Developing An Antibiotic Stewardship Program: Long-Term Care

Stephanie Meduna, RN

**Quality Improvement Advisor**

Objectives

1. Name the goals of antibiotic stewardship and why it is important in the long-term care setting
2. Identify team members to include in an antibiotic stewardship program (ASP)
3. Discuss the potential stewardship interventions in the long-term care setting
4. Discuss methods to measure and share outcomes of stewardship interventions in long-term care

Overuse and Consequences

Up to 75% of antibiotics prescribed in nursing homes are considered inappropriate or unnecessary [1,2]

Potential consequences:
- ✓ Allergic reactions
- ✓ Loss of appetite
- ✓ Diarrhea
- ✓ Kidney or liver damage
- ✓ Confusion or mental status changes
- ✓ Seizure
- ✓ Cardiac arrhythmias
- ✓ *Clostridioides difficile* infection
- ✓ Drug- resistant bacteria
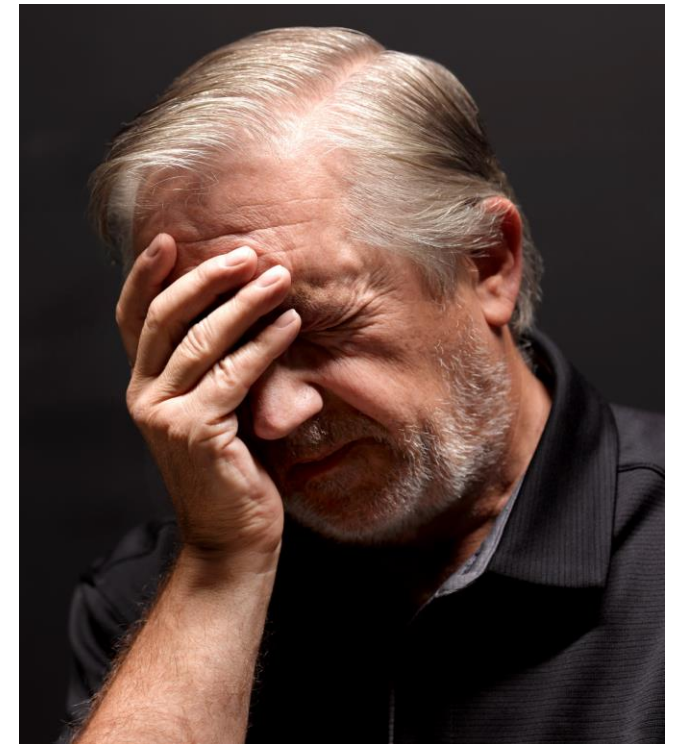
Forming an Antibiotic Stewardship Team

Examples of individuals to choose for your antibiotic stewardship team

- Medical Director

- Director or Assistant Director of Nursing

- Infection Control Preventionist

- Consultant Pharmacist

- Family Representative

- Resident of Facility

- Administrator or Other Senior Executive

Important Qualities of Team Leaders

- Basic knowledge of antibiotics
- Interest in a leadership role
- Respect of their peers
- Receptive of feedback
- Ability to work within teams to solve problems
- Interest in and devotion to improving antibiotic use in nursing home

Getting Off to a Successful Start

- Ensure every resident who is prescribed antibiotics receives the right drug, dose, duration and route of administration

- Use antibiotics only when necessary, thereby protecting residents from unnecessary antibiotic exposure and antibiotic-associated adverse events

- Educate staff and the community about the importance of appropriate antibiotic use in long-term care and to guide them toward this practice
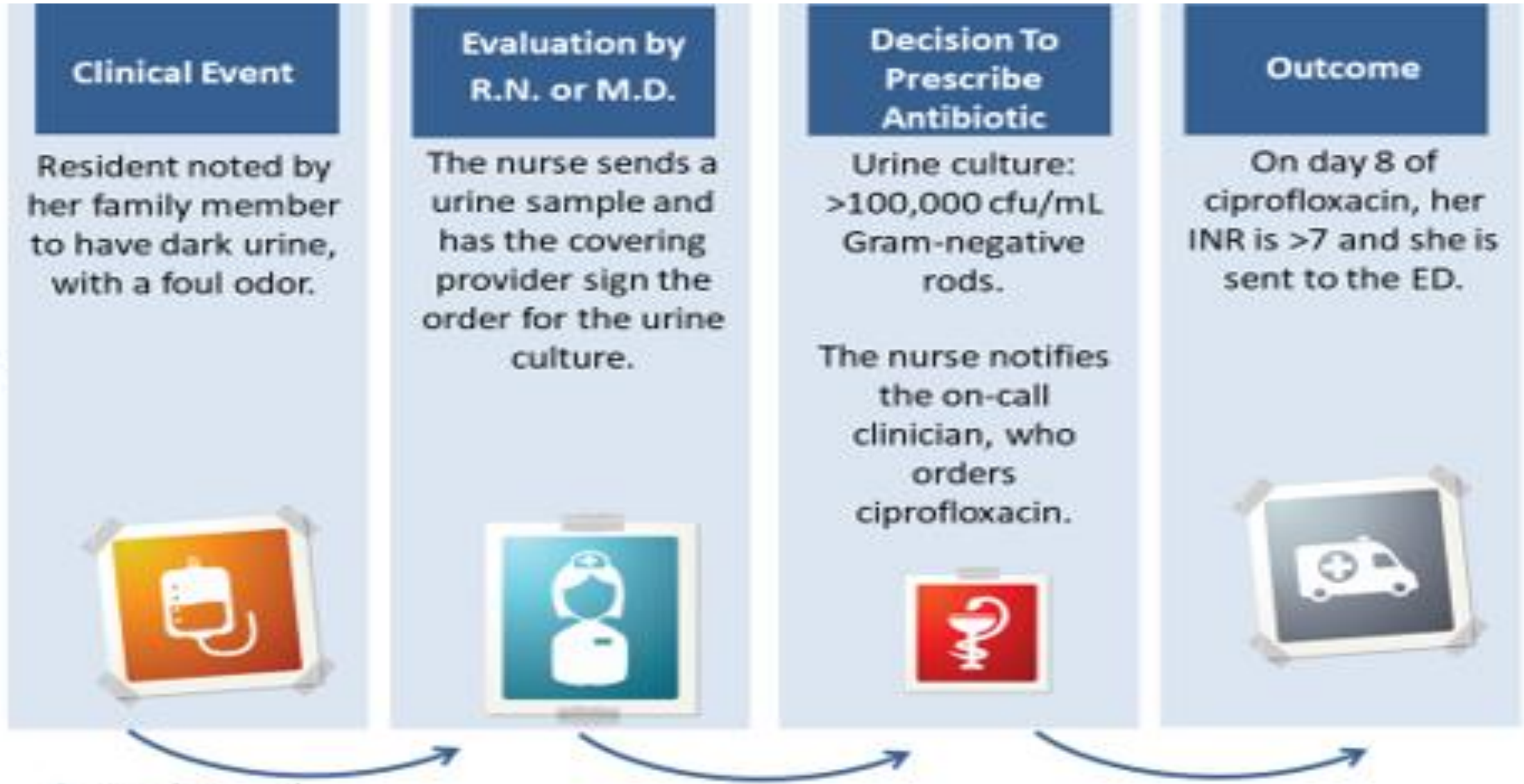
Where to Start

- Meet with your antibiotic stewardship team to identify problems as opportunities for improvement
- Identify a problem to work on

All of you recall the case of a recent resident who was transferred to the hospital for an INR of >7 after receiving a fluoroquinolone for 8 days without monitoring.

Reviewing the Events

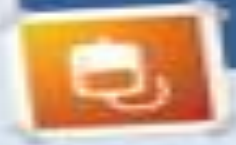| Clinical Event	Evaluation by R.N. or M.D.	Decision To Prescribe Antibiotic	Outcome
Resident noted by her family member to have dark urine, with a foul odor.	The nurse sends a urine sample and has the covering provider sign the order for the urine culture.	Urine culture: >100,000 cfu/mL Gram-negative rods. The nurse notifies the on-call clinician, who orders ciprofloxacin.	On day 8 of ciprofloxacin, her INR is >7 and she is sent to the ED.

Identifying the Problems

Clinical Event

Son notes resident has dark urine, with a foul odor. Her son states the last time she had a dark urine she had a UTI. He wants her to be tested.

PROBLEM:
No discussion with the family or attempt to educate.

Evaluation by R.N. or M.D.

The nurse sends the urine sample and then asks the on-call covering clinician to sign the order.

PROBLEM:
No diagnostic criteria used to evaluate the resident.

Identifying the Problems

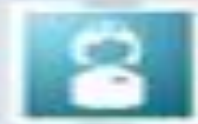| **Clinical Event**	**Evaluation by R.N. or M.D.**	**Decision To Prescribe Antibiotic**
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PROBLEM: No discussion with the family or attempt to educate.	PROBLEM: No diagnostic criteria used to evaluate the resident.	PROBLEM(S): No evaluation of resident. No review of guidelines to determine if therapy is indicated.

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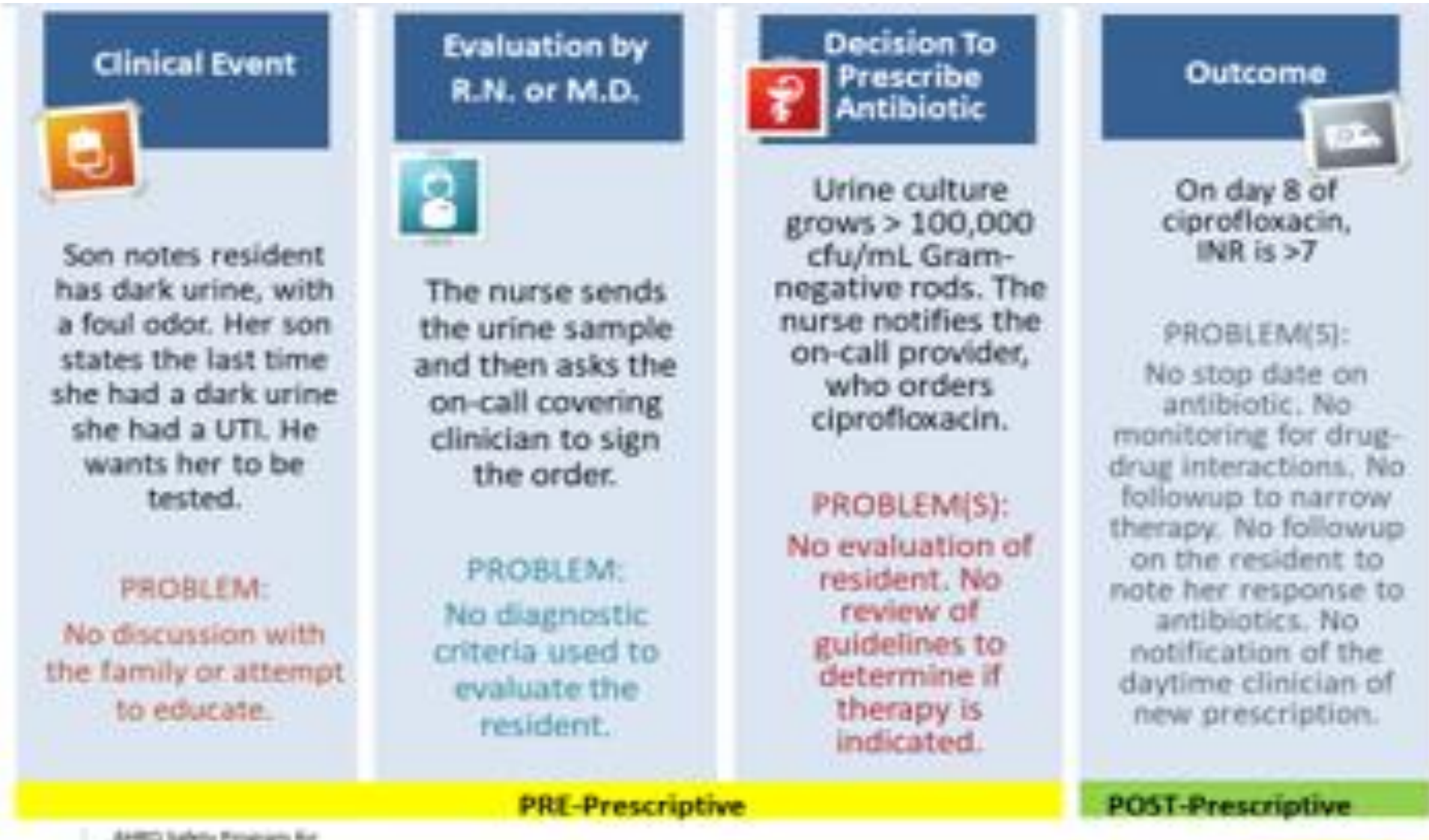
Outcome

On day 8 of ciprofloxacin, INR is >7

PROBLEM(S):
No stop date on antibiotic. No monitoring for drug-drug interactions. No followup to narrow therapy. No followup on the resident to note her response to antibiotics. No notification of the daytime clinician of new prescription.

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PRE-Prescriptive   **POST-Prescriptive**

AHRQ Safety Program for

12

How to Start

- Start small, go for easy wins
- Focus on 1–2 aspect(s) of an opportunity for improvement

The team chooses to focus on 2 postprescriptive opportunities for improvement

1. Monitor for drug-drug interactions.
2. Notify the primary clinician of new antibiotic prescriptions.

AHRQ Safety Program for

Outcome

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Baseline Data

Monitor for drug-drug interactions.

Count the number of antibiotic courses started on people who were also on warfarin in the last month.

Tell the primary clinician about new antibiotic prescriptions.

Count the number of antibiotic courses started by a covering provider in the last month.

Baseline Data Collection

- In your 100-bed facility over the last month, 12 antibiotic prescriptions were started
  - 8 by a covering clinician
  - 3 residents were on warfarin

- There was no process in place to notify the regular provider about the new medications started by the covering clinician

Intervention

You decide to develop an intervention!

- The <u>dispensing pharmacist</u> sends an email to regular clinicians about all antibiotics started by an on-call covering clinicians

- The <u>team</u>—
  - Notifies the clinicians about this new policy and the reason for the change via an email and signs posted in charting areas
  - Confirms that the dispensing pharmacist has the email and pager numbers for the regular clinicians
  - Asks the pharmacist to keep a copy of the emails sent

Outcomes

Clinicians

- Reviewed all of the antibiotic prescriptions
- Stopped or changed the antibiotics in 5 of 8 cases

Sharing/Distribution/Reporting

Share results with the following people:

- Nursing home staff
- Prescribers/clinicians
- Nursing home management/directors
- Centers for Medicare & Medicaid Services (CMS)
- Residents and family members

Pre-Prescriptive Interventions: Examples

- ✓ Checklist of signs and symptoms for nurses to use before calling a provider about a resident with a change in status
- ✓ Prescribing guidelines distributed to staff and clinicians
- ✓ Pocket cards distributed to staff indicating minimum criteria for starting antibiotics
- ✓ Electronic medical record 'sops' to notify providers in a resident does not meet criteria for antibiotic therapy or needs monitoring
- ✓ Dose recommendations for residents with decreased kidney function
- ✓ Requirement that all antibiotic orders have an indication, dose and duration

Post-Prescriptive Interventions Examples

- ✓ Electronic alert or pharmacy institutes antibiotic 'time-out' at 48 or 72 hours
  - Require the prescriber to reassess antibiotic prescriptions and verify the need to continue them
- ✓ Provider reviews culture results and diagnostic tests to make sure antibiotics are necessary and effective
- ✓ Formal review of appropriateness of antibiotic prescriptions by infectious disease-trained consultants 24 to 72 hours after initial prescription
  - Consultants can be pharmacists or physicians

Outcome Measures for Post-Prescriptive Interventions

- ✓ Number of days antibiotic starts per 1,000 resident-days
- ✓ Days of antibiotic therapy per 1,000 resident-days
- ✓ Length of therapy
- ✓ Cost of antibiotics
- ✓ Use of guideline-concordant antibiotics
- ✓ Clostridioides *difficile* infection rates
- ✓ Adverse events related to antibiotics

Summary

1. Gather a motivated team
2. Brainstorm and identify opportunities for improvement
3. Obtain baseline data
4. Plan intervention and train involved staff
5. Implement intervention, collect outcomes
6. Share outcomes with stakeholders
7. Brainstorm the next intervention

Review Steps and Resources

Gather a motivated team

- [AHRQ suggestions on how to gather a team](#)

Brainstorm and identify opportunities for improvement

[Science Direct®: Template for Antibiotic Stewardship Policy for Post-Acute and Long-Term Care Settings](#)
- [AHRQ Implementation_Planning_Sample_Agenda](#)

Obtain baseline data

- Data collection forms are under [Choosing an Intervention and Measuring Change](#) on the toolkit Web site

Plan intervention and train involved staff

- [Sample policy letters to inform staff of intervention.doc](#)

Implement intervention, collect outcomes

Share outcomes with stakeholders

- [AHRQ Quarterly or Monthly Prescribing Profile](#)

Activities to Complete

Activity, Stewardship Team	Activity, Frontline Providers
Gather a motivated Antibiotic Stewardship Team • At least 3 individuals; infection preventionist, and may include medical director or designee, other physician or pharmacist Schedule Antibiotic Stewardship Team meeting • Develop a Mission Statement • Brainstorm possible interventions to improve antibiotic use	Ask frontline providers to sign the Commitment Poster
Supporting Materials	
Four Moments of Antibiotic Stewardship Posters	

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Any practice described in this presentation must be applied by health care practitioners in accordance with professional judgment and standards of care in regard to the unique circumstances that may apply in each situation they encounter. These practices are offered as helpful options for consideration by health care practitioners, not as guidelines.

References

1. Lim CJ, Kong DCM, Stuart RL. Reducing inappropriate antibiotic prescribing in the residential care setting: current perspectives. Clin Interven Aging. 2014 Jan; 9:165-77. PMID: 24477218

2. Nicolle LE, Bentley D, Garibaldi R, et al. Antimicrobial use in long-term care facilities. Infect Control Hosp Epidemiol 2000 Aug; 21(8):537–45. PMID: 10968724

Thank You!

Stephanie Meduna, RN

Stephanie.meduna@greatplainsqin.org

www.greatplainsqin.org