Antimicrobial Use Toolkit Webinar

MARCH 13, 2018
Welcome & Housekeeping

- Thank you for attending!
  - HMS data abstractors
  - Administrators
  - QI staff
  - Pharmacists
  - Hospitalists
  - ID physicians
  - Individuals not affiliated with HMS

- Q & A session following presentation
  - All phones muted
  - Please raise your hand using the webinar software or type your question
HMS: Collaborative Quality Initiative

- HMS: 1 of 17 CQIs in Michigan

- Funding: Blue Cross Blue Shield of Michigan
  - Coordinating Center
  - .85 FTE data abstraction per hospital
  - Pay for performance

- Michigan hospitals voluntarily enroll
HMS Hospitals

- 43 hospitals
- Diverse types / settings
  - Large AMCs - Small rural hospitals
- Hospital Participants
  - Physician Champion - hospitalist
  - Quality Lead
  - Data Abstractor
- Improving Care
  - Data / best practice sharing / facilitated implementation
HMS Antimicrobial Use Initiative

- Antimicrobial use data collection began winter 2017
  - ~18,000 cases

- Key areas of focus
  - Urinary Tract Infection (UTI)/Asymptomatic Bacteriuria
  - Community Acquired Pneumonia (CAP) and Healthcare-Associated Pneumonia (HCAP)

- Several areas of improvement have been identified across the collaborative
HMS Antimicrobial Use Initiative

- **Pneumonia** *(CAP / HCAP-MDRO risk factors)*
  - Admission decision (CAP)
  - Initial empiric rx
  - Fluoroquinolone-non-preferred
  - Diagnostic testing
  - De-escalation
  - Treatment duration

- **UTI** *(uncomplicated / complicated / ASB)*
  - Diagnostic testing (ASB)
  - Unnecessary treatment (ASB)
  - Initial empiric rx
  - Fluoroquinolone non-preferred
  - De-escalation
  - Treatment duration
  - Urinary catheter appropriateness
Uncomplicated CAP Treated for 5 Days

Collaborative Mean = 22%

Considered appropriate if 6 or fewer days of antibiotic treatment

Desired Trend

2018 Performance Goal

Blue= Low Volume
Asymptomatic Bacteriuria
% of UTI Cases - Overtesting

Collaborative Mean = 32%

2018 Performance Goal

Desired Trend

Blue = Low Volume
Asymptomatic Bacteriuria
% Treated

Collaborative Mean
Receiving Any Antibiotic = 81.8%
Receiving a Fluoroquinolone = 27.5%

2018 Performance Goal

Desired Trend

* = Low Volume

Received Fluoroquinolone
Received ABX - Not Fluoroquinolone
**HCAP Broad Antibiotic Coverage**

*No Culture or Negative Cultures by Hospital - Day 4*

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**Day 4 MRSA and/or Pseudomonal Coverage by Hospital**

**Collaborative mean = 62%**

*Broad Coverage= MRSA and/or Pseudomonas (includes antipseudomonal beta lactams and fluoroquinolones)*

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* = Low Volume
Antimicrobial Use Toolkit

LINDSAY PETTY, MD
TEJAL GANDHI, MD
Antimicrobial Use Toolkit

- Key strategies to improve antimicrobial use globally
- Developed in partnership with BCBSM & the CDC

Tier 1: Implement Global Strategies to Improve Antimicrobial Use

- Convene a Workgroup to Focus on Tier 1 Strategies
- Develop and Share Institutional Guidelines for UTI and Community-Acquired Pneumonia (CAP)
- Integrate and Operationalize Institutional Guidelines for UTI and Community-Acquired Pneumonia (CAP)
- Reduce Duration of Antibiotic Treatment for Uncomplicated CAP to 5 Days
- Reduce Testing and Treatment of Asymptomatic Bacteriuria (ASB)
- De-escalate Antibiotic Treatment for UTI and Pneumonia
Toolkit Available via HMS Website

- Toolkit is available on the HMS website
  - [http://mi-hms.org/hms-antibiotic-toolkit](http://mi-hms.org/hms-antibiotic-toolkit)

- Highlight key tools during today’s webinar
HMS Antimicrobial Toolkit Quick Reference Guide

QUICK REFERENCE HMS ANTIMICROBIAL INITIATIVE TIER 1 INTERVENTIONS

This reference document provides a summary of the Tier 1 Toolkit for the HMS Antimicrobial Initiative that aims to implement global strategies to improve antimicrobial use.

Convene a Workgroup to Focus on Tier 1 Strategies

The workgroup will likely be a new subgroup of your antimicrobial stewardship team. For maximum impact, the workgroup should consist of a multidisciplinary team that includes (but is not limited to) key stakeholders, such as a Hospitalist, Infectious Disease physician and/or pharmacist, Emergency Medicine physician, house officers, IT personnel, microbiology lab representative, and nursing.

Tools and Resources:
- HMS site reports (hard copy distributed at collaborative wide meetings and live reports available daily via the HMS data entry system)
- CDC Core Elements of Hospital Antibiotic Stewardship Programs

Develop and Share Institutional Guidelines for UTI and Community-Acquired Pneumonia (CAP)

Develop institutional guidelines, locally-adapted from national and HMS guidelines, for treatment of community-acquired pneumonia (CAP) and UTI. If institution specific guidelines already exist, they should comply with the following:

CAP
- Institutional guidelines should:
  - Recommend 5-day antibiotic treatment duration for uncomplicated CAP
  - Review the risk factors for Multi-Drug Resistant Organisms (MDRO) and/or Healthcare-Associated Pneumonia (HCAP)
  - Provide recommendations for transition to oral therapy
  - De-emphasize fluoroquinolones

UTI
Strategy #1: Convene a Workgroup to Focus on Tier 1 Strategies

**Background, Rationale and Suggested Implementation Strategies**

- The workgroup will likely be a new subgroup of your antimicrobial stewardship team.
- For maximum impact, the workgroup should consist of a multidisciplinary team that includes (but is not limited to) key stakeholders, such as a Hospitalist, Infectious Disease physician and/or pharmacist, Emergency Medicine physician, house officers, IT personnel, microbiology lab representative, and nursing.
- Designate an internal lead for urinary tract infection (UTI) and pneumonia antibiotic-related quality improvement efforts. This person is responsible for ensuring implementation of interventions recommended by the workgroup, as well as identifying barriers and troubleshooting during implementation.
- Meet quarterly to review data, define problem areas, identify underlying causes of problem areas and determine interventions for improvement.
- Communicate work to local leadership to ensure institutional buy-in.
- Engage key stakeholders in the design of interventions to encourage provider buy-in.
- When implementing interventions, consider using behavioral economic principles or social psychology to provide additional cultural incentives to change.
- Implement at least **two** new interventions per year.
- Assess post-intervention data for success or failure of intervention, and make modifications as needed.

**Subgroup** of current antimicrobial stewardship team

**Key members**
- Hospitalist, ID physician, ID pharmacist, ER physician, house officers, nursing, IT, and microbiology lab personnel

- Meet quarterly and implement at least two new interventions per year
- Assess post-intervention and make modifications
Strategy #1: Convene a Workgroup to Focus on Tier 1 Strategies

Resources provided emphasize the importance of involving key stakeholders

- **HMS site reports** (hard copy distributed at collaborative wide meetings and live reports available daily via the HMS data entry system)
- **CDC Core Elements of Hospital Antibiotic Stewardship Programs**
- **CDC Implementation of Antibiotic Stewardship Core Elements at Small and Critical Access Hospitals**
- **CDC Antibiotic Training Course** (Webinar-Free CE’s available)
- **IDSA Guidelines for Implementing an Antibiotic Stewardship Program**

References:
  - Strong leaders focus on overcoming barriers, inspire their employees, and think strategically while acting locally
- **ANA/CDC White paper, Redefining the Antimicrobial Stewardship Team. 2017.**
  - Demonstrates importance of nursing and multidisciplinary antibiotic stewardship teams, highlighting roles individuals can play in stewardship efforts
  - Highlights the critical role of antimicrobial stewardship-trained pharmacists in a successful hospital stewardship program.
  - Shared the problems of inappropriate prescribing, and allowed providers free choice to develop an intervention.
  - Inappropriate antimicrobial prescribing decreased
Strategy #2: Develop and Share Institutional Guidelines for UTI and CAP

- Develop institutional guidelines, locally-adapted from national and HMS guidelines, for treatment of community-acquired pneumonia (CAP) and urinary tract infection (UTI). If institution-specific guidelines already exist, they should comply with the following:
  - CAP
    - Institutional guidelines should:
      - Recommend 5-day antibiotic treatment duration for uncomplicated CAP
      - Review the risk factors for multi-drug resistant organisms (MDRO) and/or Healthcare-Associated Pneumonia (HCAP)
      - Provide recommendations for transition to oral therapy
      - De-emphasize fluoroquinolones
  - UTI
    - Institutional guidelines should:
      - Recommend against sending urine cultures in the absence of urinary symptoms
      - Recommend against treating a positive urine culture in the absence of urinary symptoms
      - De-emphasize fluoroquinolones
      - Provide recommendations for transition to oral therapy

- Share the CAP and UTI guidelines with members of the work group and frontline providers to get feedback and to ensure buy-in.
- Publish guidelines in multiple formats, including booklet, hospital intranet, or an application for smartphones.
- Share HMS data and local opportunities for improvement institution-wide.
Strategy #2: Develop and Share Institutional Guidelines for UTI and CAP

### Resources, References & Tools

#### Resources & Tools:
*Examples of Guidelines that could be locally-adapted to your institution:

- **National Guidelines:**
  - *IDSA Guidelines for the Diagnosis and Treatment of Asymptomatic Bacteriuria in Adults.* CID 2005.
  - *IDSA and European Society for Microbiology and Infectious Disease Guidelines for Treatment of Acute Uncomplicated Cystitis and Pyelonephritis in Women.* CID 2010.

- **HMS Guideline:**
  - *CAP*
  - *UTI*

- **Institutional Guideline Examples:**
  - *CAP Guideline Examples* (Appendix A)
  - *UTI Guideline Examples* (Appendix B)

- **Pocket Cards:**
  - *CAP* (Appendix C)
  - *UTI* (Appendix D)

- **Example of Educational Computer Screensaver** (Appendix E)

#### Links to National Guidelines (IDSA)

- HMS treatment guidelines for CAP and UTI

- Example of institutional guidelines

- Sample pocket cards for ASB and CAP

- Educational screensaver
Strategy #2: Develop and Share Institutional Guidelines for UTI and CAP

- Sample Guideline
- Resource provided highlighting key areas to modify existing guidelines
  - Consistent with National & HMS Guidelines
  - Improve in HMS performance measures
Strategy #2: Develop and Share Institutional Guidelines for UTI and CAP

CAP Pocket Card

**Suggested Use of the Tool**
- Provide a copy to providers (printed or electronic)
- Print poster size version and post in work rooms

**Sites can add Hospital Logo for Distribution**
# Strategy #2: Develop and Share Institutional Guidelines for UTI and CAP

## UTI Pocket Card

**Front**

<table>
<thead>
<tr>
<th>SHOULD THIS PATIENT BE EVALUATED?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Does the patient have any of the following symptoms?</td>
</tr>
<tr>
<td>1. Urgency, frequency, dysuria</td>
</tr>
<tr>
<td>2. Suprapubic pain or tenderness</td>
</tr>
<tr>
<td>3. Costovertebral pain or tenderness</td>
</tr>
<tr>
<td>4. New onset mental status changes with leukocytosis</td>
</tr>
<tr>
<td>5. Fever &gt; 38°C or Rigors</td>
</tr>
<tr>
<td>6. Acute hematuria</td>
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<tr>
<td>7. Increased spasticity or autonomic dysreflexia</td>
</tr>
</tbody>
</table>

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**Yes**

Send UA and, if positive, send Urine Culture

Document indication for sending urine culture

Start empiric therapy (see reverse side)

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**Back**

## Empiric Therapy Based on Classification of Urinary Tract Infection

Empiric choices should take into account previous cultures.

<table>
<thead>
<tr>
<th>Patient Category</th>
<th>Preferred</th>
<th>Alternatives</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Asymptomatic Bacteruria</strong></td>
<td>TMP/SMX, Fosfomycin, or Nitrofurantoin</td>
<td>Oral Beta-Lactam (e.g., Cephalosporin or Cefpodoxime)</td>
<td>TMP/SMX x 3 days</td>
</tr>
<tr>
<td><strong>Uncomplicated Lower UTI (Cystitis)</strong></td>
<td>TMP/SMX, Fosfomycin, or Nitrofurantoin</td>
<td>Oral Beta-Lactam or IV Beta-Lactam</td>
<td>Nitrofurantoin x 5 days (avoid in CrCl &lt; 30 mL/min) Fosfomycin x 1 dose Oral Beta-Lactam x 3-7 days</td>
</tr>
<tr>
<td><strong>Complicated Lower UTI (Cystitis)</strong></td>
<td>TMP/SMX, Fosfomycin, or Nitrofurantoin</td>
<td>Oral Beta-Lactam or IV Beta-Lactam</td>
<td>Nifuroxazide x 7 days Severe PCN or Cephalosporin</td>
</tr>
<tr>
<td><strong>Uncomplicated Pyelonephritis</strong></td>
<td>TMP/SMX, Fluoroquinolones, or Beta-Lactams</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Complicated Pyelonephritis &amp; UTI with Bacteremia</strong></td>
<td>Refer to Individual Institutions</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Follow culture results and de-escalate therapy based on final results and sensitivities.

For each antibiotic: Document indication and planned duration for all patients.

For more detail about these guidelines, please see the [Guidelines for Treatment of UTIs] published by HMS.

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*Can add Hospital Logo for Distribution*
Strategy #2: Develop and Share Institutional Guidelines for UTI and CAP

Example of Educational Screensaver for Hospital Computers

- Promotes/Educates Use of Guidelines
- Provides Reference to Guideline

Antimicrobial Utilization
- Most types of pneumonia should not be treated for more than 5-7 days
- Most UTIs should not be treated for more than 7 days
- Do not treat asymptomatic bacteriuria

(Guidelines from IDSA)
### Strategy #3: Integrate and Operationalize Institutional Guidelines for UTI and CAP

**Background, Rationale and Suggested Implementation Strategies**

- Educate providers, including hospitalists, internal medicine, family medicine, emergency medicine physicians, residents, advanced practice professionals (APPs), and nursing staff about antibiotic resistance and appropriate antimicrobial prescribing.
- Educate patients and families about antibiotic resistance and appropriate antimicrobial prescribing.
- During educational sessions, highlight HMS data, showing opportunities for improvement.
- Communicate and promote institution-specific guidelines with frontline providers, including physicians, APPs, nursing, and pharmacy to ensure use of recommendations (morning report, grand rounds, medical staff meetings, division meetings).
- Integrate recommendations into key processes within the healthcare system such as into order sets, individual orders, discharge planning/processes, required yearly education for staff, etc.
- Build systems that can help modify provider behavior. Examples include (but are not limited to): clinical decision support tools and pharmacist review of antibiotic prescribing.
- After 3 months of guideline use, obtain provider feedback from multiple groups (including hospitalists, internal medicine, emergency department, etc.), and modify accordingly.
- Consider social factors in marketing guidelines to frontline providers. Highlight their participation in creation of the guidelines, and try to overcome viewpoints of loss of provider autonomy. Instead, emphasize improvement in quality and outcomes.
- Involve hospitalist champions in the education and dissemination process.

- **Education for providers, patients and families**
- **Integrate recommendations into key processes (i.e. order sets, discharge planning, etc.)**
- **Obtain provider feedback after 3 months of guideline use**
- **Involve hospitalist champions in education and dissemination**
Strategy #3: Integrate and Operationalize Institutional Guidelines for UTI and CAP

- **Example CAP & UTI Order Set**
- **Example patient education brochure**

### Resources, References & Tools

**Resources & Tools:**
- Review HMS institution specific data to identify areas for local improvement
- **CAP Order Set Example** (Appendix F)
- **UTI Order Set Example** (Appendix G)
- **Patient Education Handout Example**
  - Patients: What you need to know when you are prescribed an antibiotic (Appendix H)

### References:
  - Displayed poster-sized commitment letters to avoid inappropriate antibiotic prescribing for Acute Respiratory Infections (ARIs) in exam rooms, providing patient/family education and behavioral “nudge”
  - Reduced treatment of ASB with educational sessions and pocket cards for hospitalists at all sites, and a pharmacist-led review of positive urine cultures at one site
  - Reduced duration of CAP treatment by development of institutional guidelines and integration into CPOE for treatment of non-ICU CAP using key stakeholders and hospitalist physician champions.
  - For education/dissemination: utilized emails, posters in work rooms, presentations in Grand Rounds and division meetings
  - Qualitative study interviewing pediatricians after a stewardship intervention
Strategy #3: Integrate and Operationalize Institutional Guidelines for UTI and CAP

Antibiotic Patient Education Brochure

What You Need to Know When You Are Prescribed an Antibiotic

Your healthcare team has prescribed antibiotics for you because they think you may have an infection, or another condition which requires antibiotics. Some infections can be treated with antibiotics, which are powerful medications that kill bacteria and can save lives. Like all medications, antibiotics have side effects and should only be used when necessary. Your doctor thinks the benefits of antibiotics outweigh the potential risks at this time.

What are some questions to ask my doctor about antibiotics?
As a patient or caregiver, it is important to understand your or your loved one’s antibiotic treatment. Here are some important questions to ask your healthcare team if you haven’t already been told the answers:

- What infection or condition is this antibiotic treating and how do you know I have that infection or condition?
- What side effects might occur from this antibiotic?
- How long will I need to take this antibiotic?
- Is it safe to take this antibiotic with other medications or supplements (e.g., vitamins) that I am taking?
- Are there any special directions I need to know about taking this antibiotic? For example, should I take it with food?
- How will I be monitored to know whether my infection or condition is responding to the antibiotic?

Example Order Set

CAP ORDER SET EXAMPLE

Community Acquired Pneumonia (Pathway A: Non ICU patient)

- Duration of therapy is 5 days for patients who decompensate within 72 hours and have no more than 1 sign of CAP instability at the time of antibiotic discontinuation
- Patients with delayed response should discontinue therapy 48-72 hours after decompensation and have no more than 1 sign of CAP instability at time antibiotic discontinuation

CAP clinical signs of instability (if different then patient baseline status)
1. HR ≥ 100 bpm
2. RR ≥ 24 breaths/min
3. SBP ≤ 90 mmHg
4. Arterial O2 sat ≤ 90% or pCO2 ≥ 60 mmHg on room air
5. Altered mental status

Preferred Therapy
- PCN allergy without anaphylaxis, angioedema or urticarial
- Severe PCN allergy AND/OR cephalosporin allergy (anaphylaxis, angioedema, hives)

Preferred Therapy
- Preferred regimen - ampicillin/sulbactam AND azithromycin IV/PO
  - ampicillin/sulbactam (UGAREM) IV 2 g, Intravenous, EVERY 6 HOURS SCHEDULED
  - azithromycin (ZITHROMAX) tablet 500 mg, Oral, ONCE

- ampicillin (ZITHROMAX) tablet 250 mg, Oral, ONCE DAILY, starting H+24 Hours for 4 dosis
- amoxicillin (ZITHROMAX) IV 500 mg, Intravenous, ONCE

- azithromycin (ZITHROMAX) IV 250 mg, Intravenous, EVERY 24 HOURS, Starting H+24 Hours
- doxycycline hyclate (VIBRAMYCIN) capsule - ALTERNATIVE for macrolide allergy 100 mg, Oral, 2 TIMES DAILY

PCN allergy without anaphylaxis, angioedema, or urticarial
- Ceftriaxone AND azithromycin
  - ceftriaxone (ROCEFIN) IV 1 g, Intravenous, EVERY 24 HOURS
  - azithromycin (ZITHROMAX) tablet 500 mg, Oral, ONCE

- azithromycin (ZITHROMAX) tablet 250 mg, Oral, ONCE DAILY, starting H+24 Hours for 4 dosis
- azithromycin (ZITHROMAX) IV 500 mg, Intravenous, ONCE

- azithromycin (ZITHROMAX) IV 250 mg, Intravenous, EVERY 24 HOURS, Starting H+24 Hours
- doxycycline hyclate (VIBRAMYCIN) capsule - 200 mg, Oral, 2 TIMES DAILY

Severe PCN allergy AND/OR cephalosporin allergy (anaphylaxis, angioedema, hives)

Levofloxacin
- levofloxacin (LEVAQUIN) tablet 750 mg, Oral, DAILY
- levofloxacin (LEVAQUIN) IV 750 mg, Intravenous, EVERY 24 HOURS
Strategy #4: Reduce Duration of ABX Treatment for Uncomplicated CAP to 5 Days

- Educate providers
- Evaluate differences in provider groups
- Documentation of dose/indication/duration
- 72-hour time out
- Efforts focused on discharge prescribing
- Audit & Feedback

**Background, Rationale and Suggested Implementation Strategies**

- Educate providers on:
  - The correct diagnosis of CAP and HCAP
  - The justification for 5 days of therapy for uncomplicated CAP
- Review CAP cases identified by HMS to implement high-yield interventions for recurrent problems
- Evaluate and understand differences in provider groups (e.g., Hospitalists, Emergency Medicine providers). Target interventions to specific provider groups as necessary.
- Evaluate existing order sets to ensure antibiotic preferred options, doses, and durations are consistent with institutional pneumonia guidelines.
- Require documentation of dose and indication of antibiotics prescribed in the antibiotic order.
- Encourage documentation of dose, indication, and duration of antibiotics in the progress note.
- Require a 72-hour Antibiotic Time Out, during which total duration should be discussed.
- Focus efforts on discharge prescribing, as HMS data shows that discharge prescriptions account for 80% of inappropriate antibiotic treatment for uncomplicated CAP.
- Require documentation of the total duration of antibiotics in the discharge summary, potentially incorporating an area for antibiotic duration to be filled out in an automated discharge process.
- Incorporate nursing and pharmacy into review of the discharge antibiotic.
- Provide audit and feedback directly to providers regarding the duration of antibiotics they use for patients with uncomplicated CAP.
Strategy #4: Reduce Duration of ABX Treatment for Uncomplicated CAP to 5 Days

3 component intervention to reduce CAP treatment duration

- Survey to assess knowledge/practices related to the treatment of patients with CAP
- Educational lecture including survey results & evidence-based guidelines
- Prospective audit & feedback by pharmacists
### Strategy #4: Reduce Duration of ABX Treatment for Uncomplicated CAP to 5 Days

**Resources, References & Tools**

<table>
<thead>
<tr>
<th>Resources &amp; Tools:</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>HMS Document:</strong> <a href="#">Treatment duration for uncomplicated community-acquired pneumonia: the evidence in support of 5 days.</a></td>
</tr>
<tr>
<td>Review HMS site reports (hard copy distributed at collaborative wide meetings and live reports available daily via the HMS data entry system) for the following:</td>
</tr>
<tr>
<td>- Uncomplicated CAP treated with 5 days of antibiotics</td>
</tr>
<tr>
<td>- Types of Reports Available via HMS Registry: Hospital Specific, Provider Group Specific (i.e. hospitalist v. emergency room physician), or Provider Specific</td>
</tr>
<tr>
<td><strong>HMS Guideline:</strong></td>
</tr>
<tr>
<td>- CAP</td>
</tr>
<tr>
<td><strong>CAP Pocket Card</strong> (Appendix C)</td>
</tr>
<tr>
<td>Consider modifying to poster size for posting in workrooms</td>
</tr>
<tr>
<td><strong>Factsheet Emphasizing Focus on Discharge Prescriptions</strong> (Appendix A)</td>
</tr>
<tr>
<td><strong>Educational Videos:</strong></td>
</tr>
<tr>
<td>- Vaughn V. <a href="#">Antibiotic Stewardship: Community-Acquired</a></td>
</tr>
<tr>
<td><strong>72-hour Antibiotic Time Out Checklist</strong> (Appendix J)</td>
</tr>
<tr>
<td><strong>Example of hospital newsletter incorporating HMS data</strong> (Appendix K)</td>
</tr>
<tr>
<td><strong>Example of email feedback on provider performance for duration of CAP treatment</strong> (Appendix L)</td>
</tr>
</tbody>
</table>

- Tool to improve antibiotic prescribing at hospital discharge
- CAP educational video (for providers)
- Antibiotic time out checklist (72-hour time out)
- Sample hospital newsletter
- Sample audit & feedback emails
Strategy #4: Reduce Duration of ABX Treatment for Uncomplicated CAP to 5 Days

Sample Hospital Newsletter

HMS data to highlight hospital specific area for improvement

Reviews the current guidelines

Highlights the take away messages
Strategy #4: Reduce Duration of ABX Treatment for Uncomplicated CAP to 5 Days

Tool to Improve Antibiotic Prescribing at Discharge

D.I.S.Ch.A.R.G.E: FACTS AND SOLUTIONS

D.I.S.Ch.A.R.G.E!
How to improve antibiotic prescribing at hospital discharge.

Defaults and order sets:
- Consider use of default durations, default transitions from IV to oral, and recommendations within computerized order-entry to improve early transition to appropriate oral therapy (which can then be continued on discharge).
- Make sure default orders and order sets recommend guideline-appropriate antibiotic choice and duration.

Incentivize:
- Consider incorporating discharge antibiotic metrics into quality or compensation targets.

Discharge summary:
- Require documentation of total antibiotic duration in discharge summary.
  - Consider enforcing this rule by using smart phrases with hard stops for antibiotic duration in the discharge summary.
  - E.g.: To treat (disease), (lives) will continue (dose name) for (dose) additional days, for (dose) days total.

Checklist:
- Use an antibiotic checklist at discharge to evaluate and ensure antibiotic appropriateness.

Audit and Feedback:
- Audit and provide feedback of discharge prescriptions (e.g., pharmacists or stewardship teams, performance review, quality compensation targets).

Guidelines:
- Make sure your institutional guidelines include oral antibiotic recommendations for discharge for common infections (e.g., pneumonia, urinary tract infection).
  - Prioritize non-Fluoroquinolones antibiotics in guidelines.
  - Recommend alternatives to Fluoroquinolones antibiotic when possible.
  - Provide a recommendation for appropriate duration for different disease states (e.g., 5 days for community-acquired pneumonia), making sure that total duration includes effective inpatient therapy.

Educate providers on guidelines and discharge recommendations:
- Formal lectures to residents, physicians (e.g., hospitalist, ID, ED), APPs.
- Consider using pocket card.
- Consider the use of multiple ways to post guidelines (e.g., websites, apps, printed books).

Good summary of interventions targeting improvement in discharge prescribing of antibiotics.
Strategy #4: Reduce Duration of ABX Treatment for Uncomplicated CAP to 5 Days

CAP Duration Audit & Feedback: Top Performer Sample Email

Uncomplicated CAP

Dear ____________

YOU ARE A TOP PERFORMER

Upon reviewing the follow-up visits for ___________, we give our thanks for receiving an appropriate duration of antibiotic therapy. If you have any questions, please contact us.

Sincerely,

Hospital Medicine Safety Quality Improvement Team-Ann Arbor

“"This is a confidential professional peer review and quality improvement document of xxxx""

CAP Duration Audit & Feedback: Prolonged Duration Sample Email

Prolonged Duration of Antibiotics for Uncomplicated CAP

Dear ____________

Upon reviewing the follow-up visits for ___________, we would like to share the following information. Upon admission, the patient was given antibiotics based on evidence-based guidelines. However, this patient received a prolonged duration of antibiotics, which is not in accordance with both our guidelines and the patient's clinical judgment. The infection was not related to resistance, and the doctor has been contacted by the patient. We appreciate your ongoing efforts to improve quality.

Sincerely,

Hospital Medicine Safety Quality Improvement Team-Ann Arbor

“"This is a confidential professional peer review and quality improvement document of xxxxxxxx""
Strategy #5: Reduce Testing and Treatment of Asymptomatic Bacteriuria (ASB)

- Educate providers
- Evaluate differences in provider groups
- Checklists for ordering urine cultures
- Documentation of dose/indication/duration
- Create a protocol for assessing patients with AMS as the only symptom
  - AMS is the only symptom for ~30% of patients with a positive urine culture
Strategy #5: Reduce Testing and Treatment of Asymptomatic Bacteriuria (ASB)

- Resource detailing potential intervention
  - Positive results from non-catheterized specimens were no longer automatically reported
  - Instead, a message (see below) was provided to contact the lab
  - Tx ASB 48% → 12%
  - Abs Risk Reduction 36%

Resources, References & Tools

References:
  - Intervention at the stage of lab reporting that withheld urine culture results of non-catheterized inpatients unless requested by a physician
  - In the ED, authors estimate a 40% reduction in urine cultures if a culture was cancelled when urinalysis did not

The majority of positive urine cultures from inpatients without an indwelling urinary catheter represent asymptomatic bacteriuria. If you strongly suspect that your patient has developed a urinary tract infection, please call the microbiology laboratory.
Strategy #5: Reduce Testing and Treatment of Asymptomatic Bacteriuria (ASB)

- Educational Videos (Nurses, Providers)
- Checklist for appropriate urine culture ordering
- Flowchart for management of patients with AMS

Resources, References & Tools

**Resources & Tools:**
- Review HMS site reports (hard copy distributed at collaborative wide meetings and live reports available daily via the HMS data entry system) for the following:
  - Testing of Asymptomatic Bacteriuria
  - Treatment of Asymptomatic Bacteriuria with Antibiotics
    - Types of Reports Available via HMS Registry: Hospital Specific, Provider Group Specific (i.e. hospitalist v. emergency room physician), or Provider Specific
- HMS Guideline:
  - UTI
- **UTI Pocket Card** (Appendix D)
  - Consider modifying to poster size for posting in workrooms
- Educational Videos:
  - [ASB vs UTI: For Nurses on the Frontline](#)
  - Trautner, B. *Antibiotic Stewardship: Urinary Tract Infection: for Providers*
- **Checklist for Appropriate Urine Culture Ordering** (Appendix M)
- Tools for assessing a Urinary Tract Infection (UTI) in patients with Altered Mental Status (AMS)
  - [Inpatient Algorithm Assessing for UTI in Patients with AMS](#) (Appendix N)
Strategy #5: Reduce Testing and Treatment of Asymptomatic Bacteriuria (ASB)

Flowchart for the Management of Patients with AMS

- Provides a resource for providers to utilize when AMS is the only symptom of a potential UTI
- Recommends other treatment options prior to sending urinalysis or culture

Inpatient Algorithm Assessing for Urinary Tract Infection in Patients with Altered Mental Status (AMS)

**Change in Mental Status (Only Symptom)**
- I.e., periods of altered perception, disorganized speech, lethargy

**UTI Specific Signs and Symptoms (without alternative cause)**
- Urgency
- Frequency
- Dysuria
- Costovertebral Pain or Tenderness
- Flank Pain
- Suprapubic Pain or Tenderness
- Acute Hematuria
- Fever (>38°C) or Rigors

One or more of the following (without an alternative explanation):
- Elevated WBC (>10,000 cells/mm³)
- Hypotension (< 90 mmHg Systolic)
- 2 or more SIRS Criteria
  - Temp <36°C or >38°C, HR >90 bpm, RR > 20 breaths per minute or PaCO₂ <32 mmHg, abnormal WBC (>12,000 cells/mm³ or <4,000 cells/mm³ or >10% immature [band] forms)

Send urine sample for urinalysis

- Attempt hydration (oral or intravenous)
- Evaluate medications for potential interactions or adverse events
- Consider changes to current medication regimen (i.e., consider holding diuretic or psychotropic medications)
- Observe for 24-48 hours

If change in mental status does not resolve in 24-48 hours or UTI specific signs or symptoms develop, perform urinalysis

If urinalysis is positive, send urine sample for culture

If urinalysis is negative, stop further evaluation of UTI
Strategy #5: Reduce Testing and Treatment of Asymptomatic Bacteriuria (ASB)

Flowchart for the Management of Patients with AMS

If urine culture is negative, evaluate for other causes of AMS
Strategy #5: Reduce Testing and Treatment of Asymptomatic Bacteriuria (ASB)

For testing, target more than prescribers ... also target nurses!

- https://discover.explaineverything.com/discover/thecode/JTMDJAT
## Strategy #6: De-escalate Antibiotic Treatment for UTI and Pneumonia

### Background, Rationale and Suggested Implementation Strategies

- Require documentation of dose and indication of antibiotics prescribed in the antibiotic order.
- Encourage documentation of dose, indication, and duration of antibiotics in the progress note.
- Utilize 72-hour antibiotic time outs after starting antibiotics, including:
  - Assess indication(s) for antibiotics
  - Review culture results
  - Adjust drug selection (de-escalate) and doses
  - Consider switching to oral route
  - Decide and document treatment duration
- Utilize pharmacists to review cultures, and if positive, ensure that the narrowest, appropriate antibiotic coverage is chosen for the diagnosis.
- Utilize HMS data to provide audit and feedback directly to providers regarding:
  - Coverage of methicillin-resistant *Staphylococcus aureus* (MRSA) with negative MRSA nasal swabs and/or respiratory cultures
  - Coverage of *Pseudomonas* with negative respiratory cultures
  - Encourage de-escalation of vancomycin for pneumonia with negative respiratory cultures and/or nasal swabs for MRSA.
  - Incorporate the effective duration of therapy into de-escalation protocols (count all days of active therapy including IV).
  - When reporting microbiology lab results consider:
    - Providing recommendations on likely contaminants (e.g., ≥ 3 organisms in a urine culture)
    - Selective reporting of antibiotic susceptibility results: (i.e. suppressing broad spectrum

- **72-hour time outs**
- **Utilize pharmacists to review cultures and ensure appropriate antibiotic prescribing**
- **Audit/feedback to providers**
Strategy #6: De-escalate Antibiotic Treatment for UTI and Pneumonia

- De-escalation quick reference guide for pharmacists
- Antibiotic indications for pharmacists
- Antibiotic Time Out Checklist

Resources, References & Tools

Resources & Tools:
- Review HMS site reports (hard copy distributed at collaborative wide meetings and live reports available daily via the HMS data entry system) for the following
  - Antibiotic treatment regimens for UTI and CAP/HCAP
  - Discharge antibiotics
  - Patients with negative culture for MRSA and on MRSA coverage
  - Patients with negative culture for Pseudomonas and on Pseudomonas coverage
- Examples from Intermountain Health for Pharmacist-driven tools to aid in de-escalation
  - De-escalation quick reference guide for pharmacists (Appendix O)
  - Antibiotic indications for pharmacists (Appendix P)
- 72-hour Antibiotic Time Out Checklist (Appendix J)

References:
  - Among 11,441 ICU patients, a negative nasal MRSA surveillance swab had an NPV of 99.4%
  - For ICU and non-ICU HCAP patients, those that had a negative culture had lower severity of illness, hospital mortality, and hospital length of stay compared with those with a positive culture
  - Retrospective review of patients admitted with HCAP and negative culture, initially treated with broad-spectrum antibiotics (anti-MRSA and/or anti-Pseudomonas activity)
Antibiotic Time-Out Checklist

Suggested Use of the Tool

- Utilize as a checklist during pharmacist rounds
- Print poster size version and post in work rooms
Strategy #6: De-escalate Antibiotic Treatment for UTI and Pneumonia

De-escalation Quick Reference Guide for Pharmacists

- Defines de-escalation
- Emphasizes the pharmacists role in de-escalation
- Details 6 steps to determine whether de-escalation is appropriate
How to Use the HMS Antimicrobial Use Toolkit

- Toolkit covers multiple problem areas
- Select tools that fit your organizations needs and addresses your hospital specific problem areas
- This toolkit is a live document and will continually be updated as new tools/interventions are developed
  - If you have tools to be added to the toolkit please contact hospmedqi@umich.edu
- Hospital specific examples will be added over time
How to Access the HMS Antimicrobial Use Toolkit

- Toolkit available on the HMS website
  - [http://mi-hms.org/hms-antibiotic-toolkit](http://mi-hms.org/hms-antibiotic-toolkit)

- Formats
  - PDF Version (print, email, etc)
  - Electronic version (mobile friendly)

- Option on HMS website to add hospital logo for select tools
How to Access the HMS Antimicrobial Use Toolkit

Select a strategy for the resources, tools & references.
Next Steps - How to Get Started

- **Step 1:**
  - Convene workgroup

- **Step 2:**
  - Review HMS data to determine opportunities for improvement

- **Step 3:**
  - If local guidelines exist, compare guidelines and make modifications, if necessary
  - If no local guidelines, develop institution guidelines

- **Step 4:**
  - Select 2 tools to implement during the next year

*Resource provided in toolkit*
Thank You!

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Questions?