

urgent-care pharyngitis encounters for which rapid GAS testing was performed returned to levels $\geq 80\%$ by July 2020 (Fig. 1). The average percentage of monthly pharyngitis encounters prescribed an antibiotic that also underwent GAS testing rose to 87.3% during this period. **Conclusions:** Limited PPE in our urgent care centers during the initial months of the COVID-19 pandemic was associated with a mandated substantial decline in rapid GAS testing. As testing volume decreased, we noted a simultaneous relative increase of $>30\%$ in antibiotic prescribing for pharyngitis. These findings suggest that rapid streptococcal testing promotes appropriate antibiotic prescribing.

Funding: None

Disclosures: None

Antimicrobial Stewardship & Healthcare Epidemiology 2021;1(Suppl. S1):s20–s21

doi:10.1017/ash.2022.91

Presentation Type:

Poster Presentation - Poster Presentation

Subject Category: Antibiotic Stewardship

Hospital-level variation in the utilization of antipseudomonal antibiotics: A nationwide cross-sectional study at the VHA

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Background: Avoiding unnecessary antipseudomonal coverage is 1 of the most common targets for antibiotic stewardship programs (ASPs), but little is known about the magnitude of facility-level variation in antipseudomonal agent utilization. We aimed to describe the variability in the use of antipseudomonal agents across inpatient settings within a nationwide integrated healthcare system. **Method:** We analyzed the data from a retrospective cohort of patients who were admitted to acute-care hospitals within the VHA system in 2019. We defined antipseudomonal agents as systemic antibiotics with activity against wild-type *Pseudomonas aeruginosa*, and we evaluated overall and antipseudomonal antibiotic use among 129 hospitals, according to the agents described in the NHSN Antimicrobial Usage and Resistance Module. We calculated each hospital's overall and antipseudomonal days of therapy (DOT) per 1,000 days present and the proportion of antipseudomonal agent usage among all antibiotics based on DOT at each hospital. Hospital-level variation was assessed by comparing the proportion of total antibiotic consumption accounted for by antipseudomonal agents. Associations between antipseudomonal proportions and overall antibiotic consumption were also assessed. **Results:** Among 129 VHA hospitals, the median DOT per 1,000 days present for all antibiotics was 434.4 (IQR, 371.9–487.1), and the median antipseudomonal DOT per 1,000 days present was 127.7 (IQR, 99.8–159.6). The median proportion of total antibiotic consumption accounted for by antipseudomonal agents was 30.0% (range, 14.9%–40.7%; IQR, 26.4%–34.4%) (Fig. 1). We detected only a weak correlation between overall antibiotic consumption and

Figure 1. The proportion of overall antibiotic consumption accounted for by antipseudomonal agents in each hospital.

(Footnote) Solid line: median, Dotted line: interquartile range.

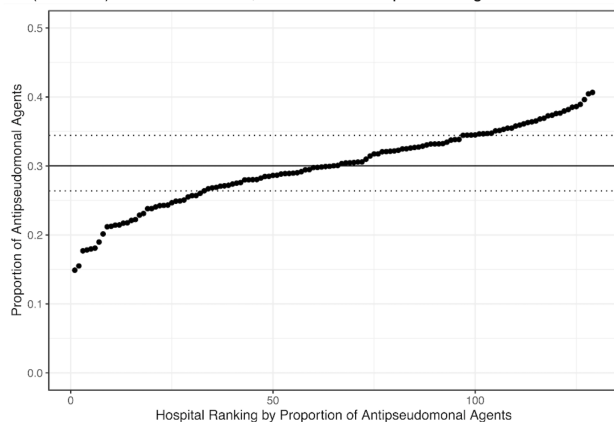
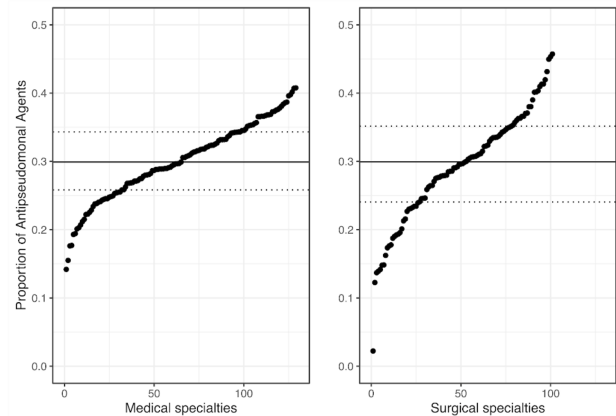


Figure 2. The proportion of overall antibiotic consumption accounted for by antipseudomonal agents comparing medical and surgical specialties in each hospital. (Footnote) Solid line: median, Dotted line: interquartile range.



antipseudomonal proportion (Pearson correlation coefficient, 0.396), which suggests that hospitals with higher total antibiotic consumption were not necessarily using more antipseudomonal agents. In a stratified analysis, there was more prominent hospital-level variability in surgical specialties than medical specialties (Fig. 2). **Conclusions:** We detected high hospital-level variability in the consumption and proportion of antipseudomonal antibiotics among an integrated healthcare system. Although it is plausible that these variabilities originated from case-mix differences among hospitals, including differing rates of *P. aeruginosa* infections, it may also highlight opportunities for reducing antipseudomonal antibiotic utilization, especially among surgical specialties. Further studies are needed to evaluate the contribution of modifiable patient- and facility-level factors to this variability.

Funding: None

Disclosures: None

Antimicrobial Stewardship & Healthcare Epidemiology 2022;2(Suppl. S1):s21

doi:10.1017/ash.2022.92

Presentation Type:

Poster Presentation - Poster Presentation

Subject Category: Antibiotic Stewardship

Determining the effect of COVID-19 on antibiotic use in long-term care facilities across Tennessee

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Background: Nationally, a decrease in total antibiotic use in nursing homes during the COVID-19 pandemic was observed with an increase in select agents used for respiratory infections. Currently there is minimal data on antibiotic use in long-term care facilities (LTCFs) in Tennessee. To address this issue, the Tennessee Department of Health (TDH) developed a monthly point-prevalence survey of antibiotic use. Utilizing this tool, we sought to determine the effect the pandemic had on antibiotic use in Tennessee LTCFs. **Method:** We developed a REDCap questionnaire to collect information on selected antibiotics administered in Tennessee LTCFs. Antibiotic use percentage was determined by dividing the number of residents who received an antibiotic on the day of survey by facilities' average censuses. Data were divided into a prepandemic period (January 2019–February 2020) and a period during the pandemic (March 2020–December 2021). Antibiotic prescriptions were grouped into 4 classes according to their most common uses: *Clostridium difficile* infections, urinary tract infections, skin and soft-tissue infections (SSTIs), and respiratory infections. Average percentage of residents on antibiotics were compared between study periods. **Results:** In total, 37 facilities participated in the survey during the prepandemic period and 32 facilities participated during the pandemic period; 14 participated during both periods. The

average percentage of residents on antimicrobials before the pandemic was 16.3%, which decreased to 11.5% during the pandemic period ($P = .04$). During the prepandemic period, 40.2% of antibiotics prescribed were in the common for SSTI category and 38.3% were in the common for respiratory infections category ($P = .01$); during the pandemic period, 64.3% of antibiotics prescribed were in the common for SSTI category and 45.8% were in the common for respiratory infections category ($P = .01$). The 3 most prescribed antibiotics in the prepandemic period were amoxicillin (148 prescriptions), doxycycline (140 prescriptions), and levofloxacin (135 prescriptions). The 3 most prescribed antibiotics during the pandemic were doxycycline (141 prescriptions), levofloxacin (125 prescriptions), and trimethoprim-sulfamethoxazole (115 prescriptions). **Conclusions:** Survey results revealed that antibiotic prescriptions commonly used for respiratory infections increased 7.5% during the pandemic study period. Additionally, the average percentage of residents on antimicrobials fell 4.8% during this period. Both statistics reflect what has been seen nationally with a decrease in antibiotic use with an increase in respiratory antibiotics. This could be due to multiple factors including decreased reporting, a change in healthcare delivery during the pandemic, and facilities seeing an increase of respiratory tract infections. These data will be used to guide future TDH antibiotic stewardship efforts in the long-term care setting.

Funding: None

Disclosures: None

Antimicrobial Stewardship & Healthcare Epidemiology 2022;2(Suppl. S1):s21-s22

doi:10.1017/ash.2022.93

Presentation Type:

Poster Presentation - Poster Presentation

Subject Category: Antibiotic Stewardship

Antibiotic-prescribing practices and associated outcomes after common urologic procedures in an integrated healthcare system

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Background: Many urologists continue antibiotics after common urologic procedure beyond the timeframes recommended by professional guidelines. In this study, we sought to evaluate the association between postprocedural antibiotic use and patient outcomes. **Methods:** We identified all patients who underwent 1 of 3 urologic procedures (transurethral resection of bladder tumor [TURBT], transurethral resection of prostate [TURP], and ureteroscopy) within the Veterans' Health Administration (VHA) between January 1, 2017, and June 30, 2021. A postprocedural antibiotic was any antibiotic potentially used for a urinary tract-related indication that was prescribed for administration after the day of the procedure. Outcomes were captured within 30 days of the procedure and included (1) return visits, defined as any emergency department or urgent care encounter or hospital readmission, and (2) *Clostridium difficile* infection (CDI), defined as a positive test for *C. difficile* and the prescription of an anti-CDI antibiotic. We used log-binomial models with risk adjustment to determine the association between postprocedural antibiotic use and outcomes. We constructed hospital-level observed-to-expected ratios for postprocedural antibiotic use, and we used these models to calculate the probability of each patient receiving postprocedural antibiotics. **Results:** Overall, we identified 74,629 patients; 98% were male; the mean age was 70 years (SD, 10). Among them, 50% underwent TURBT, 28% underwent TURP, and 23% underwent ureteroscopy. A postprocedural antibiotic was prescribed to 25,738 (35%) cases for a median duration of 3 days (IQR, 3–6). Return visits occurred in 13,489 patients (18%), and CDI occurred in 104 patients (0.1%). Patients exposed to postprocedural antibiotics had 16% more return visits (RR, 1.16; 95% CI, 1.13–1.20) and more than twice as much CDI (RR, 2.22; 95% CI, 1.51–3.26) than patients not exposed to postprocedural antibiotics. In log-binomial risk-adjusted analysis, the risk of return visits did not differ between the 2 groups (RR, 1.00; 95% CI, 0.97–1.04) but the risk of CDI was higher in patients who received post-procedural antibiotics (RR, 1.87; 95% CI, 1.00–3.51). Hospitals ($n = 105$) varied widely in their observed-to-expected ratios for prescribing postprocedural antibiotics, and the frequency of return visits was similar

Table 1. Observed-to-expected ratio (O:E) quartiles for post-procedural antibiotic prescribing across 105 VHA hospitals and the association with the frequency of return visits

O:E Quartile	O:E ratio for prescribing post-procedural antibiotics	Return visits within 30 days, median
1	0.49	17.2%
2	0.82	17.4%
3	1.14	18.7%
4	1.88	19.0%

regardless of the frequency at which postprocedural antibiotics were prescribed (Table 1). **Conclusions:** Postprocedural antibiotics were prescribed beyond recommended intervals after more than one-third of common urologic procedures, with a large degree of variability across hospitals. The use of postprocedural antibiotics was not associated with fewer return visits but was associated with a nonsignificant increase in CDI risk. Efforts to reduce postprocedural antibiotics are needed.

Funding: Yes

Disclosures: This work was funded, in part, by the Merck Investigator Studies Program. This work was also supported by a Career Development Award (DJL) from the VA Health Services Research and Development Service (CDA 16-204) and by the Iowa City VA Health Care System, Department of Pharmacy Services.

Antimicrobial Stewardship & Healthcare Epidemiology 2022;2(Suppl. S1):s22

doi:10.1017/ash.2022.94

Presentation Type:

Poster Presentation - Poster Presentation

Subject Category: Antibiotic Stewardship

Penicillin allergy reinstatement in a cohort of patients previously delabeled following formal allergy assessment

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Background: Penicillin allergies are frequently reported and are associated with adverse clinical and antimicrobial stewardship outcomes. Allergy delabeling, either by patient history or skin testing and oral challenge can facilitate removal of penicillin allergy label. However, penicillin allergies are often reinstated in the medical record and data is limited about how and why this occurs. In our center, the departments of allergy and infectious diseases utilize an allergist nurse practitioner for penicillin allergy delabeling. We investigated the prevalence of penicillin allergy reinstatement following removal and associated factors thereof. **Methods:** We performed a retrospective observational study of patients who previously had penicillin allergy removed by the allergist nurse practitioner between August 2020 and May 2021 (250 days). Patients were followed for a minimum of 8 months and up to 16 months after penicillin allergy removal. We then assessed whether the allergy was reinstated. Clinical characteristics were compared between patients with penicillin allergy reinstated and not reinstated using the χ^2 and Mann-Whitney U test. The primary end point was prevalence of penicillin allergy reinstatement following removal. **Results:** During the study period, 81 patients had penicillin allergy removed, but it was later reinstated in 19 patients (23%) (Fig 1). Median time to reinstatement was 94 days. Allergies were reinstated most frequently by nurses (53%) and medical assistants (37%). Reinstatement occurred in both outpatient (53%) and inpatient (47%) settings. In 18 of 19 cases, there was no acknowledgment that a prior assessment had determined the patient was not allergic to penicillin. Only 1 patient experienced a reaction prompting reinstatement of penicillin allergy. Once the allergy was redocumented, it was subsequently mentioned in a median of 17 notes per patient. Comorbidities did not differ between patients with allergy reinstated versus those without (Table 1). Patients with penicillin allergy reinstated were more often originally delabeled via history rather than skin test followed by oral challenge and were more likely to have been readmitted subsequently. **Conclusions:** Penicillin allergies were redocumented in almost one-quarter of patients, most frequently by a nonphysician team member and without acknowledgement of