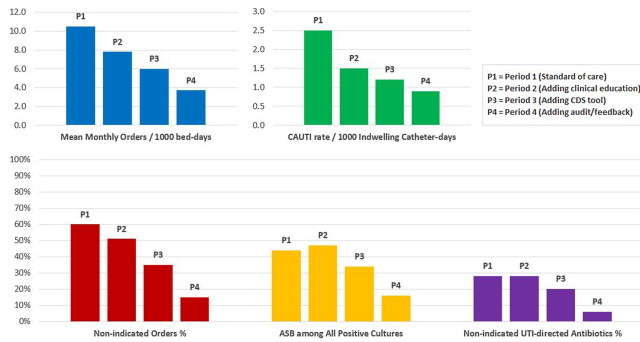


Outcome	Period/Intervention			
	P1: Background	P2: Education	P3: CDS	P4: Audit/Feedback
Sampled orders	542/2717	503/1966	511/1523	584/943
Mean monthly orders /1000 bed-days	10.5	7.8	6.0	3.7
Non-indicated orders	324/542 (60%)	257/503 (51%)	180/511 (35%)	90/584 (15%)
ASB among positive cultures	53/116 (46%)	52/111 (47%)	53/154 (34%)	29/187 (16%)
Non-indicated antimicrobials	31/110 (28%)	31/109 (28%)	39/196 (20%)	14/225 (6%)
ASB-directed antimicrobials	29/110 (26%)	29/109 (27%)	32/196 (17%)	10/225 (4%)
CAUTI's /1000 indwelling catheter-days	2.5	1.5	1.2	0.9



emergency, and long-term care patients at a VA healthcare facility, retrospectively comparing standard of care (period 1: 1/1/2022-6/30/2022) to adding dedicated provider education on facility-approved urine-culturing indications (period 2: 7/1/2022-1/19/2023), then adding an electronic clinical decision support (CDS) tool (Figure 1) mandating urine-culturing indications selections (period 3: 1/20/2023-6/30/2023), then prospectively adding real-time case-based physician-generated audit/feedback emails on ordering appropriateness (period 4: 7/1/2023-12/31/2023). We randomly sampled approximately 500 orders from each period and measured the impact on the rate of urine reflex/culture orders, the percentage of non-indicated orders and ASB, UTI-directed antimicrobial usage, and facility-wide CAUTI rates. **Results:** We analyzed 2140 urine reflex/culture orders (Table 1 and Figure 2). The mean monthly orders per 1000 bed-days and percentage of non-indicated orders decreased with each intervention to one-fourth of the initial values by period 4 ($p=0.0002$). The ASB rate among positive cultures was unchanged from periods 1 to 2 but started to decrease in period 3 with the biggest impact in period 4 ($p=0.01$). Non-indicated and ASB-directed antimicrobial courses both followed the previous pattern, dropping from 28% and 26% baseline to 6% and 4% by the study conclusion ($p=0.015$ and 0.008), respectively. Estimated UTI-directed antimicrobials decreased by 34% (363/551) with antimicrobial-days saved from 4093 to 2846 per 6-month period. CAUTI rate relatively declined with each intervention, along with a reduction in ASB-attributed CAUTI's from 45% (5/11) initially to 20% (1/5) in period 4. **Conclusion:** A stepwise urine-culturing diagnostic stewardship approach of clinical education, electronic CDS tool, plus real-time audit/feedback decreased overall urine reflex/cultures, non-indicated ordering, ASB identification, unnecessary antimicrobials, and CAUTI rates, with the greatest impact after bundling all interventions including order appropriateness audit/feedback.

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Poster Presentation - Poster Presentation

Subject Category: Diagnostic Stewardship

UTI Symptomatology and Antibiotic Prescribing among US Veterans Seen in Outpatient Clinics

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Background: Infectious Diseases Society of America guidelines recommend antibiotic prescribing for urinary tract infections (UTIs) when there is a positive culture and signs and symptoms of infection. Despite these guidelines, prescribing for asymptomatic bacteriuria remains prevalent. We conducted a chart review of UTI outpatient encounters to determine the prevalence of antibiotic prescribing as well as patient and provider factors associated with inappropriate prescribing for UTIs. **Methods:** Patients who were seen at any Department of Veterans Affairs (VA) outpatient clinic with a positive urine culture from 1/1/2019-12/31/2022 were evaluated for inclusion. Exclusion criteria were pregnancy, neutropenia, neurogenic bladder, spinal cord injury/disorder, chronic kidney disease stage III and above, and those undergoing urologic surgical procedures within 7 days. Inappropriate prescribing was defined as an antibiotic prescription given for UTI treatment when no signs or symptoms of infection were recorded during the patient encounter. Chi-square, Fisher's exact and t-tests were used to evaluate the association between patient and provider characteristics and antibiotic prescribing. **Results:** Among 341 visits, most patients were male (70%), White (40%), older (mean age of 65.8 ± 15.9 years) and treated at an urban facility (57%). Antibiotics were prescribed for 67% (229/341) of visits. Of the 229 antibiotic courses prescribed, 119 (52%) were appropriate; issued to patients with ≥ 1 sign or symptom consistent with a urinary tract infection. The most common symptom recorded was dysuria, followed by frequency, urgency, and hematuria (Figure 1). The remaining 110 (48%) antibiotic prescriptions were inappropriate; given to patients without documented UTI-related signs or symptoms. The proportion of inappropriate prescribing was higher among advanced practice practitioners (39/56; 69%) compared to physicians (68/113; 60%; $P < 0.0001$). Prescribing of an antibiotic did not differ by gender (p -value=0.3779), race (p -value=0.3972), age (p -value=0.7461) or urban versus rural geography (p -value=0.3647). **Discussion:** In outpatient clinics, nearly half of antibiotics prescribed to patients with a positive urine culture occurred in the absence of documented signs or symptoms of a UTI. These results suggest that interventions to improve antibiotic use for UTI-related concerns in the outpatient setting should address UTI-related signs and symptoms as well as asymptomatic bacteriuria. Advanced practice practitioners were more likely to prescribe without documentation of relevant signs or symptoms than physicians. Improving meaningful documentation about the presence or absence of signs and symptoms of a UTI may help reduce inappropriate antibiotic prescriptions in the outpatient setting.

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Figure 1: Frequency of documented UTI signs and symptoms

