Quality Improvement in Hospitals to Reduce Infant Mortality

• QI of Traditional Hospital Based Tasks
  • Maternity Care
    • 39 Week Scheduled Birth Standards
    • Antenatal Corticosteroids
  • Newborn Care
    • Detection of At-Risk Newborns (Pulse Ox)
    • Neonatal Intensive Care
      • Blood Stream Infection Bundles

• QI for Non-Traditional Tasks
Goal:
Through collaborative use of improvement science methods, Reduce preterm births and improve outcomes of preterm newborns in Ohio as quickly as possible.

OPQC Is A Voluntary Organization of Ohio Stakeholders Who Care About Fetal & Infant Health
OPQC History & Membership

2007: Ohio’s Infant Mortality Rates Are Terrible!

2008 - 2011
- 20 Charter Member Maternity Hospitals
- 24 Charter Member Neonatal Intensive Care Units

2012 - 2013
- Expanded Membership to Include 85 More Ohio Maternity Hospitals → Almost All in Ohio

2013 and Beyond
- Expanding Membership to Include Ohio Mothers, Fathers, and Families ... and the Ohio Hospital Assn

OPQC Is A Voluntary Organization of Ohio Stakeholders Who Care About Fetal & Infant Health
The Ohio Perinatal Quality Collaborative

Obstetrics

- Steroids for women at risk for preterm birth
  \( (24^{0/7} - 33^{6/7}) \)
  Done → Transition to BC Surveillance

- 39-Week Scheduled Deliveries without medical indication

- Progesterone for Preterm Birth Risk

- Spread to all maternity hospitals in Ohio

- Increase Birth Data Accuracy & Online modules

2013 - 15

Neonatal

- Blood Stream Infections: High reliability of line maintenance bundle

- Use of human milk in infants 22-29 weeks GA

Now An OPQC NAS Project

- OCHA Pilot NAS in 6 children’s hospitals
Ohio Perinatal Quality Collaborative
Criteria for Choosing Projects

- Prematurity related
- Variation in practice
- Existing benchmark
- Measurable outcome
- Population impact
- Prior success
- Participant enthusiasm
- Public enthusiasm

- March of Dimes
- Ohio ACOG & AAP
- CDC

- 39 Weeks
- Antenatal Steroids
- Blood Stream Infection
- Breast Milk = Medicine
  - MgSO4 Neuro Rx
  - LBW Hypothermia
  - Late Preterm 34-36
- Opioid Dependence
- Progesterone
How Does OPQC Get Results?

The IHI Model for Improvement

- Select A **Common Project**
- **PLAN** a “Change Package” and share with OPQC Teams:
  - Recommended best practices
  - Ideas/interventions for improvement
  - Outcomes to measure/track
- Define **how** we will know if a change = improvement
- **DO** the Change, **STUDY** the results, and then **ACT**
- Teams join monthly webinars to share lessons learned, discuss results, and identify new ideas to “test”, & examine aggregate data/outcomes
  - Teams meet face-to-face at at least twice per year

**P-D-S-A Cycles**

**OPQC Is A Voluntary Organization of Ohio Stakeholders Who Care About Fetal & Infant Health**
**Neonatologists Improve Care of Tiniest Babies**

Initial Project
Reducing Bloodstream Infections in Premature Infants

- Babies born at 22-29 weeks (11+ weeks early)
- High Risk for Infection
- 24 Level 3 NICUs, Working Together
- To Reduce infections

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The Initial OPQC Neo Project
A Series of Interventions = a BUNDLE

• Central Line Insertion Bundle
• Central Line Maintenance Bundle
• Earlier Start of Feedings
• Encouraging and Supporting Moms to Pump Their Own Milk
• Use Donor Milk if Mom’s Milk Not Available.
• Mother’s Milk Is Medicine!

OPQC Is A Voluntary Organization of Ohio Stakeholders Who Care About Fetal & Infant Health
24 Ohio NICUs
Proportion of Infants 22-29 Weeks Gestation Discharged with at least 1 Nosocomial Infection

20% Reduction

Month
The OPQC Neo BSI Project
• Prevented 600 Infections
• Saved 75 Babies’ Lives

Together We Saved Enough Babies to Fill TWO School Buses!
A statewide initiative to reduce inappropriate scheduled births at 36<sup>0/7</sup> – 38<sup>6/7</sup> weeks’ gestation

The Ohio Perinatal Quality Collaborative Writing Committee

AJOG 2010

20 hospitals = 47% of Ohio births
18,384 births between 36<sup>0</sup> – 38<sup>6</sup>
4780 (26%) scheduled
13,604 (74%) unscheduled

Project data 9-1-08 → 11-30-09
Distribution of Ohio Births By Gestational Age And Month
January 2006 → July 2013

Since OPQC inception, 36,200 expected births <39 weeks have shifted to ≥39 weeks.

Baseline averages were calculated from the initial 24 months, January 2006 to December 2007.

PINK = 39 -41 Weeks  BLUE = 37 + 38 Weeks
Effects of the Initial OPQC
39 Week Scheduled Birth Project
September 2008 → July 2013

• 36,200 births moved from 37-38 to 39-41 wks

• Conservative estimate = 3% fewer “near term” NICU admissions: N = 1086

• 1086 x $20,000 per NICU Admission
  $ 21,720 million savings in 5 years

OPQC Is A Voluntary Organization of Ohio Stakeholders Who Care About Fetal & Infant Health
Dissemination of The 39 Week Delivery Project

Done in Waves
- Piloted in 15 Sites 2012
- 3 Subsequent Waves with Staggered Start Dates
  - Jan 2013 → Apr 2014
- Ohio Birth Registrars are excited to participate

Different from Charters
- Used Birth Registry data instead of hand collected
- Site Visits by BEACON QI Coordinators
- Monthly Calls
- Periodic Learning Mtgs
- Collaboration w/ ODH + ODH Office of Vital Statistics + CDC
Can’t Change the Birth Certificate?


- Ask Birth Registrars to Focus on Key Variables in Worksheet
- Provide New Focus-Group-Tested Definitions for Key Data
Results of Phase 1
39 Week Dissemination Project

- Hospital Birth Certificate Staff Excited!!
- Major Misunderstandings on Major Outcomes
  - Determination of Gestational Age - Rounding Up!
  - Definition of Preeclampsia
  - Recognition of Antenatal Steroid Rx
  - Definition of Breast Feeding at Discharge
- Aggregate Rate Declined Significantly
- Significant Improvement in 10 of 15 Sites
Ohio births induced at 37-38 weeks with no apparent medical indication for early delivery, by OPQC member status and month, January 2006 to February 2013

Points beyond the vertical dashed line are based on preliminary data and are likely to change.
SMART AIM
To increase the percentage of infants born in Ohio at 24 0/7 to 33 6/7 weeks’ gestation who receive pre-delivery ANCS to > 90%, by June 2013

Global Aim: Assure that all infants born between 24 0/7 and 33 6/7 weeks’ gestation receive appropriate antenatal corticosteroid treatment to reduce perinatal morbidity and mortality.

Key Drivers

- Documentation System
- Identification of Appropriate ANCS Candidate
- Identification of Appropriate Time for ANCS Administration
- Optimal and Efficient Administration of ANCS
- Awareness of Benefits and Risks

Interventions

- Create an integrated system of recording ANCS administration among prenatal care sites and delivery sites encompassing all levels and acuity of care.
- Standardize birth certificate documentation of ANCS administration

- CHOOSE an ANCS Strategy or Guideline for your site

- Promote consistent use of common algorithm of ANCS administration for Betamethasone & Dexamethasone
  - Practitioners
    - Prescribing
    - Care Giving / Administering
  - Hospitals
    - Link to maternal transfer & tocolysis
  - Pharmacies
  - Distributors
  - Pharmaceutical Manufacturers

- Promote public awareness of benefits of ANCS
  - Education of parents & non-perinatal providers
  - Link to maternal transfer & tocolysis
  - General risks and benefits
Births at 24-33 completed weeks receiving any antenatal steroids, by quarter, Aggregate results for 20 OPQC charter sites

January 2010: Ohio Hospital Compare launched

January 2012: OPQC ANCS project begins

Source: Ohio Department of Health, Vital Statistics
How Have Hospitals Helped?

• **Neonatal Blood Stream Infections**
  • Adopt Care Bundles & Track Outcomes

• **39 Week & Steroid Projects**
  • Adopt Scheduled Birth Forms & Track Data
  • Train Birth Registrars to Improve Birth Registry as Ohio’s Quality Improvement Tool

• **Administrative Support & Authority**

• **Financial Support for QI training & Rx**
A Statewide Quality Improvement Project To Reduce Ohio Preterm Births Before 37, (35), And 32 Weeks’ Gestation By Identifying And Treating Pregnant Women Eligible For Progesterone Supplementation

Global Aim:
To Reduce Infant Mortality In Ohio By Reducing Preterm Birth

SMART AIM: By July 1, 2015, Decrease the Rate of Preterm Birth before 37 Weeks’ from 10.6% to 9.7%, and before 32 weeks’ from 2.1% to 1.9%. 
Ohio Progesterone Project: The Key Drivers Are in Out-Patient Sites

- Identify Women with Prior Preterm Birth
- Identify Women with Short Cervix ≤ 20 mm
- Prescribe Progesterone to Eligible Women
- Remove Administrative Barriers to Receiving Progesterone Supplementation
- Track Outcomes in Participant Sites and in Ohio
QI in Hospitals to Reduce Infant Mortality

QI for Non-Traditional Tasks

Maternity Care
- Preterm Birth Prevention
- Breast Feeding
- Safe Sleeping
- Safe Spacing
- Smoking Cessation
- OB, FP & CNM Credentialing

Newborn Care
- Breast Feeding
- Safe Sleeping
- Preterm Birth Prevention
- Safe Spacing
- Smoking Cessation
- Pediatric, FP, & NP Credentialing
Role of Hospitals in the Ohio Progesterone Project

✓ Share the Goal: Reduce Ohio’s Infant Mortality

■ QI in Prenatal Care
  □ Accurate Linkage of Outpt & Inpt Medical Records
  □ Insist on Quality Cervical Imaging

■ QI in Inpatient Maternity Care
  □ Recognize Progesterone Candidates
  □ Document Progesterone Use
  □ Postpartum Education of Women who Deliver Preterm

■ Neonatal Care
  □ Recognize Candidates for Future Progesterone Rx

■ Provider Credentials for IM Prevention!