



Development of an Antibiotic Stewardship Program For Nursing Home Providers



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Welcome to the Centers for Medicare and Medicaid Services training on the Development of an Antibiotic Stewardship Program for Nursing Home Providers. Hello, my name is Sheila Hanns, and I am a Registered Nurse Consultant with the Division of Nursing Homes in the Quality, Safety and Oversight Group, CMS.

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Educational Purposes Only

CMS is offering this lecture to provide other federal resources and information for nursing homes on the development of an antibiotic stewardship program.

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CMS is offering this lecture to provide other federal resources and information for nursing homes on the development of an antibiotic stewardship program. This is for educational purposes only. While CMS requires nursing homes to have an antibiotic stewardship program, this is **not** a discussion of our minimum compliance standards.

Lecture Objectives

1. Define an antibiotic stewardship program (ASP) and why it is important
2. Describe the Centers for Disease Control and Prevention's (CDC) core elements of antibiotic stewardship in nursing homes
3. Describe the Agency for Healthcare Research and Quality's (AHRQ) toolkits and tools for optimizing antibiotic stewardship in nursing homes

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This lecture will cover the following three objectives. First, to define an antibiotic stewardship program or (ASP) and why it is important, second to describe the Centers for Disease Control and Prevention's (CDC) core elements of antibiotic stewardship in nursing homes, and third to describe the Agency for Healthcare Research and Quality's (AHRQ) toolkits and tools for optimizing antibiotic stewardship in nursing homes. These are two tools that can be used for implementing an antibiotic stewardship program.

Defining the Antibiotic Stewardship Program (ASP)

- Antibiotic stewardship refers to a set of commitments and activities designed to “optimize the treatment of infections while reducing the adverse events associated with antibiotic use”

- CDC’s Core Elements of Antibiotic Stewardship for Nursing Homes

- <https://www.cdc.gov/longtermcare/prevention/antibiotic-stewardship.html>

- Antibiotic stewardship refers to programs and activities that promote the appropriate selection and use of antibiotics

- Quality Improvement Organizations’ Nursing Home Training Sessions

- <https://qioprogram.org/nursing-home-training-sessions>

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Antibiotic stewardship refers to a set of commitments and activities designed to “optimize the treatment of infections while reducing the adverse events associated with antibiotic use and refers to programs and activities that promote the appropriate selection and use of antibiotics.” Improving the use of antibiotics in healthcare to protect patients and residents and reduce the threat of antibiotic resistance is a national priority.

CMS Nursing Home ASP Regulations

- Regulations requiring an ASP that includes:
 - Antibiotic use protocols
 - System to monitor antibiotic use
 - Education for prescribing practitioners, residents, and nursing staff
 - Be reviewed on an annual basis and as needed
- Effective: November 28, 2017
 - 42 CFR 483.80(a)(3) Infection Control

000000 Federal Register / Vol. 32, No. 242 / Tuesday, October 4, 2017 / Rules and Regulations

DEPARTMENT OF HEALTH AND HUMAN SERVICES

Centers for Medicare & Medicaid Services

42 CFR Parts 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782, 783, 784, 785, 786, 787, 788, 789, 790, 791, 792, 793, 794, 795, 796, 797, 798, 799, 800, 801, 802, 803, 804, 805, 806, 807, 808, 809, 810, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 830, 831, 832, 833, 834, 835, 836, 837, 838, 839, 840, 841, 842, 843, 844, 845, 846, 847, 848, 849, 850, 851, 852, 853, 854, 855, 856, 857, 858, 859, 860, 861, 862, 863, 864, 865, 866, 867, 868, 869, 870, 871, 872, 873, 874, 875, 876, 877, 878, 879, 880, 881, 882, 883, 884, 885, 886, 887, 888, 889, 890, 891, 892, 893, 894, 895, 896, 897, 898, 899, 900, 901, 902, 903, 904, 905, 906, 907, 908, 909, 910, 911, 912, 913, 914, 915, 916, 917, 918, 919, 920, 921, 922, 923, 924, 925, 926, 927, 928, 929, 930, 931, 932, 933, 934, 935, 936, 937, 938, 939, 940, 941, 942, 943, 944, 945, 946, 947, 948, 949, 950, 951, 952, 953, 954, 955, 956, 957, 958, 959, 960, 961, 962, 963, 964, 965, 966, 967, 968, 969, 970, 971, 972, 973, 974, 975, 976, 977, 978, 979, 980, 981, 982, 983, 984, 985, 986, 987, 988, 989, 990, 991, 992, 993, 994, 995, 996, 997, 998, 999, 1000

New federal regulations now require facilities to implement an antibiotic stewardship program (ASP) that includes: antibiotic use protocols, a system to monitor antibiotic use, education for prescribing practitioners, residents, and nursing staff; and to be reviewed on an annual basis and as needed. These new rules became effective on November 28, 2017, and are found under Section 483.80(a)(3) at Infection Control. We will discuss during this training, tools that facilities can use to implement an antibiotic stewardship program.

Potential Harms from Antibiotic Overuse

- Harms from antibiotic overuse may be significant for the frail and older adults in nursing homes
- These may include:
 - Increased adverse drug events and drug interactions
 - Disruption of normal flora
 - Risk of serious diarrheal infections from *Clostridium difficile*
 - Potential for colonization and/or infection with antibiotic-resistant organisms

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There are serious potential harms from antibiotic overuse for the frail and older adults in nursing homes. These may include: increased risk of adverse drug events and drug interactions (e.g., allergic rash, anaphylaxis, or death); disruption of normal flora resulting in overgrowth of *Candida* such as oral thrush and serious diarrheal infections from *C difficile*, and potential for colonization and/or infection with antibiotic-resistant organisms.

National Strategy for Combating Antibiotic-Resistant Bacteria

Executive Summary

- Antibiotics now save millions of lives each year
- Rise of antibiotic-resistant strains represent a serious threat to public health and economy
- CDC estimates that annually, at least two million illnesses and 23,000 deaths are caused by bacteria that are resistant to antibiotics in the U.S. alone

National Strategy for Combating Antibiotic-Resistant Bacteria; September 2014



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While antibiotics now save millions of lives each year, the rise of antibiotic-resistant strains represent a serious threat to public health and the economy as described in the Executive Summary of the National Strategy for Combating Antibiotic-Resistant Bacteria (CARB). The CDC estimates, annually, that at least two million illnesses and 23,000 deaths are caused by bacteria that are resistant to antibiotics in the U.S. alone.

Examples of Common Unnecessary Antibiotic Use

Urinary Tract Conditions
Positive urine culture/asymptomatic patient
Urinalysis/culture for malodorous urine
Non-specific symptoms (poor appetite, agitation, etc.,)
Respiratory Tract Conditions
Upper respiratory infections (Generally caused by viral pathogens)
Bronchitis absent COPD
Suspected/confirmed influenza
Respiratory Symptoms/terminal patient
Skin
Skin wounds without cellulitis (absence of infection)
Localized abscess (Benefit from I&D)
Decubitus ulcer in terminal patient (focus on comfort care)

Issue: Volume 20 - Issue 4 - April 2012 - ALTC

Citation: Khandelwal C, Lathren C, Sloane P. Ten clinical situations in long-term care for which antibiotics are often prescribed but rarely necessary. *Annals of Long-Term Care: Clinical Care and Aging*. 2012;20(4):23-29.

There are ten clinical situations in nursing homes, as reported by Sloane et al, for which antibiotics are often prescribed but rarely necessary. First, they include treatment of asymptomatic bacteriuria even if positive urine culture or urinalysis is obtained because of malodorous urine.

Second, respiratory tract conditions including upper respiratory infections are unnecessarily treated because they are generally caused by viral pathogens or bronchitis (unless underlying disease in resident with COPD), suspected or confirmed influenza (because it's viral and antibiotics don't affect outcome), and respiratory symptoms in the terminal resident (because it doesn't affect outcome and encourages selection for resistance).

Lastly, skin wounds (without cellulitis) because there is no infection, and decubitus ulcer in the terminal resident, because the emphasis should be on comfort care).

Inappropriate Antibiotic Use

- One of the most common causes of inappropriately prescribed antibiotics is misdiagnosed urinary tract infections (UTIs)
- Only a 1/4 to 1/3 of nursing home residents treated for a UTI have symptoms that meet the clinical definitions for symptomatic infection
- Most cases are diagnosed based on non-specific symptoms such as confusion, falls, or change in character of urine, which alone are not indications of a UTI

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As mentioned, one of the most common causes of unnecessarily prescribed antibiotics is misdiagnosed urinary tract infections. Research evaluations have demonstrated only one fourth to one third of nursing home residents treated with antibiotics for a UTI have symptoms that meet the clinical definitions for symptomatic infection. Most cases are diagnosed based on non-specific symptoms such as confusion, falls, or changes in character of the urine, which do not signal a UTI.

Antibiotic Stewardship Guidelines

Society for Healthcare Epidemiology of America (SHEA) and Association for Professionals in Infection Control and Epidemiology (APIC) Guidelines: Infection Prevention and Control in the Long-term Care Facility (2008)

- Infection prevention programs in NHs should be encouraged to include a component of antibiotic stewardship. Encourage judicious use of antimicrobials with guidelines
 - Monitor utilization and appropriateness
- The facility should monitor antibiotic susceptibility results from cultures to detect clinically significant antibiotic-resistant bacteria [e.g. Methicillin-resistant Staph aureus (MRSA) and Vancomycin-resistant Enterococcus (VRE)]

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The Society for Healthcare Epidemiology of America (SHEA) and the Association for Professionals in Infection Control and Epidemiology (APIC) Guidelines: Infection Prevention and Control in the Long-term Care Facility (2008), stated that infection prevention programs in Nursing Homes should be encouraged to include a component of antibiotic stewardship. The two key goals are to encourage judicious use of antimicrobials per guidelines and to monitor utilization and appropriateness. The facility should monitor antibiotic susceptibility results from cultures to detect clinically significant antibiotic-resistant bacteria [e.g. Methicillin-resistant Staph aureus (MRSA) and Vancomycin-resistant Enterococcus (VRE)].

Knowledge Check (1)

Inappropriate antibiotic use causes all of the following except?

- A. Increased adverse drug events and drug interactions
- B. Risk of colonization and/or infection with antibiotic-resistant organisms
- C. Risk of serious diarrheal infections from *Clostridium difficile*
- D. Cost savings

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Knowledge Check

Let's pause here and do a knowledge check. Answer the following question.

Inappropriate antibiotic use causes all of the following except?

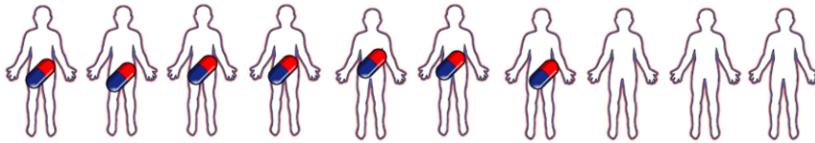
Is the answer:

- A. Increased adverse drug events and drug interactions
- B. Risk of colonization and/or infection with antibiotic-resistant organisms
- C. Risk of serious diarrheal infections from *Clostridium difficile*,
- D. Cost savings

D. Cost savings is the correct answer. Inappropriate use causes development of resistant bacteria, *C. difficile*, and increased adverse drug events and interactions, all of which can be very difficult and costly to treat.

CDC Core Elements of ASP in Nursing Homes (1)

- Antibiotics are among the most frequently prescribed medications in nursing homes
- Up to 70% of residents receive one or more courses of systemic antibiotics annually
- Studies have shown that 40-75% of antibiotics may be unnecessary or inappropriate



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The CDC Core Elements of Antibiotic Stewardship in Nursing Homes has identified that antibiotics are among the most frequently prescribed medications in nursing homes. Up to 70% of residents receive one or more courses of systemic antibiotics annually, and studies have shown 40-75% of antibiotics may be unnecessary or inappropriate.

CDC Core Elements of ASP in Nursing Homes (2)

➤ Leadership Commitment

- Write statements that support improving antibiotic use
- Include stewardship-related duties in job descriptions and annual performance reviews
- Ensure staff are given sufficient time to contribute to stewardship activities
- Support training and education
- Ensure participation from the many groups that can support stewardship activities

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The CDC provides guidance for a robust ASP in NHs. Their guidance consists of nine core elements, which we will review. The first is leadership commitment. Facility leadership, both owners and administrators, as well as regional and national leaders, if the facility is part of a larger corporation, can demonstrate their support in the following ways: write statements that support improving antibiotic use; include stewardship-related duties in job descriptions and annual performance reviews; ensure staff are given sufficient time to contribute to stewardship activities; support training and education; and ensure participation from the many groups that can support stewardship activities.

CDC Core Elements of ASP in Nursing Homes (3)

➤ Accountability

- Empower staff [Medical Director, Director of Nursing (DON), Consultant Pharmacist, Infection Prevention and Control Program Coordinator, etc.]

➤ Drug Expertise

- Identify Consultant Pharmacist
- Develop relationships with infectious disease experts

➤ Action

- Take action through policy and practice change to improve antibiotic use

<https://www.cdc.gov/longtermcare/pdfs/core-elements-antibiotic-stewardship-appendix-a.pdf>

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The CDC recommends empowering staff including the Medical Director to set standards for antibiotic prescribing practices for all clinical providers credentialed to deliver care in a nursing home and be accountable for overseeing adherence. To be effective in this role, the Medical Director should review antibiotic use data and ensure best practices are followed in the medical care of residents in the facility. The Director of Nursing (DON) should set the practice standards for assessing, monitoring, and communicating changes in a resident's condition by front-line nursing staff. Nurses and nurse aides play a key role in the decision-making process for starting an antibiotic. The knowledge, perceptions, and attitudes among nursing staff of the role of antibiotics in the care of nursing home residents can significantly influence how information is communicated to clinicians who are deciding whether to initiate antibiotic therapy. Infection prevention and control program coordinators have key expertise and data to guide strategies to improve antibiotic use.

Nursing homes should establish access to individuals with antibiotic drug expertise to implement antibiotic stewardship activities. Receiving support from infectious disease consultants and consultant pharmacists with training in antibiotic stewardship can help a nursing home reduce unnecessary antibiotic use and experience lower rates of positive *C. difficile* tests. Partnering with antibiotic stewardship program leads at the

hospitals within the facility's referral network, and developing relationships with infectious disease consultants in your community interested in supporting your facility's ASP can additionally be useful.

Antibiotic stewardship actions should be made through written policies to make practice changes to improve antibiotic use. Actions include developing assessment algorithms and communication tools for residents suspected of having an infection; developing testing and treatment guidelines based on national recommendations for common infections; documenting the dose duration, and indication of the prescribed antibiotic; performing an antibiotic "time-out"; and developing a facility-specific report of antibiotic susceptibility. Appendix A of CDC's *Core Elements of Antibiotic Stewardship for Nursing Homes* is a resource for policy and practice actions, and the link is provided at the bottom of the slide.

CDC Core Elements of Antibiotic Stewardship (4)

➤ Tracking and Reporting

- Process measures
 - How and why antibiotics are prescribed
- Antibiotic use measures
 - How often and how many
- Antibiotic outcome measures
 - Adverse outcomes



Appendix B: Measures of antibiotic prescribing, use and outcomes

This document contains more detailed explanations of antibiotic use process and outcome measures which can be tracked by nursing homes to monitor the impact of their antibiotic stewardship activities.

➤ Education

- Prescribing practitioners, nursing staff, residents, and families

<https://www.cdc.gov/longtermcare/prevention/antibiotic-stewardship.html>

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Tracking and reporting antibiotic use and outcomes in nursing homes monitor both antibiotic use practices and outcomes related to antibiotics in order to guide practice changes and track the impact of new interventions. Data on adherence to antibiotic prescribing policies and antibiotic use are shared with prescribing practitioners and nurses to maintain awareness about the progress being made in antibiotic stewardship. Prescribing practitioner response to antibiotic use feedback (e.g., acceptance) may help determine whether feedback is effective in changing prescribing behaviors. Below are examples of antibiotic use and outcome measures.

Process measures can track how and why antibiotics are prescribed. CDC recommends that facilities perform reviews on resident medical records for new antibiotic starts to determine whether the clinical assessment, prescription documentation, and antibiotic selection were in accordance with facility antibiotic use policies and practices.

Appendix B of CDC's *Core Elements of Antibiotic Stewardship for Nursing Homes* provides guidance on potential measures facilities can adopt as part of their antibiotic stewardship program. When conducted over time, monitoring process measures can assess whether antibiotic prescribing policies are being followed by staff and prescribing practitioners.

Antibiotic use measures can track how often and how many antibiotics are prescribed. Tracking the amount of antibiotic used in your nursing home to review patterns of use can determine the impact of new stewardship interventions. Some antibiotic use measures (e.g., prevalence surveys) provide a snap-shot of information; plus, nursing home-initiated antibiotic starts and days of therapy (DOT) are calculated and tracked on an ongoing basis. Selecting which antibiotic use measure to track should be based on the type of practice intervention being implemented. Interventions designed to shorten the duration of antibiotic courses or discontinue antibiotics based on post-prescription review (i.e., “antibiotic time-out”), may not necessarily change the rate of antibiotic starts, but would decrease the antibiotic days of therapy.

Antibiotic use data from nursing homes to improve antibiotic stewardship efforts is important both for individual facility improvements and for public health action. Expansion of electronic health records in nursing homes will allow for facilities to obtain systems which integrate pharmacy and laboratory data and make antibiotic use and resistance data more accessible to facility staff and leadership to improve antibiotic stewardship efforts. CDC is working closely with many nursing home partners including providers, long-term care pharmacies, and professional organizations, to develop an Antibiotic Use (AU) reporting option for nursing homes within the CDC’s National Healthcare Safety Network (NHSN). The NHSN AU option allows for standardized antibiotic use data, submitted electronically, to be aggregated and summarized for developing facility-adjusted national benchmarks.

Antibiotic outcome measures involve the option of tracking the adverse outcomes from antibiotics. Monitor clinical outcomes such as rates of *C. difficile* infections, antibiotic-resistant organisms, or adverse drug events to demonstrate that antibiotic stewardship activities are successful in improving patient outcomes.

Finally, nursing homes should provide antibiotic stewardship education to clinicians, nursing staff, residents, and resident representatives. Effective educational programs address both nursing staff and clinical providers on the goal of an antibiotic stewardship program, and the responsibility of each group for ensuring its implementation. Nursing homes sustain improvements by incorporating both education and feedback to providers. Nursing homes engage residents and their family members in antibiotic use and stewardship educational efforts to ensure clinicians have their support to make appropriate antibiotic use decisions. Working with residents and families will reduce the perception that their expectations may be a barrier to improving antibiotic use in nursing homes. You can find factsheets for residents, their families, prescribing providers, and leadership on CDC’s core elements web page listed at the bottom of the slide.

Core Elements Checklist



Checklist for Core Elements of Antibiotic Stewardship in Nursing Homes

The following checklist is a companion to the Core Elements of Antibiotic Stewardship in Nursing Homes. The CDC recommends that all nursing homes take steps to implement antibiotic stewardship activities. Before getting started, use this checklist as a baseline assessment of policies and practices which are in place. Then use the checklist to review progress in expanding stewardship activities on a regular basis (e.g., annually). Over time, implement activities for each element in a step-wise fashion.

LEADERSHIP SUPPORT	ESTABLISHED AT FACILITY
1. Can your facility demonstrate leadership support for antibiotic stewardship through one or more of the following actions? If yes, indicate which of the following are in place (select all that apply): <input type="checkbox"/> Written statement of leadership support to improve antibiotic use <input type="checkbox"/> Antibiotic stewardship duties included in medical director position description <input type="checkbox"/> Antibiotic stewardship duties included in director of nursing position description <input type="checkbox"/> Leadership monitors whether antibiotic stewardship policies are followed <input type="checkbox"/> Antibiotic use and resistance data is reviewed in quality assurance meetings	<input type="checkbox"/> Yes <input type="checkbox"/> No
ACCOUNTABILITY	
2. Has your facility identified a lead(s) for antibiotic stewardship activities? If yes, indicate who is accountable for stewardship activities (select all that apply): <input type="checkbox"/> Medical director <input type="checkbox"/> Director or assistant director of nursing services <input type="checkbox"/> Consultant pharmacist <input type="checkbox"/> Other _____	<input type="checkbox"/> Yes <input type="checkbox"/> No
DRUG EXPERTISE	
3. Does your facility have access to individual(s) with antibiotic stewardship expertise? If yes, indicate who is accountable for stewardship activities (select all that apply): <input type="checkbox"/> Consultant pharmacy has staff trained/experienced in antibiotic stewardship <input type="checkbox"/> Partnering with stewardship team at referral hospital <input type="checkbox"/> External infectious disease/stewardship consultant <input type="checkbox"/> Other _____	<input type="checkbox"/> Yes <input type="checkbox"/> No
ACTIONS TO IMPROVE USE	
4. Does your facility have policies to improve antibiotic prescribing/use? If yes, indicate which policies are in place (select all that apply): <input type="checkbox"/> Requires prescribers to document a dose, duration, and indication for all antibiotic prescriptions <input type="checkbox"/> Developed facility-specific algorithms for assessing residents <input type="checkbox"/> Developed facility-specific algorithms for appropriate diagnostic testing (e.g., obtaining cultures) for specific infections <input type="checkbox"/> Developed facility-specific treatment recommendations for infections <input type="checkbox"/> Reviews antibiotic agents listed on the medication formulary <input type="checkbox"/> Other _____	<input type="checkbox"/> Yes <input type="checkbox"/> No

This checklist is included at the end of the CDC's guide to the *Core Elements of Antibiotic Stewardship for Nursing Homes*. Facilities should consider completing this two-page checklist to assess policies and practices that are in place and to review progress in expanding stewardship activities on a regular basis.

Nursing Home Antimicrobial Stewardship (AS) Guide



Agency for Healthcare Research and Quality
Advancing Excellence in Health Care

Provides toolkits to help nursing homes optimize their use of antibiotics. <https://www.ahrq.gov/nhguide/index.html>



Nursing Home Antimicrobial Stewardship Guide



Overview of the Guide

The Nursing Home Antimicrobial Stewardship Guide provides toolkits to help nursing homes optimize their use of antibiotics.

Browse Antimicrobial Stewardship Toolkits

Toolkits on four topic areas are available.

Implement, Monitor, and Sustain a Program

Two toolkits help nursing homes start and maintain antimicrobial stewardship programs.

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For the remainder of this training, we will be reviewing the toolkits developed by AHRQ to help nursing homes optimize the use of antibiotics in their facilities. All forms and sample documents discussed can be found at the website shown here.

AHRQ's Guide

Sections of the AHRQ Guide

- I. Implement, Monitor, and Sustain an Antimicrobial Stewardship Program
- II. Determine Whether it is Necessary to Treat a Potential Infection With Antibiotics
- III. Help Prescribing Clinicians Choose the Right Antibiotics
- IV. Educate and Engage Residents and Family Members

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The AHRQ AS Guide is divided into four sections. Beginning with section one, how to implement, monitor, and sustain an antimicrobial stewardship program; section two, how to determine whether it is necessary to treat a potential infection with antibiotics; section three, help for prescribing clinicians to choose the right antibiotics; and section four, how to educate and engage residents and family members. We will review each of these section and resources.

AHRQ's Guide-Toolkits and Tools

I. To Implement, Monitor, and Sustain an ASP

- Toolkit 1. Start an ASP (4 tools)
- Toolkit 2: Monitor and Sustain Stewardship (4 tools)

II. To Determine Whether It Is Necessary To Treat a Potential Infection With Antibiotics

- Toolkit 1. Suspected UTI SBAR Toolkit (4 tools)
- Toolkit 2. Common Suspected Infections: Communication and Decision Making for Four Infections (4 tools)
- Toolkit 3. Minimum Criteria for Three Infections (4 tools)

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Each of the four major sections has toolkits that cover a variety of implementation steps that nursing homes can use to improve antibiotic use. And within the toolkits are multiple sample tools that can be downloaded and modified per facility needs. Section one includes two toolkits on how to start an ASP and how to monitor and sustain stewardship. Section two toolkits include a sample UTI SBAR tool, minimum criteria for three infections, and communication and decision making tools for four infections (which are UTIs, lower respiratory, skin and soft tissue, and gastrointestinal infections).

AHRQ's Guide-Toolkits and Tools Cont.

III. Help to Prescribing Clinicians Choose the Right Antibiotic for Treating an Infection

- Toolkit 1. Working With a Lab To Improve Antibiotic Prescribing (6 tools)
- Toolkit 2. Using Nursing Home Antibigrams To Choose the Right Antibiotic (Concise Antibigram Toolkit) (6 tools)
- Toolkit 3. The Nursing Home Antibigram Program Toolkit: How To Develop and Implement an Antibigram Program (4 phases)

IV. Educate and Engage Residents and Family Members (6 tools)

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Section three of the AHRQ Guide includes how to help prescribing clinicians choose the right antibiotic for treating an infection. Toolkit 1 includes six tools for working with a lab to improve antibiotic prescribing. Toolkit 2 has six tools on how to use nursing home antibigrams to choose the right antibiotic (with a concise antibigram toolkit). And Toolkit 3, the nursing home antibigram program toolkit includes how to develop and implement an antibigram program in four phases.

Section four provides six tools to educate and engage residents and family members.

To Implement, Monitor, and Sustain an ASP

AHRQ Toolkit 1: How to Start an ASP

<https://www.ahrq.gov/nhguide/toolkits/implement-monitor-sustain-program/toolkit1-start-program.html>

- **Gather an ASP Team** (tool 1)
- **Roles and Responsibilities** to track team membership, roles, and responsibilities (tool 2)
- **Implementation Planning Sample Agenda** for the team to plan for the program (tool 4)
- **Draft Policies and Procedures for the ASP**, including a sample policy letter and sample procedure letter (tool 5)

https://www.ahrq.gov/sites/default/files/wysiwyg/nhguide/3_TK1_T5-Draft_Policies_and_Procedures_for_the_Antimicrobial_Stewardship_Program_final.docx

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Toolkit 1 is designed to help a nursing home select, plan for, introduce, and implement an antibiotic stewardship program. The toolkit includes the following tools which are in Word format and can be modified for your facility.

Tool 1, *Gather an ASP Team*, provides a step-by-step guide to creating an antibiotic stewardship program team. First, is to identify champions to promote the importance of an antibiotic stewardship program in the nursing home and gather an ASP team. Depending on the size of the nursing home, the team may be very small (two or three members), or large (five or six members). At a minimum, the antibiotic stewardship program team should include several staff members with different responsibilities who will lead the overall activity. This is a good time to familiarize the team with antibiotic stewardship websites such as those of the CDC and AHRQ. This toolkit also includes an implementation planning sample agenda and draft policies and procedures for the ASP that I will cover in the next slides.

Tool 2-Roles and Responsibilities for ASP

Name	Title	Roles, Responsibilities, and Tasks	Phone & Email
<i>Example</i>	<i>Assistant Director of Nursing</i>	<i>Co-champion and infection control lead.</i> <i>Co-develop agendas.</i> <i>Lead trainings.</i> <i>Monitor the new intervention.</i> <i>Draft policies and procedures; obtain necessary review and approval for new policies and procedures.</i> <i>Help develop staff training.</i> <i>Review whether materials are used.</i> <i>Develop findings related to monitoring the new intervention.</i>	<i>000-000-0000,</i> <i>name@organization.net</i>

In Toolkit 1, tool 2 provides further suggestions and can be used to track assigned roles and responsibilities, like scheduling meetings and conducting the readiness assessment, as well as long-term tasks like monitoring the program. For example, the Assistant Director of Nursing may be the co-champion and infection control lead who will co-develop agendas that are suggested here, to include lead trainings, monitoring new interventions, developing draft policies and procedures to obtain necessary review and approval for new policies and procedures, help to develop staff training, review whether materials are used, and develop findings related to monitoring the new intervention.

Tool 4-Implementation Planning Sample Agenda

Agenda Topic	Amount of Time	Action Items	Person Responsible
1. Overview of purpose of an Antimicrobial Stewardship Program	5 minutes		
2. Overview of toolkit/tools to be implemented	10 minutes		
3. Discussion of changes to workflow (a) Step-by-step discussion of what toolkit use would look like in nursing home (e.g., where blank forms are kept, how they will be handled in the workflow, where will completed forms be kept, etc.) (b) Determine individuals responsible for specific processes and steps (c) Identify potential barriers and how to address them	20 minutes		
4. Start-up activities: Identify activities to be carried out to use the tools (e.g., creation of new forms, data collection, meetings or letters for communication, trainings, etc.)	10 minutes		
5. What is a realistic timeline for starting the program? This estimate should consider time for training, developing policies, and informing others (such as the prescribing clinicians and labs).	5 minutes		
6. Schedule monthly team meeting to review progress and address questions/problems	5 minutes		
7. Identify the next steps and agenda for next meeting	5 minutes		

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Keeping on task and covering all agenda items may be facilitated by having an agenda that includes a specific amount of time allotted for each item of discussion. AHRQ developed an Implementation Planning Sample Agenda (tool 4) for the team to use to plan for the program. This is a good time to review toolkits and discuss what tools your facility would like to use. Also, assigning team member responsibility for specific processes, steps, and potential barriers; start-up activities that would include creating facility forms, data collection forms, letters for communication and trainings etc.; and setting realistic timeframes for each activity are important. Meetings should always conclude with planning for next steps and agenda items for the next meeting.

Tool 5-Draft Policies and Procedures for the ASP

Sample Policy Letter

TO: [Relevant staff]
 FROM: [Antimicrobial stewardship program team]
 RE: [Name of antimicrobial stewardship program intervention]
 DATE: [Date]

Antibiotics are among the most commonly prescribed pharmaceuticals in long-term care settings, yet reports indicate that a high proportion of antibiotic prescriptions are unnecessary. The adverse consequences of unnecessary antibiotic use include adverse drug reactions or interactions, the development of *Clostridium difficile* infections, the emergence of multi-drug resistant organisms, antibiotic failure, increased mortality, and greatly increased costs. The Centers for Disease Control and Prevention characterizes antibiotic resistance as "one of the world's most pressing public health threats." Unnecessary prescribing practices by clinicians and overuse of newer, broad-spectrum antibiotics when either no antibiotic or an older narrow-spectrum drug would suffice are believed to be the primary contributors to this problem. As a result of the above complexities, nursing homes are increasingly recognized as reservoirs of antibiotic-resistant bacteria.

To address these issues, [Name of nursing home] has developed an antimicrobial stewardship program that will [briefly describe goal of selected intervention]. Antimicrobial stewardship is the act of using antibiotics appropriately—that is, using them only when truly needed and using the right antibiotic for each infection. This program includes tools, policies, and procedures that aim to guide nursing home staff toward more responsible and effective use of antibiotics. To achieve our goal, [Name of nursing home] will be [briefly describe specific activities the home will undertake].

This effort, to be implemented beginning [DATE], is crucial to improving outcomes for our residents and the nursing home as a whole. Your participation will be essential.

[NAME AND TITLE OF AUTHORIZING OFFICER]

[DATE]

Sample Procedure Letter

TO: [Relevant staff]
 FROM: [antimicrobial stewardship program team]
 RE: [Name of antimicrobial stewardship program intervention]
 DATE: [Date]

Purpose and Scope

This procedure covers the use of [name of form or tool] at [nursing home name]. Antibiotics are among the most commonly prescribed drugs in long-term care settings, yet reports indicate that a high proportion of antibiotic prescriptions are unnecessary. The use of this procedure can help reduce unnecessary prescribing and lead to fewer antibiotic failures and/or adverse events. The procedures that will be put into place are described below. Questions can be directed to the antimicrobial stewardship program team at [provide contact information].

Responsibility for Implementing the Procedure

[Identify who will implement the procedure]

Procedures

[Add details specific to nursing home]

Documentation

[List and attach any documents that will be used, including clinical guidelines, tools, training materials, and monitoring/tracking documents.]

Tool 5 includes a sample policy and sample procedure letter directed to relevant staff to notify them of the ASP team's interventions being implemented. As needed, the antibiotic stewardship program team should request the nursing home's management or corporate office to help develop, review, edit, and approve all new ASP policies and procedures.

Toolkit 2-ASP Team Meetings

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 for nursing home management
7. Describe how intervention is communicated to prescribing practitioners and/or other facilities such as hospitals
8. Description of how and when staff/prescribing practitioners receive training
9. Description of what quality monitoring will include

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Moving on to Toolkit 2, this provides an example for what to discuss when an antibiotic stewardship program team meeting is held as each of the interventions are being implemented. Beginning with the goals of the intervention, what tools are being used, when the new procedure was issued, how the intervention will be implemented, who is the responsible staff for the intervention, if there is required documentation for the nursing home management, how the intervention will be communicated to prescribing practitioners, how they will receive training, and how and what to monitor.

Toolkit 2-Example Agenda (Tool 1)

https://www.ahrq.gov/sites/default/files/wysiwyg/nhguide/3_TK2_T1-Suggested_Agenda_for_Meeting_on_Monitoring_Final.pdf

Agenda Topic	Time
1. Brief review of antimicrobial stewardship program goals	5 minutes
2. How does antimicrobial stewardship program fit in with existing infection control or quality improvement (QI) efforts?	5 minutes
3. What measures are needed to evaluate progress towards goals? Options range from simple to very complex. (a) Examples of simple measures: (1) the rate of antibiotic use (e.g., the number of fluoroquinolones used), or (2) use of diagnostic criteria tools (e.g., number of Suspected UTI SBAR forms used). (b) Examples of moderately complex measures: (1) number of antibiotic prescriptions divided by the number of resident days, or (2) number of tests done compared to the number of infections treated. (c) Example of complex measures: (1) Focus on a particular infection and look at the rate of compliance with prescribing criteria; or (2) Examine compliance with antibiogram (e.g., percentage of prescribed antibiotics that were appropriate given the susceptibilities indicated by the current antibiogram).	15 minutes
4. What information is already being collected and what new information should be tracked to show whether the nursing home is making progress on specific short- and long-term goals? Examples: Percentage of antibiotic prescriptions, number of residents receiving antibiotics, number and type of infections, number of staff receiving training.	10 minutes
5. Can we use current information collection procedures, or do we need new ones?	5 minutes
6. How will tracking efforts fit into daily and monthly workflows and task responsibilities? Who will track? What format? What information is needed? How will information be obtained? Who will calculate the numbers into monthly/quarterly/annual reports?	15 minutes
7. What summary reports are needed?	5 minutes
8. How will the information in reports be used? Who will see the reports? How often will the antimicrobial stewardship team discuss the results and assess progress? Monthly or bimonthly?	5 minutes

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Nursing homes will be at various stages of implementation of the ASP. Toolkit 2 provides a sample agenda (tool 1) shown here, that includes a suggested list of topics for the antibiotic stewardship program team to discuss in determining what to focus on and how best to monitor and sustain the success of the stewardship program. These discussions will help the team determine which tools to add for use as the program moves forward and how to implement them in each nursing home. Monitoring can also help a nursing home reach quality and infection control goals. The nursing home's QAA committee and infection prevention and control coordinator should be included in discussions so that work can be coordinated.

What measures are needed to evaluate progress toward goals where options range from simple to complex? For example, simple measures can be monitoring rates of antibiotic use like how much quinolones were prescribed? An example of a moderately complex measure is collecting the number of antibiotic prescriptions divided by the number of resident days. An example of a more complex measure is to focus on a particular type of infection and look at the rate of compliance with prescribing criteria. These decisions on choice of a measure may take into consideration what information is already being collected, what new activity would be needed, and how the data for the measure will be collected. For example, are new forms needed and who will track

the measure, how it will be obtained and analyzed and how will that affect workflow? Finally, a facility should determine what summary reports are needed and how that information will be used, who will receive it and how often the team will review and discuss.

Toolkit 2-Antibiotic Use Tracking Sheet (Tool 2)

[illegible]

* CAI = community-acquired infection; HAI = hospital-acquired infection; NHA1 = nursing home-acquired infection; Other Nosocomial = acquired in another health care setting

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October 2016

https://www.ahrq.gov/sites/default/files/wysiwyg/nhguide/3_TK2_T2-Antibiotic_Use_Tracking_Sheet_Final.doc

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Also, in Toolkit 2, is a sample Antibiotic Use Tracking Sheet that is designed to bring together all the data about infections, lab results, x-rays, organisms, names of prescribing clinicians, and antibiotic therapies as well as track if appropriate follow-up communication with residents and/or prescribing clinicians has occurred. The tool is provided in several modifiable formats for printing on paper and as an electronic spreadsheet. Due to space limitations, the smaller versions of the tool track less information than the larger versions. However, these versions are just examples and this tool should be adapted by the antibiotic stewardship program team to suit each nursing home. Nursing homes are already collecting some of this information in infection control logs and medical charts, so the next step to using this tool is figuring out how to blend it into existing practices. The process of filling out the tracking sheet should fit into the normal workflow and division of duties in the nursing home. A designated staff person should be responsible for completing the tracking sheet and nursing staff must have a logical and convenient way of reporting information required.

Data can be collected on a weekly or monthly basis and can be used to create monthly, quarterly, or annual cumulative reports. By bringing the data together in one tool, the Tracking Sheet allows the antibiotic stewardship program team to see trends and patterns in infections and antibiotic use that might not be noticed otherwise. And just

as a reminder, Appendix B of CDC's *Core Elements of Antibiotic Stewardship in Nursing Homes* includes other measures or ways of tracking antibiotic use aside from this example.

Measures of Antibiotic Use

- An antibiotic day: each day that a resident receives a single antibiotic
 - For example, if a resident is prescribed a 7-day course of amoxicillin, that course equals 7 antibiotic days. However, if a resident is prescribed a 7-day course of ceftriaxone plus azithromycin, then that course equals 14 antibiotic days.
- Antibiotic days of therapy (DOT): the sum of all antibiotic days for all residents in the facility during a given time frame (e.g., 1 month or 1 quarter)

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Next, let's look at measures of antibiotic use. Tracking antibiotic days of therapy (DOT) requires more effort, but it provides a better measure to monitor changes over time, so it can determine antibiotic utilization. An antibiotic day is defined as each day that a resident receives a single antibiotic. Antibiotic days of therapy is the sum of all antibiotic days for all residents in the facility during a given time frame for example, one month or one quarter.

Tool 3-Sample Monthly Summary Report

Summary Report of Infections and Antibiotic Use

(This example focuses on data for evaluating antibiotic use for suspected UTIs)

Month	Number of Resident Days	Number of Antibiotic Rx	Number of Antibiotic Rx Divided by Number of Resident Days	Number of Residents Receiving Antibiotics for UTI (incl. Repeats)	Number of UTI SBAR Forms Used	Number of UTIs That Met Diagnostic Criteria	Number of Negative Cultures
Jan	2,790 (90 residents x 31 days)	3	$3/2790 \times 1000 = 1.1$	3	3	3	0
Feb							
Mar							
Apr							
May							
Jun							
Jul							
Aug							
Sept							
Oct							
Nov							
Dec							
TOTAL							

https://www.ahrq.gov/sites/default/files/wysiwyg/nhguide/3_TK2_T3-Sample_Monthly_Summary_Reports_Final.pdf

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Let's discuss how to evaluate progress through the Monthly Summary Reports. This example focuses on data for evaluating antibiotic use for suspected UTIs. The Monthly Summary Report (tool 3) provides suggested categories of information that could be tallied monthly. These tools are examples and will need to be adapted by the antibiotic stewardship program team to suit the goals of the nursing home. For example, each team will need to consider how to report on residents who receive antibiotics more than once in a month. The ability to see a month-to-month comparison of these totals over time allows the antibiotic stewardship program team to evaluate whether antibiotic use is increasing, decreasing, or staying the same. This helps the nursing home show whether the stewardship program is having an impact. It may also allow the antibiotic stewardship program team to measure progress toward more specific goals. For example, has there been a decrease in treatment of residents who do not meet the diagnostic criteria? Is there decreased use of particular antibiotics (e.g., fluoroquinolones)? Being able to monitor changes in these measures allows the antibiotic stewardship team to identify where action may be needed to improve the use of antibiotics.

Measures for Antibiotic Use

Percent of new antibiotic starts (time):

Number of new antibiotic starts (e.g., 2 in Jan.) x 100 = **(e.g., 2.2%)**

Total number of residents in the facility (e.g., 90)

Can be stratified by specific characteristics....e.g., long versus short stay)

OR

Antibiotic treatments per 1000 resident days (time):

Number of days of antibiotic treatment (e.g., 30 in Jan.) x 1000 =

Total number of resident days (31 days in Jan. x 100 residents = 3100)

(e.g. 10 days of antibiotics per 1000 resident days)

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The facility must create a system of reports related to monitoring antibiotic usage and resistance data. Examples may include summarizing antibiotic use from pharmacy data such as the rate of new starts or days of antibiotic treatment per thousand resident days; or types of antibiotics prescribed. In the first example, we seek to obtain the percent or rate of new antibiotic starts in residents over a specific period such as one month. The calculation formula includes taking the total number of residents who received an antibiotic course divided by the total number of residents in the facility and then multiplying that result by a 100 to determine the rate or percentage. This can be stratified by specific characteristics such as long versus short stay.

The second example determines the rate of antibiotic treatments per 1000 resident days. The calculation includes the number of days of antibiotic treatment in a month divided by the total number of resident days which is found by multiplying 31 days in the month of January by the number of residents in house (or average number of residents in house for that month if the number varies). In this example we get 0.00967. Then multiply that number by 1000 which results in 9.67 and we round up to 10 days. This cannot be expressed as a percentage but as the antibiotic treatments per 1000 resident days.

Knowledge Check (2)

Resident receives 5 days of Keflex and Clindamycin, then 7 days of vancomycin in one month. What is antibiotic days of therapy for that month for this resident?

- A. 2
- B. 12
- C. 17
- D. 3

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Ok so here is another knowledge check.

The question states, "A resident receives, five days of Keflex and five days of Clindamycin, then seven days of vancomycin in one month. What are the antibiotic days of therapy for that month for this resident?"

- A. 2 days
- B. 12 days
- C. 17 days
- D. 3 days

C is the correct answer. 17 days as $5 + 5 + 7 = 17$

Tool 6-Quarterly or Monthly Prescribing Profile

An example of how to communicate results to a prescribing practitioner.

Resident Name	Infection Type/ Diagnosis	Last Treated	Organism Identified	Rx Date	Rx Duration	Antibiotic Name	Dose	Met Minimum Criteria

Provided here is a sample of a Quarterly or Monthly Prescribing Profile, the purpose of which is to provide an example of how to communicate results to prescribing practitioners. This is to inform prescribing practitioners of the infection type or diagnosis, when it was last treated, if an organism was identified, the date treatment started and duration, antibiotic name, dose, and most importantly if minimum criteria was met based on nationally accepted guidelines the facility follows.

How to Sustain Updated Stewardship

Review for Guideline Updates

- Check annually to see whether the guidelines regarding antibiotic use (e.g., indications for urinary tract infections) have changed
- For the most up-to-date guidelines, review the CDC web page:
<https://www.cdc.gov/longtermcare/staff.html>

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Facilities also need to think about how to sustain updated stewardship. AHRQ suggests checking annually to see whether the nationally recognized guidelines regarding antibiotic use (e.g., criteria for urinary tract infections) have changed.

For the most up-to-date guidelines, review the CDC web page shown here.

Treat a Potential Infection With Antibiotics?

Minimum Criteria for Antibiotics Tool

<https://www.ahrq.gov/nhguide/toolkits/determine-whether-to-treat/antibiotic-tool.html>

- Toolkit 1. Suspected UTI Situation, Background, Assessment, and Request (SBAR) Toolkit
- Toolkit 2. Common Suspected Infections: Communication and Decision Making for Four Infections
- Toolkit 3. Minimum Criteria for Three Infections

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In section two, Determine Whether it is Necessary to Treat a Potential Infection With Antibiotics, AHRQ has created decision support tools that can help prescribers determine appropriate treatment for nursing home residents suspected of having one of three common infections: urinary tract, skin and soft tissue, and lower respiratory. It uses criteria from the SBAR forms included in the Minimum Criteria for Common Infections Toolkit. SBAR stands for situation, background, assessment, and request. Toolkit 3 includes a mobile Web Site/Web Application presenting the decision-making tree for prescribing clinicians.

Suspected UTI SBAR Tool

CHOOSE POTENTIAL INFECTION (CHOOSE ONE):

Urinary Tract Infection

Skin and Soft Tissue Infection

Lower Respiratory Tract Infection

Does the resident have:

No indwelling catheter

Indwelling catheter


Notes:


1. Urine cultures should not be performed on a scheduled basis (e.g., monthly).
2. Urine cultures should not be used to identify UTIs in the absence of symptoms.
3. Smelly or cloudy urine is not a symptom of a UTI.
4. Residents with an intermittent catheter or a condom catheter should be evaluated as if they are not catheterized.
5. Urine cultures should be used to identify the most appropriate antibiotic. For residents with acute dysuria, it may be appropriate to initiate empirical antibiotic therapy; but for all other symptoms, wait for a urine culture.
6. For residents who regularly run a lower temperature, use a temperature of 2°F (1°C) above the baseline as a definition of a fever.

Does the resident have acute dysuria?

Yes

No


Minimum criteria for initiating antibiotics are MET



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The Suspected UTI SBAR tool helps nursing home staff and prescribing practitioners communicate about suspected UTIs and facilitates appropriate antibiotic prescribing. This tool consists of questions that help nurses collect the most relevant information about a resident with a suspected UTI for the prescribing practitioner, who then uses the information to assess the need for an antibiotic prescription. To use the tool, first select the type of suspected infection. Then answer the questions that appear on screen. When the tool has enough data to make a determination, it will tell you if the minimum criteria for antibiotics are met and identify other actions to consider. A green check mark means the minimum criteria for antibiotics are met. A red X means the minimum criteria for antibiotics are not met.

Suspected UTI SBAR Tool Continued

https://www.ahrq.gov/sites/default/files/wysiwyg/nhguide/4_TK1_T1-SBAR_UTI_Final.pdf

Suspected UTI SBAR

Complete this form before contacting the resident's physician.

Date/Time _____

Nursing Home Name _____

Resident Name _____ Date of Birth _____

Physician/NP/PA _____ Phone _____

Fax _____

Nurse _____ Facility Phone _____

Submitted by ☐ Phone ☐ Fax ☐ In Person ☐ Other _____

S Situation

I am contacting you about a suspected UTI for the above resident.

Vital Signs BP _____ / _____ HR _____ Resp. rate _____ Temp. _____

B Background

Active diagnoses or other symptoms (especially, bladder, kidney/genitourinary conditions)

Specify _____

☐ No ☐ Yes The resident has an indwelling catheter

☐ No ☐ Yes Patient is on dialysis

☐ No ☐ Yes The resident is incontinent If yes, now/worsening? ☐ No ☐ Yes

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Why should a nursing home use the Suspected UTI SBAR tool? UTIs are one of the most commonly diagnosed infections in nursing homes. However, it can be difficult to differentiate between a UTI that requires an antibiotic prescription and asymptomatic bacteriuria, which does not require antibiotics and should not be treated. As such, the Suspected UTI SBAR tool aims to help prescribing clinicians make this differentiation by stepping through minimum criteria to make a consistent and most accurate diagnosis. The Situation Section is completed by recording resident vital signs. The Background Section provides information on active diagnoses or other symptoms especially relevant to the site of infection.

Suspected UTI SBAR Tool Continued

Nursing Home Name _____ Facility Fax _____ Resident Name _____	
A Assessment Input (check all boxes that apply)	
Resident WITH indwelling catheter The criteria are met to initiate antibiotics if one of the below are selected No Yes <input type="checkbox"/> <input type="checkbox"/> Fever of 100°F (38°C) or repeated temperatures of 99°F (37°C)* <input type="checkbox"/> <input type="checkbox"/> New back or flank pain <input type="checkbox"/> <input type="checkbox"/> Acute pain <input type="checkbox"/> <input type="checkbox"/> Rigors /shaking chills <input type="checkbox"/> <input type="checkbox"/> New dramatic change in mental status <input type="checkbox"/> <input type="checkbox"/> Hypotension (significant change from baseline BP or a systolic BP <90)	Resident WITHOUT indwelling catheter Criteria are met if one of the three situations are met No Yes <input type="checkbox"/> <input type="checkbox"/> 1. Acute dysuria alone OR <input type="checkbox"/> <input type="checkbox"/> 2. Single temperature of 100°F (38°C) and at least one new or worsening of the following: <input type="checkbox"/> urgency <input type="checkbox"/> suprapubic pain <input type="checkbox"/> frequency <input type="checkbox"/> gross hematuria <input type="checkbox"/> back or flank pain <input type="checkbox"/> urinary incontinence OR <input type="checkbox"/> <input type="checkbox"/> 3. No fever, but two or more of the following symptoms: <input type="checkbox"/> urgency <input type="checkbox"/> suprapubic pain <input type="checkbox"/> frequency <input type="checkbox"/> gross hematuria <input type="checkbox"/> incontinence
Nurses: Please check box to indicate whether or not criteria are met <input type="checkbox"/> Nursing home protocol criteria are met. Resident may require UA with C&S or an antibiotic.† <input type="checkbox"/> Nursing home protocol criteria are NOT met. The resident does NOT need an immediate prescription for an antibiotic, but may need additional observation.††	
R Request for Physician/NP/PA Orders	
Orders were provided by clinician through <input type="checkbox"/> Phone <input type="checkbox"/> Fax <input type="checkbox"/> In Person <input type="checkbox"/> Other _____ <input type="checkbox"/> Order UA <input type="checkbox"/> Urine culture	

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Note the Suspected UTI SBAR differentiates in the Assessment Section between diagnostic criteria for residents with urinary catheter versus those without a urinary catheter. The Suspected UTI SBAR form (tool 1) is available as a PDF and in a simplified, one-page Word format that can be edited.

Toolkit 1-Implement the Suspected UTI SBAR

Implementing the Toolkit Involves Four Steps

1. Introduce the Suspected UTI SBAR form to prescribing practitioners (tool 1)
2. Clinician Letter: A template for a letter to prescribing clinicians explaining the form and its rationale (tool 2)
3. Introduce the tools to nurses (tool 4)
4. Incorporate tools into daily practice (tool 3)

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How do I implement the Suspected UTI SBAR Toolkit? Implementing the toolkit involves four steps. Successful implementation relies on prescribing practitioners for the nursing home, the residents' personal doctors, and local hospitals that may treat or refer residents. Once prescribing practitioners become familiar with the Suspected UTI SBAR form and its value, they will be more inclined to follow the guidelines outlined in tool 1 and expect nurses to use it. Prescribing practitioners can be sent a letter, and a sample is provided in tool 2.

Successful implementation also relies on support from users - the nurses. Tool 4 provides sample training modules that can be used to introduce nursing staff to the Suspected UTI SBAR form. The presentation can also include copies of the Suspected UTI SBAR form, a discussion about the rationale for using the form, and a discussion about available technical support. Evidence from the scientific or best practices literature can be made available. A periodic refresher training is also helpful as a reminder to staff and to make sure new staff understand how to use the tools.

To incorporate tools into daily practice, champions or other staff can provide copies of the Suspected UTI SBAR form to the nursing staff, re-emphasize the rationale for using the tool, and communicate expectations for use. A periodic review of charts and

prescription trends can validate whether the Suspected UTI SBAR form is being used. The handout *Not All Infections Need Antibiotics*, (tool 3) also can be given to nurses.

Knowledge Check (3)

All the following are true about prescribing protocols (e.g. SBAR) except?

- A. Applies to some residents but may not apply to others
- B. Consists of questions that help nurses collect the most relevant information for prescribing physicians
- C. Improves ability to identify symptomatic residents from asymptomatic
- D. First step is to incorporate the tool into daily practice

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Knowledge Check

Let's look at this next knowledge check.

All the following are true about prescribing protocols (e.g. SBAR) except?

- A. Applies to some residents but may not apply to others
- B. SBAR consists of questions that help nurses collect the most relevant information for prescribing physicians
- C. Improves ability to identify symptomatic residents from asymptomatic
- D. First step is to incorporate the SBAR tool into daily practice

A is the correct answer, because it is false. Facilities should consistently use prescribing protocols (e.g. SBAR) for evaluating potential infections.

Section III - Choose the Right Antibiotic

Help Prescribing Practitioners Choose the Right Antibiotic

- Toolkit 1. Working With a Lab To Improve Antibiotic Prescribing
- Toolkit 2. Using Nursing Home Antibigram To Choose the Right Antibiotic (Concise Antibigram Toolkit)
- Toolkit 3. The Nursing Home Antibigram Program Toolkit: How To Develop and Implement an Antibigram Program

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Section three provides tools to help prescribing practitioners choose the right antibiotic. Toolkit 1 instructs facilities to work with a lab to improve antibiotic prescribing. Toolkit 2, the Concise Antibigram Toolkit, explains how to use nursing home antibiograms to choose the right antibiotic. Toolkit 3 is the Nursing Home Antibigram Program Toolkit which supplies information about how to develop and implement an antibiogram program.

Purpose and Use of the Antibigram

Working With Your Lab To Improve Antibiotic Prescribing (tool 1)

https://www.ahrq.gov/sites/default/files/wysiwyg/nhguide/5_TK1_T1-Background_final.pdf

Background: Purpose and Use of the Antibigram

- Encourage responsible use of antibiotics throughout facilities. Prescribing practitioners can check before initiating empiric antibiotic therapy, which may improve outcomes
- Good way to detect changes in resistance patterns
- Can be inexpensive to develop and maintain, and results are easily accessible to health care providers

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A nursing home-specific antibiogram may be an effective and inexpensive tool for improving appropriate antibiotic prescribing. An antibiogram is a report that displays the organisms present in clinical specimens that nursing homes send for laboratory testing aggregated across all residents for a certain time period along with the susceptibility of each organism to various antibiotics. These tools utilize microbiologic data from resident specimens from a specific nursing facility to estimate prevalence of antibiotic susceptibilities for common bacterial pathogens.

Prescribing practitioners can consult these tools before initiating empiric antibiotic therapy, which may improve outcomes among residents with infections. They are also an important component of monitoring trends in antimicrobial resistance within a nursing home. Because antibiograms provide information on susceptibility patterns in your facility, they may help to reduce prescribing of antibiotics with high resistance rates.

Antibiograms can be inexpensive to develop and maintain. The results should be easily accessible to health care providers.

Purpose And Use Of The Antibigram Cont.

What to Know About the Use of an Antibigram:

- Not generalizable to different nursing homes
- Selection of empiric therapy in a particular resident should not be based solely on an antibiogram
- Only captures the aggregate proportion of susceptible isolates for a given organism–antibiotic combination
- Useful guidance on facility resistance patterns can be given to prescribing practitioner

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What should you know about using an antibiogram? Antibiograms are not generalizable to different nursing homes; they can be useful tools for guiding empiric therapy and monitoring antibiotic susceptibility trends within a specific nursing home. Selection of empiric therapy in a particular resident should not be based solely on an antibiogram. A resident's particular infection history, including past antimicrobial use, must also be considered. Antibiograms only capture the aggregate proportion of susceptible isolates for a given organism–antibiotic combination. Antibiograms provide guidance for empiric antibiotic use in residents, but other factors including resident characteristics and prevalence of other risk factors should be incorporated when making therapeutic decisions. For the prescribing practitioner it may be helpful to examine the antibiogram and identify one or two antibiotics that are not working with a specific organism. For example, the key message is that X antibiotic is not working for urinary tract infections because of significant resistance, so please avoid that antibiotic.

How To Obtain An Antibigram From A Lab

https://www.ahrq.gov/sites/default/files/wysiwyg/nhguide/5_TK1_T2-Working_with_a_lab_final.pdf

Step-by-Step Guide to Working With a Laboratory To Obtain an Antibigram:

1. Contact the nursing home's lab to inquire about creating an antibiogram - use at least 12 months of culture data
2. If needed, make an agreement with the lab to create an antibiogram (tool 3)
3. Establish the specifications for the antibiogram - lab creates the antibiogram in accordance with quality standards as established by the Clinical and Laboratory Standards Institute (CLSI) guideline number M39 (www.clsi.org)
4. Specify the format of the antibiogram (tool 4)

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Next, let's look at how to obtain an antibiogram from a lab. Most labs have this capability and producing the report requires little additional effort for lab staff. As a result, many labs are able to provide an annual antibiogram report at little or no additional charge. If your lab cannot provide an antibiogram, the Concise Antibiogram Toolkit and the Comprehensive Antibiogram Toolkit explain ways that nursing home staff can create their own antibiogram. At least twelve to twenty-four months of culture data are typically needed, so the lab must have been under contract to the nursing home for at least that many months. In rare circumstances, nursing homes may use more than one lab. In that case, use the lab with the most data.

First, talk with the appropriate lab personnel, typically the lab's medical staff (e.g., microbiologist or medical director), business office, or the marketing office. These discussions should cover the lab's capacity to produce antibiograms that meet the nursing home's needs, the time needed for the lab to create or update the antibiogram, adequate number of samples, and the costs involved, if any.

Second, make an agreement with the lab to create an antibiogram. If needed, most labs will provide an antibiogram as a routine part of their service to their customers and may not require any additional paperwork or payment. If an agreement is needed, the

Medical Director, together with nursing home management, should review the standing agreement or contract that the nursing home has with the laboratory and modify the contract as necessary. The contract should explicitly request an antibiogram report created in accordance with the criteria outlined below. Ask if the lab can produce a report that is already formatted for printing in an acceptable style. If modifying the contract is not feasible, then the nursing home can create a letter of agreement requesting the antibiogram report. Nursing home management should review and approve the letter of agreement before it is sent to the lab. A sample letter of agreement is provided in tool 3.

The lab should create the antibiogram in accordance with quality standards as established by the Clinical and Laboratory Standards Institute (CLSI) guideline number M39, and the website is provided here. The lab will likely already be familiar with these standards, but it may be helpful to refer to the guideline during talks with the lab.

Lastly, specify the format of the antibiogram. Talk with lab staff about the possible formats for the antibiogram report and decide which format works best for the nursing home. Tool 4 provides examples of antibiogram reports. The lab may be able to provide a spreadsheet or Word file which allows the nursing home to adapt the format for its own uses, or a formatted PDF file, which cannot accidentally be altered. It may also be able to provide the antibiogram in multiple formats. The lab may be able to produce a report formatted to your exact specifications, including warnings about organisms with less than 30 isolates. However, they may charge a fee for the work required to reformat the standard report produced by the lab's software. The Medical Director should work with nursing home leadership to determine whether it is best for the lab to do this or whether this could be done by staff at the nursing home.

Nursing Home Antibigram Program Toolkit 3

How to Implement the AHRQ Comprehensive Antibigram Toolkit

- **Phase 1. Assessment and Planning** - Determine what prescribing practitioners and facility resources are available for implementing the antibigram, checklists, and other preparatory materials to support planning
- **Phase 2. Development** - Work with clinical laboratories and develop an antibigram
- **Phase 3. Implementation** - Train prescribing practitioners and nurses to use the antibigram
- **Phase 4. Program Monitoring** - Monitor and evaluate the antibigram and track the antibiotics prescribed

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Implementing the comprehensive AHRQ antibigram toolkit involves four phases with activities within each phase. Each phase contains multiple tools to support implementation. Phase one is assessment and planning which involves determining whether prescribing practitioners and the nursing home facility have the resources and the level of interest for implementing the toolkit. It also includes checklists and other preparatory materials to support planning. Phase two is development. This phase focuses on working with clinical laboratories and developing an antibigram. Phase three is implementation. This phase involves training prescribing practitioners and nurses to use the antibigram. The consultant pharmacist should assist with the training. Phase four is program monitoring. This phase focuses on monitoring and evaluating the antibigram and tracking the antibiotics prescribed.

The Nursing Home Antibiotogram Program Toolkit 3 Cont.

Phase 1. Assessment and Planning

https://www.ahrq.gov/sites/default/files/wysiwyg/nhguide/5_TK2_P1O-Comprehensive_Antibiotogram_Toolkit_Phase_1_Assessment_and_Planning_final.pdf

- Assessment Tools

- The Antibiotogram Program: Nursing Home Readiness and Resources Assessment

https://www.ahrq.gov/sites/default/files/wysiwyg/nhguide/5_TK2_P1T1-Nursing_Home_Readiness_and_Resource_Assessment_Phase_1.pdf

- The Antibiotogram Program: Clinical Prescriber Survey

https://www.ahrq.gov/sites/default/files/wysiwyg/nhguide/5_TK2_P1T2-Prescribing_clinician_survey_Phase_1_final.pdf

- The Antibiotogram Program: Checklist for Discussion with Local Hospitals and Providers including Emergency Departments

https://www.ahrq.gov/sites/default/files/wysiwyg/nhguide/5_TK2_P1T3-Checklist_for_Discussion_with_Local_Hospitals_Providers_ERs_Phase_1.pdf

- Planning Tools

- The Antibiotogram Program: Fact Sheet

https://www.ahrq.gov/sites/default/files/wysiwyg/nhguide/5_TK2_P1T4-Antibiotogram_Factsheet_Phase_1.pdf

- The Antibiotogram Program: Sample Timeline (available in Word only)

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To ensure the success of any new program, it is customary to assess the environment and devise a detailed plan for implementation. Phase one contains several checklists created to assist with assessment and planning. These checklists are meant to help facility staff think through various facets of nursing home operations that could affect the success of an antibiotogram program. The checklists are not meant to deter a facility from embarking on such an effort and, for that reason, were not configured to include any type of scoring system to indicate a particular point above or below which a facility should proceed or not. Each facility is unique, and the decision to implement a new program will hinge on a number of factors. The goal is to prompt a thorough review of those factors. It is reasonable to allow one to two months from the initial data request to production of the first antibiotogram.

The Nursing Home Antibigram Program Toolkit 3 Cont.

Phase 2. Development

https://www.ahrq.gov/sites/default/files/wysiwyg/nhguide/5_TK2_P2O-Comprehensive_Antibiogram_Toolkit_Phase_2_Development.pdf

- Nursing Home/Clinical Laboratory Communication
 - The Antibigram Program: Sample Letter of Agreement (Word only)
 - The Antibigram Program: Sample Data Request (Word only)
 - The Antibigram Program: Antibigram Specifications
- Antibigram Development
 - The Antibigram Program: Antibigram Development Tool Workbook (Excel)
 - The Antibigram Program: Sample Laboratory Data Print Out (Word only)
 - The Antibigram Program: Checklist for Identifying Nursing Home-Specific Antibigram Modifications

https://www.ahrq.gov/sites/default/files/wysiwyg/nhguide/5_TK2_P2T3-Antibiogram_Specifications_Phase_2.pdf

https://www.ahrq.gov/sites/default/files/wysiwyg/nhguide/5_TK2_P2T7-Checklist_for_Identifying_Nursing_Home_Specific_Antibiogram_Modifications_Phase_2.pdf

- The Antibigram Program: Sample Antibigram

https://www.ahrq.gov/sites/default/files/wysiwyg/nhguide/5_TK2_P2T8-Sample_Antibiogram_Phase_2.pdf

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Developing an antibigram can initially appear to be a complex task beyond the scope of the average nursing home, but experience shows that such development can be accomplished by a nursing home using existing data and resources. The antibigram development group should include, at a minimum, a program champion, the nursing home's Medical Director, and the staff member in charge of infection control. Additional people who could be involved in reviewing the antibigram prior to distribution include interested clinicians and infectious disease consultants. To develop the antibigram, the program champion should first understand how antibigrams are constructed and review the steps to obtain the data and collate it into an antibigram. Second, a data request needs to be made to the nursing home's clinical laboratory, based on industry standard specifications. Third, either the clinical laboratory generates an antibigram report using an existing software program, or it provides the microbiologic data to nursing home staff who enter the data into a template or an automated antibigram tool such as the Antibigram Development Tool. The antibigram (either the one generated by laboratory software or the one created by the nursing home from microbiologic data) should be formatted so that it is specific to the nursing home and complies with quality specifications for antibigrams.

Materials Include:

Clinical Laboratory Communication Tools

Sample Letter of Agreement

Sample Data Request

Antibiogram Specifications

Antibiogram Development Tools

Antibiogram Development Tool Workbook

Antibiogram Tool

Sample Laboratory Data Printout

Checklist for Identifying Nursing Home-Specific Antibiogram Modifications

Sample Antibiogram

Drug Susceptibility Report

DRUG SUSCEPTIBILITY REPORT

Selection criteria:
 Date from: 01/01/10 to: 09/30/10 Organism Classes:
 Infectious org.: Patient Types: Sex: Positive:
 One org. per stay: N Except sensitivity changes: N
 Spec Proc.: all Coarrose: all
 Body Sites: all
 Tests: all Ward: 15106 0540
 Organisms: all
 Department: all Wkct: all
 Doctors: all Tech: all
 Antibiotics: all
 Disc. Res: all

Sorted by: Total Y Antibiotic

TOTALS:	Checked	Qualified	Positive (%)	Cancelled	Not Fin.	No Iso.Id
	31902	1268	1268 (100)	9	7	0

	Escherichi coli	Enterococo species	Klebsiella pneumoniae	Math-rasis Staph aureus	Proteus mirabilis	Vancomycin Resistant Enterococo species	Pseudomona aeruginosa	Klebsiella oxytoca	Enterobact cloacae
# ISOLATES	36	15	9	7	7	6	6	3	3
Antimicrobials									
Levofloxacin	35 57%	15 60%	9 89%	6 0%	7 71%	6 0%	6 67%	3 100%	3 100%
Nitrofurantoin	35 91%	14 100%	9 22%	2 100%	7 0%	4 0%	-	3 100%	3 0%
Gentamicin	36 89%	-	9 100%	7 100%	7 86%	-	6 100%	3 100%	3 33%
Ampicillin	36 42%	15 93%	9 0%	1 0%	7 86%	6 0%	-	3 0%	-

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Displayed here is a Sample Laboratory Data Printout of a micro lab drug susceptibility report or antibiogram from AHRQ Toolkit Phase two. The red box shows that this laboratory had 36 isolates of *E. coli*; 35 were tested for Levofloxacin, and 57 percent were sensitive. The blue box shows that the laboratory tested 35 isolates for Nitrofurantoin, and 91 percent were sensitive.

The Nursing Home Antibigram Program Toolkit 3

Phase 3. Implementation

https://www.ahrq.gov/sites/default/files/wysiwyg/nhguide/5_TK2_P3Q-Comprehensive_Antibigram_Toolkit_Phase_3_Implementation.pdf

- Policy and Procedures
 - The Antibigram Program: Sample Policy Document
https://www.ahrq.gov/sites/default/files/wysiwyg/nhguide/5_TK2_P3T1-Sample_Policy_Phase_3.pdf
 - The Antibigram Program: Sample Procedures Document
https://www.ahrq.gov/sites/default/files/wysiwyg/nhguide/5_TK2_P3T2-Sample_Procedures_Phase_3.pdf
- Training Materials
 - The Antibigram Program: Antibigram Fact Sheet
https://www.ahrq.gov/sites/default/files/wysiwyg/nhguide/5_TK2_P3T3-Antibigram_Factsheet_Phase_3.pdf
 - The Antibigram Program: Training Slides for Clinical Prescribers (Word or PowerPoint available)
 - The Antibigram Program: Training Slides for Nurses (Word or PowerPoint available)
 - The Antibigram Program: Sample Vignettes and Discussion Questions
- Dissemination Materials
 - The Antibigram Program: Sample Pocket Card Short Version (Word only)
 - The Antibigram Program: Sample Pocket Card Long Version (Word only)
 - The Antibigram Program: Sample Email for Distribution of the Antibigram
https://www.ahrq.gov/sites/default/files/wysiwyg/nhguide/5_TK2_P3T9-Sample_email_for_distribution_of_the_antibigram_Phase_3.pdf

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After the antibigram has been developed, the nursing home team will need a plan for how the program will be introduced and sustained. Nursing home management should decide if a new policy is required; if so, this must be developed and communicated. Procedures to cover the roles and responsibilities of key staff as well as the multiple operational processes involved may be necessary. The procedures developed for the antibigram program should serve as the foundation for implementing the program and will likely require input from all members of the antibigram team (i.e., nursing staff, Medical Director, and administration). During the implementation phase, the antibigram team will also develop a timeline for rolling out the antibigram (if not already developed during the planning phase), training materials for clinical staff, training for all staff affected, and the initial implementation. AHRQ has provided multiple sample training tools to include a fact sheet, training PowerPoints for prescribers and nurses, vignettes, and sample pocket cards.

The Nursing Home Antibigram Program Toolkit 3 Cont.

Phase 4. Monitoring

https://www.ahrq.gov/sites/default/files/wysiwyg/nhguide/5_TK2_P4O-Comprehensive_Antibiogram_Toolkit_Phase_4_Monitoring.pdf

- Quality Assurance
 - The Antibigram Program: Antibiotic Use Tracking Sheet
 - The Antibigram Program: Quality Improvement Review Tool for Antibiotic Use in Urinary Tract Infection
- Monitoring
 - The Antibigram Program: Antibigram Feedback Survey

https://www.ahrq.gov/sites/default/files/wysiwyg/nhguide/5_TK2_P4T2-Quality_Improvement_Review_Tool_for_Antibiotic_Use_in_UTI_Phase_4.pdf

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The goal of this tool is to allow nursing home staff to review empiric antibiotic choices recorded in the *Antibiotic-Use Tracking Sheet* to see if prescribing is consistent with national guidelines and with the nursing home's resistance/susceptibility patterns. Key aims of monitoring are to track the use of antibiotics with high levels of resistance as empiric antibiotics and the use of broad versus narrow-spectrum antibiotics. The review will classify each antibiotic as being significantly resistant if less than 80 percent sensitive or not significantly resistant based on the nursing home antibiogram; as either a narrow or broad spectrum; or identified as appropriate or potentially inappropriate, based on guidelines. Finally, the monitoring tool called the *Antibiogram Feedback Survey* allows for prescriber feedback.

Section 4-Educate Clinicians, Staff, and Residents

Facility must provide educational resources and materials about antibiotic resistance and opportunities for improving antibiotic use to:

- Prescribing practitioners (e.g., MDs, NPs, PAs, PharmDs)
- Nursing staff (e.g., RNs, LPNs)
- Residents and their representatives

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The last of the four AHRQ sections focuses on education of clinicians, staff and residents. A facility must provide educational resources and materials about antibiotic resistance and the opportunity for improving antibiotic use to prescribing practitioners, nursing staff, and residents and their representatives. Providing educational materials to each of these groups is critical as push back on accepting ASP interventions have been cited as barriers to implementation and sustained improvement.

Educate Clinicians, Staff, and Residents Cont.

- *Talking With Residents* is for nurses to educate residents about antibiotics and encourage them to ask questions or report symptoms (tool 1)
 - Long version
https://www.ahrq.gov/sites/default/files/wysiwyg/nhguide/6_TK1_T1-Talking_with_Residents_checklist_version_Final.docx
- *Talking With Residents' Family Members* provides similar talking (tool 2)
 - Long version
https://www.ahrq.gov/sites/default/files/wysiwyg/nhguide/6_TK1_T2-Talking_with_Residents_Family_Members_Final.pdf
- *Resident Information Sheet: Antibiotic-Resistant Bacteria* provides a template for informing and educating residents who test positive for a resistant organism (tool 3)

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Tool 1, *Residents Talking Points* is for nurses to educate residents about antibiotics and encourage them to ask questions or report symptoms. There is also a *Talking With Residents' Family Members*, (tool 2), that provides similar talking points for nurses to use when talking to residents' family members. There is also a short version of both of these in addition to the long versions. Finally, there is a *Resident Information Sheet: on Antibiotic-Resistant Bacteria* (tool 3) that provides a template for informing and educating residents who test positive for a resistant organism.

Educate Clinicians, Staff, and Residents

- *Be Smart About Antibiotics* is a handout that can be given to residents to provide basic information about antibiotics and their risks (tool 4)
- *Suspect a Urinary Tract Infection?* Handout for residents to explain the risks associated with unnecessary antibiotic use to treat a suspected UTI (tool 5)
- *Managing Resident and Family Expectations* provides a template to discuss the tools at a staff meeting (tool 6)

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Also, in section four, are three handouts and templates that can be given to residents to provide basic information about antibiotics and associated risks. Tool 5 is called *Suspect a Urinary Tract Infection?* and is a handout for residents to explain the risks associated with unnecessary antibiotic use to treat a suspected UTI. Lastly, *Managing Resident and Family Expectations* (tool 6) provides a template to discuss the tools at a staff meeting.

Sample Education Tools

Be Smart About Antibiotics

PREVENT
HAIs
Healthcare-Associated Infections

Taking antibiotics when you don't need them is like leaving the lights on all the time.

- The lights may burn out, leaving you in the dark when you most need them.
- If you use antibiotics when you don't need them, they may not work when you get sick.

Antibiotics can help the body fight infections caused by germs called bacteria, but they are not miracle drugs for everything.

When antibiotics are NOT needed:

- You have an infection caused by a virus (such as a cold, bronchitis, the flu, or most types of diarrhea). **Antibiotics don't work on viruses.**
- You don't have an infection but instead have some other medical problem (such as anemia).
- You are not actually sick (except in rare cases where antibiotics

Nursing Home Antimicrobial Stewardship Guide Determine Whether To Treat

PREVENT
HAIs
Healthcare-Associated Infections

Toolkit 3. Minimum Criteria for Common Infections Toolkit

Tool 4. Letter to Prescribing Clinicians on the Protocol for Three Common Infections

PRINTED ON NURSING HOME OR MEDICAL DIRECTOR'S STATIONERY

[DATE]

[PRESCRIBING CLINICIAN NAME]
RECIPIENT ADDRESS
CITY, STATE ZIP

Re: Change in protocol regarding three common infections and antibiotic stewardship

Dear Dr./Ms./Mr. [LAST NAME],

Based on clinical practice guidelines developed by nursing home, infectious disease, and geriatric experts, our facility has decided to modify its protocol around the three most common infectious syndromes treated in nursing homes—urinary tract infections (UTIs), skin and soft-tissue infections, and lower respiratory tract infections. We will use the Minimum Criteria for Common Infections toolkit. The tools seek to facilitate gathering critical information by nurses to communicate to prescribing clinicians and/or to enable prescribing clinicians to make decisions based on the most recent guidelines. The toolkit includes a Web-based application with

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This is an example of an education tool called *Be Smart About Antibiotics*. It is a handout that can be given to residents and caregivers to provide basic information about antibiotics and their risks. On the right is the example letter to prescribing clinicians on the protocol for three common infections. This example is provided as tool 4 and is available for download.

ASP Nursing Home Resources

- CDC's *Core Elements of Antibiotic Stewardship for Nursing Homes*
<https://www.cdc.gov/longtermcare/prevention/antibiotic-stewardship.html>
- AHRQ's *Nursing Home Antimicrobial Stewardship Guide*
<https://www.ahrq.gov/nhguide/index.html>

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CMS has offered this lecture to provide other federal resources and information for nursing homes on the development of an antibiotic stewardship program. We provided an overview of two key resources. First, CDC's *Core Elements of Antibiotic Stewardship for Nursing Homes* and then AHRQ's toolkits included in their *Antimicrobial Stewardship Guide*. These remain available to help nursing homes optimize their use of antibiotics. Special thanks to CDC and AHRQ for permission to share their ASP resources. As a reminder, this training was provided for educational purposes only. While CMS requires nursing homes to have an antibiotic stewardship program, this was not a discussion of our minimum compliance standards.

Thank you for your participation!

“Let us glory in living in a time when antibiotics can save us from death related to infection, but let us also recognize that they are not to be trifled with.”

Elizabeth Leis Newman, Senior Editor McKnight's LTC News

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Thank you for participating in today's training on the Development of an Antibiotic Stewardship Program for Nursing Home Providers. CMS hopes you find this information helpful as a resource. I would like to conclude with a quote from Elizabeth Newman that appeared in McKnight's LTC News. *“Let us glory in living in a time when antibiotics can save us from death related to infection but let us also recognize that they are not to be trifled with.”*