Antibiotic Stewardship Panel Discussion

PACAH Conference
September 12th, 2017
Panel Participants

- Emily Kryger, PharmD, BCGP
- Heather Sakely, PharmD, BCPS, BCGP
- Deborah Milito, PharmD, BCGP
- Aaron Pickering, PharmD
- David Nace, MD, MPH
- Terri Lee Roberts, BSN, RN, CIC, FAPIC
Agenda

› Antibiotic Stewardship Background
› CDC Core Elements
› SBAR
› Infectious Disease Treatment Guidelines
› Antibiograms
› CMS Regulations & Interpretive Guidelines
› Role of the Medical Director in Antibiotic Stewardship
› Antibiotic Stewardship Research
› Role of the Infection Prevention Designee
› Question & Answer Session
Introduction
Antibiotic Stewardship Spans Settings and Disciplines

Setting
- Hospital
- Community
- Nursing Home

Personnel
- Physician
- Pharmacist
- Nurse
- Laboratory
- Patient/Caregiver
- CRNP/PA
Define antibiotic stewardship and the need for this program in nursing facilities
The miracle of antibiotics

› Until the early 20th century, infectious diseases were primarily responsible for mortality in the United States, resulting in an average life expectancy of 47 years.

› With the advent of antiseptic techniques, vaccinations, antibiotics, and other public health measures, life expectancy in the early 21st century has increased to 76–80 years in most developed nations.
Call to action

Infectious disease and antibiotic resistance is one of the world’s most pressing public health threats today.

Patients, clinicians, healthcare facility administrators, and policy makers must work together to employ effective strategies for improving treatment and preventative measures—ultimately improving medical care and saving lives.
Healthcare Associated Infections (HAIs)

› There are between 1.6 and 3.8 million HAIs in nursing homes every year

› Annually, these infections result in an estimated:
  - 150,000 hospitalizations
  - 388,000 deaths
  - $2 billion dollars in additional healthcare costs

Source: Castle, et al. Nursing home deficiency citations for infection control, American Journal of Infection Control, May 2011; 39, 4
Why focus on nursing homes?

› Increasing acuity of illness
  – Decreased hospital length of stay
  – Appropriate avoidance of hospital transfers

› Colonization vs true infection

› Communication
  – Transitions of care
  – Electronic health record integration at facility

› Complications (infection and antibiotic)
  – More severe, difficult to treat, result in hospitalizations
  – Patient specific goals of care
Antibiotic use in Long-Term Care

Antibiotic misuse

› Unnecessary
› Wrong antibiotic
› No longer necessary
› Wrong dose
Adverse drug effects from antibiotics

› 1:5 annual emergency department visits are due to antibiotic reactions

› Common: rash, nausea, vomiting, diarrhea, stomach pain, fungal infections

› Serious: C. *difficile*, anaphylaxis, renal toxicity,

› Forgotten: trauma with line insertion, drug interactions (warfarin, antacids), mental status alteration, drug resistance, polypharmacy
What is antibiotic stewardship

› Process of coordinated interventions designed to improve and measure the appropriate use of antibiotics

› Shared commitment
  – Use antibiotics only when needed to treat disease
  – Prescribe antibiotics appropriately and safely
Achieving optimal antibiotic use through stewardship

Suboptimal use
- Increases treatment failures
- Increases drug resistant organisms
- Increases morbidity, mortality, hospitalization
- Increases costs

Optimal use
- Increases infection cure rates
- Improves pathogen susceptibility
- Reduces adverse effects
- Increases cost effective prescribing
CDC Core Elements
Summary of Core Elements for Antibiotic Stewardship in Nursing Homes

**Leadership commitment**
Demonstrate support and commitment to safe and appropriate antibiotic use in your facility

**Accountability**
Identify physician, nursing and pharmacy leads responsible for promoting and overseeing antibiotic stewardship activities in your facility

**Drug expertise**
Establish access to consultant pharmacists or other individuals with experience or training in antibiotic stewardship for your facility
Summary of Core Elements for Antibiotic Stewardship in Nursing Homes

**Action**
Implement at least one policy or practice to improve antibiotic use

**Tracking**
Monitor at least one process measure of antibiotic use and at least one outcome from antibiotic use in your facility

**Reporting**
Provide regular feedback on antibiotic use and resistance to prescribing clinicians, nursing staff and other relevant staff

**Education**
Provide resources to clinicians, nursing staff, residents and families about antibiotic resistance and opportunities for improving antibiotic use
Checklist for Core Elements of Antibiotic Stewardship in Nursing Homes

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

<table>
<thead>
<tr>
<th>LEADERSHIP SUPPORT</th>
<th>ESTABLISHED AT FACILITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Can your facility demonstrate leadership support for antibiotic stewardship through one or more of the following actions?</td>
<td></td>
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<tr>
<td>If yes, indicate which of the following are in place (select all that apply)</td>
<td></td>
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<tr>
<td>☐ Written statement of leadership support to improve antibiotic use</td>
<td></td>
</tr>
<tr>
<td>☐ Antibiotic stewardship duties included in medical director position description</td>
<td></td>
</tr>
<tr>
<td>☐ Antibiotic stewardship duties included in director of nursing position description</td>
<td></td>
</tr>
<tr>
<td>☐ Leadership monitors whether antibiotic stewardship policies are followed</td>
<td></td>
</tr>
<tr>
<td>☐ Antibiotic use and resistance data is reviewed in quality assurance meetings</td>
<td></td>
</tr>
</tbody>
</table>
Checklist for Core Elements of Antibiotic Stewardship in Nursing Homes (Continued)

ACCOUNTABILITY

2. Has your facility identified a lead(s) for antibiotic stewardship activities?

☐ Yes  ☐ No

If yes, indicate who is accountable for stewardship activities (select all that apply)

☐ Medical director
☐ Director or assistant director of nursing services
☐ Consultant pharmacist
☐ Other: ________________________________
## Checklist for Core Elements of Antibiotic Stewardship in Nursing Homes (Continued)

**DRUG EXPERTISE**

3. Does your facility have access to individual(s) with antibiotic stewardship expertise?  
   If yes, indicate who is accountable for stewardship activities (select all that apply)
   - Consultant pharmacy has staff trained/is experienced in antibiotic stewardship
   - Partnering with stewardship team at referral hospital
   - External infectious disease/stewardship consultant
   - Other: ____________________________
<table>
<thead>
<tr>
<th>ACTIONS TO IMPROVE USE</th>
</tr>
</thead>
<tbody>
<tr>
<td>4. Does your facility have policies to improve antibiotic prescribing/use?</td>
</tr>
<tr>
<td>If yes, indicate which policies are in place (select all that apply)</td>
</tr>
<tr>
<td>☐ Requires prescribers to document a dose, duration, and indication for all antibiotic prescriptions</td>
</tr>
<tr>
<td>☐ Developed facility-specific algorithm for assessing residents</td>
</tr>
<tr>
<td>☐ Developed facility-specific algorithms for appropriate diagnostic testing (e.g., obtaining cultures) for specific infections</td>
</tr>
<tr>
<td>☐ Developed facility-specific treatment recommendations for infections</td>
</tr>
<tr>
<td>☐ Reviews antibiotic agents listed on the medication formulary</td>
</tr>
<tr>
<td>☐ Other: ___________________________</td>
</tr>
</tbody>
</table>
Checklist for Core Elements of Antibiotic Stewardship in Nursing Homes (Continued)

**ACTIONS TO IMPROVE USE**

5. Has your facility implemented practices to improve antibiotic use?  
   - [ ] Yes  
   - [ ] No

   If yes, indicate which practices are in place (select all that apply)
   - [ ] Utilizes a standard assessment and communication tool for residents suspected of having an infection
   - [ ] Implemented process for communicating or receiving antibiotic use information when residents are transferred to/from other healthcare facilities
   - [ ] Developed reports summarizing the antibiotic susceptibility patterns (e.g., facility antibiogram)
   - [ ] Implemented an antibiotic review process/“antibiotic time out”
   - [ ] Implemented an infection specific intervention to improve antibiotic use

Indicate for which condition(s): ________________________________
Checklist for Core Elements of Antibiotic Stewardship in Nursing Homes (Continued)

**ACTIONS TO IMPROVE USE**

6. Does your consultant pharmacist support antibiotic stewardship activities?  
   □ Yes  □ No
   
   If yes, indicate activities performed by the consultant pharmacist (select all that apply)
   
   □ Reviews antibiotic courses for appropriateness of administration and/or indication
   □ Establishes standards for clinical/laboratory monitoring for adverse drug events from antibiotic use
   □ Reviews microbiology culture data to assess and guide antibiotic selection
Checklist for Core Elements of Antibiotic Stewardship in Nursing Homes (Continued)

**ACTIONS TO IMPROVE USE**

7. Does your facility monitor one or more measures of antibiotic use?  
   ![Yes] ![No]

   If yes, indicate which of the following are being tracked (select all that apply):

   - Adherence to clinical assessment documentation (signs/symptoms, vital signs, physical exam findings)
   - Adherence to prescribing documentation (dose, duration, indication)
   - Adherence to facility-specific treatment recommendations
   - Performed point prevalence surveys of antibiotic use
   - Monitors rates of new antibiotic starts/1,000 resident-days
   - Monitors antibiotic days of therapy/1,000 resident-days
   - Other: __________________________________________
Checklist for Core Elements of Antibiotic Stewardship in Nursing Homes (Continued)

**ACTIONS TO IMPROVE USE**

8. Does your facility monitor one or more outcomes of antibiotic use?  

   If yes, indicate which of the following are being tracked (select all that apply)
   - Monitors rates of *C. difficile* infection
   - Monitors rates of antibiotic-resistant organisms
   - Monitors rates of adverse drug events due to antibiotics
   - Other: ____________________________________________
9. Does your facility provide facility-specific reports on antibiotic use and outcomes with clinical providers and nursing staff?

   If yes, indicate which of the following are being tracked (select all that apply)
   - Measures of antibiotic use at the facility
   - Measures of outcomes related to antibiotic use (i.e., *C. difficile* rates)
   - Report of facility antibiotic susceptibility patterns (within last 18 months)
   - Personalized feedback on antibiotic prescribing practices (to clinical providers)
   - Other: ________________________________
10. Does your facility provide educational resources and materials about antibiotic resistance and opportunity for improving antibiotic use?

If yes, indicate which of the following are being tracked (select all that apply)

- Clinical providers (e.g., MDs, NPs, PAs, PharmDs)
- Nursing staff (e.g., RNs, LPNs, CNAs)
- Residents and families
- Other: ________________________________
SBAR
Suspected Urinary Tract Infection - Situation Background Assessment and Recommendation Form (UTI SBAR)

SBAR form – Situation, Background, Assessment, and Recommendation

- Collect all information
- Determine if a urine culture or treatment with an antibiotic is necessary
- Advance directives section
- Concurrent warfarin orders
Suspected Urinary Tract Infection - Situation Background Assessment and Recommendation Form (UTI SBAR) (continued)

SBAR form –Situation, Background, Assessment, and Recommendation

- Collect all information
Suspected Urinary Tract Infection - Situation Background Assessment and Recommendation Form (UTI SBAR) (continued)

SBAR form –Situation, Background, Assessment, and Recommendation
- Determine if a urine culture or treatment with an antibiotic is necessary

S – Situation (use this information to complete Section A&R)
   - I am contacting you about a suspected UTI for above resident.
   - Current Assessment (check all that apply):
     - Increased urgency
     - Increased frequency
     - Hematuria
     - Rigors (shaking, chills)
     - Delirium (sudden onset of confusion, disorientation, dramatic change in mental status)
   - Vital Signs: BP ________/_______ Pulse __________ Resp. rate _________ Temp. __________
   - Resident Complaints (check all that apply):
     - Dysuria (painful, burning, difficult urination)
     - Suprapubic pain
     - Costovertebral tenderness (flank pain/tenderness)

Recent Urinalysis Results (within the last 10 days) If Available:
   - UA results that were obtained on ____________ (date) due to ________________________ (reason).
   - The results □ accompanying this communication □ are as follows:
Suspected Urinary Tract Infection - Situation Background Assessment and Recommendation Form (UTI SBAR) (continued)

SBAR form – Situation, Background, Assessment, and Recommendation

- Advance directives section

B – Background

Indwelling catheter: □ NO □ YES

Incontinence: □ NO □ YES If yes, is this new/worsening? □ NO □ YES

☐ Active diagnoses (especially, bladder, kidney/genitourinary conditions):
   Specify: ____________________________________________________________

Advance directives for limiting treatment (especially antibiotics): □ NO □ YES
   Specify: ____________________________________________________________

Medication allergies: □ NO □ YES
   Specify: ____________________________________________________________

The resident is on: Warfarin (Coumadin™) □ NO □ YES
The resident is diabetic: □ NO □ YES
Suspected Urinary Tract Infection - Situation Background Assessment and Recommendation Form (UTI SBAR) (continued)

- Concurrent warfarin orders

SBAR form –Situation, Background, Assessment, and Recommendation

- Concurrent warfarin orders
Suspected Urinary Tract Infection - Situation Background Assessment and Recommendation Form (UTI SBAR) (continued)

SBAR form – Situation, Background, Assessment, and Recommendation

- Concurrent warfarin orders
Improving Antimicrobial Use Through Infectious Diseases Treatment Guidelines
Improving antimicrobial use

› Foundation of antimicrobial stewardship is to **improve patient care** through 4 key considerations:
  - Right drug
  - Right dose (including frequency)
  - Right route
  - Right duration

› Often guided by national organizations which produce consensus treatment guidelines
  - Infectious Diseases Society of America (IDSA)
    › Pneumonia guidelines (community acquired & nosocomial)
    › Urinary tract infection guidelines (asymptomatic bacteriuria, cystitis/pyelonephritis, catheter-associated)
    › Skin and skin structure infection guidelines
Hospital acquired and ventilator associated pneumonia
- Last published update – Fall 2016
- Major changes
  › Removal of health-care associated pneumonia discussion
  › Greater focus and rationale for de-escalation after causative organism identified
  › **Greater focus on local susceptibility patterns in determination of appropriate empiric therapy**
    - Including creation and distribution of local antibiogram (even unit specific antibiogram are recommended)
  - Stronger evidence to support shorter treatment durations (ie 7 days) for the treatment of HAB/VAP

Community acquired pneumonia
- Last published update – 2007
- Update in progress, scheduled for publication in 2017
  › Will address health-care associated pneumonia
IDSA Guidelines - Urinary Tract infections

› Uncomplicated cystitis
  - Last published update – 2011

<table>
<thead>
<tr>
<th>Drug</th>
<th>Dose</th>
<th>Duration</th>
<th>Efficacy*</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>First Line Agents (Empiric)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nitrofurantoin</td>
<td>100 mg BID</td>
<td>5-7 days</td>
<td>88-93%</td>
</tr>
<tr>
<td>Trimethoprim-sulfamethoxazole</td>
<td>1 DS tab BID</td>
<td>3 days</td>
<td>93-94%</td>
</tr>
<tr>
<td>Fosfomycin</td>
<td>3g ONCE</td>
<td>1 dose</td>
<td>80-91%</td>
</tr>
<tr>
<td><strong>Second Line Agents (Empiric)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fluoroquinolones</td>
<td>Dose varies</td>
<td>3 days</td>
<td>90-91%</td>
</tr>
<tr>
<td>Beta-lactam agents</td>
<td>Dose varies</td>
<td>3 - 5 days</td>
<td>82-89%</td>
</tr>
</tbody>
</table>

*Range of the medians of both clinical efficacy and microbiological efficacy

Clin Infect Dis 52.5 (2011): e103-e120.
IDSA Guidelines - Urinary Tract Infections

- Antimicrobial stewardship efforts can
  - Educate and guide providers on appropriate management of asymptomatic bacteriuria (2005 IDSA Guideline)
  - Tailor antibiotic selection for specific institution
  - Reinforce evidence based treatment durations for urinary tract infections
  - Assist in optimal antimicrobial doses for treatment of urinary tract infections

Clin Infect Dis 52.5 (2011): e103-e120.
Antibiograms
What is an antibiogram…

› A snapshot of antimicrobial susceptibility results of certain organisms to numerous antimicrobial options

› An aggregate of susceptibility results over a certain time period
…and why is it important

› May be mandated by organizations performing institution surveys

› Aids in choosing best empiric antimicrobials for patients
  – Many newer guidelines recommend first line agents based on local resistance

› Allows for tracking and trending resistance patterns
Tips for antibiogram creation

› Clinical and Laboratory Standards Institute (CLSI) produce consensus guidelines for antibiogram creation
  – M39-A2 “Analysis and Preparation of Cumulative Antimicrobial Susceptibility Test Data”
  – Last published in 2007 in Clinical Infectious Diseases
Tips for antibiogram creation

› Must have sufficient number of organism specific isolates
› Current recommendation is **AT LEAST 30 isolates** for antibiogram inclusion
  - Ex: 2015 - Hospital A has 10 *P. aeruginosa* isolates/ 3 are R to ciprofloxacin (70% S)
  2016 - Hospital A has 10 *P. aeruginosa* isolates/ 1 is R to ciprofloxacin (90% S)

*Did P. aeruginosa susceptibility at Hospital A really improve by 20%?*
Overcoming low isolate numbers

› May only have enough isolates of a certain characteristic (ie gram + or gram -)

› May need an entire year, or longer, to obtain minimal number of isolates
  - OK – resistance changes over time (ie no need to produce monthly antibiograms)
  - If using data compiled over 1 year, make note

› May be able to combine data from similar institutions in the same geographical area

% CIPROFLAXACIN SUSCEPTIBLE – E. COLI

- 82%
- 76%
- 68%

Clin Infect Dis 44.6 (2007): 867-873.
Tips for antibiogram creation

› Include only diagnostic isolates
  – No not include MRSA or VRE surveillance culturing

› Calculate percentage susceptible
  – Intermediate isolates should be considered non-susceptible

› Attempt to only include the first isolate from a patient who has multiple, repeat positive cultures
  – Decreases the chance of skewing resistance data in patients with complicated, difficult to treat, multidrug resistant infections

› Distribute results to key stakeholders!
Regulations

Guidance & The Medical Director
Antimicrobial Stewardship Program (ASP) Timeline

› **October 4, 2016** – CMS Releases Updated *Requirements of Participation (ROP)* – aka the federal NF regs
  - ASP now a requirement

› **June 30, 2017** – CMS releases *Interpretive Guidance*

› **November 28, 2017** – Facilities expected to meet ASP regs

› **November 28, 2018** – Enforcement remedies (civil monetary penalties, denial of payment, +/- termination) begin
F881 - Antimicrobial Stewardship

› **483.80(a)(3)** – An antimicrobial stewardship program that includes antibiotic use protocols and a system to monitor antibiotic use.

› **Intent**
  – Facilities have protocols ensuring prescription of the appropriate antibiotic
  – Reduce risk from unnecessary antibiotics
  – System to monitor use of antibiotics
Indication, Dosing, Duration

› **Key wording**
  – “correct indication, dose, duration”

› **Pearls**
  – Indication should always be documented at time of prescribing
    › Nursing protocol for verbal orders
    › Prescriber education
  – Consider issue of renal dosing – (have a creatinine!)
  – Very few infections require more than 7 days of treatment
# Checklist of ASP Requirements

<table>
<thead>
<tr>
<th>Y/N</th>
<th>Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Does the facility have antibiotic usage reports (e.g., abx starts, types of abx, days of abx therapy)?</td>
</tr>
<tr>
<td></td>
<td>Does the facility have reports on resistance rates (e.g., antibiograms, +/- C diff rates, +/- MDRO rates)?</td>
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<tr>
<td></td>
<td>Does the facility monitor and review abx use in newly admitted residents, as part of the monthly regimen review, and whenever requested by the QAPI committee?</td>
</tr>
<tr>
<td></td>
<td>Does the NF provide (verbal or written) feedback to prescribers on resistance rates, their abx use, and compliance with abx use protocols?</td>
</tr>
<tr>
<td></td>
<td>How often is this feedback provided?</td>
</tr>
<tr>
<td></td>
<td>Does the facility report test results back to the prescriber in timely fashion?</td>
</tr>
<tr>
<td></td>
<td>Does the facility monitor and give feedback on prescription practices (indication, dose, duration)?</td>
</tr>
<tr>
<td></td>
<td>Does the facility conduct an antibiotic timeout to shorten, narrow or stop further abx treatment depending on test results and clinical response?</td>
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## Checklist of Requirements

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<tr>
<th>&quot;Y/N&quot;</th>
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<tbody>
<tr>
<td></td>
<td>Does the facility use a standardized set of criteria to determine presence of infection, such as the SBAR or Loeb criteria? (<em>Note - IG doesn’t specify one set of criteria</em>).</td>
</tr>
<tr>
<td></td>
<td>Does the facility provide education to prescribers (physician, NP, PA) on antibiotic use and the facility’s protocols?</td>
</tr>
<tr>
<td></td>
<td>Does the facility provide education to nursing staff on antibiotic use and the facility’s protocols?</td>
</tr>
<tr>
<td></td>
<td>Does the pharmacist perform assessment, monitoring and communication of antibiotic use?</td>
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<td></td>
<td>Is the plan updated annually?</td>
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**AMDA Sample Antibiotic Stewardship Policy Template**

Role of the Medical Director (F841)

› Must participate in recommending, developing, and approving facility policies related to resident care
› Must participate in issues related to coordination of medical care
› Must participate in the organization and coordination of physician services
› Must participate in the QAPI committee
Role of the Medical Director (F841) in ASP

› Ensure appropriateness & quality of medical care
› Assist in educational efforts related to ASP
› Assist in surveillance and policy development related to ASP (specifically spelled out in regs)
› Identify performance expectations of providers
› Assist in developing systems for feedback to providers on ASP
› Support person directed care
Potential Tags for Additional Investigation

› F756 - 483.45(c) – Pharmacist Drug Regimen Review

› F757 - 483.45(d) – Unnecessary Drugs

› F552 – 483.10(c) – Planning and Care Implementation
Resources

› CMS Nursing Facility Regulations – Oct 4, 2016

› Appendix PP – Survey Guidance
https://www.cms.gov/Medicare/Provider-Enrollment-and-Certification/GuidanceforLawsAndRegulations/Nursing-Homes.html

› AHRQ Antimicrobial Stewardship Toolkit
https://www.ahrq.gov/nhguide/index.html

› AMDA ASP Template
Nursing Home Antimicrobial Stewardship Guide

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

Browse Antimicrobial Stewardship Toolkits
Toolkits on four topic areas are available.

Implement, Monitor, and Sustain a Program
Two toolkits help nursing homes start and maintain antimicrobial stewardship programs.

Determine Whether To Treat
Three toolkits provide guidance on the decision to treat a potential infection.

Choose the Right Antibiotic
Three toolkits describe how to work with a lab and use an antibiogram.

Engage Residents and Family
This toolkit helps residents and family members participate in residents' care.
Ongoing NF Antimicrobial Stewardship Projects
Division of Geriatric Medicine
University of Pittsburgh

› **Improving Outcomes of UTI Management in Long-Term Care (IOU) Study**
  - Implementing new diagnostic and treatment guidelines for uncomplicated bladder infections (U Pitt, U Wisconsin, AMDA)

› **Optimizing Antibiotic Stewardship in SNF Study (OASIS)**
  - Tailoring and implementing an ASP for NFs (U Wisconsin & U Pitt)

› **Update of Loeb Criteria**
  - National panel led by SHEA
Ongoing NF Antimicrobial Stewardship Projects
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Role of the Infection Prevention Designee
Barriers to Antibiotic Stewardship

- Knowledge deficits
- Offsite physicians
- Inadequate communication
- Inaccurate assessment and diagnosis
- No formal policies, procedures, protocols
- Unclear commitment or accountability
- Lack of tracking and monitoring
- Lack of QAPI follow-up

(Crnich)
Getting Started Strategies

› Identify a team and champions
› Use a checklist to identify targets for improvement
› Outline goals and a plan
› Track prescribing practices
› Develop and implement an antibiogram
› Educate clinicians re: national infection criteria and treatment guidelines

(Adkins, Bradley, AHRQ Toolkit)
Identify Team and Champions

› Select members
  – Medical Director, Director of Nursing, Infection Prevention Designee
  – Pharmacist, Lab, Information Technology support
  – Clinical and prescriber champions

› Introduce members to antimicrobial stewardship standards
  – Core elements of stewardship
  – Antibiotic resistance

(Crnich, AHRQ Toolkit)
Checklists

(Source: CDC http://www.cdc.gov/longtermcare/prevention/antibiotic-stewardship.html)
Outline Goals and Plan

› Short term and long term goals
  – Strategies based on assessment

› Plan
  – Statement of leadership support
  – Resources to provide education, download or develop materials
  – Timeline, responsibilities, budget, meeting schedules, meeting agenda
  – Sustainability strategies

(AHRQ Toolkit)
Assess Optimal Prescribing Practices

- Patient symptoms match clinical criteria.
- Culture and sensitivity, quick test, or chest x-ray obtained matches clinical criteria.
- Appropriate empiric antibiotic selected based on national guidelines/facility susceptibility pattern.
- 48 hour time-out identifies culture/quick test organisms, and sensitivities assess quality of culture.
- Appropriate narrowest-spectrum antibiotic ordered based on culture results, rational guidelines, and facility susceptibility pattern.

- Patient asymptomatic or symptoms do not meet clinical criteria.
- Lab test not ordered, pending, or not available.
- Empiric antibiotic selection based on preference and experience. Facility susceptibility pattern not available.
- Antibiotic is not reviewed or lab tests are not available. Patient continues on inappropriate or unnecessary antibiotic.
- Antibiotic selection incorrect for site/syndrome and facility susceptibility patterns. Inappropriate broad-spectrum antibiotic used.

*Suboptimal practices may be associated with inappropriate antibiotic use, Clostridium difficile, multidrug-resistant organisms, and drug reactions.*

(Adkins)
Monitor Antibiotic Prescribing Processes Measures

› Clinical assessment
  – Signs/symptoms, vital signs, physical exam, and lab/radiology findings

› Antibiotic prescribing documentation
  – Dose, duration, indication

› Facility-specific treatment recommendations
  – Broad spectrum versus narrow spectrum
  – Use of facility susceptibility patterns

(CDC Core Elements)
# Antibiotic Use Outcome Measures

<table>
<thead>
<tr>
<th>Measure</th>
<th>Formula</th>
</tr>
</thead>
<tbody>
<tr>
<td>Point prevalence surveys of antibiotic use</td>
<td>( # \text{ of residents on antibiotics} \times 100 \text{ total residents in facility that day} )</td>
</tr>
<tr>
<td>Rates of new antibiotic starts</td>
<td>( # \text{ of new antibiotic prescriptions} \times 1000 \text{ total number of resident days} )</td>
</tr>
<tr>
<td>Rate of antibiotic days of therapy</td>
<td>( \frac{\text{Total monthly days of therapy}}{\text{Total resident days for the month}} \times 1000 )</td>
</tr>
<tr>
<td>Antibiotic utilization Ratio</td>
<td>( \frac{\text{Total monthly days of therapy}}{\text{Total resident days}} )</td>
</tr>
</tbody>
</table>

(CDC Core Elements)
## Line Listing Elements

<table>
<thead>
<tr>
<th>Resident</th>
<th>Identifier</th>
<th>Room</th>
<th>Admit Date</th>
<th>Prescriber</th>
</tr>
</thead>
<tbody>
<tr>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Symptoms Date</th>
<th>Lab done Date</th>
<th>Lab Results Date</th>
<th>Meets Criteria</th>
<th>Antibiotic</th>
</tr>
</thead>
<tbody>
<tr>
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</table>

<table>
<thead>
<tr>
<th>Empiric Antibiotic</th>
<th>48-72 hour Time out</th>
<th>Targeted Antibiotic</th>
<th>Report to PSRS</th>
<th>POA or HAI</th>
</tr>
</thead>
<tbody>
<tr>
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</table>

(AHRQ Toolkit)
Antibiogram
Development and Implementation

› Engage team members
› Determine if the antibiogram will be unit or facility-based
› Use resident and culture information
› Review the antibiogram to monitor resistance trends
  - Facility wide and/or unit specific
› Distribute the antibiogram to all prescribing clinicians
› Accompany distribution with education and instructions
› Monitor the use of the antibiogram

(Hirschon, IHI, AHRQ Toolkit)
Education

› Provide educational resources and materials about antibiotic resistance

› Patient Safety Authority, Centers for Disease Control, AHRQ

› Clinicians
  – Physicians, nurse practitioners, pharmacists

› Nursing staff
  – RNs, LPNs, CNAs

› Residents and families

(Bradley, CDC Core Elements, CDC Get Smart, AHRQ toolkit)
Factors Influencing Practice

› Belief that:
  - Risk of antibiotics outweighs indiscriminate use
  - Appropriate antibiotic use is the expected standard of care
  - Resources are available to practice good stewardship

› Providers, clinicians, administrators

› Residents and families
CDC-Use Antimicrobials Wisely

› Stop antimicrobial treatment
  – When cultures are negative
  – When infection in unlikely or resolved

› Treat infection not colonization
  – Do not treat asymptomatic bacteriuria

› Know when to say “NO”
  – Minimize use of broad-spectrum antibiotics
  – Avoid chronic or long-term antimicrobial prophylaxis

Source: AHRQ Nursing Home Antimicrobial Stewardship Guide
Infection Criteria

› Infection Control and Hospital Epidemiology: Development of Minimum Criteria for the initiation of antibiotics in residents of LTCF

› Surveillance Definitions of Infections in Long-Term Care Facilities: Revisiting the McGeer Criteria

› PA-PSRS: List of Reportable Infections: Infections reportable through PA-PSRS
Treatment Guidelines

› Infectious Diseases Society of America Guidelines
  - https://www.idsociety.org/Organ_System/

› CDC Get Smart Know When Antibiotics Work: Adult Treatment Recommendations

› Society for Healthcare Epidemiology of America Position paper: Antimicrobial use in LTCF
  - https://www.shea-online.org/images/guidelines/Abx-LTCF96.PDF

› National Institute of Health. Diagnosis and management of urinary tract infections in older adults
Antibiotic Misuse Warning

“The thoughtless person playing with penicillin treatment is morally responsible for the death of the man who succumbs to infection with the penicillin-resistant organism.”

https://commons.wikimedia.org/wiki/File:Synthetic_Production_of_Penicillin_TR1468.jpg#filehistory
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http://patientsafety.pa.gov/ADVISORIES/Pages/201512_149.aspx


› Bradley S. Antibiotic stewardship in hospitals and long-term care facilities: building an effective program. Pa Patient Saf Advis [online]. 2015 Jun
http://patientsafety.pa.gov/ADVISORIES/Pages/201506_71.aspx

› Centers for Disease Control and Prevention. The core elements of antibiotic stewardship for nursing homes [online]. 2014 [cited 2015 Sep 1].
http://www.cdc.gov/longtermcare/prevention/antibiotic-stewardship.html

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References


References


Question & Answer Session