

# Antibiotic Stewardship Plan & Committee

## Session Six

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## OBJECTIVES

- The Participant will be able
  - Identify the specific goals of an antibiotic stewardship program
  - Describe the appropriate selection of antibiotics with the intent of reducing antibiotic resistance
  - Name one Antibiotic Tenet
  - List three attachments that might be found with an Antibiotic Plan



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# Antibiotic Stewardship

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## Antibiotic Stewardship

- Antibiotic Stewardship Definition: A system of informatics, data collection, personnel, and policy /procedures which promotes the optimal selection, dosing, and duration of therapy for antimicrobial agents throughout the course of their use
- Purpose:
  - Limit inappropriate and excessive antibiotic use
  - Improve and optimize therapy and clinical outcomes for the individual infected patient



OH CA. Seminar Infect Control 2001;1:210-21. Ohi CA, Luther VP. J. Hosp. Med. 2011;6:54  
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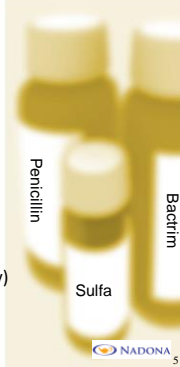
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## Nine Factors to Consider When Selecting an Antibiotic

- Spectrum of coverage
- Patterns of resistance
- Evidence or track record for the specified infection
- Achievable serum, tissue, or body fluid concentration (e.g. cerebrospinal fluid, urine)
- Allergy
- Toxicity
- Formulation (IV vs. PO); if PO assess bioavailability
- Adherence/convenience (e.g. 2x/day vs. 6x/day)
- Cost



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## Review of Six Goals of Antibiotic Stewardship Programs:

1. Reduce antibiotic consumption and inappropriate use
2. Reduce Clostridioides difficile infections
3. Improve patient outcomes
4. Increase adherence/utilization of treatment guidelines
5. Reduce adverse drug events
6. Decrease or limit antibiotic resistance
  - Hardest to show
  - Best data for health-care associated gram negative organisms



Tamma PD, Cosgrove SE. Infect Dis Clin North Am. 2011 25:245 OH CA, Luther VP. J. Hosp. Med. 2011;6:54  
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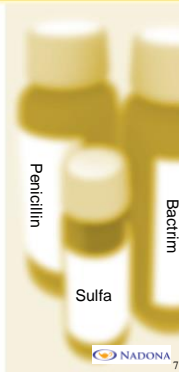
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## 9 Dangers of Antibiotic Use



1. Longer-Lasting Illnesses
2. More Expensive Health Care
3. Extra Doctor Visits
4. Higher Risk of Spreading Illness
5. Dangerous Treatment Alternatives
6. Costly Tests and Indirect Health Costs
7. Incorrectly Taking Medications
8. Unsafe Misuse of Medications
9. Putting Your Life and Others at Risk



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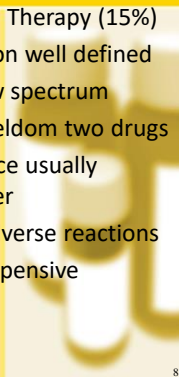
## Principles of Antibiotic Therapy

### Empiric Therapy (85%)

- Infection not well defined (“best guess”)
- Broad spectrum
- Multiple drugs
- Evidence usually only 2 randomized controlled trials
- More adverse reactions
- More expensive

### Directed Therapy (15%)

- Infection well defined
- Narrow spectrum
- One, seldom two drugs
- Evidence usually stronger
- Less adverse reactions
- Less expensive



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## Why So Much Empiric Therapy

- Need for prompt therapy with certain infections
  - Life or limb threatening infection
  - Mortality increases with delay in these cases
- Cultures difficult to do to provide microbiologic definition (i.e. pneumonia, sinusitis, cellulitis)
- Negative cultures
- Provider Beliefs
  - Fear of error or missing something
  - Not believing culture data available
  - “Patient is really sick, they should have ‘more’ antibiotics”
  - Myth of “double coverage” for gram-negatives e.g. pseudomonas
  - “They got better on drug X, Y, and Z so I will just continue those”



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### Ways To Increase Use of Directed Therapy for Outpatients:

- Define the infection 3 ways
  - Anatomically, microbiologically, pathophysiologically
  - Right LRI due to Pseudomonas with symptoms of fever, cough and infiltrate
- Obtain cultures before starting antibiotics
  - Often difficult in outpatients (acute otitis media, sinusitis, community-acquired pneumonia)




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### Ways To Increase Use of Directed Therapy for Outpatients cont.:

- Narrow therapy often with good supporting evidence
  - Amoxicillin or amoxicillin/ clavulanate for AOM, sinusitis and CAP
  - Penicillin for Group A Streptococcal pharyngitis
  - 1<sup>st</sup> generation cephalosporin or clindamycin for simple cellulitis
  - Trimethoprim / sulfamethoxazole or cipro / levofloxacin for cystitis




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### Ways to Protect Residents from Antibiotic Resistance

- Get them off medical devices ASAP - Catheter, Ventilator, IVs.
- Safe guard them from known drug-resistant infections present in your facility
- Immediate alerts when drug-resistant infection is identified in your resident.
- Alert receiving facility when transferring a resident
- Protect residents from drug-resistant infections
- Follow guidelines & precautions
- Prescribe antibiotics wisely




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## Tenets of Proper Stewardship

**Tenet** – is a belief, principle or doctrine generally held to be true, especially one held in common by members of an organization, movement or profession.

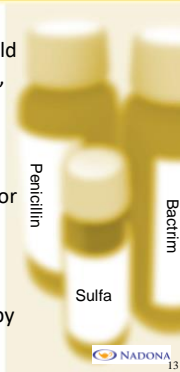
**Tenet 1:** Treat Bacterial Infection, not Colonization

**Tenet 2:** Do not Treat Sterile Inflammation or Abnormal Imaging Without Infection

**Tenet 3:** Do not Treat Viral Infections with Antibiotics

**Tenet 4:** Limit Duration of Antibiotic Therapy to the Appropriate Length

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## Tenet 1: Treat Bacterial Infection not Colonization

- Many patients become colonized with potentially pathogenic bacteria but are not infected
  - Asymptomatic bacteriuria or Foley catheter colonization
  - Tracheostomy colonization in chronic respiratory failure
  - Chronic wounds and decubiti Lower extremity stasis ulcers
  - Chronic bronchitis
- Can be difficult to differentiate
  - Presence of WBCs not always indicative of infection
  - Fever may be due to another reason, not the positive culture

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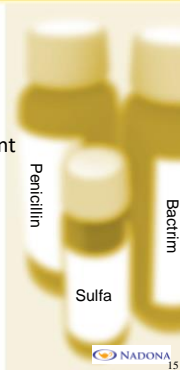
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## Other Tenets of Antibiotic Stewardship

- Limit duration of surgical prophylaxis to <24 hours perioperatively
- Use rapid diagnostics if available (e.g. respiratory viral PCR)
- Solicit expert opinion if needed to Prevent infection
- Use good hand hygiene and infection control practices
- Remove catheters

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## Untoward Effects of Antibiotic Use

- Antibiotic resistance
- Adverse drug events (ADEs)
  - Hypersensitivity/allergy
  - Drug side effects
  - Clostridioides difficile infection
  - Antibiotic associated diarrhea/colitis
- Increased health-care costs



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## Antibiotic Stewardship Program



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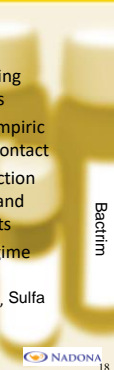
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## Roles of the Stewardship Team

- Administrator – Supporter & facilitator of Program
  - Provides time, financial and technological resources
- DON - Ensures nursing department is educated, following Policies & Procedures – Performs audits /makes changes
- Medical Director – sets standards; designs with IP the Empiric Guidelines of administration primary medical point of contact
- Infection Preventionist – Develop and maintain the Infection Control Prevention and Control Program; monitor data and implemented actions, identify issues and prepare reports
- Pharmacist –Reviews antibiotics each month in drug regime review and reports on findings
  - Works with pharmacy to insure warnings are sent: duplications, Sulfa interactions exc.



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## Roles of the Stewardship Team cont.

- Physician – Assists with other clinicians
- Monitoring Staff-Abstract data for monitoring, developing and communicating the findings
- Champions – Develops agendas& policies, leads training, provides leadership and gives support – IP; DON; ADON; Charge Nurses
- Stewardship Staff - Help develop training, review use of tools, remind staff to use tools, help solve problems with implementation

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## Antibiotic Stewardship Plan

### •Three Major Components

- Policy
- Procedures
- Attachments

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## Antibiotic Stewardship Plan

### Antibiotic Stewardship Policy

The policy should include the following information and should be provided to staff prior to a new intervention:

- A statement of the nursing home’s commitment to quality care
- A statement of the purpose and scope of the program, including what the antimicrobial stewardship program plans to accomplish
- A description of the program and its goals
- The date the new program will begin
- A list of who will participate in the new program

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## Procedures

- Antibiotic Stewardship Procedure (Contains the Core Elements in detail)
- A set of procedures should be developed and communicated before each intervention toolkit is introduced. New procedures should include the following information:
  - The goal(s) of the intervention
  - What tools will be used
  - The date on which the procedures were issued or revised
  - How the intervention will be implemented
  - Identification of the staff responsible for the intervention
  - Required documentation signed by nursing home management authorized to approve the intervention
  - If applicable, a description of how information about the intervention will be communicated to prescribing clinicians and/or other facilities such as hospitals



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## Plan cont.

- Attachments:
  - Antibiotic Initiating Criteria (McGeer's/SBAR)
  - Communication form
    - Suspected UTI SBAR
    - Change in Condition SBAR
  - Lab submission criteria
    - Urine
    - Stool



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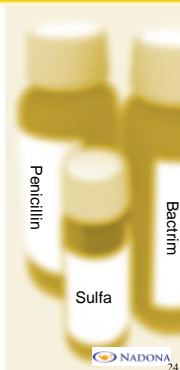
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## Plan cont.

- Attachments cont.
  - Measurement Protocols ( include the tools/forms etc.)
    - Types of measurements
      - Antibiotic Starts
        - What / When/ Symptoms/Dosage etc.
    - Stewardship Actions
      - Prescriptions
      - Antibiotic Time outs
    - Outcomes
      - C Diff
      - Other Adverse Outcomes



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## Plan cont.

### Attachments cont.

- Letters to
  - Staff
  - Physicians
  - Residents/Families
- Tracking Tools
- Report forms
- Feedback forms
- Education
  - Outlines
  - Brochures
- Committee Agenda & Minute forms



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## AS Committee

### Getting Started

#### Determine who will be on your committee

- Should include several individuals with different responsibilities in the nursing home.
  - Administrator\*
  - DON\*
  - ADON
  - Charge Nurse
  - Medical Director\*
  - Infection Preventionist\*
  - Consultant Pharmacist\*
  - Medical Records ( IT Medical Records)



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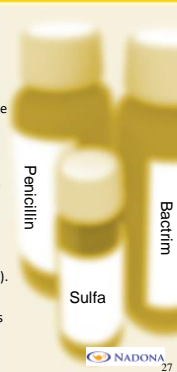
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## Sample Agenda Items for First Meeting

- Date/Time/ Attendees
- Purpose of an Antimicrobial Stewardship Program
- Determine individuals roles
- Review of toolkit/tools to be implemented or needed
- 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.)
- Discussion of changes to workflow
- 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.)
- 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).
- Identify potential barriers and how to address them
- Schedule monthly team meeting to review progress and address questions/problems
- Identify the next steps and agenda for next meeting



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## Committee Information

### Review what Antimicrobial (Antibiotic) Stewardship is:

- **About Resistance**
  - The ability of microbes to resist the effects of drugs
  - Infections with resistant organisms are difficult to treat, requiring costly and sometimes toxic alternatives.
  - Aggressive action is needed now to keep new resistance from developing and to prevent the resistance that already exists from spreading.
- **Stewardship** - Using Antibiotics appropriately
  - Following Guidelines for identifying actual treatable infections ( McGeer's / LOEBs)
  - "Symptom Free PEE/ Let It Be" (Program in MN)



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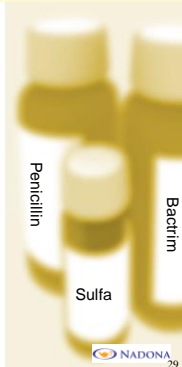
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## Readiness Assessment

- This tool can be used to assess readiness for an antimicrobial stewardship program in general as well as to assess readiness for specific interventions.
- Use this tool to—
  - Determine whether the nursing home has the right staff
  - Determine whether the nursing home has the necessary resources
  - Identify areas to focus on before implementation



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## Facility Readiness Assessment

### Is the Nursing Home Ready?

- Is key leadership supportive of this effort? Support by leadership (i.e., the board and/or administrator, director of nursing, or medical director) is critical to change.
- Is the medical director actively involved in quality improvement and/or infection control?
- Is the nursing home financially stable?
- Is the nursing home's ownership and/or management stable (i.e., no changes anticipated over the next six months)?
- Is the nursing home in good standing with the State Survey Agency (e.g., not identified as a Special Focus Facility, not under State receivership, has not had admissions frozen)?



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### Readiness cont.

- Are there at least two staff who can serve as program champions and commit to leading the activity? Program champions could include (but are not limited to) the director of nursing, assistant director of nursing, charge nurse(s), infection prevention consultant/practitioner, and the medical director or other prescribing clinician. It is critical that at least two, if not more, staff are willing to lead the effort and champion it.
- Is there time to train staff? Implementation will require training for nursing staff and possibly prescribing clinicians, depending on the toolkit. Initial training for nurses and prescribing clinicians may take approximately 30 minutes to 2 hours. Are there sufficient resources (e.g., time, funds) to cover such training?



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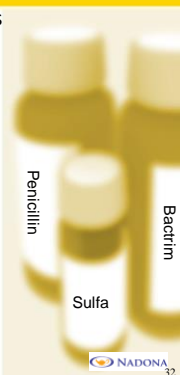
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### Readiness cont.

- Are there sufficient funds to make copies of materials for nurses, prescribing clinicians, and, as appropriate, residents and family members?
- Are there resources for implementing mechanisms to sustain the effort (e.g., staff who can train new nurses as they are hired and include the topic in the annual education program)? The key to sustaining any new activity is ensuring everyone is knowledgeable about it.



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Is the Nursing Home Ready?		Yes	No
Is key leadership supportive of this effort? Support by leadership (i.e., the board and/or administrator, director of nursing, or medical director) is critical to change.			
Is the medical director actively involved in quality improvement and/or infection control?			
Is the nursing home financially stable?			
Is the nursing home's ownership and/or management stable (i.e., no changes anticipated over the next six months)?			
Is the nursing home in good standing with the State Survey Agency (e.g., not identified as a Special Focus Facility, not under State receivership, has not had admissions frozen)?			
Are there at least two staff who can serve as program champions and commit to leading the activity? Program champions could include (but are not limited to) the director of nursing, assistant director of nursing, charge nurse(s), infection prevention consultant/practitioner, and the medical director or other prescribing clinician. It is critical that at least two, if not more, staff are willing to lead the effort and champion it.			
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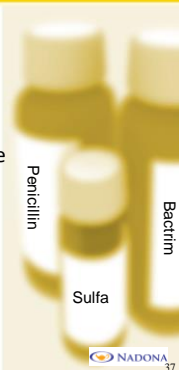
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### Include Policies and Procedures that:

1. Require prescribers to document a dose, duration, and indication of use
2. Developed facility-specific algorithm for assessing residents
3. Reviews antibiotic agents listed on the medication formulary
4. Facility specific algorithms for appropriate diagnostic testing (Cultures)
5. Facility specific treatment recommendations for infections



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### Antibiotic Stewardship Plan

Minnesota *Sample* Antibiotic Stewardship Policy for Long-Term Care Facilities

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### Antibiotic Stewardship Plan cont.

MINNESOTA SAMPLE ANTIBIOTIC STEWARDSHIP POLICY FOR LONG-TERM CARE FACILITIES

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Minnesota *Sample* Antibiotic Stewardship Policy for Long-Term Care Facilities

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# Antibiotic Stewardship Plan cont.

with the requirement as well as prescriber appropriateness for the individual resident, site, and type of infection.

**Implementation date:** November 3, 2022

12. **Assessment of residents suspected of having an infection.** Providers will utilize the Local CR tool when conducting evaluations of antibiotic (Appendix A) (4). Consistent with these criteria, the standardized Suspected UTI (SUSUT) form should be used for all residents suspected of having a UTI. The form should be included in the resident care plan and an information communicated with the provider. It is anticipated that local criteria used for other suspected infections, including lower respiratory tract infection, skin and soft-tissue infection, and fever of unknown focus, when considering antibiotic prescriptions.

**Implementation date:** November 3, 2022

13. **Resident representation.** When UTI is suspected, the standardized Suspected UTI (SUSUT) form (Appendix B) should be used to communicate with provider. It is anticipated that the standardized general SUSUT form be used for all change in condition consentation (Appendix C).

**Implementation date:** November 3, 2022

14. **Antibiotic "breaks"** An "antibiotic break" or antibiotic discontinuation in the facility will be required for discontinuation of antibiotic use. The site, infection, and the medication prescribed at the time, laboratory testing results, response to therapy, resident condition, and facility results (e.g., outbreak situation) will be considered. Completion of an antibiotic time-out must be reported in the resident record.

**Implementation date:** November 3, 2022

15. **Microbiologic specimen submission guidelines.** The following guidelines should be considered before submission of a clinical specimen for microbiologic testing:

- a. Laboratory tests and algorithms (Appendix D) (4)
- b. Urine culture: Local or algorithm (Appendix D) (4)
- c. Sputum culture: (1) Standard algorithm (Appendix D) (4)
- d. Wound culture
- e. Respiratory specimens
- f. Blood culture

**Implementation date:** November 3, 2022 for use; November 3, 2022 for use

16. **Linear to submit recommendations.** There are no definitive practice guidelines that specifically address treatment of UTI in elderly patients in LTC. Prescribers will base treatment recommendations on the following factors:

- a. Elderly-specific criteria (antibiotic sensitivity data)
- b. Patient-specific factors, including age, sex, prior antibiotic use, allergy history, comorbidities, organ function, and presence of urinary catheter

Although fluoroquinolone antibiotics have historically been extensively used to treat UTI, recent concerns include contributions to the emergence of bacterial resistance. The

# Antibiotic Stewardship Plan cont.

increasing prevalence of E. coli infections, and potential toxicity, have led to recommendations for curbing fluoroquinolone use.

**Implementation date:** November 3, 2022

17. **Multi-drug resistant infections.** The AST will design and utilize systems to identify residents with multidrug resistant organisms (MDROs) by review of microbiology culture results, staff and providers, and document in cases of inter-facility transfer.

**Implementation date:** November 3, 2022

18. **Inter-systems for antimicrobial-specific antibiotic use and antibiotic prophylaxis.** The AST will identify and track antibiotic usage and antibiotic prophylaxis use for specific systems and for prophylactic indications.

**Implementation date:** November 3, 2022

5. **Measuring Success (Efficacy)**

a. **Antibiotic use reduction**  
Who will monitor antibiotic use, stewardship actions, and outcomes related to antibiotic use (including topical and ophthalmic antibiotic) in order to guide practice change and track ASP impact?

b. What will be measured/tracked?

1. Recommendations to be initiated on November 3, 2022:  
**Stewardship actions:** Record-keeping protocol compliance, use of antibiotic time-outs  
**Outcomes:** Chart review (QIP) (2024)

2. Recommendations to be initiated on November 3, 2024:  
**Stewardship actions:** Record-keeping protocol compliance, use of antibiotic time-outs, compliance with urine culture specimen submission guidelines  
**Outcomes:** Chart review (QIP) (2024), urinary tract infections, antibiotic use

c. **Measurement process**

- i. **Antibiotic use**
  - a. Responsible person (e.g., IP Coordinator) will develop a protocol for tracking antibiotic use. The protocol will be included in Appendix E and will include tracking of specific key aspects of antibiotic use data for each resident.
  - b. Antibiotic use data will be compiled monthly and reviewed by the responsible person. The responsible person will submit the monthly data, along with any stewardship actions taken, to the appropriate administrator for monthly reporting.
- ii. **Stewardship actions**
  - a. Responsible person will develop a system for measuring stewardship actions. The measurement protocol will be included in Appendix E.

# Antibiotic Stewardship Plan cont.

Who will monitor antibiotic use, stewardship actions, and outcomes related to antibiotic use (including topical and ophthalmic antibiotic) in order to guide practice change and track ASP impact?

b. What will be measured/tracked?

1. Recommendations to be initiated on November 3, 2022:  
**Stewardship actions:** Record-keeping protocol compliance, use of antibiotic time-outs  
**Outcomes:** Chart review (QIP) (2024)

2. Recommendations to be initiated on November 3, 2024:  
**Stewardship actions:** Record-keeping protocol compliance, use of antibiotic time-outs, compliance with urine culture specimen submission guidelines  
**Outcomes:** Chart review (QIP) (2024), urinary tract infections, antibiotic use

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- i. **Antibiotic use**
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- ii. **Stewardship actions**
  - a. Responsible person will develop a system for measuring stewardship actions. The measurement protocol will be included in Appendix E.

6. **Reporting**

The AST Tracking Report will be compiled and will include summaries of collected data, stewardship actions taken, and outcomes. The AST Tracking Report will be reviewed at the AST meeting or Quality Assurance Performance Improvement meeting, and presented to administrative leadership identified in Procedure Section 3 of the document.

The Annual AST Tracking Report will be developed and will include the components of data summary, stewardship actions, and ASP measurement targets identified for the following year.

7. **Evaluation**

The AST will provide antibiotic stewardship education to staff, prescribers, residents, and family. The education goals are defined below:

**Staff:** Update how \_\_\_\_\_ descriptions of AS education \_\_\_\_\_

**Prescribers:** Update how \_\_\_\_\_

**Residents:** \_\_\_\_\_

**Family:** \_\_\_\_\_

REFERENCES

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# Antibiotic Stewardship Plan cont.

MINNESOTA SAMPLE ANTIBIOTIC STEWARDSHIP POLICY FOR LONG-TERM CARE FACILITIES

**APPENDIX E. Measurement Protocols**  
**Part 1. Antibiotic Use**

**Antibiotic Starts**

- **Measurement**
  - The electronic health record system will be used to generate a list of all residents who are prescribed antibiotics for a calendar month. The antibiotic list for a provider is a subset of the facility's Microsoft Excel Antibiotic Use Database will be developed for antibiotic use tracking.
  - Each antibiotic start for a resident will be listed in a separate row. Given residents might be listed in more than one row, if they have had more than one course of antibiotics during the month.
    - Columns to be included in the database are:
      - Resident name
      - Antibiotic name
      - Indication for antibiotic
      - Route of antibiotic administration
      - Date of antibiotic start
      - Prescribed length of antibiotic course (days)
      - Prescriber and prescribing facility
      - Antibiotic time-out requested? (yes/no)
    - The medical cause of each resident receiving an antibiotic that month will be reviewed and the appropriate information filed into the Excel database.
  - **Review and Reporting**
    - The database will be reviewed by the consulting pharmacist once monthly to assess:
      - For the Monthly ASP Tracking Report, the following calculations will be completed and reported:
        - Total number of antibiotic starts
        - Number and percent of antibiotic starts by antibiotic name and route
        - Number and percent of antibiotic starts originating from facility providers and outside providers

**Part 2. Stewardship Actions**

**Prescription Record-Keeping Compliance**

- **Measurement**
  - The antibiotic stewardship policy requires that the date, duration, and indication of every antibiotic prescription must be documented in the medical record for every resident, in addition to prior prescriptions or discontinuation elsewhere (e.g., in medical record or discharge summary).
  - Each month, the Antibiotic Use Database will be reviewed to look for completeness of these data.
    - A new column will be added to the Microsoft Excel Antibiotic Use Database, titled, "Record Complete?"
    - Each row will be assessed to determine whether date, duration, and indication were recorded. If none of these data are missing, the "Record Complete" will be marked as "yes".
- **Reporting**
  - For the Monthly ASP Tracking Report, the following calculations will be completed and reported.
    - For the Monthly ASP Tracking Report, the following calculations will be completed and reported.

# Antibiotic Stewardship Plan cont.

MINNESOTA SAMPLE ANTIBIOTIC STEWARDSHIP POLICY FOR LONG-TERM CARE FACILITIES

- Number and percent of resident antibiotic starts with all of date, duration, and indication recorded
- Number and percent of antibiotic starts with dose recorded
- Number and percent of antibiotic starts with duration recorded
- Number and percent of antibiotic starts with indication recorded
- Number and percent of antibiotic starts with complete date, duration, indication information, by location of prescription (i.e., inside or outside of the facility)

**Use of Antibiotic Time-Outs**


- **Measurement**
  - Data about the occurrence of antibiotic time-outs will be collected during compilation of the monthly Microsoft Excel antibiotic Use Database.
- **Reporting**
  - For the Monthly ASP Tracking Report, the following calculations will be completed and reported.
    - Number and percent of antibiotic starts that were followed up by an antibiotic time-out
    - Number and percent of antibiotic starts that were followed up by an antibiotic time-out, by location of prescription (i.e., inside or outside of the facility)

**Part 3. Outcomes**

***Clostridium difficile* Detection**

- **Measurement**
  - The electronic health record system will be used to generate a list of all residents with a positive *C. difficile* diagnostic test administered by a provider located in or outside of the facility.
  - A Microsoft Excel *C. difficile* Database will be developed for tracking.
  - Columns to be included in the database are:
    - Resident name
    - Date of specimen collection for positive *C. difficile* test
    - Room number where test positive
    - Presence of 30-hour stool within 24 hours, tested before test? (yes/no)
    - Received antibiotics within 30 days prior to positive test? (yes/no)
  - The medical record of each resident with a positive *C. difficile* test that month will be reviewed and the appropriate information filed into the Excel database.
- **Reporting**
  - For the Monthly ASP Tracking Report, the following calculations will be completed and reported.
    - Number of residents with a positive *C. difficile* diagnostic test
    - Number and percent of residents positive for *C. difficile* that had 30-hour stools within 24 hours prior to diagnostic test
    - Number and percent of residents positive for *C. difficile* that received antibiotics in 30 days before testing

# Sustaining Your Antibiotic Stewardship Program



**AHRQ Safety Program for Improving Antibiotic Use**

**Guide to Sustainability Planning:  
Long-Term Care Facilities**

<https://www.ahrq.gov/sites/default/files/wysiwyg/antibiotic-use/long-term-care/sustainability-plan.pdf>





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