Objectives

1. Define antimicrobial stewardship (AMS) teams across various settings and characterize the roles of interdisciplinary team members

2. Identify partners that AMS teams can collaborate with to ensure success.

3. Discuss how communication strategies can be used to overcome challenges in implementing and expanding antimicrobial stewardship programs
Antimicrobial Stewardship: A Patient Safety Priority

• Antibiotics are critical to treat patients most at risk for severe infections
• ~30% of antibiotic prescriptions estimated to be inappropriate
  – Indication, length of therapy, spectrum
• Risks of Antibiotic Use:
  – Increased infection risk (C. difficile, Candida spp.)
  – Allergic reactions, drug interactions
  – Antibiotic Resistance
Antibiotic Resistance: A Potential Consequence of Antibiotic Use

Bacteria constantly change and develop new ways to resist antibiotics.

- Bacteria can become resistant because of antibiotic use.
- We have lots of germs in and on our bodies, some are resistant.
- Antibiotics kill the weak germs, but resistant germs remain.
- Drug-resistant germs can take over.

- Bacteria can copy and share resistance, then combine it with other resistance, to avoid our best defenses.
- Sharing Resistance Materials
- Already tough-to-treat germs, like “nightmare bacteria” CRE, can combine these defense strategies and become completely untreatable.
CDC’s Four Strategies to Combat Antibiotic Resistance

1. Preventing Infections, Preventing the Spread of Resistance
2. Tracking
3. Improving Antibiotic Prescribing and Use, AKA “Stewardship”
4. Developing New Drugs and Diagnostics
Antimicrobial (or Antibiotic) Stewardship: Definition

CDC:

- **Set of commitments** and activities designed to “optimize the treatment of infections while reducing the adverse events associated with antibiotic use”

IDSA:

- **Coordinated interventions** designed to improve and measure the appropriate use of antimicrobials by promoting the selection of the optimal antimicrobial drug regimen, dose, duration of therapy, and route of administration.

APIC:

- **A coordinated program** that promotes the appropriate use of antimicrobials (including antibiotics), improves patient outcomes, reduces microbial resistance, and decreases the spread of infections caused by multi-drug resistant organisms.
Antibiotic Stewardship: Potential Outcomes

**ANTIBIOTIC STEWARDSHIP PROGRAMS AND ACTIVITIES CAN:**

**IMPROVE PATIENT OUTCOMES**
By reducing unnecessary antibiotic prescribing, antibiotic stewardship programs and activities can improve the treatment of infections and prevent avoidable side effects, reactions, and other problems for patients.

**DECREASE *C. DIFFICILE* INFECTIONS**
Antibiotic stewardship programs and activities significantly reduce *C. difficile* infections. For example, reducing the use of high-risk antibiotics (fluoroquinolones) by 30 percent can lower *C. difficile* infections by 26 percent in hospitals. Reducing overall antibiotic prescribing in outpatient settings by 10 percent could lower *C. difficile* infections in the community by 17 percent.

**DECREASE ANTIBIOTIC RESISTANCE**
Preventing infections and improving antibiotic prescribing could save 37,000 lives from antibiotic-resistant infections over 5 years.

**DECREASE COSTS**
Antibiotic stewardship programs have consistently demonstrated annual savings of $200,000 to $400,000 in hospitals and other healthcare facilities. According to a University of Maryland study, implementation of an antibiotic stewardship program saved one hospital a total of $17 million over 8 years.
Antibiotic Stewardship: CDC’s 7 Core Elements

- Framework for initiating and/or expanding AS activities
  - Outpatient, Nursing Homes, Hospital (+Small and Critical Access)

1. Leadership commitment
2. Accountability
3. Drug expertise
4. Action
5. Tracking
6. Reporting
7. Education
2007 IDSA/SHEA Guidelines for Developing an Institutional Program to Enhance Antimicrobial Stewardship

- Core members of multidisciplinary team:
  - ID physician or Pharmacist with ID training (A-II)
  - Team should be led by one of these individuals (A-III)

- Optimal members (A-III):
  - Clinical microbiologist
  - Information system specialist
  - Infection control professional
  - Hospital epidemiologist
2012 IDSA/SHEA/PIDS Policy Statement on Antimicrobial Stewardship

• Physician directed or supervised multidisciplinary interprofessional team with at least one member with training in antimicrobial stewardship

• Team members should include but are not limited to:
  – Physician
  – Pharmacist
  – Clinical microbiologist
  – Infection preventionist
Antimicrobial Stewardship

General Team Players

- Administration
- Physicians
- Pharmacy
- Consultative services
- Nursing
- Microbiology (Laboratory)
- Infection Control and Prevention, Hospital epidemiologist
- Informatics

- Antimicrobial Stewardship is NOT a one-person job
- Communication and coordination among disciplines is KEY
Antimicrobial Stewardship Team: Administration – Leadership Support

• Per 2007 IDSA/SHEA Antimicrobial Stewardship Program Guidelines:
  – Hospital administrative support for the necessary infrastructure to measure antimicrobial use and to track use on an ongoing basis is essential (A-III)

• 2014 PCAST – Antimicrobial stewardship programs required in all facilities by the end of 2017
  – The Joint Commission MM 09.01.01
  – “Mega Rule” (LTCFs)
  – CMS Proposed Rule for acute care facilities
Antimicrobial Stewardship Team: Pharmacy
Drug Expertise

• Formulary selection (P&T)
• Review of antimicrobial agents
  – Prospective audit with intervention and feedback
  – Formulary restriction and authorization
  – Documentation of indication, dose, duration
• Data analysis (collection and interpretation)
  – Antibiotic Use: Days of therapy, point prevalence, purchasing data
  – Antibiotic Resistance data: CDI rates, antibiogram
  – Antimicrobial stewardship program outcome measures, cost-effectiveness
• Patient Safety
  – Analysis of adverse events (side effects, drug interactions)
Antimicrobial Stewardship Team: Nursing

- Compared to other healthcare workers, nursing staff have more presence across various clinical settings and the continuum of care
- Trusted by public
- Potential role as educators, advocates, and ambassadors for widespread behavioral change

2017 American Nurses Association and CDC Workgroup “Recommendations on the Role of Registered Nurses in Hospital Antibiotic Stewardship Practices”
Antimicrobial Stewardship Team: Nursing Roles Span Across All Core Elements

- Allergy assessment and medication reconciliation
- Early and appropriate culture collection
- Timely antibiotic initiation, ordering
- Antibiotic de-escalation (IV to PO), adjustment, time out
- Monitoring of patient progress, adverse events, change in condition
- Interpretation of cultures
- Implementation of bundle and safety measures
- Patient education and advocacy
- Outpatient management
Empowering Nursing in Antibiotic Stewardship Through Education

What education and training resources are needed to help nurses perform these roles?

• Microbiology education and training on how to obtain cultures and interpret the results
• Education about infection versus colonization
• Assertiveness training to engage in discussions with the healthcare team
• Information on IV-PO switch criteria
• Training on taking an allergy history
Antimicrobial Stewardship Team: Microbiology

- Guide proper use of tests
- Interpretation of results
- Result dissemination
  - Preliminary and final report
  - Mechanism of communication
- Antibiogram creation and interpretation
- Insight into feasibility of implementation of new services
  - Rapid diagnostics

- Facilities with contracted lab services should ensure written policies and procedures optimizes support of stewardship efforts
Antimicrobial Stewardship Team: Infection Preventionist / Hospital Epidemiologist

- Facility-wide monitoring
  - Data analysis, auditing
  - MDRO and CDI rates; resistance rates (antibiogram)
- Healthcare-associated infections prevention
  - Hand hygiene, isolation policy, etc.
- Education
- Roles in Transitions of Care
  - Interfacility communication
  - Required reporting to public health departments (NHSN)
    - Notifiable Conditions
    - Any cluster or outbreak of illness with potential public health significance
Antimicrobial Stewardship Team: Informatics

• Integration of stewardship protocols into existing workflow
  – Access to facility specific guidelines
  – Clinical decision support for antibiotic use
  – Creating prompts for action to review antibiotics in key situations
  – Facilitating collection and reporting of antibiotic use data

• Support for antibiotic use and resistance data
  – NHSN AUR Module – optional (MU3)
  – See link for list of AUR vendors: https://www.sidp.org/aurvendors
Effective Communication Strategy for AMS: Committees!

- Patient Safety / Quality (QAA, QAPI, QI)
- Infection Control
- Pharmacy & Therapeutics
  - Formulary management
- Antimicrobial Stewardship
  - Can be specific to: institution, region, profession
  - Local, interdisciplinary example: HAI/AR
    Collaborating Partners
  - [https://mhdo.maine.gov/haiCPcommittee.htm](https://mhdo.maine.gov/haiCPcommittee.htm)
Antimicrobial Stewardship Team
Steps for Integration

1. Commitment to attendance
2. Establish consensus
   – Goals
   – Meeting frequency
3. Implementation of ASP
   – Major project priorities, timeline, updates
   – Communication strategies
     • Process of notification
     • Reporting to various stakeholders
   – Process and outcome measures, including trends and benchmarking (NHSN)
   – Operational Considerations
     • Integration within health systems
Outpatient Antibiotic Use

• 47 million unnecessary antibiotic prescriptions annually
• Since 2014:
  – Decline in antibiotic prescribing in children, increase with adults
  – Children under two and adults 65+ still receive most antibiotics

<table>
<thead>
<tr>
<th>PERCENT OF ANTIBIOTIC PRESCRIPTIONS THAT WERE UNNECESSARY</th>
</tr>
</thead>
<tbody>
<tr>
<td>All conditions*</td>
</tr>
<tr>
<td>-----------------</td>
</tr>
<tr>
<td>0-19 year olds</td>
</tr>
<tr>
<td>20-64 year olds</td>
</tr>
<tr>
<td>≥65 year olds</td>
</tr>
<tr>
<td>All ages</td>
</tr>
</tbody>
</table>

*All conditions included acute respiratory conditions, urinary tract infections, miscellaneous bacterial infections, and other conditions.

**Acute respiratory conditions included ear infections, sinus infections, sore throats, pneumonia, acute bronchitis, bronchiolitis, upper respiratory infections (i.e., common colds), influenza, asthma, allergy, and viral pneumonia.
Common Indications for Inappropriate Outpatient Antibiotic Use

- Respiratory conditions commonly caused by viruses
  - Common cold, viral sore throat, bronchitis
- Bacterial infections that do not always need antibiotics
  - Sinus, ear infections

---

**PERCENT OF PATIENTS RECEIVING THE RECOMMENDED FIRST-LINE ANTIBIOTIC BY CONDITION, UNITED STATES, 2010-2011**

<table>
<thead>
<tr>
<th>Condition</th>
<th>Adults (20+ years of age)</th>
<th>Children (0–19 years of age)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sinus infection</td>
<td>37%</td>
<td>52%</td>
</tr>
<tr>
<td>Pharyngitis (sore throat)</td>
<td>37%</td>
<td>60%</td>
</tr>
<tr>
<td>Middle ear infection</td>
<td>N/A</td>
<td>67%</td>
</tr>
</tbody>
</table>

*Based on the prevalence of allergy to first-line antibiotics and estimated treatment failures after first-line antibiotics, at least 80% of patients presenting with these conditions should receive first-line antibiotics. Analysis is based on NAMCS and NHAMCS data.
Core Elements of Outpatient Antibiotic Stewardship

**Commitment**
Demonstrate dedication to and accountability for optimizing antibiotic prescribing and patient safety.

**Action for Policy and Practice**
Implement at least one policy or practice to improve antibiotic prescribing, assess whether it is working, and modify as needed.

**Tracking and Reporting**
Monitor antibiotic prescribing practices and offer regular feedback to providers, or have providers assess their own antibiotic prescribing practices themselves.

**Education and Expertise**
Provide educational resources to providers and patients on antibiotic prescribing, and ensure access to needed expertise on optimizing antibiotic prescribing.
Intended Audiences for Outpatient Antibiotic Stewardship

• Clinics and Providers
  – Primary care
  – Specialty/subspecialty
  – Emergency department
  – Retail health (i.e. retail pharmacy)
  – Urgent care
  – Dental
• Mid-level practitioners
  – Nurse practitioners and physician assistants
• Healthcare systems
• Patients and Families

<table>
<thead>
<tr>
<th>Provider Type</th>
<th>Number of Antibiotic Prescriptions in 2014 (millions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Family Practice Physicians</td>
<td>58.1</td>
</tr>
<tr>
<td>Physician Assistants &amp; Nurse Practitioners</td>
<td>54.4</td>
</tr>
<tr>
<td>Internal Medicine</td>
<td>30.1</td>
</tr>
<tr>
<td>Pediatricians</td>
<td>25.4</td>
</tr>
<tr>
<td>Dentistry</td>
<td>24.9</td>
</tr>
<tr>
<td>Surgical Specialties</td>
<td>19.9</td>
</tr>
<tr>
<td>Emergency Medicine</td>
<td>14.2</td>
</tr>
<tr>
<td>Dermatology</td>
<td>7.6</td>
</tr>
<tr>
<td>Obstetrics/Gynecology</td>
<td>6.6</td>
</tr>
<tr>
<td>Other</td>
<td>25.0</td>
</tr>
<tr>
<td>All Providers</td>
<td>266.1</td>
</tr>
</tbody>
</table>
Outpatient Antibiotic Stewardship: Healthcare systems

- Adopt and implement antibiotic stewardship policies and strategies, including CDC’s Core Elements of Antibiotic Stewardship.
- Designate staff members to coordinate antibiotic stewardship activities.
- Monitor antibiotic prescribing data to identify areas for improvement, and assess the impact of antibiotic stewardship efforts.
- Educate staff about antibiotic resistance and strategies to optimize antibiotic prescribing.
Outpatient Antibiotic Stewardship: Healthcare Providers

- Providers
  - Primary care
  - Specialty/subspecialty
  - Emergency department
  - Retail health
  - Urgent care
  - Dental
- Mid level practitioners
- Other healthcare workers (i.e. RN) can also contribute

Healthcare providers

- Follow clinical guidelines when prescribing antibiotics.
  - Use the right antibiotic, at the right dose, for the right duration, and at the right time.
- Talk to patients and families about when antibiotics are and are not needed, and discuss possible harms such as allergic reactions, *Clostridium difficile* (*C. difficile*), and antibiotic-resistant infections.
  - Ask patients if they have ever had a *C. difficile* infection, and tailor antibiotic treatment accordingly.
- Be aware of antibiotic resistance patterns in your facility and community; use the data to inform prescribing.
- Follow hand hygiene and other infection prevention measures with every patient.
Additional Strategies for Outpatient Providers

- Place written commitments in support of improving antibiotic use in exam rooms to help facilitate patient communication about appropriate antibiotic use.
  - Give patients information and materials on appropriate antibiotic use to reference. See examples of print materials for everyone.

- For patients with conditions that usually resolve without antibiotic treatment:
  - Talk to patients about ways to relieve their symptoms without antibiotics.
  - Discuss a clear plan for follow-up if symptoms worsen or do not improve.
Initial Steps for Outpatient Antibiotic Stewardship

**PERCENT OF PATIENTS RECEIVING THE RECOMMENDED FIRST-LINE ANTIBIOTIC BY CONDITION, UNITED STATES, 2010-2011***

<table>
<thead>
<tr>
<th>Condition</th>
<th>Adults (20+ years of age)</th>
<th>Children (0–19 years of age)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sinus infection</td>
<td>37%</td>
<td>52%</td>
</tr>
<tr>
<td>Pharyngitis (sore throat)</td>
<td>37%</td>
<td>60%</td>
</tr>
<tr>
<td>Middle ear infection</td>
<td>N/A</td>
<td>67%</td>
</tr>
</tbody>
</table>

*Based on the prevalence of allergy to first-line antibiotics and estimated treatment failures after first-line antibiotics, at least 80% of patients presenting with these conditions should be based on NAMCS and NHAMCS data.

---

Clinical Infectious Diseases Advance Access published March 20, 2012
Outpatient Antibiotic Stewardship: Patients and Families

• Talk to your healthcare provider about when antibiotics will and will not help
• Ask about antibiotic resistance
• Ask what infection an antibiotic is treating, how long antibiotics are needed, and what side effects might happen
  – Take antibiotics only when prescribed and exactly as prescribed
  – Don’t save an antibiotic for later or share the drugs with someone else
• Insist that everyone cleans their hands before touching you
• Stay healthy and keep others healthy by cleaning hands, covering coughs, staying home when sick, and getting recommended vaccines
Hospital Antibiotic Use

- 1 out of 2 patients received an antibiotic for at least one day during an average hospital stay
- No changes in overall rates of antibiotic use from 2006 to 2012
- Noted increase in use of broad spectrum antibiotics
Core Elements for Hospital Antibiotic Stewardship

CORE ELEMENTS OF ANTIBiotic STEWARDSHIP FOR HOSPITALS

LEADERSHIP COMMITMENT Dedicating necessary human, financial and information technology resources.

ACCOUNTABILITY Appointing a single leader responsible for program outcomes. Experience with successful programs show that a physician leader is effective.

DRUG EXPERTISE Appointing a single pharmacist leader responsible for working to improve antibiotic use.

ACTION Implementing at least one recommended action, such as systemic evaluation of ongoing treatment need after a set period of initial treatment (i.e. “antibiotic time out” after 48 hours).

TRACKING Monitoring antibiotic prescribing and resistance patterns.

REPORTING Regular reporting information on antibiotic use and resistance to doctors, nurses and relevant staff.

EDUCATION Educating clinicians about resistance and optimal prescribing.
Hospital Antimicrobial Stewardship: Key Support for the Antibiotic Stewardship Team

- Physician and pharmacy leader ("champion") strongly encouraged (but not always feasible)

**Does any of the staff below work with the stewardship leaders to improve antibiotic use?**

- Clinicians
- Infection Prevention and Healthcare Epidemiology
- Quality Improvement
- Microbiology (Laboratory)
- Information Technology (IT)
- Nursing
Provider Education Considerations for Antimicrobial Stewardship

• Core Strategies of Antimicrobial Stewardship provides education opportunities for clinicians:
  – Prospective audit with intervention and feedback
  – Formulary restriction and pre-authorization

• Education takes on individualized approach with core strategies
  – Large group education of clinicians may be more challenging to achieve

• Education in ASPs can influence provider behavior via acquisition of new knowledge or reminder

• Other provider education strategies:
  – Individualized feedback from ASP on antibiotic use compared to cohorts
  – Prescribing champions at institution can also provide education to influence behavior
Provider Communication Considerations for Antimicrobial Stewardship

• Prescriber behavior noted to be major challenge in ASP implementation across all settings
• Importance of effectively influencing provider behavior
• Considerations:
  – Be respectful
  – Consider provider’s workflow and time
  – Consider provider’s perspective: want to optimize patient outcomes
  – Use a consistent and efficient communication process (SBAR)
• In making recommendations:
  – Providers like evidence and relevant background
  – Use these tools to craft a recommendation that can lead to better patient outcomes
Nursing Home Antibiotic Use

Antibiotic Stewardship in Nursing Homes

4.1 MILLION
Americans are admitted to or
reside in nursing homes during a year¹

UP TO 70%
of nursing home residents
received antibiotics during a year²

UP TO 75%
of antibiotics are
prescribed incorrectly³⁴

CDC recommends
7 CORE ELEMENTS
for antibiotic stewardship in nursing homes
Leadership Commitment • Accountability
Drug Expertise • Action • Tracking
Reporting • Education

¹NCQA Quality Report 2013
²Lee, G.F., Longino, D.A., Short, H.R. Reducing inappropriate antibiotic prescribing in the residential
³Musher, L.M. Stewardship: The key to success. JAMA 2014; 311:162-177
⁵Control Hosp Epidemiol 2006; 27:525-40
⁷Musher, L.M. Stewardship: The key to success. JAMA 2014; 311:162-177
⁹Control Hosp Epidemiol 2006; 27:525-40
¹⁰CDC
¹¹Centers for Disease Control and Prevention
National Center for Emerging and
Infectious Diseases
# Core Elements of Antibiotic Stewardship for 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.

- **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.
Nursing Home
AMS Team Members and Considerations

• Medical Director
• Director of Nursing
• Consultant Pharmacist
  – Alternative: Partnership with ASP at local hospital, external ID/AS physician consultant
• Nursing
• Microbiology (Laboratory)
• Infection Preventionist
Medical Director

- Set standards for antibiotic prescribing practices and be accountable for overseeing adherence
- Recommended to review antibiotic use data (Tracking and Reporting)

Director of Nursing

- Set standards for assessing, monitoring, and communicating changes in a resident’s condition by front-line nursing staff
  - Awareness of the knowledge, perceptions, and attitudes of the role of antibiotics amongst nursing staff
Nursing Communication Strategy: SBAR

- 4-part model to standardize efficient communication for immediate action

- **SITUATION**
  - Introduction to the problem
  - Give context

- **BACKGROUND**
  - Relevant history

- **ASSESSMENT**
  - Summarize findings, conclusions

- **RECOMMENDATION**
  - What you think should happen next – with appropriate follow-up

Fig. 1. Neonatal escalation SBAR table. adapted (SBAR = Situation, Background, Assessment and Recommendation.)

Maine Center for Disease Control and Prevention
AMS Example

• **S:** Dr. Smith, I am Pat, a nurse at St. Joes. I was wondering if you had a minute to discuss John Doe, the patient you started Macrobid on for a suspected UTI.

• **B:** John Doe is a 50 y/o BM with noncontributary PMH, admitted yesterday for OT s/p MVC. A urine culture was collected upon admission. The culture resulted as $10^2$ cfu/ml of pan-sensitive E. coli, which I suspect is why you started antibiotics. Mr. Doe does not have a catheter.
**A:** However, per McGeer Criteria which we use facility-wide, the CFU count would need to have at least $10^5$ cfu/ml to meet criteria for a UTI. Furthermore, Mr. Doe denies suprapubic pain, gross hematuria, or changes in incontinence, urgency, frequency. His Tmax since admission has been 98.1 degrees Fahrenheit. This suggests Mr. Doe has asymptomatic bacteriuria, which does not warrant antibiotic therapy.

**R:** I do not think that Mr. Doe’s Macrobid therapy is appropriate, based on his lack of symptoms- would you be okay with discontinuing it? *(if yes)* Great! I can document our conversation in the medical record, and ensure nursing staff monitors for any signs and symptoms of a UTI or another infection.
ARHQ Tool for LTC: Suspected UTI SBAR Worksheet

**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®)

Maine Center for Disease Control and Prevention
ARHQ Tool for LTC: Suspected UTI SBAR Worksheet

### 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

<table>
<thead>
<tr>
<th>No</th>
<th>Yes</th>
</tr>
</thead>
<tbody>
<tr>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>

#### Resident WITHOUT indwelling catheter
- Criteria are met if one of the three situations are met

<table>
<thead>
<tr>
<th>No</th>
<th>Yes</th>
</tr>
</thead>
<tbody>
<tr>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>

#### 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.††
ARHQ Tool for LTC:
Suspected UTI SBAR Worksheet

**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

<table>
<thead>
<tr>
<th>Antibiotic:</th>
<th>Dose:</th>
<th>Route:</th>
<th>Duration:</th>
</tr>
</thead>
</table>

□ 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.
Antimicrobial Stewardship: Interfacility Communication

• Ensures continuity and quality of care + patient safety

• Communication of:
  – Isolation status
  – Infection, colonization, or history of MDRO or other organism of epidemiological significance
  – Signs and symptoms (cough, NVD)
  – Uncontrolled secretions (incontinence, open or draining wounds)
  – Device (central line, catheters, PEG, tracheostomy)
  – Vaccination history

• https://www.cdc.gov/hai/pdfs/toolkits/InfectionControlTransferFormExample1.pdf
External Collaborators and Partners: Professional Organizations

- Treatment guidelines – IDSA/SHEA
- News and Updates – CDC, CIDRAP
- Local/regional initiatives paramount
  - Better target and reach various healthcare professionals
External Collaborators and Partners: Healthcare Quality Organizations

Healthcare quality organizations

- Develop and implement standards requiring antibiotic stewardship programs and practices.
- Develop and adopt standards measuring the success of antibiotic stewardship programs and practices.

New England Quality Innovation Network-Quality Improvement Organization (QIN-QIO)

https://healthcarefornewengland.org/

- Local and regional collaboration to connect Medicare providers, share lessons learned, and utilize data to drive improvement
- Focus beyond AMS – HAIs, chronic disease, transitions of care, QAPI
External Collaborators and Partners: Health Agencies

Local:
• N/A in Maine

State:
• Maine Center for Disease Control and Prevention, Healthcare-Associated Infections and Antibiotic Resistance (HAI/AR) Department

Federal:
• Centers for Disease Control and Prevention

Federal, state, and local health agencies

- Set expectations for the implementation of antibiotic stewardship activities across the spectrum of health care.
- Provide data and tools to help guide stewardship activities.
- Connect local stakeholders and coalitions.
- Support partners, healthcare providers, and patients through development and dissemination of educational resources.
- Support innovations and research, such as diagnostic test development, that facilitate optimal antibiotic use.
Agency for Healthcare Research and Quality

- Safety Program for Improving Antibiotic Use
- [https://safetyprogram4antibioticstewardship.org/](https://safetyprogram4antibioticstewardship.org/)
- FREE pilot open to all acute care hospitals (+ critical access)
  - Starting December 2017
  - Future cohorts anticipated in LTCFs (2018) and ambulatory and urgent care (2019)

National Healthcare Safety Network (NHSN/CDC)

- AU/AR Module
- HAIs
- Benchmarking
References


2. The Core Elements of Antibiotic Stewardship for Hospitals. The National Center for Emerging and Zoonotic Infectious Disease within the Centers for Disease Control and Prevention. 2014.

3. The Core Elements of Antibiotic Stewardship for Nursing Homes. The National Center for Emerging and Zoonotic Infectious Disease within the Centers for Disease Control and Prevention. 2015.


Questions?

Rita Owsiak MS, MT(ASCP), CIC
Healthcare Associated Infections Coordinator
Rita.Owsiak@maine.gov
Phone: 207-287-6028

Jennifer Liao, PharmD
Antibiotic Resistance Coordinator
Jennifer.Liao@maine.gov
Phone: 207-287-6516

Brittany Roy, MPH
Healthcare Associated Infections Specialist
Brittany.Roy@maine.gov
Phone: 207-287-2682