Utilizing Antimicrobial Stewardship Program Implementation Resources To Promote Appropriate Antibiotic Use in Acute Care, Outpatient and Long-Term Care Facilities

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University of Nebraska Medical Center
DISCLOSURES

• Received grant funding for investigator initiated study from Merck & Co., Inc.
OBJECTIVES

- Describe the need for antimicrobial stewardship in all health care facilities
- Recognize availability of various local and national antimicrobial stewardship implementation resources
- Understand the role of health care providers in promoting appropriate antibiotic use in various health care settings
Importance of Preserving Antibiotic Effectiveness

• Prior to introduction of penicillin, invasive Staphylococcal infections commonly resulted in fatal outcomes
  – Mortality rate of 82% for Staphylococcal bacteremia in a Boston hospital (1941)

• Penicillin discovered and utilized for battlefield injuries in WWII

• Widely available by 1944
  – Prognosis of Staphylococcal infections improved dramatically
The emergence of Methicillin-resistant *Staphylococcus aureus* (MRSA)

DeLeo et al. *J Clin Invest* 2009
Cumulative Annual Change in *E. coli* Antimicrobial Resistance in Outpatient Urinary *E. coli* Isolates from 2001 to 2010.

Increased Resistance = Worse Outcome + Higher Healthcare Cost

Surgical Site Infections: 479 patients: 193 control, 165 MSSA, 193 MRSA

MRSA Infections in Nebraska

Methicillin-Resistant *Staphylococcus aureus* | CLABSI, CAUTI, SSI | Combined Years (2011-2014)

**Nebraska % Resistance**
47.8%
RESISTANT
NUMBER RESISTANT: 97
NUMBER TESTED: 203

**National % Resistance**
46.4%
RESISTANT
NUMBER RESISTANT: 20104
NUMBER TESTED: 43331

Learn more about other healthcare-associated infections in Nebraska

[https://gis.cdc.gov/grasp/PSA/MapView.html](https://gis.cdc.gov/grasp/PSA/MapView.html) Accessed on 3/31/18
E coli resistance to Extended Spectrum Cephalosporin

Extended-Spectrum Cephalosporin-Resistant E.coli | CLABSI, CAUTI, SSI | Combined Years (2011-2014)

Nebraska % Resistance
10.5%
RESISTANT
NUMBER RESISTANT 41
NUMBER TESTED 392

National % Resistance
13.4%
RESISTANT
NUMBER RESISTANT 6920
NUMBER TESTED 51487

Learn more about other healthcare-associated infections in Nebraska

https://gis.cdc.gov/grasp/PSA/MapView.html Accessed on 3/31/18
Global KPC Spread

Klebsiella pneumoniae Resistance in Inpatients, USA 2004-2010, TSN Database

Patients with KPC-producing Carbapenem-resistant Enterobacteriaceae (CRE) reported to the Centers for Disease Control and Prevention (CDC) as of December 2017, by state

KPC enzyme
- None
- Reported


Antibiotic Use in Nebraska

Antibiotic Prescriptions Dispensed in U.S. Community Pharmacies Per 1000 Population | All Antibiotic Classes | 2015

National:
838
antibiotic prescriptions dispensed per 1000 population

Nebraska:
1072
antibiotic prescriptions dispensed per 1000 population

Antibiotic Use in Outpatient Setting in the US


Antibiotic prescribing for respiratory diagnoses that do not require antibiotics—MarketScan Commercial Claims and Encounters 2014

Percent of visits with antibiotic prescribed:

- Urgent Care: 45.7%
- Emergency Department: 24.6%
- Offices: 17.0%
- Retail Clinic: 14.4%
Antibiotic Use in Hospitals

Opportunities were identified to improve 37.2% of the prescriptions

FIGURE 1. Percentage of hospital discharges with at least one antibiotic day, by antibiotic group — 323 hospitals, United States, 2010*

* Data provided by Truven Health MarketScan Hospital Drug Database.
† Antibiotics from these three groups, which are considered to place patients at high risk for developing Clostridium difficile infection, were administered to 29.8% of the patients.

Alternate Text: The figure above shows the percentage of hospital discharges with at least 1 antibiotic day, by antibiotic group, in 323 hospitals in the United States during 2010. In 2010, based on data obtained from all 323 hospitals, 55.7% of patients received an antibiotic during their hospitalization, and 29.8% received at least 1 dose of broad-spectrum antibiotics.

Inappropriate Antibiotic Use in Nursing Homes

25% to 75% of Antibiotic Use deemed Unnecessary or Inappropriate
Protecting Human Microbiome

Bacteria, fungi, viruses, and other microbes (germs) live naturally on our skin and in our gut and other places within our body. These microbes make up a community called the microbiome. Antibiotics can destroy your microbiome the way a wildfire can destroy a forest.

1. A healthy microbiome helps protect you from infection because your body needs bacteria to function normally.

Infection-causing bacteria, which can be antibiotic resistant.

2. When you take antibiotics to treat an infection, the antibiotics not only kill the infection-causing bacteria, but the bacteria that keep you healthy can also be destroyed for several months. This can disrupt, or unbalance, a healthy microbiome.

3. With a disrupted microbiome, the body is less able to defend against infection, putting people at risk for infections from deadly germs like C. difficile and MRSA.

4. When drug-resistant bacteria take over, patients can carry these germs and spread them to other people, especially if those people have a disrupted microbiome.

Strategies to Combat Antibiotic Resistance

Might be the single most important step to greatly slow down development and spread of antibiotic resistant infections

Joint Commission Requirement

New Antimicrobial Stewardship Standard

**Applicable to Hospitals and Critical Access Hospitals**

- Effective January 1, 2017
- Medication Management (MM)

*Note:* An example of an educational tool that can be used for patients and families includes the Centers for Disease Control and Prevention’s Get Smart document, “Viruses or Bacteria—What’s got you sick?” at [http://www.cdc.gov/getsmt/community/downloads/getsmt-chart.pdf](http://www.cdc.gov/getsmt/community/downloads/getsmt-chart.pdf).

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New CMS Regulation

Facility must establish an Infection Prevention and Control Program (IPCP) that includes:

- System for preventing, identifying, reporting, investigating and controlling infections
- Written standards, policies and procedures
- Antibiotic stewardship program
- System for recording incidents identified under IPCP and corrective actions taken

DEPARTMENT OF HEALTH AND HUMAN SERVICES
Centers for Medicare & Medicaid Services

42 CFR Parts 405, 431, 447, 482, 483, 485, 488, and 489
[CMS–3260–F]
RIN 0938–AR61

Medicare and Medicaid Programs; Reform of Requirements for Long-Term Care Facilities

AGENCY: Centers for Medicare & Medicaid Services (CMS), HHS.
ACTION: Final rule.

What is Antimicrobial Stewardship?

Set of commitments and activities designed to optimize the treatment of infections while reducing the adverse events associated with antibiotic use.

It can:

- Improve Patient Outcomes
- Decrease *C. difficile* infections
- Decrease Antibiotic Resistance
- Decrease Costs

Core Elements for Antimicrobial Stewardship Programs

https://www.cdc.gov/antibiotic-use/healthcare/implementation/core-elements-small-critical.html

https://www.cdc.gov/antibiotic-use/community/improving-prescribing/core-elements/core-outpatient-stewardship.html

https://www.cdc.gov/longtermcare/prevention/antibiotic-stewardship.html

https://www.cdc.gov/antibiotic-use/healthcare/implementation/core-elements.html

Accessed on 4/1/2018
Number of Core Elements

For Hospitals and LTCF:

• Leadership Commitment
• Accountability
• Drug Expertise
• Action
• Tracking
• Reporting
• Education

For Outpatient Settings:

• Commitment
• Action for policy and practice
• Tracking and reporting
• Education and expertise
Antimicrobial Stewardship Programs in Critical Access Hospitals in Nebraska

Figure 2. Frequency of Implementation of Antimicrobial Stewardship Core Elements in Critical Access Hospitals (N = 36)

Chung P et al. ID Week 2017
Antimicrobial Stewardship Programs in LTCF in Nebraska

Figure 2. Frequency of Implementation of Individual Antimicrobial Stewardship Core Element in Long-Term Care Facilities Surveyed (N = 30)
Who is responsible for Antimicrobial Stewardship?

How we can be good antimicrobial stewards

<table>
<thead>
<tr>
<th>Actor</th>
<th>What it means to be good antimicrobial stewards</th>
<th>Example actions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prescriber</td>
<td>I use antimicrobials responsibly by</td>
<td>• Making accurate diagnoses&lt;br&gt;• Following local antimicrobial guidelines&lt;br&gt;• Regularly reviewing the need for therapy&lt;br&gt;• Taking cultures at appropriate times</td>
</tr>
<tr>
<td>Nurse</td>
<td>I help ensure antimicrobials are used responsibly by</td>
<td>• Ensuring patients understand how to take antimicrobials on discharge&lt;br&gt;• Taking antimicrobial courses as recommended by the prescriber&lt;br&gt;• Not storing or using leftover antimicrobials</td>
</tr>
<tr>
<td>Patient</td>
<td>I use antimicrobials responsibly by</td>
<td>• Ensuring sufficient sustainable and dedicated funding for antimicrobial stewardship teams&lt;br&gt;• Monitoring antimicrobial use and resistance&lt;br&gt;• Investing in a Clinical Decision Support System&lt;br&gt;• Enabling formulary restrictions&lt;br&gt;• Diagnosing selectivity&lt;br&gt;• Not using antimicrobials as growth promoters&lt;br&gt;• Limiting advertising of antimicrobials, especially broad spectrum&lt;br&gt;• Helping ensure there is a continuous supply of antimicrobials&lt;br&gt;• Prioritizing and funding antimicrobial stewardship activities&lt;br&gt;• Supporting the use of quality metrics and pay for performance</td>
</tr>
<tr>
<td>Antimicrobial stewardship team</td>
<td>We help others in our institution use antimicrobials responsibly by</td>
<td>• Supporting audit and feedback for prescribers&lt;br&gt;• Educating prescribers</td>
</tr>
<tr>
<td>Hospital governance</td>
<td>Our institution uses antimicrobials responsibly by</td>
<td>• Ensuring sufficient sustainable and dedicated funding for antimicrobial stewardship teams&lt;br&gt;• Monitoring antimicrobial use and resistance&lt;br&gt;• Investing in a Clinical Decision Support System&lt;br&gt;• Enabling formulary restrictions&lt;br&gt;• Diagnosing selectivity&lt;br&gt;• Not using antimicrobials as growth promoters&lt;br&gt;• Limiting advertising of antimicrobials, especially broad spectrum&lt;br&gt;• Helping ensure there is a continuous supply of antimicrobials&lt;br&gt;• Prioritizing and funding antimicrobial stewardship activities&lt;br&gt;• Supporting the use of quality metrics and pay for performance</td>
</tr>
<tr>
<td>Producer/farmer</td>
<td>I use antimicrobials responsibly by</td>
<td>• Ensuring sufficient sustainable and dedicated funding for antimicrobial stewardship teams&lt;br&gt;• Monitoring antimicrobial use and resistance&lt;br&gt;• Investing in a Clinical Decision Support System&lt;br&gt;• Enabling formulary restrictions&lt;br&gt;• Diagnosing selectivity&lt;br&gt;• Not using antimicrobials as growth promoters&lt;br&gt;• Limiting advertising of antimicrobials, especially broad spectrum&lt;br&gt;• Helping ensure there is a continuous supply of antimicrobials&lt;br&gt;• Prioritizing and funding antimicrobial stewardship activities&lt;br&gt;• Supporting the use of quality metrics and pay for performance</td>
</tr>
<tr>
<td>Pharmaceutical company</td>
<td>Our company ensures antimicrobials are used responsibly by</td>
<td>• Ensuring sufficient sustainable and dedicated funding for antimicrobial stewardship teams&lt;br&gt;• Monitoring antimicrobial use and resistance&lt;br&gt;• Investing in a Clinical Decision Support System&lt;br&gt;• Enabling formulary restrictions&lt;br&gt;• Diagnosing selectivity&lt;br&gt;• Not using antimicrobials as growth promoters&lt;br&gt;• Limiting advertising of antimicrobials, especially broad spectrum&lt;br&gt;• Helping ensure there is a continuous supply of antimicrobials&lt;br&gt;• Prioritizing and funding antimicrobial stewardship activities&lt;br&gt;• Supporting the use of quality metrics and pay for performance</td>
</tr>
<tr>
<td>National policy maker</td>
<td>Our country uses antimicrobials by</td>
<td>• Ensuring sufficient sustainable and dedicated funding for antimicrobial stewardship teams&lt;br&gt;• Monitoring antimicrobial use and resistance&lt;br&gt;• Investing in a Clinical Decision Support System&lt;br&gt;• Enabling formulary restrictions&lt;br&gt;• Diagnosing selectivity&lt;br&gt;• Not using antimicrobials as growth promoters&lt;br&gt;• Limiting advertising of antimicrobials, especially broad spectrum&lt;br&gt;• Helping ensure there is a continuous supply of antimicrobials&lt;br&gt;• Prioritizing and funding antimicrobial stewardship activities&lt;br&gt;• Supporting the use of quality metrics and pay for performance</td>
</tr>
</tbody>
</table>

Everyone is responsible

Dyar OJ et al. Clin Microbiol Infect 2017;23:793
Broader Antimicrobial Stewardship Team

Fig. 2. Examples of actors and actions within antimicrobial stewardship. AMS, Antimicrobial stewardship.
What Is Our Responsibility as ASP Team Member?

- Understand reasons for inappropriate antibiotic use in our settings.
- Follow best practice recommendations when treating suspected infections
- Identify barriers to appropriate antibiotic prescribing
- Support institutional efforts in promoting culture of optimal antibiotic use and removing identified barriers
- Educate ourselves, our patients and their families about proper antibiotic use and risks associated with antibiotics
Areas of Antibiotic Misuse Identified by Acute Care Hospitals in Nebraska

<table>
<thead>
<tr>
<th>Perceived Areas of Misuse</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inappropriate regimen</td>
</tr>
<tr>
<td>Excessive duration of therapy</td>
</tr>
<tr>
<td>Questionable indications</td>
</tr>
<tr>
<td>Use of agent with broader spectrum than necessary</td>
</tr>
<tr>
<td>Inappropriate treatment of asymptomatic bacteriuria</td>
</tr>
<tr>
<td>ED regimen continued inpatient</td>
</tr>
<tr>
<td>Overuse of specific antimicrobial agents</td>
</tr>
<tr>
<td>Fluoroquinolones</td>
</tr>
<tr>
<td>Piperacillin-tazobactam</td>
</tr>
<tr>
<td>Others</td>
</tr>
<tr>
<td>Missed opportunities for IV-to-PO switch</td>
</tr>
<tr>
<td>Lack of treatment protocols</td>
</tr>
<tr>
<td>Protocols with too many antimicrobial choices</td>
</tr>
<tr>
<td>Unclear allergy documentation</td>
</tr>
<tr>
<td>Lack of de-escalation efforts from prescribers</td>
</tr>
</tbody>
</table>

Chung et al. SHEA spring Conference 2018
Area of Antibiotic Misuse Identified by Nebraska LTCF

Area of Misuse

- Treatment of asymptomatic bacteriuria
- Antibiotic for viral infections
- Excessive duration of therapy
- Diagnostic tests not sent before treatment

Chung P et al. SHEA Spring Conference 2018
<table>
<thead>
<tr>
<th>Reasons for Antibiotic Misuse in Outpatient Settings</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Unreasonable expectations or demands related to antibiotics by patients (or parents).</td>
</tr>
<tr>
<td>• Inadequate time available to physicians for providing explanation to patients (or parents) about why antibiotics are not required.</td>
</tr>
<tr>
<td>• Misdiagnosis of nonbacterial infections by providers.</td>
</tr>
<tr>
<td>• Diagnostic and treatment uncertainty of providers.</td>
</tr>
<tr>
<td>• Providers having inadequate knowledge or failing to act on knowledge.</td>
</tr>
<tr>
<td>• Providers honoring a patient’s request for an antibiotic prescription to maintain a good relationship even when a viral infection is suspected.</td>
</tr>
<tr>
<td>• Concerns of litigation.</td>
</tr>
</tbody>
</table>

Simple Actions We Can Take to Become Antibiotic Steward in Everyday Practice

• Avoid Prescribing unnecessary antibiotics for acute upper respiratory tract infections.

• Avoid prescribing for asymptomatic bacteriuria

• Do not prescribe antibiotics for longer than recommended duration

• Utilize diagnostic tests where applicable to guide initiation or de-escalation of antibiotic

• Use narrowest spectrum antibiotic effective for treatment when antibiotic use is indicated

• Perform antibiotic time out (post-prescribing review)
Acute Rhinosinusitis

More than 30 million diagnosis a year

90-98% of cases are viral

Antibiotics may not be helpful even in rare bacterial cases

Diagnose acute bacterial rhinosinusitis based on symptoms:

- **Severe (>3-4 days)** = fever ≥39°C (102°F) and purulent nasal discharge or facial pain OR
- **Persistent (>10 days) without improvement** = nasal discharge, facial pain, congestion OR
- **Worsening (3-4 days)** = worsening or new onset fever, facial pain, congestion after initial improvement of symptoms

Sinus radiographs not routinely recommended

If a bacterial infection is established:

- **Watchful waiting** is reasonable for uncomplicated cases with reliable follow-up
- **First-line therapy** = Amoxicillin/ clavulanate 875mg BID x 5-7 days
- **Not recommended** = Macrolides (azithromycin, etc.) due to high levels of resistance in *Streptococcus pneumoniae* (~40%).
- **Penicillin-allergy** = doxycycline or levofloxacin

Acute Uncomplicated Bronchitis

Most common diagnosis made for patients presenting with cough in clinics

Colored sputum does not indicate bacterial infection

Pneumonia is exceedingly rare among healthy adults in the absence of:
- abnormal vital signs (pulse $\geq 100$ beats/min, respiratory rate $\geq 24$ breaths/min, or temperature $\geq 38^\circ C$) and
- abnormal lung examination findings (focal consolidation, egophony, fremitus).

Chest radiography is not indicated in most cases

**Routine treatment with antibiotics is not recommended**

Symptomatic treatment can be considered (although evidence is limited)
- Cough suppressants
- First generation antihistamines
- Decongestants

[Accessed on 4/1/18](https://www.cdc.gov/antibiotic-use/community/for-hcp/outpatient-hcp/adult-treatment-rec.html)
Common Cold or Non-Specific Upper Respiratory Tract Infection

Third most frequent diagnosis in office visits

At least 200 viruses can cause the common cold.

Prominent cold symptoms include fever, cough, rhinorrhea, nasal congestion, postnasal drip, sore throat, headache, and myalgia.

**Do not use antibiotics for viral upper respiratory tract infections**

Weigh the benefits and harms of symptomatic therapy
- Decongestants (pseudoephedrine or phenylephrine) combined with a first-generation antihistamine may provide short-term symptom relief.
- Acetaminophen or non-steroidal anti-inflammatory drugs can also be used
- Evidence is lacking to support antihistamines as monotherapy, opioids, and intranasal corticosteroids as effective treatments for cold symptom relief.

Pharyngitis

Group A beta-hemolytic streptococcal (GAS) infection is the only common indication for antibiotic therapy for sore throat cases.

Only 5–10% of adult sore throat cases are caused by GAS.

Patients with pharyngitis should be evaluated using the Centor criteria (fever, tonsillar exudates, tender cervical lymphadenopathy, absence of cough)
- Patients meeting <2 criteria should not be tested or treated for GAS
- Those who meet ≥2 criteria should receive a Rapid Strep Test (RST) as clinical features alone are not adequate to distinguish between GAS and viral pharyngitis
- Throat cultures are not routinely recommended for adults.

Antibiotic treatment NOT recommended for patients with negative RST.
- **First-line Therapy** = Amoxicillin 500mg BID or Penicillin V 500mg BID
- **Non-Severe Penicillin Allergy** = Cephalexin 500mg BID or Cefuroxime 250mg BID
- **Severe Penicillin Allergy** = Clindamycin 300mg TID or macrolides (but avoid macrolides and clindamycin if possible as resistance in GAS is increasingly common)
- **Recommended treatment duration** for all treatment options is 10 days (exception azithromycin = 5 days).

Acute Uncomplicated Cystitis

Cystitis is among the most common infections in women usually caused by *E. coli*

Classic symptoms include dysuria, frequent voiding of small volumes, and urinary urgency.

Hematuria and suprapubic discomfort are less common.

**Do not** prescribe antibiotics in the absence of symptoms or for asymptomatic bacteriuria (except in certain specific scenario like pregnancy or before urologic intervention)

For acute uncomplicated cystitis in healthy non-pregnant women:
- **First line agents:** Nitrofurantoin, trimethoprim/sulfamethoxazole (where local resistance is <20%), and fosfomycin (may reserve for more drug resistant bacteria)
- Fluoroquinolones (e.g. ciprofloxacin) should be reserved for situations in which other agents are not appropriate.

Develop a System to Review Antibiotic Orders 48 to 72 hours After Antibiotic Start (Antibiotic Time Out)

- Reassess the patient and evaluate for improvement or worsening since initiation of the antibiotics.

- Follow up on all the labs including culture results that were sent at the time of antibiotic initiation.

- Evaluate to rule out any adverse event related to the antibiotic use.

- Establish whether the signs and symptoms were related to infectious or non-infectious etiology.

- Decide whether antibiotics need to be changed/deescalated or stopped.

- Make plans for the length of therapy if antibiotics needed to be continued.
# Duration of Treatment

## Table 1. Recommended Duration of Therapy

<table>
<thead>
<tr>
<th>Infection Syndrome</th>
<th>Typical Duration of Therapy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Uncomplicated cystitis&lt;sup&gt;1,2&lt;/sup&gt;</td>
<td>5 days for Nitrofurantoin, 3 days for TMP/SMX, 1 dose for Fosfomycin, 3 days for Fluoroquinolones, 3-7 days for Beta-Lactams</td>
</tr>
<tr>
<td>Pyelonephritis&lt;sup&gt;1&lt;/sup&gt;</td>
<td>7 days for Fluoroquinolones, 14 days for TMP/SMX, 10-14 days for Beta-Lactams</td>
</tr>
<tr>
<td>Catheter-associated urinary tract infection&lt;sup&gt;3&lt;/sup&gt; or complicated* UTI&lt;sup&gt;4&lt;/sup&gt;</td>
<td>7 days if prompt resolution of symptoms, 10-14 days if delayed response to therapy</td>
</tr>
<tr>
<td>Pneumonia&lt;sup&gt;3&lt;/sup&gt;</td>
<td>5-7 days</td>
</tr>
<tr>
<td>Bronchitis&lt;sup&gt;5,7&lt;/sup&gt;</td>
<td>No antibiotic therapy is recommended</td>
</tr>
<tr>
<td>Acute exacerbation of COPD&lt;sup&gt;8&lt;/sup&gt;</td>
<td>5 days if treatment criteria met</td>
</tr>
<tr>
<td>Influenza&lt;sup&gt;3,10&lt;/sup&gt;</td>
<td>5 days for treatment, Minimum of 2 weeks, continuing for at least 7 days after the last known case was identified for chemoprophylaxis in influenza outbreak</td>
</tr>
<tr>
<td>Pharyngitis, streptococcal&lt;sup&gt;11&lt;/sup&gt;</td>
<td>Up to 10 days for penicillin, amoxicillin, 1&lt;sup&gt;st&lt;/sup&gt;-generation oral cephalosporins, clindamycin, 5 days for azithromycin</td>
</tr>
<tr>
<td>Sinusitis&lt;sup&gt;12&lt;/sup&gt;</td>
<td>5-7 days if improvement after 3-5 days of treatment, 7-10 days if delayed response or switched to alternative therapy due to lack of response</td>
</tr>
<tr>
<td>Cellulitis or cutaneous abscess&lt;sup&gt;13&lt;/sup&gt;</td>
<td>5-7 days</td>
</tr>
<tr>
<td>Shingles&lt;sup&gt;14&lt;/sup&gt;</td>
<td>7 days for famciclovir, valacyclovir, 7-10 days for acyclovir</td>
</tr>
<tr>
<td><em>Clostridium difficile</em> infection&lt;sup&gt;23&lt;/sup&gt;</td>
<td>10-14 days, 10 days for fidaxomicin</td>
</tr>
<tr>
<td>Gastroenteritis, bacterial&lt;sup&gt;16&lt;/sup&gt;</td>
<td>3-5 days if treatment criteria met</td>
</tr>
</tbody>
</table>

* Refer to Table 2 for factors associated with complicated UTI.

[https://asap.nebraskamed.com/](https://asap.nebraskamed.com/)
Nebraska ASAP- Statewide Resource

Providing you with the resources to promote appropriate antibiotic use, improve patient outcomes and prevent antibiotic resistance

https://asap.nebraskamed.com/
Numerous resources are available to improve antibiotic prescribing practices. These resources include ASP education, tools, templates, and guidance documents. Click on a category to the right to view available resources.

- AHRQ TOOLKITS
- CDC CORE ELEMENTS FOR ANTIMICROBIAL STEWARDSHIP
- NEBRASKA MEDICINE ASP
- INFECTIOUS DISEASES TREATMENT GUIDELINES
- NEBRASKA ICAP
- OTHER USEFUL ASP WEBSITES
- ASAP NEWS & HIGHLIGHTS

https://asap.nebraskamed.com/
Antimicrobial Stewardship Program

- ASP News
- ASP App
- Antibiograms
- Antimicrobial Guidebook
- Clinical Microbiology
- Clinical Pathways
- Contact Information
- Dosing Protocols
- Meet Our Team
- Other Information
- Pharmacokinetics
- Procalcitonin (PCT) Guidance
- Protected Antimicrobials
- Surgical Prophylaxis Protocol
- Useful Links

https://www.nebraskamed.com/for-providers/asp
Consider Implementing and Following Institutional Guidance for Diagnosis and Treatment of Infections

Nebraska Medicine ASP website has many useful resources including:

- NM Diabetic Foot Infection guidance
- Rapid blood culture ID Panel guidance
- Procalcitonin use guidance
- Penicillin Allergy guidance document
- NM *Staphylococcus aureus* bloodstream treatment guidance
- Surgical Prophylaxis guidance
- and many more .....
Use Standard Communication and Decision Aid Tool in LTCF

Suspected SST 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 SST for the above resident.

Suspected LRI 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 LRI for the above resident.

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.

https://www.ahrq.gov/nhguide/toolkits/determine-whether-to-treat/toolkit3-minimum-criteria.html
Consider Displaying Provider Signed Commitment Letters in Examination Rooms in the Clinics


<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Poster Condition</th>
<th>Control Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inappropriate prescribing rate, % (95% CI)</td>
<td>43.5 (38.5 to 49.0)</td>
<td>42.8 (38.1 to 48.1)</td>
</tr>
<tr>
<td>Absolute percentage change, baseline to final measurement (95% CI)</td>
<td>-9.8 (0.0 to -19.3)</td>
<td>9.9 (0.0 to 20.2)</td>
</tr>
<tr>
<td>Difference in differences between poster condition and control (95% CI)</td>
<td>=19.7 (-5.8 to -33.04)</td>
<td></td>
</tr>
</tbody>
</table>

Abbreviation: ARI, acute respiratory infection.

a Adjusted for demographic characteristics and insurance status.

b P=.02 for the difference.
A Commitment to Our Patients About Antibiotics

Antibiotics only fight infections caused by bacteria. Like all drugs, they can be harmful and should only be used when necessary. Taking antibiotics when you have a virus can do more harm than good: you will still feel sick and the antibiotic could give you a skin rash, diarrhea, a yeast infection, or worse.

Antibiotics also give bacteria a chance to become more resistant to them. This can make future infections harder to treat. It means that antibiotics might not work when you really do need them. Because of this, it is important that you only use an antibiotic when it is necessary to treat your illness.

How can you help? When you have a cough, sore throat, or other illness, tell your doctor you only want an antibiotic if it is really necessary. If you are not prescribed an antibiotic, ask what you can do to feel better and get relief from your symptoms.

Your health is important to us. As your healthcare providers, we promise to provide the best possible treatment for your condition. If an antibiotic is not needed, we will explain this to you and will offer a treatment plan that will help. We are dedicated to prescribing antibiotics only when they are needed, and we will avoid giving you antibiotics when they might do more harm than good.

If you have any questions, please feel free to ask us.

Sincerely,

To learn more about antibiotic prescribing and use, visit www.cdc.gov/antibiotic-use.
Educational Resources offered by the CDC

https://www.cdc.gov/antibiotic-use/ Accessed on 4/1/2018
AN ANTIBIOTIC IS THE WRONG TOOL TO TREAT A VIRUS.

Make sure you use the right tool for the job.

Antibiotics save lives by treating certain infections caused by bacteria, not viruses like colds or flu. When they're not needed, antibiotics won't help you, and the side effects could still hurt you. Ask your doctor when an antibiotic is the right tool for your illness and when it's not.

To learn more about antibiotic prescribing and use, visit www.cdc.gov/antibiotic-use.
Below are lists of ASP-related educational materials. Additional registration and/or login may be required to access these educational materials. Contact website administrators directly for questions related to their contents.

+ Educational Materials for Health Care Providers
+ Educational Materials for Residents and Family Members
Nebraska ASAP YouTube Channel (Recently Started)

More educational presentations to come in the future
New CDC Training on Antibiotic Stewardship

Objectives:
- Optimize antibiotic prescribing and use to protect patients and combat the threat of antibiotic resistance.
- Inform healthcare professionals about proper antibiotic use.
- Encourage open discussion among physicians and patients.

8 hours of free CE:
- Multiple online modules offered in 4 sections to be released throughout 2018.*
- Open to all clinicians, pharmacists, physician assistants, nurses, certified health educators, and public health practitioners with an MPH.
- Fulfills Improvement Activities Patient Safety and Practice Assessment (PSPA) _23 and PSPA _24 under the Centers for Medicare & Medicaid Services Merit-Based Incentive Programs, or MIPS.

Register:
https://www.train.org/cdctrain/course/1075730

*Additional modules coming Spring & Fall 2018.
More than 2 million people are estimated to be infected by antibiotic-resistant organisms which result in over 14,000 deaths annually. Antibiotic resistance and the scarce antibiotic choices for multi-drug resistant organisms are urgent worldwide public health problems. Consequently, antibiotic stewardship has become a critical responsibility for all healthcare institutions and antibiotic prescribers. In Nebraska, access to trained and experienced antimicrobial stewardship experts is limited. This summit is designed to increase knowledge and competence as well as disseminate best-practices in antimicrobial stewardship programs.

TARGET AUDIENCE
- Acute care hospitals and outpatient facilities: Pharmacists, medical directors, internal medicine providers, family medicine providers, quality program leaders and all other providers interested in implementing or improving antimicrobial stewardship programs
- Post-acute and long-term care facilities: Medical directors, infection preventionists, consultant pharmacists, quality program leaders, directors of nursing, administrators and all other providers working on implementing or improving antimicrobial stewardship programs

SUMMIT OBJECTIVES
At the conclusion of the summit, participants should be able to:
- Describe the rationales for developing antimicrobial stewardship programs across the healthcare continuum
- Outline practical tools and strategies for implementation of antimicrobial stewardship programs in a variety of healthcare settings
- Identify metrics for tracking and reporting efforts of antimicrobial stewardship activities

The Nebraska Antimicrobial Stewardship Summit is funded by the Nebraska DHHS HAP Team via a grant from the Centers for Disease Control and Prevention.
Local/Regional Free Resources

Nebraska ASAP
https://asap.nebraskamed.com/

Nebraska Medicine Antimicrobial Stewardship Program
https://www.nebraskamed.com/for-providers/asp

Nebraska DHHS HAI Program
http://dhhs.ne.gov/publichealth/HAI/pages/Home.aspx

Great Plains Quality Innovation Network Antibiotic Stewardship Initiatives
http://greatplainsqin.org/initiatives/antibiotic-stewardship/

Nebraska ICAP
Welcome to the new and improved Nebraska ICAP website!

Use this website as a resource to further strengthen infection prevention and control programs at your facility. This site will be regularly updated with new tools and resources. Check back frequently to see what's new.

https://icap.nebraskamed.com/