A Statewide Quality Improvement Project to Promote Optimal Use of Antenatal Corticosteroids in Ohio

**Abstract**

**Title:** A Statewide Project to Promote Optimal Use of Antenatal Corticosteroids (ANCS)

**Background:** We sought to achieve optimal ANCS use in a statewide quality improvement collaborative.

**Study Design:** Large Ohio maternity hospitals joined a quality improvement project using modified IHI Breakthrough Series™ methods to improve the % of eligible women treated (Rx’d) with ANCS before births at 24th–34th weeks. A key driver diagram was used to apply interventions intended to identify all eligible women quickly, to reduce intervals from admission to Rx and delivery, location of Rx, and reasons for failure to receive ANCS.

De-identified limited data were sent to a central repository and reviewed in monthly webinars. Techniques of maximizing appropriate ANCS Rx shared. We sought to document Rx of ± 1 dose of ANCS in 90% of eligible women at all sites.

**Results:** From October 2011 to June 2012, 1221 (91.8%) of 1330 infants born between 24th–34th weeks at 18 participating sites received ≥ 1 dose of ANCS (all betamethasone). Rates of any ANCS and full ANCS Rx are shown in the Table. 109 eligible women did not receive ANCS. Delivery < 2 hours after administration, and to document ANCS Rx in hospital and birth records. Sites selected interventions and eligible women quickly, to reduce intervals from admission to assessment and from ANCS order to administration, and to improve the % of eligible women treated (Rx’d) with ANCS before births at 24th–34th weeks.

**Vital Statistics data in 15,343 neonates in 2005-07:**
- 20%
- 20%
- 30%
- 60%
- 70%
- 80%
- 90%

**Birth Certificate 40-70%**

**Chart Abstraction > 90%**

**Ohio Birth Certificates 2006-2012**

**OPQC ANCS Project 2011-2012**

**Methods**

**Global Rx:** Assure that all infants born between 24th and 33rd weeks’ gestation receive appropriate antenatal corticosteroids to reduce perinatal morbidity and mortality.

**Interventions:**
- Chart Review
- Create an integrated system of recording antenatal corticosteroids administration in order to review and improve practice.
- Promote the use of common algorithms of care for administering betamethasone
- Maintain Rx at Referring Hospitals
- Implement NICU education
- Optimize course of therapy
- Improve Vital Statistics Documentation
- Create an opportunity for educational outreach to hospitals and community pharmacies
- Using standardized data collection of ANCS administration
- Of Mothers Not Rx’d

**ANCS Key Driver Diagram**

**Why Are Obstetricians & Hospitals Failing to Give Steroids to Eligible Mothers?**

**How Could This Happen?**

**Antenatal Steroid Administration for Premature Neonates in California**

**Chart review of 515 neonates in NYC born in 2000-02 at 24-34 Weeks:**
- 40% received 1st dose at a referring hospital
- 8% had prenatally detected lethal anomaly
- Only 4% were systemic errors (not ordered or not given)

**Anomalies:**
- 8.47% (232) did not receive ANCS before birth
- 72% born ≤ 2 Hours After Hospital Admission
- 11% admitted w/ Dx Not Expected to → Delivery < 14 d
- 8% had prenatally detected lethal anomaly

**Find Sweet Spot 2-14 days before PTB → Maintain Rx at Referring Hospitals**

**Participating OPQC Hospitals**
- Akron General
- Akron Summa Health
- Canton Aultman
- Cleveland Good Sam
- Cleveland Mercy Anderson
- Cleveland University Hospital
- Columbus Hillcrest
- Cleveland MetroHealth
- Columbus UH MacIntosh
- Columbus Mount Carmel
- East
- St Ann's
- Columbus Riverside Methodist
- Ohio State Wexner Medical Center
- Dayton Miami Valley
- Toledo ProMedica
- Toledo Mercy St. Vincent's
- Youngstown St Elizabeth

**Discussion**

- This Project Did Not Significantly Improve ANCS Rx Rates of > 90% in 19 large Ohio Hospitals
- Vital Statistics data ≠ Chart Review Data
- 40% of Rx’d Women Get 1st ANCS Rx in Referring Hospital
- Of Mothers Not Rx’d, 72% Delivered ≤ 2 hours After Admission
- Relatively few system errors in ANCS RX
- There Are Still Many Opportunities to Improve Rx

**Conclusions**

- Do “CSI” on all missed ANCS Rx
- “... Days Since We Missed ANCS Rx”
- Find Sweet Spot 2-14 days before PTB
- Maintain Rx at Referring Hospitals
- Improve Vital Statistics Documentation
- Many Names & Places for ANCS Rx to be noted

**Ohio Birth Certificates” vs. “Chart Abstraction”**

**ANCS Utilization Rates**

**Minutes Since We Missed ANCS Rx”**