The Surviving Sepsis Campaign (SSC) has been impressive in improving survival in patient with sepsis, reducing mortality from the range of 39% for hospitals with low compliance to 29% for high compliance with the SSC 6h bundle (Levy et al., 2014). CMS specifically requires meeting all 4 elements within 3 hours of recognition of sepsis.

**Methods**

**Study Population**

All adult patients (>18) admitted from the UFHealth Shands Emergency Department (ED) between 8/1/2012-12/31/2016 were included in the study (N=31,479), excluding hospital-transfer. Of these, 6675 were coded on discharge as having sepsis present on admission (POA) and was 51.3% male, 71.1% white, 25% black, 4% other with a mean ± SD age of 59.2 ± 17.4y.

**Study Methods**

The following data were obtained from the electronic medical record (EMR/Epic):

- Temperature: first and highest value, date/time
- WBC: first and highest value, date/time
- Creatinine: first and highest value, date/time
- Lactate: first and highest value, date/time
- Blood cultures: time to first, location in ED
- IV antibiotics: Which one, time to first, location in ED
- ED arrival date/time, LOS
- Hospital LOS, ICU days, UHC expected LOS, UHC expected mortality
- Sepsis: Present, POA, Hospital onset
- UHC, University Healthsystem Consortium

Blood cultures were done with BacTec aerobic, anaerobic and pediatric resin bottles, incubated for 5 days. We calculated the hourly rate of positive blood cultures obtained before and after the start of IV antibiotics by subtracting the time stamps in the electronic medical record (Epic) between the 1st BC collection time and the start of the 1st IV antibiotic dose.

**Data analysis**

Chi Square and T-test were used to calculate statistical significance for the percentage of blood cultures positive before vs after the start of IV antibiotics, and for mortality percentage before and after IV antibiotics.

**Results**

**If Blood Cultures Were Not Done Before Starting Antibiotics, Is It of Any Value to Obtain Them Later?**


**Introduction**

The SSC goal is to reduce mortality from sepsis, however obtaining a blood culture after IV antibiotics were started in 2015

**Discussion**

1. The percent of septic patients with a positive blood culture within 1 hour after starting IV antibiotics was 22.6% vs 24.3% for the 1 hour before, p = NS. Thereafter, the percent positive did fall dramatically to the range of 7-10%.

2. Non-septic patients averaged 3.5 ± 0.9% positive for the 6h before IV antibiotics vs 1.9 ± 0.5% after, p = 0.008.

3. Septic patients with blood cultures drawn before IV antibiotics showed an increase in mortality from 3.5% at 6h before antibiotics to 13.5% for the 1st hour after antibiotics were started, closely paralleling the UHC (Vizient) expected mortality of 13.3%.

4. Non-septic patients had a much lower overall mortality, but showed a similar trend with both expected and actual highest mortality in the 1st hour after IV antibiotics were started.

**Conclusions**

1. The SSC goal is to reduce mortality from sepsis, however obtaining a blood culture after IV antibiotics were started in our ED patient population had no effect on mortality, when compared with the UHC (Vizient) expected mortality.

2. Mortality for septic ED patients was actually lower when IV antibiotics were given 3-5 hours before blood cultures were obtained, compared with the mortality for patients who appropriately had blood cultures obtained in the 2 hours before IV antibiotics were started.

3. These data suggest ED patients whose blood cultures were drawn > 1 hour of the time IV antibiotics were given were the sickest.

4. IV antibiotics reduce the blood culture positivity rate for both septic and non-septic patients by 40-50%, but it is still clinically worthwhile to obtain them.

**References**
