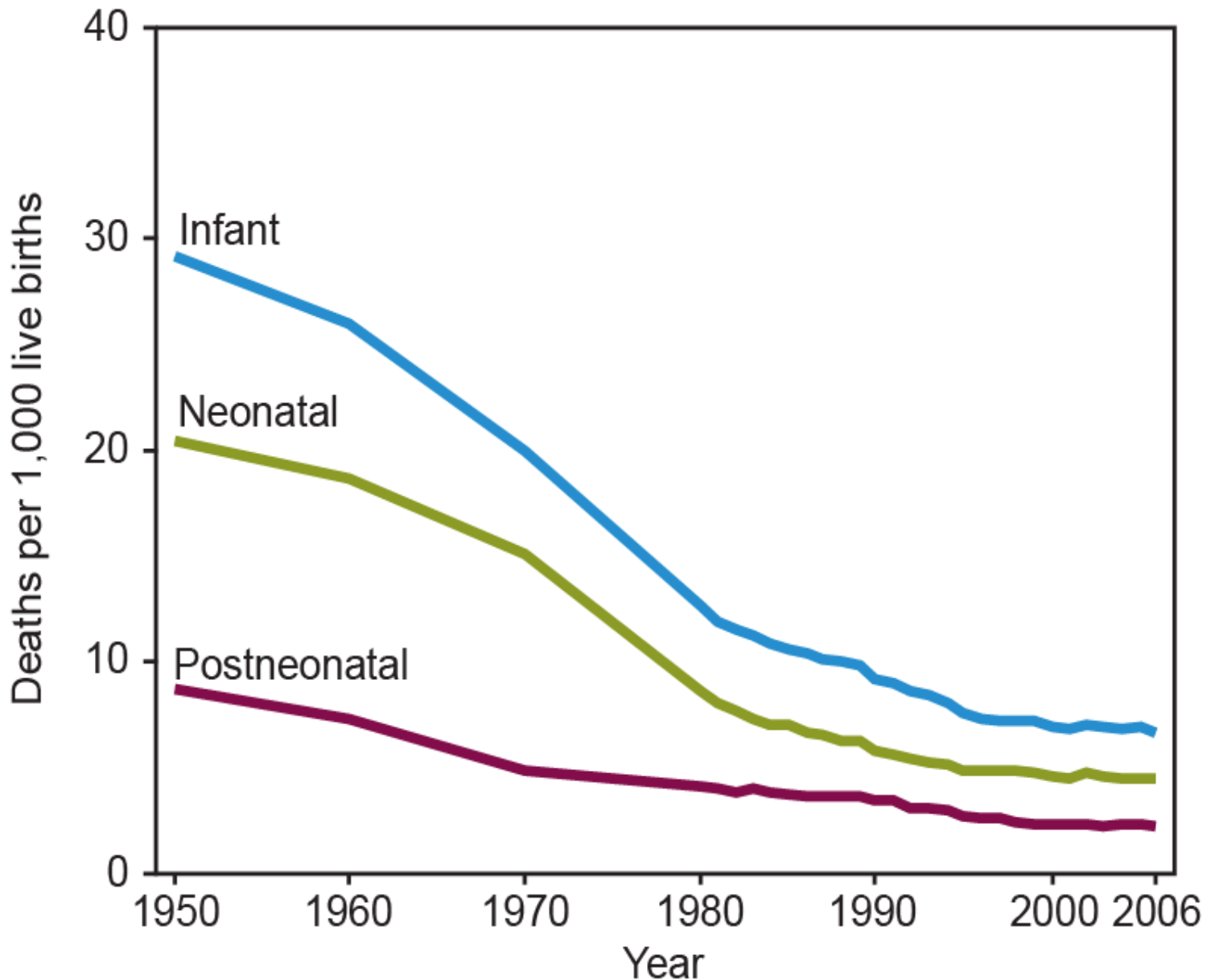


Relationship Between Place of Birth and Outcome



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Professor of Pediatrics & Ethics
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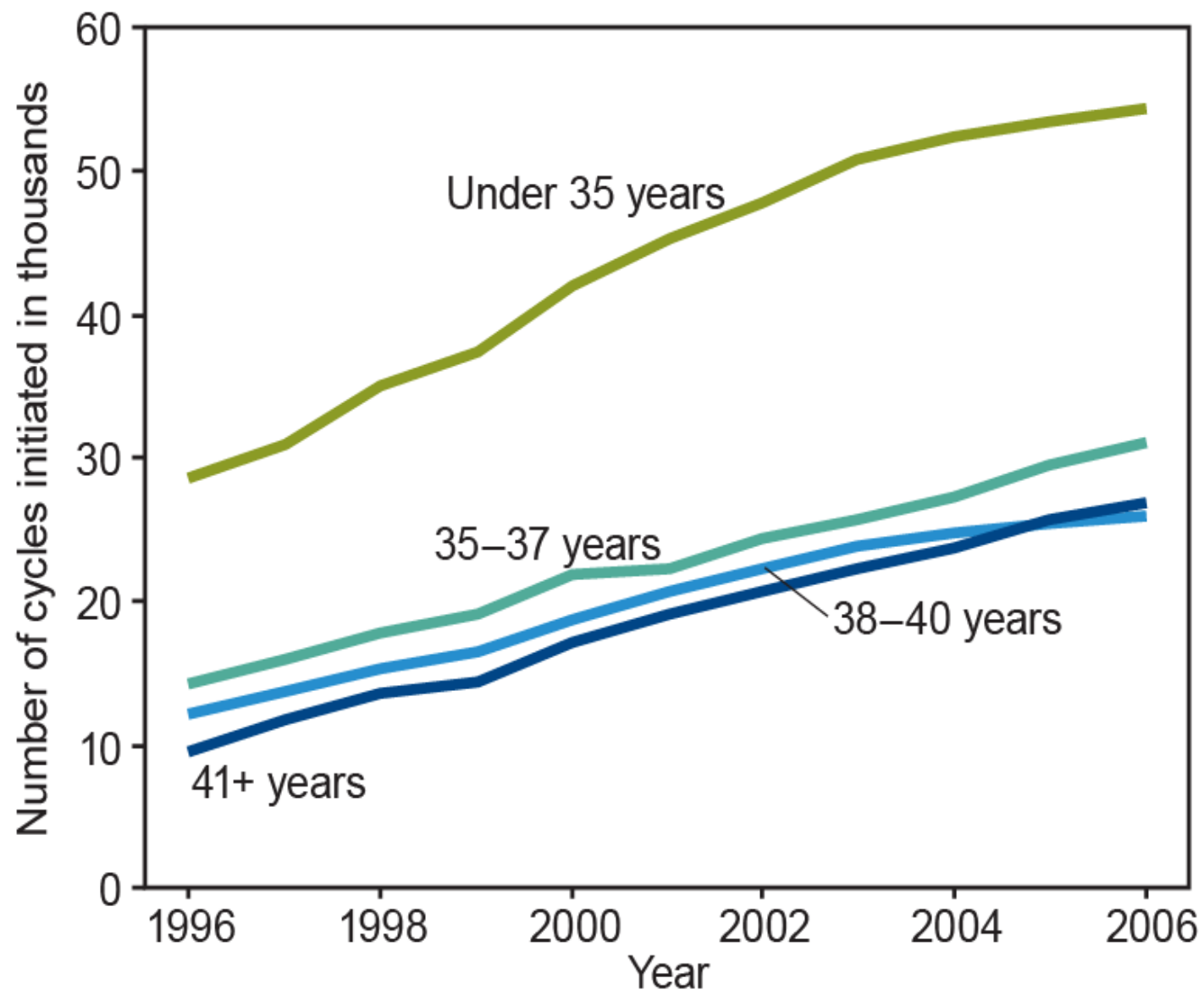
Infant, neonatal, and postneonatal mortality rates



SOURCE: CDC/NCHS, *Health, United States, 2009*, Figure 17. Data from the National Vital Statistics System.



Assisted reproductive technology cycles



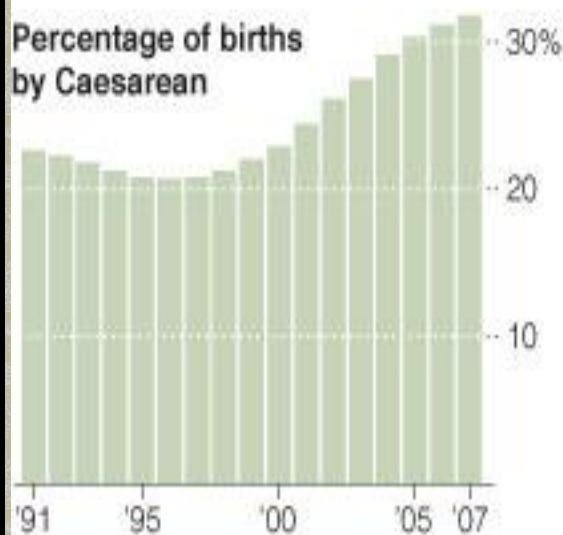
SOURCE: CDC/NCHS, *Health, United States, 2009*, Figure 33. Data from the National Center for Chronic Disease Prevention and Health Promotion.

Percentage of Births by Cesarean: 32% (2007)

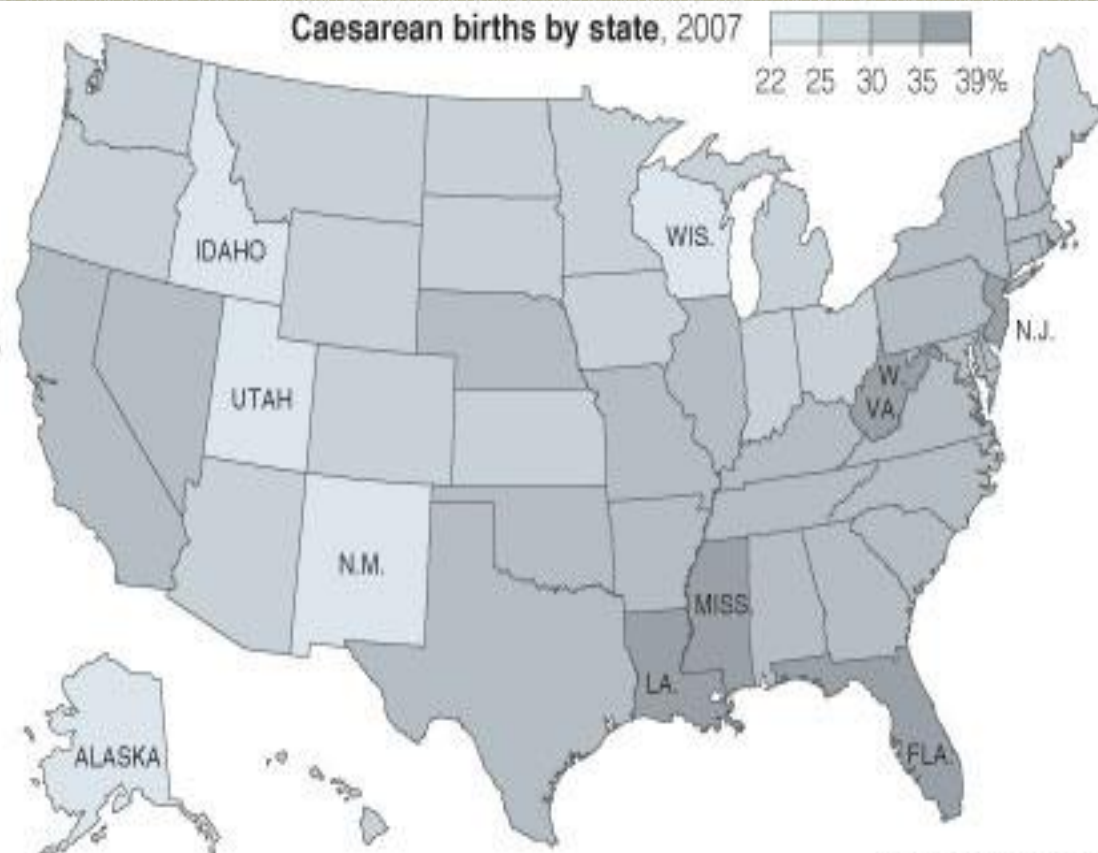
A Continuing Trend

Nearly a third of births in 2007 were delivered by Caesarean section, the highest rate ever in the United States.

Percentage of births
by Caesarean



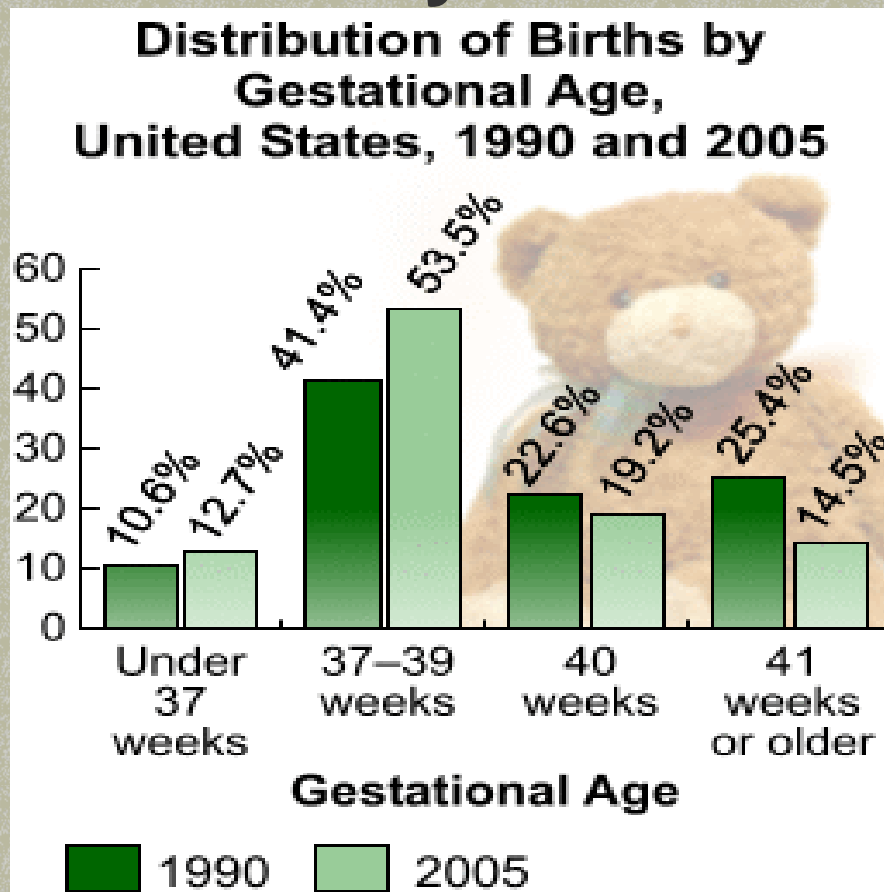
Source: National Center for Health Statistics



THE NEW YORK TIMES

Rising Rate of Prematurity

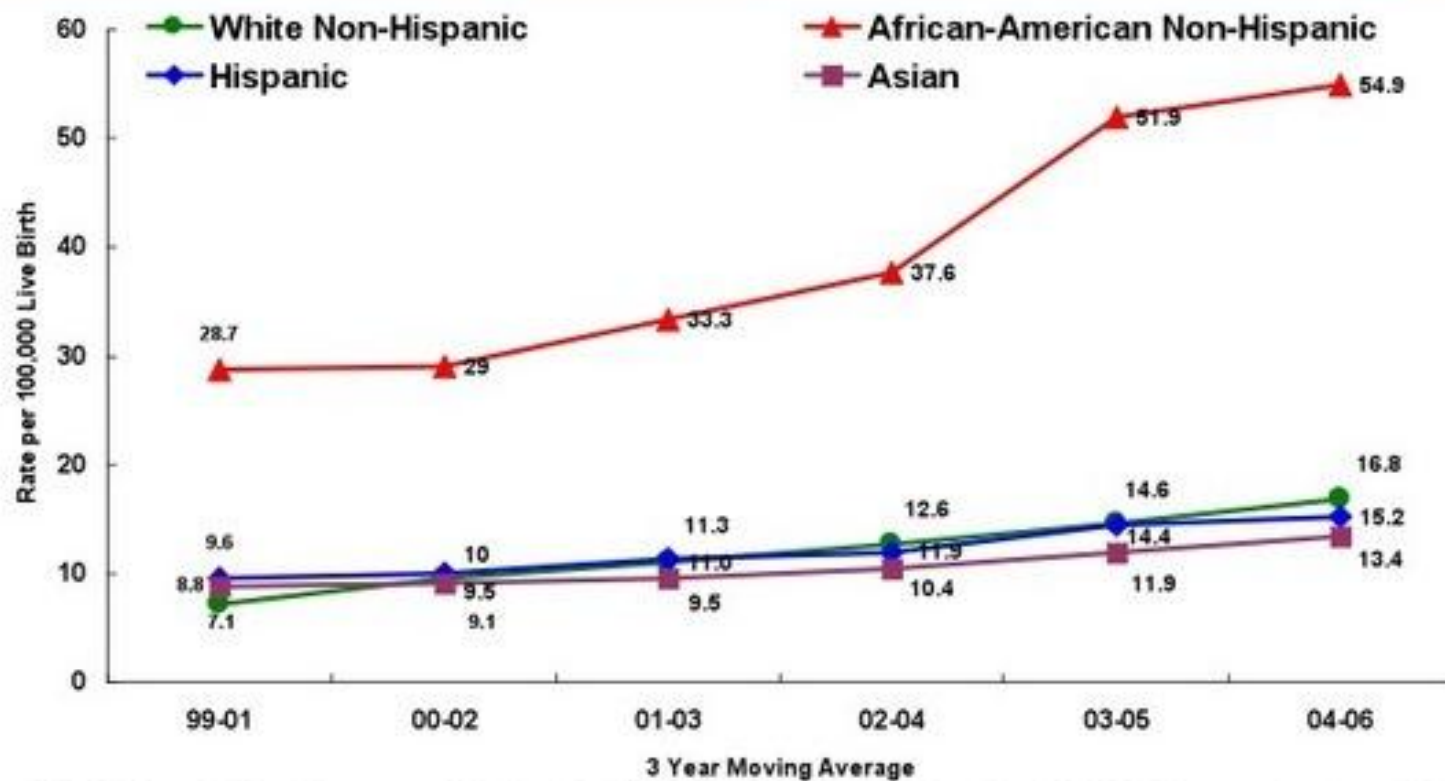
■ Births by Gestational Age



<http://www.cdc.gov/datastatistics/2007/births/>



Pregnancy-Related Mortality Rates by Race/ Ethnicity, California Residents: 1999-2006



SOURCE: State of California, Department of Public Health, California Birth and Death Statistical Master Files, 1999-2006. Pregnancy-related mortality for California calculated beginning 1999 using ICD-10 cause of death codes A34, O00-O96, O98-O99. Maternal single race code used 1990-1999; multirace code used beginning 2000. Produced by California Department of Public Health, Maternal, Child and Adolescent Health Program, June 2009.



Place of Birth and Outcome

Phibbs C, Baker LC, Coughey, et al. NEJM. 2007;356:2165-75

California:

- *Lower levels of NICU care and lower volumes associated with significantly higher odds ratios for death: 1.19 to 2.72*
- *< 1/4th VLBW deliveries occurred in facilities with NICUs that had high level of care and had a high volume*



Place of Birth and Outcome

**Bartels DB, Wypij D, Wenzlaff P,
Dammann O, Poets CF. Pediatrics.
2006 Jun;117(6):2206-14**

Germany:

- *Neonatal mortality VLBW infants admitted to small NICUs was 12.2% and 10.2% in large NICUs.*



Place of Birth and Outcome

***Speer M et al. Pediatrics. 1985; 76:327-329. ^Palmer KG, et al. J Perinatol. 2005;25:270-275**

United States

IVH	Over All	Severe
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<u>Inborn</u>		
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*	25.4%	3.7%
---	-------	------

^	-	10.5%
---	---	-------

<u>Outborn</u>		
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*	61.8%	23.5%
---	-------	-------

^	-	19.3%
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Place of Birth and Outcome

**Towers CV et al. Obstet Gynecol.
2000;95:291-5**

Long Beach CA: BW 500-1200

IVH

Severe

Inborn

9%

Outborn

23%



Place of Birth and Outcome

**Gleissner M, et al. J. Perinat. Med.
2000;28:104-10**

Germany: GA 22-36 weeks

Birth Before 28 weeks' Gestation:

OR: 75.72 (95% CI: 46.14 to 124.30)

Transport to another hospital

OR: 1.95 (95% CI: 1.07 to 2.56)



Place of Birth and Outcome

Haberland CA, Phibbs CS, Baker LC.
Pediatrics. 2006 Dec; 118(6):e1667-79.

California:

- *The probability of a 500g to 1499g infant being born in a hospital with a Level II unit increased by 17 percentage points after the opening of a new nearby unit.*
- *Significant shifts of births from both high-level (-15 points) and low-level hospitals (- 2 points) to midlevel hospitals.*



Place of Birth and Outcome

**Sinkin RA, Fisher SG, Dozier A, et al.
J Perinatol. 2005 Feb;25(2):79-85**

New York:

- *Adjusted for clinical variables influencing maternal transfer and hospital level, women in managed care were 44% less likely to be transferred compared to Medicaid FFS (OR=0.56; 95% CI: 0.36 to 0.86).*
- *Newborns were transferred at similar rates regardless of managed care status.*



Place of Birth and Outcome

Maternal Child Health Bureau

National: Goal – 90%

The percent of low birth weight infants delivered at facilities for high-risk deliveries and neonates.

- 76.1 percent in 2003
- 67.7 percent in 2005.
- 68.1 percent in 2006



Place of Birth and Outcome

Maternal Child Health Bureau

Texas:

Percent of very low birth weight infants delivered at facilities for high-risk deliveries and neonates.

2006: 53.3%



Place of Birth and Outcome

Level of NICU Care: AAP

Level IIIA: Care for infants with birth weight of more than 1000 g/gestational age > 28 weeks.

- Limited to conventional mechanical ventilation

Level IIIB: Care for ELBW (\leq 1000 g birth weight or \leq 28 weeks' gestation)

- HFOV and iNO;
- Pediatric medical/surgical subspecialists;
- Advanced imaging: CT, MRI, Echo



Place of Birth and Outcome

Level of NICU Care: AAP

Level IIIC: The capabilities of a level IIIB NICU; also can provide ECMO and surgical repair of serious congenital cardiac malformations that require cardiopulmonary bypass.



Place of Birth and Outcome

Number of NICUs - Texas

Level IIIA: 21

- 1 Fort Worth;
- 4 Houston (2 on periphery);
- 2 Dallas (periphery);
- 1 San Antonio

Level IIIB: 33

Level IIIC: 17 (More than any other state)



Questions?



Place of Birth and Outcome

Level of NICU Care: AAP

Level I (basic): Can perform neonatal resuscitation, evaluate and provide postnatal care of healthy newborn infants, stabilize and provide care for infants born at 35 to 37 weeks' gestation who remain physiologically stable

- Transfer everyone else



Place of Birth and Outcome

Level of NICU Care: AAP

Level II (specialty): A hospital special care nursery to provide care to infants born at more than 32 weeks' gestation and weighing more than 1500 g

- IIA – No ventilation
- IIB – Ventilation

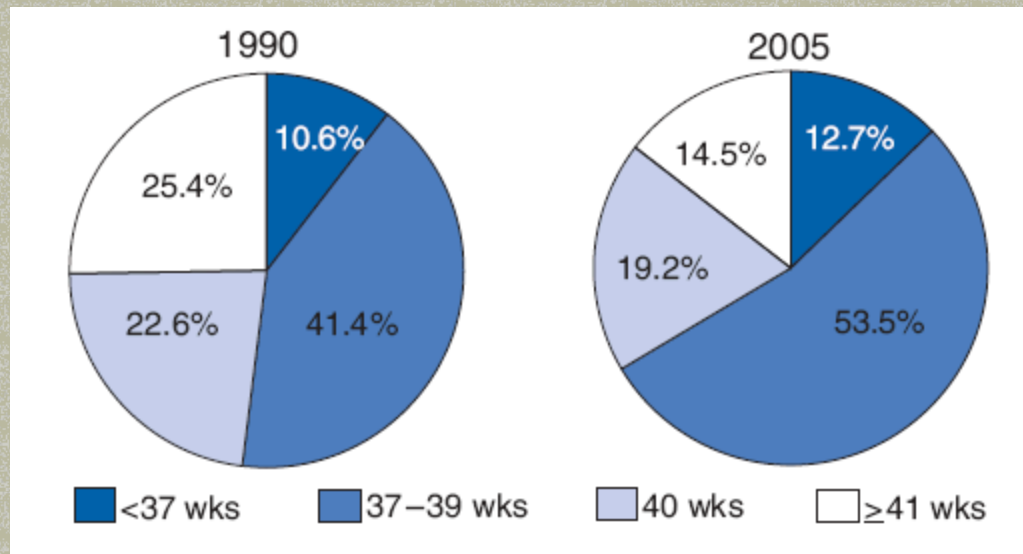


Place of Birth and Outcome

Level of NICU Care: AAP

Level III (subspecialty): A hospital NICU to provide continuous life support and comprehensive care for extremely high-risk newborn infants and those with complex and critical illness.

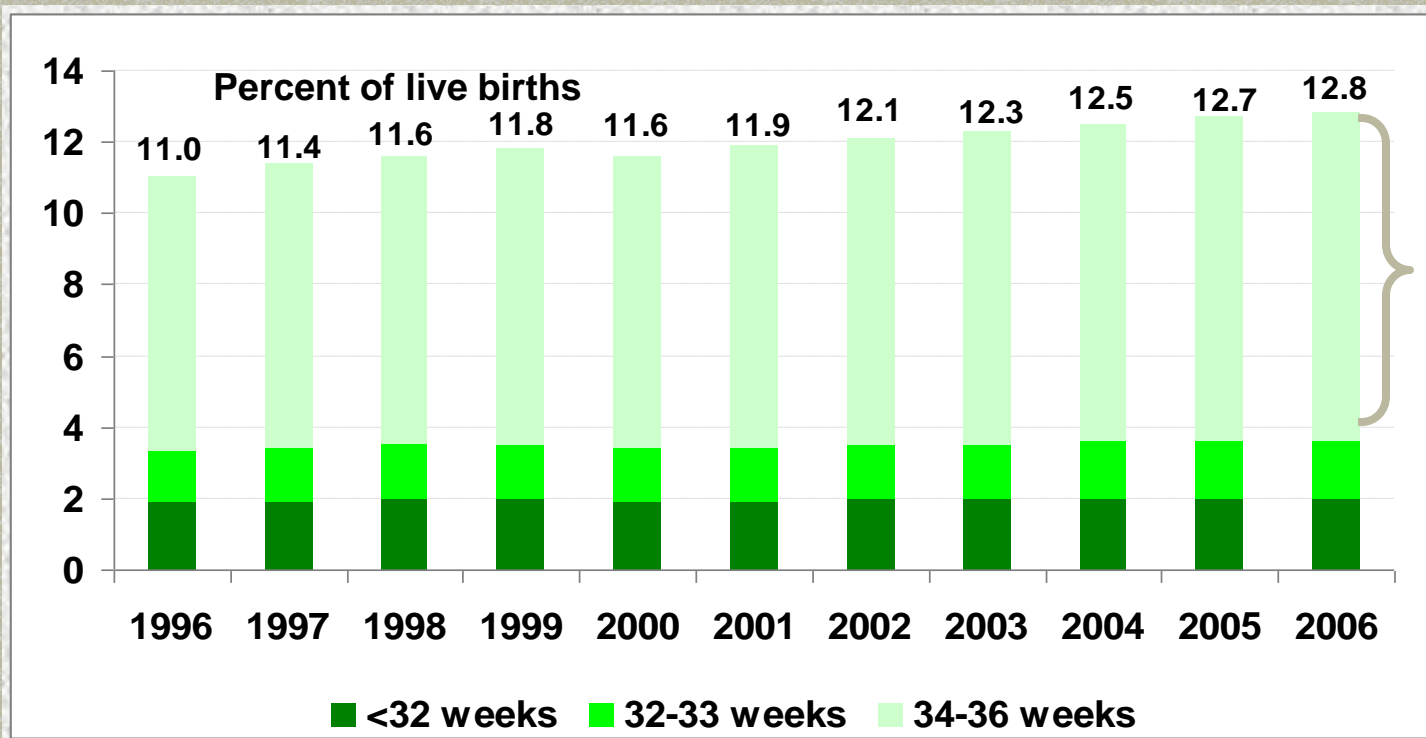
Distribution of Births, by Gestational Age -- United States, 1990 and 2005



<http://www.cdc.gov/datastatistics/2007/births/>



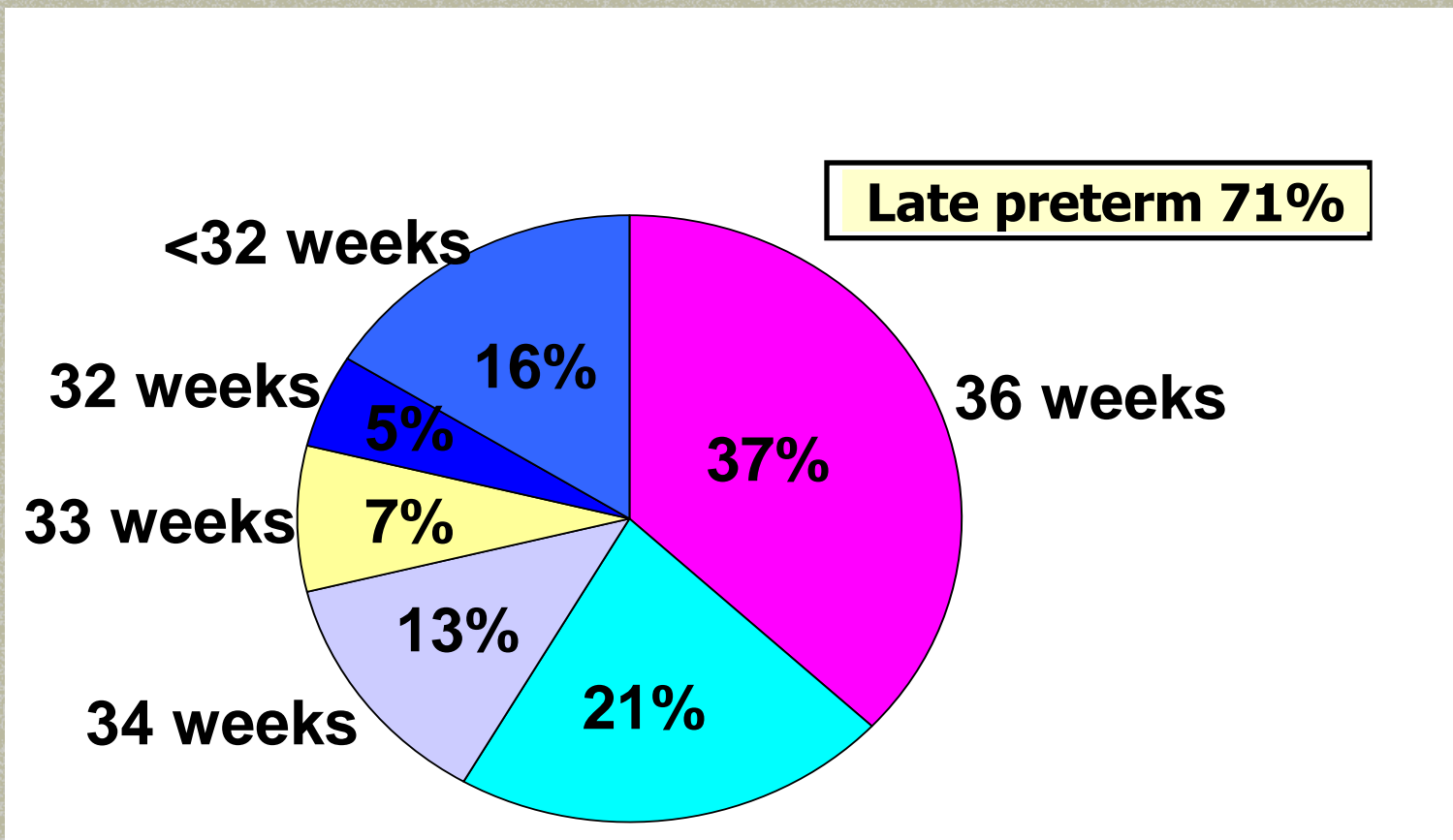
RISE IN LATE PRETERM BIRTHS (34-36 wks)



Source: National Center for Health Statistics
Prepared by March of Dimes, Perinatal Data Center, 2009

Courtesy of Karla Damus

DISTRIBUTION OF ALL US PRETERM BIRTHS 2004



35 weeks