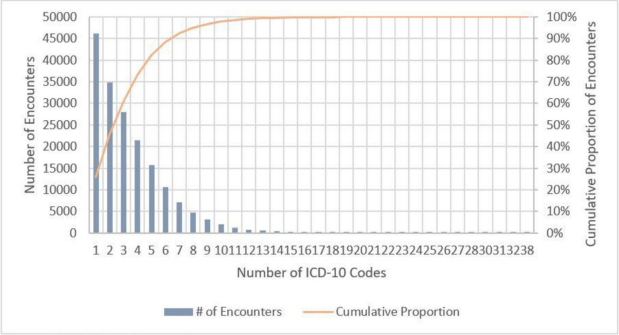

Figure 2: ICD-10 Codes per Encounter

Table 1: Classification of Encounters

	Urgent Care ICD-10 Dictionary	Expanded ICD-10 Dictionary
Included ICD-10s (No.)	1,400	2,839
Encounters classified (No., %)	147,085/177,531 (**82.9%**)	169,124/177,531 (**95.3%**)
Tier (No., %)		
1	3,418 (**2.3%**)	4,121 (**2.4%**)
2	11,348 (**7.7%**)	18,377 (**10.9%**)
3	132,319 (**90.0%**)	146,626 (**86.7%**)

Table 2: Antibiotic Prescribing Rate (APR) of Classified Encounters

	Urgent Care ICD-10 Dictionary	Expanded ICD-10 Dictionary
Overall APR	5,347/147,085 (**3.6%**)	5,741/169,124 (**3.4%**)
2019	2,981/74,512 (**4.0%**)	3,228/84,826 (**3.8%**)
2020	2,366/72,573 (**3.3%**)	2,513/84,298 (**3.0%**)
APR by Tier		
1	1,513/3,418 (**44.3%**)	1,664/4,121 (**40.4%**)
2	2,012/11,348 (**17.7%**)	2,539/18,377 (**13.8%**)
3	1,822/132,319 (**1.4%**)	1,538/146,626 (**1.0%**)

Table 3: Impact of Expanded Dictionary: Antibiotic Prescribing Rate (APR) of Additionally Categorized and Re-Categorized Encounters

		APR (%)
Additionally categorized encounters (no.)	22,039	1.8%
Tier 1	162 (0.7%)	15.4%
Tier 2	1,260 (5.7%)	17.9%
Tier 3	20,617 (93.5%)	0.7%
Re-categorized encounters (no.)	41,473	1.9%
Change in Tier	6,538 (15.8%)	8.7%
Tier 2 -> 1	190 (2.9%)	47.4%
Tier 3 ->1	351 (5.4%)	10.3%
Tier 3 -> 2	5,988 (91.6%)	6.6%

antibiotic prescribing. A more sophisticated classification system may help to accommodate the diversity and volume of ICD-10 codes used in primary care.

1. Stenehjem E, et al. *Clin Infect Dis* 2020;70:1781–1787.

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Presentation Type:
Poster Presentation - Oral Presentation
Subject Category: Antibiotic Stewardship

Evaluation of periprocedure antibiotics and infection-related hospitalizations after transrectal prostate biopsies

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Background: Prostate cancer is the leading cancer diagnosis and the second leading cause of cancer deaths in men. Definitive diagnosis is made by prostate biopsy. This procedure poses a risk of infection and, rarely, sepsis. Studies have found the incidence of symptomatic urinary tract infection (UTI) after biopsy to be 2%–3%, and the rate of infection-related hospitalization (IRH) to be 0.6%–4.1%. An initial review at our facility found the IRH rate to be 3.7%. The primary purpose of this study was to determine the incidence of IRH following prostate biopsy in patients at the Memphis VA Medical Center (VAMC) after initial review and education. **Methods:** All transrectal prostate biopsies performed at the Memphis VAMC from October 2017 through May 2021 were analyzed. Patients were excluded if they had a spinal cord injury or concomitant procedure. The primary outcome was IRH occurring within 30 days of the procedure. Variables collected included risk factors, antibiotic choice and duration, and details of postprocedural infections. Analyses were performed on a per-procedure basis. **Results:** Overall, 601 procedures were identified; 13 were excluded, for a total of 588 transrectal prostate biopsies on 533 patients. All patients were given antibiotics. Oral antibiotics alone were provided for 306 procedures (52%) for an average duration of 3 days. A combination of both oral and intramuscular antibiotics were provided for 282 (48%) procedures. The most common oral antibiotics used were cefuroxime (538, 91.4%), ciprofloxacin (17, 2.9%), amoxicillin–clavulanate (16, 2.7%), and sulfamethoxazole–trimethoprim (12, 2%). Intramuscular antibiotics included ceftriaxone (263, 93.3%) and gentamicin (19, 6.7%). An infectious complication occurred in 29 patients (4.9%): 26 (3.4%) were urogenital and 5 (0.8%) required hospitalization. Of the procedures complicated by a postprocedure infection, 22 (75.9%) received an oral antibiotic alone, 21 (95.4%) of which were cefuroxime, and 7 (24.1%) received both an intramuscular and an oral agent. **Conclusions:** In our initial review, the most common antibiotics used were fluroquinolones, with an average duration of 3 days periprocedure and an IRH rate of 3.7%. These findings were used to reinforce practices compliant with American Urological Association (AUA) guidelines. This follow-up review reveals that the first-line choice changed from fluroquinolones to cephalosporins, with average duration remaining at 3 days. Although the overall infection rate was 4.9%, the IRH rate decreased from 3.7% to 0.8%.

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Poster Presentation - Oral Presentation
Subject Category: Antibiotic Stewardship

Rates of intravenous antibiotic starts among outpatient hemodialysis patients using NHSN dialysis event reporting, 2016–2020

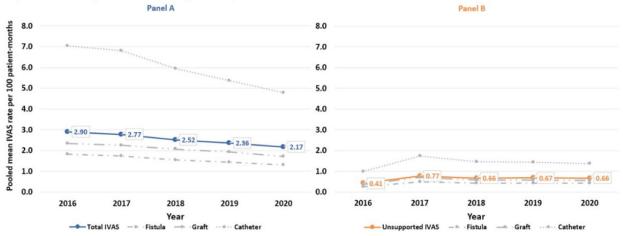
William Wilson; Sarah Kabbani; Shannon Novosad; Lucy Fike; Katryna Gouin; Jeneita Bell; Suparna Bagchi; Jonathan Edwards; Ibironke Apata and Susan Cali

Background: Nearly one-third of patients on hemodialysis receive intravenous (IV) antibiotics annually, but national data characterizing antibiotic use in this population are limited. Using NHSN surveillance data for outpatient dialysis facilities, we estimated temporal changes in the rate of IV antibiotic starts (IVAS) among hemodialysis patients as well as the proportion of IVAS that were not supported by a reported clinical indication. **Methods:** IVAS events were obtained from the NHSN Dialysis Event module between 2016 and 2020, excluding patients who were out of network, receiving peritoneal or home dialysis, or with unspecified vascular access. IVAS unsupported by documentation were defined as new IVAS without a collected or positive blood culture, pus, redness or swelling event, or an associated clinical symptom. Pooled mean rates of total and unsupported IVAS were estimated per 100 patient months yearly and stratified by vascular access type. Differences in IVAS rates by year were estimated with negative binomial regression. **Results:** Between 2016 and 2020, 7,278 facilities reported 648,410 IVAS events; 161,317 (25%) were unsupported by documentation (Table 1). In 2016, 3,340 (54%) facilities with ≥1 IVAS event reported an IVAS unsupported by documentation, which increased to 4,994 (73%) in 2020. Total IVAS rates decreased by an average of 8.2% annually (95% CI, 7.1%–9.3%; $P < .001$). The average annual percentage

Table 1. IV antibiotic start (IVAS) rates per 100 patient-months among outpatient hemodialysis facilities reporting to NHSN, 2016-2020.

	Total	2016		2017		2018		2019		2020	
	n or rate	n or rate	%	n or rate	%	n or rate	%	n or rate	%	n or rate	%
Total IVAS											
Unique facilities	7,429	6,370	86%	6,551	88%	6,852	92%	7,035	95%	7,129	96%
IVAS	648,410	139,656	22%	136,872	21%	133,252	21%	125,480	19%	113,150	17%
Patient-Months	25,578,128	4,812,170	19%	4,932,849	19%	5,296,099	21%	5,320,438	21%	5,216,572	20%
Overall Rate	2.54	2.90		2.77		2.52		2.36		2.17	
By Access IVAS Patient-Months											
Fistula 246,892 15,801,408	1.56	1.81		1.74		1.53		1.44		1.30	
Graft 92,308 4,487,104	2.06	2.34		2.26		2.07		1.94		1.71	
Catheter 307,576 5,214,145	5.90	7.04		6.80		5.94		5.37		4.79	
Unsupported IVAS											
Unique facilities with >=1 IVAS	7,278	6167	84.7%	6370	87.5%	6642	91.3%	6821	93.7%	6885	94.6%
Unique facilities with >=1 unsupported IVAS	5,948	3340	54.2%	3584	56.3%	4591	69.1%	4856	71.2%	4994	72.5%
IVAS	161,317	19,708	12.2%	37,500	23.2%	34,680	21.5%	35,419	22.0%	34,010	21.1%
Patient-Months	25,386,892	4,788,598	18.9%	4,899,472	19.3%	5,262,560	20.7%	5,280,546	20.8%	5,155,716	20.3%
Overall Rate	0.64	0.41		0.77		0.66		0.67		0.66	
By Access IVAS Patient-Months											
Fistula 63,605 15,682,448	0.41	0.26		0.49		0.42		0.43		0.42	
Graft 24,776 4,459,172	0.56	0.36		0.69		0.58		0.58		0.55	
Catheter 72,335 5,170,262	1.40	0.97		1.74		1.45		1.44		1.38	

Figure 1. Rates of total (Panel A) and unsupported (Panel B) IV antibiotic starts (IVAS) per 100 patient-months stratified by access site in outpatient hemodialysis facilities reporting to NHSN, 2016-2020.



decrease did not differ significantly by vascular access site. The total IVAS rate was lowest in 2020 (2.17 per 100 patient months; 95% CI, 2.18–2.17). IVAS rates in 2020 were greatest for patients with catheter access (4.79 per 100 patient months; 95% CI, 4.75–4.83), followed by graft (1.71 per 100 patient months; 95% CI, 1.68–1.73), and lowest for patients with fistulas (1.30 per 100 patient months; 95% CI, 1.29–1.31). The overall pooled mean rate of unsupported IVAS was 0.64 per 100 patient months (95% CI, 0.63–0.64), which did not significantly change by year (Fig. 1). **Conclusions:** Total IVAS rates among outpatient hemodialysis patients have decreased since 2016, and rates among catheter patients remain highest compared to patients with fistulas or grafts. However, unsupported IVAS rates did not change, and the proportion of facilities reporting an unsupported IVAS increased annually. Targeted efforts to engage facilities with unsupported IVAS may help improve accurate reporting and prescribing practices.

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Poster Presentation - Oral Presentation
Subject Category: C. difficile

Comparison of fidaxomicin to oral vancomycin for the treatment of Clostridioides difficile infection in hospitalized patients

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Background: *Clostridioides difficile* infection (CDI) is a major source of morbidity and mortality. Even after recovery, recurrent CDI (rCDI) occurs frequently, and concomitant antibiotic use for treatment of a concurrent non–*C. difficile* infection is a major risk factor. Treatment with fidaxomicin versus vancomycin is associated with similar rate of cure and lower recurrence risk. However, the comparative efficacy of these 2 agents remains unclear in those receiving concomitant antibiotics. **Methods:** We conducted a randomized, controlled, open-label trial at the University of Michigan and St. Joseph Mercy hospitals in Ann Arbor, Michigan. Patients provided written informed consent at enrollment. We included all hospitalized patients aged ≥18 years with a positive test for toxigenic *C. difficile*, >3 unformed stools per 24 hours, and ≥1 qualifying concomitant antibiotic with a planned treatment of an infection for ≥5 days after enrollment. We excluded patients with complicated CDI, allergy to vancomycin–fidaxomicin, planned adjunctive CDI treatments, CDI treatment for >24 hours prior to enrollment, concomitant laxative use, current or planned colostomy or ileostomy, and/or planned long-term (>12 weeks) concomitant antibiotic use. Clinical cure was defined as resolution of diarrhea for 2 consecutive days maintained until the end of therapy and for 2 days afterward. rCDI was defined as recurrent diarrhea with positive testing within 30 days of initial treatment. Patients were randomized (stratified by ICU status) to fidaxomicin 200 mg twice daily or vancomycin 125 mg orally 4 times daily for 10 days. If concomitant antibiotic treatment continued >10 days, the study drug continued until the concomitant antibiotic ended. Bivariable statistics included *t* tests and χ^2 tests. **Results:** After screening 5,101 patients for eligibility (May 2017–May 2021), 144 were included and randomized (Fig. 1). Study characteristics and outcomes are noted in Table 1. Baseline characteristics were similar between groups. Most patients were aged <65 years, were on a proton-pump inhibitor (PPI), and were not in the ICU. The mean duration of concomitant antibiotic was 18.4 days. In the intention-to-treat population, clinical cure (73% vs 62.9%; P =.195), and rCDI (3.3% vs 4.0%; P >.99) were similar for fidaxomicin and vancomycin, respectively. **Conclusions:** In this study of patients with CDI receiving a concomitant antibiotic, a numerically higher proportion were cured with fidaxomicin versus vancomycin, but this result did not reach statistical significance. Overall recurrence was lower than anticipated in both arms compared to previous studies in which duration of CDI treatment was not extended during concomitant antibiotic treatment. Future studies are needed to ascertain whether clinical cure is higher with fidaxomicin than vancomycin during concomitant antibiotic exposure, and whether extending the duration of CDI treatment reduces recurrence.

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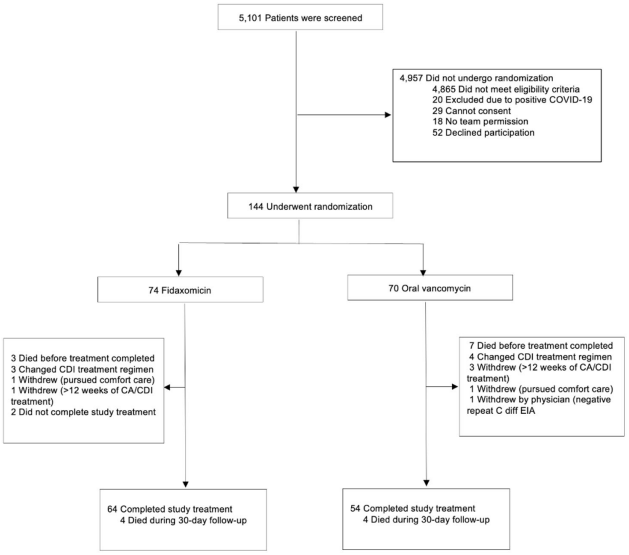

Fig. 1.