

Antimicrobial Stewardship in a 173-Bed Community Hospital: Implementing Practice Guidelines for Uncomplicated Urinary Tract Infections in Nonpregnant Females

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Background

Antimicrobial Stewardship (ASP) is receiving national attention through the Centers for Disease Control and Prevention (CDC) Healthcare Infection Control Practices Advisory Committee, Infectious Disease Society of America/Society of Healthcare Epidemiology of America (IDSA/SHEA) and American Society of Health-System Pharmacists (ASHP). Core strategies for ASP implementation have been identified through the IDSA/SHEA. These include: prospective interventions through audit and feedback, formulary restrictions/prior authorization, education, evidence-based guidelines, antimicrobial cycling, antimicrobial order forms, combination therapy, de-escalation, dose optimization, parenteral to oral conversions.

In 2008, the American College of Obstetricians and Gynecologists (ACOG) Practice Bulletin published guidelines for the treatment of uncomplicated urinary tract infections (UTIs) in nonpregnant women. Overall, the intent of the guideline was to aid practitioners in making appropriate decisions to maximize clinical eradication rates while minimizing overall patient exposure to the treatment. Specific recommendations include: minimize the use of β -lactams (as proven to be less effective than other agents), minimize duration of treatment (3 days for quinolones, 3 days for sulfonamides, 7 days for macrodantin, or 1 dose of Fosfomycin) and keep dosages order appropriate for disease state.

In 2010, Lawrence Memorial Hospital (LMH), a 173-bed community hospital, began an antimicrobial stewardship program by assessing current prescribing patterns of uncomplicated UTIs in non-pregnant females compared to the ACOG guidelines through a retrospective analysis. This poster will detail the process and results on this program.

Purpose

Primary

Evaluate the current prescribing practices at LMH within uncomplicated UTIs and compare the practices to those outlined in the ACOG Guidelines

Secondary

Implement an antibiotic stewardship program (ASP) through medical staff education and standardized order sets associated with the ACOG practice guideline within the electronic medical record (EMR)

- Maximize therapeutic options and minimize toxicities
- Determine the effectiveness of the proposed ASP within the practice model

Methods

Inclusion Criteria

- ICD-9 Code 599 (urinary tract infection site not specified (NOS)), 595 (acute cystitis)
- Greater than or equal to 18 years old
- Female

Exclusion Criteria

- Less than 18 years old
- Male
- Pregnant
- Diagnosis of diabetes mellitus
- Immunocompromised
- Spinal cord injury
- Indwelling catheter
- Abnormal anatomy

Phase 1 Data

Identify patient population through ICD-9 coding

Perform retrospective audit via the EMR applying the inclusion and exclusion criteria

Data Collection

evaluating prescribing patterns; assessing antimicrobial use

Demographics
age, ECrCl, hospital unit, prescribing physician

Microorganism
urine culture and organism; resistance data



Antimicrobial

selection, dosage, frequency, duration

Analysis

Assess adherence to the ACOG Guidelines using the following specified criteria with a Yes/No response

- Antibiotic prescribed matches the ACOG chart provided Y/N
- Duration of therapy matches the ACOG chart provided Y/N
- Dose of the antibiotic matches the ACOG chart provided Y/N
- Patient is allergic to the medication prescribed Y/N
- A β -lactam antibiotic was used for the treatment Y/N

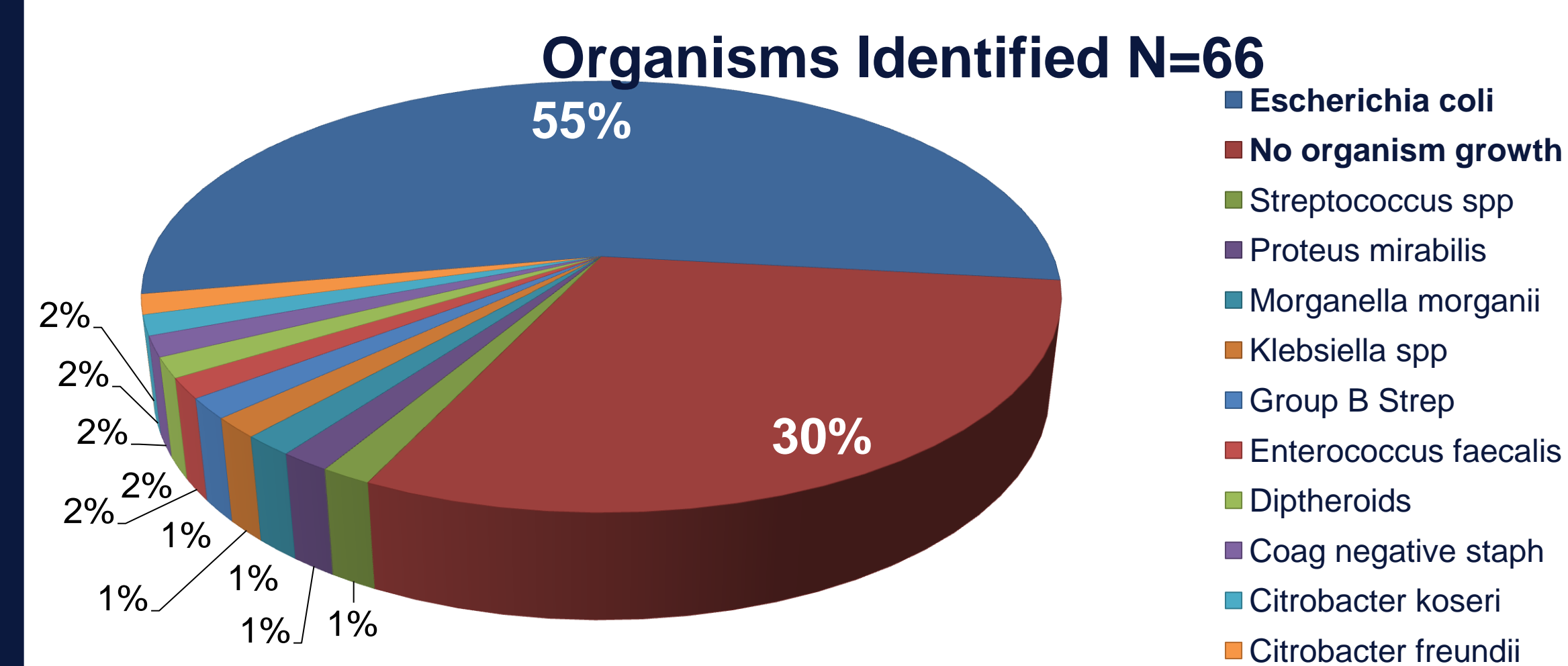
Results

Demographics

- Average Age: 57.9 (\pm 27.5, 19-98)
- ECrCl (N=70)
 - Less than 30: 4.9%
 - 31-50: 27.7%
 - Greater than 50: 67.2%
 - Not reported: 12.6%
- Hospital Unit (N=70)
 - Inpatient: 34.3%
 - Acute Rehab/Skilled Nursing: 48.6%
 - Emergency Department: 17.1%

Organisms

- Urinalysis performed in 95.7% of patients

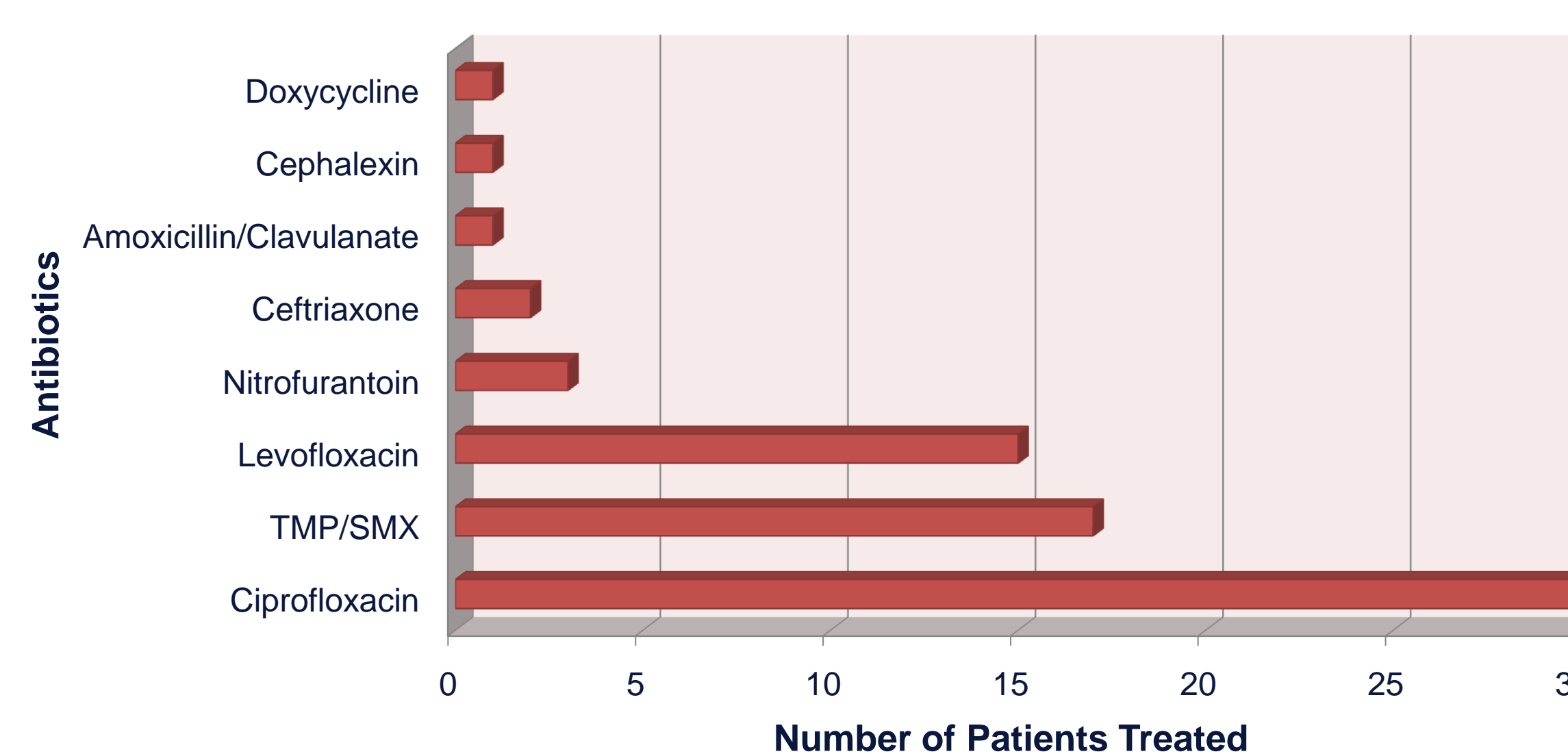


- Resistance (Includes intermediate isolates, excludes isolates with no growth) N=46

- Antibiotic within the ACOG Guideline: 17.4%
- Antibiotic Prescribed: 4.3%

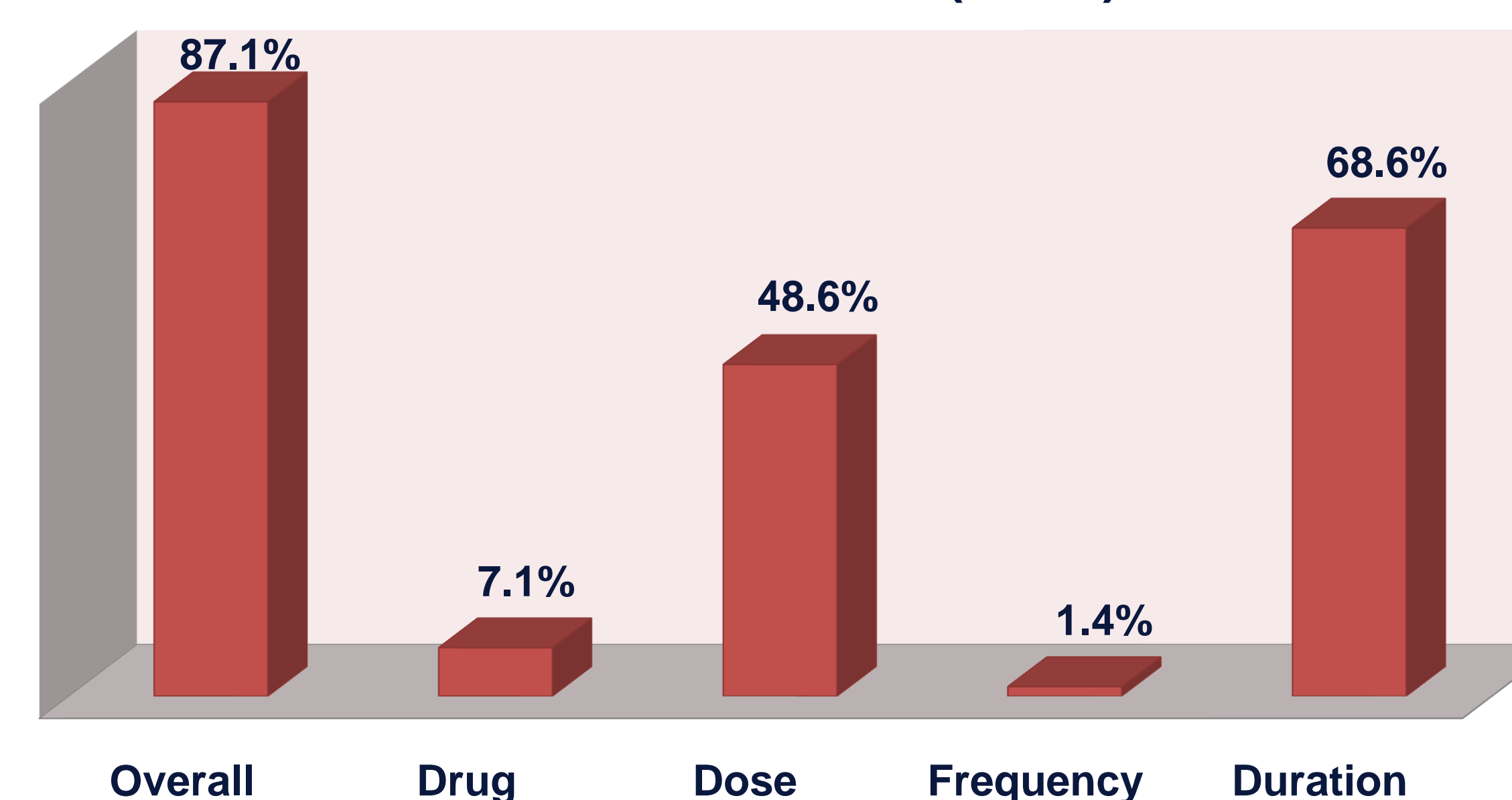
Antimicrobial Therapy

Antibiotics Used for the Treatment of UTIs



Analysis

Percentage of Orders Falling Outside of the ACOG Guideline (N=70)



Conclusions

- The majority of orders reviewed did not comply with the ACOG guidelines (87.1%) with a prevalence being due to higher doses and longer durations of therapy
- The most common antibiotics chosen were those recommended for use through the ACOG guidelines, with the majority being Ciprofloxacin and TMP/SMX
- Within the orders reviewed most patients developed a UTI as the result of *Escherichia coli*; however, no bacterial growth was the second most common finding revealing that frequently high doses for prolonged durations are not necessary

Future Direction

Phase 2 Data

- Implement ASP
 - Medical staff education
 - One-on-One discussions
 - Pocket cards: ACOG guidelines with a urinary isolate antibiogram
 - Provide information regarding standardized order sets
- Activate the standardized order sets within the EMR
- Evaluate prescribing patterns post ASP implementation for trends and adherence to the ACOG Guidelines
- Include the avoidance of antibiotics with greater than 15-20% resistance within the standard for evaluation

Application

- Determine how the ASP program outlined influenced prescribing practices
- Evaluate the implications of applying the ASP program to other aspects of the practice model

Limitations

- Retrospective analysis
- No assessment of prospective recommendations
- Challenges determined through chart review
 - Use of ICD-9 coding for inclusion criteria
 - Multiple clinicians collecting data
- Anticipation of challenges involving active education for the entire medical staff

Disclosure

Authors of this presentation have the following to disclose concerning possible financial or personal relationships with commercial entities that may have a direct or indirect interest in the subject matter of this presentation:

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