and hemorrhagic stroke were consistently higher among PWUD. Further investigation is needed to elucidate the sources of elevated stroke risk among PWUD and identify targets for intervention.

Disclosures. **All Authors**: No reported disclosures

57. Evaluation of the 2019 European Heart Rhythm Association International Consensus Document in Patients with Cardiovascular Implantable Electronic Devices Who Develop *Staphylococcus aureus* Bacteremia

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Session: O-12. Endocarditis

Background. Cardiovascular implantable electronic device (CIED) implantation has markedly increased over the past two decades. *Staphylococcus aureus* bacteremia (SAB) occurs in patients with CIED and determination of device infection among patients without clinical findings of pocket site infection is often difficult. Our study examines the characteristics, management, and outcomes of SAB in patients living with CIED using 2019 international criteria to define CIED infection.

Methods. We conducted a retrospective study of patients with CIED who were hospitalized at Mayo Clinic, Rochester, with SAB from January 1, 2012 to December 31, 2019. Patients who met CIED infection criteria following SAB based on the 2019 European Heart Rhythm Association International Concensus Document were identified. A time-to-event analysis was used to determine the impact, if any, of complete device extraction on outcomes.

Results. Overall, 110 patients with CIED developed SAB and 92 (83.6%) of them underwent transesophageal echocardiogram (TEE). Eighty-eight (80%) had CIED infection with 57 (51.8%) and 31 (28.2%) patients meeeting criteria for definite and possible CIED infections, respectively. Forty-three (75.4%) patients with definite CIED infection underwent complete device extraction. For possible and rejected CIED infection, the rates of complete device extraction were 35.5% and 27.3%, respectively (p< .001 for each). The primary endpoint of a composite of one-year mortality and SAB relapse had a rate that was significantly lower in patients with CIED infection who underwent complete device extraction as compared to that of patients who did not undergo device extraction (25.9% vs. 76.5%, p< .001). No significant difference in outcomes was seen in the rejected CIED infection group (33.3% vs. 62.5%, p =.27).

Conclusion. The rate of CIED infections following SAB was higher than that reported previously. Increased use of TEE and a novel case definition with broader diagnostic criteria were likely operative, in part, in accounting for the the higher rate of CIED infections complicating SAB. Complete device removal is critical in patients with either definite or possible CIED infection as defined by the 2019 consensus document to improve one-year mortality and SAB relapse rates.

Disclosures. **Larry M. Baddour, MD**, Boston Scientific (Individual(s) Involved: Self): Consultant; Botanix Pharmaceuticals (Individual(s) Involved: Self): Consultant; Roivant Sciences (Individual(s) Involved: Self): Consultant **Muhammad R. Sohail, MD**, **Medtronic** (Consultant)**Philips** (Consultant)

58. Cost-Effectiveness of Emerging Antibiotic Strategies for the Treatment of Drug-Use Associated Infective Endocarditis

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Session: O-12. Endocarditis

Background. Drug use-associated infective endocarditis (DUA-IE) is typically treated with 4-6 weeks of in hospital intravenous antibiotics (IVA). Outpatient parenteral antimicrobial therapy (OPAT) and partial oral antibiotics (PO) may be as effective as IVA, though long-term outcomes and costs remain unknown. We evaluated the clinical outcomes and cost-effectiveness of four antibiotic treatment strategies for DUA-IE.

Methods. We used a validated microsimulation model to compare: 1) 4-6 weeks of inpatient IVA along with opioid detoxification, *status quo* (SQ); 2) 4-6 weeks of inpatient IVA along with inpatient addiction care services (ACS) which offers medications for opioid use disorder (*SQ with ACS*); 3) 3 weeks of inpatient IVA with ACS followed by OPAT (*OPAT*); and 4) 3 weeks of IVA with ACS followed by PO antibiotics (*PO*). We derived model inputs from clinical trials and observational cohorts. All patients were eligible for either in-home or post-acute care OPAT. Outcomes included life years (LYs), discounted costs, incremental cost-effectiveness ratios (ICERs), proportion of DUA-IE cured, and mortality attributable to DUA-IE. Costs ($US) were annually discounted at 3%. We performed probabilistic sensitivity analyses (PSA) to address uncertainty.

Results. The *SQ* scenario resulted in 18.64 LY at a cost of $416,800/person with 77.4% hospitalized DUA-IE patients cured and 5% of deaths in the population were attributable to DUA-IE. Life expectancy was extended by each strategy: 0.017y in *SQ with ACS*, 0.011 in *OPAT*, and 0.024 in *PO*. The *PO* strategy provided the highest cure rate (80.2%), compared to 77.9% in *SQ with ACS* and 78.5% in *OPAT and X in SQ*. *OPAT* was the least expensive strategy at $412,300/person, Compared to OPAT, *PO* had an ICER of $141,500/LY. Both *SQ* strategies provided worse clinical outcomes for money invested than either OPAT or PO (dominated). All scenarios decreased deaths attributable to DUA-IE compared to *SQ*. Findings were robust in PSA.

Table 1

Scenario	DUA_IE treatment completion (%)	Deaths attributable to DUA-IE (%)	Average life expectancy (LY)	Average discounted cost per person ($US)	Average discounted lifespan per person (LY)	Incremental Cost ($US)	Incremental LY	ICER ($/LY)
OPAT + ACS	78.45%	4.90%	73.344	$412,300	18.651			
PO + ACS	80.20%	4.78%	73.374	$414,100	18.664	$ 1,800	0.0127	$ 141,500
SQ	77.74%	5.02%	73.314	$416,800	18.640	-	-	dominated
SQ + ACS	77.86%	4.85%	73.358	$417,100	18.657	-	-	dominated

Abbreviations: ACS- addiction care services; DUA-IE- drug-use associated infective endocarditis; ICER- incremental cost effectiveness ratio; LY- discounted life year; OPAT- outpatient parenteral antimicrobial therapy; PO- partial oral antibiotics; SQ- status quo.

Selected cost and clinical outcomes comparing treatment strategies for drug-use associated infective endocarditis including the status quo, status quo with addiction care services, outpatient parenteral antimicrobial therapy, and partial oral antibiotics.

Conclusion. Treating DUA-IE with OPAT along with ACS increases the number of people completing treatment, decreases DUA-IE mortality, and is cost-saving compared to the status quo. The PO strategy also improves clinical outcomes, but may not be cost-effective at the willingness-to-pay threshold of $100,000.

Disclosures. **Simeon D. Kimmel, MD, MA**, **Abt Associates for a Massachusetts Department of Public Health project to improve access to medications for opioid use disorder in nursing facilities** (Consultant)

59. Risk Factors for Recurrent Gram-Negative Bacterial Bloodstream Infections

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Session: O-13. GNB bacteremia

Background. Gram-negative bacteria bloodstream infections (GNB-BSI) are a significant cause of morbidity and mortality. Recurrent GNB-BSI is an incompletely understood phenomenon. In this study we identify risk factors for recurrent GNB-BSI.

Methods. Patients with GNB-BSI have been prospectively enrolled into the Bloodstream Infection Biorepository (BSIB) since 2002. From the BSIB, patients with >1 episode of GNB-BSI with the same bacterial species were identified. Chi-Square, Fisher Exact, and a multivariate linear regression models were used to identify clinical risk factors for recurrent GNB-BSI. Paired isolate samples from the initial and the recurrent episode of GNB-BSI in same patient underwent Pulsed Field Gel Electrophoresis (PFGE) to differentiate ***Relapse*** (paired isolates identical) from ***Reinfection*** (paired isolates different).

Results. Among the 1,423 unique patients with GNB-BSI enrolled from 2002-2015, 60 (4.2%) experienced recurrent GNB-BSI with the same bacterial species. Median time to recurrent GNB-BSI was 133 d (IQR: 40-284.75 days). Causes of recurrent-GNB-BSI included

Escherichia coli (38%), Klebsiella species (30%), Pseudomonas aeruginosa (12%), and *Serratia marcescens (5%) and did not differ from causes of non-recurrent GNB-BSI (Figure 1).* Risk factors for recurrent GNB-BSI included Black race (OR: 2.45 [CI: 1.43-4.20]), implanted cardiac device (OR: 2.39 [CI: 1.00-5.07]), and admission to surgical service (OR: 2.16 [CI 1.24-3.75]). Forty-eight isolate-pairs from 43 patients with recurrent GNB-BSI underwent PFGE, relapse occurred in 31 (65%) and reinfection occurred in 17 (35%). Risk factors for GNB-BSI relapse included cardiac device (OR: 3.7 [CI: 1.7-8.3]), and admission to surgical service (OR: 3.7 [CI:1.3-9.4]).

Figure 1: Species Breakdown

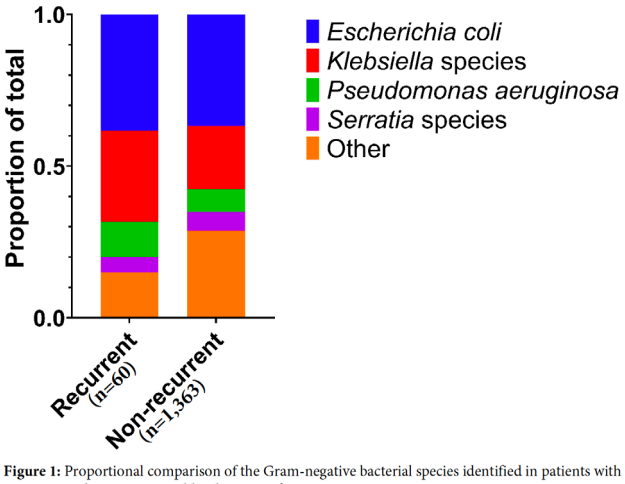

Figure 1: Proportional comparison of the Gram-negative bacterial species identified in patients with recurrent and non-recurrent bloodstream infections.