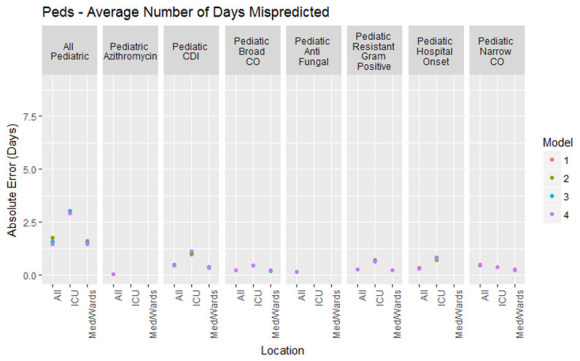

Disclosures. **All authors:** No reported disclosures.

1019. Defining electronic patient phenotypes to inform risk-adjustment strategies in hospital antimicrobial use comparisons

Rebekah W. Moehring, MD, MPH[1]; Matthew Phelan, MS[2]; Eric Lofgren, MSPH, PhD[3]; Alicia Nelson, MPH[4]; Melinda M. Neuhauser, PharmD, MPH[5]; Lauri Hicks, DO[6]; Elizabeth Dodds Ashley, PharmD, MHS[1]; Deverick J. Anderson, MD, MPH[1]; Benjamin Goldstein, PhD[7]; [1]Duke Center for Antimicrobial Stewardship and Infection Prevention, Durham, North Carolina; [2]Duke Clinical Research Institute, Durham, North Carolina; [3]Washington State University, Pullman, Washington; [4]Duke University Medical Center, Durham, North Carolina; [5]Centers for Disease Control and Prevention, Atlanta, Georgia; [6]CDC, Atlanta, Georgia; [7]Duke University, Durham, North Carolina,

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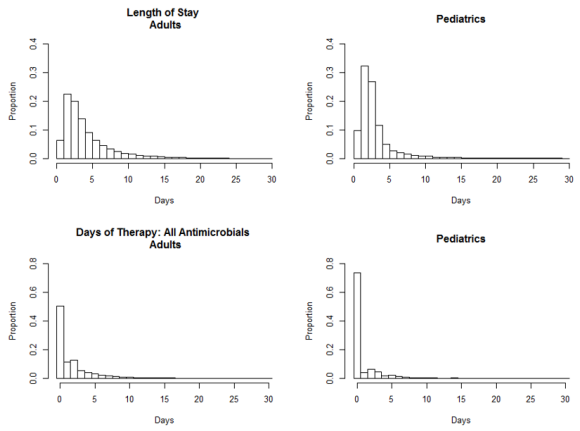
Background. Comparison of antimicrobial use (AU) rates among hospitals can identify areas to intervene for antimicrobial stewardship. Hospital AU interpretation is difficult without risk-adjustment for patient mix. Identifying high- or low-risk patient characteristics, or "electronic phenotypes," for receipt of antimicrobials using data from electronic health records (EHR) could help define risk-adjustment factors AU comparisons.

Methods. We performed a retrospective study of EHR-derived data from adult and pediatric inpatients within the Duke University Health System from October 2015 to September 2017. Encounters were included if the patient spent time in an inpatient location. The analysis aimed to identify subpopulations that were high- or low-risk for antimicrobial exposure based on EHR data summarized on the encounter level. Antimicrobial days of therapy (DOT) and days present, representing the length of stay (LOS), were defined as in the 2018 NHSN AU Option. Location exposures were defined in binary variables if patients were housed at least 1 day on a hospital unit type. We compared antimicrobial-exposed to unexposed patients as well as DOT among various factors including demographics, location, nonantimicrobial medications, labs, ICD-10 codes, and diagnosis-related groups (DRG).

Results. The EHR-derived dataset included 170,294 encounters and 204 variables in one academic and two community hospitals; 80,192 (47%) received at least one antimicrobial. Distributions of both LOS and DOT were zero-inflated and skewed by long outliers (figure). Encounters with >=7 DOT made up 63% of total DOT, but only 9% of inpatient encounters. Electronic phenotypes with highest DOT included those with long lengths of stay, older age, exposures to stem cell transplant, pulmonary, and critical care units, and DRG that included transplant, respiratory, or infectious diagnoses. Zero DOT phenotypes included those with short lengths of stay, exposure to labor and delivery wards, medical wards, and DRG that included birth and pregnancy.

Conclusion. Future work in defining risk-adjustment factors for hospital AU data comparisons should determine if factors associated with low- or high-risk electronic phenotypes assist in prediction of antibiotic use.

Figure. Length of stay and antimicrobial days of therapy per inpatient encounter



Disclosures. **All authors:** No reported disclosures.

1020. Variations in inpatient and outpatient antibiotic use – opportunities for improvement and facility-level feedback

Matthew B. Goetz, MD[1]; Christopher J. Graber, MD, MPH[2]; Makoto M. Jones, MD[3]; Karl Madaras-Kelly, PharmD MPH[4]; Sarah Y. Youn[5]; Matthew H. Samore, MD[6]; Peter A. Glassman, MBBS[2]; [1]VA Greater Los Angeles Healthcare System and David Geffen School of Medicine at UCLA, VA-CDC Practice-Based Research Network, Los Angeles, California; [2]VA Greater Los Angeles Healthcare System/UCLA, Los Angeles, California; [3]IDEAS Center of Innovation, Veterans Affairs Salt Lake City Health Care System, Salt Lake City, Utah, Salt Lake City, Utah; [4]Idaho State University, Pocatello, Idaho; [5]VA Greater Los Angeles Healthcare System, Los Angeles, California; [6]University of Utah, Salt Lake City, Utah,

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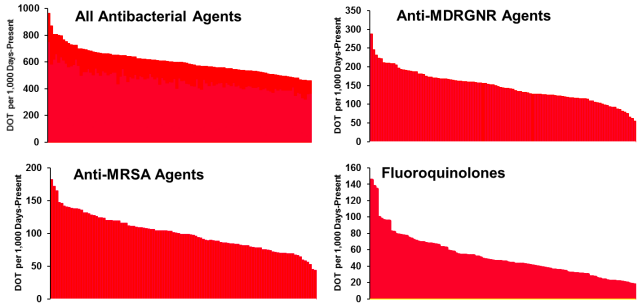
Background. Participation in the Antibiotic Use (AU) option of the National Health Safety Network (NHSN), provides medical facilities with the Standardized Antibiotic Administration Ratio (SAAR), a normalized ratio of facility antibiotic use. However, the range of antibiotic use by similar facilities is not provided and thus the opportunity to "nudge" behavior by comparing use with "best facilities" is lost. We developed reports of variations of antibiotic use that allow comparisons of local antibiotic use with that of 107 other VA facilities.

Methods. Data for 2018 were extracted from the VA Corporate Data Warehouse. Antibiotic use in CY2018 on acute inpatient care units was assessed as days of therapy (using CDC-defined drug classes) per 1000 days-present. In addition, we assessed the proportion of patients with pneumonia, urinary tract infections or skin-soft-tissue infections (collectively, PUS) who received anti-MRSA therapy or ß-lactam therapy directed against multi-drug-resistant and hospital GNR (anti-MDRGNR) during hospital days 0–2 (CHOICE, a timeframe representing empiric therapy).

Results. Rates of total antibiotic use by VA facility varied over two-fold from 460 to 965 days of therapy (DOT)/1000 days-present (DP); anti-MRSA and anti-MDRGNR varied over four-fold, from 44 to 184 and, 55 to 262, respectively. Fluoroquinolone variation was even higher, ranging over 8-fold, from 17 to 145 DOT/1000 DP (Figure 1). Substantial variations were also observed in the frequency of administration of anti-MRSA and anti-MDRGNR therapy for PUS during CHOICE (14 to 49% and 15 to 65%, respectively; Figure 2).

Conclusion. The large variations in the use of total antibiotic therapy, anti-MRSA, anti-MDRGNR and fluoroquinolone therapies are greater than can be readily explained by known variations in antibiotic resistance or differences in case-mix within the VA. Efforts are underway in the VA to strengthen antimicrobial stewardship programs. In other work, we have shown improvements in antimicrobial use among sites that have access to reports that provide the data described herein and that participate in group collaboratives. Our group is now making these data available to all VA facilities.



Disclosures. **All authors:** No reported disclosures.

1021. Accuracy of Provider-Selected Antibiotic Indications at Point of Order Entry Compared with Electronic Health Record Documentation

Bradley Mary, PharmD[1]; Joanna Huang, PharmD[2]; Nichole Neville, PharmD[3]; Kerry Schwarz, PharmD[2]; Gerard Barber, RPh, MPH[2]; Misha Huang, MD, MS[4]; Matthew A. Miller, PharmD[2]; [1]University of Colorado, Aurora, Colorado; [2]University of Colorado Hospital, Aurora, Colorado; [3]Swedish Medical Center, Aurora, Colorado; [4]University of Colorado Hospital, University of Colorado School of Medicine, Aurora, Colorado,

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Background. The Centers for Medicaid and Medicare Services (CMS) state that hospital antimicrobial stewardship (AMS) policies require indications be documented for all orders. This may be included in the electronic medical record (EMR) or during order entry per CMS. Reliance solely on EMR documentation may be inconsistent or absent at times. In an effort to optimize compliance to this new measure and improve antibiotic use tracking, the University of Colorado AMS committee implemented required indications for all systemic antimicrobial orders. To follow up on this intervention we sought to determine the accuracy of ordered indication based on EMR documentation.