Non-medically indicated delivery prior to 39 weeks gestation in United States hospitals

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Project Overview

- Health services research (HSR) informs policy implementation

- Policy makers increasingly rely on HSR as an evaluation of the United States health care system

Project Overview

• Target Policy: timing of elective deliveries, or Non-Medically Indicated Deliveries (NMI).

• NMI: Induction of labor or Cesarean Delivery without an accepted medical or obstetrical indication *before* the spontaneous onset of labor or rupture of membranes.¹

¹. A California Toolkit to Transform Maternity Care, Errata #2, 8/31/11
American College of Obstetricians & Gynecologists (ACOG) recommendation: perform elective deliveries after 39 completed weeks gestation

WHY? Increased neonatal morbidity (respiratory distress) and maternal complications for elective deliveries <39 weeks

Elective deliveries <39wks US & account for 10-15% of all deliveries despite ACOG recommendations.

2. CMS, Public-Private Partnership to Reduce Early Elective Deliveries
Terminology

First day of LMP

Week # 0 20 0/7 34 0/7 37 0/7 39 0/7 41 6/7

Preterm Late Preterm Early Term Term Post term

Modified from Drawing courtesy of William Engle, MD, Indiana University
Raju TNK. Pediatrics, 2006;118 1207. Oshiro BT Obstet Gynecol 2009;113:804
Rise in induction of labor by racial groups in U.S.

A California Toolkit to Transform Maternity Care, Errata #2, 8/31/11
Reasons for Early Elective Inductions

- Social factors
  - Military deployment (Father)

- Mother lives far away

- Maternal intolerance of late Pregnancy, “Tired of being pregnant”
  - Excess Edema, backache, indigestion, insomnia

Adverse events related to NMI Deliveries

Tita AT, et al, NEJM 2009;360:111
Prior Research

Before & after effect of policy on incidents of NMI deliveries < 39wks in Hospital system

**Group 1:** Hard stop

**Group 2:** Soft stop

**Group 3:** Education only

Reduction of elective delivery at 39 weeks of gestation

*American Journal of Obstetrics & Gynecology 2010; 203:449.e1-449.e6*
Objective

- To determine the prevalence of US hospital-level policy that specifically addresses non-medically indicated (NMI) delivery < 39 weeks
Significance

Clinically: perinatal safety & quality

Nationally: Organizations*
developing a quality improvement toolkit

Need for policy reinforcement

* March of Dimes, California Maternal Quality Care Collaborative (CMQCC), and the California Department of Health, Maternal Child and Adolescent Health Division have collaborated on the development of a quality improvement toolkit: Elimination of Non-medically Indicated (Elective) Deliveries Before 39 Weeks Gestational Age

Archives of Surgery 145(2): 179-186, 2010
Methods

- Telephone interview with either the Charge Nurse or Nurse Manager for all Labor and Delivery units listed in the AHA 2006 Master File.

- \( N = 2,646 \) Hospitals

- Interviewed consisted of two questions:
  - Hospital Policy? Y/N
  - Type of Policy?

- Data was recorded in secure spreadsheet.
Methods

- Independent review of responses by two practicing Obstetricians

- Coding:
  - Y/N/ND
  - Hard Stop or Other (includes Soft Stop)

- Reliability:
  - 15% random sample selection for retest inter-reliability
Results

<table>
<thead>
<tr>
<th>Description</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Hospitals contacted</td>
<td>893</td>
</tr>
<tr>
<td>Respondents</td>
<td>814</td>
</tr>
<tr>
<td>No answer/excluded</td>
<td>79</td>
</tr>
<tr>
<td>Response rate</td>
<td>91%</td>
</tr>
</tbody>
</table>

Random sample of one-third of labor & delivery units across 50 states
Results

Response

- Yes: 52%
- No: 15%
- Not Done: 29%
- Unsure: 4%
Results

- State-wide initiative enforcing ACOG recommendations with hospital policy:
  - CA
  - MN
  - IA
  - NC
  - IL
  - NJ
  - LA
  - OH
  - MD
  - OK
  - MI
  - SC
Results

California

- Yes: 49%
- No: 14%
- Not Done: 27%
- N/A: 10%

State Initiative: Yes
N = 63

Texas

- Yes: 40%
- No: 19%
- Not Done: 34%
- N/A: 7%

State Initiative: No
N = 75
Performed a two-sample test of proportions for “Yes” responses in CA and TX
No significant difference, $p = 0.2780$

Two-sample test of proportions

| Variable | Mean   | Std. Err. | z      | P>|z|   | [95% Conf. Interval] |
|----------|--------|-----------|--------|-------|---------------------|
| x        | .4920635 | .0629861  | .3686129 | 6155141 |
| y        | .4     | .0565685  | .2891277 | 5108723 |
| diff     | .0920635 | .0846596  | -.0738663 | .2579933 |
| under Ho:| .0848731 | 1.08      | 0.278    |

$\text{diff} = \text{prop}(x) - \text{prop}(y)$

Ho: $\text{diff} = 0$

Ha: $\text{diff} < 0$  Ha: $\text{diff} = 0$  Ha: $\text{diff} > 0$

Pr($Z < z$) = 0.8610  Pr($|Z| < |z|$) = 0.2780  Pr($Z > z$) = 0.1390
Lessons Learned

Personal autonomy

Evidence based medicine
Lessons Learned

Scientific Literature review

Research methods

Data collection & analysis

Evidence based medicine

Inter-reliability questionnaire design
Future Impact

- Evidence-based medicine as the foundation for policy design and implementation

- Health Services Research to evaluate the effectiveness of policy initiatives

- Well-informed policy promotes improved maternal and child health
Take Home Message

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.

35 weeks  39 to 40 weeks

march of dimes®
pregnancy & newborn health education center®
marchofdimes.com
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