

## Society for Infectious Disease Pharmacists (SIDP): Quality Improvement (QI) Projects Overview



August 20, 2024



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### Housekeeping

- + Who's in the room today? (Name, facility, role)
- + Your line has been muted upon entry to eliminate any background noise during today's presentation.
  - A reminder that if you have dialed in, please do not place the call on hold as we may hear your "hold" music.
- + We encourage questions and open discussion.
- + Please utilize the Chat box to type in your questions or comments.
- + This event is being recorded.



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# Agenda

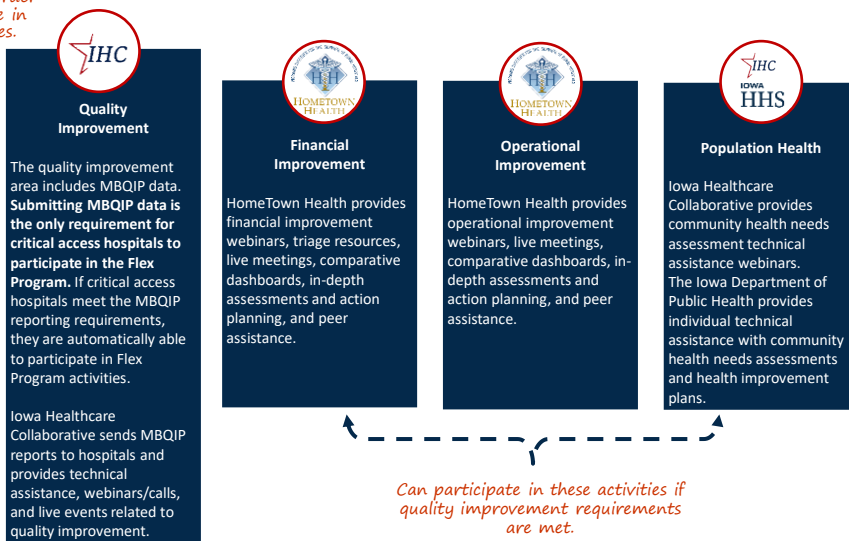
- + Society of Infectious Diseases Pharmacists (SIDP) Antimicrobial Stewardship Certificate Training Program Overview
- + Quality Improvement Project Presentations
- + Q&A



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# Flex Program Areas

*Required in order to participate in other activities.*



*Can participate in these activities if quality improvement requirements are met.*

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# Certificate Overview

## Part 1:

**Core Content**  
12 CE hours

- **Goal:** provide foundational knowledge relevant for antibiotic stewardship
- Self-paced, asynchronous, on-demand learning
- Speakers - proven clinicians/educators with national name recognition within ID

## Part 2\*:

**Application**  
Minimum 4.25h required

- **Goal:** expand general stewardship principles to acute care and outpatient settings
- Self-paced, asynchronous, on-demand learning
- Speakers – clinical with expertise in specific settings

## Part 3:

**QI module – 1 CE h**  
**Project - 10 CE hours**

- **Goal:** apply knowledge gained in Parts 1, 2, & 3 module (required for ACPE certificate)
- Live office hours (optional) with volunteers from SIDP Stewardship Committee



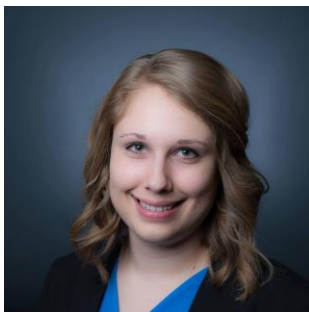
Antimicrobial Stewardship  
Certificate Program

\*8.25h available

[SIDP Website \(Link\)](#)

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## Presenting



**Alyssa Vosecky, PharmD**  
Clinical Pharmacist  
Floyd County Medical  
Center

**Bradley D. Weis, PharmD**  
Assistant Director  
of Pharmacy  
Greater Regional Health



**Megan E Hawkins, PharmD**  
Director of Pharmacy  
Greene County Medical  
Center

**Alicia Jahnke, PharmD**  
Pharmacy Manager  
Waverly Health Center



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# Days of Therapy (DOT) in Patients with Community- acquired pneumonia (CAP)

Alyssa Vosecky, PharmD  
Floyd County Medical Center  
Charles City, Iowa



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## Floyd County Medical Center



- Floyd County Medical Center and Clinic
- Stand alone, no affiliates
- Located in Charles City, Iowa
- 2 full time pharmacists
- Clinic providers see their patients in hospital
- 25 bed critical access hospital
  - Medical Surgical, Emergency Department, Birth Center, Surgery
  - Infusion center

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## Floyd County Medical Center



FLOYD COUNTY  
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*Delivering Advanced, Personalized Care*

- Newly formed antimicrobial stewardship committee – 2023
- Members include
  - Pharmacy director – PharmD
  - Infection prevention – RN, BSN
  - Laboratory director – MLT, ASCP
  - Information Technology (IT) analyst
  - FCMC provider – ARNP
  - Quality assurance – RN, MSN
  - Horizon Virtual provider – MD

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## QI Project Overview



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- CAP is a common infection leading to hospitalization and treatment at FCMC
- Commonly overtreated with long DOT
- Multiple antimicrobial agents often used
- Collaborated with the following positions
  - Infection prevention
  - IT analyst
  - Quality assurance
  - UpToDate

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## SMART GOAL



- Specific
  - Analyze DOT for inpatients with CAP
- Measurable
  - Compare DOT of pre and post test groups
  - Measure readmission rates
- Attainable/Realistic
  - Pneumonia is seen every month at FCMC
- Time
  - Track from January-December 2024. 6 months prior to and after guideline implementation

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## Project Design- Phase 1



- Pretest, intervention, post test study design
- January-June DOT recorded
- Guidelines developed using UpToDate, Iowa HHS cohort
- Underwent revision by antimicrobial stewardship committee and approved by both the committee and medical staff
- Local guidelines for pneumonia treatment were implemented early July

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## Data



	Antibiotic days 1000 inpatient	Antibiotic days outpatient	Patient days	DOT	Number of CAP patients
Jan	39	24	207	304.348	3
Feb	47	44	260	350	7
Mar	40	19	302	195.364	5
Apr	41	28	234	294.872	4
May	15	4	187	101.604	2
Jun	27	10	161	229.814	4
Jul	54	14	281	241.993	3
Aug				#DIV/0!	
Sep				#DIV/0!	
Oct				#DIV/0!	
Nov				#DIV/0!	
Dec				#DIV/0!	

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## Outcomes



- Goal is for null hypothesis to be rejected, and fail to reject alternative hypothesis
- We want to see a statistically significant reduction in DOT for CAP patients
- Goal of 0 CAP 30-day readmissions

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## Project Design- Phase 2

- Order sets for CAP
- Preprogram drugs to have specific stop dates
- Educate on order sets and importance of use
- Monitor individual providers
- Report back monthly to providers their percentage of use of order sets vs ordering individual drug

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## Sustainability

- Continual manual reminders
- Monthly reports of order set data
- Continued 30-day CAP readmission reporting to providers

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## Barriers



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- Presentation and communication with providers
- Provider habits
- Each patient is case by case
- Availability for communication
- Outpatient orders
- Software setbacks

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## SIDP Experience



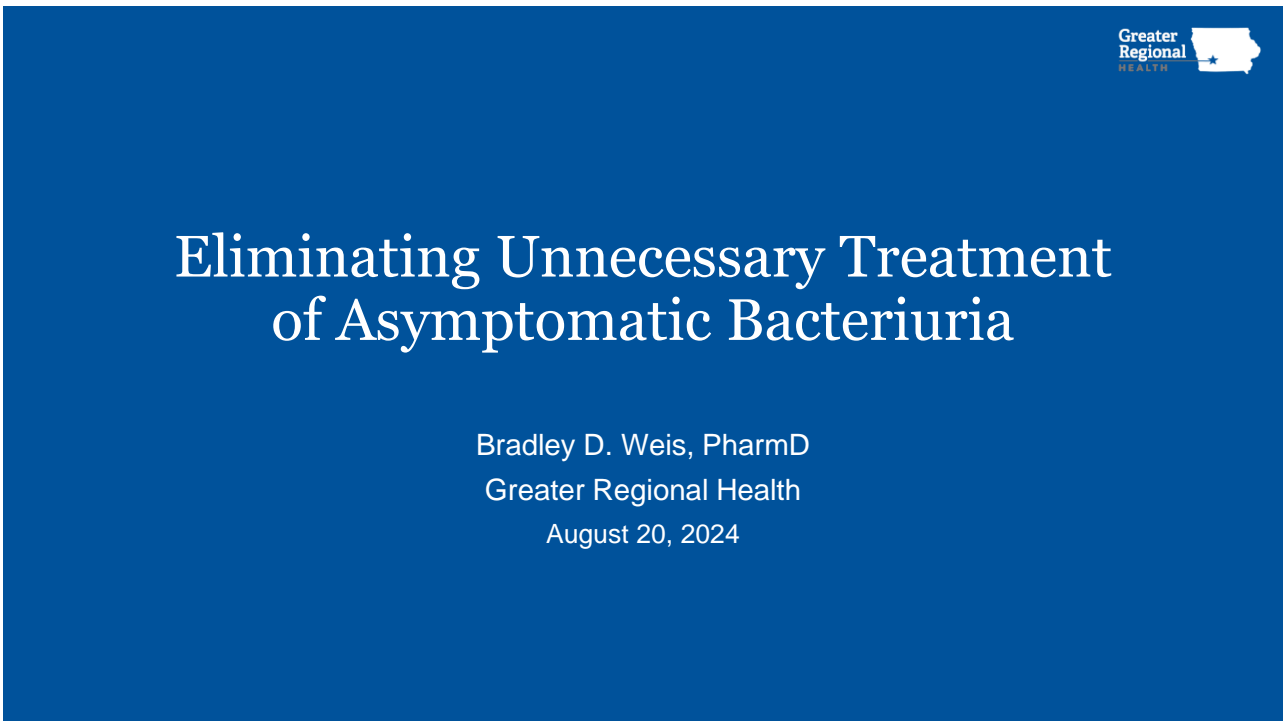
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- Session 1- Vital refresh on background information
- Presenters available for questions
- Networking
- Continuing education
- Quality improvement education

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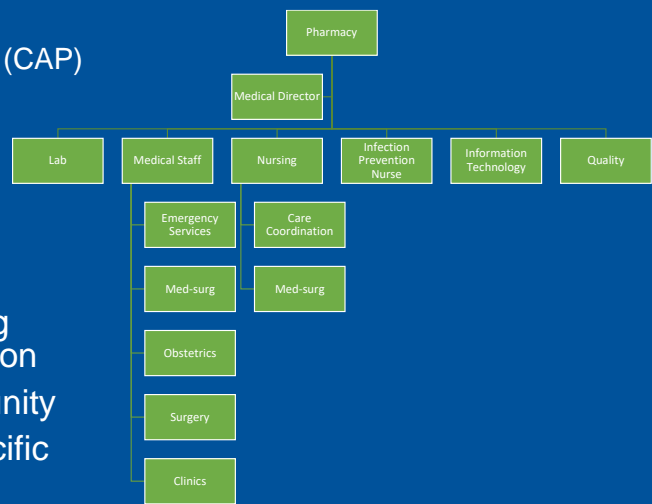
# Greater Regional Health (GRH)

- 25 Bed, Critical Access Facility
- Creston, Iowa – Union County
- Rural Clinics
  - Corning
  - Greenfield
  - Lenox
  - Mt. Ayr

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# Antimicrobial Stewardship at GRH

- Prescribing Algorithms:
  - Community-acquired pneumonia (CAP)
  - Urinary tract infection (UTI)
  - Acute otitis media (AOM)
  - Cellulitis
  - Rhinosinusitis
- Bronchitis: Decrease antibiotic prescription
- UTI (uncomplicated): Reserving fluoroquinolone as last line option
- Education: Facility and Community
- Antibiogram: Organization specific published yearly



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## Problem Identified

- Treating patients with asymptomatic bacteriuria for UTI
- Large evidence base to recommend against using antibiotics to treat asymptomatic bacteriuria
- Opportunity to decrease unnecessary antibiotic exposure
- Why are we performing urinalysis (UA) for asymptomatic patients?

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## Scope of Problem

- Time frame: Jan – Mar 2024
- 217 patients treated for UTI
- 9% Had no apparent urinary symptoms on chart review (#19)
- 1785 Total Emergency Department (ED) visits
- 54% had a UA drawn

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## Project Goal

- Eliminate unnecessary treatment of asymptomatic bacteriuria by decreasing the number of UA ordered for patients without urinary complaints.
- Excluded: Indications for treatment of asymptomatic bacteriuria
  - Pregnancy
  - Kidney transplant recipient in prior 2 months
  - Patient with anticipated urologic procedure

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## Departments Involved

- Antimicrobial Stewardship (AMS) Committee
- Pharmacy
- Lab
- ED
- Quality Improvement (QI)

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# Interventions

- Review current process
- Education with ED providers
  - Meeting with key member of AMS committee
  - Presented our collected data
  - Reviewed recommendations against treating asymptomatic bacteriuria
  - Presented plan to decrease number of UA ordered by limiting to patients with urinary complaints
  - Presented schedule to share outcome data

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# Interventions

## Attention Prescribers



### UTI:

- Symptoms
- Bacteriuria
- Pyuria

**DON'T** send urine cultures in your asymptomatic adult patients

Asymptomatic bacteriuria is more common than UTI and does not need to be treated in most cases!

### Urinalysis with Possible Culture Panel - All UPH and CCH

- Suspected UTI - Non-Neutropenic
- Suspected UTI - Neutropenic
- Non-Infectious Indications
- Other Purposes: OB, Renal Transplant, Urology, Organ Procurement

### Urinalysis with Possible Culture Panel - All UPH and CCH

- Suspected UTI - Non-Neutropenic
- Suspected UTI - Neutropenic
- Non-Infectious Indications
  - Urinalysis with Reflex Microscopic Testing (\$)
  - Urinalysis with microscopic (\$\$\$)
  - Urine Microscopic Only
- Other Purposes: OB, Renal Transplant, Urology, Organ Procurement

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## Barriers to Success

- ED desire to have practice autonomy
  - Direct conversation
  - Presentation of problem
- Difficulty obtaining baseline data
  - Manual chart review
- Time available compared to large dataset
  - Focus initial effort in 1 department
  - Enlisting help from AMS committee

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## Project Outcomes

- Will measure first batch of data (June to August) in October
  - Percentage of ED patients who have a UA ordered
  - Percentage of patients diagnosed with a UTI who did not have any urinary symptoms
- Report progress and outcomes quarterly to:
  - AMS Committee
  - ED Providers
  - Full Med Staff
  - QI Committee

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# SIDP Program Feedback

- Pros
  - Self paced but structured timeline
  - Discussion forum
  - Overall content
- Cons
  - More interactive elements within modules
  - Percentage completion presentation

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# Eliminating Unnecessary Treatment of Asymptomatic Bacteriuria

Bradley D. Weis, PharmD  
Greater Regional Health  
August 20, 2024

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# Identifying and overcoming barriers to utilizing pneumonia and urinary tract infection Epic order sets

Megan E Hawkins, PharmD  
Director of Pharmacy

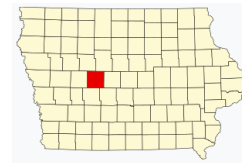


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## Greene County Medical Center

- ▶ Critical Access Hospital – 25 beds
  - An affiliate of UnityPoint Health
- ▶ Located in Jefferson, Iowa
  - Located in Greene County (only hospital in Greene County)
  - Population:
    - Jefferson: 4173 (2022)
    - Greene County: 8741 (2022)



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# Greene County Medical Center



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## Antimicrobial Stewardship Program Overview

- ▶ Provider/Chief Medical Officer (CMO) and pharmacist led program
- ▶ Committee members: CMO, Chief Nursing Officer (CNO), Hospitalist, Director of Pharmacy, Director of Nursing, Director of Quality, Director of Lab, IT Analyst, Infection Prevention Nurse
- ▶ Meet quarterly
- ▶ Discuss:
  - Compass HQIC measure: Antimicrobial Days of Therapy
  - Monthly antibiotic tracking reports (Acute, Extended Care, ED) – e.g., top 5 ordered antibiotics
  - Monthly antibiotic chart review/duration of therapy (Acute)
  - Monthly positive culture tracking (Acute and ED) – including Bacteria and Fungi Listed in the 2019 Antimicrobial Resistance (AR) Threats Report
  - Positive cultures for *C. difficile* (Acute, ED, and Clinic)
  - Antibiotic med events and adverse drug reactions (ADR)

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## Antimicrobial Stewardship Program Overview

- ▶ CMO, Director of Pharmacy, and Infection Preventionist (IP) meet monthly to review all antibiotics ordered in Acute for appropriateness
  - Track & Trend
  - CMO provides education to hospitalists
- ▶ Future: Family Medicine Clinic



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## Project Overview

- ▶ Title: Identifying and overcoming barriers to utilizing pneumonia and urinary tract infection epic order sets
- ▶ Problem identified and why chosen:
  - Order sets infrequently used
  - National Healthcare Safety Network (NHSN) survey question: “monitors adherence to our facility’s treatment recommendations for antibiotic selection for common clinical conditions”



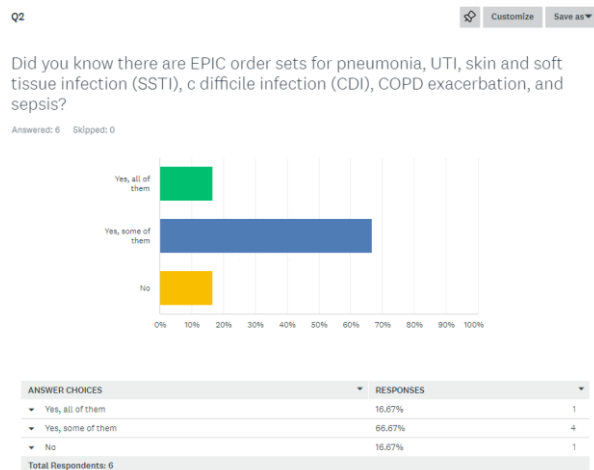
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# Project Overview

- ▶ SMART goal:
  - Pneumonia order set will be utilized 75% of the time by hospitalists by end of FY2025
  - UTI order set will be utilized 75% of the time by hospitalists by end of FY2025
- ▶ Departments involved: ED and Acute
- ▶ People involved: Hospitalists and Director of Pharmacy

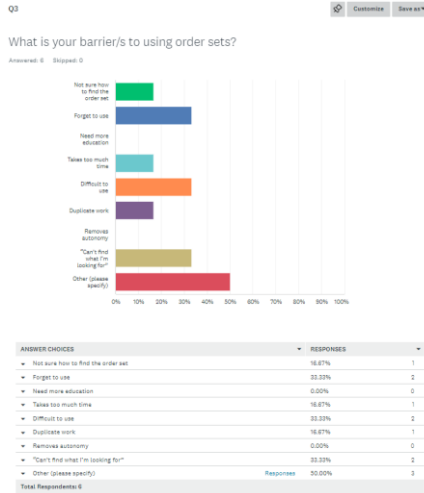
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# Survey Monkey



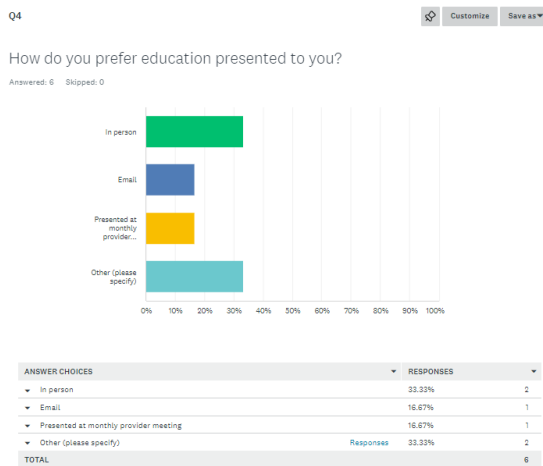
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# Survey Monkey



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# Survey Monkey



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# Intervention

- ▶ Best Practices
  - NHSN survey question: “monitors adherence to our facility’s treatment recommendations for antibiotic selection for common clinical conditions”
  - Education
  - Reminder signage



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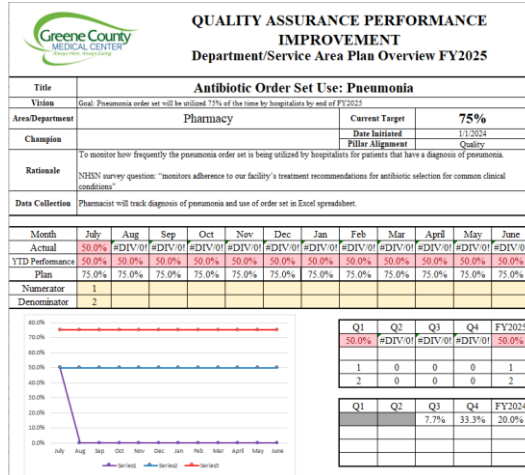
# Intervention

- ▶ Lessons Learned
  - Barriers and how they were overcome:
    - Hospitalists forgetting to utilize the order sets:
      - Reminder signage placed on computer monitors
    - Lack of hospitalist acceptance of utilizing order sets:
      - Will educate providers how treatment may have been optimized had the order set been utilized (on previous discharges)
      - Will share performance improvement (PI) reports with hospitalists to show how they compare to their peers
      - Medical Director plans to use as a quality measure and will discuss at the hospitalists’ monthly meetings



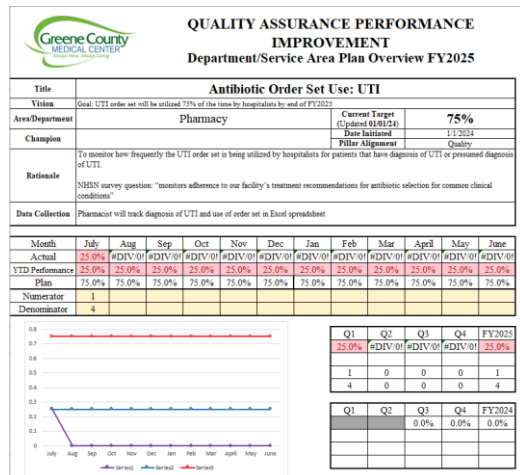
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# Outcomes



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# Outcomes



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# Outcomes

- ▶ Plans for sustainment
  - Pharmacy PI project for FY25
    - If goal obtained, will address use of the sepsis and SSTI order set in FY26
    - If goal is not obtained, will do more barrier identification and education and continue PI in FY26

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**Megan E Hawkins, PharmD**  
*Director of Pharmacy*

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# Decreasing the Use of Cefepime for the Empiric Treatment of Community-Acquired Pneumonia in a Critical Access Hospital

Alicia Jahnke, PharmD, BCPS

Megan Hoskins, RN

August 20, 2024

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## Waverly Health Center

- 25-bed critical access hospital in Waverly, Iowa
- FY23 Statistics
  - 7385 ED visits
  - 1947 Ambulance Calls
  - 2552 Surgeries
  - 834 Inpatient Admissions
  - 197 Newborns
  - 58,607 Outpatients / 436,481 Outpatient Registrations
  - 489 Employees

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## Antibiotic Stewardship Committee

- Committee Members

- Alicia Jahnke, PharmD, BCPS
- Lara Kyhl, ARNP
- Kelsey Masters, ARNP
- Rachel Vaughn, ARNP
- Megan Hoskins, RN, Infection Preventionist
- Kelly Hilsenbeck, MSN, RN, CPHQ
- Bailey Krull, BSN, RN
- Ashlyn Rottink, BSN, RN
- Tammy Busch, MT (ASCP)

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## Antibiotic Stewardship Program

- Daily Rounding with Hospitalist
  - Pharmacists complete daily Clinical Pharmacy Notes
  - Antibiotic Timeout
  - Intravenous (IV) to oral (PO) Conversion
- Completed Projects
  - C. Difficile Testing and Treatment Guideline
  - Cholecystitis Order Set
  - Preop Order Sets (appropriate antibiotic selections)
  - Methicillin-resistant Staphylococcus aureus (MRSA) Postop Infection Prevention
  - Community Acquired Pneumonia (CAP) Order Set
- In Progress
  - Sepsis Treatment Guideline and Order Set
  - Central Line Associated Infection Treatment Guideline
  - Blood Stream Infection Treatment Guideline

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## Observations

- Identified Pneumonia order set was not consistent with current treatment guidelines (late 2023)
- Guidelines had been revised prior to pandemic and our order set had not been revised
- No longer using health-care associated pneumonia (HCAP) terminology
- Needed influenza treatment options
- High usage of cefepime (elderly population in congregate living settings)

## Cefepime Exposure Risks

- Cefepime exposure increases colonization with MRSA and *Pseudomonas aeruginosa*

Source: Ginn AN, Wiklendt AM, Gidding HF, George N, O'Driscoll JS, Partridge SR, O'Toole BI, Perri RA, Faoagali J, Gallagher JE, Lipman J, Iredell JR (2012) The ecology of antibiotic use in the ICU: homogeneous prescribing of cefepime but not Tazocin selects for antibiotic resistant infection. PLoS One 7(6):e38719

## Cefepime Exposure Risks

- Higher Cefepime use correlates with higher resistant *Pseudomonas aeruginosa* healthcare-associated infection rates

Source: Zorana M. Djordjevic, Marko M. Folic, Slobodan M. Jankovic, Correlation between cefepime utilization and *Pseudomonas aeruginosa* resistance rates to  $\beta$ -lactams and carbapenems in patients with healthcare-associated infections, *Journal of Global Antimicrobial Resistance*, Volume 13,2018,Pages 60-64,

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## Goals

- Follow treatment guidelines
- Decrease cefepime usage
  - Patient population served promoted use based on previous guidelines (HCAP)

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## Project Overview

- Review of guidelines by Antibiotic Stewardship Committee
- Revision of order set (HCAP specifically)
- Addition of appropriate influenza treatment
- Order Set Approval by Antibiotic Stewardship Committee, Pharmacy and Therapeutics Committee, Medical Executive Committee, and Board of Trustees

## Current Guideline

### AMERICAN THORACIC SOCIETY DOCUMENTS

#### **Diagnosis and Treatment of Adults with Community-acquired Pneumonia**

An Official Clinical Practice Guideline of the American Thoracic Society and Infectious Diseases Society of America

Joshua P. Metlay\*, Grant W. Waterer\*, Ann C. Long, Antonio Anzueto, Jan Brozek, Kristina Crothers, Laura A. Cooley, Nathan C. Dean, Michael J. Fine, Scott A. Flanders, Marie R. Griffin, Mark L. Metersky, Daniel M. Musher, Marcos I. Restrepo, and Cynthia G. Whitney; on behalf of the American Thoracic Society and Infectious Diseases Society of America

THIS OFFICIAL CLINICAL PRACTICE GUIDELINE WAS APPROVED BY THE AMERICAN THORACIC SOCIETY MAY 2019 AND THE INFECTIOUS DISEASES SOCIETY OF AMERICA AUGUST 2019

# Interventions

- Revision of Pneumonia Order Set (Adults)
- Education to Providers/Pharmacists
  - Email
  - Guidance in order set
  - Feedback to Providers (Rounding with Hospitalist)

# Revised Order Set

<b>ANTIBIOTICS</b>	<p><b>First line therapy:</b></p> <p><input type="checkbox"/> Azithromycin (Zithromax) 500 mg IV q 24 h  <b>AND</b>                  Ceftriaxone (Rocephin) 2 gm IV every 24 h (less than or equal to 65 years)                  Ceftriaxone (Rocephin) 1 gm IV every 24 h (more than 65 years)</p> <p><b>If patient has allergy to cephalosporin or anaphylactic reaction to penicillin (some of these patients may safely receive a cephalosporin- consult pharmacy with questions):</b></p> <p><input type="checkbox"/> Levofloxacin (Levaquin) 750 mg IV daily x 5 days                  (decrease to 750 mg IV every 48 h if CrCl less than 50 ml/min)</p> <p><b>If patient has strong risk factors for Pseudomonas, replace ceftriaxone with cefepime. Strong risk factors include: Gram-negative bacilli seen on good-quality sputum Gram stain, known colonization or prior infection with Pseudomonas, receipt of IV antibiotics during hospitalization in the prior 3 months. Other factors that raise suspicion for Pseudomonas include: structural lung abnormalities, and frequent COPD exacerbations requiring corticosteroid or antibiotic use.</b></p> <p><input type="checkbox"/> Cefepime 2 grams IV every 8 hours (decrease to 2 grams IV every 12 hours for crcl less than 50 ml/min)</p> <p><b>Add MRSA coverage for patients with strong risk factors for MRSA. Strong risk factors that indicate need for empiric therapy include: known colonization or prior infection with MRSA or Gram-positive cocci in clusters on good-quality sputum Gram stain. Other factors that raise suspicion for MRSA include: receipt of IV antibiotics during hospitalization in the prior 3 months, recent influenza-like illness, necrotizing or cavity pneumonia, presence of empyema, and risk factors for MRSA colonization (ESRD, men who have sex with men, living in crowded conditions, incarceration, injection drug use, contact sports participation).</b></p> <p><input type="checkbox"/> Vancomycin 15 mg/kg IV once then pharmacy to dose                  - Linezolid 600 mg IV every 12 hours (if allergic: to vancomycin)</p>
	<p><b>For patients testing positive for influenza independent of duration of illness before diagnosis, add oseltamivir:</b></p> <p><input type="checkbox"/> Oseltamivir 75 mg po every 12 hours x 5 days (decrease dose to 75 mg po x 1 then 30 mg po every 12 hours x 5 days for crcl less than 60 ml/min)</p>

## Challenges

- “Appropriateness” of treatment can be a sticky subject
- Initiating appropriate therapy in ED (limited use of order sets)
- Compliance with use of the order set
- Old habits and reasoning
- Limited Staffing and Time

## Outcomes

- Patients treated with cefepime for CAP:
  - CY23: 26/105 (25%)
  - CY24 (January-May): 6/58 (10%)

## Summary

- Waverly Health Center was able to successfully decrease cefepime utilization for the treatment of CAP

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## Questions



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## Upcoming Events

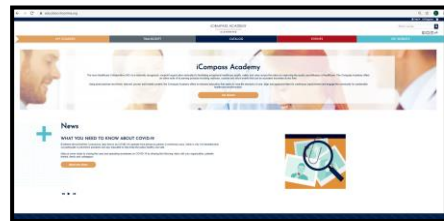
- + **Screening for SDOH: Iowa Flex Best Practice Applications**
  - August 21, 2024, from 1:00-2:00PM (CT)
  - Free CEs available
  - [Registration](#) (Link)
  
- + **SIDP QI Projects Overview: Session 4**
  - August 27, 2024, from 1:00-2:00PM (CT)
  - Free [Registration](#) (Link)



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## iCompass Academy

- + This webinar will be recorded and be available on iCompass Academy
- + What is iCompass Academy?
  - iCompass Academy offers an online suite of eLearning products including webinars, courses and virtual events that can be accessed anywhere at any time.
- + Learn more about the education platform by visiting <https://education.ihconline.org/> (Link)
- + To create an account, visit: <https://education.ihconline.org/user/register?destination=homepage> (Link)



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## iCompass

- + We encourage you all to also join us on IHC's communicative platform, iCompass.
- + iCompass is an online IHC forum designed to share information throughout the entire industry and bring people together to drive sustainable healthcare transformation.
- + Create an account today:  
<https://www.ihconline.org/icompass/signup> (Link)



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    - Follow us: [@IowaHealthcareCollaborative](#) (Link)
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## Thank You for Participating

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