Risk Management in Obstetrics: Reducing NICU Admissions

Nathana Lurvey, MD, FACOG
Southbay Family Healthcare Center

Ann Correa, RN, OCN
Training & Special Projects Lead
AllMed Healthcare Management

© AllMed Healthcare Management, Inc.
Webinar Overview

- ACOG Position on Scheduled Delivery <39 weeks
- Common complications between 37-39 weeks and associated risks
- Examples of hospitals with successful programs to reduce elective deliveries and manage risk
- Common barriers to acceptance of these types of programs
Terminology

First day of LMP

Week # 0 20 \(0/7\) 34 \(0/7\) 37 \(0/7\) 39 \(0/7\) 41 \(6/7\)

Preterm Term Post term

Late Preterm Early Term

Modified from Drawing courtesy of William Engle, MD, Indiana University
Raju TNK. Pediatrics, 2006;118 1207. Oshiro BT Obstet Gynecol 2009;113:804
Scheduled Delivery <39 wks in an Uncomplicated Pregnancy

• Since 1979, ACOG has cautioned against inductions before 39 weeks in the absence of a medical indication (Committee Opinion #22)
• ACOG has also noted that “a mature fetal lung maturity test result before 39 weeks of gestation, in the absence of appropriate clinical circumstances, is not an indication for delivery”. (Committee Practice Bulletins #97 and #107)
Elective Induction: Sounds like a good idea...

- Advanced planning
- Convenience
- Delivered by her doctor
- Maternal intolerance to late pregnancy
  - Excess edema, backache, indigestion, insomnia
- Prior bad pregnancy
- And, it’s okay right?

Lots of Pressures on Obstetricians

- Physician Convenience
  - Guarantee attendance at birth ("co-dependency")
  - Avoid scheduling conflicts
  - Reduce being woken at night

- ...what’s the harm?
  - Bad outcomes are unrecognized and rare
  - The NICU handles these issues just fine

- Limit my risk of a bad pregnancy outcome
- And...payment pressures to deliver own pts

Complications Between 37 and 39 Weeks

- Increased NICU admissions
- Increased transient tachypnea of the newborn (TTN)
- Increased respiratory distress syndrome (RDS)
- Increased ventilator support
- Increased suspected or proven sepsis
- Increased newborn feeding problems and other transition issues

Morbidity of Late Preterm Infants in Massachusetts

- Late preterm infants: **22.2%** vs Term infants: **3%**
  - Sample: Term (377,638), Late Preterm (26,170)

- **Morbidity** rates doubled for each gestational week earlier than 38 weeks

  - 40 wks: 2.5%
  - 39 wks: 2.6%
  - 38 wks: 3.3%
  - 37 wks: 5.9%
  - 36 wks: 12.1%
  - 35 wks: 25.6%
  - 34 wks: 51.9%

New Concept: *U-Shaped Curve for Near-term Neonatal Outcomes*

- Neonatal outcomes at 37 & 38 weeks are very similar (or worse) than those at 41 and 42 weeks
- Best outcomes are at 39 and 40 weeks
NICU Admissions By Weeks Gestation Deliveries Without Complications, 2000-2003

RDS By Weeks Gestation Deliveries Without Complications, 2000-2003

Ventilator Usage by Weeks Gestation Deliveries Without Complications, 2000-2003

Ventilator Use

Timing of Elective Repeat Cesarean Delivery at Term & Neonatal Outcomes

- 13,258 elective repeat cesarean in 19 centers
- 35.8% done <39 weeks gestation
- Increased risk of neonatal morbidity
  - Respiratory, hypoglycemia, sepsis, NICU admissions, hospitalization > 5 days
  - Even among babies delivered at 38-39 weeks

Tita AT, et al, NEJM 2009;360:111
Adverse Neonatal Outcomes According to Completed Week of Gestation at Delivery: Absolute Risk

Tita AT, et al, NEJM 2009;360:111
Timing of Fetal Brain Development

- Cortex volume increases by 50% between 34 - 40 weeks gestation. (Adams Chapman, 2008)
- Brain volume increases at a rate of 15 mL/week between 29 - 41 weeks gestation.
- A 5-fold increase in myelinated white matter occurs between 35-41 weeks gestation.
- Frontal lobes are the last to develop, therefore the most vulnerable.

Examples of Successful Programs to Reduce Non-Medically Indicated Deliveries Before 39 Weeks

- Magee Women’s Hospital (Pittsburgh)
- Intermountain Healthcare (Utah)
- Ohio State Department of Health
Magee-Women’s Hospital Experience

- Magee-Women’s Hospital is the largest maternity hospital in Western Pennsylvania, performing more than 9,300 deliveries in 2007.
- A rise in the use of induction, reaching a high of 28% in 2003.
- In 2006, a process improvement initiative changed the induction scheduling process and strictly enforced the guidelines.
- “Elective”: not before 39 weeks and without cervical ripening agents if 39+0 to 40+6

Fisch et al Obstet Gynecol 2009;113:797
## Magee-Women’s Experience with Guidelines

<table>
<thead>
<tr>
<th></th>
<th>Baseline 3mos 2004</th>
<th>Voluntary 3mos 2005</th>
<th>Enforced 14mos 2006-7</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deliveries</td>
<td>2,139</td>
<td>2,260</td>
<td>10,895</td>
</tr>
<tr>
<td>Elective Inductions &lt;39wks (N)</td>
<td>23</td>
<td>21</td>
<td>30</td>
</tr>
<tr>
<td><strong>Elective Inductions &lt;39wks (rate)</strong></td>
<td><strong>11.8%</strong></td>
<td><strong>10.0%</strong></td>
<td><strong>4.3%</strong> (p&lt;0.001)</td>
</tr>
<tr>
<td>(elective inductions &lt;39 / total elective inductions)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Elective Nullip Inductions (N)</td>
<td>29</td>
<td>33</td>
<td>87</td>
</tr>
<tr>
<td>Elective Nullip Inductions =&gt;C/S (N)</td>
<td>10</td>
<td>5</td>
<td>12</td>
</tr>
<tr>
<td><strong>Elective Nullip Inductions =&gt;C/S (rate)</strong></td>
<td><strong>35.7%</strong></td>
<td><strong>15.2%</strong></td>
<td><strong>13.8%</strong> (p&lt;0.01)</td>
</tr>
<tr>
<td>Total Induction Rate</td>
<td>24.9%</td>
<td>20.1%</td>
<td>16.6%</td>
</tr>
</tbody>
</table>

“The importance of strong physician and nursing leadership cannot be overstated.”

Fisch et al Obstet Gynecol 2009;113:797
Intermountain Healthcare’s Experience

- Intermountain Healthcare is a vertically integrated healthcare system that operates 21 hospitals in Utah and Southeast Idaho, and delivers approximately 30,000 babies annually.
- Computerized L&D system.
- MFM hired by system, but OBs are independent.
- January 2001: 9 urban facilities participated in a process improvement program for elective deliveries.
- 28% of elective deliveries were occurring before 39 completed weeks of gestation.
% Non-Medically Indicated Deliveries <39 Weeks
January 1999-December 2005

Common Themes Noted in Intermountain Healthcare’s Experience

- Education provided to obstetricians regarding ACOG guidelines, best practice.
- Little change until physicians were held accountable, nurses were empowered, guidelines were enforced.
- Medical leadership is critical.
Alleviating Obstetricians’ Fears About Delaying Delivery

Obstetricians in several of these studies voiced concerns regarding a potential increase in perinatal mortality and maternal morbidity.

Stillbirths Before & After Implementation of Guidelines at Intermountain Healthcare


<table>
<thead>
<tr>
<th>Weeks of Gestation</th>
<th>Stillbirths</th>
<th>Deliveries</th>
<th>%</th>
<th>Stillbirths</th>
<th>Deliveries</th>
<th>%</th>
<th>Odds Ratio</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>37</td>
<td>17</td>
<td>4,117</td>
<td>0.41</td>
<td>22</td>
<td>13,077</td>
<td>0.17</td>
<td>0.406</td>
<td>0.22–0.77</td>
</tr>
<tr>
<td>38</td>
<td>19</td>
<td>9,954</td>
<td>0.19</td>
<td>21</td>
<td>28,209</td>
<td>0.07</td>
<td>0.390</td>
<td>0.21–0.72</td>
</tr>
<tr>
<td>39</td>
<td>10</td>
<td>13,752</td>
<td>0.07</td>
<td>28</td>
<td>51,721</td>
<td>0.05</td>
<td>0.744</td>
<td>0.36–1.53</td>
</tr>
<tr>
<td>40</td>
<td>10</td>
<td>7,925</td>
<td>0.13</td>
<td>14</td>
<td>24,140</td>
<td>0.06</td>
<td>0.459</td>
<td>0.20–1.03</td>
</tr>
<tr>
<td>41</td>
<td>2</td>
<td>1,938</td>
<td>0.10</td>
<td>3</td>
<td>5,571</td>
<td>0.05</td>
<td>0.522</td>
<td>0.09–3.12</td>
</tr>
<tr>
<td>All</td>
<td>58</td>
<td>37,686</td>
<td>0.15</td>
<td>88</td>
<td>12,271</td>
<td>0.07</td>
<td>0.466</td>
<td>0.33–0.65</td>
</tr>
</tbody>
</table>

Wouldn’t Keeping Women Pregnant Longer Increase Their Risk of Adverse Outcomes?

- The experience in Ohio and Utah has shown that morbidity remained the same for macrosomia, pre-eclampsia and maternal infections.
- Decreases were seen in stillbirth, low apgar scores, cesarean section for fetal distress, meconium aspiration and postpartum anemia.
While many hospitals are off to a good start on this project, some have encountered barriers...

1. Physician Resistance
2. Data Collection
Barrier 1: Physician Resistance

Drivers

• Physician autonomy (philosophy)
• Structure of the medical staff (rotating Chairs)
• Low level of administrative commitment
• Sign of the times (high anxiety about the future and change)
Diffusion of Innovation

- The classic study analyzing the adoption of change (new ideas or practices) among individuals and organizations.
- Synthesis of research from over 500 diffusion studies.
- Many of the studies focused on the adoption of agricultural or medical practices, recently applied to technology adoption.
- Below is his categorization of how people adopt change.

Acceptance of a QI project

QI Leaders:
- Enthusiastic
- Know the literature
- Champions for change

Convincible:
- Respond to data at GR
- Offer little opposition

Followers:
- Will agree if a majority accepts
- Sometimes fickle

Die-hards:
- “I know best” (autonomy)
- Refuse all oversight
- Can be very resistant

In a department, proportion varies from 0 to ~20%


© AllMed Healthcare Management, Inc.
What kind of Resistance is “Out There”? 

1. Autonomy

- “I am a Board Certified OB/GYN, I can do what I want.” “No one should ever look over my shoulder.”
- Resistance to “Cookbook” medicine
- Reflective of underlying anxiety about loss of control and autonomy
- Lack of understanding that standardization of care improves patient outcomes
2. Chair Uncertainty

- “As Chair, I am uncomfortable with telling another physician what she can or can not do with her patient.”
- “Am I responsible if something bad happens to the patient if she is not delivered according to the private doctor’s desires?”
- “What will my malpractice carrier say?”

Of note most of the “Hard Stop” reports in the literature have been where there is a hospital-based physician involved who can “take the heat”.

© AllMed Healthcare Management, Inc.
3. Lack of Consensus

- In general, we like to use logic and literature to build a consensus (and sometimes “shame” for being an outlier) rather than directly forcing a doctor to follow a rule.
- What should happen if a doctor absolutely refuses to follow the guideline?
What about Absolute Refusals?

- Do not allow the few physicians to affect the majority
  - Physician level data can be very persuasive, can show outliers
  - Accurate data is critical—if the data is wrong everyone loses credibility
- A few months of using “Scouts’ Honor” (“Soft stop”) can show the entire department how a few can spoil the outcomes and stats for all
- At that point, it is usually an easier sell for a hard stop
Absolute Refusals 2: Increasing the “Hassle Factor”

- Require every physician write a full note in the chart describing why they took this action
- Require all patients sign a full consent that describes the neonatal risks
- Have all cases reviewed in Perinatal Committee
  - Require formal letters returned for their Medical Staff file

The department Chair can use physician-level data on this measure for OPPE (JC requirement)
Absolute Refusals 3: Influence of Director of Nurseries

- Champions for babies
- Can provide examples and stats of poor outcomes
- It is much harder to go up against the “baby’s doctor” than another obstetrician
- *This actually should be an early step...*
**Barrier 2: Data Collection**

CMQCC has a data collection and reporting initiative currently in testing, set to be released in May 2011

- Uses linked administrative data sets (93%)
- Minimizes the chart review needs—only 7% chart reviews
- Also provides sub-measures to help guide QI e.g. “I have a high rate, what do I do next?”
  Is it because if I have a high--
  % medical complications; % moms under 39wks
  % inductions <39wks (of uncomplicated moms)
  % CS <39wks (of uncomplicated moms)
- Can also provide a list of patients to drill down on
Conclusions

Elimination of Non-Medically Indicated deliveries before 39 weeks:

- Reduces neonatal complications
- No harm to mother if no medical or obstetrical indication for delivery
- Has strong support from ACOG
- Is now a national quality measure for hospital performance:
  - National Quality Forum (NQF)
  - Leapfrog Group
  - The Joint Commission (TJC)
Questions and Answers

© AllMed Healthcare Management, Inc.
Thank you for attending. All participants will receive the slide deck and a link to this recording via email.

For more information including patient education and physician resources, visit the March of Dimes Website: http://bit.ly/Plwh7x

To share your ideas for webinar topics contact us at: info@allmedmd.com

AllMed Healthcare Management, Inc.  
621 SW Alder Street, Suite 740  
Portland, OR 97205  
(800) 400-9916  
www.allmedmd.com

© AllMed Healthcare Management, Inc.