

Evaluation of Antimicrobial Stewardship Interventions in Primary Care Clinics

Poster #1751

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BACKGROUND

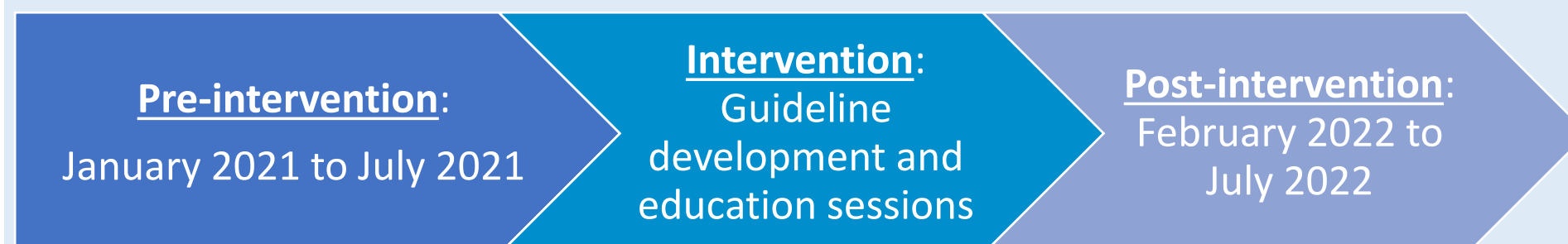
- Inappropriate antibiotic prescribing is a modifiable risk factor for antimicrobial resistance
- Most of the human antibiotic expenditures in the United States are related to the outpatient setting
- The Centers for Disease Control and Prevention (CDC) reported that 50% of all outpatient antibiotic prescriptions were inappropriate

OBJECTIVE

To evaluate the effect of antimicrobial stewardship interventions on the rate of inappropriate antibiotic prescribing in adult primary care clinics

METHODS

- Study Design:** Pre-post study evaluating antibiotic prescriptions from three primary care clinics.



Inclusion	Exclusion
<ul style="list-style-type: none"> Age ≥18 years Clinical suspicion for active infection Documented visit at the primary care clinics Prescription for oral antibiotics 	<ul style="list-style-type: none"> Pregnant patients Active <i>Helicobacter pylori</i> infection History of MDRO positive cultures IV antibiotics administered >24 hours within the past 90 days History of hospital admission within the prior 30 days History of chronic lung disease or hemodialysis Nursing homes/rehabilitation facilities residents Antibiotic prescription written for an orthopedic infection, urologic pre-procedure, or dental pre-procedure

MDRO = multi-drug resistant organisms

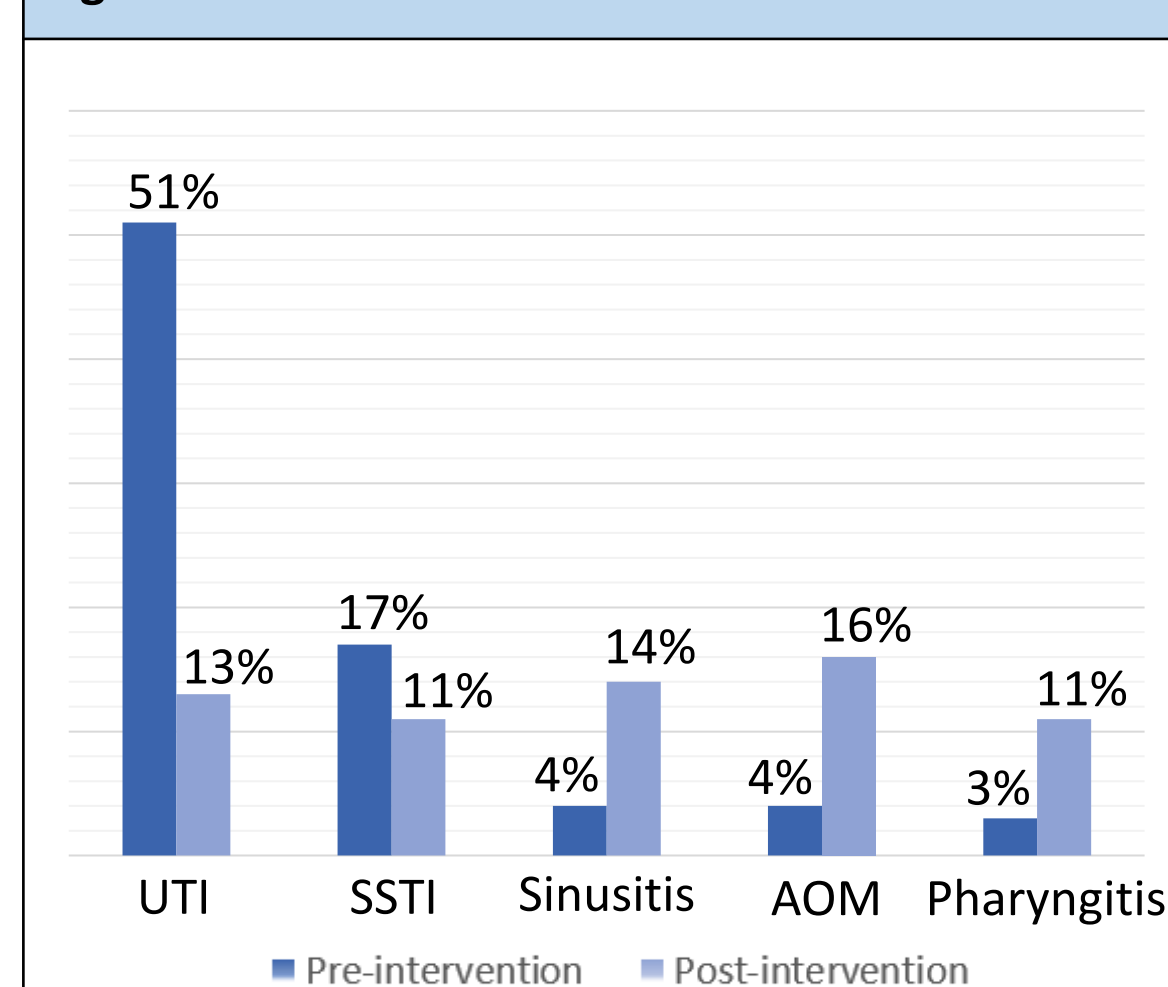
- Primary Endpoint:** The rate of inappropriate antibiotic prescribing
- Secondary Endpoints:** The rate of unnecessary antibiotics, inappropriate antibiotic selection, inappropriate dose selection, inappropriate duration selection
- Statistical Analysis:** Chi-square test

335 patients were screened, and 221 patients were included

Table 1. Baseline Characteristics

Characteristic	Pre-N=134	Post-N=88
Age, years, median (IQR)	57.5 (44-69)	52 (30-66)
Female sex, n (%)	102 (76)	61 (70)

Figure 1. Antibiotic Indications



Indications <10% are not listed in the chart above

Antibiotics, n (%)	Pre-N=134	Post-N=88
Beta lactam	45 (34)	58 (67)
Nitrofurantoin	32 (24)	1 (2)
TMP/SMX	24 (18)	6 (7)
Azithromycin	18 (13)	13 (15)
Fluoroquinolone	14 (10)	9 (10)
Tetracycline	1 (1)	1 (1)

IQR = Interquartile range, UTI = urinary tract infection; SSTI = skin and soft tissue infection; AOM = acute otitis media; TMP/SMX = Trimethoprim/Sulfamethoxazole

RESULTS

Figure 2. Rate of inappropriate antibiotic prescribing

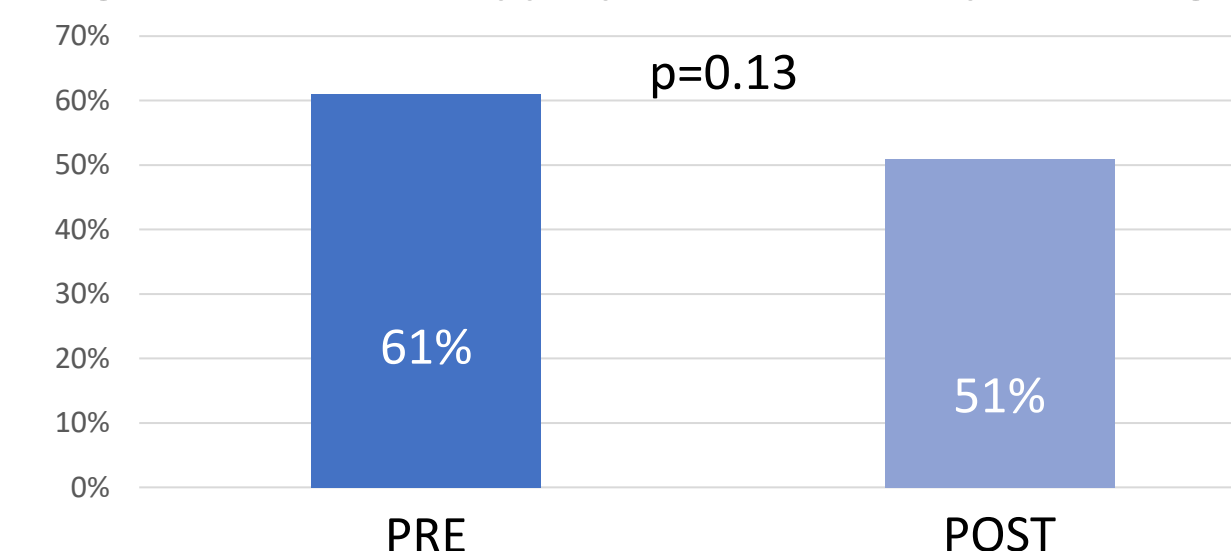


Figure 3. Rate of inappropriate duration selection

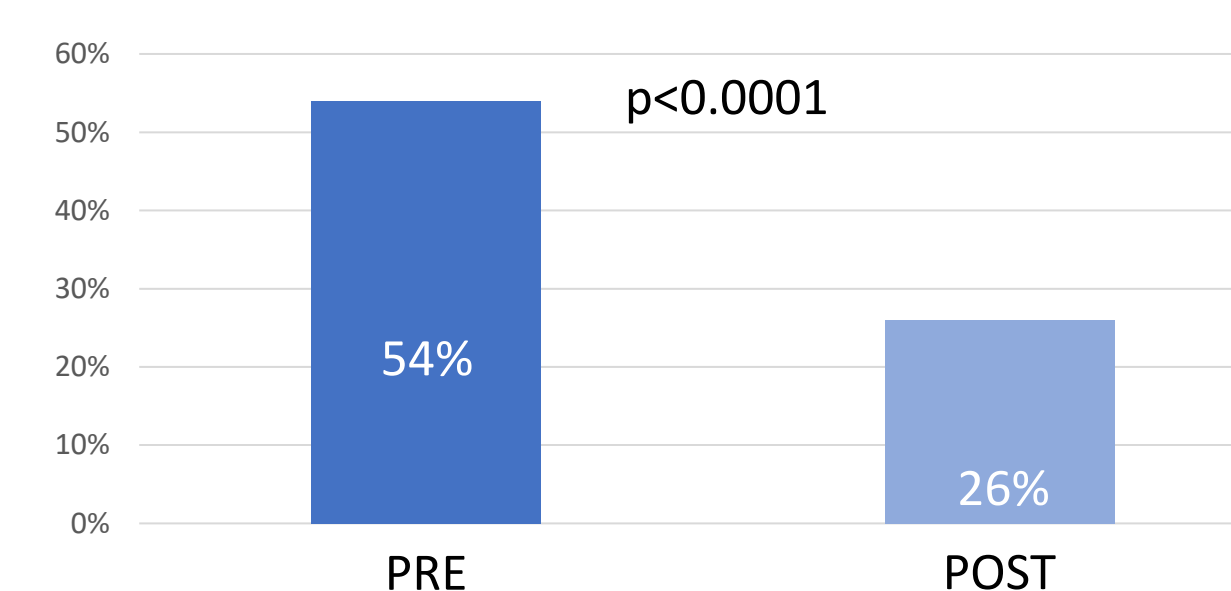


Table 2. Results

Endpoint	N=134 (%)	N=88 (%)	P-value
Rate of inappropriate antibiotic prescribing ^a	82 (61)	47 (51)	0.13
Rate of unnecessary antibiotics ^b	30 (22)	14 (16)	0.22
Rate of inappropriate antibiotic selection	43 (32)	26 (29)	0.38
Rate of inappropriate dose selection	42 (31)	35 (39)	0.41
Rate of inappropriate duration selection	72 (54)	23 (26)	<0.0001

^a Prescriptions were inappropriate if the antibiotic was not indicated or the inappropriate medication, dose, or duration was selected

^b Prescriptions were unnecessary if the antibiotic was not indicated

DISCUSSION

- AOM and sinusitis were the predominant indications in the post-intervention group compared to the UTI predominance in the pre-intervention group
- Enrollment of patients through antibiotic prescriptions may exaggerate the inappropriate prescribing rate
- Enrollment and baseline characteristics differed between intervention group which may skew the true impact of the intervention
- It is unclear why the rate of inappropriate dose selection increased after the intervention

CONCLUSION

- Guidelines and provider education numerically decreased rates of inappropriate antibiotic prescribing and significantly decreased inappropriate duration selection.
- The research team plans to continue education to sustain the change in prescribing.

REFERENCES

- Mortrude GC, Rehs MT, Sherman KA, Gundacker ND, Dysart CE. Implementation of Veterans Affairs Primary Care Antimicrobial Stewardship Interventions For Asymptomatic Bacteriuria And Acute Respiratory Infections. *Open Forum Infect Dis*. 2021 Dec 11;8(12):ofab449.
- Sanchez, G.V., Fleming-Dutra, K.E., Roberts, R.M., Hicks, L.A. Core Elements of Outpatient Antibiotic Stewardship. *MMWR Recomm Rep* 2016;65(No. RR-6):1-12.

DISCLOSURES

The authors of this poster have no possible financial disclosures or personal relationships with commercial entities that may have a direct or indirect interest in the subject matter of this presentation.



Link to guidelines used in the intervention

