



Impact of Pharmacist Driven Outpatient Fluoroquinolone Stewardship Initiative in Community Based Setting

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REVISED ABSTRACT

Purpose: Antimicrobial stewardship initiatives and efforts have historically had a greater emphasis in the inpatient hospital setting. There is a need for outpatient stewardship, and additionally, accreditation standards are starting to require antimicrobial stewardship efforts in the ambulatory care setting. Fluoroquinolones are a target for antimicrobial stewardship based on their broad-spectrum activity, pharmacokinetics/pharmacodynamics, safety profile, downstream resistance, and risk of super infections. The objective of this study was to compare outpatient fluoroquinolone prescribing rates before and after pharmacist led initiative.

Methods: This was a prospective, quality improvement initiative between October 1, 2019 to June 1, 2020 at a community-based physician network across Indiana. The pharmacist initiative incorporated a live, educational presentation with intervention 1 and an informational letter to healthcare providers across the outpatient physician network with intervention 2. Data was collected from a computer-generated, prescription report. The primary outcome was fluoroquinolone prescribing rates at Central Indiana (CI) sites before and after pharmacist led interventions. Rate of fluoroquinolone prescribing was defined as total number of fluoroquinolone prescriptions per month. The secondary outcome included percentage of fluoroquinolone use at CI sites. Percentage of fluoroquinolone use was defined as monthly number of fluoroquinolones prescriptions compared to monthly number of all oral antibiotic prescriptions.

Results: There was a 29.8% decrease (382 vs 268 prescriptions) in outpatient fluoroquinolone prescriptions at CI sites after intervention 1 compared to same month of previous year. There was a 43.7% decrease (428 vs 241 prescriptions) in outpatient fluoroquinolone prescriptions at CI sites after intervention 2. There was an overall 49% decrease (4.9% vs 2.5%) in percentage of fluoroquinolone use compared to all oral antibiotics at CI sites after intervention 2 compared to same month of previous year.

Conclusion: These findings suggest the pharmacist led outpatient antimicrobial stewardship initiative successfully decreased fluoroquinolone prescribing rates across the network.

BACKGROUND

- Antibiotic stewardship is the effort to measure antibiotic prescribing, to improve antibiotic prescribing by clinicians and use by patients so that antibiotics are only prescribed and used when needed, to minimize misdiagnoses or delayed diagnoses leading to underuse of antibiotics, and to ensure that the right drug, dose, and duration are selected when an antibiotic is needed.¹
- Franciscan Health Indianapolis has had an established antimicrobial stewardship program for over 17 years, which includes a multi-disciplinary team of pharmacists, physicians, microbiologists, and infection preventionists.
 - Antimicrobial stewardship efforts have historically had a greater emphasis in the inpatient hospital setting, and there is an unmet need in the outpatient setting.
- Additionally, accreditation standards are starting to require antimicrobial stewardship efforts in the ambulatory setting.²
- Fluoroquinolones are a target for antimicrobial stewardship based on their broad-spectrum activity, pharmacokinetics/pharmacodynamics, safety profile with multiple boxed warning and precautions, downstream resistance, and risk of super infections.³

OBJECTIVES

- To compare outpatient fluoroquinolone prescribing rates before and after pharmacist led initiative
- Primary outcome
 - Fluoroquinolone prescribing rates at central Indiana (CI) Franciscan Physician Network (FPN) sites
 - Total number of fluoroquinolone prescriptions/month
- Secondary outcomes
 - Percentage of fluoroquinolone use at CI FPN sites
 - Total number of fluoroquinolone prescriptions/total number of antibiotic prescriptions*100
 - Fluoroquinolone prescribing rates for urinary tract infections at CI FPN sites
 - Fluoroquinolone prescribing rates across all FPN sites
 - Percentage of fluoroquinolone use across all FPN sites

METHODS

- Design
 - Prospective, quality improvement initiative between October 2019 to June 2020
- Targeted Population
 - Franciscan Physician Network (FPN)
 - Community based providers at over 260 locations in Indiana and Illinois
 - CI FPN sites
 - Counties in Marion, Boone, Hamilton, Hancock, Shelby, Johnson, and Hendricks
- Pharmacist Led Initiative
 - Identified current baseline outpatient fluoroquinolone prescribing rates across the network
 - Established outpatient fluoroquinolone prescribing as area of opportunity for antimicrobial stewardship
 - Created multi-faceted approach for initiative
 - Phase 1: In-person, Live Educational Presentation
 - CI FPN All Provider Meeting in November 2019
 - Highlights
 - Fluoroquinolone risks including safety, resistance, and super-infection
 - Treatment alternatives for UTI
 - Outpatient antibiogram
 - Phase 2: Informational Letter
 - Gathered support from Medical Director of Medication Safety and Clinical Director of Franciscan Express Care
 - Reinforced topics from educational presentation
 - Distributed to FPN providers in January 2020 via email and Microsoft Teams
- Data Collection for Outpatient Prescriptions
 - Computer Generated Report (EPIC)
 - Authorizing provider
 - Order date
 - Primary diagnosis
 - Order name
 - Dispensing pharmacy
 - Medication strength
 - Prescription sig
 - Department/location
 - Antibiotic duration of therapy

RESULTS

Figure 1: Monthly Number of Outpatient Fluoroquinolone Prescriptions

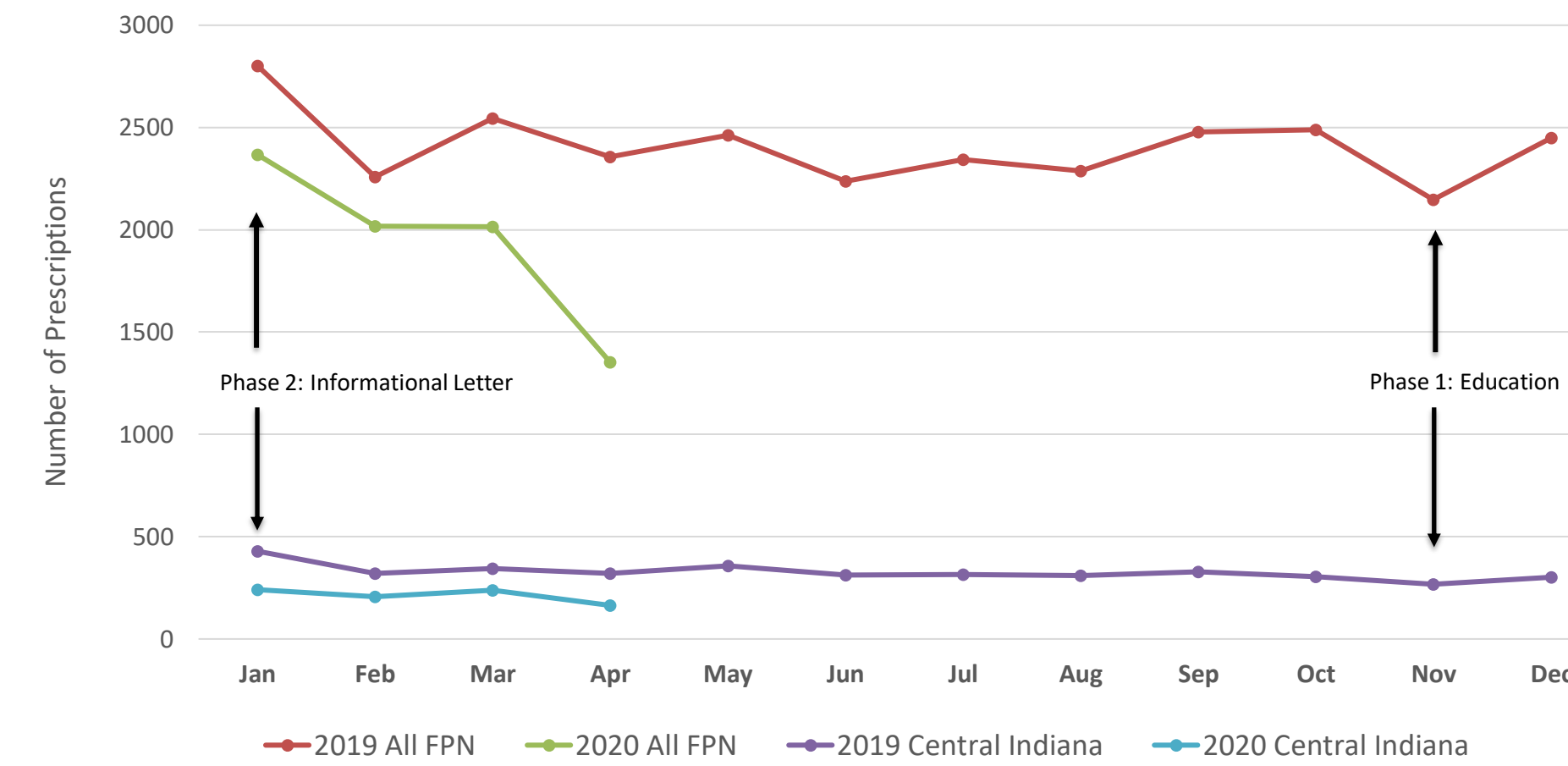


Figure 2: Percentage of Fluoroquinolone Use/Total Antibiotic Prescriptions

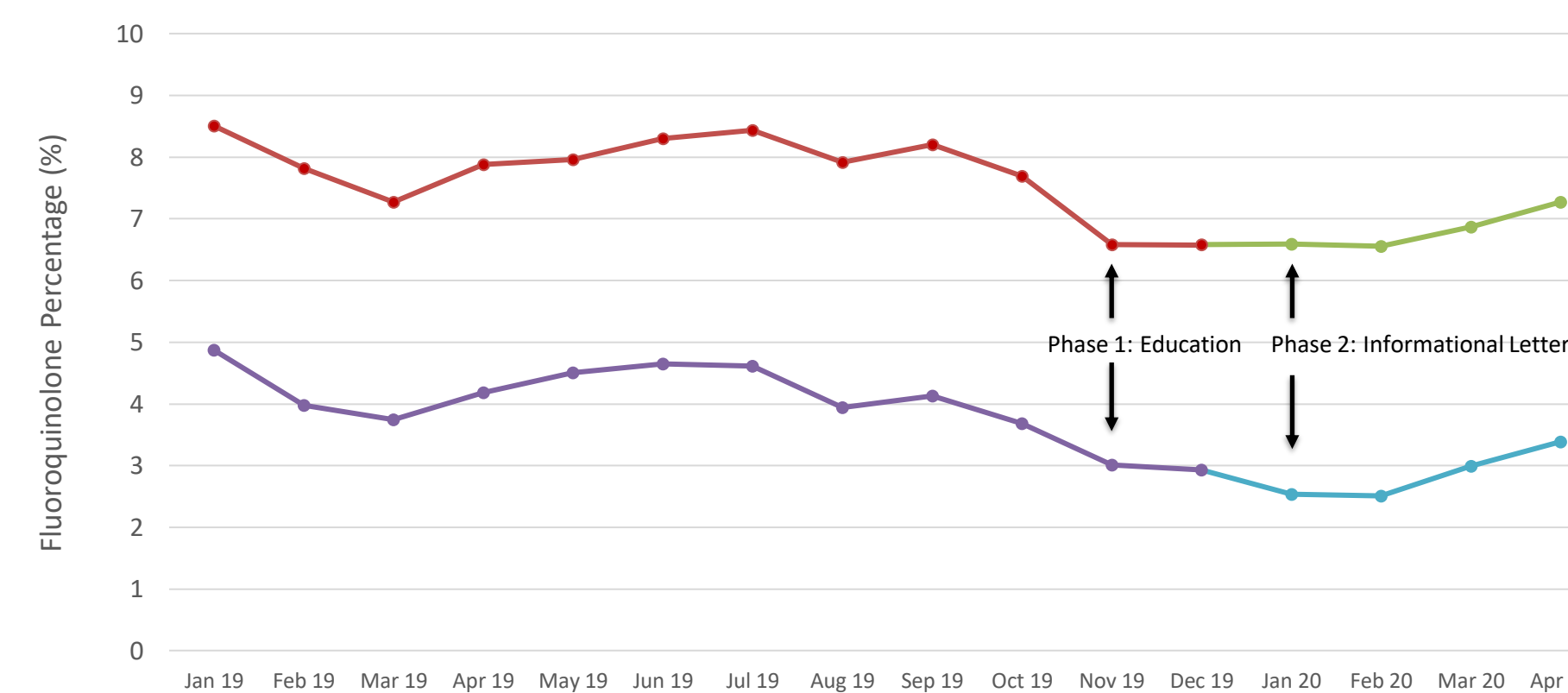


Figure 3: Phase 1 Outpatient Fluoroquinolone Prescriptions at CI Sites

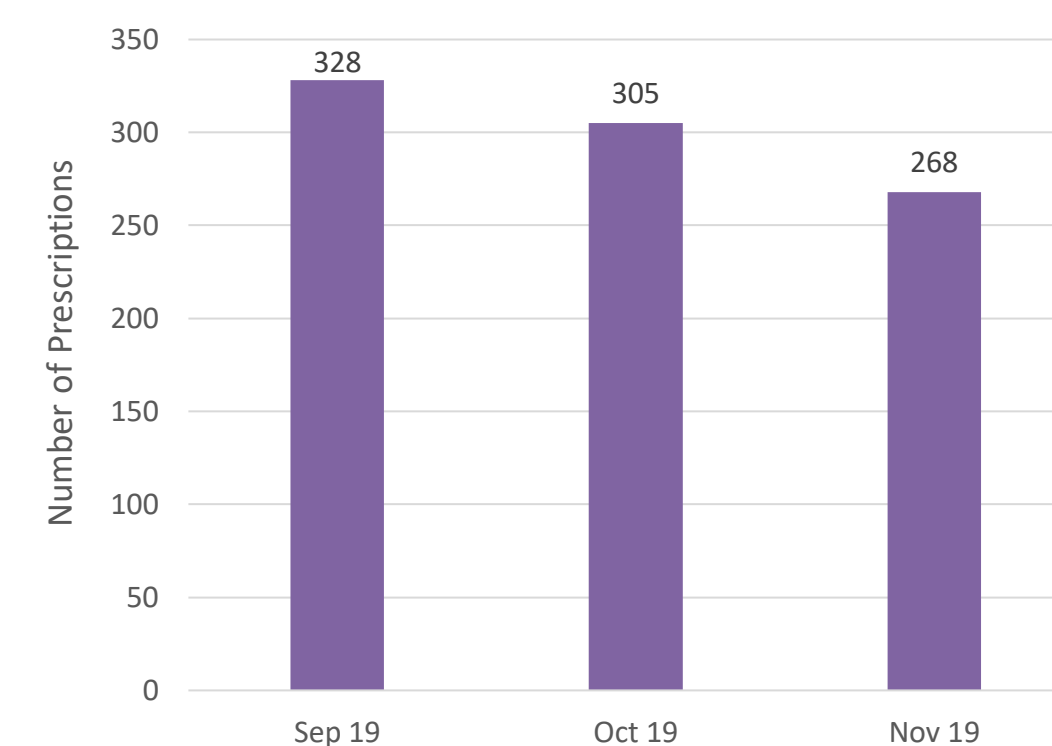
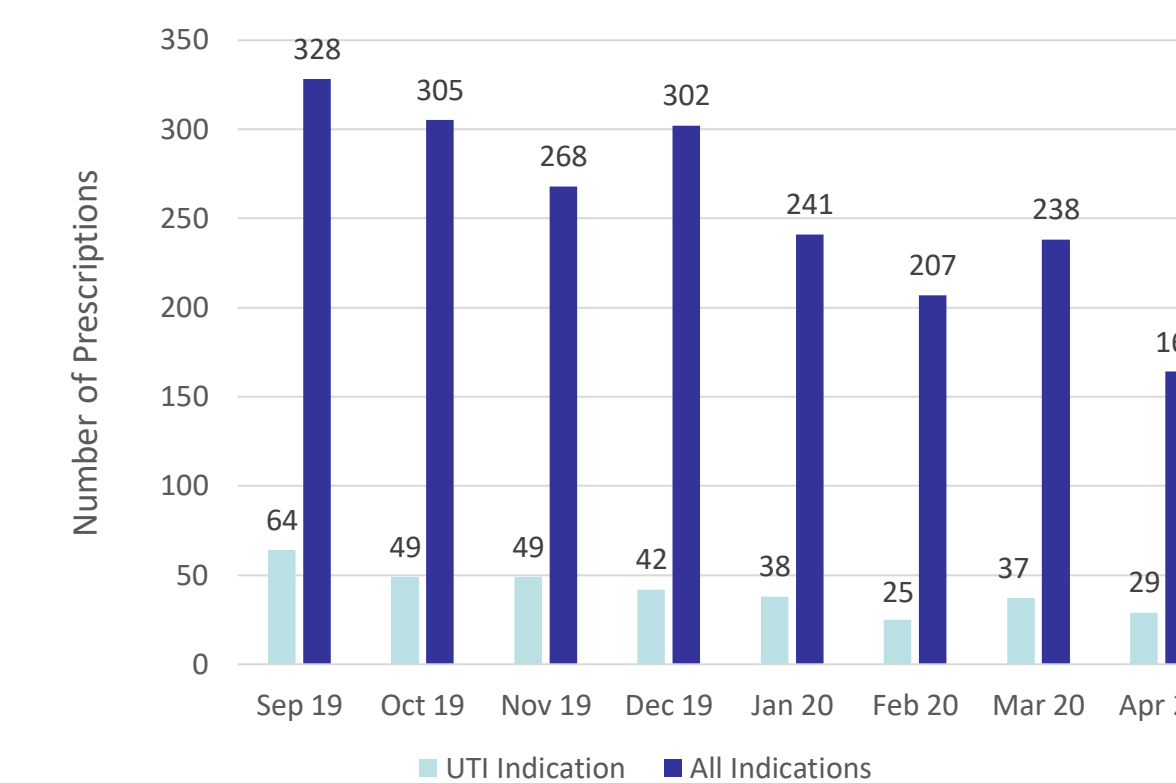


Figure 4: Outpatient Fluoroquinolone Prescriptions at CI Sites: UTI Indication vs. All Indications



RESULTS

Table 1: YTD Variance for Outpatient Fluoroquinolone Prescriptions at CI Sites

	2018	2019	2020	YTD Variance
Jan	499	428	241	-43.7%
Feb	384	319	207	-35.1%
Mar	403	345	238	-31%
Apr	393	320	164	-48.8%
May	373	357		-4.3%
Jun	370	313		-15.4%
Jul	394	315		-20%
Aug	382	309		-19.1%
Sep	356	328		-7.9%
Oct	421	305		-27.6%
Nov	382	268		-29.8%
Dec	373	302		-19%

DISCUSSION

- After both Phase 1 and 2, there was a reduction in the number of outpatient fluoroquinolone prescriptions at CI FPN sites and across all FPN sites.
- There was a 29.8% decrease (382 vs 268 prescriptions) in outpatient fluoroquinolone prescriptions at CI sites after Phase 1 compared to same month of previous year. There was a 43.7% decrease (428 vs 241 prescriptions) in outpatient fluoroquinolone prescriptions at CI sites after Phase 2.
- There was an overall 49% decrease in percentage of fluoroquinolone use compared to all oral antibiotics at CI sites after Phase 2 compared to same month of previous year.
- There was also an overall decreased trend in percentage of fluoroquinolone use among all antibiotics across all FPN sites.
- There was a decreased trend in the amount of fluoroquinolone prescriptions for UTI at CI FPN sites.
- There was a notable decrease in outpatient fluoroquinolone prescriptions in April 2020. A significant confounding factor may likely include COVID-19.

CONCLUSION

- These findings suggest the pharmacist led outpatient antimicrobial stewardship initiative successfully decreased fluoroquinolone prescribing rates across the network.
- A multi-faceted approach for outpatient antimicrobial stewardship is imperative to ensure sustainability.
- Future steps may include targeted audit and feedback at clinic sites, disease state education, and electronic computer system (EPIC) optimization.

DISCLOSURES

- The authors have the following disclosures:
 - SJ Norman, SJ Jones, CA Acklin: Nothing to disclose
 - SC Cheatham: Antimicrobial Resistance Solutions

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