



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

Michigan Hospital Medicine Safety (HMS) Consortium



SCOTT FLANDERS, MD

HMS: Collaborative Quality Initiative

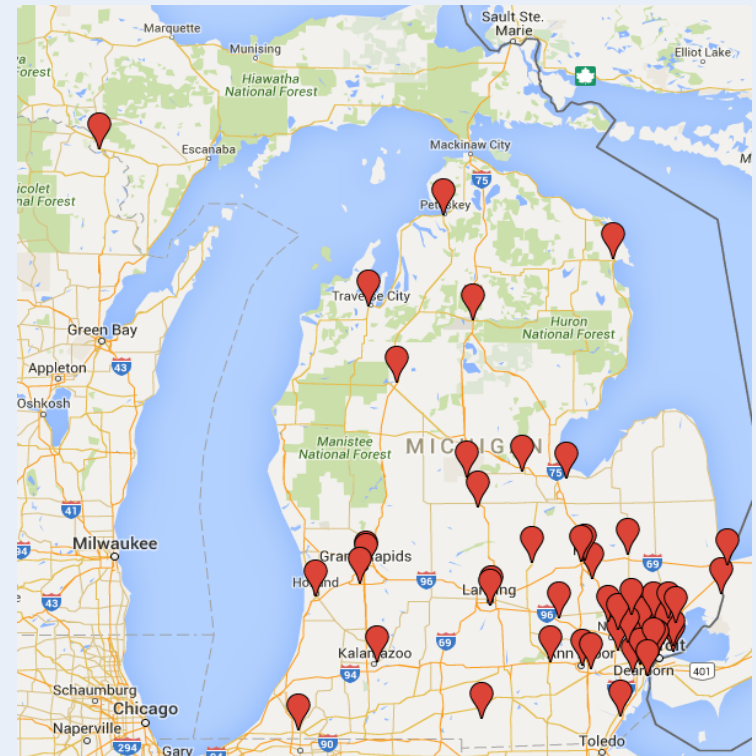


- HMS: 1 of 17 CQIs in Michigan
- Funding: Blue Cross Blue Shield of Michigan
 - Coordinating Center
 - .85 FTE data abstraction per hospital
 - Pay for performance
- Michigan hospitals voluntarily enroll

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

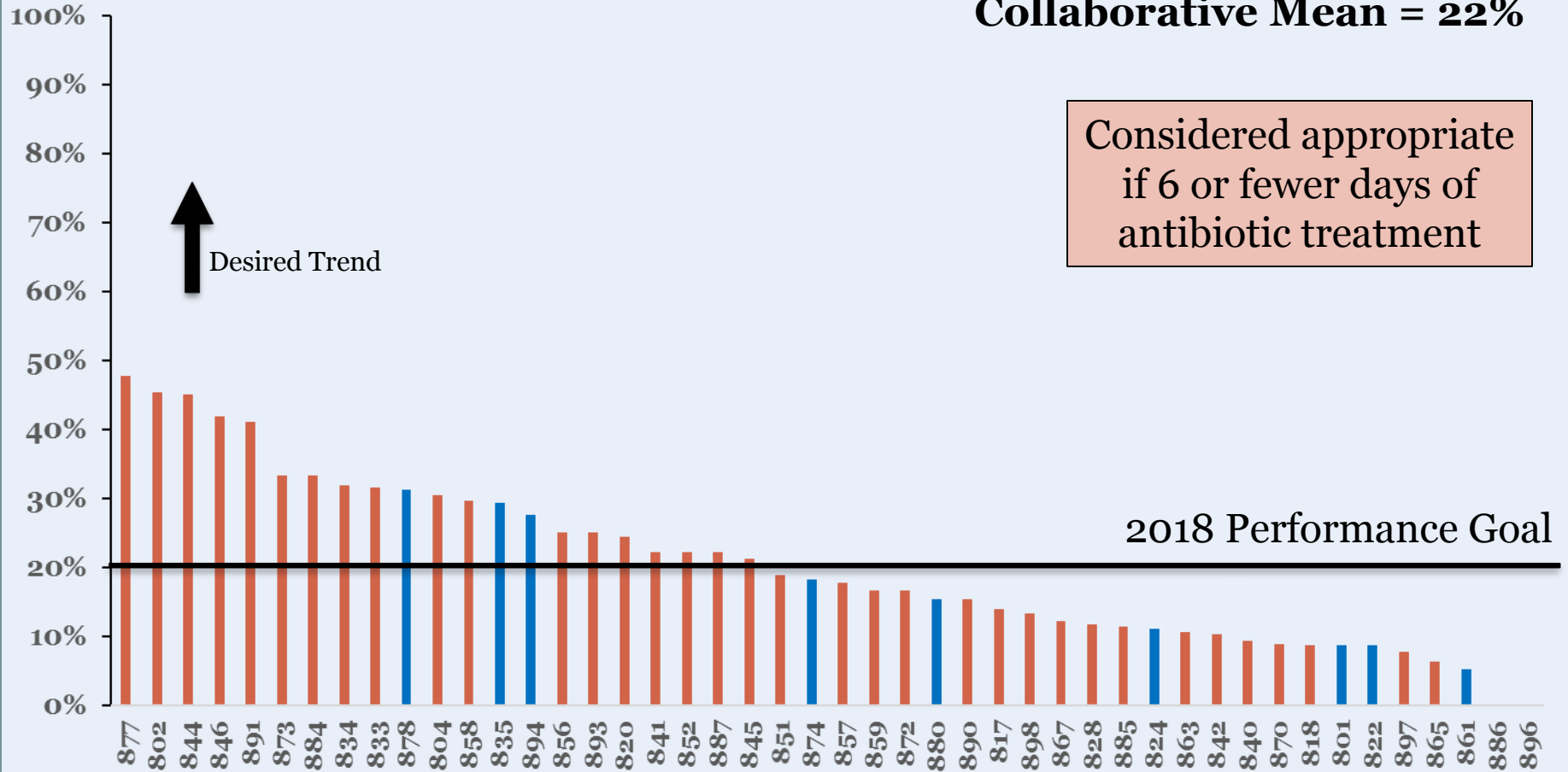


HMS Antimicrobial Use Initiative



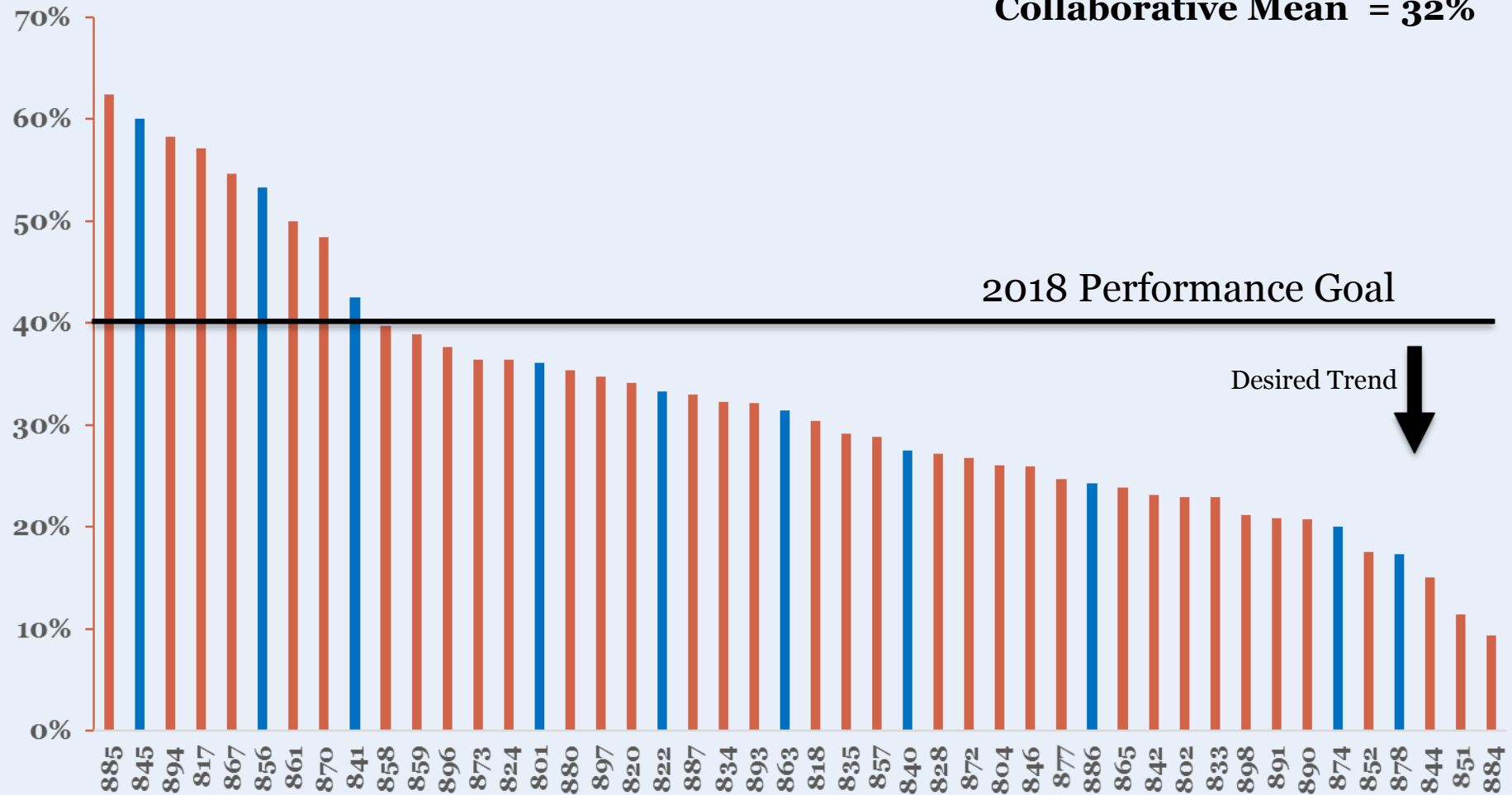
- **Pneumonia (CAP / HCAP-MDRO risk factors)**
 - Admission decision (CAP)
 - Initial empiric rx
 - Fluoroquinolone-non-preferred
 - Diagnostic testing
 - De-escalation
 - Treatment duration
- **UTI (uncomplicated / complicated / ASB)**
 - Diagnostic testing (ASB)
 - Unnecessary treatment (ASB)
 - Initial empiric rx
 - Fluoroquinolone non-preferred
 - De-escalation
 - Treatment duration
 - Urinary catheter appropriateness

Uncomplicated CAP Treated for 5 Days



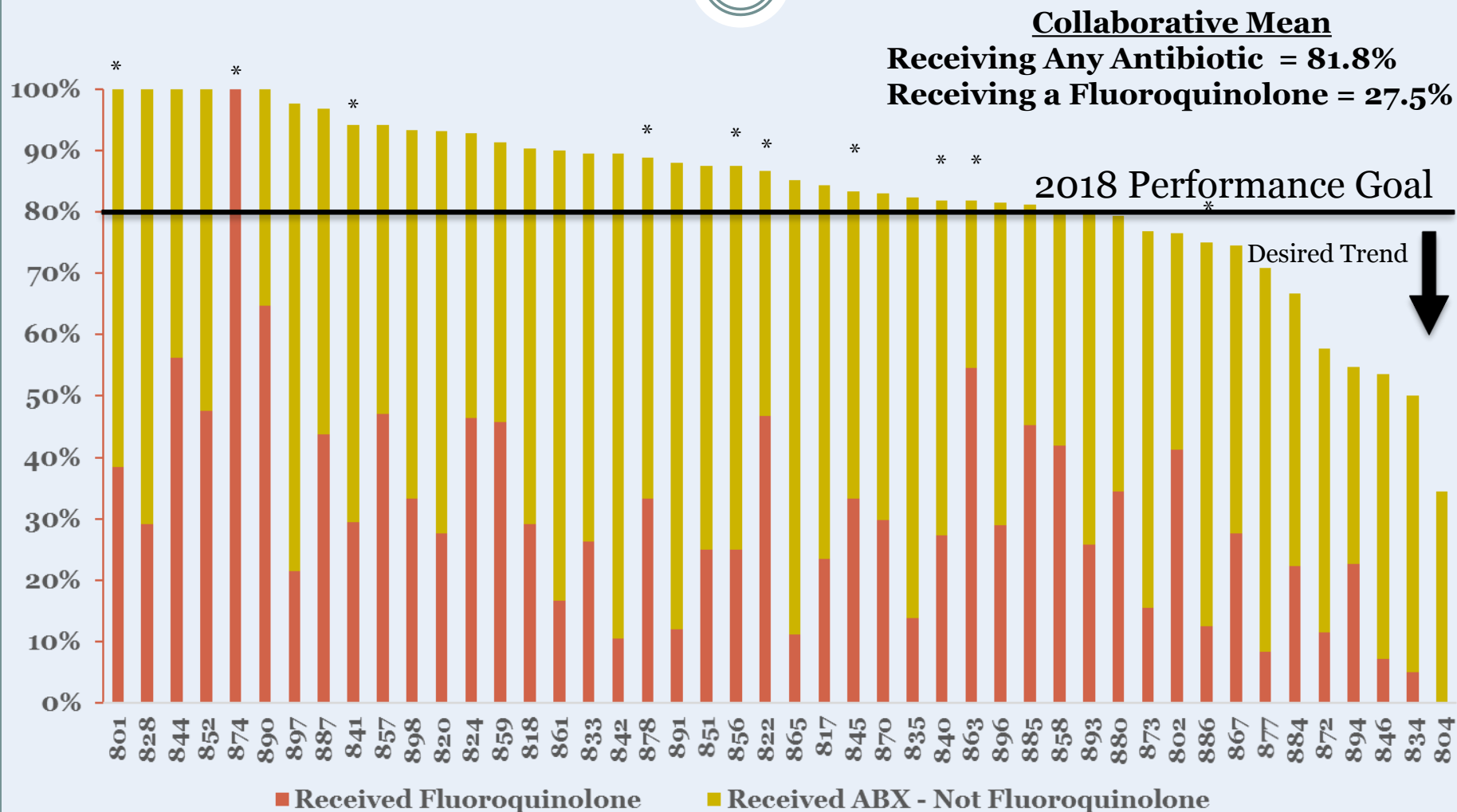
Blue= Low Volume

Asymptomatic Bacteriuria % of UTI Cases-Overtesting



Blue = Low Volume

Asymptomatic Bacteriuria % Treated

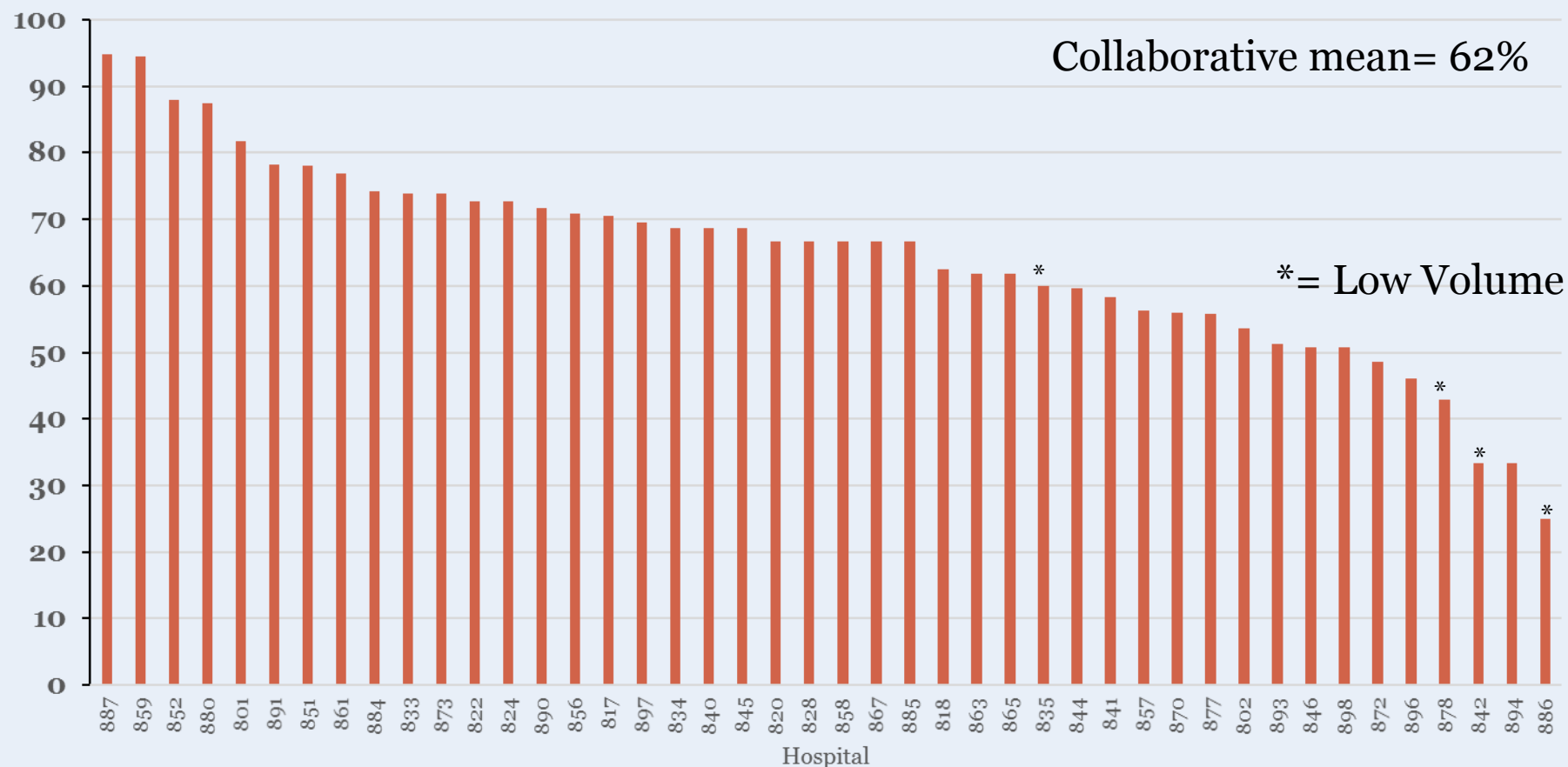


* = Low Volume

HCAP Broad Antibiotic Coverage

No Culture or Negative Cultures by Hospital- Day 4

Day 4 MRSA and/or Pseudomonal Coverage by Hospital



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

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
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Support for HMS is provided by Blue Cross and Blue Shield of Michigan and Blue Care Network as part of the BCBSM Value Partnerships program. Although Blue Cross Blue Shield of Michigan and HMS work collaboratively, the opinions, beliefs and viewpoints expressed by the a not necessarily reflect the opinions, beliefs and viewpoints of BCBSM or any of its empi



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Toolkit Available via HMS Website



- Toolkit is available on the HMS website
 - <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, References & Tools

Resources & Tools:

- 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:

- Saint S et al. [Importance of leadership for successful implementation of interventions to prevent hospital-acquired infections](#). *Infect Control Hosp Epidemiol* 2010.
 - 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
- Heil E et al. [Essential Role of Pharmacists in Antimicrobial Stewardship](#). *Infect Control Hosp Epidemiol* 2016.
 - Highlights the critical role of antimicrobial stewardship-trained pharmacists in a successful hospital stewardship program.
- Sikkens JJ et al. [Behavioral Approach to Appropriate Antimicrobial Prescribing in Hospitals: The Dutch Unique Method for Antimicrobial Stewardship \(DUMAS\) Participatory Intervention Study](#). *JAMA Intern Med* 2017.
 - Shared the problems of inappropriate prescribing, and allowed providers free choice to develop an intervention.
 - Inappropriate antimicrobial prescribing decreased

- Resources provided emphasize the importance of involving key stakeholders



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



Background, Rationale and Suggested Implementation Strategies

- 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.

- Develop institutional guidelines
 - Locally-adapted from national and HMS guidelines
 - CAP and UTI
- If guidelines already exist, ensure guidelines match recommendations
- Share the guidelines in multiple formats and get feedback from the frontline providers

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:
 - [Infectious Diseases Society of America \(IDSA\)/American Thoracic Society Consensus Guidelines on the Management of Community-Acquired Pneumonia in Adults](#). CID 2007.
 - [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.
 - [IDSA Guidelines for Diagnosis, Prevention, and Treatment of Catheter-Associated Urinary Tract Infection \(CA-UTI\) in Adults](#). 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

Example of Institutional Guideline for CAP

- Sample Guideline
- Resource provided highlighting key areas to modify existing guidelines
- Consistent with National & HMS Guidelines
- Improve in HMS performance measures

Appendix A

SAINT
JOSEPH
MERCY
HEALTH SYSTEM
A Member of Trinity Health

SJMHS Inpatient Guidelines for the Empiric Treatment of Pneumonia

Infection	Antimicrobial Therapy [§]	Duration	5 days of therapy for uncomplicated CAP patients.	Comments
Community-acquired pneumonia (CAP) ¹ Non-ICU	Ceftriaxone 1g IV Q24h PLUS Azithromycin 500 mg IV/PO X1, then 250mg PO Q24h X 4 days OR doxycycline 100mg IV/PO Q12h (if macrolide intolerance/allergy)	5 days* *Longer durations of therapy may be indicated, depending upon clinical response 5 days if afebrile with <2 signs of clinical instability on days 3-5		Ceftriaxone is restricted to patients with a documented Type I IgE-mediated penicillin or cephalosporin allergy (anaphylaxis) or any legitimate cephalosporin allergy or as PO therapy in patients tolerating PO - Consider increased ceftriaxone dose of 2 grams Q24h if patient greater than 100kg - Consider doxycycline as an alternative to azithromycin in patients at high risk for QT prolongation - Existing QT prolongation - Hypokalemia - Hypomagnesemia - Significant bradycardia - Bradyarrhythmias - Uncompensated heart failure - Patients receiving class IA or class III antiarrhythmic drugs
<u>HMS Preferred empiric treatment for CAP</u> includes - Ampicillin-Sulbactam PLUS Azithromycin, Clarithromycin, or Doxycycline - Ceftriaxone or Cefotaxime PLUS Azithromycin, Clarithromycin, or Doxycycline	Patients with a documented Type I IgE-mediated penicillin or cephalosporin allergy OR any legitimate cephalosporin allergy OR as PO therapy in patients tolerating PO: Levofloxacin 750 mg ¹ IV/PO Q24h	Signs of Clinical Instability: - Arterial O₂ sat ≤ 90% - HR ≥ 100 bpm - RR ≥ 24 breaths/min - BP ≤ 90 mmHg - Altered mental status (different than baseline)	<u>Signs of clinical instability impacting determination for therapy duration</u>	- Patients should be switched from IV to PO when they are hemodynamically stable, improving clinically, and able to tolerate PO medications. - Total duration (IV plus PO step down) described in previous column - Options for oral step down therapy should target isolated pathogen. Options for PO step-down if no pathogen identified on respiratory culture:
<u>Alternative but HMS Non-Preferred</u> treatment for patients with cephalosporin allergy, allergy to both macrolides and doxycycline/tetracycline, or severe penicillin allergy				

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



CAP Pocket Card

EMPIRIC TREATMENT OF COMM

Community-acquired pneumonia is defined as

THERAPY DURATION & ORAL STEP-DOWN THERAPY RECOMMENDATIONS FOR PATIENTS WITH CAP

Front

HMS PREFERRED THERAPY

Ampicillin-Sulbactam 3gm IV q6h, Ceftriaxone 1gm IV
OR Cefotaxime 1g IV q8h

Azithromycin 500mg PO daily
then 250mg q2d
Clarithromycin 500mg PO b.i.d.
Doxycycline 100mg PO b.i.d.

*Consider substituting doxycycline for patients who cannot take tetracyclines

ORAL STEP-DOWN THERAPY

Amoxicillin (1g PO 3 x daily)
Amoxicillin/clavulanate (875 mg - 2g PO 2 x daily)
Cefpodoxime (200mg PO 2 x daily)
Cefdinir (300mg PO 2 x daily)
Cefditoren (400mg PO 2 x daily)
Cefuroxime (500mg PO 2 x daily)

Alternatives: Levofloxacin

**Suggested dosing only. Please individualize therapy based on patient-specific factors.
Anaerobic coverage is not routinely warranted for CAP.
For more detail about these guidelines, please see the [full guideline](#).

DEFINITIONS OF COMPLICATED CAP & UNCOMPLICATED CAP

COMPLICATED CAP

Patients with structural lung disease (e.g. bronchiectasis, pulmonary fibrosis, interstitial lung disease), severe COPD (excluding COPD exacerbation without pneumonia); documented uncomplicated CAP or pseudomonas (or other non-fermenter/gram negative pneumonia); or those who are immunosuppressed.

UNCOMPLICATED CAP

Patients who do not meet any of the criteria above.

Back

Suggested Use of the Tool

- Provide a copy to providers (printed or electronic)
- Print poster size version and post in work rooms

*Signs of Clinical Instability: O2 saturation < 90% or new oxygen requirement, HR > 100 bpm, RR > 24 bpm, SBP < 90 mmHg, altered mental status (different than baseline)



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*Sites can add Hospital Logo for Distribution

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

UTI Pocket Card

SHOULD THIS PATIENT BE EVALUATED FOR UTI?

Does the patient have any of the following?

1. Urgency, frequency, dysuria
2. Suprapubic pain or tenderness
3. Costovertebral pain or tenderness
4. New onset mental status changes with leukocyturia or ≥ 2 SIRS criteria
5. Fever $> 38^{\circ}\text{C}$ or Rigors
6. Acute hematuria
7. Increased spasticity or autonomic dysreflexia

YES

Send UA and, if positive, send Urine Culture

Document indication for sending urine culture

Start empiric therapy (see reverse side)

*Symptom-based screening is not reliable in the following cases: preoperative patients, patients with indwelling catheters, nephrostomy tubes, urinary tract stents, h/o urologic surgery, or patients with neutropenia.



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EMPIRIC THERAPY BASED ON CLASSIFICATION OF URINARY TRACT INFECTION

Empiric choices should take into account previous cultures.

If urine culture is negative & patient was on antibiotics at the time of culture & patient has symptoms (1-7 on the reverse side), it is recommended to treat empirically.

PATIENT CATEGORY	PREFERRED	ALTERNATIVES	DURATION
ASYMPTOMATIC BACTERIURIA Defined as having NONE of the symptoms (1-7) listed on reverse side	Do not treat except in pregnancy, prior to urologic procedures, or neutropenia		
UNCOMPLICATED LOWER UTI (CYSTITIS)	TMP/SMX, Fosfomycin, or Nitrofurantoin	Oral Beta-Lactam (e.g. Cephalexin or Cefpodoxime)	TMP/SMX x 3 days Nitrofurantoin x 5 days (avoid in CrCl < 30 mL/min) Fosfomycin x 1 dose Oral Beta-Lactam x 3-7 days
COMPLICATED LOWER UTI (CYSTITIS) Male, urinary catheter present or within last 48 hours, anatomic abnormality or obstruction, significant co-morbidities	TMP/SMX, Fosfomycin, or Nitrofurantoin	Oral Beta-Lactam or IV Beta-Lactam <u>Severe PCN or Cephalosporin</u> <u>Allergy:</u> Aztreonam	TMP/SMX x 7 days Fosfomycin (q48h) x 3-5 doses Nitrofurantoin x 7 days Oral Beta-Lactam, IV Beta-Lactam, or Aztreonam x 7 days
UNCOMPLICATED PYELONEPHRITIS	TMP/SMX, Fluoroquinolones, or Beta-Lactams		IV Beta-Lactam Therapy followed by Oral Beta-Lactam or Oral TMP/SMX therapy : 7-14 days IV Beta-Lactam Therapy x 7 days TMP/SMX x 7-14 days Fluoroquinolones x 5-7 days
COMPLICATED PYELONEPHRITIS & UTI WITH BACTEREMIA	Defer to Individual Institutions		Complicated Pyelonephritis : 7-14 days UTI with Bacteremia : 7-14 days [Shorter courses of therapy (7 days) with a fluoroquinolone or IV beta-lactam can be considered in female patients without co-morbid conditions who are bacteremic secondary to pyelonephritis or cystitis/lower UTI who have rapid clinical response to therapy.]

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.

Back

*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



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)

Provides Reference
to Guideline

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



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:

- Meeker D et al. [Nudging guideline-concordant antibiotic prescribing: a randomized clinical trial](#). *JAMA Intern Med* 2014.
 - 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”
- Hartley S et al. [Evaluating a Hospitalist-Based Intervention to Decrease Unnecessary Antimicrobial Use in Patients With Asymptomatic Bacteriuria](#). *Infect Control Hosp Epidemiol*. 2016.
 - 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
- Haas MK et al. [Effects of a Syndrome-Specific Antibiotic Stewardship Intervention for Inpatient Community-Acquired Pneumonia](#). *Open Forum Infect Dis* 2016.
 - 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
- Scymczak J et al. [Pediatrician Perceptions of an Outpatient Antimicrobial Stewardship Intervention](#). *Infect Control Hosp Epidemiol* 2014.
 - Qualitative study interviewing pediatricians after a stewardship intervention

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

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 defervesce 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 defervesce 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 $\geq$ 100 bpm
2. RR $\geq$ 24 breaths/min
3. SBP $\leq$ 90 mmHg
4. Arterial O2 sat $\leq$ 90% or pO2 $\leq$ 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 (UNASYN) IV 3 g, Intravenous, EVERY 6 HOURS SCHEDULED
- ☐ azithromycin (ZITHROMAX) tablet 500 mg, Oral, ONCE
- ☐ azithromycin (ZITHROMAX) tablet 250 mg, Oral, ONCE DAILY, starting H+24 Hours for 4 doses
- ☐ azithromycin (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 (ROCEPHINE) IV 1g, 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 doses
- ☐ azithromycin (ZITHROMAX) IV 500 mg, Intravenous, ONCE
- ☐ azithromycin (ZITHROMAX) IV 250 mg, Intravenous, EVERY 24 HOURS, Starting H+24 Hours
- ☐ doxycycline hyclate (VIBRAMYCIN) capsule- 100 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



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.

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

Strategy #4: Reduce Duration of ABX Treatment for Uncomplicated CAP to 5 Days

Resources, References & Tools

References:

- Avdic E et al. [Impact of an Antimicrobial Stewardship Intervention on Shortening the Duration of Therapy for Community-acquired Pneumonia](#). *Clin Infect Dis* 2012.
 - Reduced treatment duration of CAP with educational lectures based on survey results, and post-prescription pharmacy review with verbal feedback
- Yogo N et al. [Intervention to Reduce Broad-Spectrum Antibiotics and Treatment Durations Prescribed at the Time of Hospital Discharge: A Novel Stewardship Approach](#). *ICHE* 2017
 - Reduced antibiotic duration prescribed at discharge by developing a guideline for antibiotic selection and treatment duration and performing pharmacy audit and feedback of discharge prescriptions
- Foolad F et al. [A multicenter stewardship initiative to decrease excessive duration of antibiotic therapy for the treatment of community acquired pneumonia](#). *J Antimicrob Chemother* 2018
 - Treatment duration for CAP was reduced by updating institutional CAP guidelines, providing educational sessions, and performing daily audit and feedback on appropriate treatment duration for CAP patients

- 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

Resources & Tools:

- HMS Document: [Treatment duration for uncomplicated community-acquired pneumonia: the evidence in support of 5 days.](#)
- 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:
 - Uncomplicated CAP treated with 5 days of 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:
 - [CAP](#)
- [CAP Pocket Card](#) (Appendix C)
 - Consider modifying to poster size for posting in workrooms
- [Factsheet Emphasizing Focus on Discharge Prescriptions](#)
- Educational Videos:
 - Vaughn V. [Antibiotic Stewardship: Community-Acquired](#)
- [72-hour Antibiotic Time Out Checklist](#) (Appendix J)
- [Example of Hospital Newsletter Incorporating HMS Data](#) (Appendix K)
- [Example of email feedback on provider performance for duration of CAP treatment](#) (Appendix L)

- 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

Bugs and Drugs Beaumont Farmington Hills

The Farmington Hills Antimicrobial Stewardship Newsletter December 2017

Antibiotics for Community-Acquired Pneumonia (CAP): Less is More!!

HMS Data for Beaumont Hospital – Farmington Hills

- The Michigan Hospital Medicine Safety Consortium, or HMS, is a Collaborative Quality Initiative supported by Blue Cross and Blue Shield of Michigan and Blue Care Network. The goal of HMS is to help improve patient safety and the quality of care for hospitalized medical patients. Beaumont Hospital-Farmington Hills participates in and submits data to the HMS Consortium.
- Data for pneumonia was recently received from the HMS Consortium for Beaumont Hospital – Farmington Hills

Average Duration of Antibiotics for CAP and HCAP (Inpatient & Outpatient)

On average, patients with CAP received antibiotic therapy for ____ days! This is not in accordance with guidelines that recommend 5 days.

Place graph of your data

Place graph of your data

____% of all patients with CAP received an inappropriate length of therapy. Must receive 4-XX extra days of antibiotics!

IDSA/ATS Consensus Guidelines regarding CAP Length of Therapy

- Patients with uncomplicated CAP can be treated for just 5 days if afebrile ≥ 48 hours and have no more than 1 CAP sign of clinical instability on day 5 of treatment.
- Patients with complicated CAP can be treated for 7 days if afebrile ≥ 48 hours and have no more than 1 CAP sign of clinical instability on day 7 of treatment. NOTE: Azithromycin duration should be no more than 5 days.
- Longer duration of therapy may be warranted in the following: patients with persistent clinical instability, pleural effusion, tissue necrosis, cavities, extrapulmonary complications such as meningitis or endocarditis, or pneumonia caused by *Staphylococcus aureus*, *Pseudomonas aeruginosa*, *Burkholderia pseudomallei*, or endemic fungi.
- Patients should be switched to oral antibiotics and discharged as soon as they are stable and improving clinically. Make sure to count effective inpatient antibiotic days before prescribing outpatient antibiotics.

Are these CAP recommendations valid for only 5 days of therapy? YES

- Uranga et al. conducted a multicenter, noninferiority randomized clinical trial to validate the IDSA/ATS guidelines for duration of therapy.
- Patients were included if they had a diagnosis of mild-to-severe CAP. At day 3, 312 patients were randomized to either stop antibiotics or continue antibiotics at the physician's discretion.
- There was no significant differences for time until clinical improvement, days to return to normal activity, radiographic resolution (day 30), adverse effects (day 30), in-hospital mortality, 30 day mortality, in-hospital complications, recurrence by day 30, and length to stay.
- There was no statistically significant difference in clinical success in patients treated for 5 days compared to longer durations.

CAP: Take Away Messages

% of patients with CAP who qualified for 5 days of therapy received excess therapy. The average antibiotic duration for CAP was ____ days	On average, CAP patients received an excess of ____ days of antibiotics. This places the patient at risk for C. diff and resistance.	Patients can be successfully treated with 5 days of antibiotics for uncomplicated CAP and 7 days for complicated CAP per consensus guidelines	Patients can be switched to oral therapy and discharged as soon as they are stable and clinically improving	Make sure to count effective inpatient antibiotic days before prescribing outpatient antibiotics
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References:

- Mandell LA, et al. Infectious Diseases Society of America/American Thoracic Society Consensus Guidelines on the Management of Community-Acquired Pneumonia in Adults. Clin Infect Dis. 2007; 44:527-72.
- Uranga A, et al. Duration of Antibiotic Treatment in Community-Acquired Pneumonia: A Multicenter Randomized Clinical Trial. JAMA Intern Med. 2016;176(9):1257-65.

For more information please contact:

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. Antibiotics: 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), Mr(s) X will continue (abx name) for X additional days, for X 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 team, performance review, quality compensation targets)

Review: Incorporate antibiotic appropriateness into discharge review process using different members of the care team

- For example
 - With pharmacists (when reviewing or filling discharge medications)
 - With bedside nurse (when reviewing discharge medications)
 - During multidisciplinary/discharge rounds

Guidelines

- Make sure your institutional guidelines include oral antibiotic recommendations for discharge for common infections (e.g., pneumonia, urinary tract infection)
 - Prioritize non-fluoroquinolone antibiotics in guidelines
 - Recommend alternatives to fluoroquinolone antibiotics 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)

D.I.S.Ch.A.R.G.E

Defaults and Order Sets

Incentivize

Discharge Summary

Checklist

Audit and Feedback

Review

Guidelines

Educate

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 following
_____, was given
evidenced-based Institutional
received an appropriate duration.

If you have any questions,
we appreciate your ongoing effort.

Sincerely,

Hospital Medicine Safety Quality Improvement Team-Ann Arbor



_____ (CAP) patient, we would
_____, admitted on
according to both our
(HMS) guidelines, this patient

(ID physician champion). We
/ patient, every time.

"This is a confidential professional/peer review and quality improvement document of xxxxx"

CAP Duration Audit & Feedback: Prolonged Duration Sample Email

Prolonged Duration of Antibiotics for Uncomplicated CAP



Dear _____

Upon reviewing the following
like to share the following
_____, was given
evidenced-based Institutional
should have received on
over prescribing of antibiotics
resistance, and the device
please contact xxx (nurse)
possible to discuss.

We appreciate your ongoing effort.

Sincerely,

Hospital Medicine Safety Quality Improvement Team-Ann Arbor



_____ (CAP) patient, we would
_____, admitted on
according to both our
(HMS) guidelines, this patient
is your clinical judgment,
the infection, antimicrobial
if you have any questions,
we will contact you as soon as

every patient, every time.

"This is a confidential professional/peer review and quality improvement document of xxxxxxxx"

Strategy #5: Reduce Testing and Treatment of Asymptomatic Bacteriuria (ASB)



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 regarding the diagnosis of ASB vs UTI.
- Educate patients and family members regarding the diagnosis of ASB vs UTI.
- Review ASB cases identified by HMS to direct high-yield intervention for recurrent problems.
- Evaluate and understand differences in provider groups (e.g., hospitalists, emergency department physicians). Target interventions to specific provider groups as necessary.
- Evaluate existing order sets to ensure preferred antibiotic options, doses, and durations are consistent with institutional UTI guidelines (including pre-operative order sets, ED admission sets, "commonly ordered test" lists).
- Utilize clinical decision support tools to discourage inappropriate urine culture testing, by requiring documentation of symptoms as indication for the test.
- Utilize checklists to discourage ordering of urine cultures
- Require documentation of dose and indication of antibiotics prescribed in the antibiotic order. Consider adding documentation of urinary symptom necessitating treatment.
- Encourage documentation of dose, indication, and duration of antibiotics in the progress note.
- Encourage documentation of the total duration of antibiotics in discharge summary, potentially incorporating an area for antibiotic duration to be filled out in an automated discharge process.
- Create a protocol assessing for UTI in patients whose primary symptom is altered mental status (AMS).

- 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)

Resources, References & Tools

References:

- Leis JA et al. [Reducing Antimicrobial Therapy for Asymptomatic Bacteriuria Among noncatheterized inpatients: a proof of concept study](#). *Clin Infect Dis* 2014.
 - Intervention at the stage of lab reporting that withheld urine culture results of non-catheterized inpatients unless requested by a physician
- Jones CW et al. [Rectify urine culture cancellation in the emergency department](#). *J Emerg Med* 2014.
 - In the ED, authors estimate a 40% reduction in urine cultures if a culture was cancelled when urinalysis did not

- 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%

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)



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)
 - Mody, L. et al. [Urinary Tract Infections in Older Women: A Clinical Review](#). JAMA 2014

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

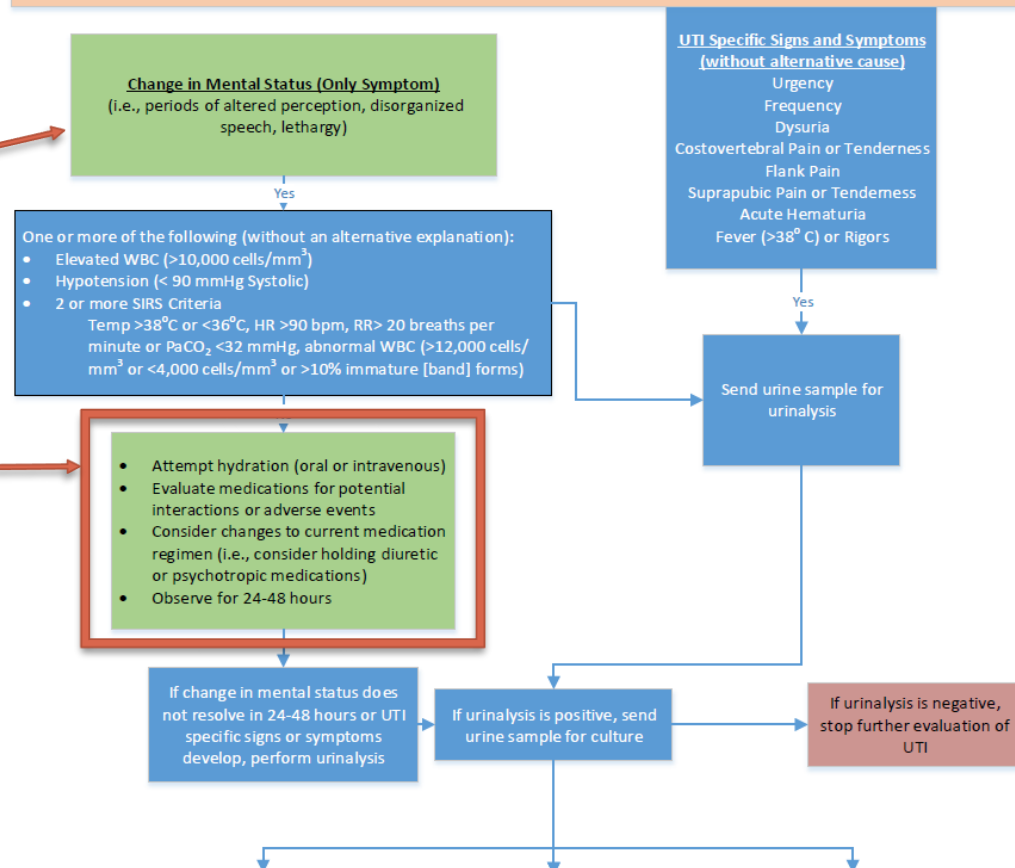
Strategy #5: Reduce Testing and Treatment of Asymptomatic Bacteriuria (ASB)

Flowchart for the Management of Patients with AMS

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

Provides a resource for providers to utilize when AMS is the only symptom of a potential UTI

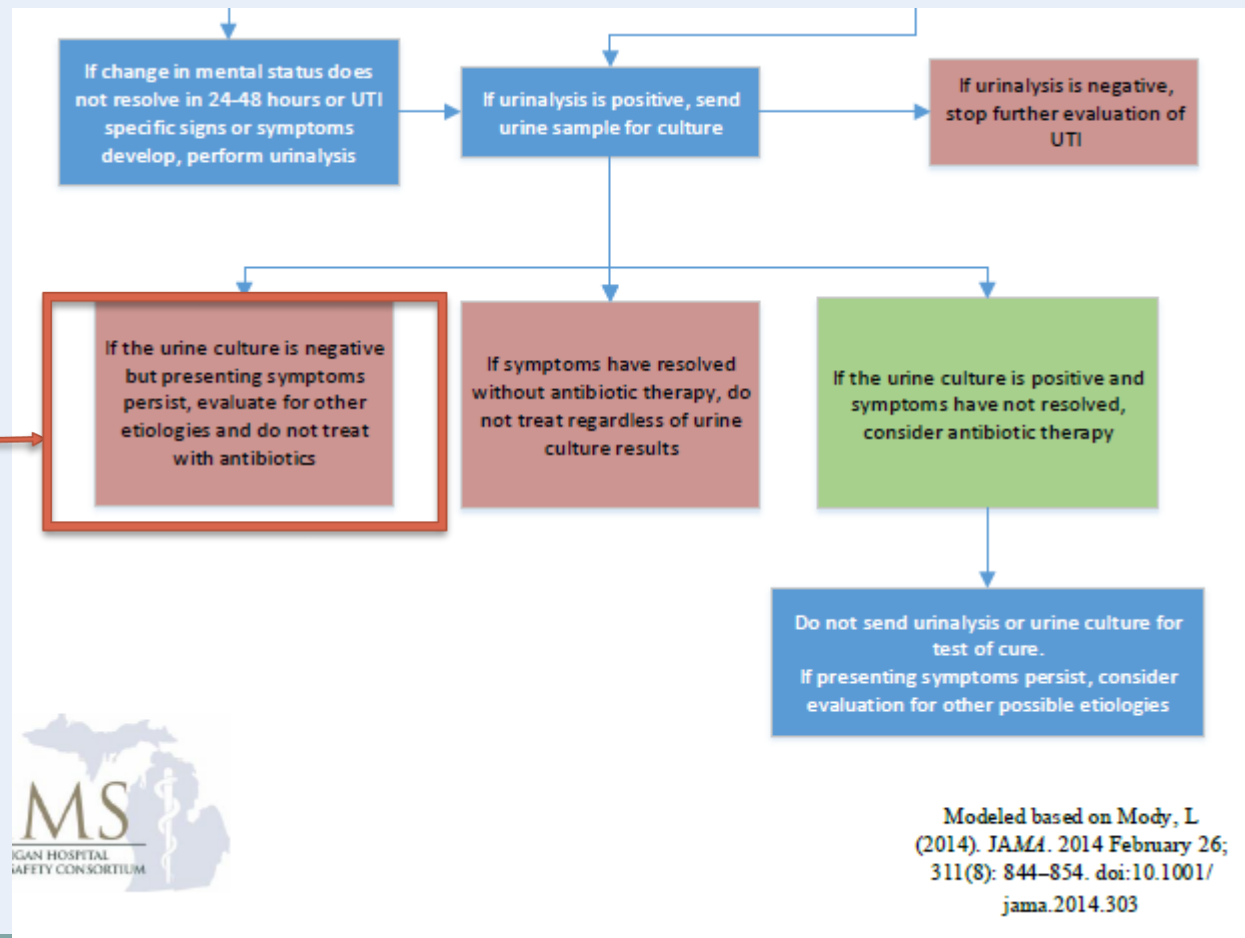
Recommends other treatment options prior to sending urinalysis or culture



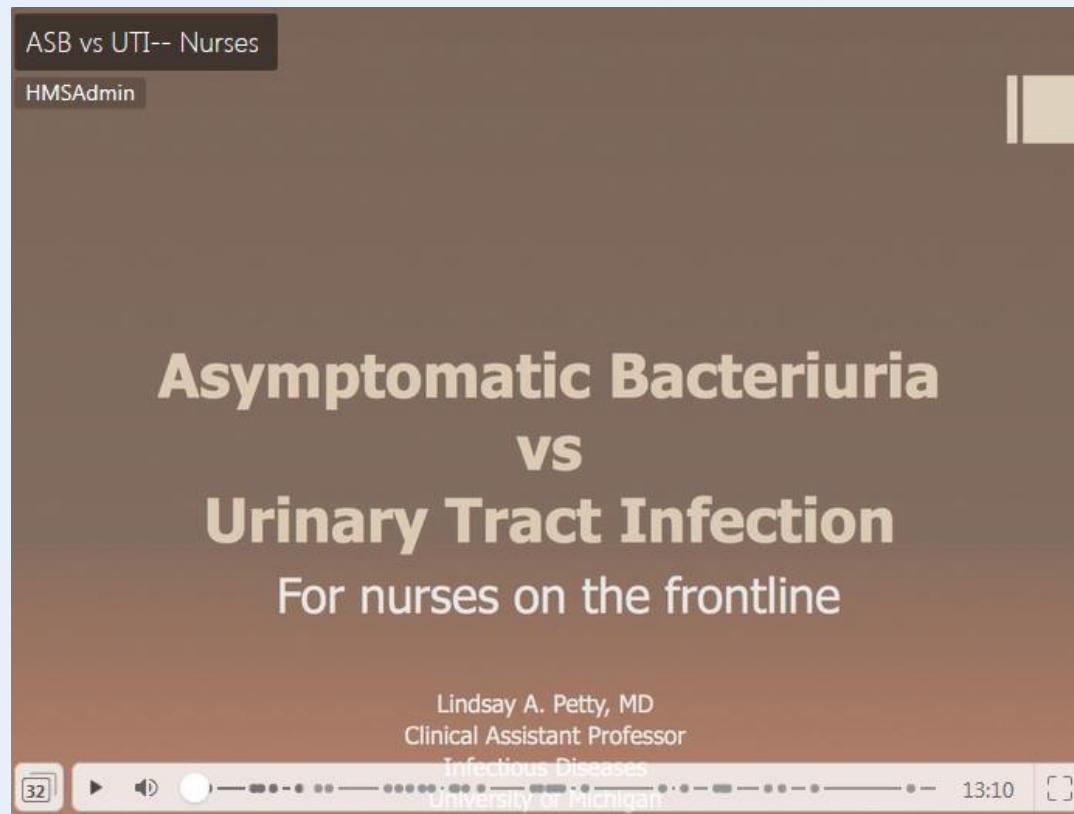
Strategy #5: Reduce Testing and Treatment of Asymptomatic Bacteriuria (ASB)

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 or 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



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)

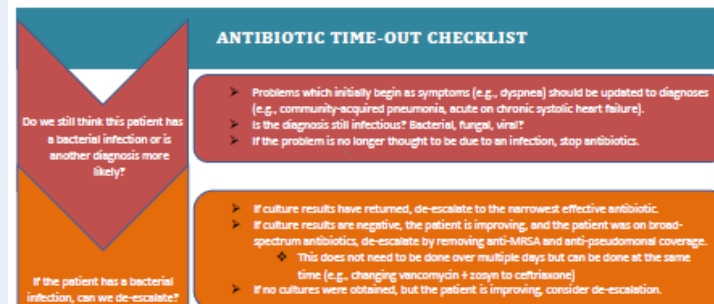
References:

- Chotiprasitsakul D et al. [The Role of Negative Methicillin-Resistant Staphylococcus aureus Nasal Surveillance Swabs in Predicting the Need for Empiric Vancomycin Therapy](#). *Open Forum Infect Dis* 2017.
 - Among 11,441 ICU patients, a negative nasal MRSA surveillance swab had an NPV of 99.4%
- Labelle AJ et al. [A comparison of culture-positive and culture-negative health-care-associated pneumonia](#). *Chest* 2010.
 - 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
- Buckel WR et al. [Broad- versus Narrow-Spectrum Oral Antibiotic Transition and Outcomes in Health Care-associated Pneumonia](#). *Ann Am Thorac Soc* 2017.
 - Retrospective review of patients admitted with HCAP and negative culture, initially treated with broad-spectrum antibiotics (anti-MRSA and/or anti-*Pseudomonas* activity)

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

Strategy #6: De-escalate Antibiotic Treatment for UTI and Pneumonia

Antibiotic Time-Out Checklist



Prompts the
questions needed to
review during
Abx Time Out

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

De-escalation

► Quick Reference Guide for Hospital Pharmacists



This quick reference guide describes the process of antibiotic de-escalation in patients with positive bacterial cultures. This guide is not intended for use in patients on empiric antibiotics with negative bacterial cultures. This 6-step process ensures that patients receive the narrowest-spectrum antibiotic to treat the infection.

➔ What is de-escalation?

As you know, we often prescribe broad-spectrum antibiotics because we don't have the full clinical picture. In many cases, the initial empiric antibiotic is not the best option for treatment of the patient's infection. De-escalation is when we switch to a narrower-spectrum antibiotic to target the causative pathogen(s) identified on culture.

Key Points

Switching to narrower spectrum antibiotics when clinically indicated can prevent adverse reactions and reduce antibiotic resistance.

➔ What is my role in de-escalation?

Every day, review all patients on broad-spectrum antibiotics in your patient care area and identify those with positive cultures. Review these patients using the 6-step process outlined in this guide to determine whether a narrower antibiotic would optimize therapy. If you feel a change in therapy is needed, work with the prescribing provider and recommend an alternate therapy. This process is designed for patients with positive cultures only!

Key Point:

The goal of de-escalation is to determine whether a narrower antibiotic would be more appropriate for each patient.

➔ What is the process?

For every patient on broad-spectrum antibiotics with a positive culture, review the 6-steps to determine whether de-escalation is appropriate.

Step 1:

Evaluate the source
• Where was the positive culture obtained?

Step 2:

Is an infection present?
• Is infection present?

Step 3:

Review culture
• Is the positive culture complete?

Step 4:

Review resistance
• What is the organism's susceptibility?

Step 5:

Review antibiotic
• What antibiotic is the patient on? Can we go narrower?

Step 6:

Assess the patient
• Are there any patient-specific factors we have to consider?

Details 6 steps to determine whether de-escalation is appropriate

Emphasizes the pharmacists role in de-escalation

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>
- Formats
 - PDF Version (print, email, etc)
 - Electronic version (mobile friendly)
- Option on HMS website to add hospital logo for select tools
 - <http://mi-hms.org/resources/hms-quality-initiative-toolkits/hms-antimicrobial-toolkit>

How to Access the HMS Antimicrobial Use Toolkit



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HMS Antimicrobial Toolkit

[Click Here to Access the HMS Antimicrobial Toolkit](#)

For Healthcare Professionals

HMS Antibiotic Toolkit

TIER 1: GLOBAL STRATEGIES TO IMPROVE ANTIMICROBIAL USE

Recommendations - Click on a recommendation below to view their Background, Rationale and Suggested Implementation Strategies, Resources & Tools, and References

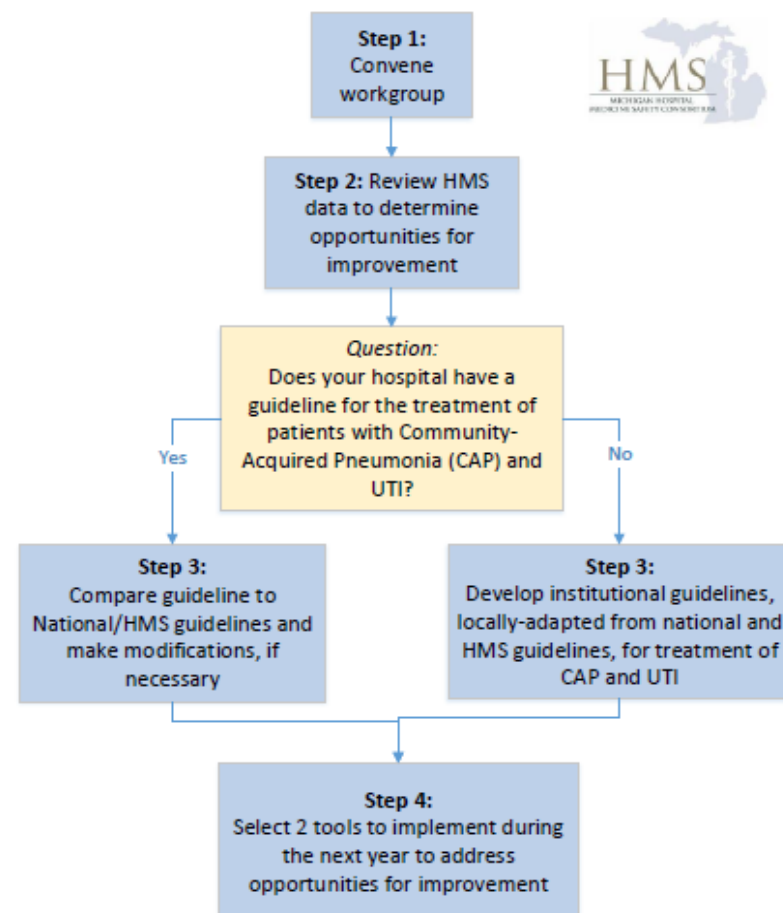
- Convene a Workgroup to Focus on Tier 1 Strategies
- Develop and Share Institutional Guidelines for UTI and Pneumonia
- Integrate and Operationalize Institutional Guidelines for UTI and Pneumonia
- Reduce Duration of Antibiotic Treatment for Uncomplicated CAP to 5 Days
- Reduce Testing and Treatment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

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

HMS Antimicrobial Use Toolkit: How to Get Started



Thank You!



- We would like to thank the following individuals for their support in developing this toolkit
 - Sarah Bloemers
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Questions?