presented in this activity is not meant to serve as a guideline for patient management. Any procedures, medications, or other courses of diagnosis or treatment discussed or suggested in this activity should not be used by clinicians without evaluation of their patient's conditions and possible contraindications and/or dangers in use, review of any applicable manufacturer's product information, and comparison with recommendations of other authorities. AHRQ Safety Program for Telemedicine: Improving Antibiotic Use Sustainability 15
References SAY: Here are the references.	Slide 16 References 1. Centers for Disease Control and Prevention. The core elements of outpatient antibiotic stewardship programs. July 6, 2026. https://www.cdc.gov/antibiotic-use/hcp/core-elements/outpatient-antibiotic-stewardship.html. Accessed July 21, 2026. 2. Keller SC, Cosgrove SE, Miller MA, et al. A framework for implementing antibiotic stewardship in ambulatory care: lessons learned from the Agency for Healthcare Research and Quality Safety Program for Improving Antibiotic Use. <i>Antimicrobial Stewardship & Healthcare Epidemiology</i>. 2022 July 4;2(1):e109. PMID: 36483406. 3. Gerber JS, Prasad PA, Fiks AG, et al. Effect of an outpatient antimicrobial stewardship intervention on broad-spectrum antibiotic prescribing by primary care pediatricians: a randomized trial. <i>JAMA</i>. 2013 Jun 12;309(22):2345-52. PMID: 23757082. 4. Gerber JS, Prasad PA, Fiks AG, et al. Durability of benefits of an outpatient antimicrobial stewardship intervention after discontinuation of audit and feedback. <i>JAMA</i>. 2014 Dec 17;312(23):2569-70. PMID: 25317759. AHRQ Safety Program for Telemedicine: Improving Antibiotic Use Sustainability 16