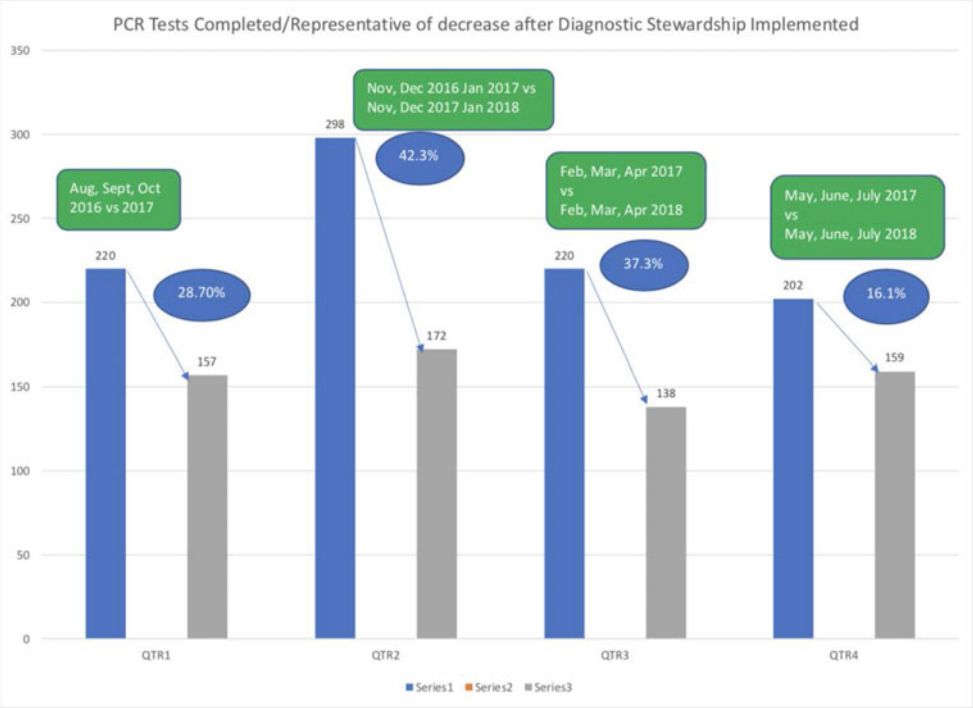

Fig. 2.

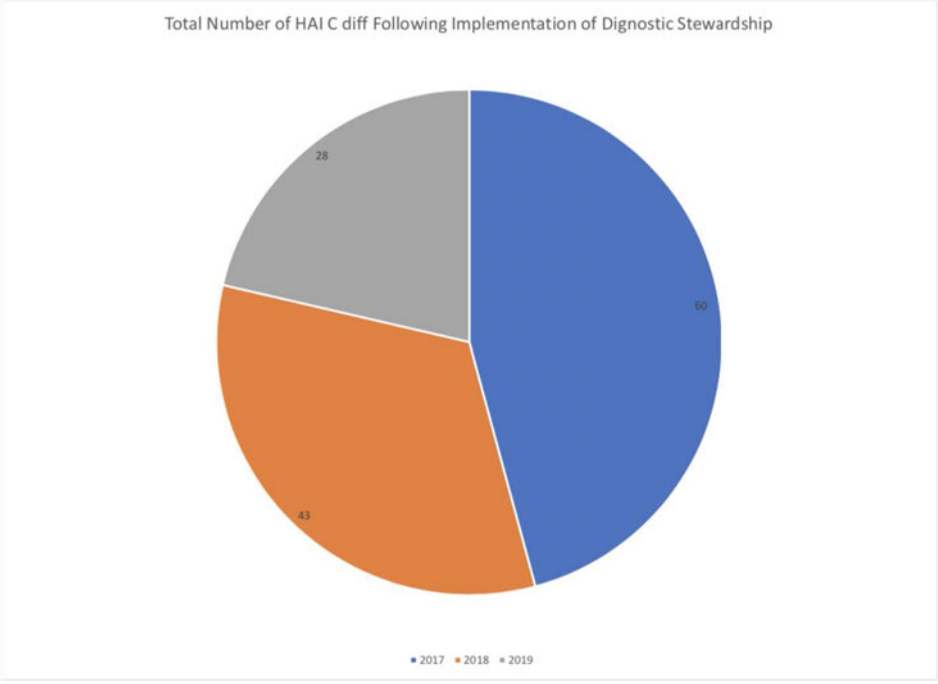

Fig. 3.

Disclosures:
Commercial Company : If I am presenting research funded by a commercial company, the information presented will be based on generally accepted scientific principals and methods, and will not promote the commercial interest of the funding company.
Disagree
Raghavendra Tirupathi
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Presentation Type:
Poster Presentation

Influence of Infectious Disease Physician Approval on Appropriateness of PICC Use and Outcomes

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Background: Peripherally inserted central catheters (PICCs) are frequently used to deliver intravenous (IV) antibiotic therapy after discharge from the hospital. Infectious disease (ID) physicians are often consulted prior to PICC placement, but whether their approval influences PICC appropriateness and complications is not known. **Methods:** Using data from the Michigan Hospital Medicine Safety Consortium (HMS) on PICCs placed in critically ill and hospitalized medical patients between January 1, 2015, and July 26, 2019, we examined the association between ID physician approval of PICC insertion for IV antibiotics and device appropriateness and outcomes. Appropriateness was defined according to the Michigan

Table 1.

Table 1 Peripherally Inserted Central Catheter Appropriateness and Complications by ID Approval

Outcomes	Documented ID approval before PICC insertion (n = 10,238), n(%)	No documented ID approval before PICC insertion (n=11,415), n(%)	Adjusted odds ratio (95% confidence interval)	P-Value
All three appropriateness criteria met**	7,446 (72.73)	5,180 (45.38)	3.51 (3.28, 3.77)	<.0001
Single lumen	8,908 (87.01)	6,820 (59.75)	5.13 (4.72, 5.58)	<.0001
Used in eGFR ≥ 45	8,914 (87.07)	9,503 (83.25)	1.26 (1.15, 1.37)	<.0001
In place for > 5 days	9,765 (95.38)	9,792 (85.78)	3.50 (3.12, 3.94)	<.0001
Major complication***	665 (6.50)	1,292 (11.32)	0.57 (0.51, 0.64)	<.0001
Catheter Occlusion	432 (4.22)	976 (8.55)	0.50 (0.44, 0.57)	<.0001
DVT	148 (1.45)	238 (2.08)	0.71 (0.56, 0.89)	0.003
CLABSI	107 (1.05)	129 (1.13)	0.92 (0.69, 1.21)	0.536

* All results calculated using a logistic mixed-effect model that adjusts for hospital clustering, patient Charlson score and time fixed effects.
** Full compliance with PICC recommendations indicates PICC device was single-lumen, was not inserted if patient eGFR<45 mL/min/1.73m^2 and was not in place for ≤5 days.
*** PICC-related major complications include any indication for CLABSI, DVT, PE or catheter occlusion.

Figure 1: Major complication frequencies by infectious disease consultation

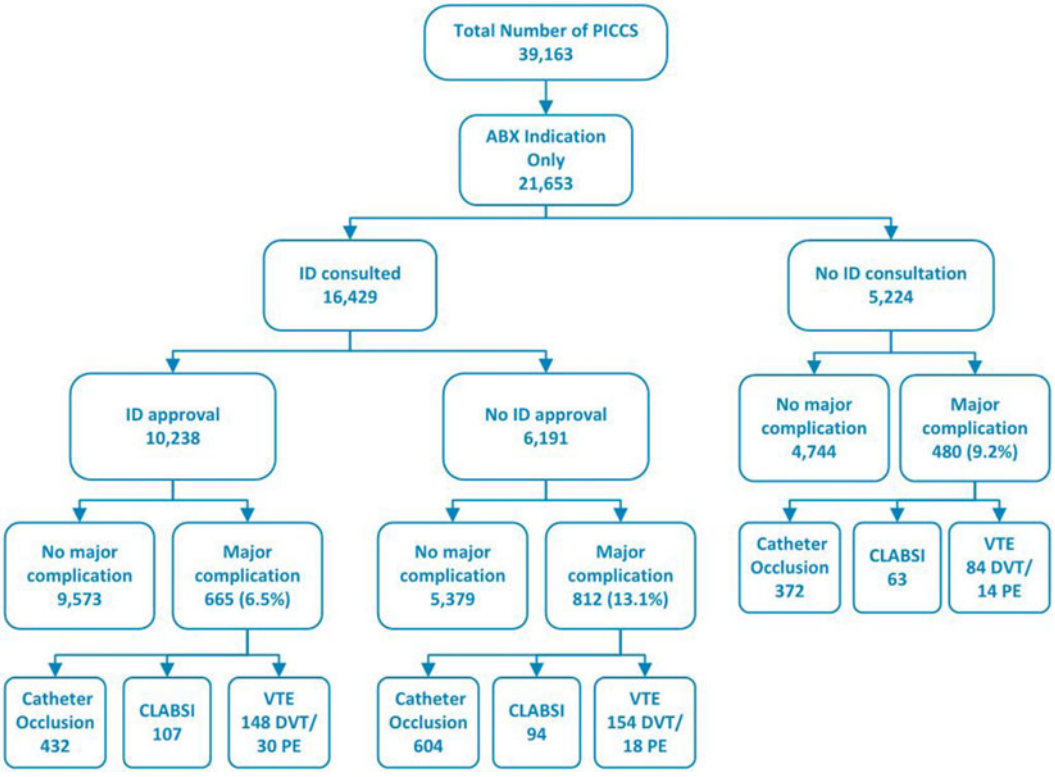

Fig. 1

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Appropriateness Guide for Intravenous Catheters (MAGIC) as a composite measure of (1) avoiding PICC use for durations ≤5 days; (2) using single-lumen instead of multilumen catheters; and (3) avoiding PICC use in patients with chronic kidney disease (eGFR<45 mL/min). The associations between ID approval of PICC use and odds of PICC-related complications (eg, deep vein thrombosis, central-line–associated bloodstream infection, and catheter occlusion) were also assessed. Multivariable models adjusting for patient severity of illness and hospital-level clustering were fit to both outcomes. Results were expressed as odds ratios (ORs) with corresponding 95% CIs. **Results:** Data from 36,594 patients who underwent PICC placement across 42 Michigan hospitals were included in the analysis. In total, 21,653 (55%) PICCs were placed for the indication of IV antibiotics; 14,935 (69%) of these had a documented ID consultation prior to placement, whereas 6,718 (31%) did not. Of the 14,935 PICCs with an ID consultation, 10,238 (69%) had ID approval documented prior to device placement (Fig. 1). Compared to no approval, PICCs approved by ID prior to insertion were more likely to be appropriate (OR, 3.51; 95% CI, 3.28–3.77; $P <$ .001). Specifically, approval was associated with higher single-lumen use (OR, 5.13; 95% CI, 4.72–5.58; $P <$ .001), less placement of PICCs with dwell times ≤ 5 days (OR, 0.29; 95% CI, 0.25–0.32; $P <$ .001), and less frequent use in patients with chronic kidney disease (OR, 0.80; 95% CI, 0.73–0.87; $P <$ .001). ID approval of PICCs prior to insertion was associated with a significantly lower odds of PICC-related complications (OR, 0.57; 95% CI, 0.51–0.64) (Table 1). **Conclusions:** ID approval of PICC use for IV antibiotic therapy in hospitalized patients was associated with greater appropriateness and fewer complications. Policies aimed at ensuring ID review prior to PICC use may help improve patient and device safety.

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Inpatient and Discharge Fluoroquinolone Prescribing in Veterans' Affairs Hospitals Between 2014 and 2017

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Background: Between 2007 and 2015, inpatient fluoroquinolone use declined in US Veterans' Affairs (VA) hospitals. Whether fluoroquinolone use at discharge has also declined, in particular since antibiotic stewardship programs became mandated at VA hospitals in 2014, is unknown. **Methods:** In this retrospective cohort study of hospitalizations with infection between January 1, 2014, and December 31, 2017, at 125 VA hospitals, we assessed inpatient and discharge fluoroquinolone (ciprofloxacin, levofloxacin, and moxifloxacin) use as (1) proportion of hospitalizations with a fluoroquinolone prescribed and (2) fluoroquinolone days per 1,000 hospitalizations. After adjusting for illness severity, comorbidities, and age, we used multilevel logit and negative binomial models to assess for hospital-level variation and longitudinal prescribing trends. **Results:** Of 560,219 hospitalizations meeting inclusion criteria as hospitalizations with infection (Fig. 1), 209,602 of 560,219 (37.4%) had a fluoroquinolone prescribed either during hospitalization (182,337 of 560,219, 32.5%) or at discharge (110,003 of 560,219, 19.6%) (Fig. 1). Hospitals varied appreciably in inpatient, discharge, and total fluoroquinolone use, with 71% of hospitals in the highest prescribing quartile located in the southern United States. Nearly all measures of fluoroquinolone use decreased between 2014 and 2017, with the largest decreases found in inpatient fluoroquinolone and ciprofloxacin use (Fig. 2). In contrast, there was minimal decline in fluoroquinolone use at discharge (Fig. 2), which accounted for 1,433 of 2,339 (61.3%) of

Table 1. Characteristics of Hospitalizations for Infection between 2014-2017, N=560 219

Patient Characteristics	
Age (years), Mean (SD)	68.6 (12.6)
Age ≥ 65, N (%)	370,243 (66.1)
Male Sex, N (%)	534,856 (95.5)
White Race, N (%)	414,059 (73.9)
Probability of 30-day Mortality, mean (SD)	0.07 (0.1)
Top Primary Diagnoses, N (%)	
Septicemia	60,072 (10.8)
Pneumonia	50 ,023 (9.0)
Skin and Subcutaneous Tissue Infection	37,427 (6.7)
Chronic Obstructive Pulmonary Disease or Bronchiectasis	33,784 (6.1)
Urinary Tract Infection	30,119 (5.4)
Weighted Elixhauser Comorbidity Index, Median (IQR)	7 (1, 14)
Length of Stay, Median (days) (IQR)	6 (4, 11)
Admission to Intensive Care, N (%)	133,765 (23.9)
Fluoroquinolone Prescriptions	
Prescribed a Fluoroquinolone, N (%)	209,602 (37.4)
Inpatient	182,337 (32.5)
At Discharge	110,003 (19.6)
Prescribed Ciprofloxacin, N (%)	90,502 (16.2)
Inpatient	76,450 (13.6)
At Discharge	45,189 (8.1)
Prescribed Levofloxacin, N (%)	112,676 (20.1)
Inpatient	99,387 (17.7)
At Discharge	56,654 (10.1)
Prescribed Moxifloxacin, N (%)	16,494 (2.9)
Inpatient	14,176 (2.5)
At Discharge	8,359 (1.5)
Total Duration of Fluoroquinolone Use in Patients Prescribed a Fluoroquinolone (N=209,602), Median (IQR)	6 (3, 9)
Inpatient Duration	2 (1, 4)
After Discharge Duration	2 (0, 7)
Duration of Fluoroquinolone Use in Patients Prescribed a Fluoroquinolone at Discharge (N=110,003), Median (IQR)	8 (6, 11)
Inpatient Duration	2 (1, 3)
After Discharge Duration	6 (4, 10)

Table 1