

Presentation Type:

Poster Presentation

National Trends of Prevalence of Fluoroquinolone Resistance Among Healthcare-Associated *Escherichia coli* Infections

Minn Soe, Centers for Disease Control and Prevention; Lindsey Lastinger, Centers for Disease Control and Prevention; Margaret Dudeck, Centers for Disease Control and Prevention; Jonathan Edwards, Centers for Disease Control and Prevention

Background: *Escherichia coli* is the third most common pathogen responsible for healthcare-associated infections (HAIs), but it is increasingly resistant to multiple antibiotics. Antimicrobial susceptibility test (AST) results for fluoroquinolones (FQs) among *E. coli* implicated in select HAIs are reported to the NHSN surveillance system. Trend analyses in the prevalence of FQ resistance among healthcare-associated *E. coli* infections reported to NHSN have not been previously assessed. **Objective:** We investigated the national trends of prevalence of FQ resistance among *E. coli* HAIs in acute-care hospitals from 2009 through 2018. **Method:** We analyzed *E. coli* AST data from central-line-associated bloodstream infections (CLABSIs), catheter-associated urinary tract infections (CAUTIs), and surgical site infections (SSIs) reported to the NHSN between 2009 and 2018. Fluoroquinolone resistance is defined as the number of *E. coli* isolates that tested resistant or intermediate to at least 1 of 3 quinolones (ciprofloxacin, levofloxacin, and moxifloxacin), divided by number of pathogens tested for susceptibility, multiplied by 100. To evaluate the trends of fluoroquinolone resistance over time, we conducted an interrupted time-series analysis using a generalized linear mixed model with a logistic function. Substantial HAI definitional changes, most consequentially CAUTI in 2015 and a directional incidence change in 2018, were treated as interruptions to the outcome. Regression models adjusted for patient-level (ie, age, gender, HAI type) and facility-level characteristics (ie, facility type, teaching status, number of beds in intensive care units, and average length of stay) were obtained from the NHSN annual hospital surveys. Random-intercept and slope models were evaluated with covariance tests and were included to account for differential baseline fluoroquinolone resistance and trends among reporting facilities. Data were analyzed using SAS with statistical significance defined at $\alpha = 0.05$. **Results:** During 2009–2018, the number of *E. coli* isolates with AST results for FQ reported to NHSN (Fig. 1) increased. After adjusting for covariates, fluoroquinolone resistance significantly increased from 2009 through 2015 at an average of 4.2% per year (Fig. 2, β_1). There was no significant change in fluoroquinolone resistance from 2015 through 2017 (Fig. 2, $\beta_1 + \beta_3$). In 2018, there was 6.4% decline in fluoroquinolone resistance compared to 2017

Figure-1. Fluoroquinolone-resistant *E. coli* isolates in acute care hospitals, National Healthcare Safety Network, 2009–2018

Year	No. facilities reported ¹	No. <i>E. coli</i> tested	No. <i>E. coli</i> non-susceptible to fluoroquinolones ²	Crude % non-susceptible ² (%NS)
2009	635	3,640	1,073	29.48
2010	855	4,315	1,315	30.48
2011	1,350	6,871	2,154	31.35
2012	2,280	15,214	4,617	30.35
2013	2,324	16,079	5,368	33.39
2014	2,356	16,937	5,613	33.14
2015	2,520	19,281	6,894	35.76
2016	2,488	18,963	6,663	35.14
2017	2,471	18,275	6,387	34.95
2018	2,471	17,313	5,730	33.10

¹reported at least 1 *E. coli* healthcare-associated infection²Fluoroquinolone non-susceptible defined as resistant or intermediate to at least 1 of 3 quinolones (ciprofloxacin, levofloxacin, moxifloxacin)

Fig. 1.

S328 41 Suppl 1; 2020

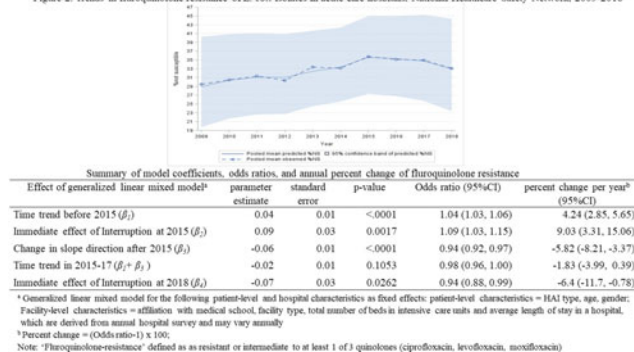
Figure-2. Trends in fluoroquinolone resistance of *E. coli* isolates in acute care hospitals, National Healthcare Safety Network, 2009–2018

Fig. 2.

(Fig. 2, β_4) **Conclusions:** An increasing trend of fluoroquinolone resistance from 2009 through 2015 was observed, and fluoroquinolone resistance was stable during 2015–2017. Despite a relatively brief decline in fluoroquinolone resistance in 2018, the absolute change was small (~2%). Sustaining this decline warrants continued efforts in infection prevention and antimicrobial stewardship.

Funding: None**Disclosures:** None

Doi:10.1017/ice.2020.930

Presentation Type:

Poster Presentation

Nationwide Survey of Antimicrobial Dispensation and Training in Pharmacies and Nonpharmacy Stores in the Dominican Republic

Alfredo J Mena Lora, University of Illinois at Chicago; Rita Rojas Fermin, Hospital General Plaza de la Salud; Bismarck Bisono, SBH Healthsystem; Talia Flores, INCART; Mariel Jimenez, Universidad Iberoamericana; Marcos Almonte, Universidad Iberoamericana; Julia Rodriguez, CEDIMAT; Susan Bleasdale, University of Illinois Chicago

Background: Antimicrobial use in low- and middle-income countries (LMICs) can play a major role in the development of antimicrobial resistance (AMR). In many LMICs, antimicrobials can be dispensed without prescriptions; they often available in pharmacies and nonpharmacy stores alike. We conducted a nationwide survey to describe the availability and antimicrobial dispensation practices in pharmacies and nonpharmacy stores in the Dominican Republic. **Methods:** A survey was administered to staff responsible for dispensing antimicrobials at pharmacies and nonpharmacy stores in the Dominican Republic. Stores were randomly selected from March through November 2019 in 7 cities representing all geographic regions of the Dominican Republic. Data on availability of antimicrobials and staff education on antimicrobial use were obtained. Case scenarios with common symptoms were used to survey staff on antimicrobial use recommendations. Symptoms included dysuria, throat pain, diarrhea, fever, and cough. The availability of antimicrobials ordering by phone and via online delivery was assessed for each store. **Results:** Staff from 125 stores were invited to participate; 34 pharmacies and 48 nonpharmacy stores participated and 43 refused to participate. Overall, 200 antimicrobial use recommendations were given in pharmacies and 43 in nonpharmacy stores. The most common type of antimicrobial use recommendations were aminopenicillins (Fig. 1). Staff received prior training or education on antimicrobials in 61% of pharmacies