A Model for Collaboration: Reducing Early Elective Deliveries

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Deputy Commissioner for Population Health
Tennessee Department of Health
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Terminology

- Late preterm = 34 0/7 to 36 6/7 weeks gestation
- Early term = 37 0/7 to 38 6/7 weeks gestation
- Elective: Not medically indicated
People Are Paying Attention…
But Why?

• Evidence supports better outcomes for mom and baby when elective inductions/deliveries are avoided
### Table 1. Neonatal and Infant Mortality Rates Associated With Late-Preterm and Early-Term Deliveries

<table>
<thead>
<tr>
<th>Gestational Age (wk)</th>
<th>Neonatal Mortality Rate (Per 1,000 Live Births)</th>
<th>Relative Risk (95% CI)</th>
<th>Infant Mortality Rate (Per 1,000 Live Births)</th>
<th>Relative Risk (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>34*</td>
<td>7.1</td>
<td>9.5</td>
<td>11.8</td>
<td>5.4</td>
</tr>
<tr>
<td>35*</td>
<td>4.8</td>
<td>6.4</td>
<td>8.6</td>
<td>3.9</td>
</tr>
<tr>
<td>36*</td>
<td>2.8</td>
<td>3.7</td>
<td>5.7</td>
<td>2.6</td>
</tr>
<tr>
<td>37*</td>
<td>1.7</td>
<td>2.3</td>
<td>4.1</td>
<td>1.9</td>
</tr>
<tr>
<td>38*</td>
<td>1.0</td>
<td>1.4</td>
<td>2.7</td>
<td>1.2</td>
</tr>
<tr>
<td>39</td>
<td>0.8</td>
<td>1.00†</td>
<td>2.2</td>
<td>1.00†</td>
</tr>
<tr>
<td>40</td>
<td>0.8</td>
<td>1.0</td>
<td>2.1</td>
<td>0.9</td>
</tr>
</tbody>
</table>

Abbreviation: CI, confidence interval.

*P<.001

†Reference group

Nonmedically Indicated Early-Term Deliveries

ABSTRACT: For certain medical conditions, available data and expert opinion support optimal timing of delivery in the late-preterm or early-term period for improved neonatal and infant outcomes. However, for nonmedically indicated early-term deliveries such an improvement has not been demonstrated. Morbidity and mortality rates are greater among neonates and infants delivered during the early-term period compared with those delivered between 39 weeks and 40 weeks of gestation. Nevertheless, the rate of nonmedically indicated early-term deliveries continues to increase in the United States. Implementation of a policy to decrease the rate of nonmedically indicated deliveries before 39 weeks of gestation has been found to both decrease the number of these deliveries and improve neonatal outcomes; however, more research is necessary to further characterize pregnancies at risk for in utero morbidity or mortality. Also of concern is that at least one state Medicaid agency has stopped reimbursement for nonindicated deliveries before 39 weeks of gestation. Avoidance of nonindicated delivery before 39 weeks of gestation should not be accompanied by an increase in expectant management of patients with indications for delivery before 39 weeks of gestation. Management decisions, therefore, should balance the risks of pregnancy prolongation with the neonatal and infant risks associated with early-term delivery.

Historically, the American College of Obstetricians and Gynecologists (the College) and the Society for Maternal-Fetal Medicine have advocated delaying deliveries until 39 completed weeks of gestation or beyond. Further, the College has stated that a mature fetal lung maturity profile is not an indication for delivery in the absence of other clinical indications (1). Yet, the rate of nonmedically indicated delivery at 37 0/7–38 6/7 weeks of gestation will focus on neonatal and infant outcomes and the potential neonatal complications related to nonmedically indicated early-term delivery. In this document, 36 weeks of gestation means 36 0/7–36 6/7 weeks of gestation, 37 weeks of gestation means 37 0/7–37 6/7 weeks of gestation, 38 weeks of gestation means 38 0/7–38 6/7 weeks of gestation, 39 weeks of gestation means 39 0/7–39 6/7 weeks of gestation, and 40 weeks of gestation means 40 0/7–40 6/7 weeks of gestation.
“Although there are specific indications for delivery before 39 weeks of gestation, a nonmedically indicated early-term delivery is not appropriate….

…In fact, there are greater reported rates of morbidity and mortality among neonates and infants delivered during the early-term period compared with those delivered at 39 weeks and 40 weeks of gestation.”
“...The differences between 37 weeks of gestation and 39 weeks of gestation are consistent, larger and statistically significant across multiple studies. Even comparing neonates and infants delivered at 38 weeks of gestation with those delivered at 39 weeks of gestation there is still an increased (albeit clinically small) risk of adverse outcomes.”
But This Is Not New Information…
Induction of Labor

More than 22% of all gravid women undergo induction of labor in the United States, and the overall rate of induction of labor in the United States has more than doubled since 1990 to 225 per 1,000 live births in 2006 (1). The goal of induction of labor is to achieve vaginal delivery by stimulating uterine contractions before the spontaneous onset of labor. Generally, induction of labor has merit as a therapeutic option when the benefits of expeditious delivery outweigh the risks of continuing the pregnancy. The benefits of labor induction must be weighed against the potential maternal and fetal risks associated with this procedure (2). The purpose of this document is to review current methods for cervical ripening and induction of labor and to summarize the effectiveness of these approaches based on appropriately conducted outcomes-based research. These practice guidelines classify the indications for and contraindications to induction of labor, describe the various agents used for cervical ripening, cite methods used to induce labor, and outline the requirements for the safe clinical use of the various methods of inducing labor.
Iatrogenic prematurity due to elective termination of the uncomplicated pregnancy: A major perinatal health care problem

Table I. Acute morbidity and death associated with iatrogenic prematurity

<table>
<thead>
<tr>
<th>Morbidity</th>
<th>No. of patients</th>
</tr>
</thead>
<tbody>
<tr>
<td>Respiratory distress</td>
<td>32</td>
</tr>
<tr>
<td>Transient respiratory distress</td>
<td>8</td>
</tr>
<tr>
<td>Asphyxia neonatorum (1 min. Apgar score ≤6)*</td>
<td>10</td>
</tr>
<tr>
<td>Pneumothorax/pneumomediastinum</td>
<td>9</td>
</tr>
<tr>
<td>Necrotizing enterocolitis</td>
<td>1</td>
</tr>
<tr>
<td>Hyperbilirubinemia (total serum bilirubin value &gt;12 mg./100 ml.)</td>
<td>20</td>
</tr>
<tr>
<td>Hypocalcemia (total serum calcium value &lt;7 mg./100 ml.)</td>
<td>13</td>
</tr>
</tbody>
</table>

Death:

- Group B streptococcal sepsis and intraventricular hemorrhage complicating RDS

*Four infants were not assigned one-minute Apgar scores.

Table II. Therapeutic measures required in the treatment of iatrogenic prematurity

<table>
<thead>
<tr>
<th>Treatment</th>
<th>No. of patients</th>
</tr>
</thead>
<tbody>
<tr>
<td>Endotracheal intubation</td>
<td>3</td>
</tr>
<tr>
<td>Umbilical artery catheterization</td>
<td>19</td>
</tr>
<tr>
<td>Umbilical vein catheterization</td>
<td>11</td>
</tr>
<tr>
<td>Chest tube drainage of pneumothorax</td>
<td>4</td>
</tr>
<tr>
<td>Nasal continuous positive airway pressure</td>
<td>18</td>
</tr>
<tr>
<td>Environmental oxygen ≥40%</td>
<td>25</td>
</tr>
<tr>
<td>Respirator assistance</td>
<td>2</td>
</tr>
<tr>
<td>One or more blood transfusions</td>
<td>18</td>
</tr>
<tr>
<td>Phototherapy</td>
<td>20</td>
</tr>
<tr>
<td>Course of antibiotics</td>
<td>19</td>
</tr>
</tbody>
</table>
THE HAZARDS OF ELECTIVE INDUCTION OF LABOR*†

W. C. Keettel, M.D., J. H. Randall, M.D., Iowa City, Iowa, and Madeleine M. Donnelly, M.D., Des Moines, Iowa

### Table VI. Perinatal Deaths

<table>
<thead>
<tr>
<th>Cause</th>
<th>Stillborns NO.</th>
<th>Stillborns %</th>
<th>Neonatal Deaths NO.</th>
<th>Neonatal Deaths %</th>
<th>Total Perinatal Mortality NO.</th>
<th>Total Perinatal Mortality %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Related to Elective Induction of Labor.—</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prematurity</td>
<td>2</td>
<td></td>
<td>15</td>
<td></td>
<td>17</td>
<td></td>
</tr>
<tr>
<td>Prolapsed cord</td>
<td>10</td>
<td></td>
<td>0</td>
<td></td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>Latent period, over 24 hours</td>
<td>4</td>
<td></td>
<td>5</td>
<td></td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>Transverse presentation</td>
<td>2</td>
<td></td>
<td>0</td>
<td></td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Precipitate labor</td>
<td>0</td>
<td></td>
<td>1</td>
<td></td>
<td>1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>18</td>
<td>49.0</td>
<td>21</td>
<td>38.0</td>
<td>39</td>
<td>42.3</td>
</tr>
<tr>
<td>Not Related to Elective Induction of Labor.—</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other causes</td>
<td>19</td>
<td>51.0</td>
<td>34</td>
<td>62.0</td>
<td>53</td>
<td>57.7</td>
</tr>
<tr>
<td>Total perinatal mortality in cases of electively induced labor</td>
<td>37</td>
<td>0.6</td>
<td>55</td>
<td>0.8</td>
<td>92</td>
<td>1.4</td>
</tr>
</tbody>
</table>
There is no question that a successfully induced short labor occurring during the day is very impressive to the young medical student, intern, or general physician. He sees the specialist do this and naturally feels he would like to offer this to his patients. He does not realize that the proper selection of patients for induction requires much more training than a year's internship.

The trained obstetrician should have sufficient experience properly to select the patients so that the maternal and fetal complications will be minimal, but even the most experienced will occasionally misinterpret his findings and complications will occur which result in fetal death. The general practitioner is performing and should continue to perform the majority of uncomplicated deliveries. He does not have sufficient experience in the early years of practice, however, in evaluating the size of the fetus, the station of the head, and the effacement of the cervix to select patients properly for induction. Hence, it seems unwise for him to induce labor electively. This conclusion is reached on the basis of our experience with elective induction where the selection of patients was done by our assistant residents whose experience seems quite comparable. We feel that a loss of 39 babies, or almost 0.6 per cent, is a significant price to pay for convenience.
For convenience?
But that wouldn’t happen today.
Not in Tennessee.
Right?
Births by Day of Week
Tennessee, 2010

Percent of Live Births

Sunday 7.8  
Monday 16.0  
Tuesday 17.9  
Wednesday 16.6  
Thursday 16.8  
Friday 16.1  
Saturday 8.9

Data source: Tennessee Department of Health; Office of Health Statistics; Birth Statistical System. Gestational age was based on estimated/clinical gestational age. If estimated gestational age was missing or invalid (<17 weeks or >49 weeks), generated gestational age (based on last menstrual period) was substituted.
Births by Day of Week and 3-Level Gestational Age
Tennessee, 2010

Data source: Tennessee Department of Health; Office of Health Statistics; Birth Statistical System. Gestational age was based on estimated/clinical gestational age. If estimated gestational age was missing or invalid (<17 weeks or >49 weeks), generated gestational age (based on last menstrual period) was substituted.
In 2012, 15.45% of all early term deliveries in Tennessee were elective.
How Did TN Reduce Early Elective Deliveries?
Managing Complex Change
Managing Complex Change

Calls to action

TDH/THA/TIPQC Letter
October 25, 2012

Dear Chief Executive Officer,

For over 2 decades, the American College of Obstetricians and Gynecologists (ACOG) has advocated the restriction of elective or not-medically-indicated delivery of a term pregnancy to women with a confirmed gestational age of at least 39 completed weeks. In 2008, the National Quality Forum established “No Elective Deliveries Prior to 39 Weeks Gestation” as a national quality indicator for perinatal services. Two years later The Joint Commission adopted the concept as a Perinatal Core Measure and the Fortune 500 Organization Leapfrog endorsed this concept as a perinatal quality measure as well. Recent research studies have highlighted the adverse impact of term elective deliveries prior to 39 weeks gestation, early elective deliveries (EED), on both the newborn as well as the mother, and CMS has accordingly adopted elective deliveries prior to 39 weeks as a reportable measure for FY 2014. For this reason, the Tennessee Initiative for Perinatal Quality Care (TIPQC), the THA Board of Directors and the Tennessee Department of Health requests your support to eliminate elective term deliveries prior to 39 weeks gestation in the state of Tennessee.

THA has partnered with TIPQC on an early elective delivery (EED) initiative to reduce elective deliveries to less than five percent among our TN hospitals as part of our harm reduction initiatives. The EED initiative initially targeted the 32 THA Hospital Engagement Network (HEN) hospitals with OB services. The EED initiative has been endorsed by the THA Board of Directors including expanding the project to all hospitals in TN with obstetrical services. All TN hospitals are urged to:

- Sign the attached public commitment pledge by November 5, 2012
- Submit monthly performance data on JC Perinatal Care measure 1 to TCPS and
- Adopt an organization “hard stop” policy by December 31, 2012. Working together, clinicians and hospitals in Tennessee have found that a “hard stop” policy is the most effective approach to reduce early elective (non-medically indicated) deliveries prior to 39 weeks. Numerous studies have noted the negative impact of EED on both maternal and neonatal outcomes, and the TIPQC Maternal Leadership Group has unanimously endorsed this project.

Participating hospitals will be recognized in various formats including media releases and on THA and TIPQC websites. THA and TIPQC host monthly webinars to support hospital teams in reaching the EED project goals and will provide toolkits and other resources to all participating hospitals. In addition, TIPQC, THA, the TN Department of Health and the March of Dimes have joined together on a public awareness campaign, “Healthy Babies are Worth the Wait” that will launch November 1, 2012 during prematurity awareness month. In addition to the media campaign using cable TV spots, the March of Dimes has toolkits and education materials for patients that will be available for free download to OB providers.

Please join us in this statewide effort to reduce early elective deliveries and to educate the public that healthy babies are worth the wait.

Craig Becker
President
Tennessee Hospital Association

Scott Raynes
CEO Northcrest Medical Center
THA 2012 Board Chair

Doug Ardoin, MD, HCA TriStar Chair, THA CMO Society

Peter H. Grubb, MD, FAAP
Oversight Committee Chair, & Medical Director, TIPQC

David Adair, MD, FACOG
CEO – Regional Obstetrical Consultants
Professor, Vice Chairman – The University of Tennessee College of Medicine
Department of Obstetrics and Gynecology Section of Maternal Fetal Medicine, Chattanooga, TN
Director of Women’s Services – Baroness Erlanger Hospital, Chattanooga, TN
Chairman of the Board, Founder, Chief Science Officer – Glenview Medical, Chattanooga, TN
Maternal Leadership Working Group*, TIPQC

John J. Dreyzehner, MD, MPH, FACOEM
Commissioner, Tennessee Department of Health

* TIPQC Maternal Leadership Working Group Members: David Adair, MD, Frank Boehm MD, Kitty Cashion RN MSN, Donna Frye RN MN, Connie Graves MD, Bobby Howard MD, Cathy Ivory RNC-OB PhD, Garrett Lam MD, Giancarlo Mari MD, Selman Welt MD, Paul G. Stumpf MD, Janyce Whitty MD
Managing Complex Change

Calls to action
TDH/THA Letter

Evidence
ACOG Standards

Vision
Skills
Incentives
Resources
Action Plan

CHANGE
CONFUSION
ANXIETY
RESISTANCE
FRUSTRATION
FALSE STARTS
Nonmedically Indicated Early-Term Deliveries

ABSTRACT: For certain medical conditions, available data and expert opinion support optimal timing of delivery in the late-preterm or early-term period for improved neonatal and infant outcomes. However, for nonmedically indicated early-term deliveries such an improvement has not been demonstrated. Morbidity and mortality rates are greater among neonates and infants delivered during the early-term period compared with those delivered between 39 weeks and 40 weeks of gestation. Nevertheless, the rate of nonmedically indicated early-term deliveries continues to increase in the United States. Implementation of a policy to decrease the rate of nonmedically indicated deliveries before 39 weeks of gestation has been found to both decrease the number of these deliveries and improve neonatal outcomes; however, more research is necessary to further characterize pregnancies at risk for in utero morbidity or mortality. Also of concern is that at least one state Medicaid agency has stopped reimbursement for nonindicated deliveries before 39 weeks of gestation. Avoidance of nonindicated delivery before 39 weeks of gestation should not be accompanied by an increase in expectant management of patients with indications for delivery before 39 weeks of gestation. Management decisions, therefore, should balance the risks of pregnancy prolongation with the neonatal and infant risks associated with early-term delivery.

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Managing Complex Change

Vision - Skills - Incentives - Resources - Action Plan

CHANGE

Calls to action
TDH/THA Letter

Evidence
ACOG Standards

CONFUSION

Leapfrog
Joint Commission
NQF
Recognition

ANXIETY

Resources
Action Plan

RESISTANCE

Resources
Action Plan

FRUSTRATION

Resources
Action Plan

FALSE STARTS
In celebration of healthy babies, we congratulate the team of this hospital who helped reduce early elective deliveries!
There's a **BIG** difference between your baby's development in the last few weeks.

35 weeks

40 weeks
If your pregnancy is healthy, it’s best to stay pregnant for at least 39 weeks.

A baby’s brain at 35 weeks weighs only two-thirds of what it will weigh at 39 to 40 weeks.
Early Elective Deliveries Before 39 Weeks

Non-spontaneous, or scheduled deliveries prior to 39 weeks' gestation can lead to preterm birth and its associated risks. This project seeks to reduce the number of deliveries to avert maternal and neonatal risks.

This project was completed...
Managing Complex Change

Vision
Skills
Incentives
Resources
Action Plan

CALLS TO ACTION
TDH/THA Letter

EVIDENCE
ACOG Standards

LEAPFROG
Joint Commission
NQF Recognition

MARCH OF Dimes
Materials
TIPQC Toolkit
THA/TIPQC Data

Hard Stop Policy
Shared Commitment Across Institutions
Excerpt from Hard Stop Policy from one TN birthing hospital:

Hard stop #1: OB Scheduler

Hard stop #2: Labor and Delivery Medical Director

Hard Stop #3: Vice Chairman of OB Services

“…If the patient is admitted for delivery, the charge nurse becomes hard stop #4 if the patient does not meet criteria. To support this effort, the multidisciplinary OB team meets in a daily huddle and they “run the board.” Occasionally, patients are sent home if they do not meet medical criteria with extensive patient education provided. This needs to happen only one time, for a physician to change their practice.”
Managing Complex Change

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CHANGE

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Hard Stop Policy
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In celebration of healthy babies, we congratulate the team of this hospital who helped reduce early elective deliveries!
OB - Early Elective Deliveries

May 2012 Baseline = 15.45

Numerator: Number of patients with early elective deliveries (without exclusions)
Denominator: Number of patients delivering newborns at 37 weeks or more and less than 39 weeks gestation completed. Exclusions are defined by NQF.
Data Source: Tennessee Hospital Association's Report Distributor collection tool

This information is prepared and protected in accordance with the Tennessee Patient Safety and Quality Improvement Act of 2011. T.C.A. 68-11-272.
Tennessee’s Success in Reducing Early Elective Deliveries

• Not “how we’ve always done it”

• Required:
  – Passionate, visionary leadership
  – Evidence/solution
  – Incentives
  – Resolve
  – Celebration of success