Late Preterm Birth

ACOG Annual Clinical Meeting
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***Disclosures**: None*
No Commercial Affiliations, Grants, Speaker's Bureaus, Consultancies, Stock etc

Late Preterm Birth

Objectives

Participant will be able to:

- Recognize & Document Indications for PTB
- Counsel Women & Families about the Risks and Benefits of Late Preterm Birth
- Improve Communication with Pediatrics
- Adopt Care Practices to Reduce Late PTB

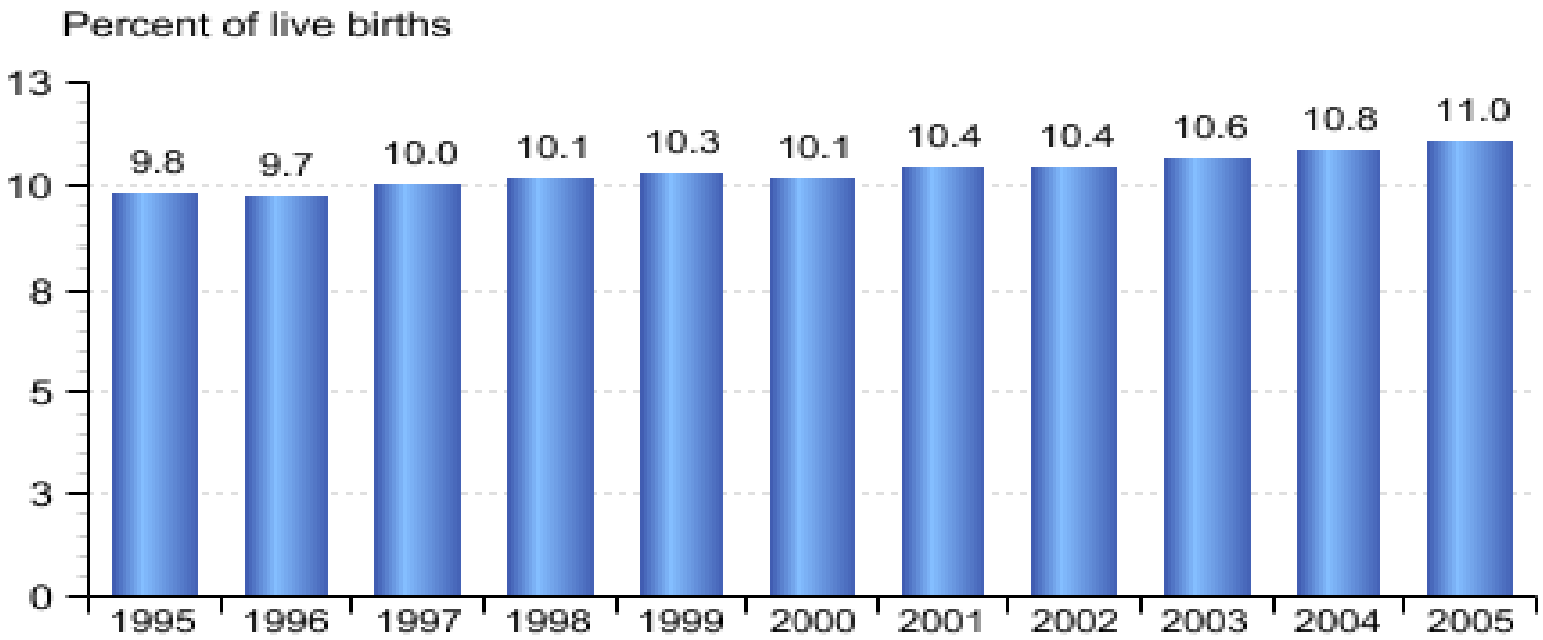
ACOG Committee Opinion # 404

Late Preterm Infants *Issued in April 2008*: **Why?**

Late-preterm infants often are mistakenly believed to be as physiologically and metabolically mature as term infants. However, compared with term infants, late-preterm infants are at higher risk than term infants of developing medical complications, resulting in higher rates of infant mortality, higher rates of morbidity before initial hospital discharge, and higher rates of hospital readmission in the first months of life. **Preterm delivery should occur only when an accepted maternal or fetal indication for delivery exists.** Collaborative counseling by both obstetric and neonatal clinicians about the outcomes of late-preterm births is warranted unless precluded by emergent conditions.

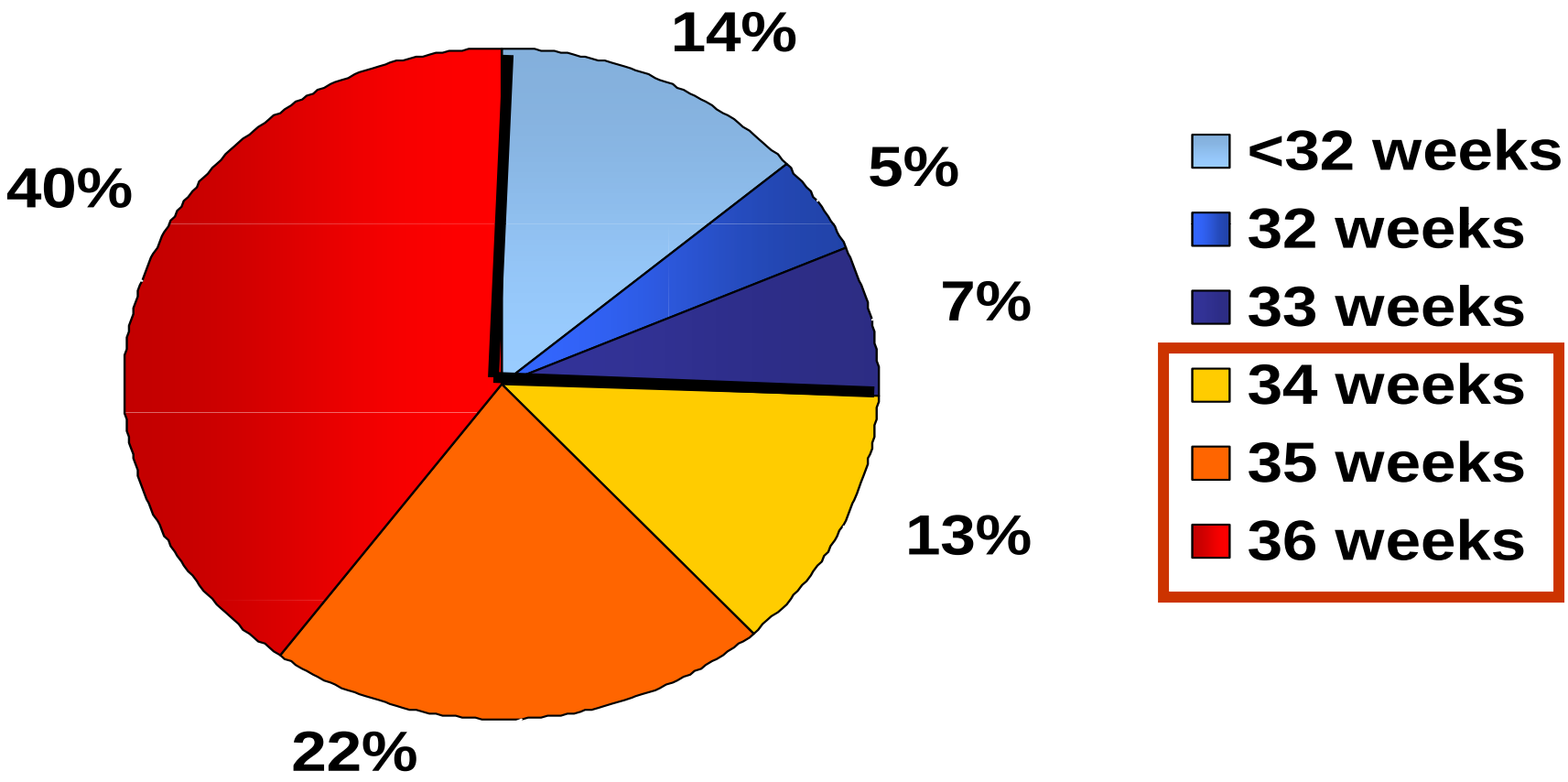
Statement developed jointly with AAP Committee on Fetus & Newborn

U.S. Singleton Births < 37 Weeks 1995-2005



Preterm is less than 37 completed weeks gestation.
Source: National Center for Health Statistics, final natality data. Retrieved July 16, 2008, from www.marchofdimes.com/peristats.

75% of Preterm Births Occur Between 34 and 36 Weeks



Slide courtesy of Drs C Gyamfi & L Jain

Source: NCHS, final natality data
Prepared by March of Dimes Perinatal Data Center, April 2006.

Late Preterm (34-36 Wks) Births Account for ALL of the Rise in Singleton PTBs

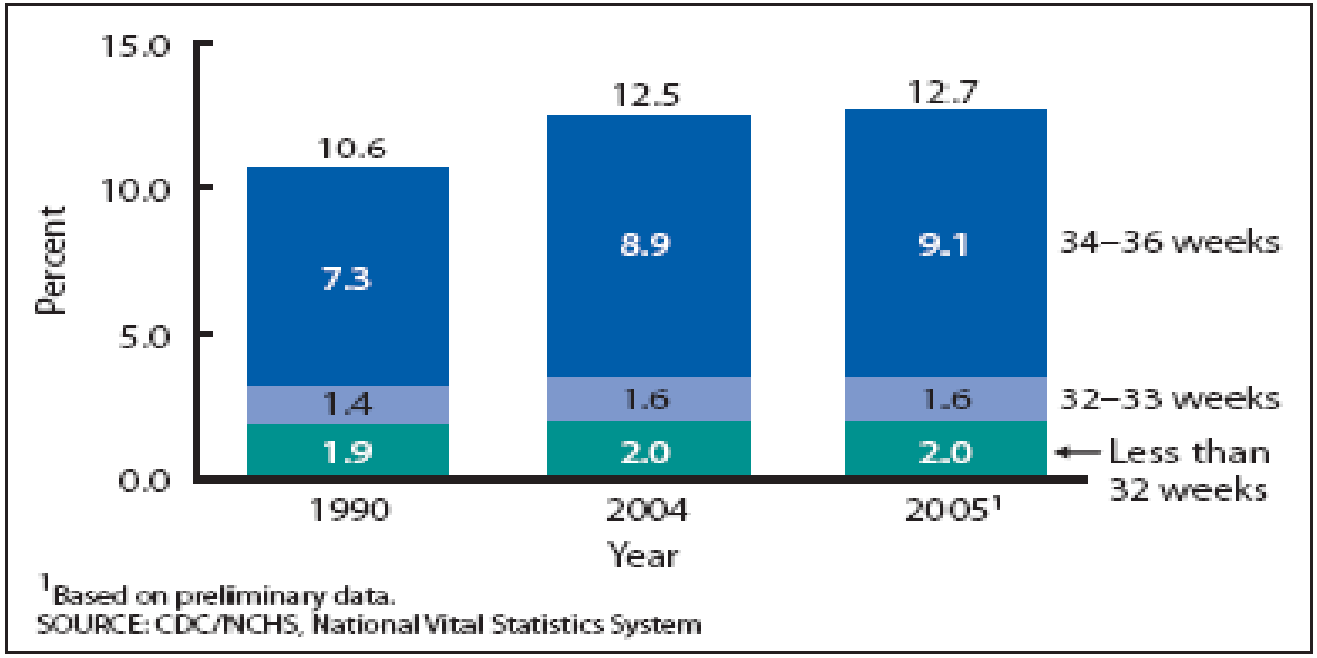
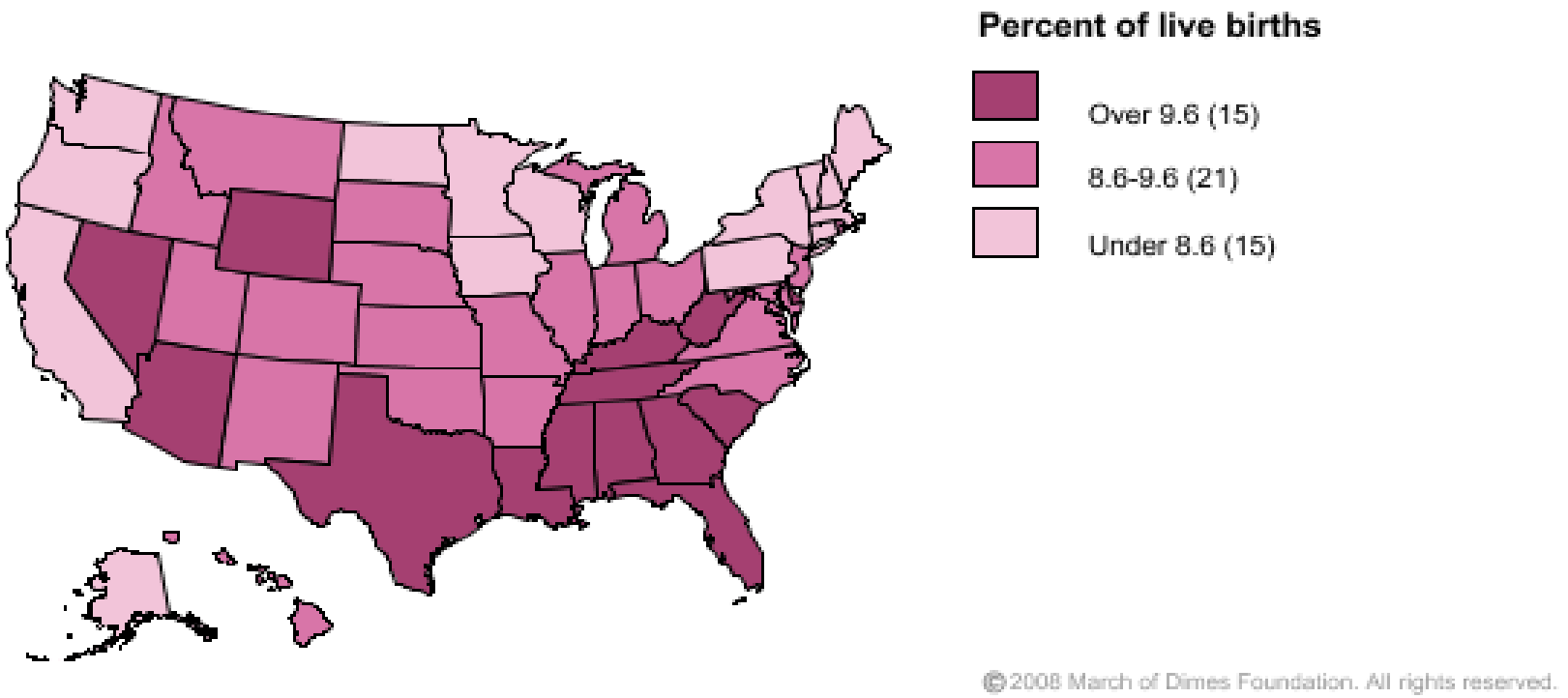


Figure 5. Percentage of preterm births: United States, 1990, 2004, and 2005

Late Preterm Births by State

US, 2005



Late preterm is between 34 and 36 completed weeks gestation.
Source: National Center for Health Statistics, final natality data. Retrieved March 22, 2009, from www.marchofdimes.com/peristats.

Why Are Late Preterm Births Rising?

- Better (Obstetrical) Dating
- More Multiple Gestations
- More Indicated Preterm Births
- An Obstetrical Culture of Intervention

Percent Change in Gestational Age Distribution 1990 → 2006

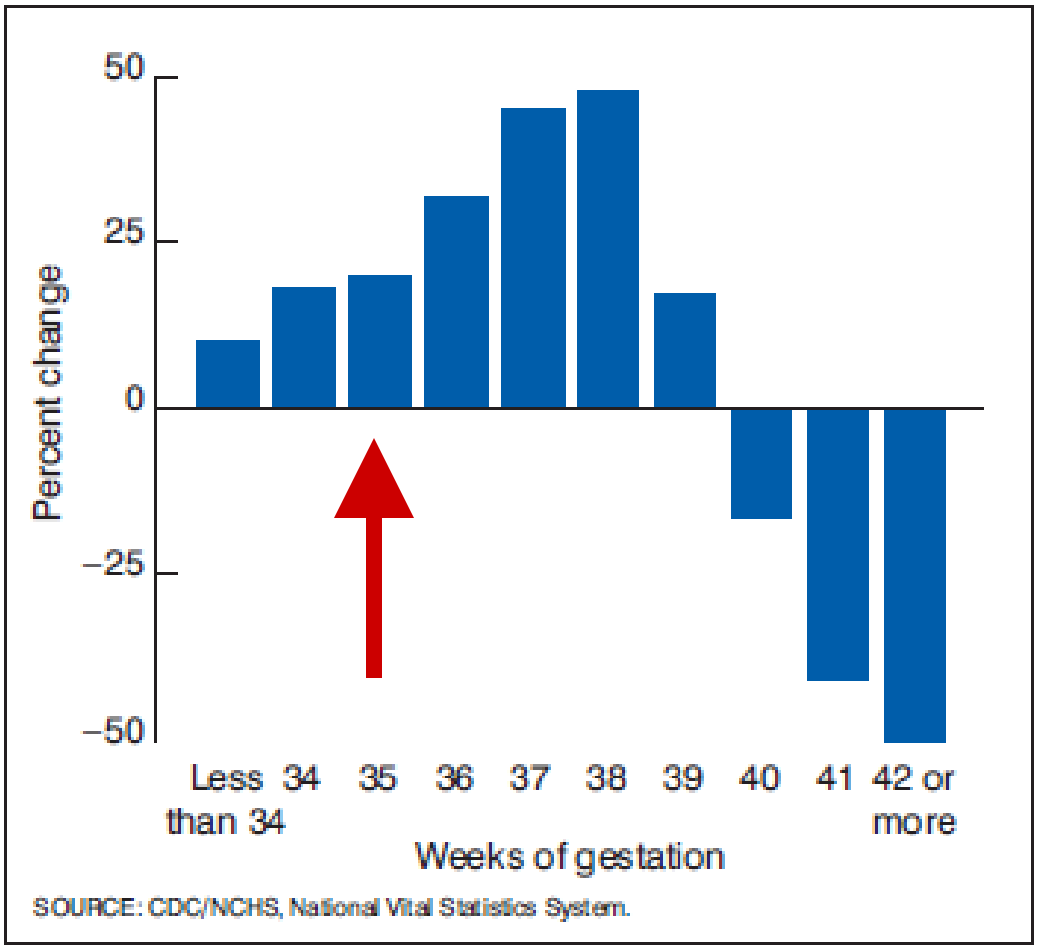
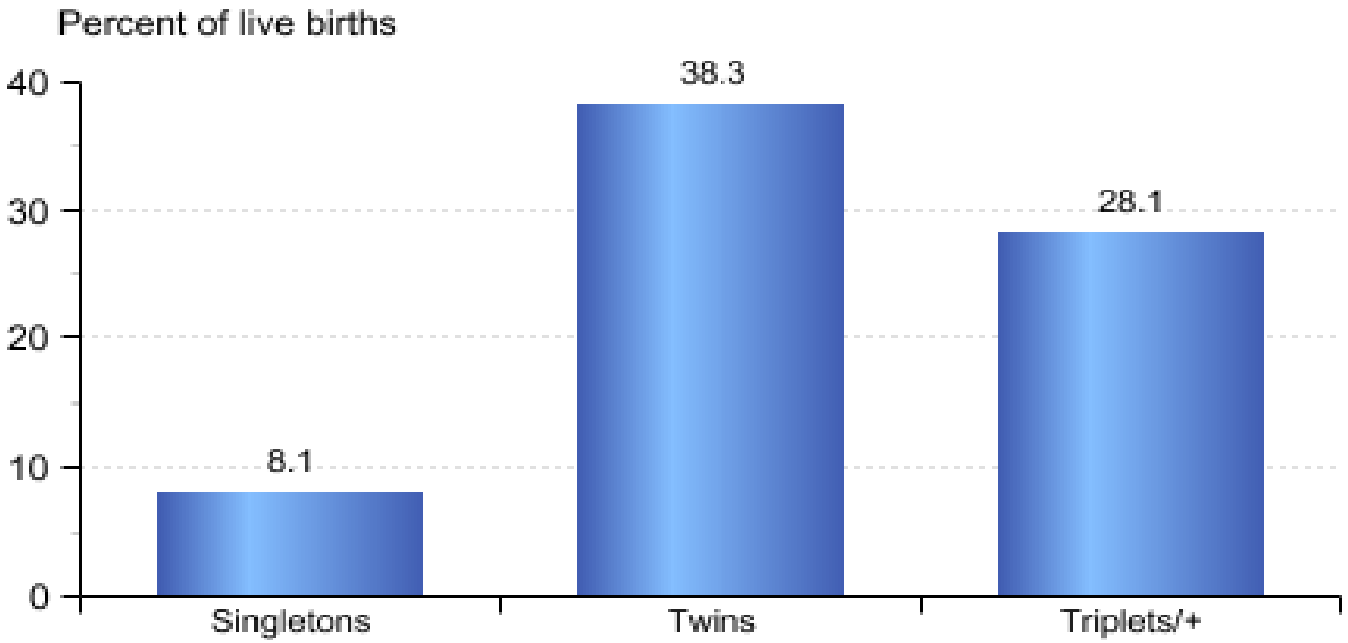


Figure 8. Percent change in the distribution of births by gestational age: United States, 1990 and 2006

Martin JA, Hamilton BE, Sutton PD, Ventura SJ, et al. Births: Final data for 2006. National vital statistics reports; vol 57 no 7. Hyattsville, MD: National Center for Health Statistics. 2009.

Late preterm births by plurality

US, 2005

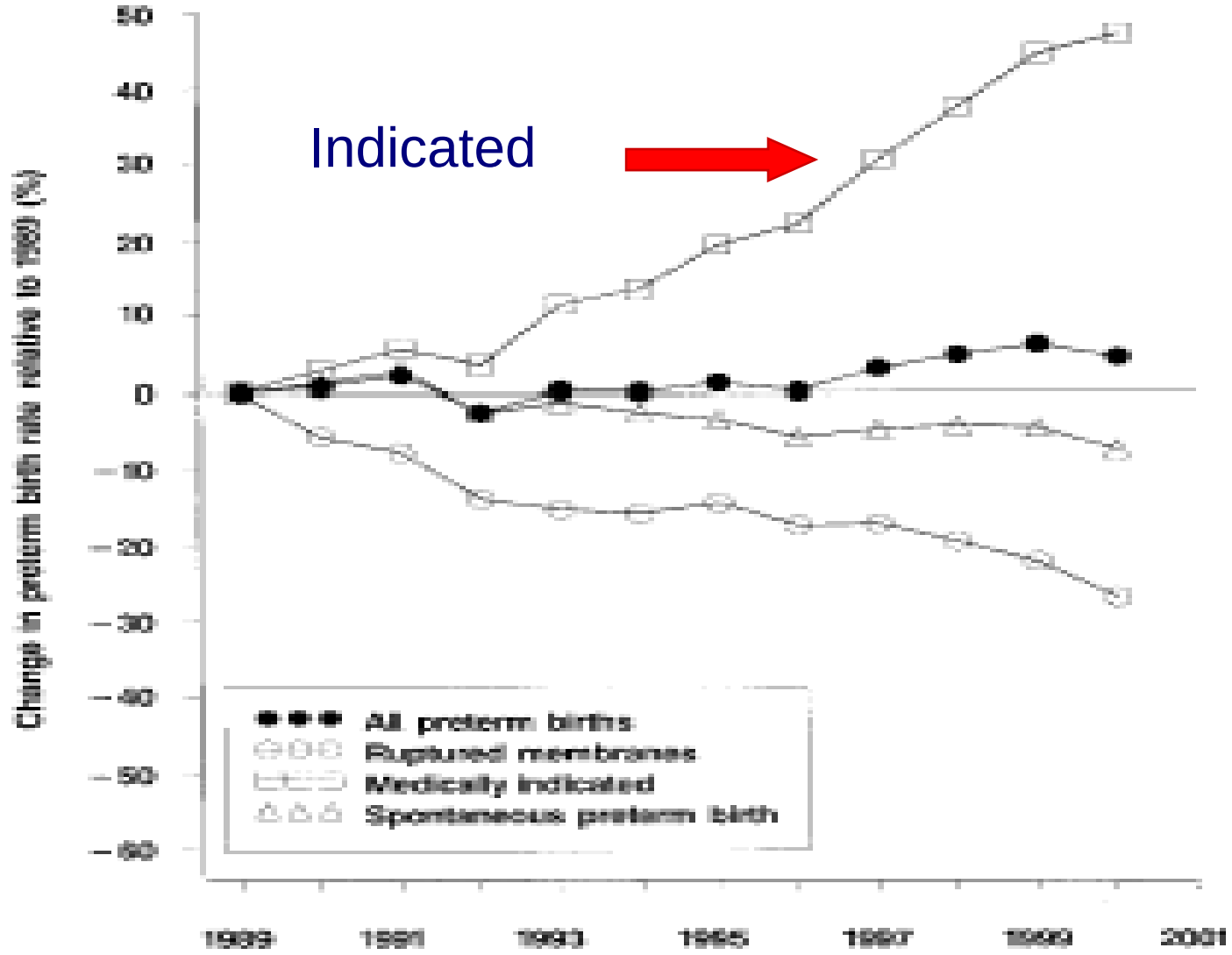


Late preterm is between 34 and 36 completed weeks gestation.

Source: National Center for Health Statistics, final natality data. Retrieved February 11, 2009, from www.marchofdimes.com/peristats.

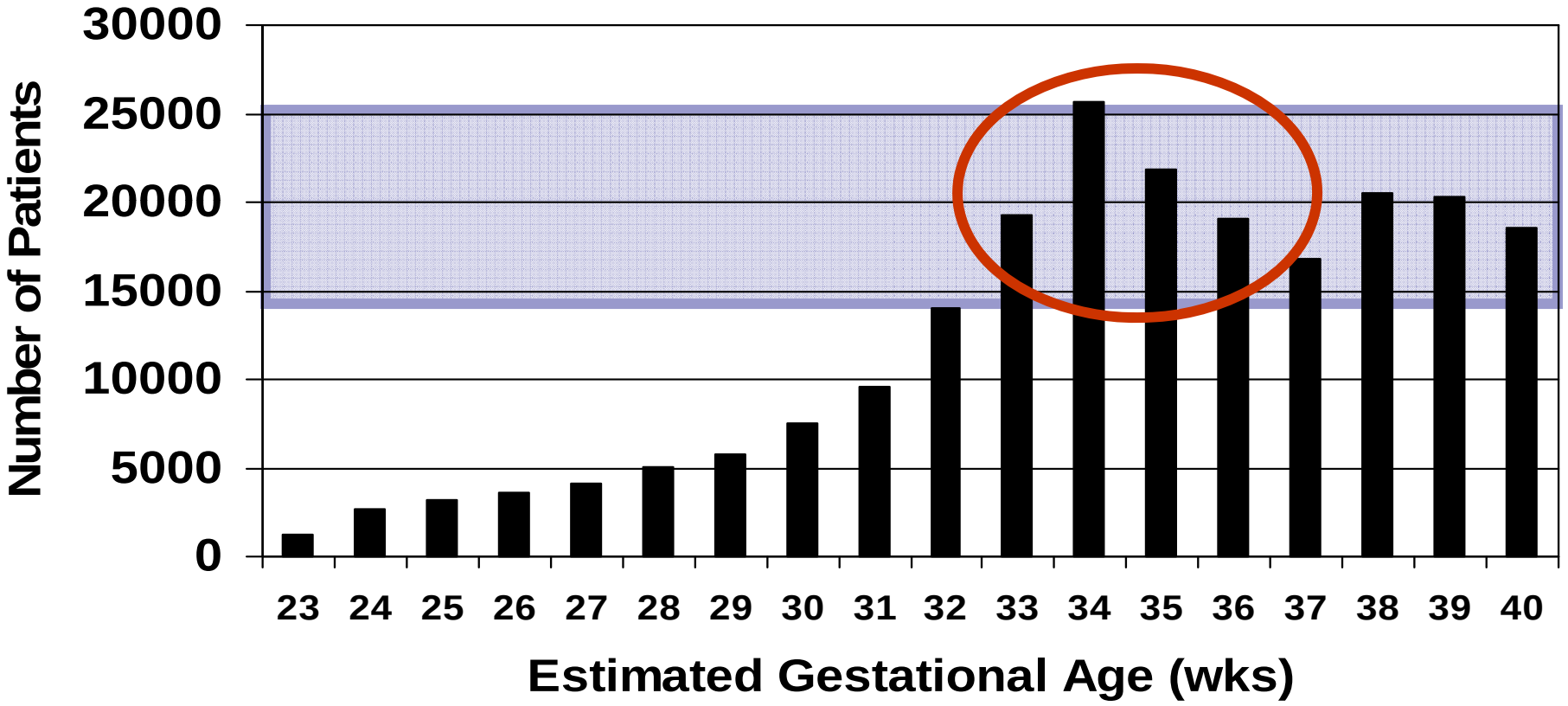
Percent Change in PTB By Cause 1989 to 2001

● ALL
□ *INDICATED*
○ PPROM
△ Spont



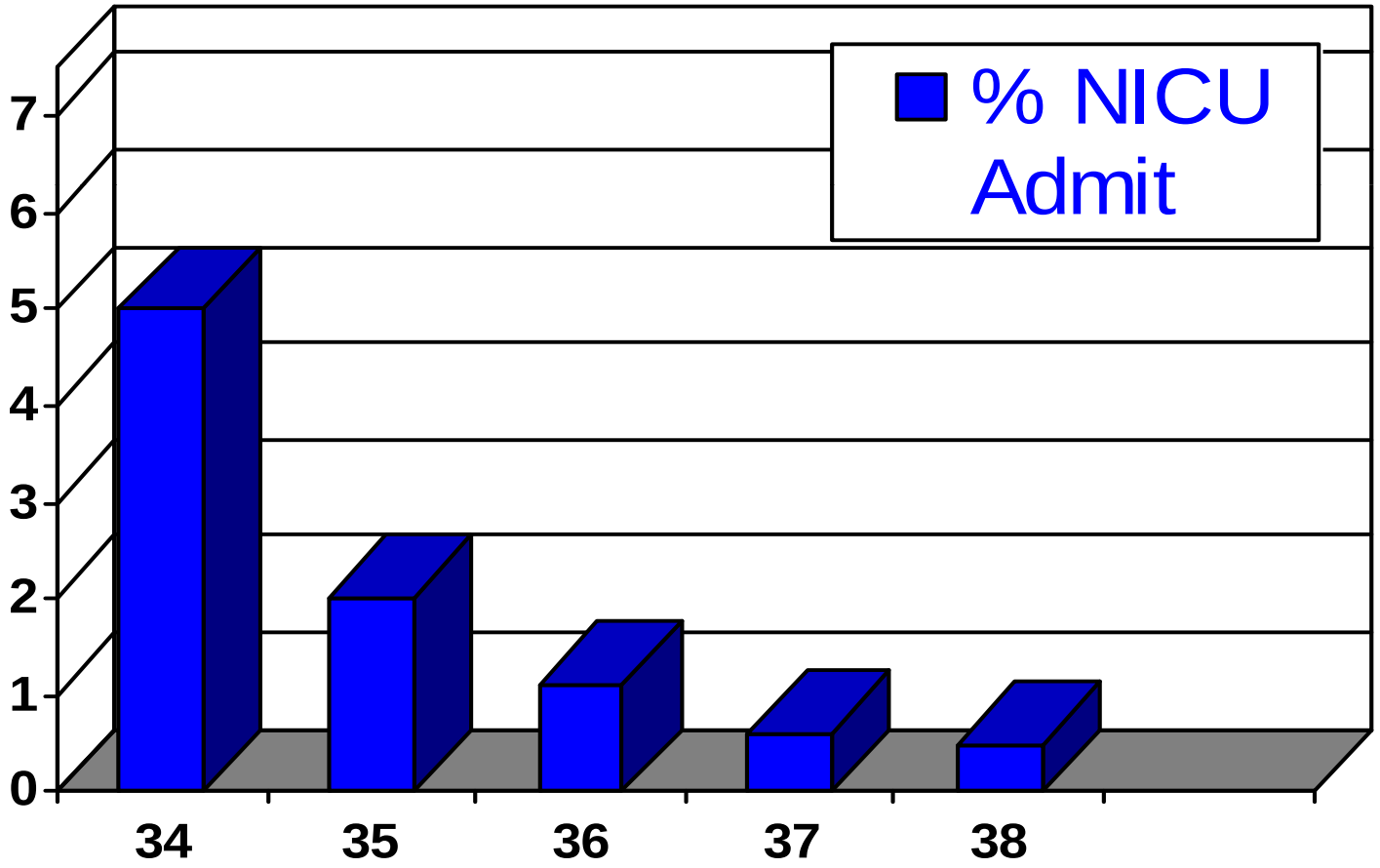
Ananth 2005

The Pediatric Perspective: Late Preterm Infants Are The Most Common Admissions to the NICU



Clark R et.al, Pediatrix Database, 2005

NICU Admission Rate for Infants After Late Preterm Birth Parkland Hospital Obstet Gynecol 2008



The Pediatric Perspective:

Late Preterm Infants Are Often Re-Admitted after Delivery

DEMOGRAPHIC	ADJ. ODDS RATIO
Gestational age, NICU Admission	
< 34 weeks	0.96
34-36 weeks, in NICU > 24 hours	0.89
34-36 weeks, in NICU <24 hours	1.31
34-36 weeks, never in NICU	3.10
37+ weeks, +/- NICU	0.17-1.43

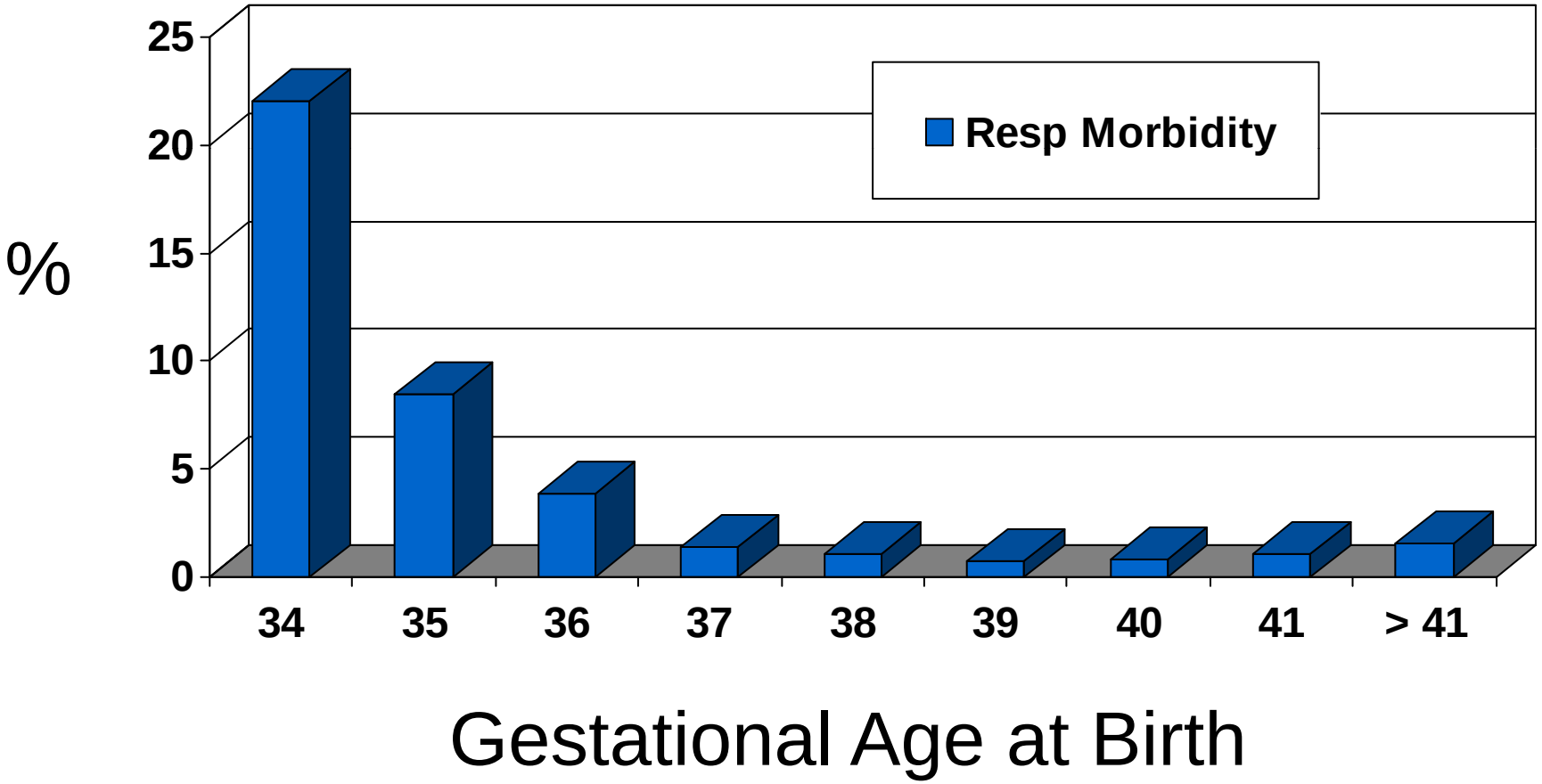
Data from Escobar Arch Dis Child 2005

Slide from Dr Nancy Green, March of Dimes

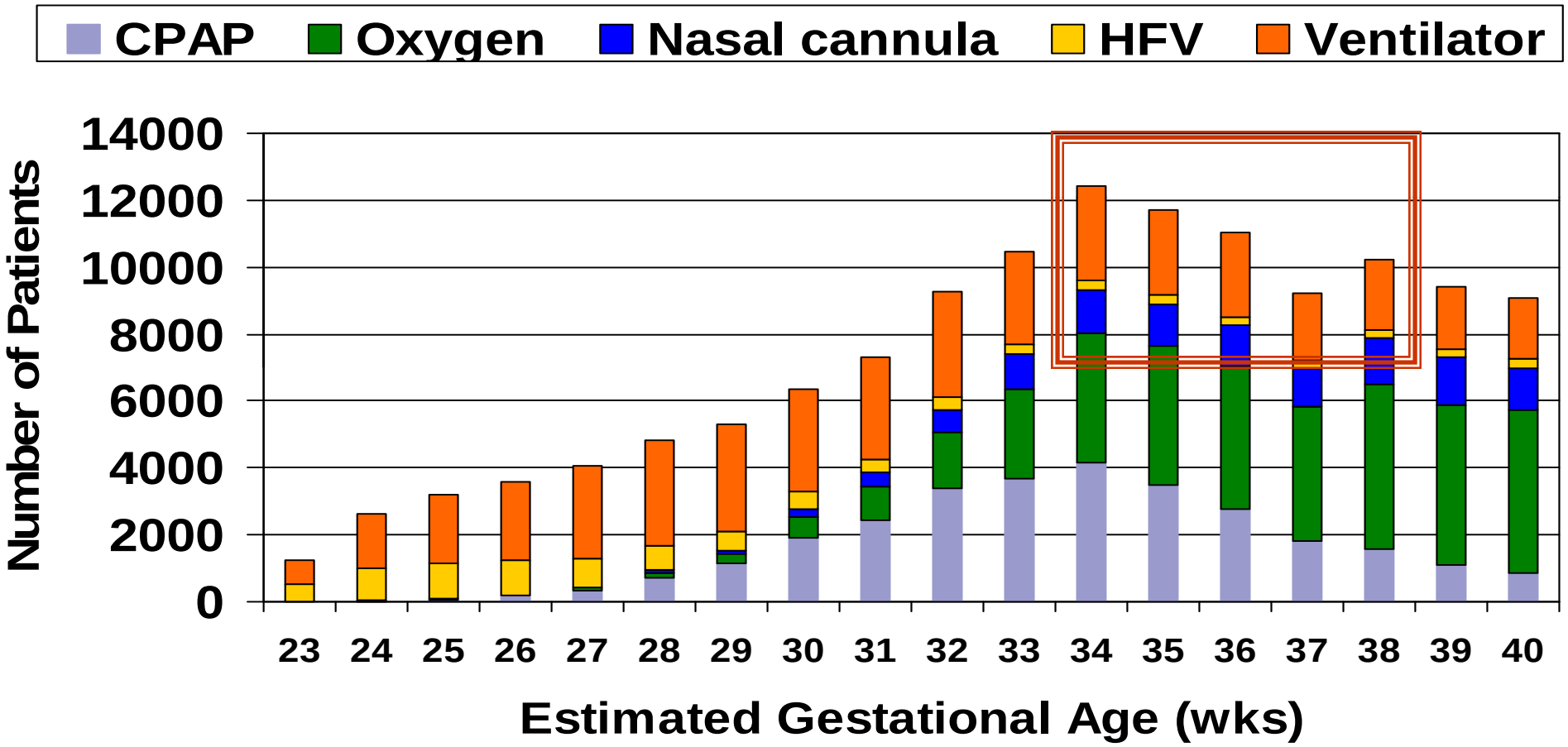
The Pediatric Perspective: Late Preterm Infants Get Sick

Respiratory Morbidity in Late PTB Infants

Yoder BA, Gordon MC, Barth WH Obstet Gynecol 2008



Respiratory Distress in Late Preterm Infants is Not Always Benign

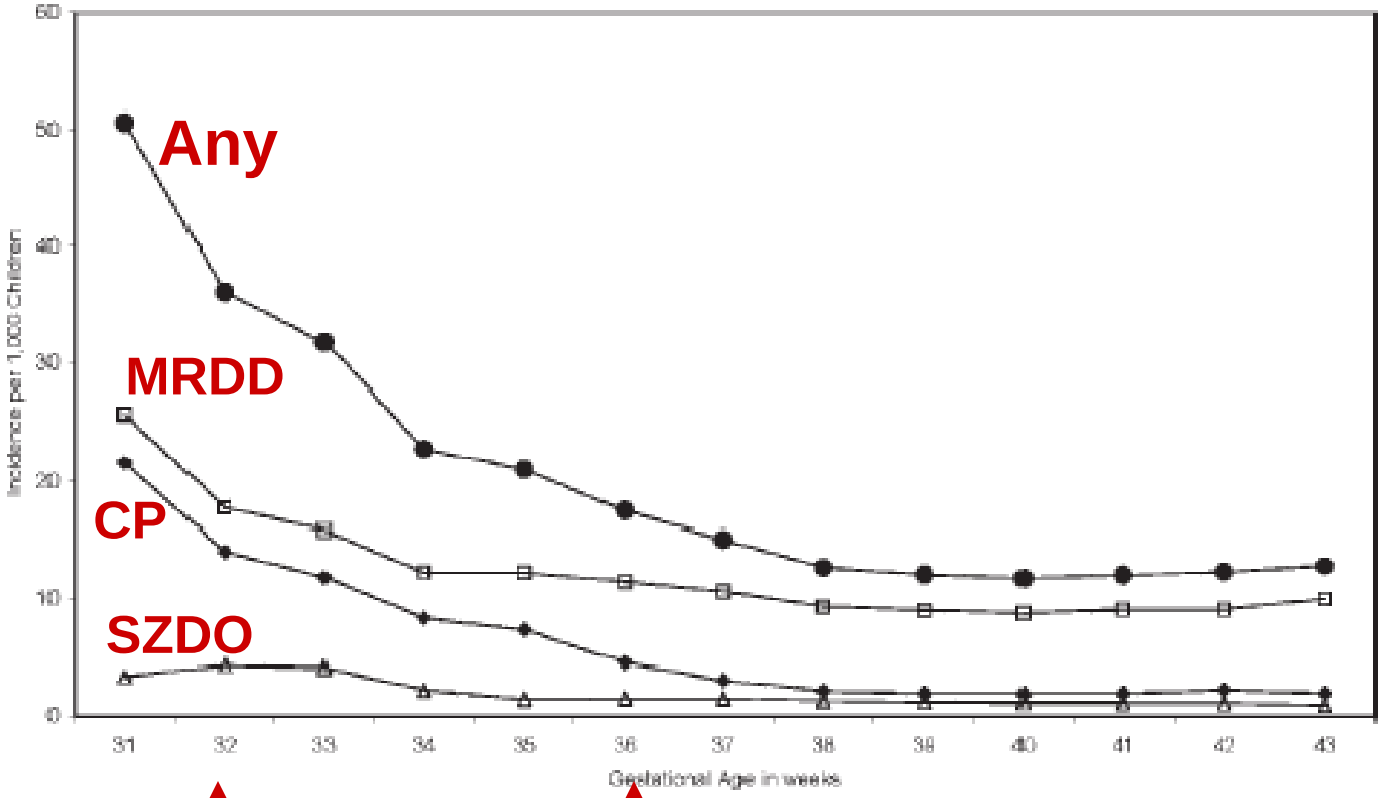


Clark R et.al, Pediatrx Database, 2005

The Pediatric Perspective:

Adverse Neurodevelopmental Outcomes Are More Common in Late Preterm Infants

Rate Per 1000 Survivors In Calif Kaiser Data 2000-04

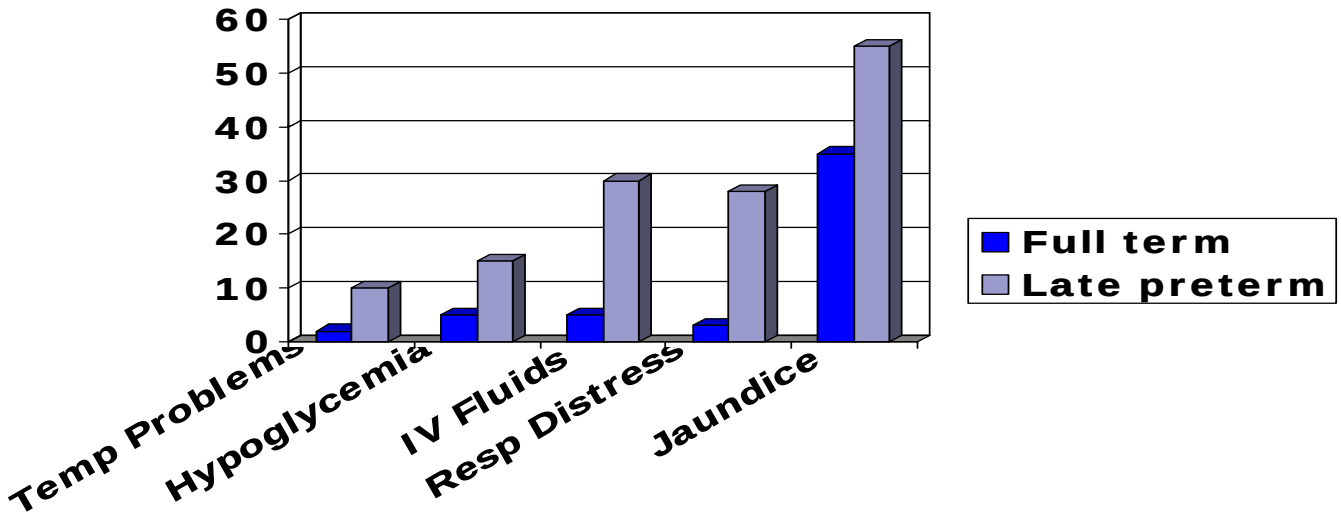


32-36 Wks

Petrini J Pediatr '09

The Healthcare Burden of Late Preterm Births

- **Discharge Delays: 42% Late PTB vs. 5% at Term**



- **Increased cost of care: $ 2630 late preterm infant**
- **Assuming 8% LP rate: $841,600,000 in USA / year**

Wang et al, Pediatr 114:372, 2004

Mortality in Late Preterm Infants

- US singleton births 1995-2002: 30,732,957
- **Late Preterm Births: 2,221,545 (7.3%)**
- **Late Preterm Deaths: 18,484 (9.8%)**
- **Mortality in late preterm infants:**
  - **Early Neonatal (0-6 d) Mortality: 6 x Term**
  - **Late Neonatal (7-28 d) Mortality: 2 x Term**
  - **Infant Mortality (birth – 1 year): 3 x Term**
- **Higher risk persists after excluding anomalies**

Slide courtesy of Drs C Gyamfi & L Jain

Tomashek et al, J Peds

Late-Preterm Births: Challenges and Opportunities

The Pediatric Point of View

Pediatrics 2008;121;402-403 T.N.K. Raju NICHD

Because all preterm infants carry finite, measurable risks, the indications for preterm deliveries need to be justified. In the presence of maternal or fetal illnesses, the risks and benefits of immediate delivery versus postponing it need to be closely assessed. Because the preterm birth rate is increasing, and the late-preterm group (which constitutes 70% of all preterm births) is the fastest growing subset, even a small increase in their morbidity rate can have a major impact on the health care burden.

The Obstetrical Point of View:
Medical & Obstetrical Indications for PTB

Medical

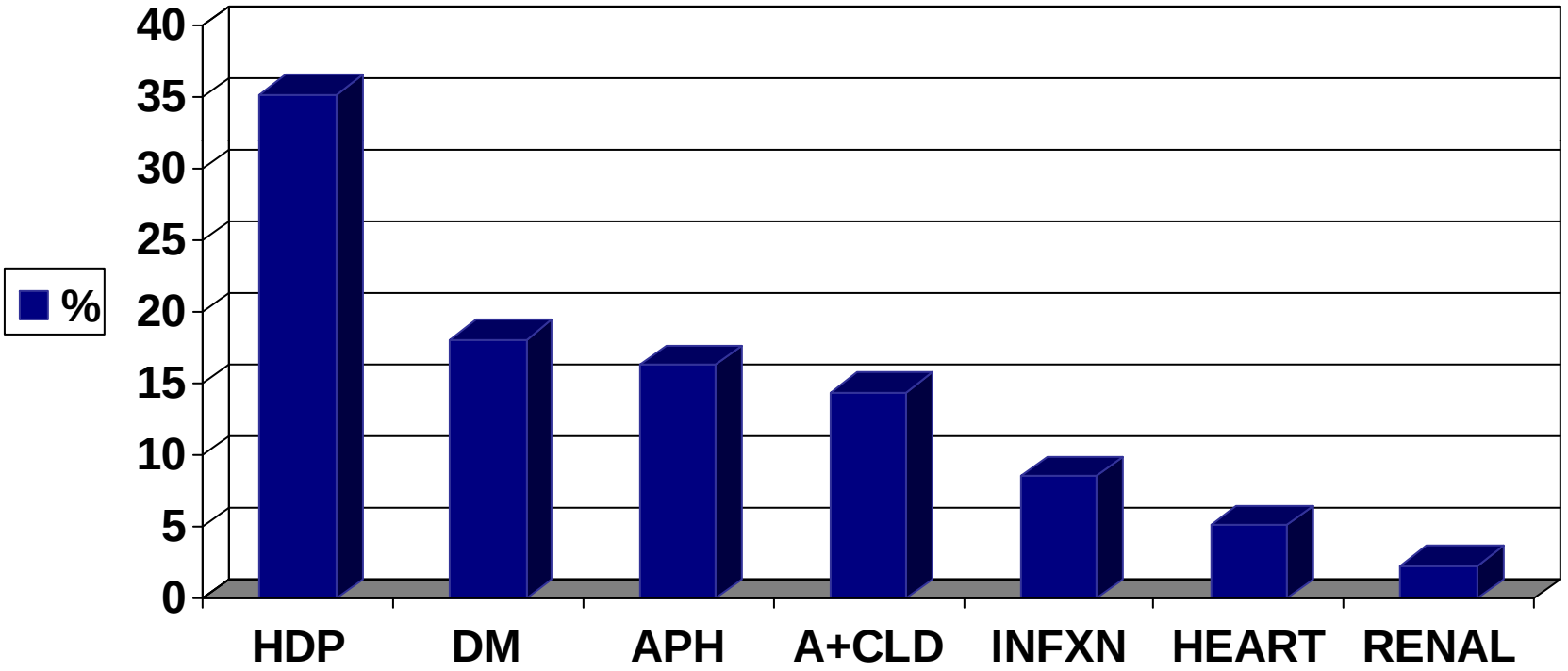
- **Hypertension**
- **Hemorrhage**
  - ***Abruption***, Previa, 'nos'
- **Diabetes**
- Trauma
- Cholestasis
- Med disorder SLE, Ca et al
- Ongoing substance abuse

Obstetrical / Fetal

- **Fetal status non-reassuring**
  - NRNST, ↓ movement or Hx IUFD + an abnl test
  - ***IUGR***
  - Oligohydramnios
- Maternal HSV or HIV
- Prior uterine surgery
- Fetal anomaly / Hydrops

What Medical Conditions → Late PTB ?

Massachusetts PELL Data Shapiro-Mendoza Pediatrics 2008

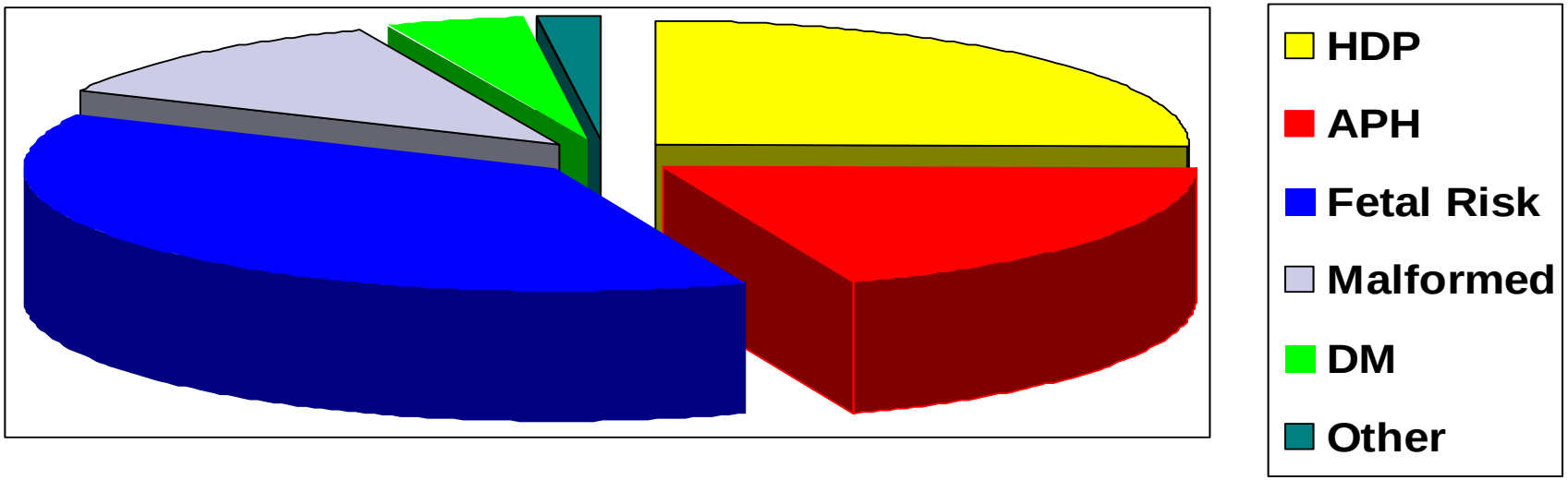


- Fetal indications were not included in this study

Maternal-fetal conditions necessitating a medical intervention resulting in preterm birth

Cande V. Ananth, PhD, MPH,[a,*] Anthony M. Vintzileos, MD[b]

American Journal of Obstetrics & Gynecology
www.ajog.org



- Indicated PTB Before 35 Weeks

Leading Causes of Fetal Death By Maternal Diagnosis

< 34 wk: IUGR

> 34 wk: Abruption

Smulian et al
Obstet Gynecol 2002

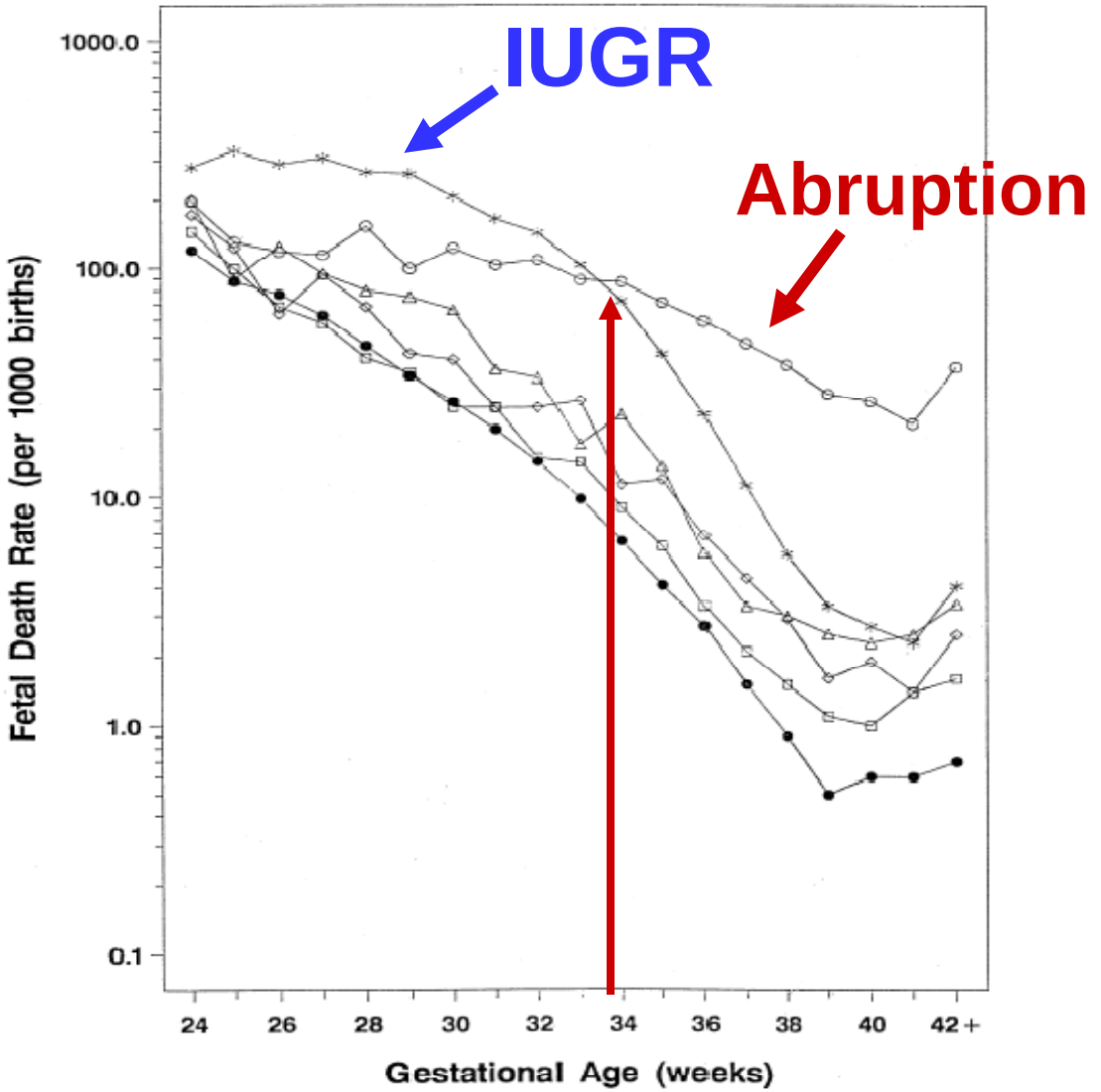


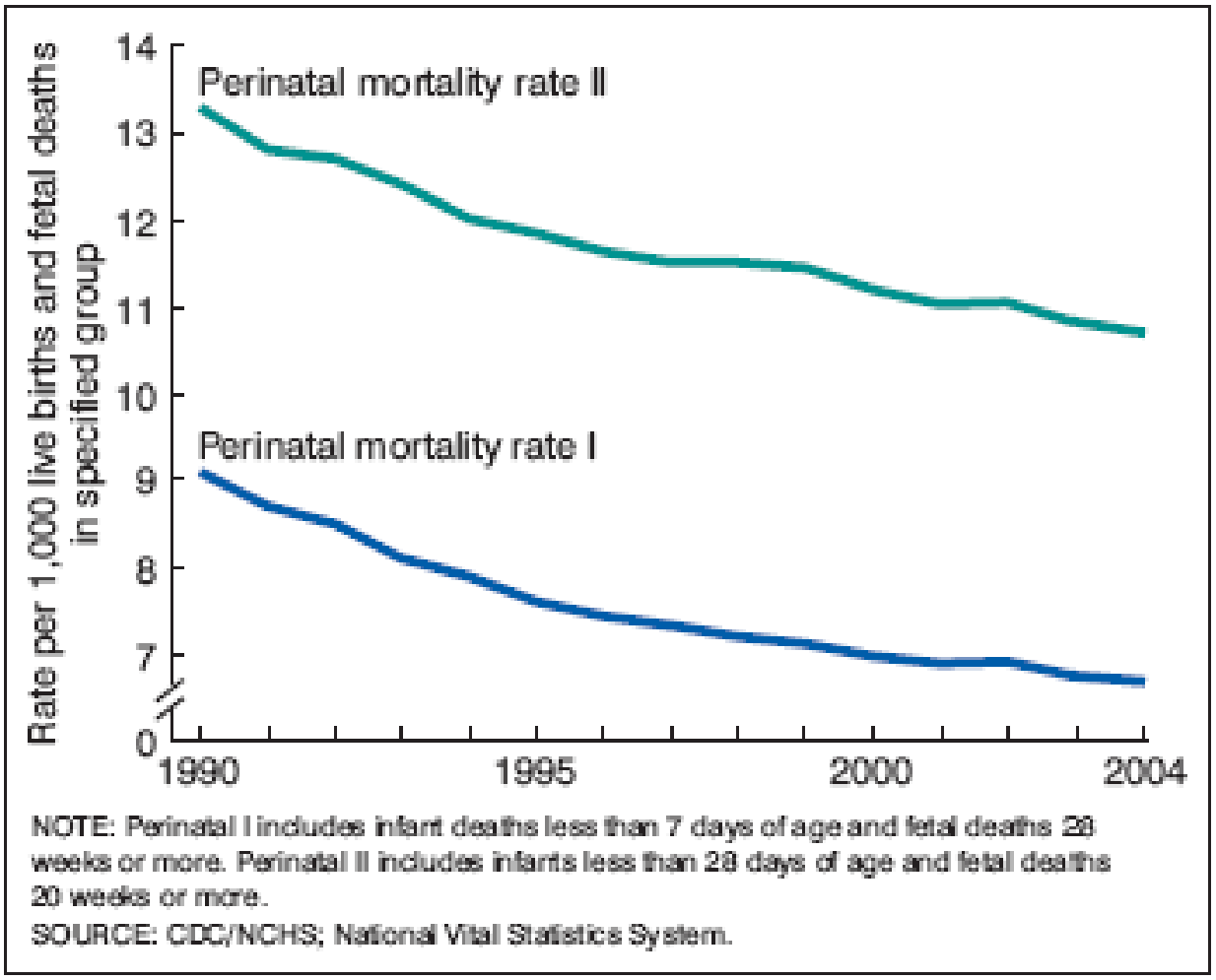
Figure 1. Fetal death rates by gestational age for low-risk pregnancies *(filled circles)* and those with placental abruption *(open circles)*, chronic hypertension *(open triangles)*, gestational hypertension *(open squares)*, diabetes *(open diamonds)*, and small for gestational births *(asterisks)*.

Smulian. Fetal Death in High-Risk Conditions. Obstet Gynecol 2002.

US Perinatal Mortality Rates 1990 – 2004

II – after 20 weeks through 28 days

I = after 28 weeks through 7 days



NOTE: Perinatal I includes infant deaths less than 7 days of age and fetal deaths 28 weeks or more. Perinatal II includes infants less than 28 days of age and fetal deaths 20 weeks or more.
SOURCE: CDC/NCHS, National Vital Statistics System.

Figure 4. Perinatal mortality rates: United States, 1990–2004

US Fetal Mortality Rates at 20 -27 and > 28 Weeks 1990-2004

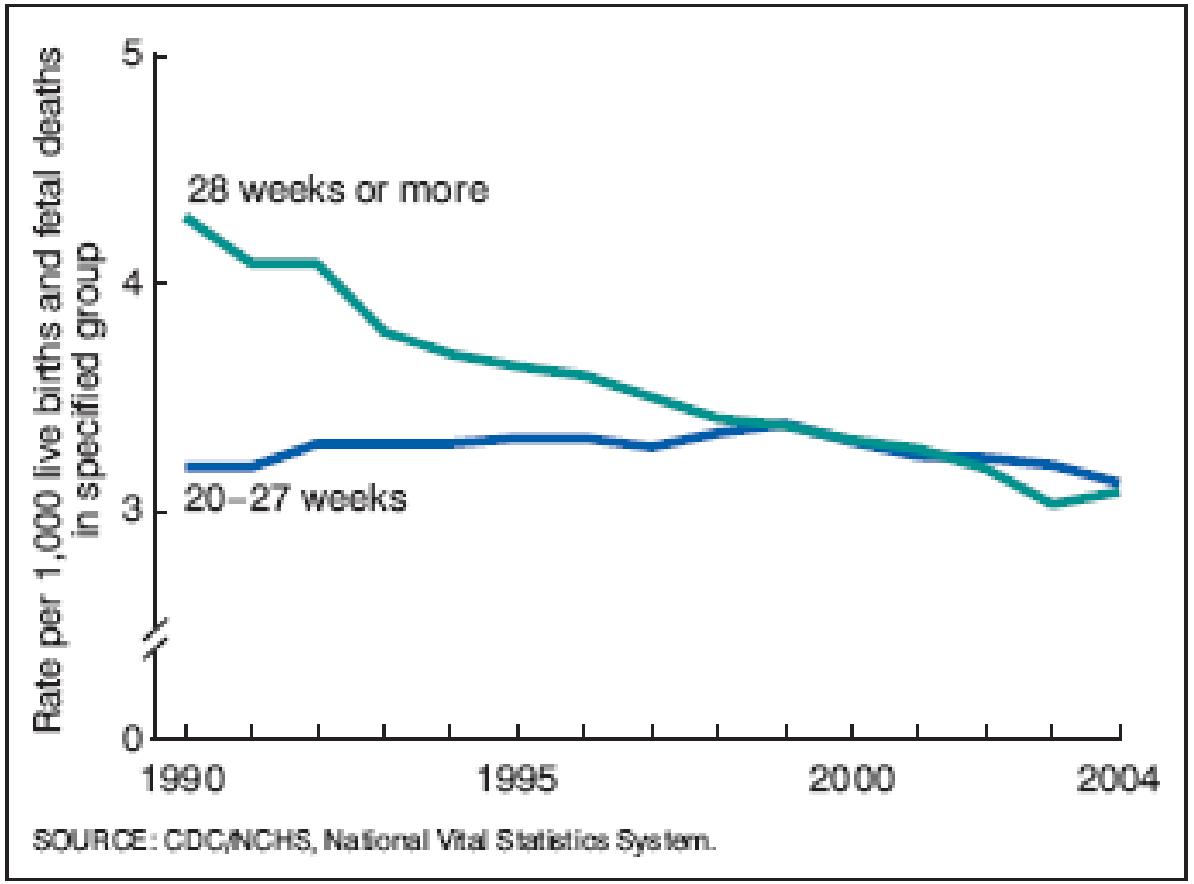


Figure 3. Fetal mortality rates by period of gestation: United States, 1990–2004

Perspectives Differ About Late PTB

Pediatric Perspective

- Neonatal morbidity at
  - 34-36 Wks: **22%**

  vs.
  - 37-41 Wks: **3%**
- ↑ PTB & NICU admissions at 34-36
- **Solution**: Defer birth as long as possible.

Obstetric Perspective

- Neonatal morbidity at
  - 34-36 Wks: **22 %**

  vs.
  - Stillbirth: **100%**
- ↓ Perinatal mortality rate as PTB ↑
- **Solution**: What solution? PNM is falling !

Can we talk about the answers?

Yes, but not always in the same language

Obstetrics

- Elective = Not emergent
- Denominator: All fetuses
- Measure: gestational age
- Good dates: Hx= US <20
- Anecdote: Stillbirth at 35 weeks after mother noted ↓ movement

Pediatrics

- Elective = Convenient
- Denominator: Live born
- Measure: birth weight
- Good dates: Ballard
- Anecdote: 2600 gram baby on vent induced for "High BP" of 128/84

Obstetrical Factors Contributing to a Culture of Scheduled Birth – What Can We Do?

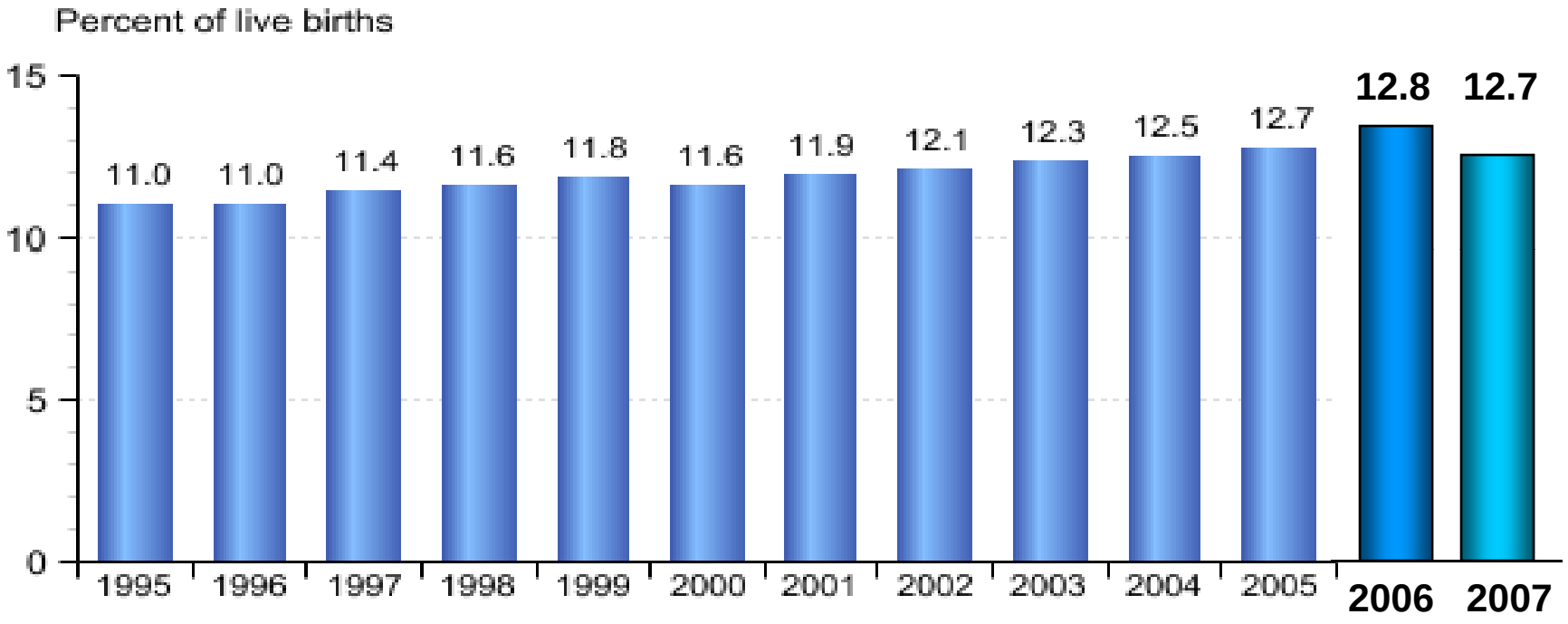
- ↑ Indicated inductions
- Better induction techniques
- Confidence in NICU care
- Better dates
- Antenatal tests not 100%
- Liability for any outcome
  - No suit for doing a section

- Time management
  - Physician time demands
- Desire to satisfy patients
- Competition for OR slots
- Cesarean on demand
- Availability of anesthesia
  - The tough case
  - Pain relief

Late Preterm Birth is a Major Problem

- Major correlate of NICU admissions – 75%
- Major associated morbidities – 20+%
- Major benefit = ⬇ perinatal mortality rate
- Major risk = ⬆ burden of perinatal morbidity
- Major problem = miscommunication with Peds
- Major solution = better communication and adherence to existing practice protocols

U.S. Births < 37 Weeks 1995-2005→ 2007



Preterm is less than 37 completed weeks gestation.
Source: National Center for Health Statistics, final natality data. Retrieved July 16, 2008, from www.marchofdimes.com/peristats.

Late Preterm Birth

Obstetrics

- ⬇ Stillbirths
- ⬇ Neonatal & Infant Deaths

vs.

Pediatrics

- ⬆ Preterm Birth
- ⬆ Morbidity
- NICU's Are Full

Ananth, Gyamfi, & Jain
AJOG October 08