

Problem

- Neonatal sepsis is the most common cause of neonatal morbidity and mortality.
- Antimicrobials are the mainstay of therapy for neonatal infections.
- Exposure to antibiotics early in life contributes to development of resistant organisms, long-term changes to gut flora, side effects, and increased risk of necrotizing enterocolitis.
- Empiric antibiotic administration for neonatal sepsis has been widespread among asymptomatic neonates.
- Rush Copley Medical Center (RCMC) NICU is the only level III NICU in the Fox Valley area. It is comprised of 9 ICU and 18 level II+ intermediate care beds. Patients are primarily inborn.
- RCMC sought to decrease antibiotic usage among asymptomatic neonates .

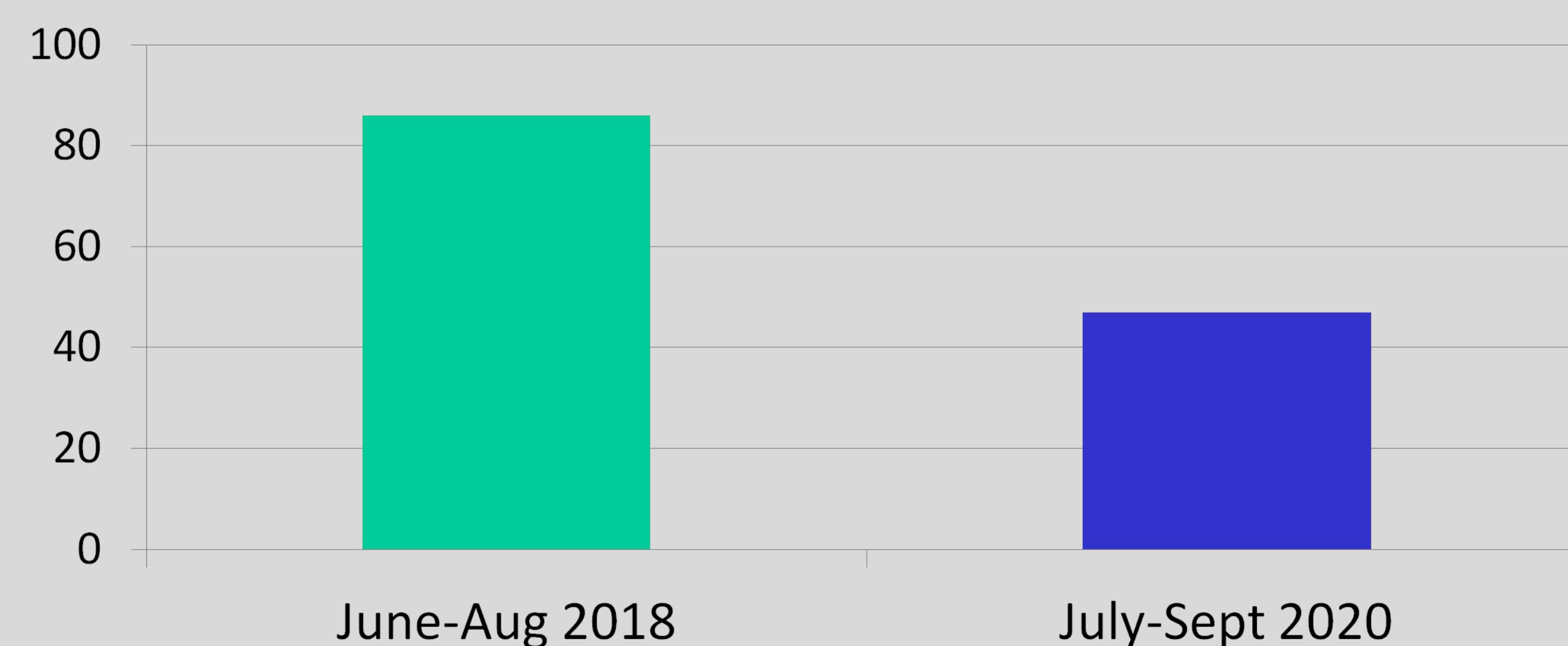
Project Implementation

- In Fall of 2019, the neonatologists began intentionally decreasing neonatal antibiotic exposure.
- Two key interventions occurred during that time:
 1. The Kaiser neonatal early-onset sepsis (EOS) calculator was implemented for infants born ≥ 34 weeks gestation, excluding those whose mothers were diagnosed with chorioamnionitis.
 2. The admission order set antibiotic default duration was decreased from 48 hours to 36 hours.
- The treatment team reviewed and documented the clinical decision-making leading to the extension of antibiotic duration in culture-negative neonates.

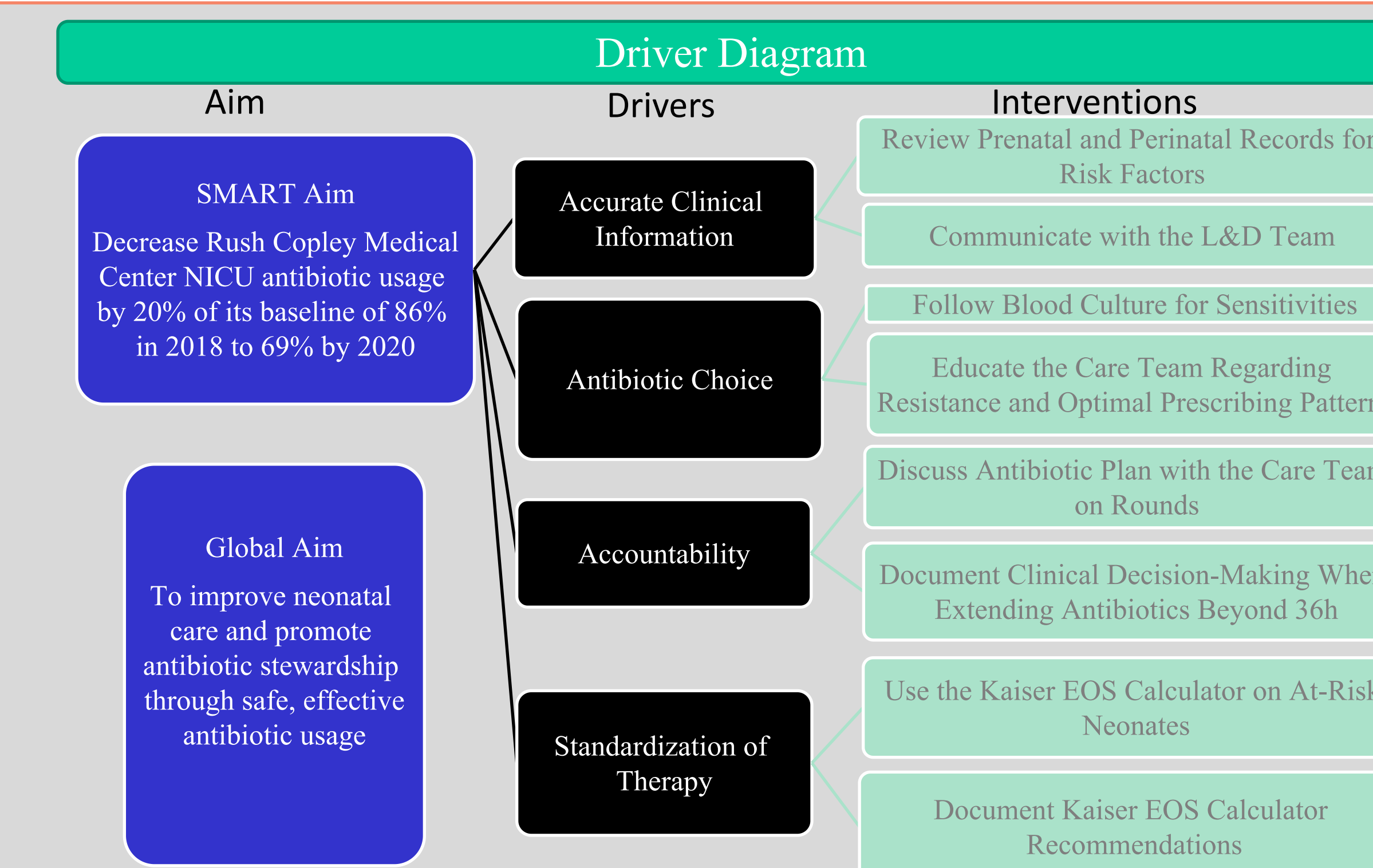
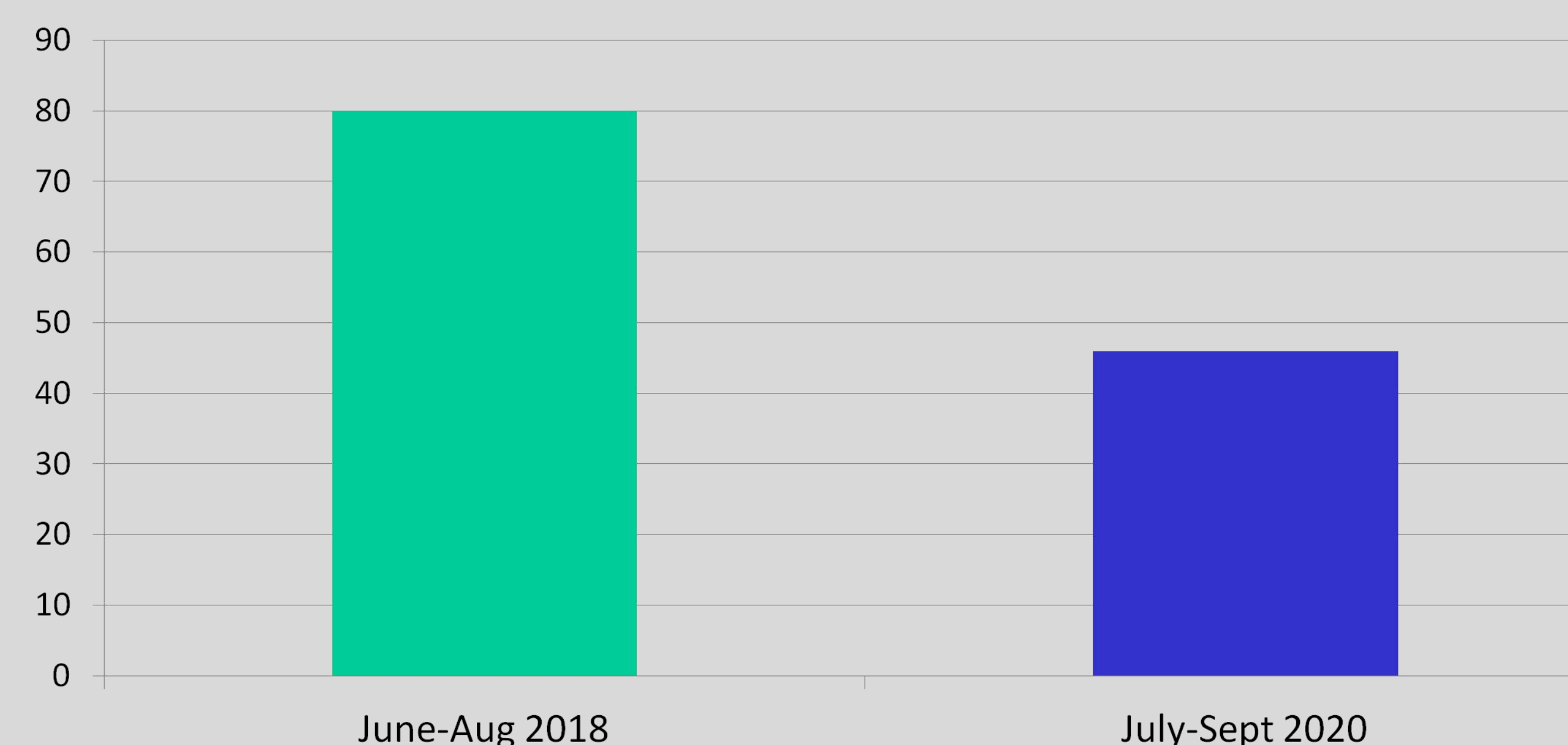
Results

- Compared to June through Aug. 2018 baseline data, in July 2020 the percent of culture-negative neonates who received antibiotics for possible EOS decreased from 86% to 47%, representing a reduction of 45%.
- The percent of culture-negative neonates who received antibiotics for possible EOS decreased from 80% to 46% among those born at ≥ 34 weeks gestation, representing a reduction of 43%.
- Mean antibiotic duration among culture-negative neonates decreased from 2.2 to 1.7 days.
- Our balancing measure was that no cases of EOS went untreated.
- The estimated annual hospital cost savings based on the cost to the hospital of antibiotics and blood cultures was \$3,171.96.

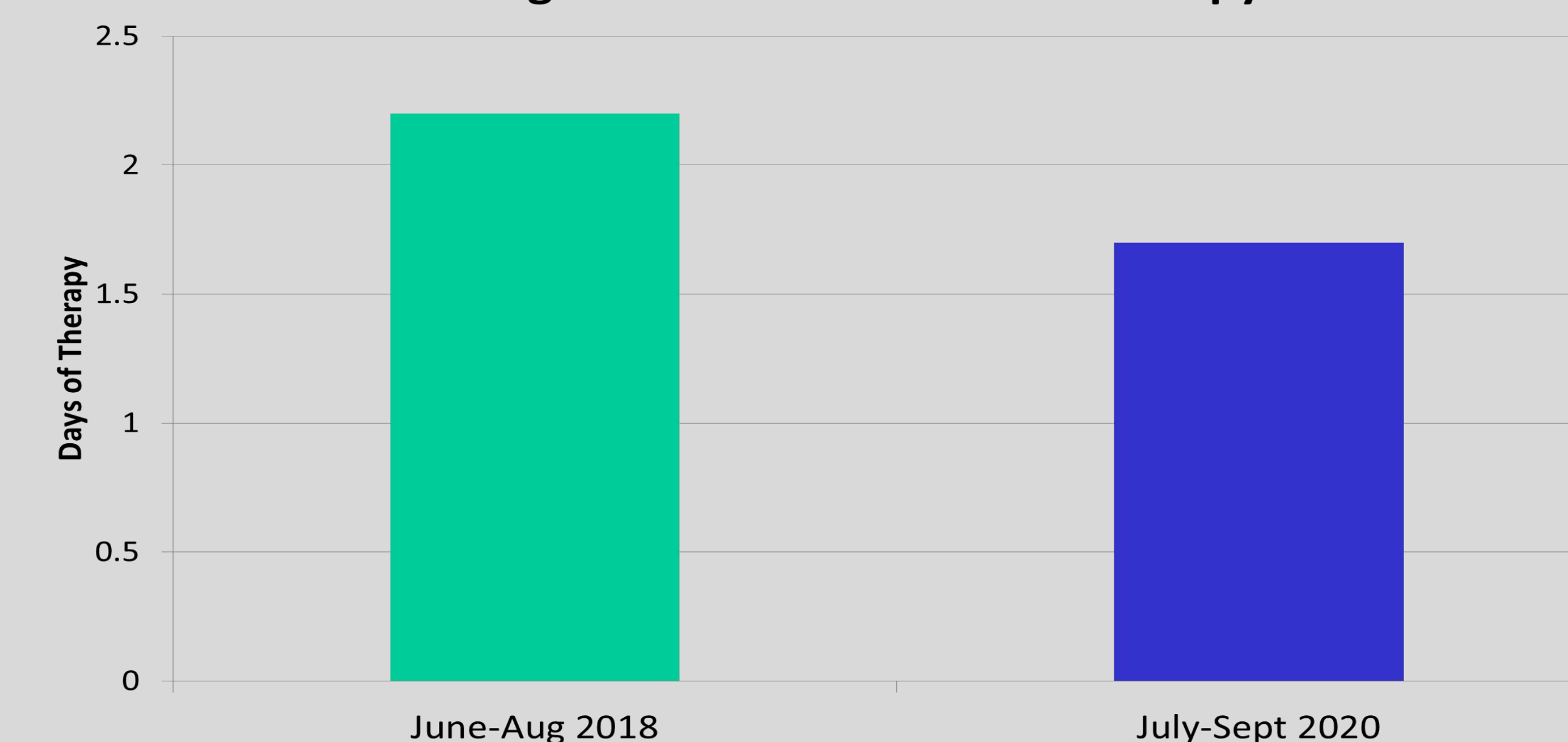
Percent of Patients NICU Patients Who Received Antibiotics



Percent of NICU Patients Born at ≥ 34 Week Gestation Who Received Antibiotics



Average Duration of Antibiotic Therapy



Conclusions

- Kaiser EOS calculator implementation and decreasing default antibiotic duration resulted in decreased neonatal antibiotic exposure and duration for possible EOS among NICU babies.
- Our next phase will be to expand utilization of the Kaiser EOS sepsis calculator to all at-risk neonates (e.g. maternal chorioamnionitis) admitted to the hospital.

Acknowledgements/Hospital Team

- Rush Copley IT