

Results. The PCR group of 116 patients (patients) were matched to 232 patients in IAT group (Table 1). Positive results for influenza were reported in 37.9% of PCR vs. 18.1% of IAT groups ($P < 0.001$); TAT 0.95 (0.75–1.4) hours in PCR vs. 0.60 (0.40–0.85) hours in IAT group ($P < 0.001$). Oseltamivir was initiated in the ED in 21% of PCR vs. 11% of IAT group ($P < 0.001$). An additional 28% in PCR group received oseltamivir at ED discharge vs. 15% in IAT group ($P = 0.004$). Antibiotics were administered in the ED to 8% in PCR group vs. 15% in the IAT group. A positive influenza test was associated with less antibiotic use OR 0.454 (95% CI 0.213–0.967), while abnormal chest radiograph (CXR) and WBC was associated with increased antibiotic use OR 3.667 (95% CI 1.743–7.715). The 30-day revisit was 3.8% and 10.8% in the PCR vs. IAT groups, respectively ($P = 0.034$).

Conclusion. Replacing IAT with PCR testing increased diagnostic yield for influenza and receipt of oseltamivir and decreased antibiotic utilization in the ED. Independent predictors for antibiotic use were abnormal CXR and WBC, while positive influenza testing was protective.

Table 1: Characteristics of Study Population

Variables	PCR (n = 116)	Antigen (n = 232)	P-value
Age	59 (53–64)	58 (54–65)	0.522
Male sex	50 (43.9)	99 (42.9)	0.860
Symptom duration (days)	2 (1–4)	2 (1–4)	0.870
Charlson score	1 (0–2)	2 (0–4)	0.206
WBC	6.3 (5.2–8.6)	6.7 (5.1–8.8)	0.739
Normal CXR	81 (87.1)	164 (83.2)	0.398

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prospective audit and feedback program for patients with pneumonia in addition to an already robust pre-authorization program at an academic teaching hospital.

Methods. We analyzed the impact of a prospective audit and feedback initiative among inpatients with pneumonia treated with antimicrobials for at least 72 hours. The primary outcome was the percent of optimal antimicrobial days of therapy received based on hospital-approved pneumonia guidelines, compared pre- and postintervention. This outcome was defined as the number of optimal days of therapy compared with the total days of therapy over the entire study period from the hospital's perspective. Secondary outcomes included the incidence rate of optimal antimicrobial days of therapy on a patient-specific level, overall antimicrobial days of therapy, length of hospital stay, rates of *Clostridium difficile* infection (CDI), and in-hospital mortality.

Results. The study included 248 patients, 125 pre- and 123 postintervention. Forty interventions were made post-implementation, with duration (47.5%) and de-escalation (35%) recommendations most commonly suggested. 50.8% of patients were male, the median [interquartile range (IQR)] age was 71 (60–83) years old, 45.6% of patients had community-acquired pneumonia, and patients had a median (IQR) Elixhauser comorbidity score of 5 (3–6). The overall rate of guideline concordance was 65.8% pre- and 77.5% postintervention ($P = 0.041$). On an individual level, patients were 17% more likely to have optimal antimicrobials postintervention [Incidence rate ratio 1.17 (95% confidence interval 1.03–1.32, $P = 0.013$)]. Length of stay, days of therapy, CDI, and in-hospital mortality rates did not differ significantly between groups.

Conclusion. Initiating a prospective audit and feedback program in addition to pre-authorization led to a significant increase in concordance with hospital pneumonia guidelines, but no difference in secondary outcomes in our patient population.

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213. Multi-centered Evaluation of an Acute Respiratory Tract Infection Audit-Feedback Intervention: Impact on Antibiotic Prescribing Rates and Patient Outcomes

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Session: 51. Antimicrobial Stewardship: Interventions to Improve Outcomes
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Background. Audit-feedback of antibiotic prescribing rates for acute respiratory infections (ARIs) is a promising approach to reduce antibiotic use; however, the generalizability and sustainability are unknown. We describe an audit-feedback intervention and outcomes across multiple seasons in different clinic settings.

Methods. Two VA Medical Centers distributed audit-feedback reports targeting providers with frequent ARI visits in emergency department (ED) and primary care (PC) during 2015–2016 and 2016–2017. An academic detailing visit delivered by local peers accompanied the initial audit-feedback report. The intervention was expanded to ED and PC clinics ($n = 10$) in three other VA facilities in 2017–2018. Outcomes included rates of antibiotics prescribed, recurrent visits for ARIs within 30 days, and adverse events. We assessed intervention sustainability in initiating VAs, and intervention generalizability in expansion VAs. Mixed-effect logistic regression models were used to assess intervention effect on antibiotic prescribing and outcomes.

Results. Antibiotic prescribing for uncomplicated ARI visits ($n = 7,814$) declined from 53.8% to 27.9% post intervention. The intervention was associated with a reduction in odds of prescribing antibiotics in initiating facilities (odds ratio [OR] 0.6 (95% CI 0.3, 0.9), which declined further with an annual OR 0.8 [95% CI 0.7, 1.1] per year. Preliminary 6-month postintervention results were available from pilot clinics ($n = 3$) within two of the expansion VAs, which indicated similar effectiveness (OR 0.5 [0.4, 0.7]). Recurrent visits for ARIs (8.2% vs. 8.6%, $P = 0.14$) and adverse events (2.3% vs. 2.1%, $P = 0.90$) were not different pre-/post-intervention. Receipt of an antibiotic was not associated with recurrent visits for ARI (8.6% vs. 8.0%, $P = 0.45$) or adverse events (1.9% vs. 1.7%, $P = 0.11$).

Conclusion. An audit-feedback intervention sustained a reduction in antibiotic prescribing for ARIs over 3 years, and resulted in similar reductions in antibiotic use in varied ED and PC settings without affecting ARI-related return visit rates.

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This abstract has been withdrawn at the author's request.

212. Impact of a Prospective Audit and Feedback Antimicrobial Stewardship Initiative on Pneumonia Treatment at an Academic Teaching Hospital

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Background. Antimicrobial stewardship programs (ASPs) may improve patient outcomes by reducing antimicrobial adverse effects and resistance. Pneumonia is the most common infectious reason for hospitalization and is a key target for improvement in antimicrobial use. The purpose of this study was to measure the impact of a

214. Antimicrobial Usage and Outcomes following Laboratory Suppression of Antimicrobial Susceptibility Results for *Pseudomonas aeruginosa* in Sputum Cultures

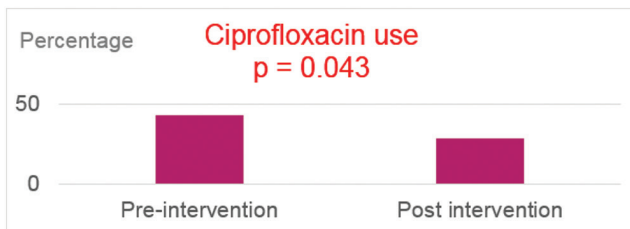
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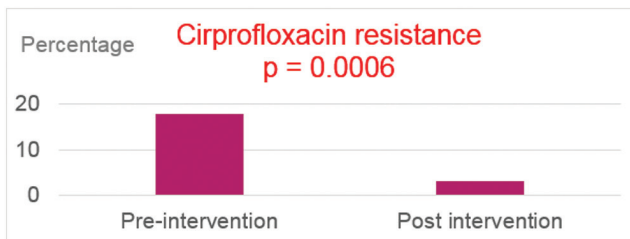
Background. *Pseudomonas aeruginosa* isolates from sputum cultures do not always require treatment, often representing chronic airways colonization. By releasing sputum *P. aeruginosa* antimicrobial susceptibility results, only after specific phone request by treating doctors, we aimed to reduce the use of ciprofloxacin without compromising clinical outcomes.

Methods. From February 26, 2015, antimicrobial susceptibility results for *P. aeruginosa* in sputum were routinely suppressed except for immunosuppressed, Intensive Care Unit, cystic fibrosis, or bronchiectasis patients. A database search of the Wollongong Hospital Microbiology laboratory information system identified 108 patients with susceptibility results suppressed (February 26, 2015–February 25, 2017), compared with 108 patients where antimicrobial susceptibility results were routinely reported (February 26, 2013–February 25, 2015). Data collected included age, sex, residency, admission date and diagnosis, comorbidities, allergy, empirical and definitive antibiotic treatment, date of sputum culture, resistance patterns of *P. aeruginosa*, ciprofloxacin usage, antimicrobial stewardship interventions, length of stay, inpatient mortality, and readmission within 30 days.

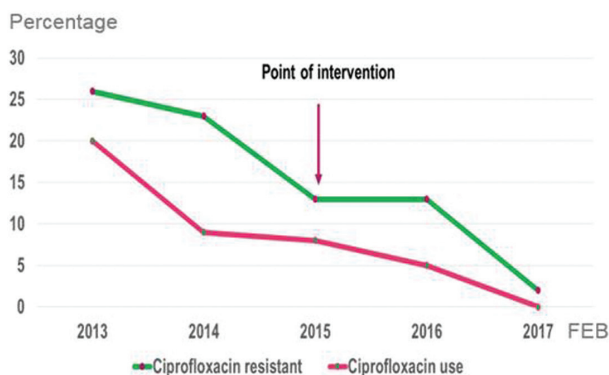
Results. The prevalence of *P. aeruginosa* in sputum cultures was 11% (1,252/11,388). Patient characteristics were comparable in the two groups. Ciprofloxacin use was significantly reduced postintervention [26.9% (29/108) vs. 39.8% (43/108); $P = 0.043$] as well as Guidance MS approvals [9.03% (87/963) vs. 17.72% (188/1,061); $P = 0.000001$]. Interrupted time series analysis of this intervention was not associated with a significant change in the rates of ciprofloxacin use.



Rates of ciprofloxacin resistance were lower postintervention [2.8% (3/108) vs. 16.7% (18/108); $P = 0.0006$], reaffirmed by SQL database search of the OMNI-Client [9.30% (32/343) vs. 15.00% (60/399); $P = 0.0187$].



Ciprofloxacin usage against resistance over time



There was no difference in length of stay, 30-day readmission, and mortality.

Conclusion. This study offers a successful model of collaboration between the microbiology laboratory and antimicrobial stewardship activity. It showed a reduction in the use of ciprofloxacin with possible influence on *P. aeruginosa* resistance rates, without affecting patient outcomes.

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215. Unintended Consequences of Fluoroquinolone Stewardship: Impact on Overall Antimicrobial Use Data and Implications for Benchmarking

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Background. Antimicrobial stewardship (AS) initiative to reduce fluoroquinolone (FQ) use in targeted diagnosis-related groups (DRG) across 14 acute care hospitals was launched in 2016 due to increasing FQ resistance and FDA warnings on adverse effects (Figure 1). In community-acquired pneumonia (CAP) interventions to change prescribing from FQs to a β -lactam (BL) + atypical agent (combo) would result in a doubling of days of therapy (DOTs) for that indication. However, combo regimens may provide patient safety and abx resistance benefits that are not captured by the DOT metric. This study examines the relationship between utilization of FQ-sparing, combo therapy for patients with CAP and associated impact on AS metrics.

Methods. This was a retrospective, multicenter study of abx utilization for treatment of CAP before and after an FQ-sparing initiative. DRG codes identified abx use specific to CAP. Abx use was measured using medication administration reports to calculate DOT per 1,000 patient-days.

Results. The FQ initiative yielded a 40.4% reduction in overall FQ use ($P < 0.001$), though overall abx consumption did not change (Table 1, Figure 2). A decrease in FQ use in CAP was observed (-42%, $P < 0.001$), while combo use increased (+43%, $P < 0.001$).

Conclusion. A system-wide FQ-sparing initiative resulted in significant increases in use of combo abx for CAP. Although considered an appropriate intervention for patient safety and resistance reasons, unintended impacts on standard consumption metrics should be considered when comparing use within or across institutions. The use of alternative metrics, such as point-prevalence surveys, may be indicated. Examination of impact on overall DOT in additional disease states and at the facility-specific level is needed.

Table 1: Metric Analysis

DOT per 1,000 patient-days	2016 mean \pm SD	2017 mean \pm SD	P-value
Overall utilization			
Total abx	827.1 \pm 33.3	826.6 \pm 35.3	0.486
Total FQ	94.7 \pm 10.6	60.3 \pm 10.2	<0.001
Utilization within PNA DRGs			
FQ use	277.9 \pm 69.1	161.2 \pm 26.2	<0.001
Combo use	605.1 \pm 134.9	865.3 \pm 110.3	<0.001
Ceftriaxone	278.4 \pm 64.4	385.6 \pm 61.1	<0.001
Azithromycin	234.4 \pm 51.8	265.8 \pm 59.5	0.165
Doxycycline	92.2 \pm 26.5	213.9 \pm 55.3	<0.001
FQ/Total DOT (%)	5.8	3.2	<0.001
Combo/Total DOT (%)	12.4	17.2	<0.001

SD = standard deviation.

Figure 1: Novant Health Fluoroquinolone Use Optimization Timeline

