

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



MINNESOTA SAMPLE ANTIBIOTIC STEWARDSHIP POLICY
FOR LONG-TERM CARE FACILITIES

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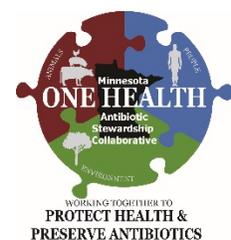
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BACKGROUND:

Antibiotics are powerful tools for fighting and preventing infections. However, widespread use of antibiotics has resulted in an alarming increase in antibiotic-resistant infections and a subsequent need to rely on broad-spectrum antibiotics that might be more toxic and expensive. In addition to the development of antibiotic resistance, antibiotic use is associated with an increased risk of *Clostridium difficile* infection and adverse drug reactions. Since antibiotics are frequently over or inappropriately prescribed, a concerted effort to decrease or eliminate inappropriate use can make a big impact on resident safety and the reduction of adverse events. Antibiotic stewardship consists of coordinated interventions aimed at treating infections while promoting appropriate antibiotic use. The practice of antibiotic stewardship requires commitment, leadership, communication, and actions informed by best practice guidelines and defined protocols. In compliance with the current Centers for Medicare and Medicaid Services (CMS) Requirements of Participation for infection control in long-term care facilities, this Antibiotic Stewardship Policy outlines how ___ [facility] ___ will address this important health care issue.

POLICY:

It is the policy of ___ [facility] ___ to **maintain an Antibiotic Stewardship Program (ASP) with the mission of promoting the appropriate use of antibiotics to treat infections and reduce possible adverse events associated with antibiotic use.** Components of this policy were developed by using evidence-based practice guidelines and are aligned with the *Core Elements of Antibiotic Stewardship for Nursing Homes*, published by Centers for Disease Control and Prevention (CDC) (1), and the *State Operations Manual (Appendix PP): Guidance to Surveyors of Long Term Care Facilities*, published by CMS (2).

The ___ [facility] ___ ASP will incorporate all seven core elements outlined by CDC. Details of each element are described in the "Procedure" section of this policy document. This Policy, including the Procedure section, will be reviewed yearly to ensure that all objectives and conditions are being met, to streamline procedures and algorithms, and to identify opportunities for enhancement of the ASP.

The seven core elements of the ___ [facility] ___ ASP are:

1. **Leadership Commitment:** We will dedicate time, financial, and technological ASP resources
2. **Accountability:** We will have physician, nursing, and pharmacy leads responsible for promoting and overseeing antibiotic stewardship activities
3. **Drug Expertise:** We will establish and maintain access to a consultant pharmacist(s) or other individual with antibiotic stewardship-specific drug expertise
4. **Action:** We will implement policies and practices to improve antibiotic use
5. **Tracking:** We will monitor antibiotic use and outcome(s) from antibiotic use
6. **Reporting:** We will provide regular feedback on antibiotic use and resistance to prescribing clinicians, nursing staff, and other relevant staff
7. **Education:** We will provide resources to clinicians, nursing staff, residents, and families about antibiotic resistance and appropriate antibiotic use

Key objectives for the ASP in 2017 will be to establish an ASP and a system for tracking antibiotic use to meet the requirements of participation set out by CMS. We will also implement a small number of additional antibiotic stewardship actions to improve communication about resident condition and antibiotic decision-making for potential urinary tract infections (UTI).

Anticipated objectives for ASP in 2018 will be to improve upon 2017 ASP activities, enhance antibiotic use tracking to measurement of days of therapy, implement communication and decision-making tools for potential infections outside of the urinary tract, and track multi-drug resistant infections.

PROCEDURE:

1. Administrative Leadership

- A. Identification of administrative leadership:
 - i. ___[leader name]_____
 - ii. ___[leader name]_____
- B. Administrative leadership will identify a physician, nursing, and pharmacy lead to be responsible for program oversight and promotion—the Antibiotic Stewardship Team (AST).
- C. Administrative leadership and the AST will together develop an antibiotic stewardship mission statement.
- D. A written leadership statement in support of antibiotic stewardship will be posted in the facility and made available to residents, families, and all staff.
- E. Leadership will communicate annually with nursing staff and clinicians this commitment to antibiotic stewardship and the expectations of the nursing home regarding monitoring and enforcement of stewardship policies.

2. Accountability (Antibiotic Stewardship Team)

- A. Team Role
 - i. Accountability for activities that support the antibiotic stewardship mission.
 - a. Define standards for antibiotic prescribing, communication, and other stewardship actions for staff and clinical providers credentialed to deliver care in the home
 - b. Communicate prescribing standards to staff and providers
 - ii. Utilize antibiotic-use and other data to ensure that Antibiotic Stewardship Policy procedures and other best practices are followed and refined as needed.
 - a. Compile and share report of antibiotic use, process measures, and outcomes monthly
 - b. Identify any necessary procedure changes based on monthly reports
 - c. Work with laboratory annually to obtain local/regional antibiogram
 - iii. Review the Antibiotic Stewardship Policy annually, as directed above.
- B. Members
 - i. The AST will include, at minimum, the Medical Director, the Director of Nursing, Infection Prevention (IP) Coordinator, and a consultant pharmacist.
 - ii. AST Lead: _____ Title _____
Responsibilities: _____

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- iii. AST Members:
- a. Name _____ Title _____
Responsibilities: _____

- b. Name _____ Title _____
Responsibilities: _____

- c. Name _____ Title _____
Responsibilities: _____

- d. Name _____ Title _____
Responsibilities: _____

3. Antibiotic Expertise

To reduce antibiotic use and guide development of ASP protocols, the AST Lead will collaborate as needed with:

- A. Consultant pharmacist(s): _____ [names] _____
- B. Hospital ASP contacts in referral network: _____ [names] _____

- C. Infectious disease consultant(s): _____ [names] _____
- D. Other: _____ [names] _____

4. Antibiotic Stewardship Actions

A. Background

Antibiotic stewardship actions are conducted to enable or to measure these key elements of care: knowing **when to be concerned about an infection** in a resident, **what clinical and historical information** to gather for the provider, **when to submit diagnostic specimens** to the laboratory, **how to quantify and assess appropriateness of antibiotics** prescribed, and **how to identify adverse outcomes** that might be associated with antibiotics.

Actions put into place by the AST will be monitored monthly (see Measuring Actions section on Page 5 of this document), discussed with leadership and appropriate consulting experts, and reviewed for necessary updates annually. Dates indicate when each action will be implemented as a mandatory part of this Antibiotic Stewardship Policy.

B. Actions

- i. **Prescription record keeping.** Dose, duration, route, and indication of every antibiotic prescription MUST be documented in the medical record for every resident, regardless of prior prescriptions or documentation elsewhere (e.g., in medical record of a discharging facility). Notation of this information should be made on the day that an in-house prescription is written or on the day that a resident returns to the facility on an antibiotic prescribed elsewhere. Records will be reviewed monthly to assess compliance

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

Implementation date: November 1, 2017

- ii. **Assessment of residents suspected of having an infection.** Providers will utilize the Loeb Criteria when considering initiation of antibiotics (Appendix A) (4). Consistent with these criteria, the standardized Suspected UTI SBAR form should be used for all residents suspected of having a UTI (Appendix B). The completed form should be provided to, or information communicated with, the provider. It is encouraged that Loeb criteria be used for other suspected infections, including lower respiratory tract infection, skin and soft-tissue infection, and fever of unknown focus, when considering antibiotic prescription.

Implementation date: November 1, 2017

- iii. **Provider communication.** When UTI is suspected, the standardized Suspected UTI SBAR form (Appendix B) must be used to communicate with providers. It is encouraged that the standardized general SBAR form be used for all change in condition communication (Appendix C).

Implementation date: November 1, 2017

- iv. **Antibiotic “time-out.”** At 72 hours after antibiotic initiation or first dose in the facility, each resident will be reassessed for consideration of antibiotic need, duration, selection, and de-escalation potential. At this time, laboratory testing results, response to therapy, resident condition, and facility needs (e.g., outbreak situation) will be considered. Completion of an antibiotic time-out must be recorded in the resident record.

Implementation date: November 1, 2017

- v. **Microbiologic specimen submission guidelines.** The following guidelines should be considered before submission of a clinical specimen for microbiologic testing:
 - a. Urinalysis: Loeb et al. algorithm (Appendix D) (4)
 - b. Urine culture: Loeb et al. algorithm (Appendix D) (4)
 - c. Stool testing for *Clostridium difficile*: Minnesota Dept. of Health algorithm (Appendix D) (5)
 - d. Wound culture
 - e. Respiratory diagnostics
 - f. Blood culture

Implementation dates: November 1, 2017 for a–c; November 1, 2018 for d–f

- vi. **First-line treatment recommendations.** There are no definitive practice guidelines that specifically address treatment of UTI in elderly patients in LTCF. Prescribers will base treatment recommendations on the following factors:
 - Likely UTI site (i.e., cystitis or pyelonephritis)
 - Facility-specific culture and antibiotic sensitivity data
 - Patient-specific factors including age, sex, prior antibiotic use, allergy history, concomitant drug therapy, renal 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

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increasing prevalence of *C. difficile* infection, and potential toxicity, have led to recommendations to curb fluoroquinolone use.

Implementation date: November 1, 2017

- vii. **Multi-drug resistant infections.** The AST will design and utilize systems to 1) identify residents with multidrug-resistant organisms (MDROs) by review of microbiology culture results, 2) alert staff and providers, and 3) document in cases of inter-facility transfer.

Implementation date: November 1, 2018

- viii. **Interventions for syndrome-specific antibiotic use and antibiotic prophylaxis.** The AST will identify actions to directly impact inappropriate antibiotic use for specific syndromes and for prophylactic indications.

Implementation date: November 1, 2018

5. Measuring Actions (Tracking)

A. Measurement/tracking objective

We will monitor antibiotic use, stewardship actions, and outcomes related to antibiotic use (excluding topical and ophthalmic antibiotics) in order to guide practice change and track ASP impact.

B. What will be measured/tracked

- i. Measurements to be initiated on *November 1, 2017*:

Antibiotic use: Antibiotic starts

Stewardship actions: Record-keeping protocol compliance, use of antibiotic time-outs

Outcomes: *Clostridium difficile* detection

- ii. Measurements to be initiated on *November 1, 2018*:

Antibiotic use: Days of therapy (DOT)

Stewardship actions: Record-keeping protocol compliance, use of antibiotic time-outs, compliance with urine culture specimen submission guidelines

Outcomes: *Clostridium difficile* infections, urinary tract infections, antibiotic costs

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 consulting pharmacist. Consulting pharmacist and ___ [responsible person] ___ will interpret the monthly data, define any necessary action steps, and compile information for the *Monthly ASP Tracking Report*.

ii. Stewardship actions

- a. ___ [responsible person] ___ will develop a system for measuring stewardship action. The measurement protocol will be included in Appendix E.

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- b. Data will be compiled monthly by ___ [responsible person] ___, who will interpret monthly data, define any necessary action steps, and compile information for the *Monthly ASP Tracking Report*.

iii. **Outcomes**

- a. ___ [responsible person] ___ will develop a system for tracking outcomes. The outcomes tracking protocol will be included in Appendix E.
- b. Outcomes data will be compiled monthly by ___ [responsible person] ___, who will interpret monthly data, define any necessary action steps, and compile information for the *Monthly ASP Tracking Report*.

6. Reporting

A *Monthly ASP Tracking Report* will be compiled and will include summaries of collected data; interpretation of data by consulting pharmacist, IP Coordinator, and other relevant individuals; and identified next action steps. The *Monthly ASP Tracking Report* will be discussed at a full AST meeting, or Quality Assurance Performance Improvement meeting, and disseminated to administrative leadership identified in Procedure Section 1 of this document.

An *Annual ASP Tracking Report* will be developed and will include the components of data summary, interpretation, and next steps, as well as identification of ASP measurement targets identified for the following year.

7. Education

___ [facility] ___ will provide antibiotic stewardship education to staff, prescribing providers, residents, and families. The education plans are defined below.

Staff: Upon hire: _____ [description of AS education] _____

Annually: _____

Prescribing providers: _____

Residents: _____

Families: _____

REFERENCES:

1. CDC. The Core Elements of Antibiotic Stewardship for Nursing Homes. Atlanta, GA: US Department of Health and Human Services, CDC; 2015. Available at: <http://www.cdc.gov/longtermcare/index.html>
2. CMS. Pub. 100–07 State Operations Manual, Appendix PP, Guidance to Surveyors of Long Term Care Facilities. Washington D.C.: US Department of Health and Human Services, CMS; 2017. Available at: <https://www.cms.gov/Medicare/Provider-Enrollment-and-Certification/GuidanceforLawsAndRegulations/Downloads/Advance-Appendix-PP-Including-Phase-2-.pdf>
3. Loeb et al. Development of Minimum Criteria for the Initiation of Antibiotics in Residents of Long-Term-Care Facilities: Results of a Consensus Conference. *Infection Control & Hospital Epidemiology* 2001;22(2):120-4.
4. Loeb et al. Effect of a multifaceted intervention on number of antimicrobial prescriptions for suspected urinary tract infections in residents of nursing homes: cluster randomised controlled trial. *British Medical Journal* 2005. doi:10.1136/bmj.38602.586343.55.
5. Minnesota Antimicrobial Stewardship Program Toolkit for Long-term Care Facilities. Appendix M: Prevention and Management of Clostridium difficile Infections in Long-term Care. <http://www.health.state.mn.us/divs/idepc/dtopics/antibioticresistance/asp/ltc/index.html>

APPENDIX A. Loeb Criteria for Initiating Antibiotics

From: Loeb et al. Development of Minimum Criteria for the Initiation of Antibiotics in Residents of Long-Term-Care Facilities: Results of a Consensus Conference. *Infection Control & Hospital Epidemiology* 2001;22(2):120-4.

<http://www.health.state.mn.us/divs/idepc/dtopics/antibioticresistance/ltcabxcard.html>

Minimum Criteria for Initiation of Antibiotics in Long-Term Care Residents

Suspected Lower Respiratory Tract Infection

- Fever >38.9°C [102°F]
and at least one of the following:
 - Respiratory rate >25
 - Productive cough
- or*
- Fever (>37.9°C [100°F] or a 1.5°C [2.4°F] increase above baseline temperature, but ≤38.9°C [102°F])
and cough
and at least one of the following:
 - Pulse >100
 - Rigors
 - Delirium
 - Respiratory rate >25
- or*
- Afebrile resident with COPD and >65 years
and new or increased cough with purulent sputum production
- or*
- Afebrile resident without COPD and new cough with purulent sputum production
and at least one of the following:
 - Respiratory rate >25
 - Delirium
- or*
- New infiltrate on chest X-ray thought to represent pneumonia
and at least one of the following:
 - Fever (>37.9°C [100°F] or a 1.5°C [2.4°F] increase above baseline temperature)
 - Respiratory rate >25
 - Productive cough

Chest X-ray and complete cell count with differential is reasonable for residents with fever, cough, and at least one of the following: pulse >100, worsening mental status, rigors.

Fever with Unknown Focus of Infection

- Fever (>37.9°C [100°F] or a 1.5°C [2.4°F] increase above baseline temperature)
and at least one of the following:
 - New onset delirium
 - Rigors

Note: fever + mental status changes that do not meet delirium criteria (e.g. reduced functional activities, withdrawal, loss of appetite) need to be investigated but empiric antibiotics are not needed.

Suspected Urinary Tract Infection

- NO indwelling catheter:**
 - Acute dysuria
 - or*
 - Fever (>37.9°C [100°F] or a 1.5°C [2.4°F] increase above baseline temperature)
and at least one of the following:
 - New or worsening:
 - Urgency
 - Frequency
 - Suprapubic pain
 - Gross hematuria
 - Costovertebral angle tenderness
 - Urinary incontinence
- WITH indwelling catheter (Foley or suprapubic):**
- *At least one of the following:*
 - Fever (>37.9°C [100°F] or a 1.5°C [2.4°F] increase above baseline temperature)
 - New costovertebral tenderness
 - Rigors
 - New onset of delirium

Note: Foul smelling or cloudy urine is not a valid indication for initiating antibiotics. Asymptomatic bacteriuria should not be treated with antibiotics.

Suspected Skin and Soft-tissue Infection

- New or increasing purulent drainage at a wound, skin, or soft-tissue site
- or*
- *At least 2 of the following:*
 - Fever (>37.9°C [100°F] or a 1.5°C [2.4°F] increase above baseline temperature)
 - Redness
 - Tenderness
 - Warmth
 - New or increasing swelling



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7/10/2017

Source: 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

APPENDIX B. Standardized Form for Assessing and Communicating Suspected UTI

From: Agency for Healthcare Research and Quality. Nursing Home ASP Guide. 2014;Pub. No. 14-0010-2-EF.
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**, new/worsening? No Yes

No Yes Advance directives for limiting treatment related to antibiotics and/or hospitalizations

Specify _____

No Yes Medication Allergies

Specify _____

No Yes The resident is on Warfarin (Coumadin®)

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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

- Fever of 100°F (38°C) or repeated temperatures of 99°F (37°C)*
- New back or flank pain
- Acute pain
- Rigors /shaking chills
- New dramatic change in mental status
- 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

- 1. Acute dysuria alone
_____ **OR** _____
- 2. Single temperature of 100°F (38°C) **and** at least one new or worsening of the following:
 - urgency suprapubic pain
 - frequency gross hematuria
 - back or flank pain urinary incontinence
 _____ **OR** _____
- 3. No fever, but two or more of the following symptoms:
 - urgency suprapubic pain
 - frequency gross hematuria
 - incontinence

Nurses: Please check box to indicate whether or not criteria are met

- Nursing home protocol criteria are met.** Resident may require UA with C&S or an antibiotic.†
- 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 Phone Fax In Person Other _____

Order UA

Urine culture

Encourage _____ ounces of liquid intake _____ times daily until urine is light yellow in color.

Record fluid intake.

Assess vital signs for _____ days, including temp, every _____ hours for _____ hours.

Notify Physician/NP/PA if symptoms worsen or if unresolved in _____ hours.

Initiate the following antibiotic

Antibiotic: _____ Dose: _____ Route: _____ Duration: _____

No Yes Pharmacist to adjust for renal function

Other _____

Physician/NP/PA signature _____ Date/Time _____

Telephone order received by _____ Date/Time _____

Family/POA notified (name) _____ Date/Time _____

* For residents that regularly run a lower temperature, use a temperature of 2°F (1°C) above the baseline as a definition of a fever.
† This is according to our understanding of best practices and our facility protocols. Minimum criteria for a UTI must meet 1 of 3 criteria listed in box.

†† This is according to our understanding of best practices and our facility protocols. The information is insufficient to indicate an active UTI infection.

APPENDIX C. Standardized SBAR Form for Communication of Change in Condition

From: *Minnesota Antimicrobial Stewardship Program Toolkit for Long-term Care Facilities. Appendix G: SBAR: Situation, Background, Assessment, Request*

<http://www.health.state.mn.us/divs/idepc/dtopics/antibioticresistance/asp/ltc/apxg.pdf>

When calling the primary or on-call provider, consider the following changes in condition. Communicate those that are present and not present to facilitate accurate and effective clinical decision making.

SBAR

Physician/ NP Communication

Resident Name: _____ DOB: _____
Unit/Room: _____

Situation:

Reason for the call (e.g., change in condition); include date of onset, frequency, and duration:

Vital signs; note baseline value, if different: Temp: ____ BP: ____/____ P: ____ RR: ____

Background:

Primary diagnosis or reason resident is in facility: _____

Pertinent history (e.g., precipitating, aggravating, alleviating factors): _____

Has reason for call occurred before? Describe: _____

Recent lab or diagnostic test results: _____

Medication allergies and reactions: _____

Advance directives / POLST: _____

Assessment:

What do you think is going on (e.g., dehydration, medication problem)? _____

Or – I'm not sure what is going on.

Request:

Visit? Specify: _____

Medication change? Specify: _____

New order? Specify: _____

Just providing information.

Instructions or questions from physician/NP: _____

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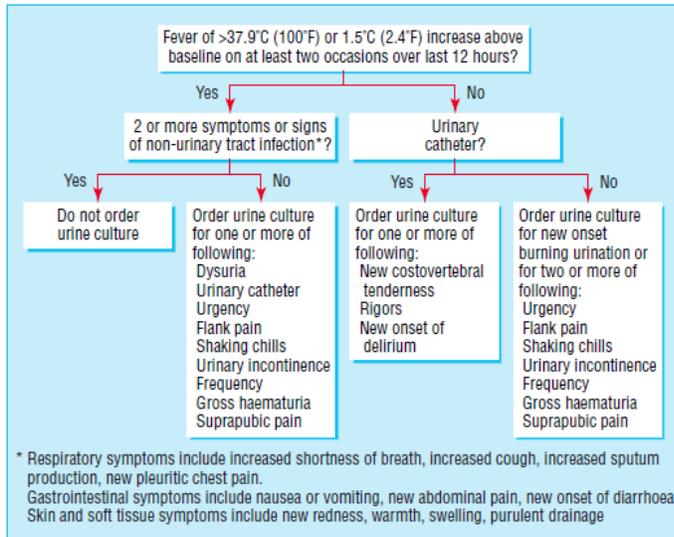
Mental Status:	Yes	GI/Abdomen:	Yes
New/worsening confusion	___	Nausea	___
New onset of delirium	___	Vomiting (# of episodes/24 hours ___)	___
New/worsening behavioral symptoms	___	Diarrhea (# of episodes/24 hours ___)	___
Altered level of consciousness	___	New/worsening stool incontinence	___
Other, describe:	___	Rectal bleeding or blood in stool	___
Functional Status:	Yes	Decreased appetite	___
Needs more assistance with ADLs	___	Abdominal pain / tenderness	___
Decreased mobility	___	Distended abdomen	___
Fall, gait disturbance	___	Decreased bowel sounds	___
Weakness or hemiparesis	___	Constipation	___
Slurred speech	___	Other, describe:	___
Trouble swallowing	___	Urine/Genitourinary Tract:	Yes
Other, describe:	___	Painful urination (dysuria)	___
Eye/Ear:	Yes	New/worsening urination frequency	___
Vision loss (partial/complete)	___	New/worsening urination urgency	___
Pus from one or both eyes	___	New/worsening incontinence	___
New/increasing conjunctival swelling	___	Flank pain (costovertebral angle (CVA) tenderness)	___
New/increasing conjunctival pain	___	Suprapubic pain	___
Itching of one or both eyes	___	Hesitancy or decreased urine output	___
Redness of one or both eyes	___	Blood in urine (gross hematuria)	___
Bleeding from the ear canal	___	Cloudy or concentrated urine	___
Discharge from the ear canal, describe:	___	Foul-smelling urine	___
Acute hearing loss	___	Pain, tenderness, or swelling of the testes, epididymis, or prostate	___
Wax impaction	___	Redness, edema, or excoriation of female external genitalia	___
Ringing, or other noise in the ears	___	Discharge from the penis or vagina	___
Pain of external or internal ear(s)	___	Other, describe:	___
Other, describe:	___	Skin/Soft Tissue:	Yes
Nose/Mouth/Throat:	Yes	New/increasing purulent drainage at a wound, skin, or soft-tissue site	___
Nasal discharge, describe color and consistency:	___	New/increasing redness at site	___
Nasal congestion	___	New/increasing tenderness/pain at site	___
Nosebleed	___	New/increasing warmth at site	___
Sneezing	___	New/increasing swelling at site	___
Toothache	___	New/increasing serous drainage at site	___
Inflamed oral mucosa with raised white patches	___	Rash, describe:	___
Sore throat, hoarseness, or difficulty swallowing	___	Lesion, describe:	___
Swollen or tender glands in the neck	___	Itching, describe area and intensity:	___
Other, describe:	___	Other, describe:	___
Cardiac/Respiratory System:	Yes	Other Issues:	Yes
Chest pain/tightness, describe:	___	Fever or hypothermia (different from baseline)	___
Abnormal heart sounds	___	Shaking chills (rigors)	___
Edema (different from baseline)	___	Headache	___
Dizziness or lightheadedness	___	Fainting (syncope episode)	___
Shortness of breath	___	Sleep disturbance, describe:	___
Labored breathing	___	Seizure or convulsions	___
Abnormal lung sounds	___	Sprain or strain	___
Cough (productive/non-productive)	___	Dislocation or fracture	___
Coughing up blood (hemoptysis)	___	Other, describe:	___
Purulent sputum production	___		
Other, describe:	___		

APPENDIX D. Criteria for Submission of Biologic Specimens for Laboratory Diagnostics

Part 1. Urine culture

From: *Loeb et al. Effect of a multifaceted intervention on number of antimicrobial prescriptions for suspected urinary tract infections in residents of nursing homes: cluster randomised controlled trial. British Medical Journal 2005. doi:10.1136/bmj.38602.586343.55*

This algorithm will be used to guide decisions about when to order a urine culture. It should be considered by providers in concert with information reported on the Suspected UTI SBAR form.



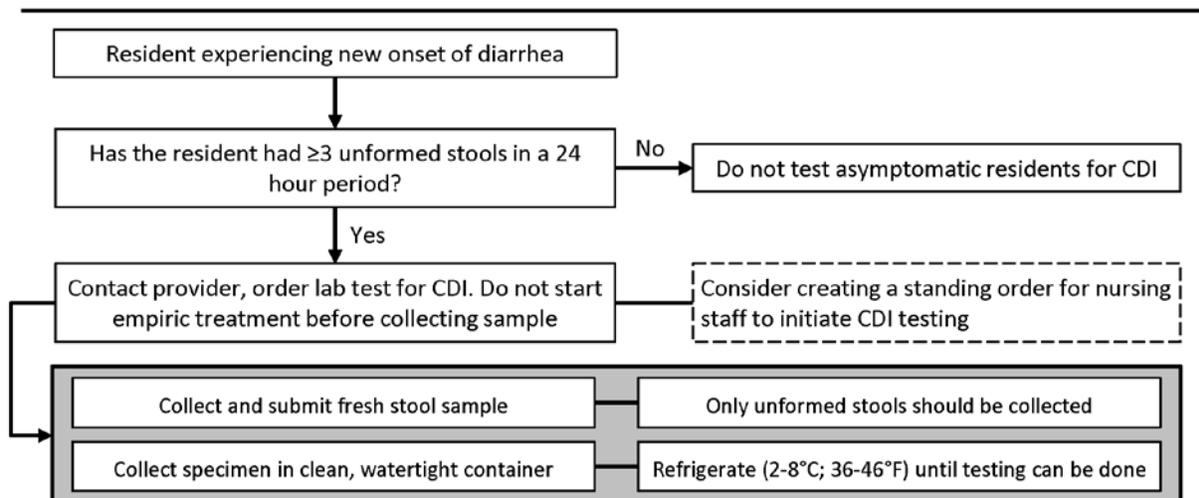
Part 2. Algorithm to guide *Clostridium difficile* diagnostics

From: *Minnesota Antimicrobial Stewardship Program Toolkit for Long-term Care Facilities. Appendix M: Prevention and Management of Clostridium difficile Infections in Long-term Care.*

<http://www.health.state.mn.us/divs/idepc/dtopics/antibioticresistance/asp/ltc/apxm.pdf>

This algorithm will be used to guide decisions about when to collect a stool sample. It should be considered by providers in concert with information reported on the SBAR form.

A1. Early Recognition and Testing



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 given an antibiotic prescription (“antibiotic start”) by a provider located in or outside of the facility.
 - A 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. Some 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 administration
 - Dose of antibiotic
 - Prescribed length of antibiotic course (days)
 - Prescriber and prescribing facility
 - Antibiotic time-out occurred? (yes/no)
 - The medical record of each resident receiving an antibiotic that month will be reviewed and the appropriate information filled into the Excel database.
- Review and Reporting
 - The database will be reviewed by the consulting pharmacist once monthly to assess appropriateness of prescribing.
 - 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 class
 - Number and percent of antibiotic starts originating from facility providers and outside providers

Part 2. Stewardship Actions

Prescription Record-Keeping Compliance

- Measurement
 - The ___[facility]___ Antibiotic Stewardship Policy requires that the dose, duration, and indication of every antibiotic prescription must be documented in the medical record for every resident, regardless of prior prescriptions or documentation elsewhere (e.g., in medical record of a discharging facility).
 - 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 line of the database will be assessed to determine whether dose, duration, and indication were recorded. If none of these data are missing, the “Record Complete” cell is marked as “yes”
- Reporting
 - For the *Monthly ASP Tracking Report*, the following calculations will be completed and reported.

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- Number and percent of resident antibiotic starts with all of dose, 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 resident records with complete dose, 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 submitted by a provider located in or outside of the facility.
 - A Microsoft Excel *C. difficile Database* will be developed for tracking.
 - Each resident diagnosed with *C. difficile* will be listed in a separate row.
 - Columns to be included in the database are:
 - Resident name
 - Date of specimen collection for positive *C. difficile* test
 - Room number when test positive
 - Presence of ≥ 3 loose stools within 24 hour period 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 filled 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 ≥ 3 loose 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