



A Retrospective Review of Antibiotic Appropriateness for Urinary Tract Infections in Ambulatory Patients

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BACKGROUND

- Multi-drug resistant organisms are a serious threat to public health
- Over half of all antibiotic expenditures in the US are in outpatient settings¹
- Half of antibiotic prescriptions have no indication or a diagnosis that does not warrant antibiotics²
- Up to two thirds of antibiotic prescriptions are inappropriate in indication, agent, dose, and/or duration^{3,4}
- Barriers to outpatient antibiotic stewardship include patient expectations, clinician fear of harms from under-treatment, and lack of resources or personnel for education
- Successful interventions to improve antibiotic prescribing include:
 - Clinician- and patient-directed educational materials
 - Systems that enable patient and provider joint decisions
 - Peer comparison of prescribing habits

REGULATORY REQUIREMENTS

- The Joint Commission: accredited ambulatory health care organizations must implement antibiotic stewardship as of January 1st, 2020⁵
- Evidence-based guidance on strategies for outpatient antimicrobial stewardship is lacking

Standard MM.09.01.03: Antimicrobial stewardship is identified as an organizational priority ⁵	CDC Core Element ⁶
EP 1: The organization identifies an individual(s) responsible for developing, implementing, and monitoring activities to promote appropriate antimicrobial medication prescribing practices.	Commitment
EP 2: The organization sets at least one annual antimicrobial stewardship goal.	Action
EP 3: The organization uses evidence-based practice guidelines related to its annual antimicrobial stewardship goal(s).	Action
EP 4: The organization provides all clinical staff and licensed independent practitioners with educational resources related to its antimicrobial stewardship goal(s) and strategies that promote appropriate antimicrobial medication prescribing practices.	Education & Expertise
EP 5: The organization collects, analyzes, and reports data pertaining to the antimicrobial stewardship goal(s) to organizational leadership and prescribers.	Tracking & Reporting

REFERENCES

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OBJECTIVES

- To evaluate the baseline outpatient antibiotic prescribing practices for acute uncomplicated cystitis at ambulatory clinics within a large health system
- Primary Outcome:**
 - Proportion of patients treated for cystitis or UTI who were prescribed a fluoroquinolone (FQ)
- Secondary Outcomes:**
 - Demographics (age, sex), drug class prescribed, factors associated with FQ prescribing
 - Guideline concordance, prescription appropriateness, and repeat encounters within 30 days of index encounter

METHODS

- Retrospective cohort study
- Inclusion: Adults (≥18 years) prescribed any antibiotic at an ambulatory clinic encounter with a diagnosis of UTI (≥1 of the below ICD-10 codes)

Diagnosis	ICD-10 Codes	Diagnosis	ICD-10 Codes
Acute cystitis with/without hematuria	N30.00/N30.01	Cystitis unspecified with/without hematuria	N30.90/N30.91
Chronic cystitis with/without hematuria	N30.20/N30.21	Urinary tract infection, site not specified	N39.0
Other cystitis with/without hematuria	N30.80/N30.81	Cystitis with prostatitis	N41.3

- Time period: 3 years (10/01/2016-9/30/2019)
- Descriptive statistics and regression analysis for entire cohort
- Individual chart review (n=100) for guideline concordance, prescription appropriateness, and repeat encounters within 30 days of index encounter

LIMITATIONS

- Emergency department and urgent care visits excluded
- Accuracy of diagnosis codes unclear (options differ from terms in guidelines and codes are assigned to an encounter, not necessarily a prescription)

CONCLUSIONS

Fluoroquinolone use for cystitis and UTI has declined over time but still accounts for a large proportion of outpatient prescribing and is often not appropriate.

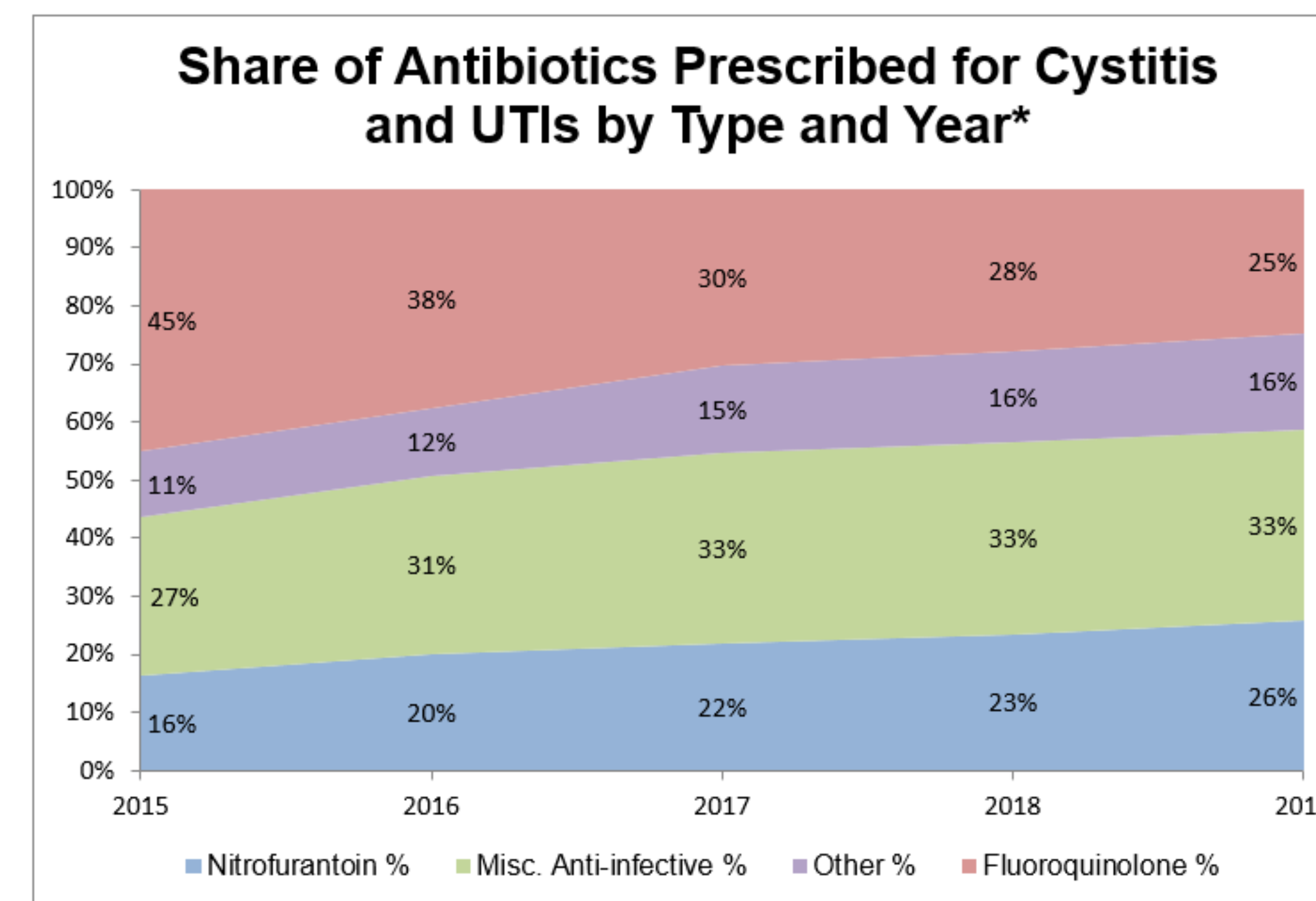
An intervention involving education, guidance at the time of prescribing, and analysis and reporting will meet Joint Commission standards and may impact outpatient fluoroquinolone prescribing

Next steps:

- Present baseline data to stakeholders with evidence-based stewardship intervention options
- Pilot selected outpatient stewardship intervention and compare before- and after-data

RESULTS

Descriptor	N(%)
Encounters including ≥1 cystitis or UTI diagnosis in which an antibiotic was prescribed	30,814 (100%)
Female	26,123 (85.3%)
Age in years (mean ± standard deviation)	55.8 ± 20.7
Treated with antibiotics for cystitis or UTI and prescribed a FQ	9,051 (29.4%)
Treated with antibiotics for <u>cystitis</u> and prescribed a FQ	5,563 (29.1%)
Treated with antibiotics for <u>UTI</u> and prescribed a FQ	3,488 (29.8%)
Treated with antibiotics for cystitis or UTI and prescribed nitrofurantoin	7,473 (24.3%)
Treated with antibiotics for cystitis or UTI and prescribed sulfamethoxazole-trimethoprim	10,585 (34.4%)
Treated with antibiotics for cystitis or UTI and prescribed a beta-lactam	5,819 (18.8%)
Factors associated with prescribing of FQ for UTI: <ul style="list-style-type: none"> Male sex Age 55-85 years Diagnosis of cystitis with hematuria Allergy to a non-FQ antibiotic Specific provider or clinic 	95% increase 20% increase 12% increase 68% increase Variable effect
Factors not associated with prescribing of FQ for UTI: <ul style="list-style-type: none"> Presence of 3+ episodes within the previous year Vital sign abnormalities at the office visit 	No effect No effect
Guideline concordance (in 50-patient subset) in FQ recipients	40%
Guideline concordance (in 41-patient subset) in nitrofurantoin or SMX-TMP recipients	80%



*2015 = Oct-Dec & 2019 = Jan-Sep