PERI-VIABLE COUNSELING AND CARE IN THE DELIVERY ROOM

BARRY T BLOOM, MD
COUNSELING AT 20-25 WEEKS

- Choices made by the maternal care team set the stage for our discussions and frame the options, so we try to have both discussions before final decisions are made.

- The pendulum has swung from the Baby Doe era, to a perception of unethical intervention, to moderation and now to a difficult threshold of 22-0 weeks.
Rates for Mortality and morbidities in survivors are available in our brochure – A revision is in the works.

The NICHD also has an internet calculator available:

COUNSELING AT 20-25 WEEKS

- 22-0 through 23-0 – the survival rate is very low and a vast majority of the survivors have long term serious disabilities, so we do not recommend intervention.

- 23-0 to 24-0 is better, but still more likely than not to result in death and in the survivors most will have significant morbidities. While the national consensus suggests we should advocate for intervention, we continue to support the parents in the decision to not resuscitate.
■ Communication between obstetric and neonatal providers should be occurring before, during and immediately after delivery.

■ Ongoing re-evaluation of the impact of care and the infant’s response will occur and withdrawal of support is common
CARE IN THE DELIVERY ROOM

HOW CURRENT NRP GUIDELINES AND RECOMMENDATIONS MAY AFFECT THE OB ATTENDANT
**OB**
- Enemas, perineal shaving and iodine preps
- Maternal sedation and restraints
- Separate labor and delivery room
- No fathers or support people
- Forceps and episiotomies very common

**Neonatal**
- Wide variation across hospitals
- Tactile maneuvers (rubbing, slapping, pinching)
- Oxygen delivery and tracheal catheterization
- Self inflating bag and air way opening maneuvers
- Routine separation of newborn for transition
## HISTORICAL ASPECTS OF CARING FOR THE NEONATE IN THE BIRTH SETTING

### 1980's
- 1987 Neonatal Resuscitation Program
- Increasing use of electronic fetal monitoring and fetal scalp electrodes
- DeLee suctioning for meconium
- Immediate cord clamping and cutting
- All infants to neonatal resuscitation bay
- PPV with 100% oxygen
- Deep suctioning for meconium

### 1990's
- Scalp pH gases to guide labor management
- Widespread electronic fetal monitoring
- DeLee suctioning for meconium
- Immediate cord clamping and cutting
- Most infants to neonatal resuscitation bay
- Vaginal breeches
- Amnioinfusions for meconium

### 2000's
- Scalp pH no longer performed
- Declining episiotomy rates
- End of DeLee suctioning
- Delayed cord clamping
- More infants immediate skin to skin
- PPV with 21% oxygen
- Increasing cesarean delivery rates
- Declining forceps and vacuum rates
- Singleton breeches by cesarean
# TRAINING OF OB/GYNS IN THESE ERAS

<table>
<thead>
<tr>
<th>Era</th>
<th>Requirements</th>
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<tr>
<td>1980's</td>
<td>No formal training requirement in neonatal resuscitation with neonatology.</td>
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<td>Experiential skills and practices at site of training based on current practices.</td>
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<td>1990's</td>
<td>Formal training requirements for graduation in all OB/GYN residencies.</td>
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<td>Minimum of 10 neonatal intubations.</td>
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<td>Often designated rotations with NICU and neonatal resuscitation teams (ranging from 2 weeks to 3 months).</td>
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<td>2000's</td>
<td>No further requirement for neonatal intubations.</td>
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<td>NICU rotations were ended in most OB/GYN residency programs.</td>
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<td>NRP training often relegated to NRP textbook review and one simulation-based session/course.</td>
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<td>Most academic institutions have neonatal resuscitation team, so OB/GYN resident is not engaged in actual resuscitations.</td>
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TRAINING OF OB/GYNS IN THESE ERAS: POTENTIAL IMPLICATIONS

- Decreased awareness of how to treat the depressed neonate
- Understanding of the physiology of the first minutes; primary and secondary apnea and relation to intrapartum events
- Collaboration between obstetrics and neonatology and the impact on continuity of care of the maternal-fetal-neonatal triad
Part 7: Neonatal Resuscitation

by Jeffrey M. Perlman, Jonathan Wyllie, John Kattwinkel, Myra H. Wyckoff, Khalid Aziz, Ruth Guinsburg, Han-Suk Kim, Helen G. Liley, Lindsay Mildenhall, Wendy M. Simon, Edgardo Szyld, Masanori Tamura, Sithembiso Velaphi, and

Circulation
Volume 132(16 suppl 1):S204-S241
October 20, 2015
WHY DO WE KEEP CHANGING OUR APPROACH?

- Systematic Reviews based upon the IOM and the Grading of Recommendations, Assessments Development and Evaluation (GRADE) working group
- Using the Population, Intervention, Comparator and Outcomes (PICO) format
A question is formed -

In Preterm Infants, including those who received resuscitation, does delayed cord clamping (more than 30 seconds) compared to immediate cord clamping, improve long term outcome, cardiovascular stability, occurrence of IVH NEC temperature on admission and hyperbilirubinemia?

Refer to the Guidelines.....
ENVIROMENTAL TEMPERATURE

- Increased mortality risk by 28% for each degree below 36.5
- Increase the Room Temperature – 72-74 degrees Fahrenheit
- Cover with Plastic Bag and Hat
- Target neonatal temp of 36.5-37.5 centigrade
MANAGING THE UMBILICAL CORD

- Delay cord clamping for 30-60 seconds for most term and preterm newborns
  - Place skin-to-skin with mom
- No delay is needed if placental circulation disrupted (abruption, avulsion)
- Insufficient evidence about timing if baby is not vigorous
MILKING VS DELAYED CLAMPING

- Compress 30 cm from umbilicus toward the infant, 3 times
- Four times for infants 24-28 weeks was equivalent to delayed clamping
- Reduces transfusions
- Increases BP
- Reduces IVH
OBSTETRIC CONCERNS ABOUT CORD MANAGEMENT

- Jeopardize timely resuscitation
  - The placenta continues to perform gas exchange after delivery, sick and preterm infants are likely to benefit from additional blood volume derived from a delay in clamping.
  - Should OB providers initiate resuscitation with umbilical cord intact (dry, stim, position airway, assess heart rate)?
- Placing the infant placed at or below the level of the placenta may be technically difficult in some circumstances
Routine tracheal suction will no longer be recommended for **NON-VIGOROUS** babies with meconium stained fluid

- However, MSAF is a risk factor that requires presence of a team member with intubation skills
Placing a finger in the mouth or compressing the trachea is contraindicated.

Wipe the face and selectively and gently bulb suction.

Routine DeLee or bulb suctioning before the delivery of the shoulders are not recommended (2007).
MECONIUM MANAGEMENT - OBSTETRIC IMPLICATIONS

- Implications
  - No indication for immediate cord clamping
  - Skin to skin, dry and stimulate on the mother’s abdomen or chest
- Resuscitation may start before moving to the radiant warmer
- Lung inflation is critical For both cord transfusion and for resuscitation
> Acrocyanosis (blue hands and feet) does not indicate poor oxygenation.
> Visual assessment is not a reliable indicator and should not be used to guide oxygen therapy.
> “Persistent” cyanosis is a clinical judgment. Healthy babies may have central cyanosis for several minutes.
Term, good muscle tone and breathing without distress and making steady progress, you can delay pulse oximetry for several minutes.

If the newborn remains cyanotic after several minutes and has prenatal risk factors or labored breathing or poor tone, use pulse oximetry.

FiO₂ for PPV start at 21% >=35 weeks; 21-30%< 35 wks'
PPV STEPS CLARIFIED

First Assessment
Heart Rate After 15 Seconds of PPV

- Increasing
  - Announce “Heart rate is increasing”
  - Continue PPV
  - Second HR assessment after another 15 seconds of PPV

- Not Increasing
  - Chest IS Moving
    - Announce “Heart rate NOT increasing, chest IS moving”
    - Continue PPV that moves the chest
    - Second HR assessment after another 15 seconds of PPV that moves the chest

- Not Increasing
  - Chest NOT Moving
    - Announce “Heart rate NOT increasing, chest IS NOT moving”
    - Ventilation corrective steps until chest movement with PPV
      - Intubate or laryngeal mask if necessary
    - Announce when chest moving
    - Continue PPV that moves the chest
    - Second HR assessment after 30 seconds of PPV that moves the chest

Second Assessment
Heart Rate After 30 Seconds of PPV That Moves the Chest

- At least 100 bpm
  - Continue PPV 80-60 breaths/min until spontaneous effort

- 60 – 99 bpm
  - Re-assess ventilation
  - Ventilation corrective steps if necessary

- < 60 bpm
  - Re-assess ventilation
  - Ventilation corrective steps if necessary
  - Insert an alternative airway
  - If no improvement, 100% FiO2 and chest compressions
INTUBATION

- Strongly recommended before starting chest compressions
- Estimate tip-to-lip distance with new table or nasal-tragus length (NTL)
COMPRESSIONS

- Use 2-thumb technique
- Head-of-bed compressions
- Cardiac monitor recommended
- Continue for 60 seconds prior to checking a heart rate.
CHEST COMPRESSIONS - NRP

- It is a well-intentioned error to start chest compressions prior to achieving effective ventilation.
- Chest compressions are not indicated until you have achieved chest movement and breath sounds.
Only 2 medications

- Epinephrine
  - IV or IO preferred
  - ET x 1 while achieving intravascular access

- Normal saline
“Ventilation of the lungs is the single most important and most effective step in cardiopulmonary resuscitation of the compromised newborn.”
Neonatal Resuscitation Algorithm.

Jeffrey M. Perlman et al. Circulation. 2015;132:S204-S241