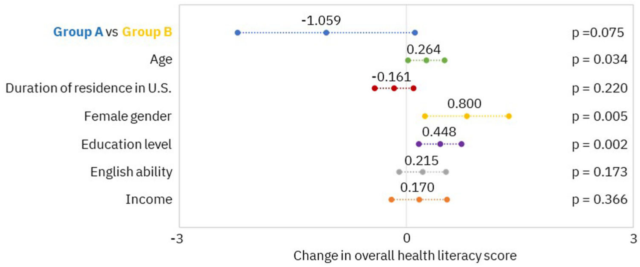

Figure 5: Size effect of demographic variables in multivariable linear regression with health literacy score. End points show 95% confidence intervals.

showed that female gender, educational level, and age correlated with greater health literacy, while being in group A trended towards significance with respect to correlating with lesser health literacy (Figure 5). **Conclusions:** Immigrants and refugees/asylum-seekers from LMICs demonstrated beliefs suggesting deficits in knowledge of AMR compared to native-born Americans and those from high-income countries, independent of other potentially confounding demographic characteristics. Female gender, educational level, and age independently correlated with greater health literacy. These results could inform future patient-centered antimicrobial stewardship educational interventions in certain target populations such as immigrants and refugees/asylum-seekers in the United States.

Disclosures: None

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Presentation Type:
Poster Presentation - Oral Presentation
Subject Category: Antibiotic Stewardship
Proposing the "continuum of UTI" for a nuanced approach to antimicrobial stewardship
Sonali Advani; Nicholas Turner; Rebecca North; Rebekah Moehring; Alicia Nelson; Valerie Vaughn; Charles Scales Jr; Nazema Siddiqui; Kenneth Schmader and Deverick Anderson

Background: Historically, diagnosis of urinary tract infections (UTIs) has been divided into 3 categories based on symptoms and urine culture results: not UTI, asymptomatic bacteriuria (ASB), or UTI. However, some populations (eg, older adults, catheterized patients) may not present with signs or symptoms referrable to the urinary tract or have chronic lower urinary tract symptoms (LUTS), making the diagnosis of UTI challenging. We sought to understand the clinical presentation of patients who receive urine tests in a cohort of diverse hospitals. **Methods:** This retrospective descriptive cohort study included all adult noncatheterized inpatient and ED encounters with paired urinalysis and urine cultures (24 hours apart) from 5 community and academic hospitals in 3 states (NC, VA, GA) between January 1, 2017, and December 31, 2019. Trained abstractors collected clinical and demographic data using a 60-question REDCap survey. The study group met with multidisciplinary experts (ID, geriatrics, urology) to define the "continuum of UTI" (Table 1), which includes 2 new categories: (1) LUTS to capture patients with chronic lower urinary tract symptoms and (2) bacteriuria of unclear significance (BUS) to capture patients who do not clinically meet criteria for ASB or UTI (eg, older adults who present with delirium and bacteriuria). The newly defined categories were compared to current guideline-based categories. We further compared ASB, BUS, and UTI categories using a lower bacterial threshold of 1,000 colony-forming units. **Results:** In total, 220,531 encounters met study criteria. After using a random number generator and removing duplicates, 3,392 encounters were included. Based on current IDSA guidelines, the prevalence of ASB was 32.1% (n = 975), and prevalence of patients with "not UTI" was 1,614 (53%). Applying the expert panel's

Table 1: Comparison of Urinary Tract Infection (UTI) categories based on current IDSA guidelines and new "continuum of UTI" definition.

UTI Classification based on current IDSA guidelines (n, %)					
Category	**Not UTI** (Mixed + Negative cultures)		**Asymptomatic Bacteriuria** (Positive culture cut off ≥100,000 colony forming units (cfu))		**Definitive UTI**
	1614 (53)		975 (32.1)		452 (14.9)
New Definition of Continuum of UTI (n, %)					
Category	**Not UTI**	**LUTS**	**ASB**	**BUS**	**Definitive UTI**
Culture	Mixed + Negative cultures		Positive culture cut off ≥100,000 cfu		
	1147 (37.7)	467 (15.3)	226 (7.4)	749 (24.6)	452 (14.9)
Sensitivity Analysis: Continuum of UTI (Bacterial Cut-offs lowered, n, %)					
Category	**Not UTI**	**LUTS**	**ASB**	**BUS**	**Definitive UTI**
Category	Mixed + Negative cultures		Positive culture cut off ≥1000 cfu		
Culture	1147 (33.8)	467 (13.8)	276 (8.1)	962 (28.4)	540 (15.9)

Not UTI: Negative or mixed urine culture based on above criteria with no lower or upper urinary tract symptoms
LUTS: Negative or mixed urine culture based on criteria above plus dysuria, urgency, frequency, suprapubic/flank pain or tenderness, incontinence/retention, neurogenic bladder, urologic obstruction, other urologic issues.
Asymptomatic Bacteriuria (ASB): Positive urine culture based on criteria above but no lower or upper urinary tract symptoms
Bacteriuria of Unclear Significance (BUS) Positive urine culture based on above criteria but does not meet criteria for ASB or UTI (e.g., Positive urine culture + fever, or positive urine culture + confusion)
Definitive UTI: Positive urine culture based on criteria above plus dysuria, urgency, frequency, suprapubic/flank pain or tenderness **OR** two clinical criteria (fever + hypothermia) **OR** one clinical criterion + one urologic criterion: **Clinical criteria:** fever/rigors/hypotension/hypothermia/shock/nausea vomiting/confusion/leukocytosis. **Urologic Criteria:** urologic procedure or surgery causing mucosal bleeding, urologic obstruction, e.g., stones or active malignancy; retention or incontinence; urologic trauma causing hematuria(catheter trauma; stent placement, etc)

new "continuum of UTI" definitions, the prevalence of "not UTI" patients decreased to 1,147 (37.7%), due to reassignment of 467 patients (15.3%)to LUTS. The prevalence of ASB decreased by 24% due to reassignment to BUS. Lowering the bacterial threshold had a slight impact on the number of definitive UTIs (14.9 vs 15.9%) (Table 1). **Conclusions:** Our rigorous review of laboratory and symptom data from a diverse population dataset revealed that diagnostic uncertainty exists when assessing patients with suspicion for UTI. We propose moving away from dichotomous approach of ASB versus UTI and using the "continuum of UTI" for stewardship conversations. This approach will allow us to develop nuanced deprescribing interventions for patients with LUTS or BUS (eg, watchful waiting, shorter course therapy) that account for the unique characteristics of these populations.

Disclosures: None

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Subject Category: Antibiotic Stewardship
Changes in US long-term care facility antibiotic prescribing, 2013–2021
Katryna Gouin; Stephen Creasy; Mary Beckerson; Marti Wdowicki; Lauri Hicks and Sarah Kabbani

Background: Antibiotic use (AU) data are needed to improve prescribing in long-term care facilities (LTCFs). CMS requires AU tracking in LTCFs (effective 2017). Although most LTCFs have limited resources for AU tracking, LTCFs contract with LTCF pharmacies to dispense, monitor, and review medications. The objective of our analysis was to report LTCF antibiotic prescribing and characterize temporal changes from 2013 to 2021. **Methods:** We estimated annual systemic AU rates using prescription dispenses and resident census data from PharMerica, a LTCF-pharmacy services provider that covers ~20% of LTCFs nationwide, although the number of LTCFs and residents serviced by PharMerica varied over time (Fig. 1). We included LTCFs with ≥4 months of antibiotic dispensing and 12 months of census data. We identified courses by collapsing the same drug dispensed to the same resident within 3 days of the preceding end date. Course duration was calculated as the difference between

Figure 1. Changes in Antibiotic Use Rates in Long-term Care Facilities, 2013-2021. Source: PharMerica

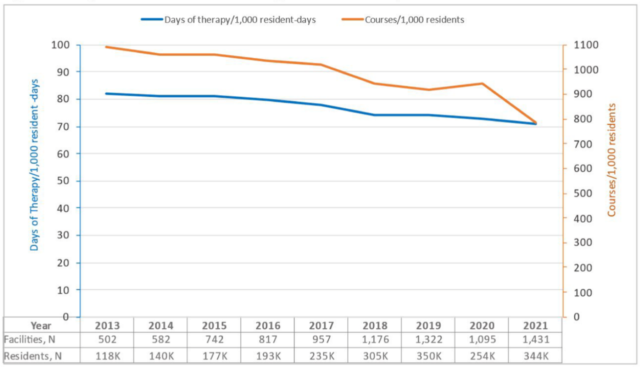
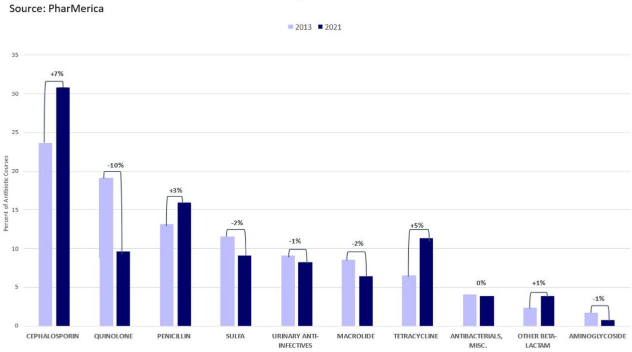


Table 1. Comparison of Antibiotic Use Rates in Long-term Care Facilities, 2013 vs. 2021. Source: PharMerica

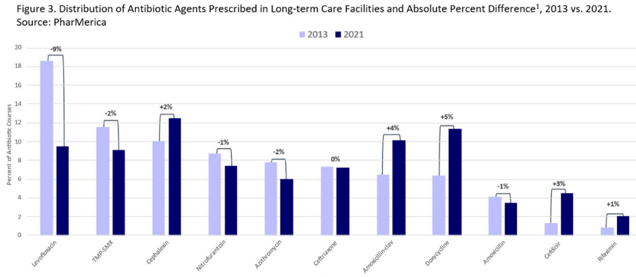
Antibiotic Use Metric	2013	2021	Change
Days-of-therapy(DOT)/1,000 resident-days, #	82	71	-13%
Courses/1,000 residents, #	1,091	787	-28%
Course duration, Median days (Interquartile Range)	7 (5-10)	7 (5-10)	No Change

Figure 2. Distribution of Antibiotic Classes[1] Prescribed in Long-term Care Facilities and Absolute Percent Difference[2], 2013 vs. 2021. Source: PharMerica



[1] Antibiotic Classes align with the following definitions: https://arpsp.cdc.gov/resources/OAU-Antibiotic-Class-Definitions.pdf
[2] Absolute percent difference displayed on graph. Calculated as: % of antibiotic courses in 2021 - % of antibiotic courses in 2013

Figure 3. Distribution of Antibiotic Agents Prescribed in Long-term Care Facilities and Absolute Percent Difference[1], 2013 vs. 2021. Source: PharMerica



[1] Absolute percent difference displayed on graph. Calculated as: % of antibiotic courses in 2021 - % of antibiotic courses in 2013

the end and dispense dates. We reported yearly AU rates as courses per 1,000 residents and days of therapy (DOT) per 1,000 resident days from 2013 to 2021. We compared AU rates (percentage change) and antibiotic courses by class and agent (absolute percent difference) between 2013 and 2021. **Results:** From 2013 to 2021, AU course rates reported as antibiotic courses per 1,000 residents decreased (percentage change, −28%), with a notable increase in 2020 (Fig. 1). However, the median course duration remained the same (Table 1). The AU decline was mostly driven by decreases in fluoroquinolone courses (absolute difference, −10%, most commonly levofloxacin) and macrolide courses (−2%, most commonly azithromycin) (Figs. 2 and 3). Increases in cephalosporin courses (absolute difference, +7%, most commonly cephalexin) and tetracycline courses (+5%, most commonly doxycycline) were also observed (Figs. 2 and 3). During this period, AU DOT rates reported as DOT per 1,000 resident days decreased (percentage change, −13%) (Table 1). **Conclusions:** The LTCF AU rates, especially for fluoroquinolones, have decreased in recent years with associated shifts in the distribution of antibiotic classes. This finding may be due to CMS stewardship requirements and increased awareness of adverse events, including the FDA fluoroquinolone warnings. The observed increase in 2020 could be secondary to changes in prescribing practices and resident population during the COVID-19 pandemic. Opportunities to improve prescribing in LTCFs include optimizing treatment duration and leveraging LTCF-pharmacy resources to provide stewardship expertise and support AU tracking and reporting.

Disclosures: None

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Subject Category: Antibiotic Stewardship

Feasibility of a low-intensity intervention to improve antimicrobial use in outpatient settings

Brigid Wilson; Sunah Song; Taissa Bej; Ukwen Akpoji; Corinne Kowal; Federico Perez and Robin Jump

Background: Overall, ~12% of outpatient visits result in an antibiotic prescription, and 30% of those prescriptions are inappropriate. Behavioral nudges help influence practitioner behavior. We hypothesized that peer comparison combined with a behavioral nudge (a patient alert letter) would influence prescribers to reduce antibiotic prescriptions and improve antimicrobial stewardship in the outpatient setting. We pilot-tested this intervention in outpatient primary care clinics associated with a large Veterans Affairs (VA) medical center. **Methods:** We conducted a clustered randomized controlled trial of 12 community-based outpatient clinics. All practitioners in the intervention arm received quarterly comparative feedback reports and, when indicated, quarterly patient alert letters. Comparative feedback reports gave personalized feedback about antibiotic prescriptions for upper respiratory tract infections, comparing the recipient's antibiotic prescriptions to the average for all practitioners at the primary care clinics included in our study. Patient alert letters notified practitioners to patients in their panel with recently detected *Clostridioides difficile* or resistant organism and their antibiotic exposures. We assessed outpatient visits during the preintervention period (April–September 2020), the intervention period (October 2020–September 2021), and the postintervention period (October 2021–September 2022). A mixed-effects logistic regression model predicting antibiotic prescriptions compared the arms across these periods. **Results:** The outpatient populations observed in the intervention and control arms were similar during each phase of the study. Prior to the intervention, the average proportion of visits with an antibiotic prescription was lower among clinics in the intervention arm (1.4% vs 1.8% in control arm; $P = .45$). This difference broadened slightly during the intervention period (1.4% vs 2.1%, respectively; $P = .03$) and the postintervention period (1.3% vs 2.1%, respectively;