

Table 1: Antibigram Characteristics

Reporting Frequency	Location Specific Susceptibilities	Specimen Specific	1 st Isolate reporting noted	< 30 isolates susceptibilities reported	Who produces antibiotic?
4 - annual 3 - semi-annual 1 - quarterly	6 - non-specific 1 - outpt & inpt 1 - outpt & 4 inpt wards	5 - all isolates 3 - urine and non-urine	5 - yes 3 - no	Reported on all antibiograms; 4 had no statement re: statistical validity	5 - Micro & ID/ASP 2 - Micro only 1 - ID/ASP only

Disclosures. All authors: No reported disclosures.

1012. Characterization of Antibiotic Superutilizers in the Inpatient Setting

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Session: 130. Antibiotic Stewardship: Antibiotic Utilization
Friday, October 4, 2019: 12:15 PM

Background. Inappropriate use of antibiotics is a major public health concern that contributes to increased antibiotic resistance, adverse effects, and healthcare costs. Little is known about the highest utilizers, or superutilizers, who may be appropriate targets for antibiotic stewardship efforts. The purpose of this study was to characterize superutilizers at an academic hospital.

Methods. All adult patients who were admitted to the Hospital of the University of Pennsylvania and received at least one day of antibiotics between July 1, 2017 and June 30, 2018 were identified. All inpatient administrations for systemic antibacterial agents were identified. Antibiotics given in procedural areas and the emergency department were excluded, as were any antifungals and antivirals. Usage was reported as days of therapy (DOT). We compared the demographics and DOT among the superutilizers (defined as the top 1% of patients) to different groupings of the rest of the population.

Results. Overall, 13,559 patients (and 183,082 DOT) were included in the analysis, including 136 superutilizers. The superutilizers received 15% of the total antibacterial DOT and a median of 56 DOT during the 12-month period. (table)

Conclusion. Inpatient antibiotic use is unevenly distributed across the population. Higher meropenem and sulfamethoxazole/trimethoprim DOT suggest that treatment of multidrug-resistant organisms and opportunistic infection prophylaxis are more common in the superutilizer group. Additional study is needed to determine whether antimicrobial stewardship efforts could impact antibiotic use in the superutilizer population.

Group	1%	10%	99%
Patients, n	136	1356	13,423
Male, n (%)	67 (49.3%)	771 (56.9%)	6343 (47.3%)
Age, median (IQR)	57 (43-65)	49 (60-68)	60 (43-70)
Total DOT, n (%)	26,784 (15.1%)	97,811 (53.4%)	156,298 (84.9%)
DOT, median (IQR)	56 (43-65)	54 (41-81)	5 (2-13)
Vancomycin DOT, n (%)*	5928 (21.4%)	22,221 (22.7%)	31,927 (20.5%)
Cefepime DOT, n (%)*	2365 (8.5%)	13,014 (13.3%)	21,228 (13.7%)
Piperacillin/tazobactam DOT, n (%)*	1550 (5.8%)	7922 (8.1%)	13,615 (8.8%)
Meropenem DOT, n (%)*	2947 (10.6%)	7645 (7.8%)	6293 (4.0%)
Sulfamethoxazole/trimethoprim DOT, n (%)*	2772 (10.0%)	7746 (7.9%)	10,911 (7.0%)

*Percentage of individual drugs reported from total DOT within each grouping

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1013. Electronic Assessment of Empiric Antibiotic Prescribing Using Diagnosis Codes

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Session: 130. Antibiotic Stewardship: Antibiotic Utilization
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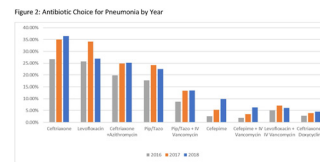
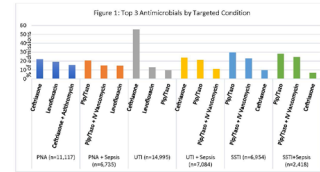
Background. Antimicrobial stewardship programs (ASPs) must understand empiric choices for specific disease syndromes to assess adherence to local empiric treatment guidelines. Electronically-derived metrics to track empiric therapy choices would allow ASPs to target areas for intervention without significant data collection burden.

Methods. Admissions from 10 community hospitals between 7/2016 and December 2018 were reviewed to identify those with common infectious syndromes: pneumonia (PNA), urinary tract infection (UTI) and skin and soft-tissue infection (SSTI). Admissions with a syndrome of interest were identified using AHRQ clinical classifications software codes based on ICD-10 codes for infection at the time of discharge. Admissions were categorized as having the syndrome of interest with or without sepsis. Antibiotics received during the first 48 hours of inpatient admission were obtained from electronic medication administration records. The proportion of syndrome admissions receiving specific antibiotic agents was determined to evaluate initial treatment choices as compared with local empiric guidelines. Antibiotic categories were not mutually exclusive, admissions receiving combination therapy were included in the count for each individual agent as well as the combination group. The

denominator was the count of admissions with the syndrome of interest. Distributions were tracked over time to observe the effects of ASP intervention.

Results. The analysis included 49,303 admissions. The most common diagnosis was UTI (30%) followed by PNA (23%). Empiric antibiotic use varied by syndrome (Figure 1). In general, patients with a targeted infectious diagnosis and sepsis received more broad-spectrum agents than those without sepsis. SSTI was an exception, but few patients admitted with SSTI did not also have presumed sepsis. Longitudinal analysis demonstrated shifts from less preferred agents to guideline-concordant choices. For example, for admissions with a diagnosis of PNA, we observed a steady year on year increase in ceftriaxone (preferred) while levofloxacin (avoided in local guidelines) declined. (Figure 2)

Conclusion. Syndrome-specific diagnosis codes were helpful in assessing empiric antibiotic selection and may assist ASPs in improving empiric guideline adherence.



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1014. Decreasing Antimicrobial Use by 25% via Submission to NHSN-AUR Module

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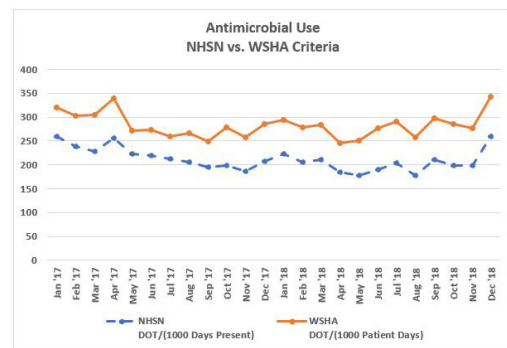
Session: 130. Antibiotic Stewardship: Antibiotic Utilization
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Background. Tracking antimicrobial data are a core element of antimicrobial stewardship programs. Since 2014, the Washington State Health Association (WSHA) has tracked antimicrobial use (AU) to address and reduce *C. difficile* infections statewide. In 2016, WA state began promoting the National Healthcare Safety Network (NHSN) tool to upload hospital AU. Both track days of antimicrobial therapy (DOT) but WSHA uses patient-days as the denominator while NHSN uses days-present. Each measure accounts for hospital length of stay but the latter is affected by unit transfers and the former is not.

Methods. Observational review of AU data submitted to NHSN and to WSHA in a 2-year period. Sixteen antibiotics selected by WSHA were reviewed and organized into 5 groups: broad-spectrum penicillins, cephalosporins, carbapenems, fluoroquinolones, and clindamycin. Data from a single center were used to compare results between each AU tracker. AU and days-present were obtained from the electronic medical record. Patient-days were obtained from the hospital quality department. The primary outcome was a difference in AU per WSHA vs. NHSN.

Results. Between January 2017 to December 2018, the median rate of antimicrobial use was 279 days per 1000 patient-days and 201 days per 1000 days-present. The median difference in total AU reported was 25% less using NHSN vs. WSHA and ranged from 18% - 31%.

Conclusion. Switching from patient-days to days-present decreased the reported rate of AU by 25%. In WA state, hospitals have nonuniformly adopted submitting antimicrobial use data to the NHSN. Until all hospitals submit their data via NHSN, both individual institutions and the state will have to contend with mismatched data. An interim solution may be to collect monthly patient-days and days-present from all hospitals and adjust the data before comparing AU among institutions. For institutions with a long history of tracking antimicrobial use, this change in denominator and resulting impact on AU represents a barrier to using the NHSN AU module.



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