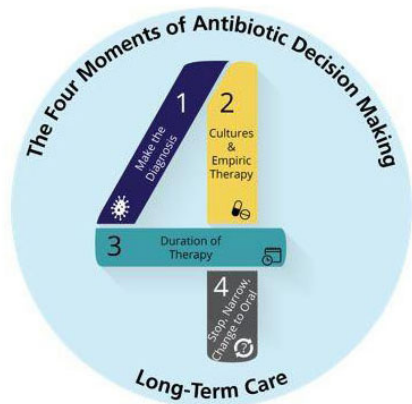


Figure 1. Four Moments of Antibiotic Decision Making in the Long-Term Care Setting

Results. Of 439 LTCFs who completed the Safety program, the majority were mid-sized (75–149 beds; 229, 52.2%), most were non-hospital based and owned by a larger system (246, 56.0%), with similar distributions between urban and rural settings. Of these, 348 (79%) submitted both baseline and end-of-intervention data. Antibiotic starts decreased from 7.89 to 7.48 starts/1000 RD; $P = 0.02$. Days of therapy for all antibiotics decreased from 64.1 to 61.0 DOT/1,000 RD; $P = 0.068$ and for fluoroquinolones (an antibiotic targeted in the Safety Program) from 1.49 to 1.28 DOT/1,000RD; $P = 0.002$. UCX decreased from 3.01 to 2.63 orders/1000 RD; $P = 0.001$. There were no significant differences in *C. difficile* LabID events **Table 1**.



- 1** Does the resident have symptoms that suggest an infection?
- 2** What type of infection is it? Have we collected appropriate cultures before starting antibiotics? What empiric therapy should be initiated?
- 3** What duration of antibiotic therapy is needed for the resident's diagnosis?
- 4** Re-evaluate the resident and review results of diagnostic tests. Can we stop antibiotics? Can we narrow therapy? Can we change to oral antibiotics?

Table 1. Changes from baseline (Jan-Feb, 2019) to the end (Nov-Dec, 2019) of the AHRQ Safety Program

	Jan-Feb	Nov-Dec	Difference	P-value
Antibiotic Days of Therapy / 1,000 Resident-Days				
All antibiotics	64.1	61.0	-3.1	0.068
Fluoroquinolones	10.6	9.4	-1.2	0.014*
Piperacillin-tazobactam	2.18	3.01	0.83	0.10
Third-generation cephalosporins	5.48	4.72	-0.76	0.030*
Ceftazidime/Cefepime	1.41	2.19	0.78	0.031*
Antibiotic Starts / 1,000 Resident-Days				
All antibiotics	7.89	7.48	-0.41	0.020*
Fluoroquinolones	1.49	1.28	-0.21	0.002*
Piperacillin-tazobactam	0.09	0.11	0.02	0.13
Third-generation cephalosporins	0.80	0.74	-0.06	0.15
Ceftazidime/Cefepime	0.09	0.13	0.04	0.076
Urine cultures collected / 1,000 Resident-Days	3.01	2.63	-0.38	0.001*
<i>C. difficile</i> LabID Events / 10,000 Resident-Days	1.66	1.50	-0.16	0.52

Conclusion. By targeting both antibiotic prescribing culture and knowledge of best practices, the AHRQ Safety Program led to significant reductions in antibiotic use across a large cohort of LTCFs.

Disclosures. Morgan Katz, MD, MHS, AHRQ (Research Grant or Support)FutureCare Health Systems (Consultant)Roche (Advisor or Review Panel member) Robin Jump, MD, PhD, Accelerate (Grant/Research Support)Merck (Grant/Research Support)Pfizer (Grant/Research Support, Advisor or Review Panel member)Roche (Advisor or Review Panel member)

15. Leveraging Data to Explore the Consequences of Urine Testing and Antibiotic Use During the Spinal Cord Injury Annual Evaluation

Sarah B. May, MS, MPH¹; Annette Walder, MS²; S. Ann Holmes, MD¹; Ivy Poon, PharmD³; Charlesnika T. Evans, PhD, MPH⁴; Barbara Trautner, MD, PhD⁵; Felicia Skelton, MD, MS¹; ¹Baylor College of Medicine, Houston, Texas; ²Center for Innovations in Quality, Effectiveness and Safety, Houston, Texas; ³Texas Southern University, Houston, Texas; ⁴Northwestern University and VA, Hines, Illinois; ⁵Michael E DeBakey VA Medical Center, Houston, Texas

Session: O-4. Antimicrobial Stewardship in Special Populations/Non-Acute Care

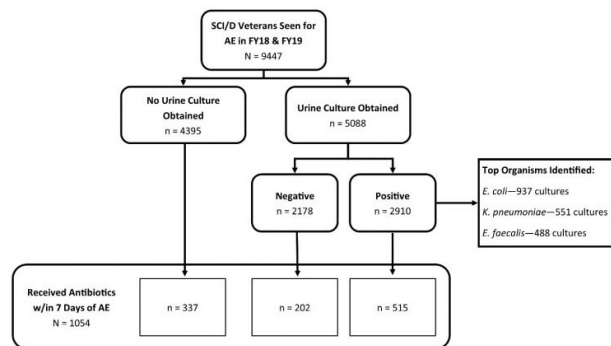
Background. The Veterans' Health Administration (VHA), currently mandates that every spinal cord injury and disorder (SCI/D) patient receives a screening urinalysis and urine culture (UC) during the annual evaluation (AE). Our pilot study at a single VHA center showed that 87% of the UCs obtained during the AE represented

asymptomatic bacteriuria (ASB), and that 35% of those UC were treated with antibiotics unnecessarily. The objective of the current study is to determine the association between UC and antibiotic use using a national VHA sample of SCI/D patients.

Methods. Retrospective cohort of Veterans who presented to a VHA SCI/D clinic for their AE in FY18 or FY19. Demographic and clinical characteristics as well as information on primary outcomes (receipt of urine culture and antibiotics) were extracted from the VHA Corporate Data Warehouse. Associations between covariates and outcomes were assessed using logistic regression. P values < 0.05 were considered significant.

Results. 9447 veterans with SCI/D were included, of whom 5088 (54%) had a UC obtained. Of those with a UC, 2910 (57%) were classified as positive (Figure 1). 1054 (11%) veterans were prescribed antibiotics within 7 days of their AE. Of these, 515 had a positive UC, 202 had a negative UC, and 2878 did not have a UC obtained during the AE. Age, ethnicity, neurologic level of injury (NLI), comorbidity score, frequently identified organism on positive culture, and receipt of antibiotics within 7 days of AE were significantly associated with obtaining a UC during the AE. Race, NLI, bladder management strategy, comorbidity score, frequently identified organism on positive culture, and having a UC obtained during the AE were significantly associated with receipt of antibiotics within 7 days of AE.

Flowchart of SCI/D Veterans who had a urine culture and/or received antibiotics during their FY18/19 AE



Conclusion. Over half of Veterans with SCI/D presenting for their AE receive a screening UC, contrary to other national guidelines recommending against this practice. Age and type or organism identified on UC drive antibiotic use, which was similar to our previous findings and reflect themes identified during our qualitative interviews with SCI/D providers. The knowledge gained from this national VA study will assist the development of interventions to reduce unnecessary urine testing and antibiotic use in the SCI/D population.

Disclosures. All Authors: No reported disclosures

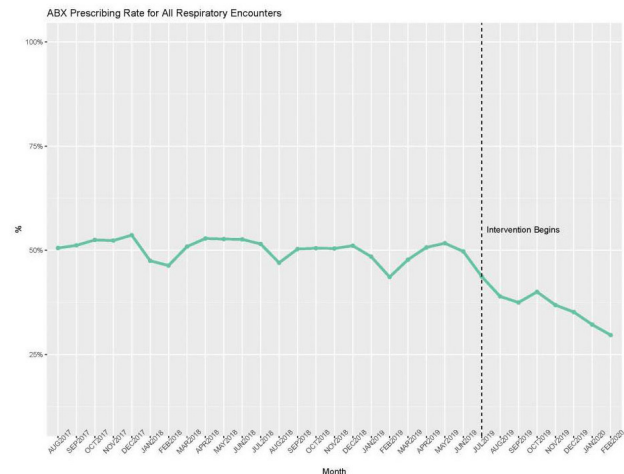
16. SCORE-UC: Antibiotic Stewardship in Urgent Care

Adam Hersh, MD, PhD¹; Eddie Stenehjem, MD, MSc²; Nora Fino, MS¹; Park Willis, MD²; Rajendu Srivastava, MD²; Whitney R. Buckel, Pharm D²; Kim Brunisholz, PhD²; Anthony Wallin, MD²; Naresh Kumar, MPH²; Matthew H. Samore, MD³; ¹University of Utah, Salt Lake City, Utah; ²Intermountain Healthcare, Salt Lake City, Utah; ³VA Salt Lake City Healthcare System, Salt Lake City, Utah

Session: O-4. Antimicrobial Stewardship in Special Populations/Non-Acute Care

Background. Urgent care (UC) is a rapidly growing site of healthcare delivery. The CDC developed Core Elements for Outpatient Antibiotic Stewardship to guide development of outpatient stewardship but little experience exists in applying Core Elements to UC settings. Our objective was to evaluate the effectiveness of a UC stewardship program in a health system.

Figure



Methods. We designed a UC stewardship program for Intermountain Healthcare's 39 UC sites based on CDC Core Elements. The pre-intervention period was Aug 2017-June 2019. The intervention period was 12 months from Jul 2019-June 2020. The program consisted of education for patients/providers about appropriate diagnosis and prescribing for respiratory conditions; media campaigns; EHR tools; and a prescribing dashboard for clinicians. The primary outcome was the percentage of respiratory visits where an antibiotic was prescribed. Secondary outcomes included the percentage of encounters receiving antibiotics for conditions where no antibiotics are indicated (e.g. bronchitis) and the percentage of encounters receiving first-line recommended therapy for conditions in which antibiotics may be warranted (otitis media, sinusitis, and pharyngitis). We used a binomial mixed effects hierarchical model to calculate the odds of antibiotic prescribing associated with the intervention period accounting for pre-intervention trends. Models account for clustering within providers and clinics. We present the results of an interim analysis after 7 months of the intervention.

Results. The overall number of UC encounters during the study period was 1,559,403 and 41.5% were for respiratory conditions. The percentage of patients with respiratory conditions that received an antibiotic prescription declined from 49.9% pre-intervention to 35.3% during the intervention (OR 0.73, 95% CI: 0.71, 0.76), reaching a low of 30% during February 2020 (Figure). Prescribing for conditions where antibiotics are not indicated decreased (OR 0.31, 95% CI 0.26-0.36) and first line recommended therapy increased (OR 1.28, 95% CI 1.20-1.26) during the intervention.

Conclusion. After 7 months of a planned 12 month intervention, the UC stewardship program was associated with improved antibiotic prescribing.

Disclosures. Rajendu Srivastava, MD, AHRQ, NIH, CDC (Grant/Research Support, I hold grants from AHRQ, NIH and CDC for a variety of clinical research and implementation studies)IPASS Patient Safety Institute (Other Financial or Material Support, I am a physician founder of this company to spread handoff best practices and reduce adverse events. My employer holds my equity in this company.)

17. Comparative Safety of Antibiotic Therapy for Outpatient Treatment of Uncomplicated Urinary Tract Infections

Anne M. Butler, PhD¹; Michael Durkin, MD, MPH²; Matthew R. Keller, MS¹; Yinjiao Ma, MS, MPH²; William Powderly, MD³; Margaret A. Olsen, PhD, MPH¹; ¹Washington University in St. Louis, St. Louis, Missouri; ²Washington University, St. Louis, Missouri; ³Division of Infectious Diseases Washington University in St. Louis, St. Louis, Missouri

Session: O-4. Antimicrobial Stewardship in Special Populations/Non-Acute Care

Background. Urinary tract infection (UTI) is one of the most common indications for outpatient antibiotic prescriptions in otherwise healthy women, yet the comparative safety of antibiotics for empirical therapy is not well established. We compared the risk of adverse drug events by antibiotic treatment regimen among premenopausal women with uncomplicated UTI.

Methods. Using the IBM MarketScan Commercial Database (2006-2015), we identified healthy, non-pregnant women aged 18-44 who were diagnosed with UTI and prescribed a same-day antibiotic with activity against common uropathogens. Patients were followed for outcomes with varying follow-up periods: 3 days (anaphylaxis), 14 days (acute renal failure, skin rash, urticaria/hives, nausea/vomiting, abdominal pain), 30 days (vaginitis/vulvovaginal candidiasis, non-C. difficile diarrhea) and 90 days (C. difficile diarrhea, pneumonia, tendinopathy, retinal detachment). We estimated propensity score-weighted hazard ratios (HR) and 95% confidence intervals (CI) using Cox proportional hazards models.

Results. Of 1,140,602 eligible women, the distribution of antibiotic receipt was fluoroquinolones (44%), trimethoprim-sulfamethoxazole (TMP/SMX) (28%), nitrofurantoin (24%), narrow-spectrum β -Lactam / β -Lactamase inhibitor combinations (" β -Lactams") (3%), broad-spectrum β -Lactams (1%) and amoxicillin/ampicillin (1%). Of two first-line agents, we observed higher risk of outcomes among TMP/SMX vs. nitrofurantoin initiators: acute renal failure (HR 2.46, 95% CI 1.46-4.14), skin rash (HR 2.43, 95% CI 2.13-2.77), urticaria (HR 1.35, 95% CI 1.18-1.56), nausea/vomiting (HR 1.19, 95% CI 1.10-1.29) and abdominal pain (HR 1.14, 95% CI 1.09-1.19). Compared to nitrofurantoin, non-first-line agents (fluoroquinolones, broad- and/or narrow-spectrum β -Lactams) were associated with higher risk of acute renal failure, skin rash, nausea/vomiting, abdominal pain, vaginitis/vulvovaginal candidiasis, diarrhea (C. difficile & non-C. difficile), pneumonia and tendinopathy.

Conclusion. The risk of adverse drug events differs widely by antibiotic agent, with substantial differences in first-line agents. Understanding antibiotic safety is critical to prevent suboptimal antibiotic prescribing and reduce adverse events.

Disclosures. Margaret A. Olsen, PhD, MPH, Merck (Grant/Research Support)Pfizer (Consultant, Grant/Research Support)

18. Durations of Antibiotic Therapy and Factors Associated with Longer Than Recommended Durations for Common Ambulatory Infections in an Integrated Healthcare System

Axel Vazquez Deida, Pharm.D.¹; Katherine C. Shihadeh, PharmD²; Deborah Aragon, MSPH²; Bryan C. Knepper, MPH, MS³; Timothy C. Jenkins, MD³; ¹Jackson Memorial Hospital, Miami, Florida; ²Denver Health Medical Center, Denver, Colorado; ³Denver Health Medical Center, University of Colorado School of Medicine, Denver, Colorado

Session: O-4. Antimicrobial Stewardship in Special Populations/Non-Acute Care

Background. Duration of antibiotic therapy is an important focus for antibiotic stewardship, but the extent and drivers of excessive durations are not well understood. This project aimed to describe durations of therapy prescribed for common infections

across the ambulatory care settings of an integrated healthcare system and identify factors associated with longer than recommended durations.

Methods. This was a retrospective, cross-sectional evaluation conducted from July 1, 2018 to June 30, 2019. We identified antibiotic prescriptions for adults age 18 years or older presenting to a Denver Health ambulatory care facility (urgent care, emergency department, family medicine clinic, or internal medicine clinic) for an infection with a recommended duration of therapy of 5 days or less based on institutional guidance. Infections included purulent and non-purulent cellulitis, uncomplicated subcutaneous abscess, acute bacterial sinusitis (ABS), acute otitis media (AOM), community acquired pneumonia, cystitis, and pyelonephritis treated with an indicated fluoroquinolone. Prescriptions for more than 5 days were classified as longer than recommended. We evaluated whether the following factors were associated with longer than recommended prescriptions: location of visit, type of infection, patients' age, race/ethnicity, sex, infection type, and prescribing provider type

Results. 5331 prescriptions met inclusion criteria. Of those, the duration of therapy was longer than recommended for 2095 (39%) (Table 1). Durations varied significantly across locations (p< 0.0001). In the sub-group analysis family medicine clinics had the highest proportion of longer than recommended durations (46%). Durations also varied significantly by type of infection. For cellulitis, ABS, and AOM, the duration was longer than recommended in 50%, 54%, and 75% of cases, respectively. Other factors associated with longer than recommended durations included male sex (p< 0.0001) and prescriptions by advanced practice providers (p = 0.0008).

Table 1: Antibiotic Duration of Therapy for Common Outpatient Infections
Conclusion. Care locations, infection types, and both patient and prescriber factors were associated with longer than recommended prescriptions suggesting specific opportunities to prevent excessive durations of therapy.

Table 1: Antibiotic Duration of Therapy for Common Outpatient Infections^a

Variable	≤5 days (n = 3236) n (%)	>5 days (n = 2095) n (%)	P-value
Age (years)			
18-49	1981 (61.2)	1289 (61.5)	0.3616
50-64	841 (26)	564 (26.9)	
≥65	414 (12.8)	242 (11.6)	
Race/Ethnicity			
White	1051 (32.5)	695 (33.2)	0.4311
Black	371 (11.5)	254 (12.1)	
Hispanic/Latino	1667 (51.5)	1068 (51)	
Other ^b	147 (4.5)	78 (3.7)	
Sex			
Male	932 (28.8)	821 (39.2)	<0.0001
Female	2304 (71.2)	1274 (60.8)	
Provider type			
Physician	1739 (53.7)	1027 (49)	0.0008
Advanced practice provider ^c	1497 (46.3)	1068 (51)	
Location			
Urgent care	1740 (53.8)	1109 (52.9)	<0.0001
Emergency department	424 (13.1)	143 (6.8)	
Family medicine clinic	703 (21.7)	606 (28.9)	
Internal medicine clinic	369 (11.4)	237 (11.3)	
Infection			
Skin and soft tissue infections ^d	800 (24.7)	703 (33.5)	<0.0001
Upper respiratory tract infections ^e	603 (18.6)	915 (43.7)	
Community acquired pneumonia	288 (8.9)	61 (2.9)	
Cystitis	1497 (46.3)	400 (19.1)	
Pyelonephritis treated with an indicated fluoroquinolone	48 (1.5)	16 (0.8)	

^a Common outpatient infection include purulent and non-purulent skin cellulitis, uncomplicated subcutaneous abscess, acute bacterial sinusitis, acute otitis media, community acquired pneumonia, cystitis, and pyelonephritis treated with an indicated fluoroquinolone

^b American Indian or Alaskan Native, Asian, and unknown race/ethnicity

^c Physician assistant, nurse practitioner, and midwife

^d Purulent and non-purulent skin cellulitis and uncomplicated subcutaneous abscess

^e Acute bacterial sinusitis and acute otitis media

Disclosures. All Authors: No reported disclosures

19. A Global Point Prevalence Survey of Antimicrobial Use in Neonatal Intensive Care Units

Pavel Prusakov, PharmD¹; Debra A. Goff, PharmD²; Phillip Wozniak, BS³; Pablo J. Sanchez, MD⁴; ¹Nationwide Children's Hospital, Columbus, Ohio; ²The Ohio State Univ Wexner Med Ctr, Columbus, Ohio; ³The Ohio State University School of Medicine, Columbus, Ohio; ⁴Nationwide Children's Hospital - The Ohio State University, Columbus, Ohio

No-MAS-R Study Group

Session: O-5. Antimicrobial Stewardship: Population Trends in Antibiotic Use

Background. Antimicrobials are one of the most commonly used medications in the NICU. We aimed to gather baseline global data on antimicrobial use to facilitate subsequent antimicrobial stewardship efforts.

Methods. We conducted a one-day global NICU point prevalence study on July 1, 2019 with a 30-day follow up. Data collection included patient demographics, antimicrobial therapy, site location, antimicrobial stewardship (AS) practices as well as the duration of antimicrobial therapy and in-hospital mortality were recorded.

Results. Eighty-one NICUs from twenty-eight different countries identified 2,163 admitted patients of which 570 (26%) were prescribed at least one antimicrobial. Three NICUs did not have any patients on antimicrobial therapy, all had less