



# Improving Neonatal Antibiotic Administration Timeliness in a Large Regional Quality Improvement Collaborative

Singhal M, Greenberg J, Hajj H, Tom S, Eason E, Melanie Aluotto, Grace Farquhar, and Weisoly DL, the Perinatal Committee, and SETRAC

## Background

Neonatal sepsis is a leading factor in infant morbidity and mortality. The timely initiation of antibiotic therapy within one hour is a critical step to improving patient survival.

A mission within the Southeast Texas Regional Advisory Council (SETRAC) Perinatal Committee is to improve health outcomes of neonatal patients through quality improvement that can be utilized by members. One focus within the Perinatal Committee is to improve patient care through the improvement of antibiotic timeliness. Collaborating with all NICUs in the region for improving patient outcomes was a huge undertaking and challenge which was successfully met with this project. The SETRAC region encompasses 38 NICUs, with approximately 50,000 births per year.

The Southeast Texas Regional Advisory Council (SETRAC) Perinatal Committee was formed as a requirement under the Texas Maternal and Neonatal Legislation and functions as collaboration among all SETRAC maternal and neonatal stakeholders.

## Project SMART GOAL

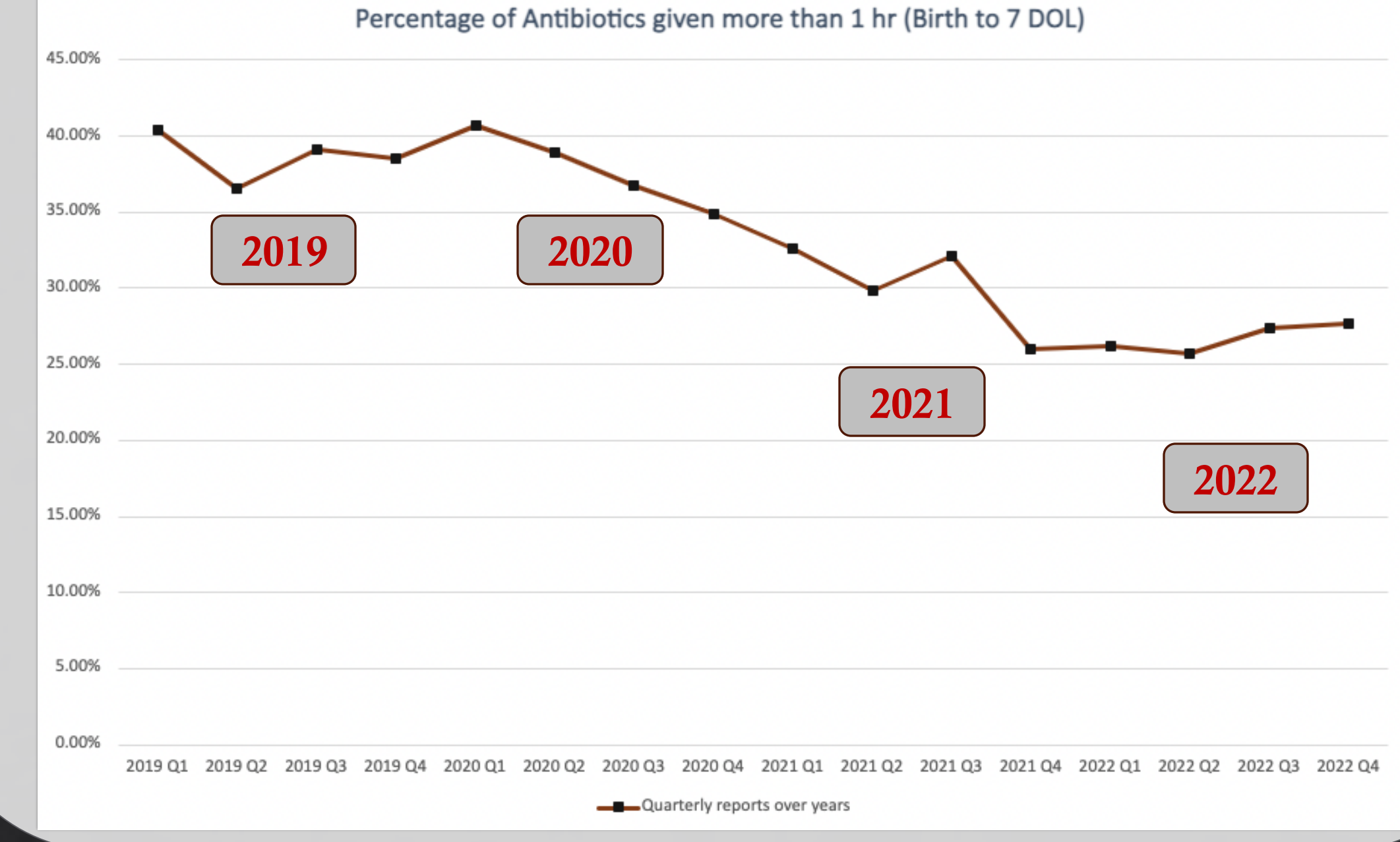
**Decrease the percentage of NICU infants receiving antibiotics in the first week of life more than 1h after order/birth (if order placed prior to birth) from 41 % in June 2020 to 31% by June 2022.**

## PDSA

(July 2019 – Dec 2022)

- 2019:** A quality improvement project was initiated using a multidisciplinary team of neonatal providers within the SETRAC Perinatal Committee to improve rates of antibiotic timeliness in the first week of life.
- 2020:** Recurring meetings and surveys with participation from multidisciplinary teams across Southeast Texas were utilized to identify the root causes of delay and common challenges faced by NICUs to improve timely antibiotic administration.
- 2021:** Team discussions led to the creation of a web-based toolkit intervention to provide resources and guidance to programs to improve antibiotic timeliness.
- 2022:** The multidisciplinary team focused on tackling IV access & medication ordering challenges.

## Run chart



## Methods and Discussion

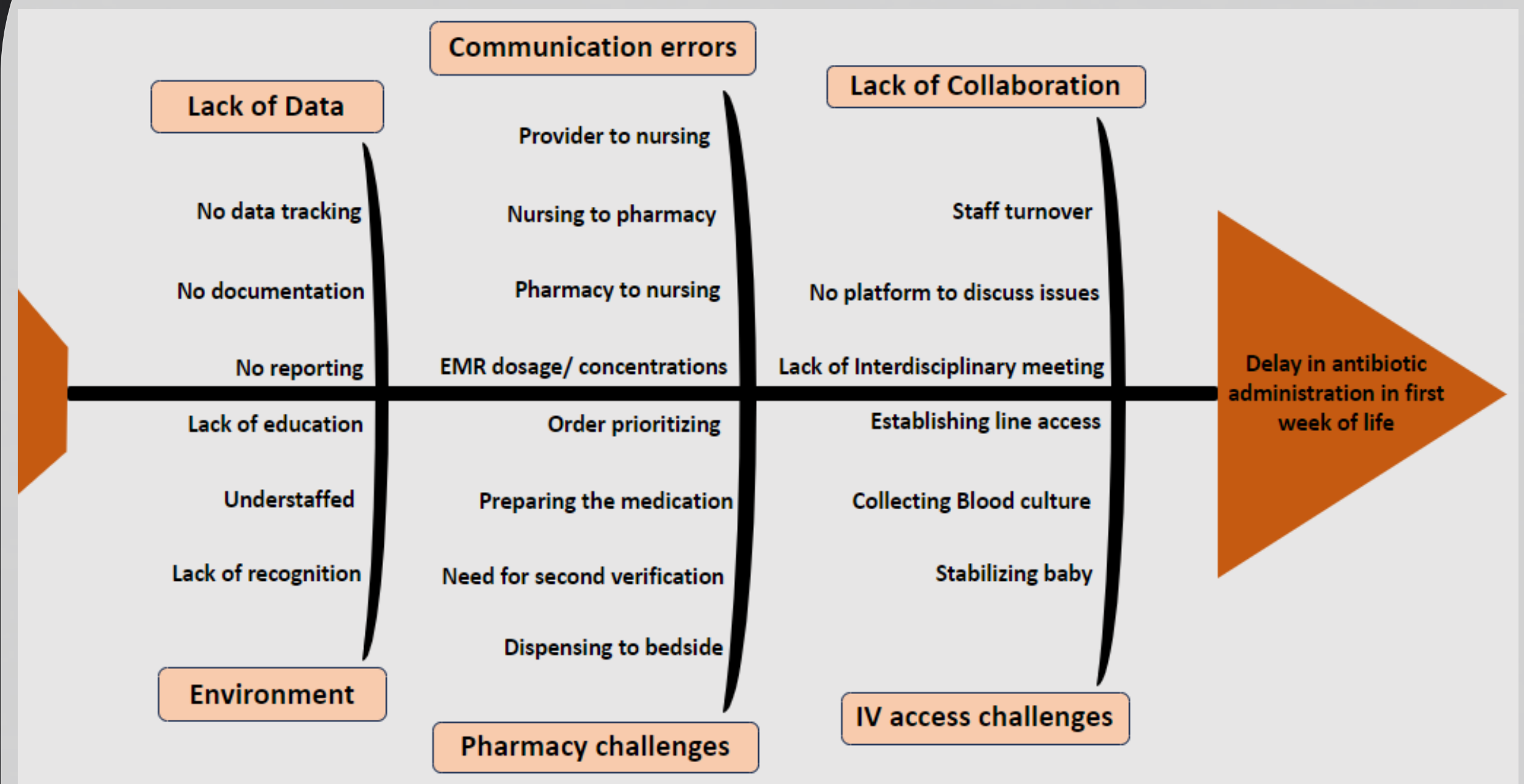
A quality improvement project group was formed using a multidisciplinary team of physicians, nurses, pharmacists, and neonatal program managers within the SETRAC Perinatal Committee to improve rates of antibiotic timeliness in the first week of life.

After initial data collection from January 2019 to December 2020, the goal of this project was to decrease the percentage of NICU infants receiving antibiotics in the first week of life more than 1h after order/birth (if order placed prior to birth) from 41% to 31% by June 2022. Recurring meetings were held with participation from multidisciplinary teams from the Southeast Texas Region to identify the root causes of delay and the challenges met at various levels from ordering of antibiotics to administration of antibiotics.

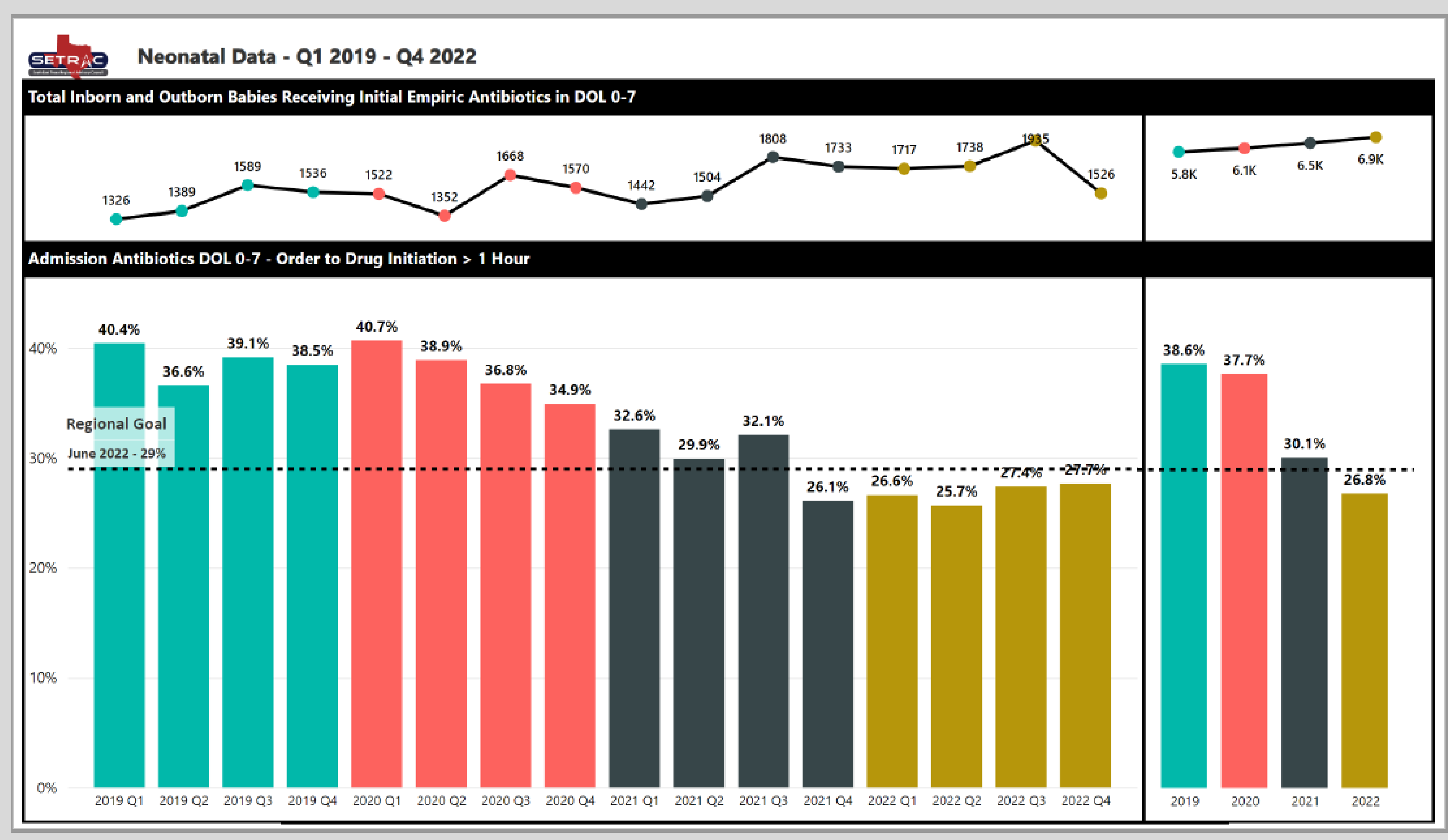
The discussions among the representatives from a wide variety of NICUs helped programs to find common solutions by sharing success stories and innovative ideas. These discussions led to the development of a web-based toolkit and multiple PDSA cycles to facilitate improvements in patient care through a large-scale quality improvement project.

Further tiered strategies for improvement were formed as well. Hospitals were encouraged to form a combined NICU/Pharmacy Antibiotics Timeliness Task Force. Certificates of Merit were awarded annually by SETRAC to units demonstrating achievement in timely antibiotics administration.

## Tiered Strategies for Improvement



## Results: NICU Antibiotics Timeliness DOL 0-7

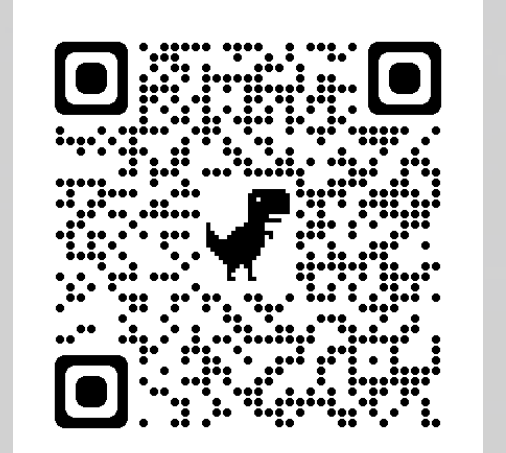


## Conclusions, Acknowledgement, Resources

**CONCLUSION:** The percent of neonates receiving antibiotics greater than 60 minutes after order or birth decreased through collaborative QI within the SETRAC Perinatal Committee. The development of a web-based toolkit, multiple PDSA cycles, and open discussion within a multidisciplinary team facilitated improvements in patient care through a large-scale quality improvement project. An improvement in key quality measures is possible through regional QI collaborative participation.

**ACKNOWLEDGEMENT:** SETRAC team, all NICUs & their multidisciplinary teams including neonatal program managers, RNs, Pharmacists, NNPs, Neonatologists.

**RESOURCES:** The toolkit can be found at [www.setrac.org/perinatal](http://www.setrac.org/perinatal) under the "Antibiotic Timeliness Toolkit"



### COMMON SURVEY QUESTIONS:

1. Does your unit have a QI project for administration of antibiotics within 1 hour of birth/order?
2. Do you know where to find the Antibiotic Timeliness Toolkit on the SETRAC website?
3. Has your unit used any online material available on SETRAC website under "Antibiotics Timeliness toolkit?"
4. Does your unit have an IV access algorithm/timeline when antibiotic administration is needed?
5. What continues to be the main limiting factor in your unit in achieving the one-hour goal to administer antibiotics?

## SETRAC NICU Antibiotics Timeliness DOL 0-7

**Measure-** Percentage of NICU infants receiving antibiotics in the first week of life more than 1h after order/birth (if order placed prior to birth)

**Current percentage- 41% in 2020**

**Project goal- decrease percentage to 31% by June 2022**

**Tiered Strategies for Improvement**

- Hospitals are encouraged to form a combined NICU/Pharmacy Antibiotics Timeliness Task Force
- Resources can be found at [www.setrac.org/perinatal](http://www.setrac.org/perinatal) under the Antibiotics timeliness tab
- Certificates of Merit will be awarded annually by SETRAC to units demonstrating achievement in timely antibiotics administration

**Bronze Level**

- 20-30% receiving antibiotics more than 1h after order/birth
- Focus on **Education** to providers, nursing, and pharmacy staff
- QI or Task Force** that includes Neo, RN, AND pharmacy
- Implement process change and post it in NICU/Pharmacy

**Silver Level**

- 10-20% receiving antibiotics more than 1h after order/birth
- Focus on **Site Specific** interventions depending on cause of delay (Access, order placement, pharmacy delivery, administration)
- Continue education to newer nursing and pharmacy staff

**Gold Level**

- ≤10% receiving antibiotics more than 1h after order/birth
- Focus on **case by case** review and debriefing

Acting fast matters- Sepsis continues to be a mortality/morbidity risk for NICU infants