Team Approach to Change in Oxygen Management Leads to a Reduction in Retinopathy of Prematurity

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INTRODUCTION

- What is Retinopathy of Prematurity (ROP)?
  - Abnormal proliferation of retinal vessels
  - Leads to traction and disruption of the retina
- Number one cause of blindness in children
- Risk factors
  - Prematurity
  - Exposure to oxygen

- Reviewing the Evidence
  - 2 papers described a reduction in severe forms of ROP by changing oximeter management (Chow et al., 2003; Tin et al., 2001)
  - Could we reduce our ROP rate too?

PROJECT DESCRIPTION

- Formed a group to look at the evidence and draft our own policy
  - Nursing staff and educators from both NICUs
  - Neonatologists
  - NNPs
  - RTs from both NICUs
  - Led by CNS for both NICUs
- Involved MUCH discussion, negotiation
- Determined criteria, oximeter parameters, other practice details
- Developed policy and procedure

- The New Policy
  - Targets babies born at
    - < 1500 grams birthweight
    - Until 32 weeks post-conception
  - Oximeter range: 83%-93%

- Barriers to making this change
  - Many of our nurses have decades of experience
    - For 2-3 decades, staff believed that higher oxygen levels were best
    - Nurses would have to change a long standing belief, understanding and practice
  - Nurses would be concerned with neurologic outcome at lower saturations
  - We'd have a huge staff to convince!
    - 160+ staff nurses in the Methodist NICU
  - We "like" keeping our tiny patients well oxygenated

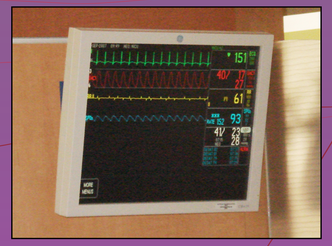
- Education
  - Wanted to design our training so we would have a better chance to
    - make the change
    - sustain the change
    - minimize resistance
  - Knew the challenge of training 160+ staff members
    - Working a variety of shifts
    - Some full-time, some very part-time

- Trained all staff in a 24-hour period
  - As part of our "Round-the-clock" annual training
  - Presented to nursing staff by MD/NNP
  - Addressed potential issues during the presentation
    - Neurologic outcome
  - Allowed ample time for discussion
  - Emphasized which babies were NOT included in the new management approach
    - Full-term infants not at risk for ROP
  - Implementation occurred immediately after training concluded

RESULTS/OUTCOMES

- How did it go?
  - Expected much staff resistance – did not experience that

- Tracking staff compliance to the policy
  - One staff nurse took the lead in developing a team of staff to monitor compliance to 2 key parts of the new protocol
    - Oximeter alarm limits
      - Expectation is 82-94%
    - FiO_2 setting on ambu bag
      - Expectation is 10% above baseline FiO_2 requirement
    - Audits are done monthly
      - 5 nurses on each shift do the audits
    - Immediate feedback to the staff is offered by the staff nurse auditor
  - Results
    - Acceptable
    - Variable
    - Sometimes excellent



But, have we made a difference????

YES!!!!

Our severe ROP rate has dropped from 10.4% to 5.4%, and our surgical ROP rate dropped from 8.3% to 4.7% since implementation of the new policy and procedure.

Severe ROP and Surgical ROP Rates at Methodist Children's Hospital NICU Before and After Implementation of Policy to Reduce Acceptable Pulse Oximetry Range in Babies with a Birthweight of <1500 grams

Policy and procedure implemented in May, 2005

FUTURE OF THE PROJECT

- Blenders recently installed in Labor and Delivery rooms will make oxygen titration easier and will provide a new opportunity for further reduction in ROP rate
- Team will meet quarterly to discuss ROP cases, compliance issues, and identify other opportunities for improvement

LESSONS LEARNED

- Involve staff throughout all phases of project, including all departments that are affected by project.
- Educate the entire staff as thoroughly as possible, allowing time for discussion. Complete all the educational sessions in a short timeframe, rather than scheduling them over a several week period, for example.
  - We educated the entire staff within a 24 hour period and implemented the new policy when the last training session concluded.
- Involve staff in compliance auditing and ask them to give direct feedback to staff.
  - We think the direct feedback component is very effective in re-educating and provides an opportunity to address staff concerns.
- Inform staff of results and celebrate improvements!