**Table 1 – Patient characteristics**

| Characteristic | Blood Culture Negative | Blood Culture Positive | All | p-value |
|----------------|------------------------|------------------------|-----|---------|
| Age (years)    |                        |                        | 1257 |         |
| Gender         |                        |                        | 165  |         |
| Race           |                        |                        | 165  |         |
| Hospitalization|                        |                        | 165  |         |
| Charlson Score |                        |                        | 165  |         |
| Medications    |                        |                        | 165  |         |
| Comorbidities  |                        |                        | 165  |         |
| Primary Source |                        |                        | 165  |         |
| Source in Hospitalized Veterans | | | | |

**Background.** Limited and conflicting data exist evaluating low-bioavailability oral antibiotics (LOW) for definitive treatment of Enterobacteriaceae bacteremia from suspected urinary tract infection. There is limited evidence on antibiotic prophylactic strategies to prevent CIED infection. Recently, the TYRX Envelope, which elutes a combination of rifampin and minocycline for a minimum of 7 days, was shown to significantly reduce major CIED infections in the WRAP-IT trial. We sought to characterize the pathogens among patients who experienced an infection in the current era.

**Methods.** All patients undergoing CIED replacement, upgrade, revision, or de novo cardiac resynchronization therapy (CRT-D) received standard of care antibiotic prophylaxis and were randomized 1:1 to receive TYRX or not. The primary endpoint was major CIED infection within 12 months of the procedure. Major infection was defined as an infection resulting in (1) system extraction or revision, (2) long-term suppressive antibiotic therapy, or (3) death. Data were analyzed using the Cox proportional hazards regression model.

**Results.** A total of 6,983 patients were randomized worldwide with 3,495 randomized to receive an envelope and 3,488 randomized to the control. At 12 months, 25 major infections (0.7%) were observed in the envelope group and 42 major infections (1.2%) in the control group, resulting in a 40% reduction of major infections (HR: 0.60, 95% CI: 0.36–0.98, P = 0.04). Of 63 infections assayed, causative pathogens were identified in 36 infections whereas cultures were negative in 27 cases. Staphylococcus species (n = 22) were the predominant pathogens and a 53% reduction was observed with the use of TYRX (Figure 1). Moreover, there was only 1 CIED pocket infection with Staphylococcus species in the envelope group compared with 14 pocket infections in the control group. A comparison of timing of infection in the envelope group showed the presence of 11 endocarditis/bacteremia infections at 103 ± 84 days compared with 70 ± 78 days from the procedure.

**Conclusion.** In this large randomized trial, the use of the TYRX Envelope containing rifampin and minocycline resulted in a significant reduction of major CIED infections and was effective against staphylococcal species, which are the predominant cause of pocket infections.

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

### 849. Reduced CIED Infections with an Antibacterial Envelope: Microbiologic Analysis of the WRAP-IT Study

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**Session:** 84. Novel Insights into Bacteremia and Endocarditis

**Thursday, October 3, 2019: 2:15 PM**

**Background.** Cardiovascular implantable electronic device (CIED) infections are associated with significant morbidity, mortality, and cost. There is limited evidence on antibiotic prophylactic strategies to prevent CIED infection. Recently, the TYRX Envelope, which elutes a combination of rifampin and minocycline for a minimum of 7 days, was shown to significantly reduce major CIED infections in the WRAP-IT trial. We sought to characterize the pathogens among patients who experienced an infection in the current era.

**Methods.** All patients undergoing CIED replacement, upgrade, revision, or de novo cardiac resynchronization therapy (CRT-D) received standard of care antibiotic prophylaxis and were randomized 1:1 to receive TYRX or not. The primary endpoint was major CIED infection within 12 months of the procedure. Major infection was defined as an infection resulting in (1) system extraction or revision, (2) long-term suppressive antibiotic therapy, or (3) death. Data were analyzed using the Cox proportional hazards regression model.

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**Conclusion.** In this large randomized trial, the use of the TYRX Envelope containing rifampin and minocycline resulted in a significant reduction of major CIED infections and was effective against staphylococcal species, which are the predominant cause of pocket infections.

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

### 850. Outcomes of Patients Discharged on Parenteral Ceftriaxone Compared with Oxacillin or Cefazolin in Methicillin-susceptible Staphylococcus aureus (MSSA) Bloodstream Infections

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**Session:** 84. Novel Insights into Bacteremia and Endocarditis

**Thursday, October 3, 2019: 2:00 PM**

**Background.** Limited and conflicting data exist evaluating low-bioavailability oral antibiotics (LOW) for definitive treatment of Enterobacteriaceae bacteremia from suspected urinary tract infection. There is limited evidence on antibiotic prophylactic strategies to prevent CIED infection. Recently, the TYRX Envelope, which elutes a combination of rifampin and minocycline for a minimum of 7 days, was shown to significantly reduce major CIED infections in the WRAP-IT trial. We sought to characterize the pathogens among patients who experienced an infection in the current era.

**Methods.** All patients undergoing CIED replacement, upgrade, revision, or de novo cardiac resynchronization therapy (CRT-D) received standard of care antibiotic prophylaxis and were randomized 1:1 to receive TYRX or not. The primary endpoint was major CIED infection within 12 months of the procedure. Major infection was defined as an infection resulting in (1) system extraction or revision, (2) long-term suppressive antibiotic therapy, or (3) death. Data were analyzed using the Cox proportional hazards regression model.

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**Conclusion.** In this large randomized trial, the use of the TYRX Envelope containing rifampin and minocycline resulted in a significant reduction of major CIED infections and was effective against staphylococcal species, which are the predominant cause of pocket infections.

**Disclosures.** All Authors: No reported Disclosures.
Background. MSSA is a leading cause of bloodstream infection (BSI) and its incidence is on the rise. Standard of care (SOC) is prolonged parenteral therapy with nafcillin, oxacillin, or ceftaroline. Ceftriaxone is active against MSSA and can be given conveniently as a daily infusion.

Methods. We conducted a retrospective analysis of hospitalized adults with MSSA BSI from December 2014 to May 2018, defined as ≥2 blood cultures positive for MSSA and discharged on outpatient parenteral antimicrobial therapy (OPAT) on either ceftriaxone, ceftaroline, or oxacillin. We excluded patients with ESRD and polymicrobial infections. We collected demographics, comorbidities, outcome data, and treatment-related adverse events. The primary outcome was 90-day mortality with secondary outcomes of clinical failure and microbiologic failure. Clinical failure was defined as readmission for any infection within 90 days of discharge or a change in antibiotics from the planned course of therapy after discharge. Microbiologic failure was defined as Reinfection with MSSA within 90 days of discharge from any site.

Results. In total, 167 patients had a BSI with MSSA. Of those patients, 66 (39.5%) were discharged on SOC and 101 (60.5%) on ceftriaxone. The two groups were similar in terms of their demographics (Table 1). The SOC group had more cases of endocarditis with 34 (54.5%) than ceftriaxone with 25 (24.4%) (P = 0.001). LOS for the SOC group had a median of 14.05 days whereas the ceftriaxone group had a median length of stay of 7.88 (P = 0.004). In the SOC group, 5 (7.6%) patients died compared with 8 (7.9%) in the ceftriaxone group within 90 days of the onset of bacteremia (P = 0.13). There were 4 (6.1%) cases of microbiologic failure in SOC and 7 (6.9%) cases in the ceftriaxone group (P = 0.94) (Figure 1). There were 4 (6.1%) cases of microbiologic failure in SOC and 7 (6.9%) cases in the ceftriaxone group (P = 0.83). For clinical failures, the SOC had 6 (9.1%) cases compared with the 19 (18.8%) cases in the ceftriaxone group (P = 0.13).

Conclusion. Ceftriaxone was not statistically different when compared with SOC in terms of mortality, microbiologic failure, or clinical failure. Though clinical failures numerically were more frequent in the ceftriaxone group. Ceftriaxone maybe a reasonable and convenient option to SOC for patients with uncomplicated MSSA BSI discharged on OPAT, but further studies are needed.

Table 1

| Demographics | Ceftriaxone (n=101) (%) | SOC (n=66) (%) | P-value |
|--------------|------------------------|---------------|---------|
| Median age on admission (IQR), years | 61.0 (48.0, 73.1) | 57.0 (42.7, 68.3) | 0.122 |
| Male sex | 64 (63.4) | 48 (72.7) | 0.208 |
| Race | | | 0.835 |
| Caucasian | 77 (76.2) | 51 (77.3) | - |
| African American | 21 (20.3) | 14 (21.2) | - |
| Other | 3 (3.0) | 1 (1.5) | - |
| LOS (IQR), days | 7.9 (5.8, 14.5) | 14.1 (8.7, 19.6) | 0.001 |
| Elrheim comorbidity index (95% CI) | 4.3 (3.6 - 5.0) | 4.2 (3.3 - 5.2) | 0.754 |
| ICU stay | 28 (27.7) | 33 (50.0) | 0.003 |
| Bacteremia > 72h | 23 (22.3) | 18 (27.3) | 0.509 |
| Insurance | Private | 42 (41.6) | 28 (42.4) |
| | Government | 50 (49.5) | 26 (39.4) |
| | None | 9 (8.9) | 12 (18.2) |

851. Validation of Quick Pitt Bacteremia Score in Patients with Staphylococcus aureus Bloodstream Infection

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Session: 84. Novel Insights into Bacteremia and Endocarditis
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Background. A quick version of the Pitt Bacteremia Score (qPitt) was recently derived based on five binary variables each assigned one point (Table 1). The qPitt broadened respiratory failure definition, simplified mental status, and eliminated fever from the original Pitt bacteremia score. The qPitt had high discrimination in predicting mortality in patients with Gram-negative bloodstream infection (BSI) and outperformed other acute severity of illness scores. This retrospective cohort study aims to evaluate the qPitt performance in patients with Staphylococcus aureus BSI and compare its discrimination to quick Sepsis Related Organ Failure Assessment (qSOFA).

Methods. Hospitalized adult patients with S. aureus BSI at Prisma Health Midlands hospitals in South Carolina from January 1, 2015 to December 31, 2017 were identified. Multivariate logistic regression was used to examine risk factors for 28-day all-cause mortality. The area under receiver operating characteristic curve (AUROC) was used to evaluate discrimination of qPitt and qSOFA in predicting 28-day mortality (primary outcome). In-hospital and 90-day mortality were examined as secondary outcomes.

Results. Among the 398 patients with S. aureus BSI, the median age was 63 years, 241 (61%) were men, 173 (43%) had methicillin-resistant S. aureus (MRSA) BSI, and 95 (24%) died within 28 days of BSI. After adjustments for age, clinical and microbiologic characteristics in the multivariable model, all five individual components of qPitt were independently associated with 28-day mortality (Table 1). There was a 3-fold increase in 28-day mortality for each point increase in qPitt (odds ratio 3.11, 95% confidence intervals: 2.40–4.02, P < 0.001). Mortality was 2% in patients with qPitt of 0 and increased to 14%, 24%, 50%, and 82% in patients with qPitt of 1, 2, 3, and 4, respectively. The qPitt had higher discrimination in predicting 28-day mortality than qSOFA (AUROC 0.82 vs. 0.77, P = 0.001). The qPitt also performed well in predicting in-hospital and 90-day mortality (AUROC 0.80 and 0.76, respectively).

Conclusion. The qPitt has good discrimination in predicting mortality in patients with S. aureus BSI. These results support using the qPitt as an acute severity of illness score in future studies.

Table 1: Independent risk factors for mortality following Staphylococcus aureus bloodstream infection

| Quick Pitt bacteremia score variables | OR (95% CI) | P-value |
|--------------------------------------|------------|---------|
| Temperature <36°C | 3.14 (1.45-2.79) | 0.004 |
| Systolic blood pressure <90 mmHg or vasopressor use | 2.95 (1.58-5.51) | <0.001 |
| Respiratory rate ≥25 breaths/minute or need for mechanical ventilation | 2.60 (1.35-4.98) | 0.004 |
| Cardiac arrest | 9.15 (2.36-35.43) | <0.001 |
| Altered mental status | 2.78 (1.56-4.96) | <0.001 |

*OR: odds ratio; CI: confidence intervals

Disclosures. All Authors: No reported Disclosures.

852. The Cefazolin Inoculum Effect and Methicillin-Susceptible Staphylococcus aureus Osteoarticular Infections in Children: Does It Matter?

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Session: 85. Pediatric Bacterial Diseases
Thursday, October 3, 2019: 1:45 PM

Background. Select methicillin-susceptible Staphylococcus aureus (MSSA) strains may produce β-lactamases with an affinity for first-generation cephalosporins (1GC). In the setting of a high inoculum, these β-lactamases may promote clinically meaningful cleavage of 1GCs, potentially resulting in antibiotic failure, a phenomenon known as the cefazolin inoculum effect (CIE). Acute hematogenous osteoarticular infections (AHOAIs, including osteomyelitis and septic arthritis) are the most common manifestation of invasive S. aureus infection in children. We evaluated the prevalence and potential impact of CIE among MSSA AHOAI isolates at two children's hospitals.

Methods. MSSA AHOAI isolates were obtained through surveillance studies at Texas Children’s and St. Louis Children's Hospitals from January 2011 to December 2018. Isolates were tested for CIE via a macrobroth dilution assay with an inoculum of