DEPARTMENT OF HEALTH

# Antimicrobial Stewardship Gap Analysis Tool

The following gap analysis tool can be used as a companion to the Center for Disease Control and Prevention (CDC) Core Elements of Antibiotic Stewardship in Nursing Homes. The CDC recommends that all nursing homes take steps to implement antibiotic stewardship (AS) activities. This tool is designed to be used by AS leads/teams at any nursing home to assess and guide step by step implementation of AS core elements. Recommendations can be tailored to accommodate individual facility needs and resources. Use this tool to assess your current AS program activities and identify opportunities for improvement. After completing an initial assessment, AS teams can use the tool to routinely review and document progress, as well as to plan for new AS program initiatives.

## Leadership

Leadership commitment and AS Champions ensure clear expectations about antibiotic use and the monitoring and enforcement of stewardship policies. Visible leadership commitment also helps shape organizational culture. Refer to Minnesota Sample Antibiotic Stewardship Policy for Long-Term Care Facilities (PDF) | (Word) and Companion Guide to Using the Minnesota Sample Antibiotic Stewardship Policy for Long-Term Care Facilities (PDF).

| Action Step | Response | Barriers/Support Needed | Next Steps |
|---|---|---|---|
| Can your facility demonstrate leadership support for AS through one or more of the following actions? | ☐ Written statement by leadership that supports efforts to improve antibiotic use<br>☐ Written AS policy<br>☐ AS Leader's job description includes dedicated time for AS activities<br>☐ A physician AS Champion supports use of clinical practice guidelines for antimicrobial prescribing<br>☐ A nursing-leader AS Champion promotes nursing assessment, documentation, and communication in AS activities | | |

## Accountability

Identifying and empowering individuals with key expertise, who are accountable for AS activities, and who have the support of facility leadership can help ensure best practices are followed in the medical care of residents in your facility. If you do not have an AS lead, work with your leadership to designate one, and ensure AS team members meet routinely and have dedicated time for stewardship.

| Action Step | Response | Barriers/Support Needed | Next Steps |
|---|---|---|---|
| Has your facility identified a lead(s) for AS activities who is accountable for AS activities? For example, promoting stewardship through routine communication, education, monitoring, and celebrating improvement. | Check the box to identify AS Leads and Champions; describe their roles.<br>☐ Medical Director, role:<br>☐ Director or Assistant Director of Nursing, role:<br>☐ Provider on staff, role:<br>☐ Consulting provider, role:<br>☐ Consulting pharmacist, role:<br>☐ Infection preventionist, role:<br>☐ Other (specify), role: | | |

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|---|---|---|---|
| Does your facility have a committee/workgroup (AS Team) identified to incorporate AS issues? | Mark the roles reflected on the AS Team.<br>☐ AS Lead(s)<br>☐ AS Champion(s)<br>☐ Senior leadership<br>☐ Consulting or in-house pharmacist<br>☐ Nursing leadership<br>☐ Quality improvement<br>☐ Infection preventionist<br>☐ Information technologist (IT)<br>☐ Other (specify) (e.g., members of collaborating hospital's AS Team, microbiology representative) | | |
| Which of the following apply to your AS team? | ☐ Accountable for developing and communicating roles and responsibilities about AS for facility stakeholders<br>☐ Members have dedicated time for AS activities<br>☐ Meets at least quarterly – If yes, indicate how often:<br>☐ Weekly<br>☐ Monthly<br>☐ Quarterly<br>☐ Other (specify) | | |

## Drug Expertise

Establishing access to individuals with antibiotic expertise can facilitate implementation of AS activities. Receiving support from infectious disease consultants and consultant pharmacists with training in AS can help a facility reduce antibiotic use and experience lower rates of positive *C. difficile tests*. If you do not have access to expertise on-site, consider how expertise may be provided remotely through tele-stewardship.

| Action Step | Response | Barriers/Support Needed | Next Steps |
|---|---|---|---|
| Does your facility have access to individual(s) with AS expertise? | ☐ Consultant pharmacist trained in antibiotic stewardship<br>☐ In-House<br>☐ Tele-Stewardship<br>☐ Stewardship team at referral hospital<br>☐ In-House<br>☐ Tele-Stewardship<br>☐ External infectious disease/stewardship consultant<br>☐ In-House<br>☐ Tele-Stewardship<br>☐ Other (specify): | | |

# Action

Facilities implement prescribing policies and change practices to improve antibiotic use. The introduction of new policies and procedures which address antibiotic use should be done step by step when possible, so staff become familiar with and not overwhelmed by new changes in practice. Prioritize interventions based on the needs of your facility and share outcomes from successful interventions with nursing staff and clinical providers.

| Action Step | Response | Barriers/Support Needed | Next Steps |
|---|---|---|---|
| What policies does your facility have in place to improve antibiotic prescribing/use? | ☐ All licensed providers follow basic antibiotic stewardship practices including the 5 Ds: right diagnosis, drug, dose, duration, de-escalation<br>☐ Prescribers are required to document an indication for all antibiotics in the medical record during order entry<br>☐ Guidelines or recommendations for antibiotic initiation and/or selection to assist with decision making for common clinical conditions. Check all that apply:<br>☐ Loeb M, Bentley DW, Bradley S, et al. Development of minimum criteria for initiation of antibiotics in long-term care residents: Results of a consensus conference. *Infect Control Hospi Epidemiol.* 2001; 22:120-4.<br>☐ SHEA/APIC Guideline. Smith PW, Bennett G, Bradley S, et al. SHEA/APIC guideline: Infection prevention and control in the long-term care facility, July 2008. *Infect Control Hospi Epidemiol*. 2008;29(9):785-814.<br>☐ SHEA Position Paper. Nicolle LE, the SHEA Long-term Care Committee. Urinary tract infections in long-term care facilities. Infection control in long-term care facilities. *Infect Control Hospi Epidemiol.* 2001; 22:167-75.<br>☐ SHEA Position Paper. Nicolle LE, Bentley D, Garibaldi R, et al. Antimicrobial use in long-term care facilities. *Infect Control Hospi Epidemiol.*2000; 21(8):537-45.<br>☐ IDSA Guidelines. High KP, Bradley SF, Gravenstein S, et al. Clinical practice guideline for the evaluation of fever and infection in older adult residents of long-term care facilities: 2008 update by the Infectious Diseases Society of America. *Clin Infect Dis* 2009; 48:149-171.<br>☐ Other (specify)<br>☐ Facility-specific algorithm for assessing resident change of condition<br>☐ Facility-specific algorithms for appropriate diagnostic testing (e.g., obtaining cultures) for specific infections<br>☐ Facility-specific treatment recommendations for infections<br>☐ Review of antibiotic agents listed on the medication formulary<br>☐ Other (specify) | | |
| What practices has your facility implemented to improve antibiotic use? | ☐ Standard assessment and communication tool for residents suspected of having an infection (e.g., Situation-Background-Assessment-Recommendation/Request form: SBAR Template for Physician/NP Communication (PDF) \| (Word))<br>☐ Process for communicating or receiving antibiotic use information when residents are transferred to/from other healthcare facilities<br>☐ Standardized process to communicate a change in a resident's condition from nursing assistants (NAs) to nurses, and between nurses and providers.<br>☐ Reports summarizing the antibiotic susceptibility patterns (e.g., facility antibiogram) Refer to Sample Letter to Obtain an Antibiogram from a Laboratory (PDF) \| (Word) | | |

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| | ☐ Process for reassessment 2-3 days after a new antibiotic start to determine whether the antibiotic is still indicated and appropriate (i.e., antibiotic time-out) Refer to 72-Hour Antibiotic Time-Out Sample Template \| (Word)<br>☐ Infection-specific intervention or quality improvement project to improve antibiotic use<br>☐ If yes, indicate for which condition(s):<br>☐ A physician, nurse, or pharmacist reviews courses of therapy for specific antibiotic agents and communicate results with prescribers (specifically, audit with feedback) at your facility<br>☐ Restrict use of specific antibiotics<br>☐ Process to ensure that diagnostic testing, including microbiology results, are accessible in a timely manner for clinical decision-making and infection surveillance<br>☐ Information Technology support for AS activities is available to facilitate accessibility of clinical documentation; activities may include report generation, optimizing electronic health record for clinical documentation, etc. | | |

## Tracking

Facilities monitor both antibiotic use practices and outcomes to guide practice changes and track the impact of new interventions. Data on adherence to antibiotic prescribing policies and antibiotic use are shared with clinicians and nurses to maintain awareness about the progress being made in AS. Clinician response to antibiotic use feedback (e.g., acceptance) may help determine whether feedback is effective in changing prescribing behaviors. Facilities should consider tracking: Process measures – how and why antibiotics are prescribed; Antibiotic use measures – how often and how many antibiotics are prescribed; Antibiotic outcome measures – adverse outcomes and costs from antibiotics.

| Action Step | Response | Barriers/Support Needed | Next Steps |
|---|---|---|---|
| Does your facility monitor one or more measures of antibiotic use? | ☐ Point prevalence surveys of antibiotic use<br>☐ Rates of new antibiotic starts/1,000 resident-days<br>☐ Antibiotic days of therapy/1,000 resident-days<br>☐ Other (specify): | | |
| Does your facility monitor one or more process measures for antibiotic prescribing? | ☐ Adherence to clinical assessment documentation (signs/symptoms, vital signs, physical exam findings<br>☐ Adherence to prescribing documentation (dose, duration, indication)<br>☐ Adherence to facility-specific treatment recommendations<br>☐ Adherence to change in condition processes (e.g., use of SBAR)<br>☐ Other (specify): | | |
| Does your facility monitor one or more outcomes of antibiotic use? | ☐ Rates of *C. difficile* infection<br>☐ Rates of priority resistant organisms identified by your facility (e.g., MRSA, ESBL, CRE)<br>☐ Rates of resistant organisms associated with healthcare associated infections<br>☐ Rates of adverse drug events due to antibiotics | | |

| Action Step | Response | Barriers/Support Needed | Next Steps |
|---|---|---|---|
| | ☐ Facility-specific antibiogram<br>☐ Other (specify): | | |
| What tool(s) does your facility use to track antibiotic use? | ☐ Electronic medical record system<br>☐ Separate software specific for AS<br>☐ Excel-based infection and antibiotic tracking tool from Minnesota Department of Health: Infection and Antibiotic Use Tracking Tool Instructions (PDF) \| (Excel)<br>☐ Pharmacy service report<br>☐ Homemade tool (e.g., Excel sheet, document)<br>☐ Other (specify): | | |

## Reporting

Facilities share data on adherence to antibiotic prescribing policies and antibiotic use with clinicians and nurses to maintain awareness about the progress being made in AS. Clinician response to antibiotic use feedback (e.g., acceptance) may help determine whether feedback is effective in changing prescribing behaviors. If data are shared infrequently, consider setting a recurring interval to share data with leadership and/or staff at least quarterly.

| Action Step | Response | Barriers/Support Needed | Next Steps |
|---|---|---|---|
| Are facility-specific data on antibiotic use, stewardship processes, and/or antibiotic outcomes shared on a regular basis? | ☐ Facility-specific data are shared. Indicate what measures:<br>☐ Measures of outcomes related to antibiotic use (i.e., *C. difficile* rates)<br>☐ Report of facility antibiotic susceptibility patterns (within last 18 months)<br>☐ Other (specify):<br>☐ Data are shared routinely. Indicate frequency:<br>☐ Quarterly<br>☐ Twice yearly<br>☐ Yearly<br>☐ Other (specify):<br>☐ Data are shared for review with leadership and staff. Indicate with which team members:<br>☐ Facility leadership<br>☐ Providers<br>☐ Nursing staff<br>☐ Consultant pharmacist<br>☐ Other (specify): | | |

## Education

Effective educational programs address both nursing staff and clinical providers on the goal of an AS intervention, and the responsibility of each group for ensuring its implementation. There are a variety of mechanisms for disseminating antibiotic education to nursing home staff including flyers, pocket-guides, newsletters, or electronic communications; however, interactive academic detailing (e.g., face-to-face interactive workshops) has the strongest evidence for improving medication prescribing practices.

Nursing homes sustain improvements by incorporating both education and feedback to providers. Working with residents and families will reduce the perception that their expectations may be a barrier to improving antibiotic use in nursing homes.

| Action Step | Response | Barriers/ Support Needed | Next Steps |
|---|---|---|---|
| Does your facility provide educational resources and materials about antibiotic resistance and opportunity for improving antibiotic use? | ☐ In-house or rounding clinical providers (e.g., MDs, NPs, PAs)<br>☐ External clinical providers caring for facility residents<br>☐ Consultant or staff pharmacists<br>☐ Nursing staff and nursing assistants (e.g., RNs, LPNs, CNAs)<br>☐ Residents and families<br>☐ Other (specify): | | |
| What type of information has been provided to providers and staff? | ☐ Antibiotic resistance background<br>☐ Published data on prescribing practices in long-term care (e.g., rates of inappropriate prescribing for specific conditions<br>☐ Facility-specific data on prescribing<br>☐ Core elements of antimicrobial stewardship programs<br>☐ Syndrome-specific guidelines for initiation of antibiotics<br>☐ Syndrome-specific guidelines for antibiotic selection<br>☐ Alternatives to antibiotic use<br>☐ Other (specify): | | |
| When is education information provided to providers and staff? | ☐ Orientation/Onboarding<br>☐ Annually<br>☐ Other (specify): | | |
| What approaches does your facility use for staff education? | ☐ Workshops<br>☐ In-person meetings<br>☐ Webinars<br>☐ Electronic mandatory education<br>☐ Quiz-based education<br>☐ Email<br>☐ Including continuing medical education credits<br>☐ Other (specify): | | |
| What approaches are used for resident and family education? | ☐ Discussion at resident and family meetings<br>☐ Consultation at point of care to discuss antibiotic use/decision not to use antibiotics<br>☐ Information included in admission packet<br>☐ Pamphlets available in common areas<br>☐ Wall posters<br>☐ Website<br>☐ Other (specify): | | |

## Antimicrobial Stewardship Goals & Challenges

| Action Step | Response | Next Steps |
|---|---|---|
| Do any of the following situations pose barriers to implementation or improvement of AS program at your facility? | ☐ Lack of awareness and commitment from health care providers<br>☐ Lack of awareness and commitment from administrators<br>☐ Pressure to prescribe antibiotics from residents and/or families<br>☐ Lack of clear treatment guidelines<br>☐ Lack of prescriber accountability<br>☐ Insufficient staff time to work on AS programs<br>☐ Insufficient access to expert personnel<br>☐ Inadequate technology or systems capability<br>☐ Other (specify): | |
| List the three primary challenges / barriers to implementing / expanding antimicrobial stewardship strategies in your facility. | 1.<br>2.<br>3. | |
| List at least two goals for AS at your facility for the next month. | 1.<br>2. | |
| List at least two goals for AS at your facility for the next quarter. | 1.<br>2. | |
| List at least two goals for AS at your facility for the next year. | 1.<br>2. | |
| What kind of support does your facility need for your stewardship program? | ☐ Formal commitment from your health system/facility leadership<br>☐ Facility-specific protocols for diagnosis and prescribing<br>☐ Software/technology support<br>☐ Opportunity to consult with specialists<br>☐ Resident education about proper antibiotic use<br>☐ In-person continuing education<br>☐ Webinar-based continuing education<br>☐ Collaboration with other facilities to share and implement best practices<br>☐ Other (specify): | |

## MDH Resources

- Minnesota Sample Antibiotic Stewardship Policy for Long-Term Care Facilities (www.health.state.mn.us/diseases/antibioticresistance/hcp/ltcsamplepolicy.pdf)
- Companion Guide to Using the Minnesota Sample Antibiotic Stewardship Policy for Long-Term Care Facilities (www.health.state.mn.us/diseases/antibioticresistance/hcp/ltcsamplepolicyguide.pdf)
- SBAR Template for Physician/NP Communication (www.health.state.mn.us/diseases/antibioticresistance/hcp/asp/ltc/apxg.pdf)
- Sample Letter to Obtain an Antibiogram from a Laboratory (www.health.state.mn.us/diseases/antibioticresistance/hcp/asp/ltc/abxlabagreement.pdf)
- 72-Hour Antibiotic Time-Out Sample Template (www.health.state.mn.us/diseases/antibioticresistance/hcp/asp/ltc/abxtimeout.pdf)
- Infection and Antibiotic Use Tracking Tool (www.health.state.mn.us/diseases/antibioticresistance/hcp/asp/ltc/apxl.xlsx)
- Minimum Criteria for Initiation of Antibiotics in Long-Term Care Residents Pocket Reference Card (www.health.state.mn.us/diseases/antibioticresistance/hcp/ltcabxcard.html)
- Loeb and McGeer Criteria: A Practical Guide for Use in Long-term Care (www.health.state.mn.us/diseases/antibioticresistance/hcp/asp/ltc/loebmcgeer.pdf)

## CDC Resources

- Core Elements of Antibiotic Stewardship for Nursing Homes (www.cdc.gov/antibiotic-use/core-elements/nursing-homes.html)
- The Core Elements of Hospital Antibiotic Stewardship Programs (www.cdc.gov/antibiotic-use/healthcare/pdfs/core-elements.pdf)
- The Core Elements of Antibiotic Stewardship for Nursing Homes Checklist (www.cdc.gov/antibiotic-use/core-elements/pdfs/core-elements-antibiotic-stewardship-checklist-508.pdf)

## References


- Loeb et al. Development of Minimum Criteria for the Initiation of Antibiotics in Residents of Long-Term Care Facilities: Results of a Consensus Conference. *Inf Control Hosp Epi*. 2001.
- Stone ND, Ashraf MS, Calder J, etc. Society for Healthcare Epidemiology Long-Term Care Special Interest Group. Surveillance definitions of infections in long-term care facilities: revisiting the McGeer criteria. *Infect Control Hosp Epidemiol*. 2012 Oct;33(10):965-77. doi: 10.1086/667743. PMID: 22961014; PMCID: PMC3538836.



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