The Challenge of the Rising Cesarean Rate to Mother-Friendly Care

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Key Points

Contemporary Challenges to Mother-Friendly Care

- Poor Outcomes in the U.S.
- The role of cesarean trends internationally & in U.S.
- Other forms of intervention
- Positive Signs for the future

Are there Problems with Maternity Care in the U.S.?

Could have problems with:

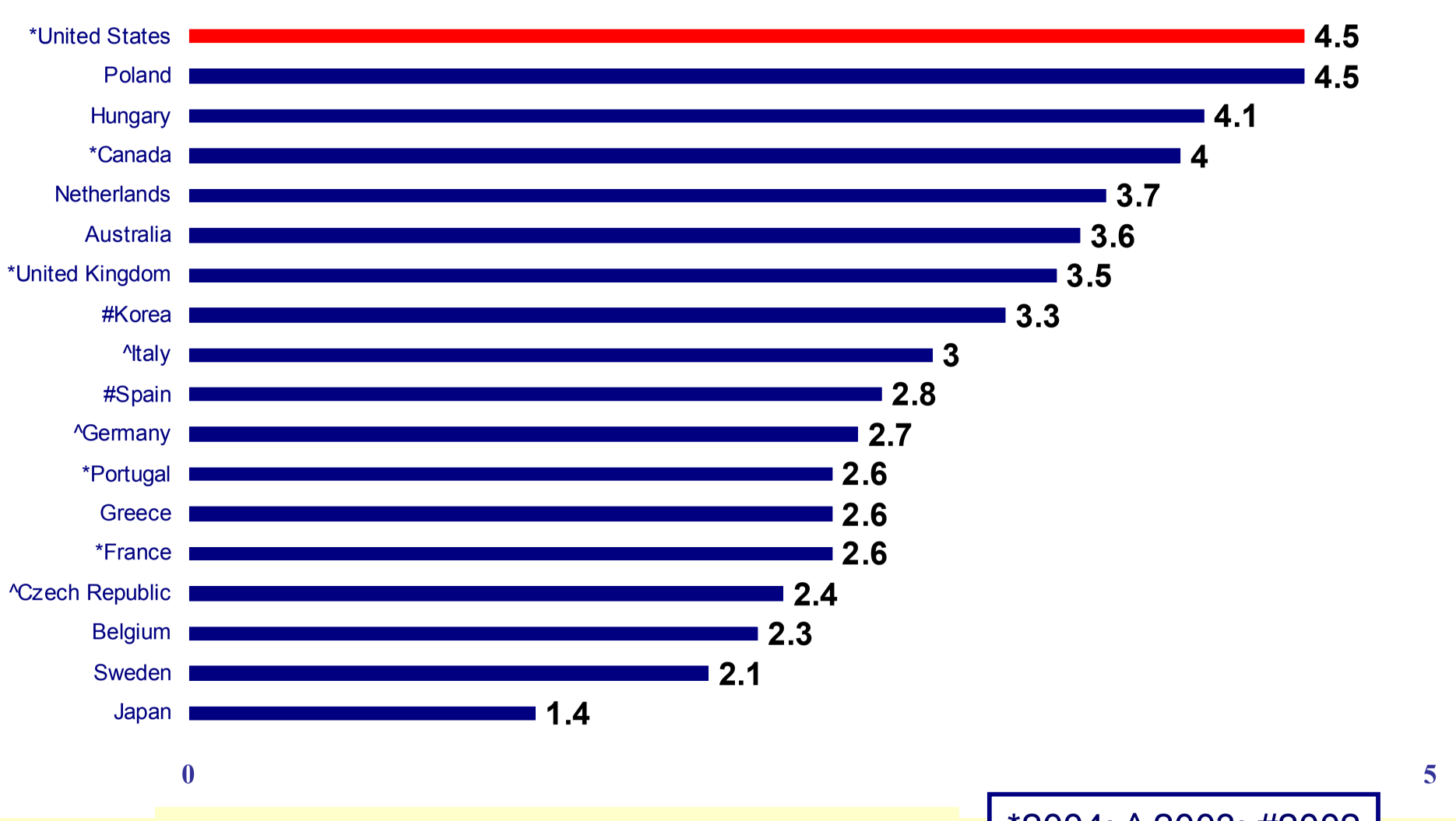
- Outcomes
  - Yes
- Resources
  - Yes
- Process
  - Yes
- Disparities
  - Yes

Outcomes: Comparative Neonatal Mortality Rates

Rank	Country	Rank	Country	Rank	Country
1	Iceland	14	Sweden	27	Switzerland
2	Singapore	15	Austria	28	Australia
3	Andorra	16	Belgium	29	Canada
4	Cyprus	17	Denmark	30	Croatia
5	Czech Republic	18	France	31	Cuba
6	Finland	19	Germany	32	Estonia
7	Japan	20	Greece	33	Korea
8	Liechtenstein	21	Ireland	34	Malta
9	Monaco	22	Israel	35	New Zealand
10	Norway	23	Italy	36	United Kingdom
11	Portugal	24	Luxembourg	37	Hungary
12	San Marino	25	Netherlands	38	Poland
13	Slovenia	26	Spain	39	United States

Source: UNICEF. 2008 *The State of the World's Children. Table 1*

Outcomes: National Neonatal Mortality Rates, OECD 2005 (Countries >100,000 births)



Source: OECD Data 2007. (Mexico excluded)

*2004; ^ 2003; #2002

Neonatal & Perinatal Mortality Rates

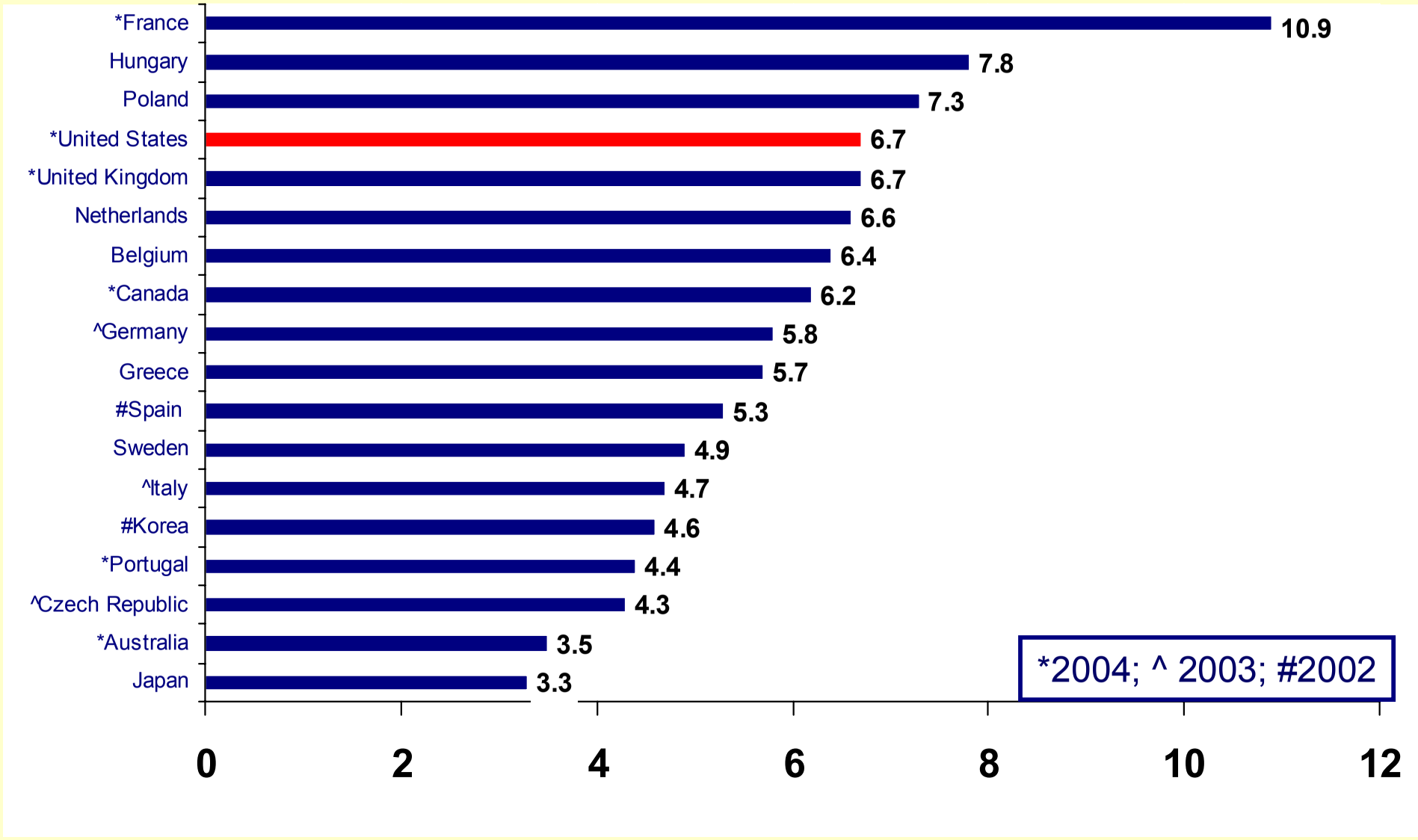
Neonatal Mortality Rate

$$\frac{\text{Infant Deaths in First 28 days}}{\text{Live Births}} \times 1{,}000$$

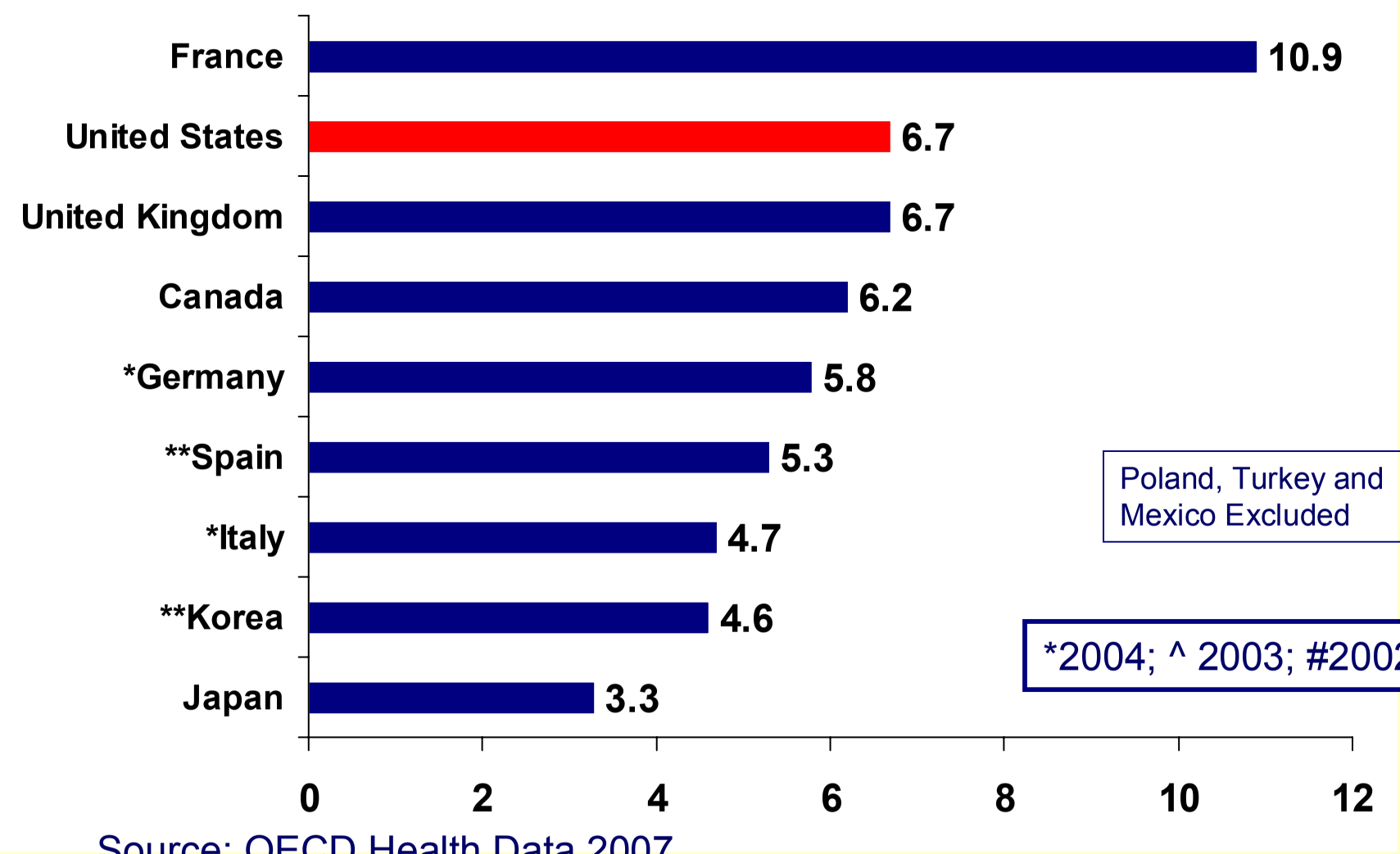
Perinatal Mortality Rate

$$\frac{\text{Fetal deaths + deaths in the first week}}{\text{Live births + fetal deaths}} \times 1{,}000$$

Outcomes: National Perinatal Mortality Rates, OECD 2004 (Countries >100,000 births)

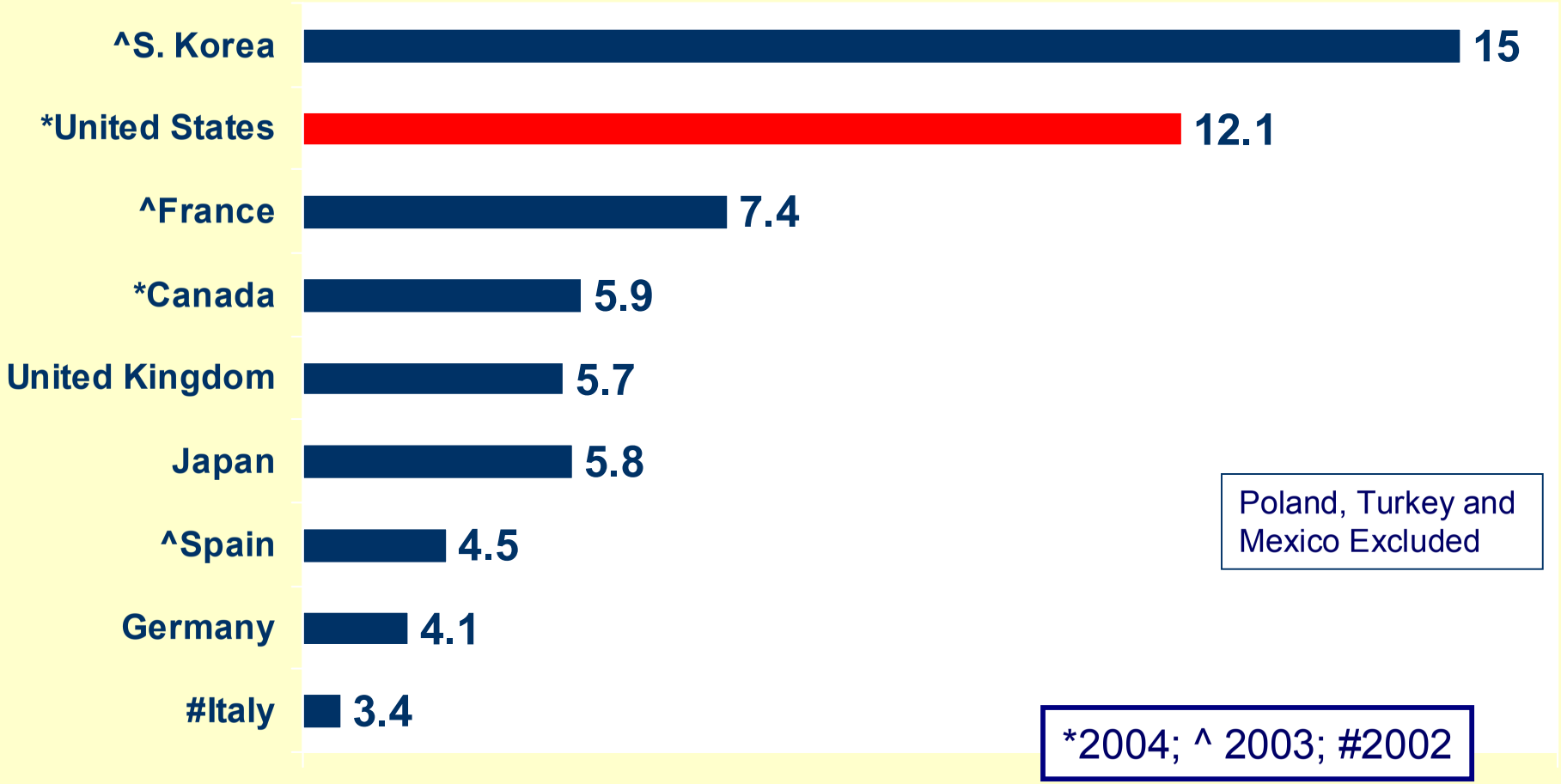


Outcomes: National Perinatal Mortality Rates, OECD 2004, Countries with 300K+ Births



Source: OECD Health Data 2007

Outcomes: Maternal Mortality Rates (per 100,000 *Live births*), OECD 2005 Countries with 300,000 or more births



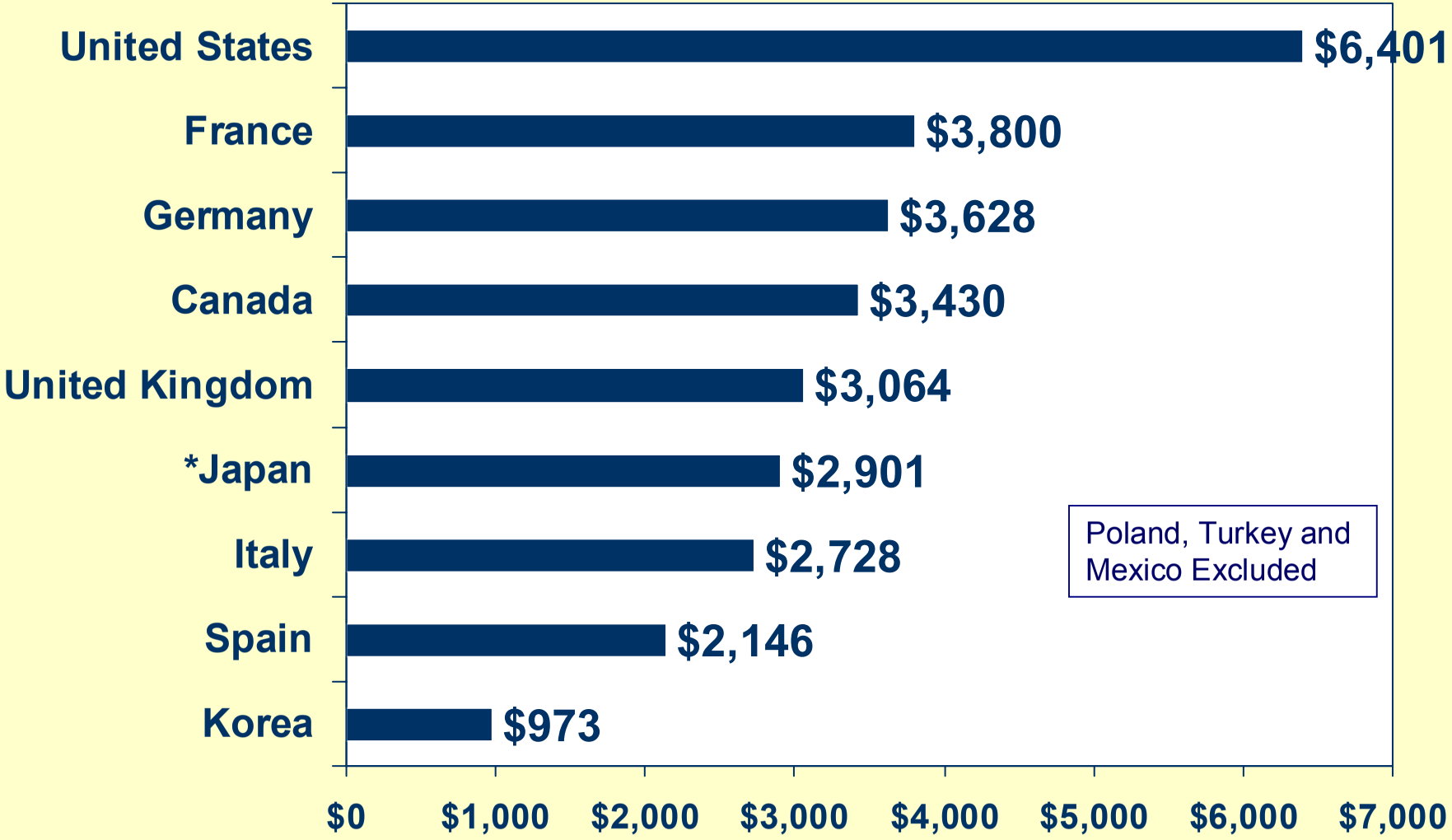
Source: OECD Health Data 2007.

Outcomes: US Subgroups in Comparative Context

US Grouping	U.S. IMR 2003	Rank (26)	Rank (9 300K)
All	6.9	23	9
Singleton	6.0	23	9
White NH	5.7	23	9
PNC in 1st Trimester	6.2	23	9
WNH, PNC 1st Trim	5.2	21	6
Education 13+ yrs	5.1	20*	6
WNH, Educ 13+	4.3	13*	6
WNH, Educ 16+	3.7	7	3
Native Born	7.2	25	9
WNH, Native Born	5.7	23	9
Nonsmoker	6.6	23	9
WNH, nonsmoker	5.1	20*	6
32+ weeks Gestation	3.1	3*	2
WNH, 30-34 yrs old	4.6	17	6
Hispanic, 37-41 weeks gest	2.3	1	1

Source: U.S. subgroups: Mathews et al. 2006. Infant mortality statistics from the 2003 period linked birth/infant death data set. *NVSR* v. 54 (16).Hyattsville, MD: NCHS, Table 2. *Other IMRs from *OECD Health Data 2006*.

Resources: Per Capita Total Health Expenditures in U.S. Dollars, 2005



Source: OECD Health Data 2007.

Table 4. Infant deaths and infant mortality rates by age, race, and Hispanic origin: United States, final 2004 and preliminary 2005

Source: NCHS. (2007) Preliminary Deaths, 2005.

Age, race, and Hispanic origin	2005		2004	
	Number	Rate	Number	Rate
All races[1]				
Under 1 year	28,534	6.89	27,936	6.79
Under 28 days	18,834	4.55	18,593	4.52
28 days–11 months	9,699	2.34	9,343	2.27
Non-Hispanic white				
Under 1 year	13,092	5.73	13,046	5.68
Under 28 days	8,563	3.75	8,638	3.76
28 days – 11 months	4,529	1.98	4,408	1.92
Total black				
Under 1 year	8,663	13.69	8,494	13.79
Under 28 days	5,717	9.04	5,622	9.13
28 days–11 months	2,946	4.66	2,872	4.66
Hispanic[2]				
Under 1 year	5,782	5.88	5,321	5.62
Under 28 days	3,897	3.96	3,633	3.84
28 days–11 months	1,885	1.92	1,688	1.78

Role of Cesareans

Cesarean Rates in Low Income Countries

Low Income	% Cesarean	Year
Chad	**0.4**	1996-1997
Ethiopia	**0.6**	2000
Niger	**0.6**	1998
Burkina Faso	**0.7**	2000
Cambodia	**1.0**	2001
Nepal	**1.0**	2000
Mali	**1.2**	2001
Tajikistan	**1.3**	2001
Yemen	**1.5**	1997
Eritrea	**1.6**	1995
Haiti	**1.7**	2000
CAR	**1.9**	1995
Togo	**2.0**	1998
Zambia	**2.2**	2001-2002
Rwanda	**2.3**	2000
Cameroon	**2.5**	1998-1999
Uganda	**2.6**	2000-2001
Bangladesh	**2.8**	1999-2000
Pakistan	**2.9**	1991

Low Income	% Cesarean	Year
Tanzania	**3.0**	1999
Mauritaria	**3.3**	2001
Uzbekistan	**3.3**	2000-2001
Viet Nam	**3.4**	1997
Benin	**3.5**	2001
Turkmenistan	**3.6**	2000
Nigeria	**3.7**	1999
Ghana	**4.0**	2001
Kenya	**4.0**	1998
Kyrgystan	**4.1**	2001
Indonesia	**4.2**	1997
Senegal	**5.0**	1995
Comoros	**5.3**	1996
Gabon	**6.0**	1997
Madagascar	**6.0**	2000
Rep. of Moldova	**6.7**	2001
Morocco	**7.0**	1996
India	**7.1**	1998-1999

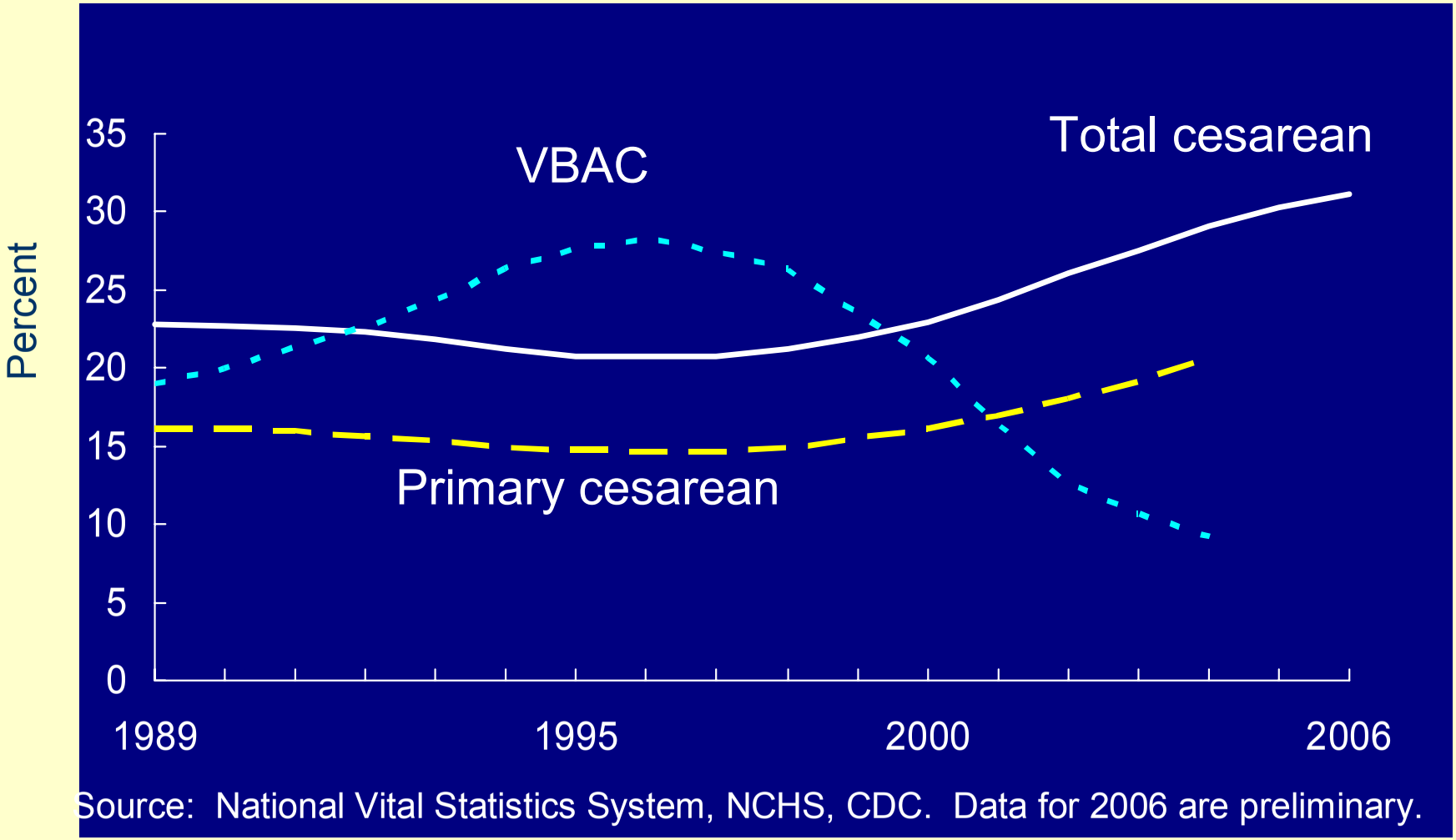
Source: Althabe F. et al. Cesarean Section Rates & Maternal & Neonatal Mortality. *Birth*.2006;33:270

Cesarean Rates in Middle Income Countries

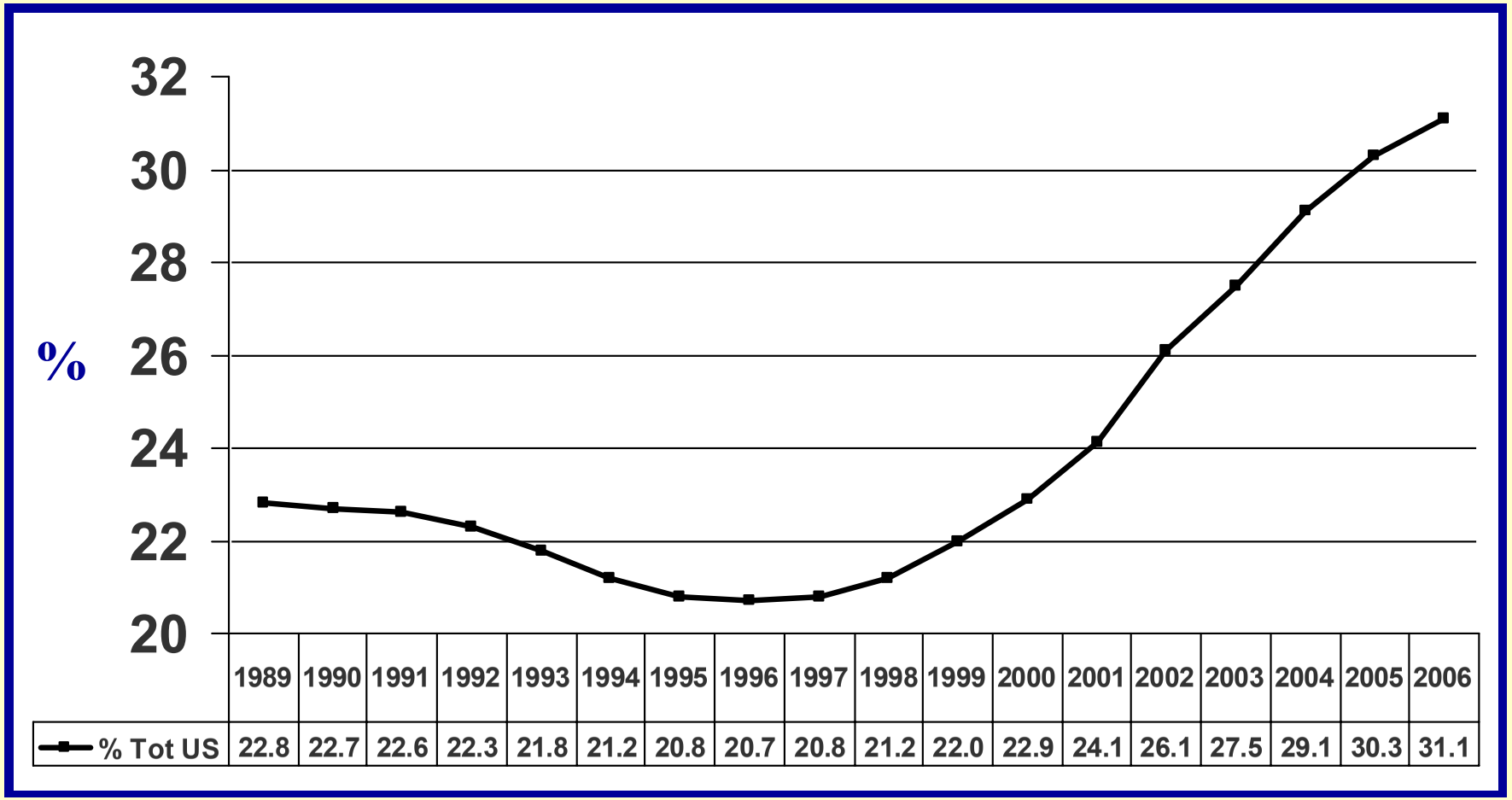
Country	% Cesarean	Year
Serbia/ Monteneg.	**5.3**	1998
Oman	**6.6**	1992
Namibia	**6.9**	1992
Belize	**8.0**	1991
Saudi Arabia	**8.1**	1993
Macedonia	**10.2**	2001
Czech Republic	**12.9**	2000
Turkey	**13.6**	2001
Bulgaria	**14.7**	2001
Russian Federat.	**14.7**	2001
Lebanon	**15.1**	1993
South Africa	**15.4**	1998
Estonia	**15.5**	2001
Romania	**15.6**	2001
Jordan	**16.0**	1993
Poland	**16.1**	1999
Belarus	**16.4**	2001
Slovakia	**16.6**	2001
Panama	**18.2**	1996
Ecuador	**19.9**	1996
Costa Rica	**20.8**	1993
Venezuela	**21.0**	1995
Hungary	**21.1**	2001
Uruguay	**21.9**	1996
Colombia	**25.2**	2000
Argentina	**25.4**	1996-97
Iran	**29.8**	1998
Dominican Repub.	**31.7**	1999
Mexico	**36.3**	2000
Brazil	**36.7**	1996
Chile	**40.0**	1997

Source: Althabe F. et al. Cesarean Section Rates & Maternal & Neonatal Mortality. *Birth*.2006;33:270

Total Cesarean Delivery Rate, United States, 1989-2006 and Primary Cesarean and VBAC Rates, 1989-2004



US Cesarean Rates, 1989-2006

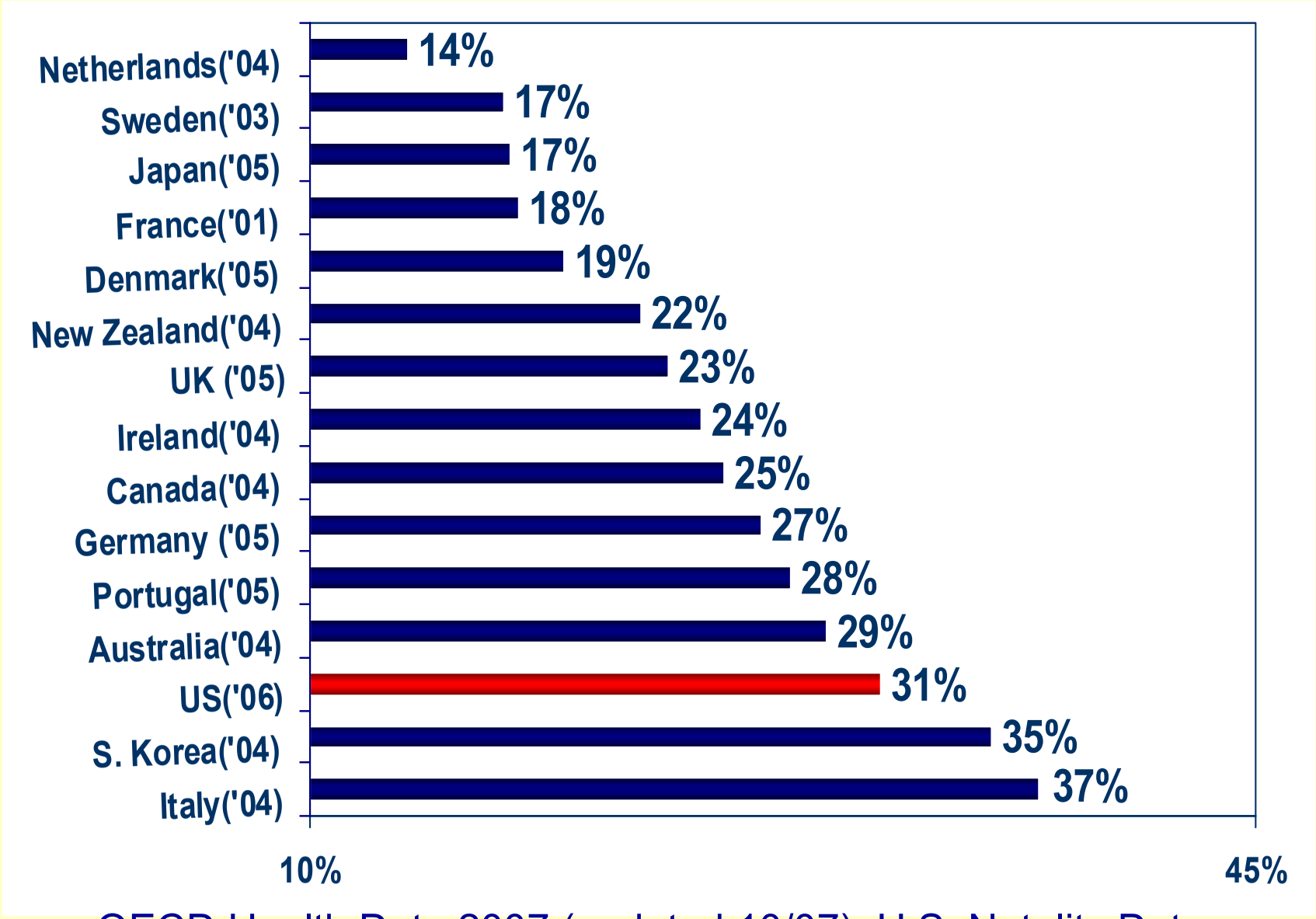


	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
% Tot US	22.8	22.7	22.6	22.3	21.8	21.2	20.8	20.7	20.8	21.2	22.0	22.9	24.1	26.1	27.5	29.1	30.3	31.1

If the 2006 cesarean rate was the same as in 1996, there would have been 443,664 fewer cesareans in the U.S. in '06.

Source: National Center for Health Statistics Annual Birth Reports

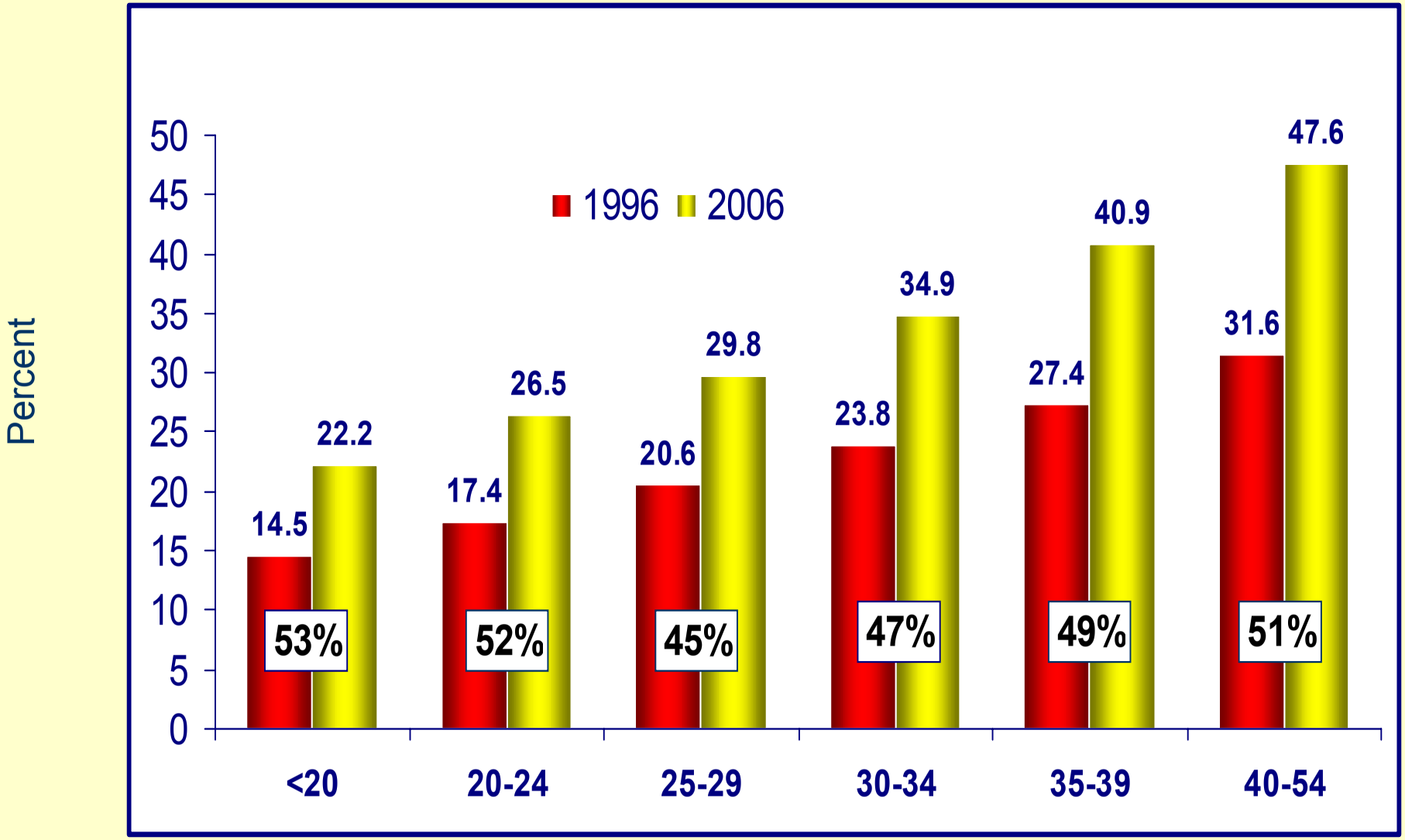
Cesarean Rates in Industrialized Countries



Sources: OECD Health Data 2007 (updated 10/07); U.S. Natality Data

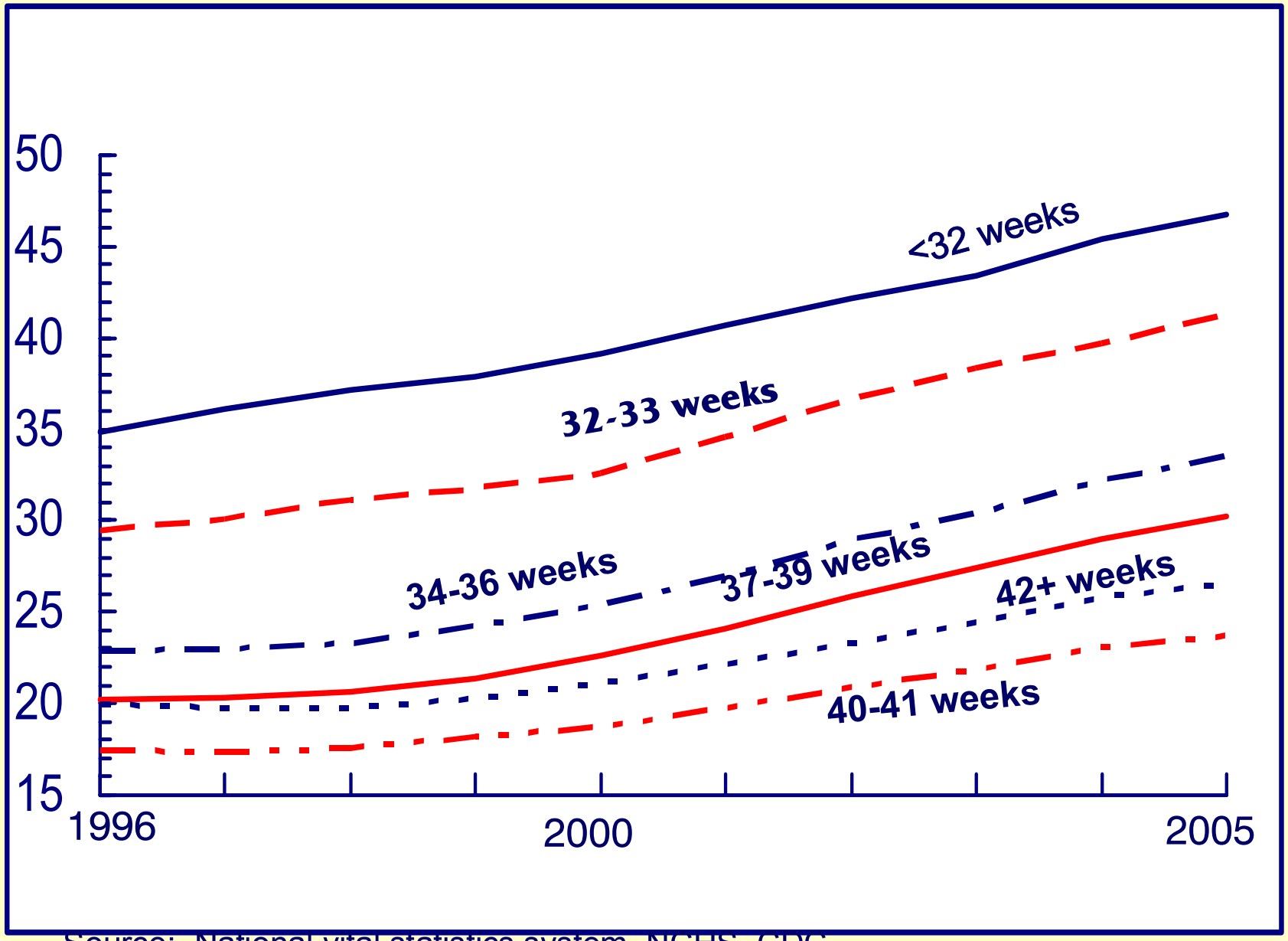
U.S. Cesarean Rates by Subgroups over Time

Cesarean Rates (per 100 births) by Age of Mother: United States, 1996 and 2006



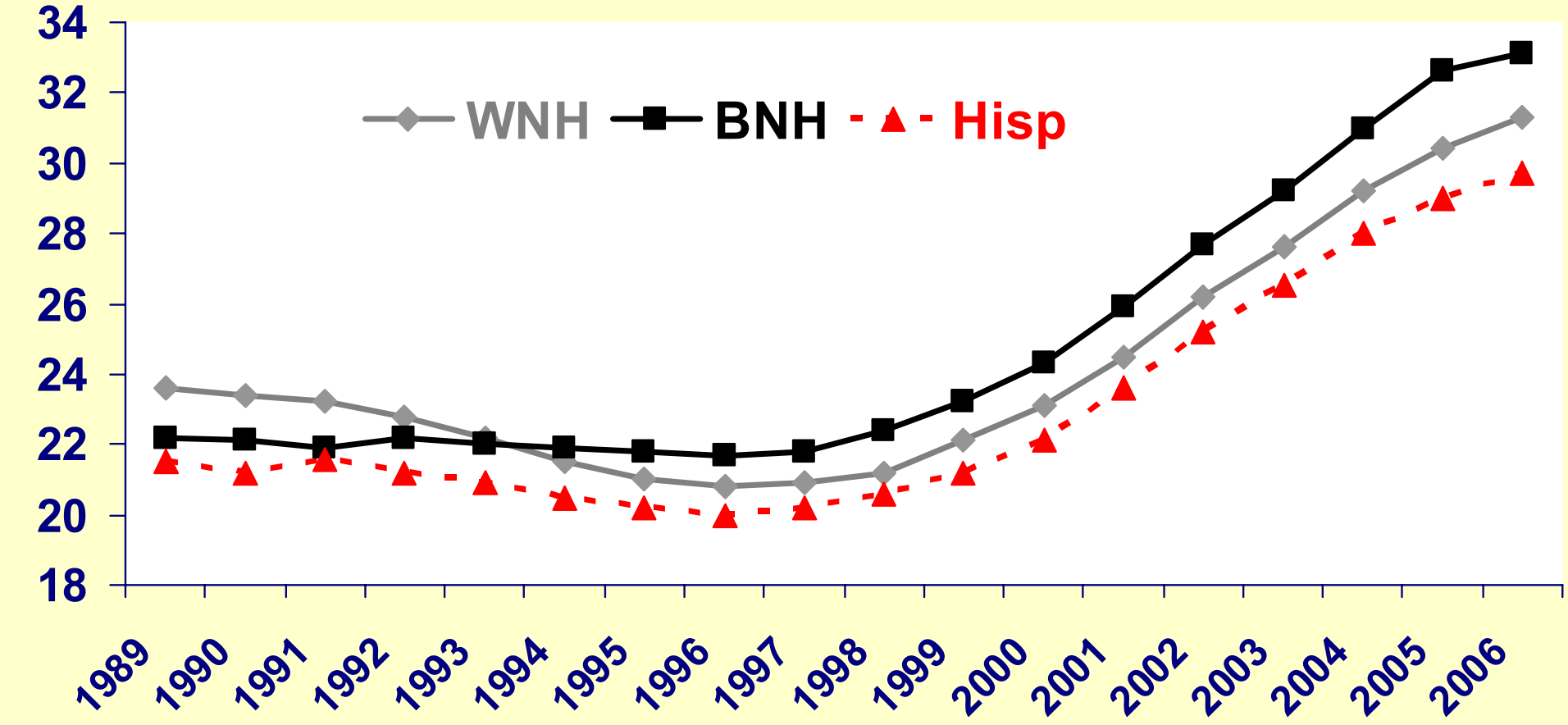
Source: National vital statistics system, NCHS, CDC. Data for 2006 are preliminary.

Cesarean Rates by Gestational Age, Singleton



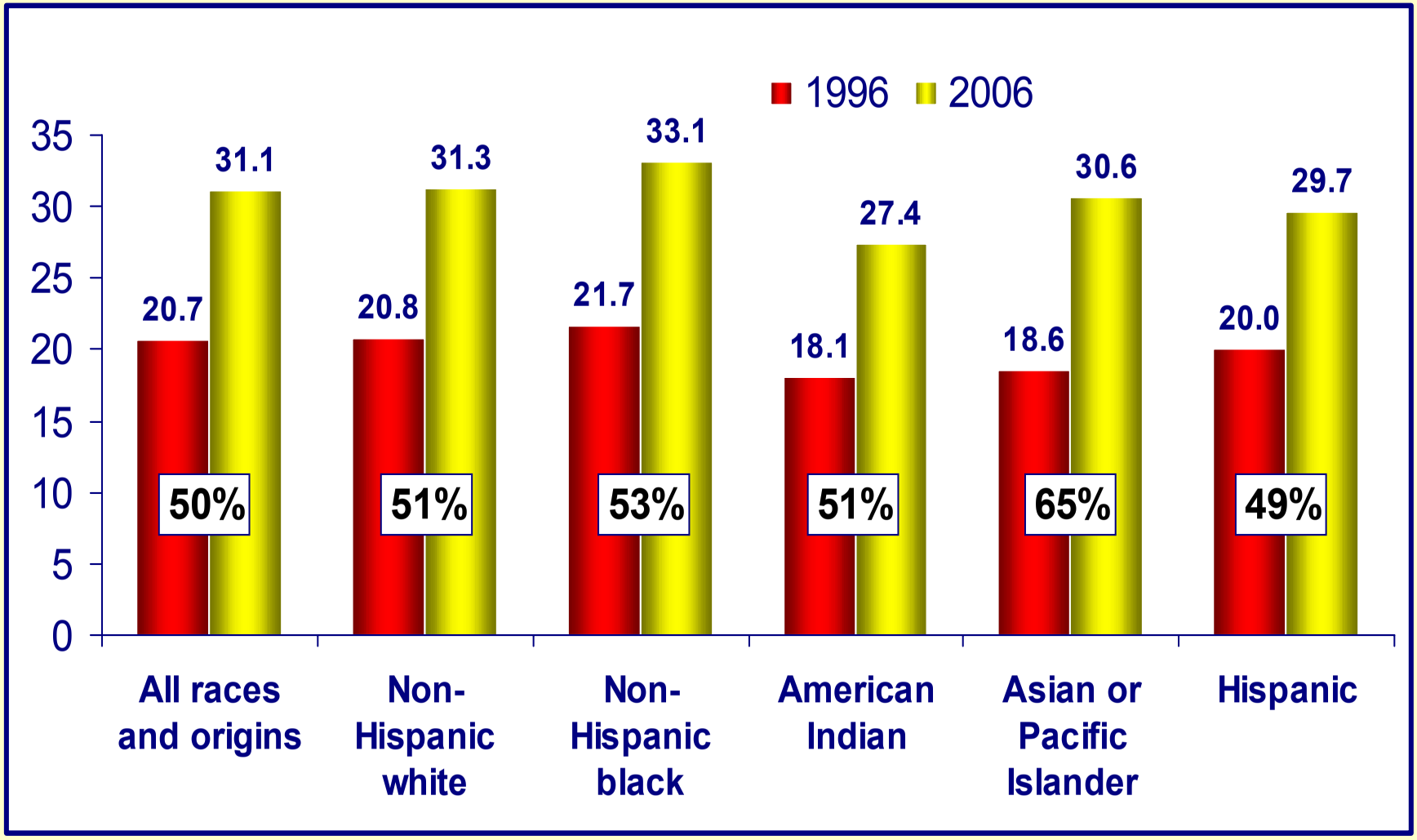
Source: National vital statistics system, NCHS, CDC

Overall cesarean rates by race/ethnicity, U.S. 1989-2006



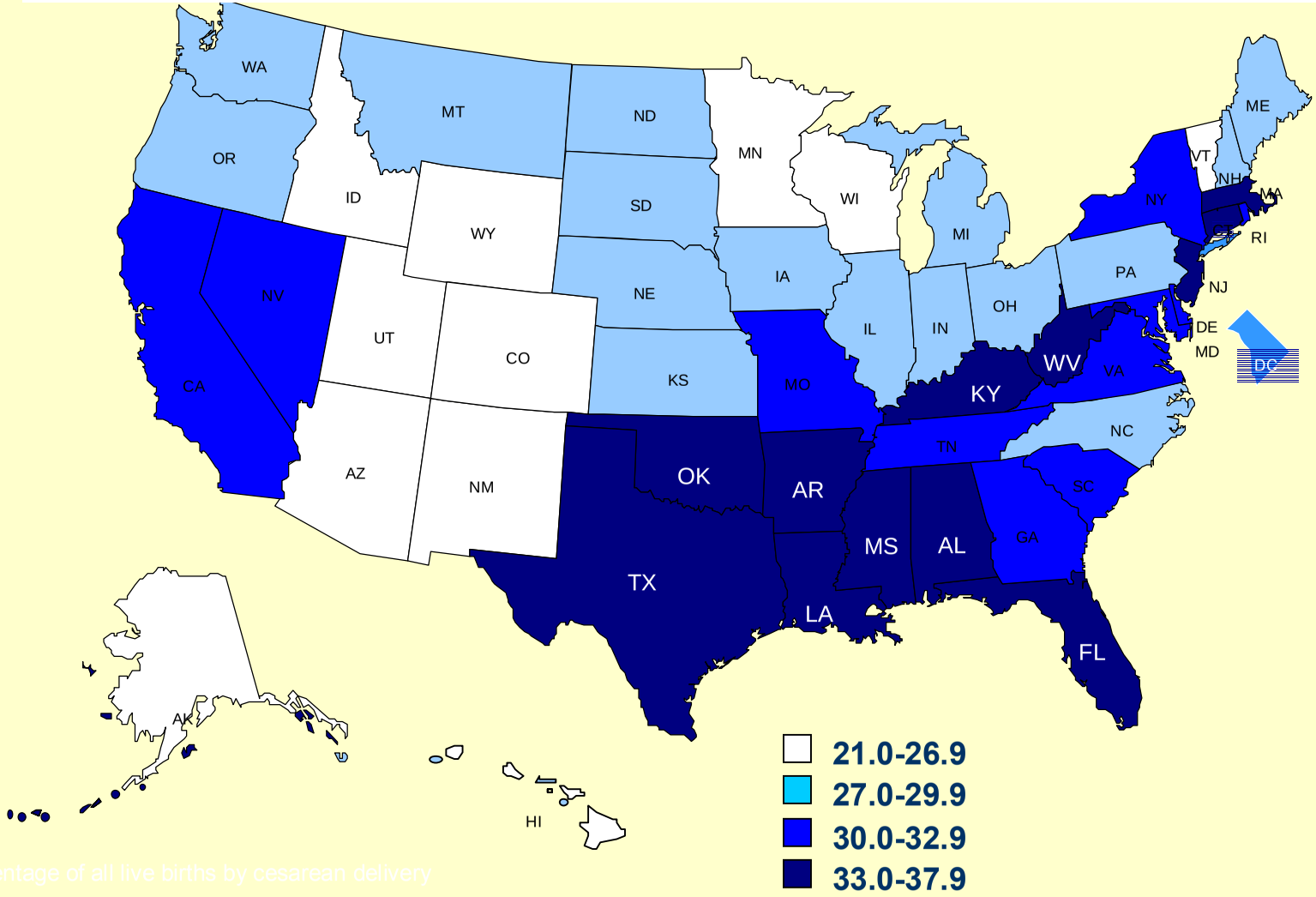
Source: National Center for Health Statistics Annual Birth Reports

Cesarean Rates by Race and Hispanic Origin of Mother: United States, 1996 and 2006



Source: National vital statistics system, NCHS, CDC. Data for 2006 are preliminary.

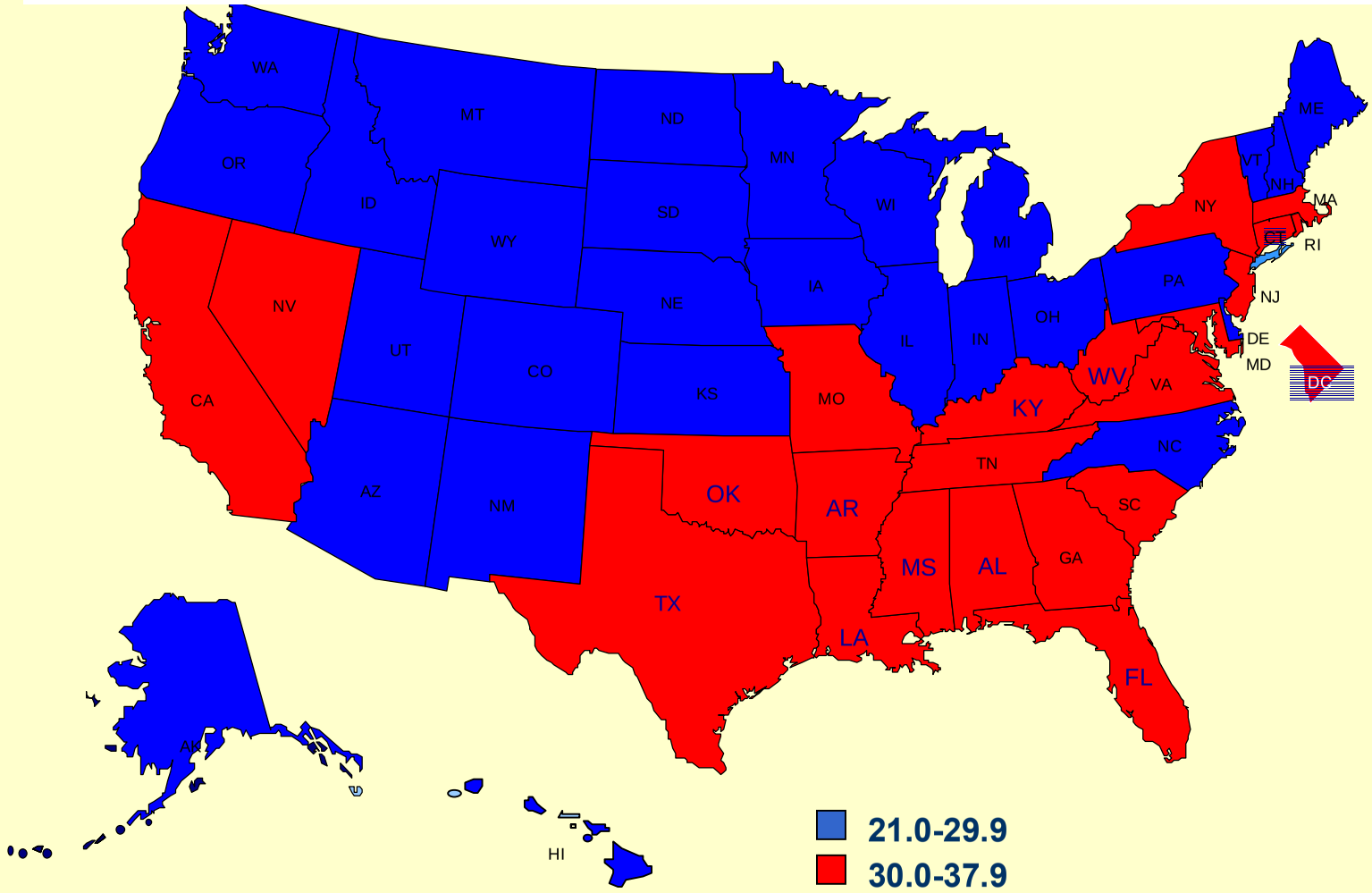
Total Cesarean Delivery Rates[1] by State, United States: 2006 (preliminary)



[1]Percentage of all live births by cesarean delivery

Source: Hamilton B, et al. *Births Preliminary Data 2006*. National Vital Statistics System, 2007.

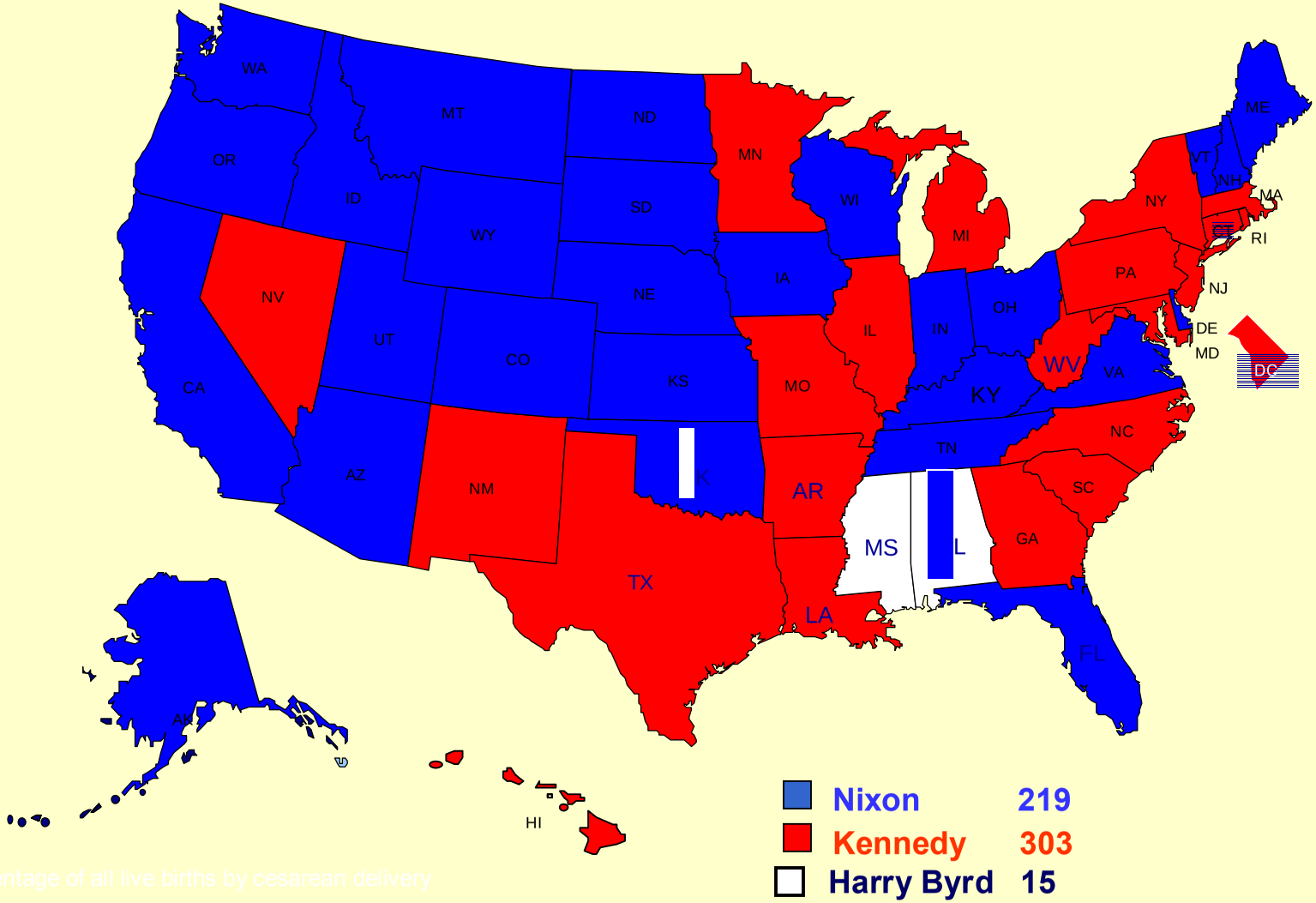
Total Cesarean Delivery Rates[1] by State, United States: 2006 (preliminary)



[1]Percentage of all live births by cesarean delivery

Source: Hamilton B, et al. *Births Preliminary Data 2006*. National Vital Statistics System, 2007.

1960 Electoral College Map



[1]Percentage of all live births by cesarean delivery

Source: Hamilton B, et al. *Births Preliminary Data 2006*. National Vital Statistics System, 2007.

Have maternal request cesareans played a major role in these increases?

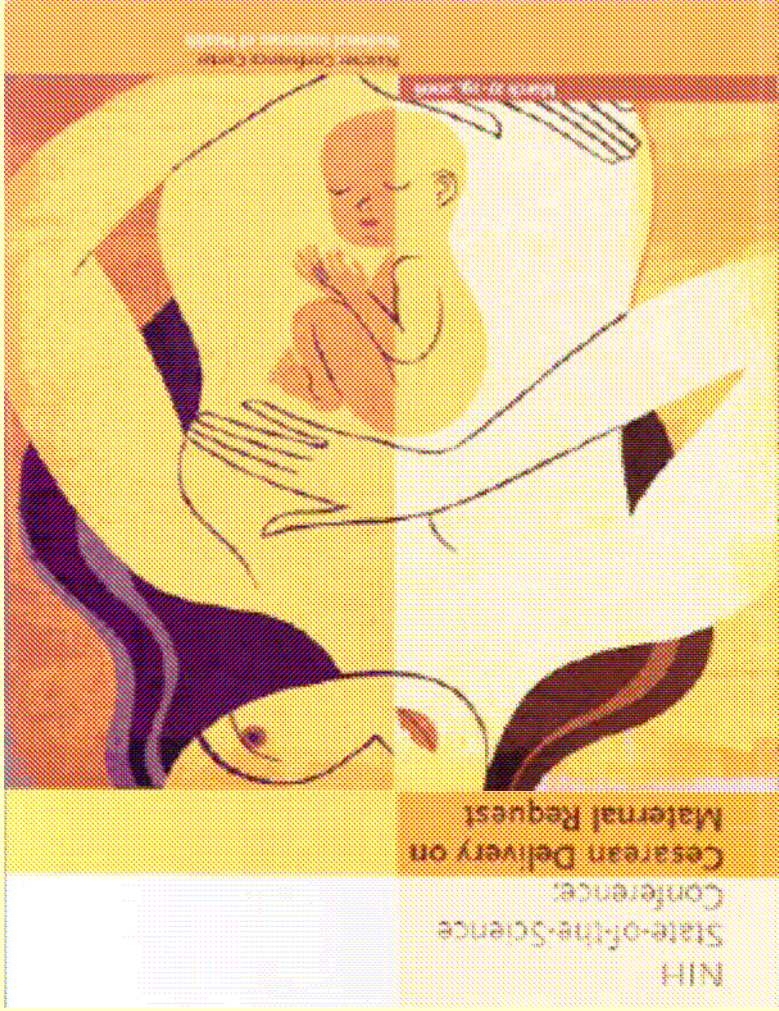
Have maternal request cesareans played a major role in these increases?

NO!

Media attention on cesarean delivery with emphasis on "maternal request"

- "Once a C-Section, Always a C-Section? Women who want to try labor in later deliveries are increasingly refused" *Washington Post.* 11/24/2005
- "When 'natural" seems too risky." *L A Times.* 1/17/06
- "Despite Risks Cesarean Births are on the Rise," *CBS News.* 1/26/06
- Too Posh to Push? Cesarean sections have spiked dramatically. Progress or convenience? *US News and World Report* 8/5/02

NIH State of the Science Conference on Maternal Request Cesareans



Key assumption:
If no medical indication, cesarean must be maternal request.

NOTE: THERE HAS BEEN AN INCREASE IN MEDICALLY ELECTIVE CESAREANS

Cesarean Delivery on Maternal Request

Obstetrician–Gynecologists' Knowledge, Perception, and Practice Patterns

VOL. 109, NO. 1, JANUARY 2007 OBSTETRICS & GYNECOLOGY 57

ELSEVIER

SEMINARS IN PERINATOLOGY

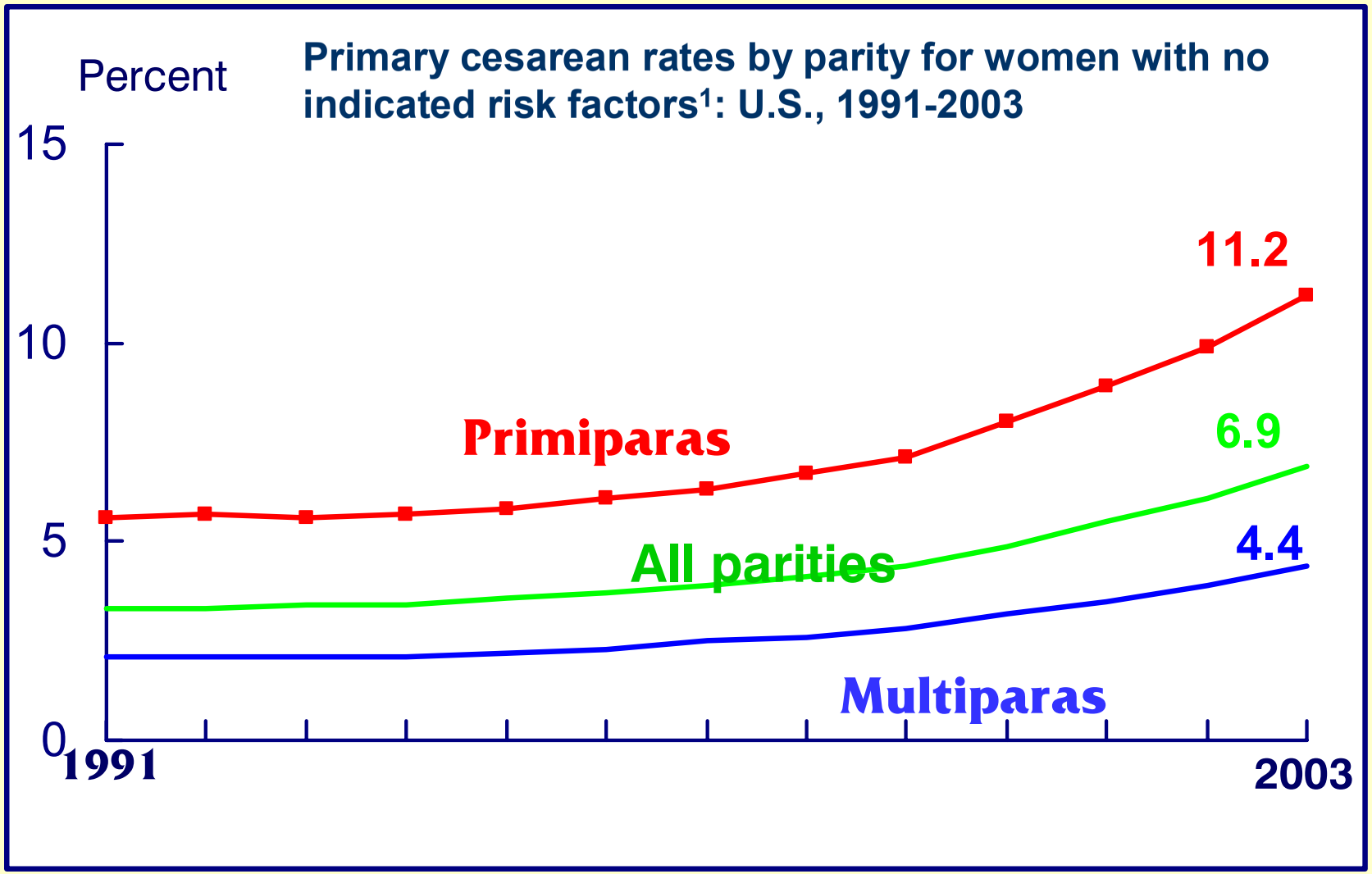
Maternal Request Cesarean Versus Planned Spontaneous Vaginal Delivery: Maternal Morbidity and Short Term Outcomes

Alternatively you could ask mothers

Measuring Medically Elective Cesareans using Existing Data

- Individual hospital data or collaboration of centers
- Use of large vital statistics (birth certificate) or administrative (hospital discharge) databases

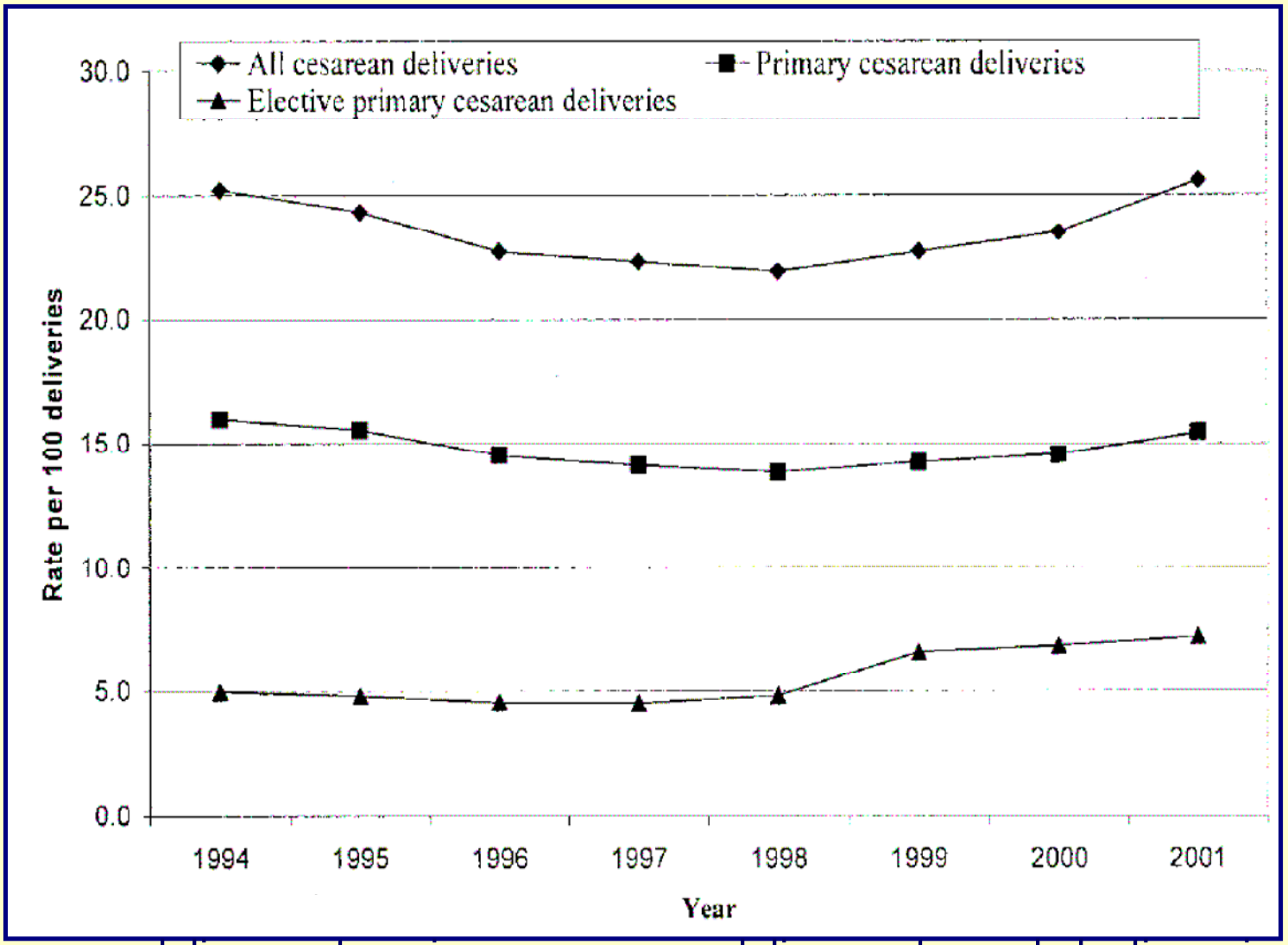
Birth Certificate Measure



[1]Women with full-term vertex singletons, with birth-weight <4000 grams, and no reported medical risk factors or complications of labor and/or delivery

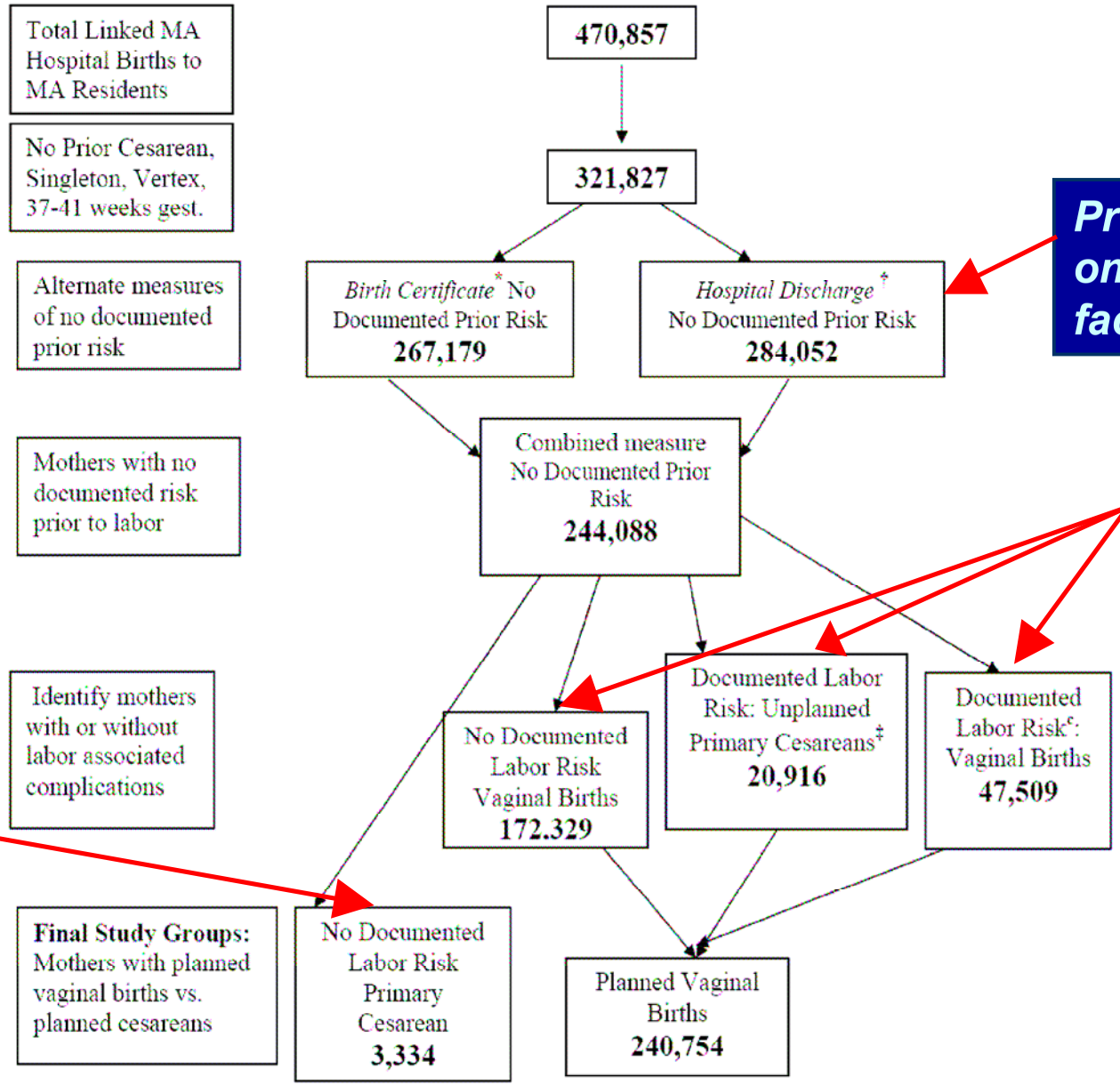
Source, National Vital Statistics System, NCHS, CDC. 1991-2003

Hospital Discharge Measure



The total cesarean delivery rate, primary cesarean delivery rate, and elective primary cesarean delivery rate, Nationwide Inpatient Sample 1994–2001. Meikle. Elective Primary Cesarean Delivery Rate. *Obstet Gynecol 2005.* 105 (4):751-756

Figure 1 Identifying Planned and Unplanned Cesarean and Vaginal Births Using Birth Certificate and Hospital Discharge Data, Massachusetts, 1998-2003



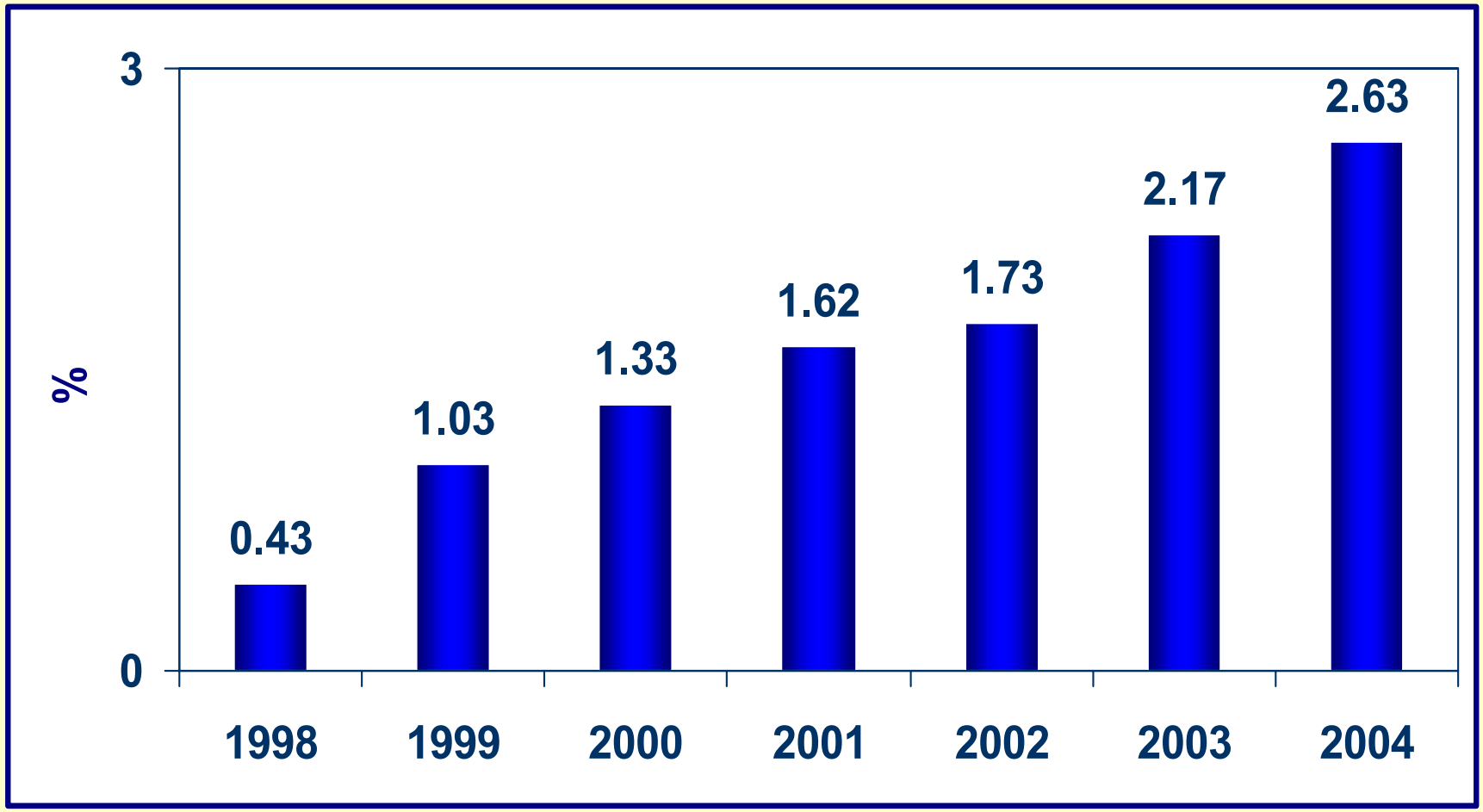
Prior risk based on medical risk factors

Labor defined by labor & delivery complications

Planned Cesarean group

Declercq et al *OBGYN* 2007; 109:669

Planned Primary Cesarean Rate (%), Mass., 1998-2004



Source: Declercq et al. *OBGYN* forthcoming

Who is Most Likely to Have a Medically Elective Primary Cesarean?

• Overall	**1.4%**
• First Time Mothers	2.1%
• Mothers 40-49	3.1%
• Black non-Hispanic mothers	2.3%

Have maternal request cesareans played a major role in increases?

- While medically elective cesareans have increased, two key points to remember:
  - Increases in medically elective are on the order of 1-2 percentage points within a subset of low risk mothers – hardly enough to account for a 50% increase in the cesarean rate
  - Medically elective ≠ maternal request

What hasn't been systematically studied is the degree to which mothers are actually seeking cesareans.

What if we asked mothers?

Asking Mothers about Maternal Request Cesareans

Listening to Mothers II

http://www.childbirthconnection.org

Eugene R. Declercq
Carol Sakala
Maureen P. Corry
Sandra Applebaum

Two Components to Maternal Request Primary Cesarean

1. Mother made request for planned cesarean before labor

2. Cesarean for no medical reason

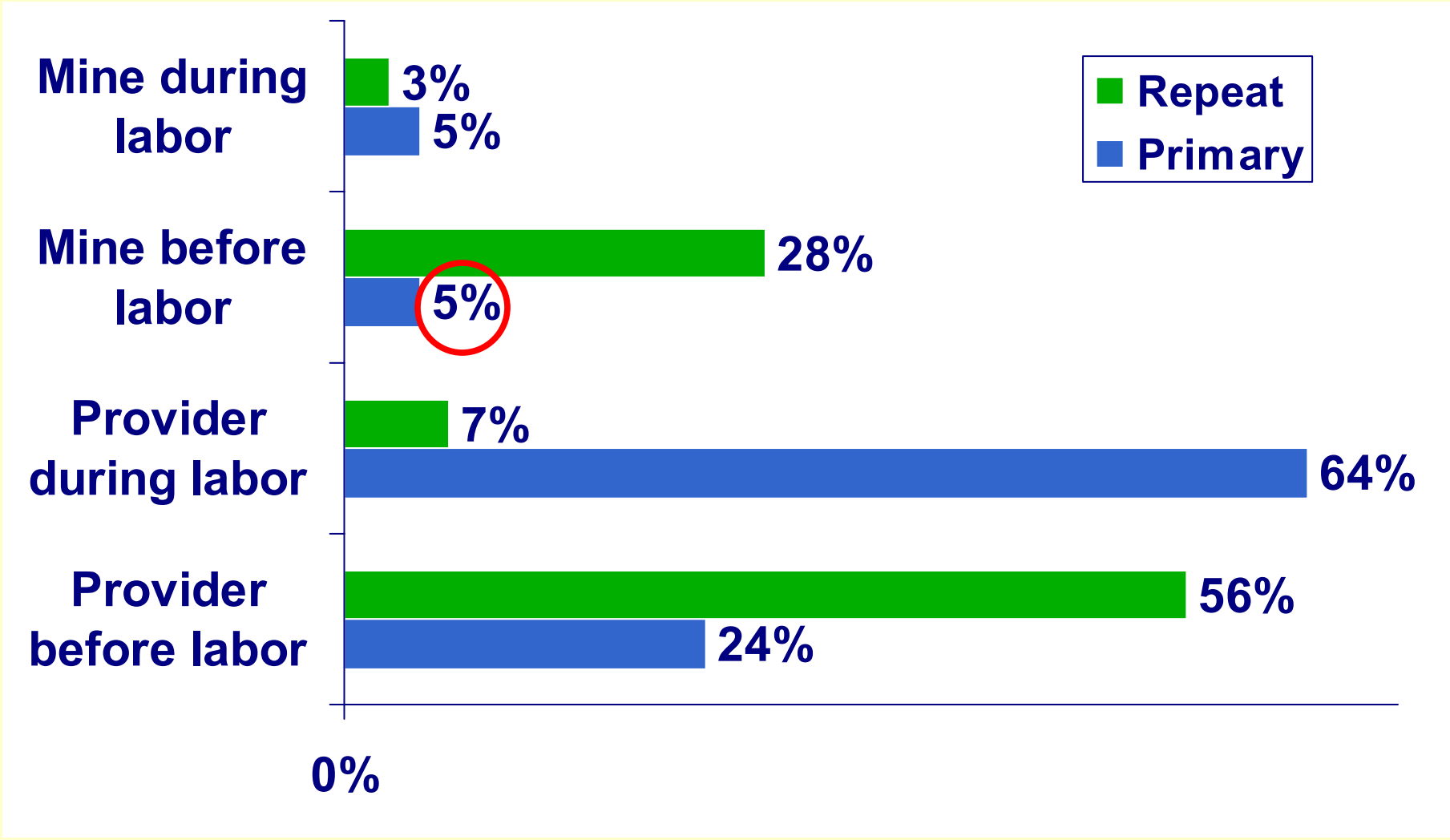
Cesarean Decision-Making

- 10% of mothers indicated they discussed a planned cesarean (p) prenatally with their provider
- In 79% of these cases the mother had had a prior cesarean
- Of remaining 21%, most (15%) had a vaginal birth and remaining had a cesarean for a medical reason.

Reasons for Primary Cesarean (n=252; unweighted)

- Baby was in the wrong position 25%
- Fetal monitor showed a problem 25%
- Labor was taking too long/ mother was exhausted 14%
- *Maternity care provider worried the baby was too big* 12%
- Problem with the placenta 3%
- ***No medical reason*** ***2%***

Cesarean Decision-Making



Patient Choice Primary Cesareans

- Combining reason for cesarean and timing of decision found only 1 respondent of 252 (0.4%) had a planned primary cesarean for no medical reason.

"I think that [cesarean] is… the best way … to give birth. It is a planned way, no hassle, no pain, the baby doesn't struggle to come out, the baby is not pressed to come out …I think that … everybody should have the baby by cesarean section."

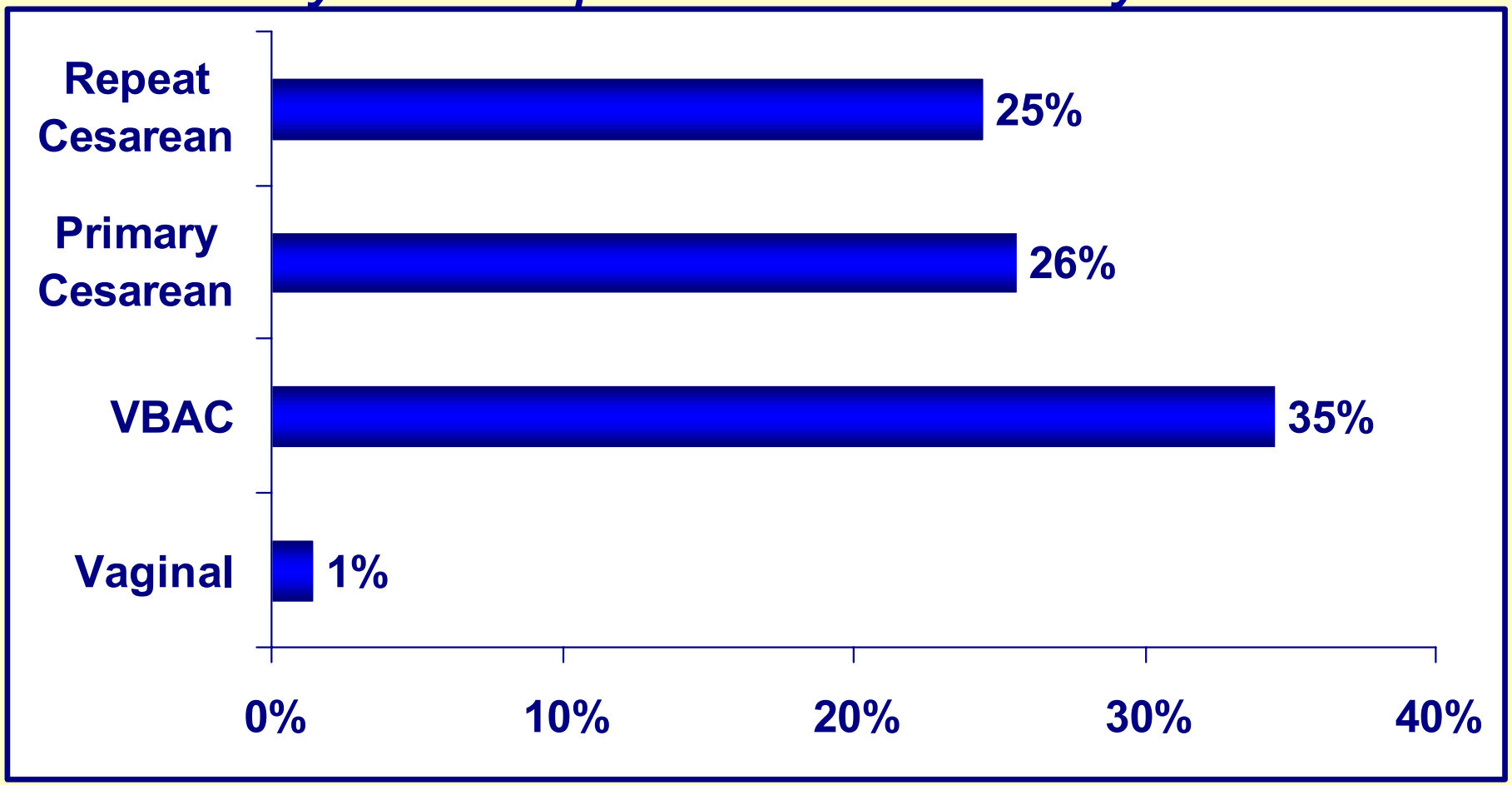
Pressure to Accept Interventions

- Few mothers overall cited pressure to accept an epidural (7%), cesarean (9%) or induction (11%)

- ***However, when those results concerning cesareans are stratified by methods of delivery …..***

Pressure to Accept Interventions by Method of Delivery

Did you feel pressure from any health



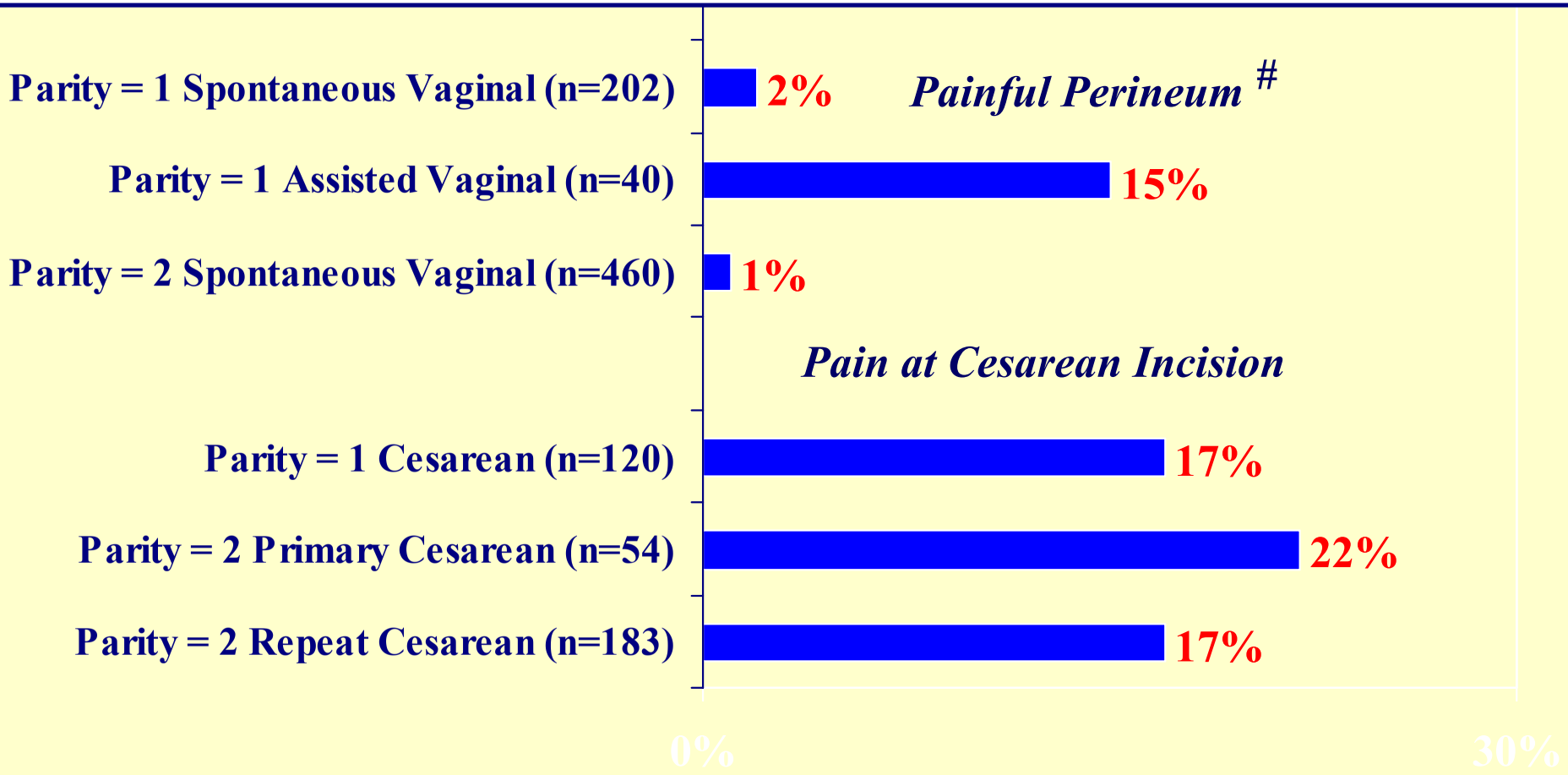
Mothers' support for maternal choice in mode of birth (w)

	Disagree & Strongly Disagree	No Opinion	Agree	Strongly Agree
If a woman who has* never had a cesarean *wants to have a* cesarean*, she should be able to do so.	31%	23%	20%	26%
			46%	
If a woman who has* never had a cesarean *wants to have a* vaginal birth*, she should be able to do so.	1%	7%	13%	80%
			93%	
If a woman who has* had a prior cesarean *wants to have a* vaginal birth*, she should be able to do so.	5%	10%	29%	56%
			85%	

Mothers reporting postpartum pain at the site of the incision in the first two months after birth by Planning Status of Cesarean	Labor	No Labor
Parity = 1	(n =126) No. (%)	(n =47) No. (%)
Total	104 (82.5%)	44 (93.6%)
Major	57 (45.2%)	19 (40.4%)
	(p=0.076)	
Parity =2+ primary cesarean	(n =45)	(n =29)
Total	44 (97.8%)	28 (96.6%)
Major	20 (44.4%)	13 (44.8%)
	(p=0.948)	
Parity = 2+ repeat cesarean*	(n =67)	(n =179)
Total	51 (76.1%)	118 (65.9%)
Major	16 (23.9%)	38 (21.2%)
	(p=0.306)	

Source: Declercq et al. *Birth* 2008.

Proportion of mothers reporting pain persisted into the 6th month postpartum



*Respondents were asked if the problem they cited as a difficulty in the first two months "was still a problem now?." Above represents responses of mothers who had given birth at least 6 months earlier. Denominator is all women who experienced the intervention.

# $p < .01$ for comparison across type of pain.

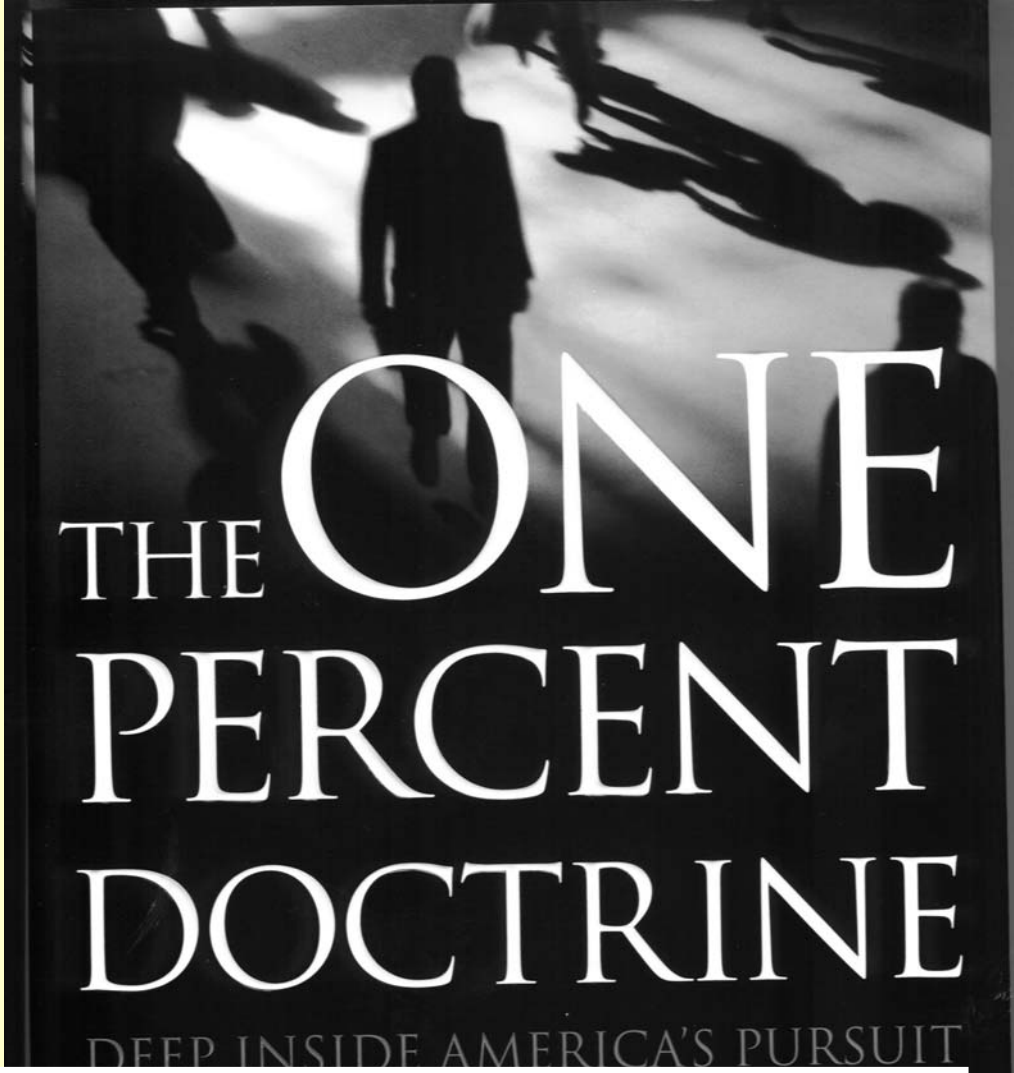
Declercq et al. *Birth*.2008

Rating the Maternity Care System

	US Health Care	US Maternity Care
Excellent	17%	35%
Good	53%	48%
Fair	26%	15%
Poor	4%	1%

How do we explain disconnect between high levels of intervention and mother's generally positive attitudes about the U.S. maternity care system?

Who is at fault?



"If there's even a 1% chance of a terrorist act occurring, we must treat that as if it were a certainty."

Wonderful metaphor for contemporary maternity care

Maternal Outcomes with Medically Elective Cesareans Mass. 1998-2003

Rehospitalization of Mothers by Method of Delivery, Mass. 1998-2003

	Planned Vaginal Birth Rehosp. Rate/1,000 (n = 240,754)	Planned Primary Cesarean (n = 3,334)		
		Rehosp. Rate/ 1,000 NIR PCS Births	Unadjusted Odds Ratio (95% CI)	Adjusted* Odds Ratio (95% CI)
1-30 days Postpartum	7.5	19.2	2.6 (2.01-3.33)	2.3 (1.74-2.90)
31-180 days Postpartum	9.8	13.5	1.4 (1.02-1.86)	1.6 (1.08-1.98)
181-365 days Postpartum	9.2	14.6	1.6 (1.19-2.13)	1.8 (1.32-2.38)

* Adjusted for age, race/ethnicity, parity;

Source: Declercq et al. *OBGYN* 2007.

Postpartum rehospitalization (1-30 days) rates by diagnosis for mother by MoD, Massachusetts, 1998-2003

Planned Vaginal (n= 240,754)		Planned Cesarean (n=3,334)	
Cause	Rate/1,000	Cause	Rate/1,000
Major puerperal infection	1.83	Complication of obstetrical wounds	6.60
Nonpurulent mastitis	0.73	Major puerperal infection	3.30
Delayed & secondary postpartum hemorrhage	0.62	Care and observation	2.40
Infections of the genitourinary tract	0.54	Inflammatory diseases of uterus	1.50
Complication of obstetrical wounds	0.46*	Infections of the genitourinary tract	1.50
Other complications	0.44	Delayed & secondary postpartum hemorrhage	1.20

* For unplanned cesareans alone rate was 5.26/1,000

Source: Declercq et al. *OBGYN* forthcoming

National Institutes of Health State-of-the-Science Conference Statement

Cesarean Delivery on Maternal Request

March 27–29, 2006

- ***Maternal length of hospital stay.***

Cesarean delivery, planned or otherwise, requires a longer hospital stay than vaginal delivery does. However, these analyses are affected by comparing planned and unplanned cesarean deliveries to all vaginal deliveries. Numerous factors also may influence length of hospital stay, including obstetric complications, insurance coverage, regional practice patterns, health care provider and patient preference, and neonatal hospital stay.

Length of Stay & Average Costs for Hospitalizations of Mothers by MOD, MA, 1998-2003

	Planned Vaginal (n=240,754) (95% CI)	Planned Cesarean (n=3,334) (95% CI)
Initial Hospital Stay		
Length of Stay	**2.4** (2.43-2.44)	**4.3** (4.27-4.35)
Average Costs^	**$2,513** ($2,507-$2,519)	**$4,373** ($4,304-$4,441)
Subsequent Rehospitalization in 12 mos. Postpartum		
Length of Stay	**3.9** (3.75-4.04)	**4.3** (3.56-5.12)
Costs^	**$5,436** ($5,221-$5,651)	**$6,100** ($4,745-$7,455)

^Charge data adjusted by cost to charge ratios & inflation ; 2003 dollars

Infant Outcomes

BIRTH 35:1 March 2008

Neonatal Mortality for Primary Cesarean and Vaginal Births to Low-Risk Women: Application of an "Intention-to-Treat" Model

Marian F. MacDorman, PhD, Eugene Declercq, PhD, Fay Menacker, DrPH, CPNP, and Michael H. Malloy, MD, MS

"Intention to Treat" Model

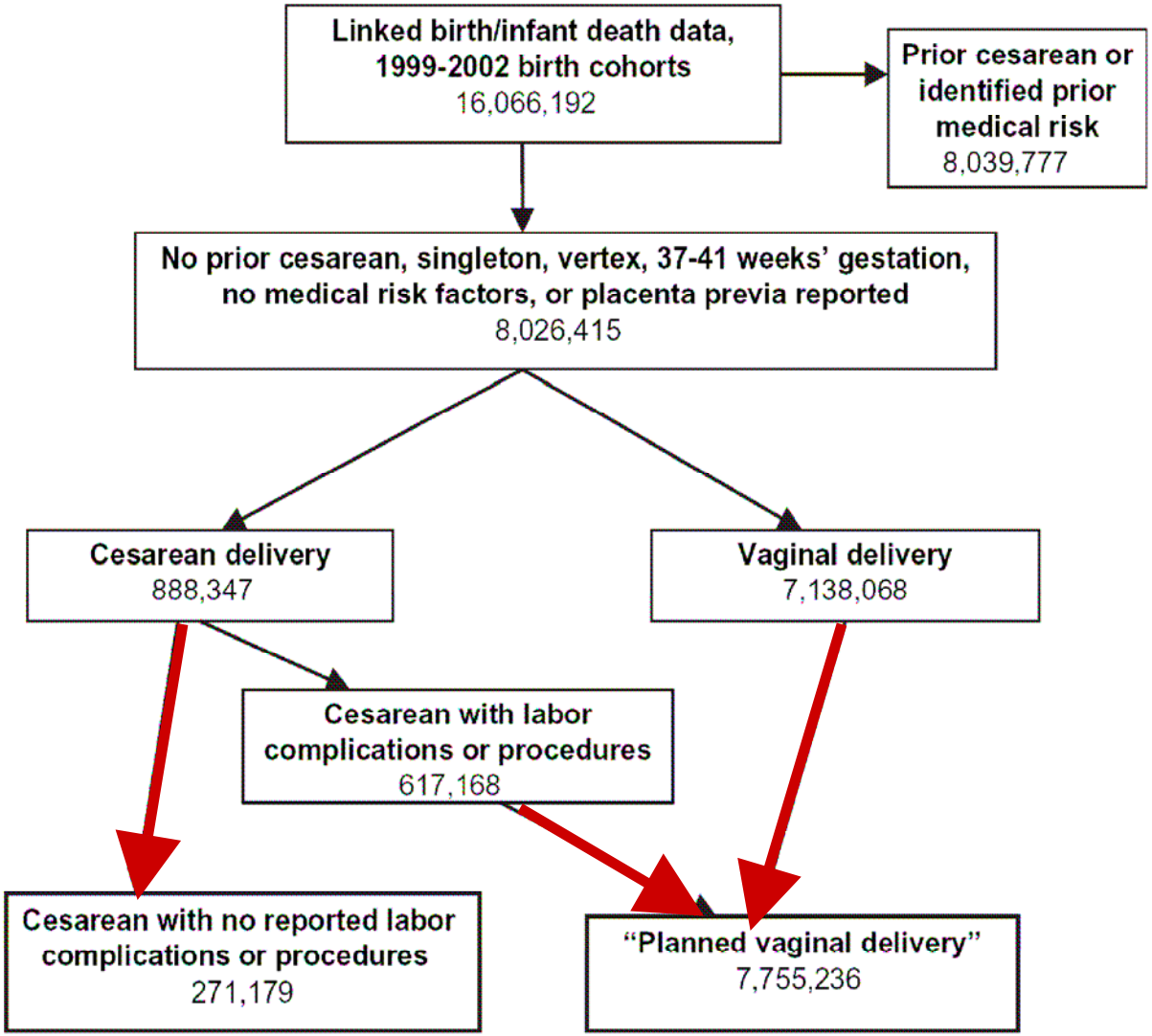


Fig. 1. Distinguishing between planned vaginal births and cesareans with no reported labor complications or procedures.

Neonatal Deaths & Mortality Rates for Low Risk Women by Method of Delivery, 1999-2002

Method of Delivery	Neonatal deaths	Neonatal mort. Rate (per 1,000)
Total	6,014	0.75
Cesarean no labor complications	469	**1.73**
Deliveries with labor (planned vaginal)	5,546	**0.72**
Vaginal with & no labor complications	4,500	0.63
Cesarean with labor complications	1,046	1.69
Ratio cesarean no compl./planned vag.		**2.42**

Includes singleton, term (37-41 weeks gestation), vertex presentation births with no medical risk factors and no prior cesarean. Rates per 1,000 live births.

Adjusted Odds Ratios for Neonatal Mortality for Low-Risk Women by Method of Delivery, US 1999-2002 Birth Cohorts

Logistic regression model	Method of delivery	Adjusted odds ratio[1] and 95% CI
Model 1: Dep. variable= neonatal mortality	'Planned vaginal[2]'	1.00
	Cesarean no complications	**2.34** (2.13-2.58)
Model 2: Dep. variable= neonatal mortality excl. congenital anomalies	'Planned vaginal[2]'	1.00
	Cesarean no complications	**1.93** (1.67-2.24)
Model 3: Dep. variable= neonatal mortality excl. cong. anom. and Apgar<4	'Planned vaginal[2]'	1.00
	Cesarean no complications	**1.58 (1.35-2.11)**

1 Adjusted for maternal age, race/ethnicity, parity, education, smoking, period of gestation and birthweight.

2. Includes all vaginal deliveries and cesareans with labor complications.

Summarizing Results on medically elective primary cesareans

- Rate has increased regardless of measure used
- Rates highest among first-time mothers; mothers 35+ and black non-Hispanic mothers
- Mothers with elective primary cesareans more likely to experience longer stays, generate more costs and 2.3 times more likely to be rehosp. in 1st 30 days after birth
- Likelihood of neonatal death is small but significantly higher in elective cesareans

Positive Trends

1. Research on Outcomes
2. Decline in cesarean rates cross-nationally
3. Changes in media coverage
4. Expert Meetings
5. Increase in Home Births
6. New midwifery activism
7. New Childbirth Activism

Research on Outcomes Questioning Elective Cesareans

- VillarJ et al. Maternal and neonatal individual risks and benefits associated with caesarean delivery: multicentre prospective study. *BMJ*. 2007.335;1025-29

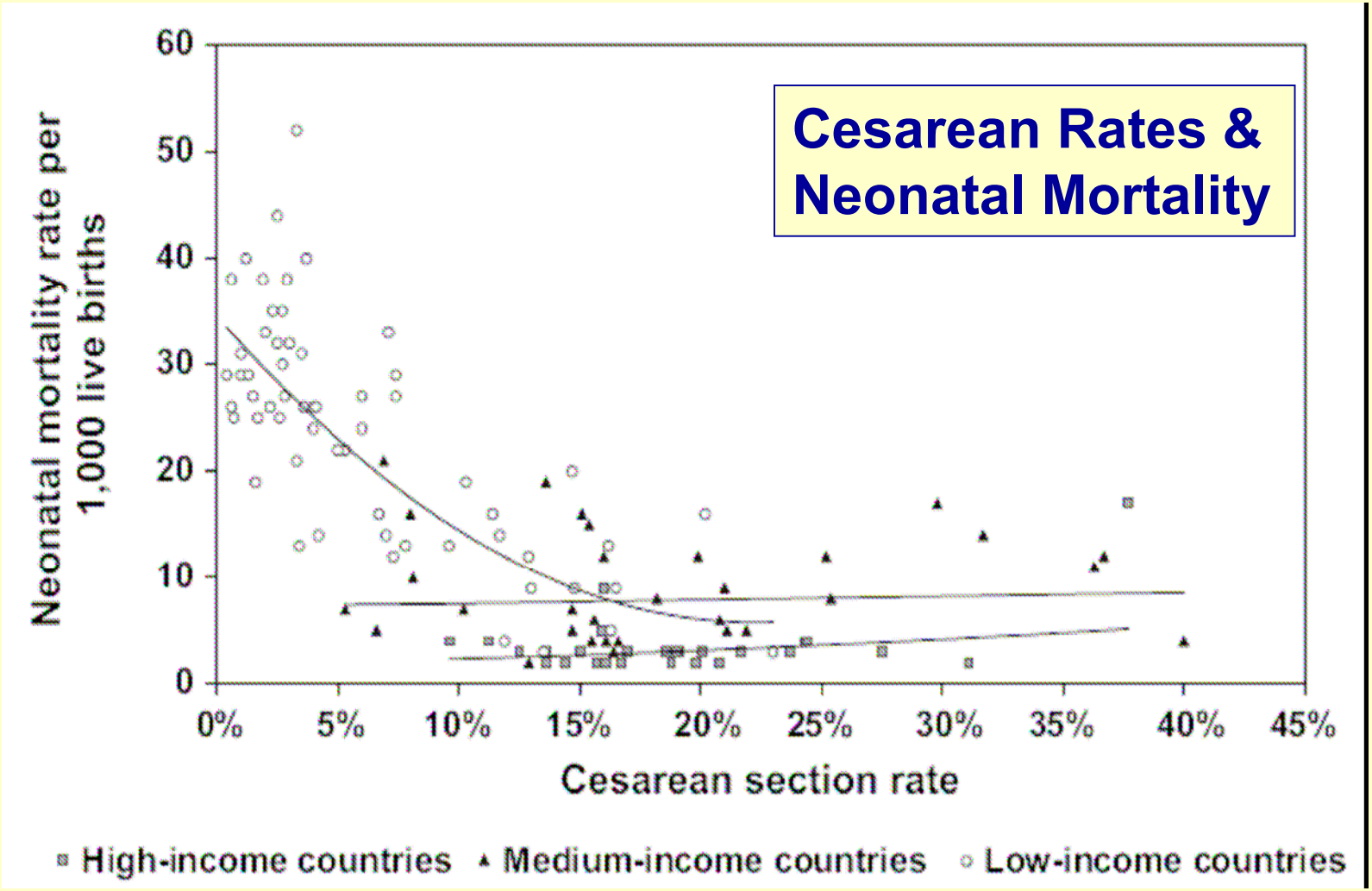
"Caesarean delivery independently reduces overall risk in breech presentations and risk of intrapartum fetal death in cephalic presentations but increases the risk of severe maternal and neonatal morbidity and mortality in cephalic presentations."

Research on Outcomes Questioning Elective Cesareans

- LiuS et al. Maternal mortality and severe morbidity associated with low-risk planned cesarean delivery versus planned vaginal delivery at term. *CMAJ* 2007; 176(4):455-60.

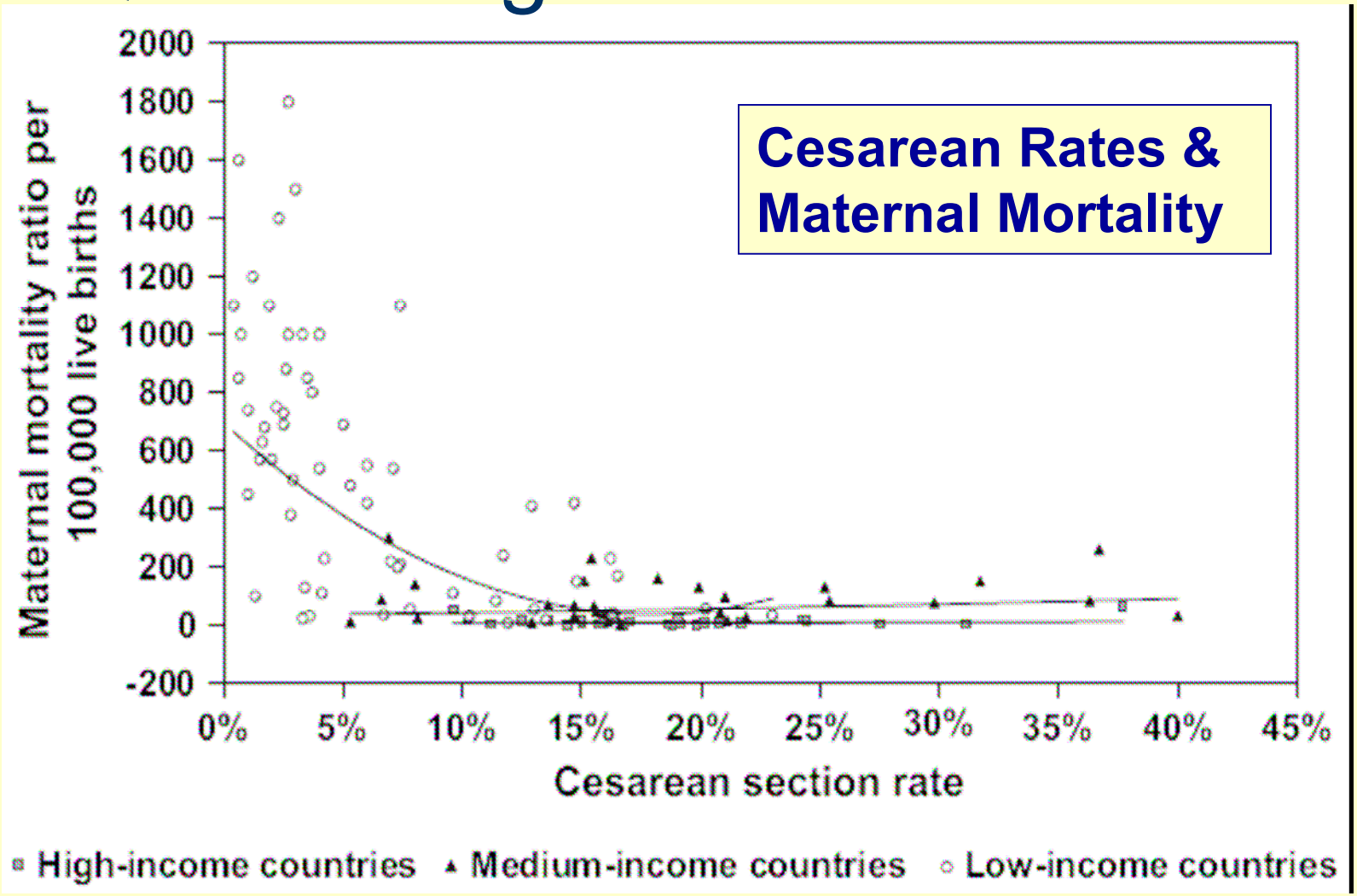
"Although the absolute difference is small, the risks of severe maternal morbidity associated with planned cesarean delivery are higher than those associated with planned vaginal delivery. These risks should be considered by women contemplating an elective cesarean delivery and by their physicians."

Research on Outcomes Questioning Elective Cesareans



Source: Althabe F. et al. Cesarean Section Rates and Maternal and Neonatal Mortality in Low-, Medium-, and High-Income Countries: *Birth*.2006;33:270

Research on Outcomes Questioning Elective Cesareans



Source: Althabe F. et al. Cesarean Section Rates and Maternal and Neonatal Mortality in Low-, Medium-, and High-Income Countries: *Birth*.2006;33:270

Research on Research

Current Commentary

Clinical Expert Series

CME

Continuing medical education is available online at www.greenjournal.org

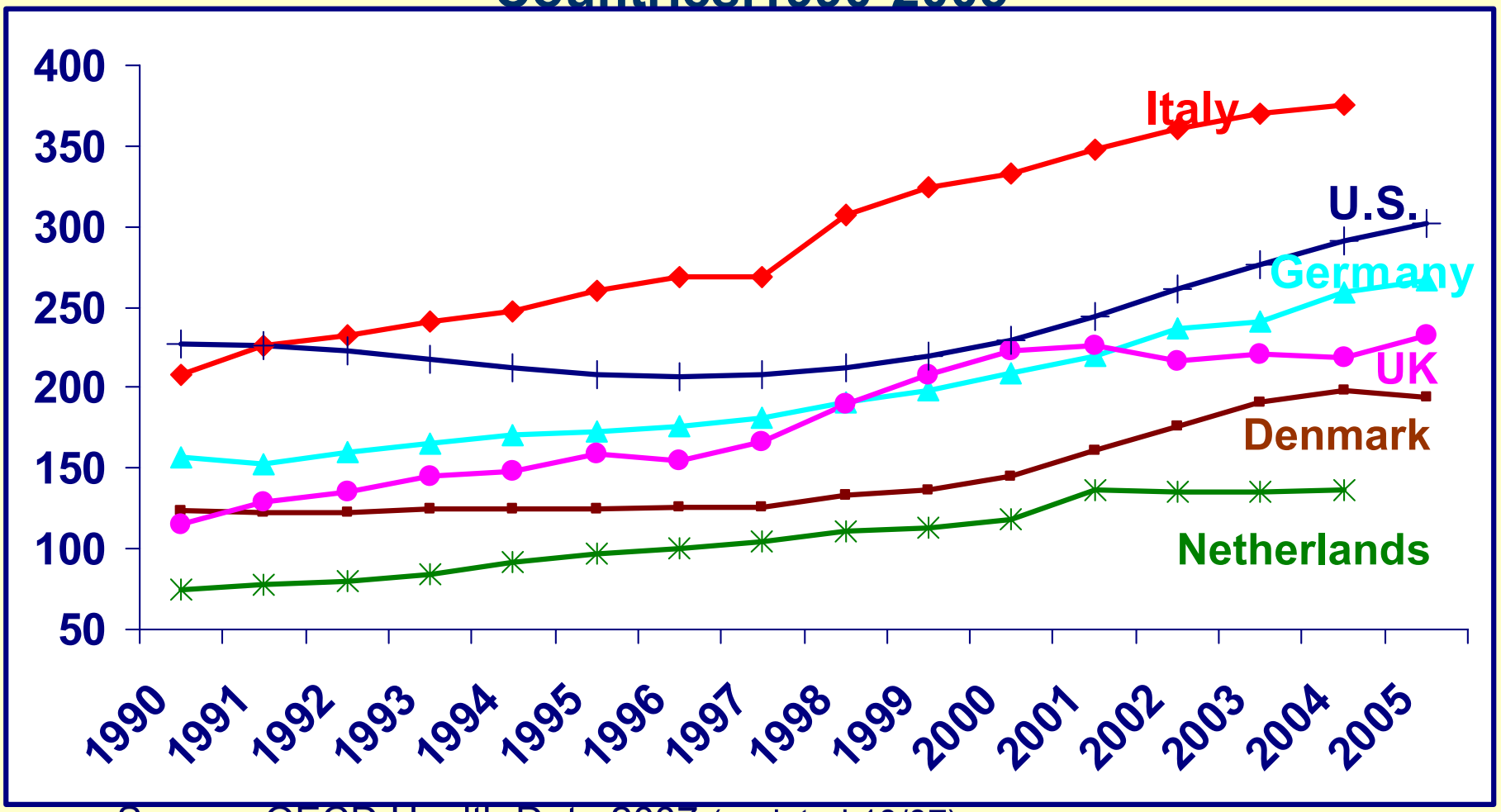
Do Clinical Experts Rely on the Cochrane Library?

David A. Grimes, MD, Melody Y. Hou, MD, Laureen M. Lopez, PhD, and Kavita Nanda, MD, MHS

Fifty-four Clinical Expert Series articles were published from inception of the series in 2002 through June of 2007. ….We found 187 instances of Cochrane reviews that were potentially relevant to the Clinical Expert Series articles. … Of the 187 opportunities, 40 citations were found in the articles (21%; 95% CI 16–28%). No temporal trends were evident either in the proportion of Clinical Expert Series articles citing one or more relevant reviews or in the overall proportion of relevant reviews cited. The overall proportion of eligible reviews cited by year ranged from 5% to 32%. (p.421)

Leveling (and decline) of rates cross-nationally?

Cesarean Rates (per 1,000 births), **Industrialized Countries,1990-2005**



Source: OECD Health Data 2007 (updated 10/07)

Changes in Media Coverage

Articles on Rising Cesarean Rate More Commonly Include Statements as Below:

- "[women are] reportedly asking for C-sections even though there is no medical reason for one. How much so-called maternal request cesareans have contributed to the soaring C-section rate isn't known, but growing numbers of women are delivering their first babies via surgery, researchers say. *USAToday* 1.7.08

- Before long, the media were reporting that growing numbers of women were demanding that they go under the scalpel for their first births because, well, they preferred to. *But efforts to quantify this demand have found it doesn't really exist. Phil Inquirer* 6.10.07

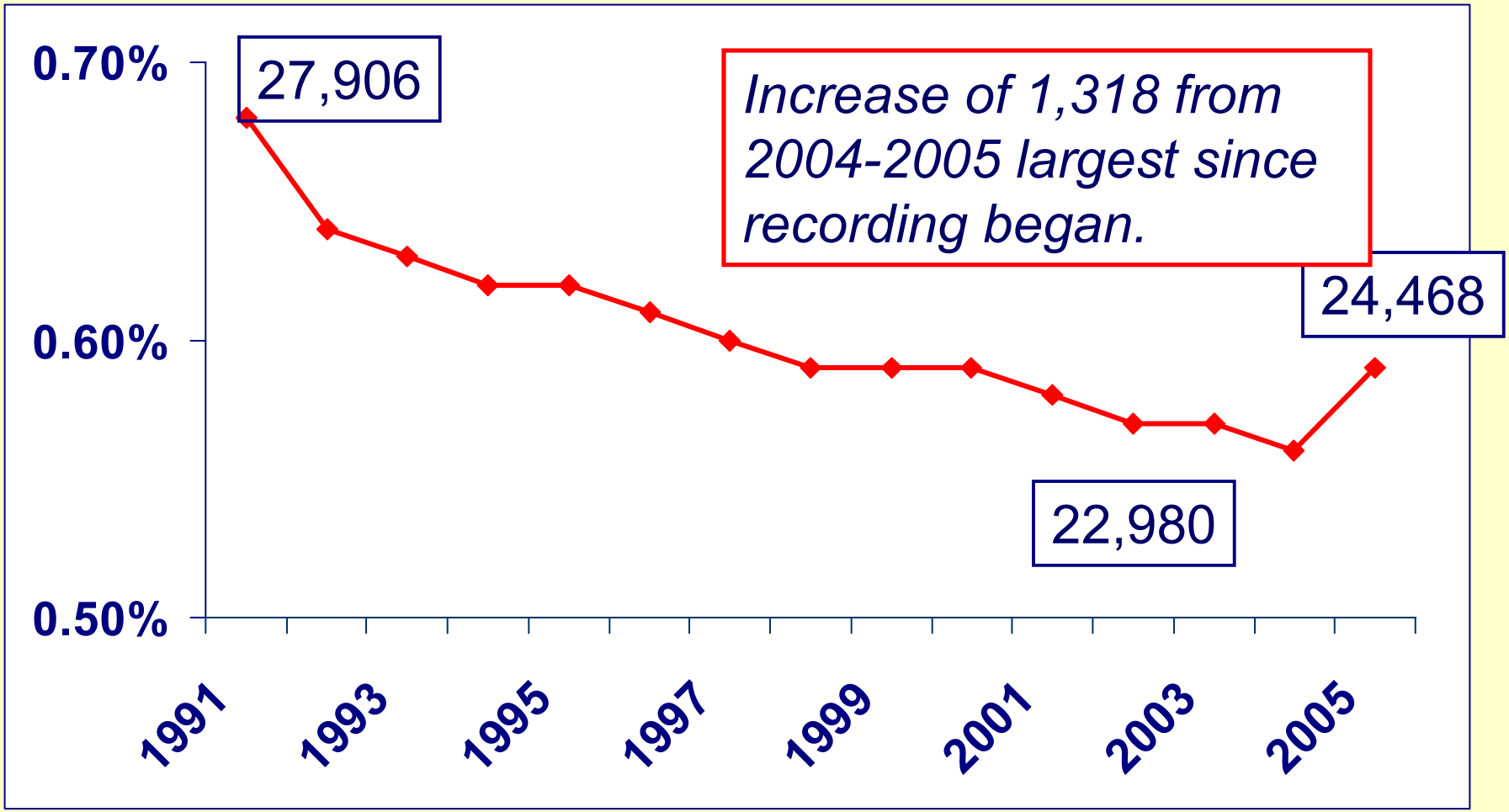
- "How often pregnant women order C-sections on demand isn't known But beyond [repeat cesareans], doctors may be pushing scheduled surgery more often these days. " *U.S.News & World Report* 1.23.08

Expert Meetings

- International Workshop to Define Research Methods to Estimate and Monitor Trends in Cesarean Delivery, Its Determinants and Subsequent Outcomes. Bologna, Italy May, 2008.

Increase in Home Births

Proportion of Home Births, U.S., 1991-2005



Source: National Center for Health Statistics. *Births* (annual reports), 1991-2005

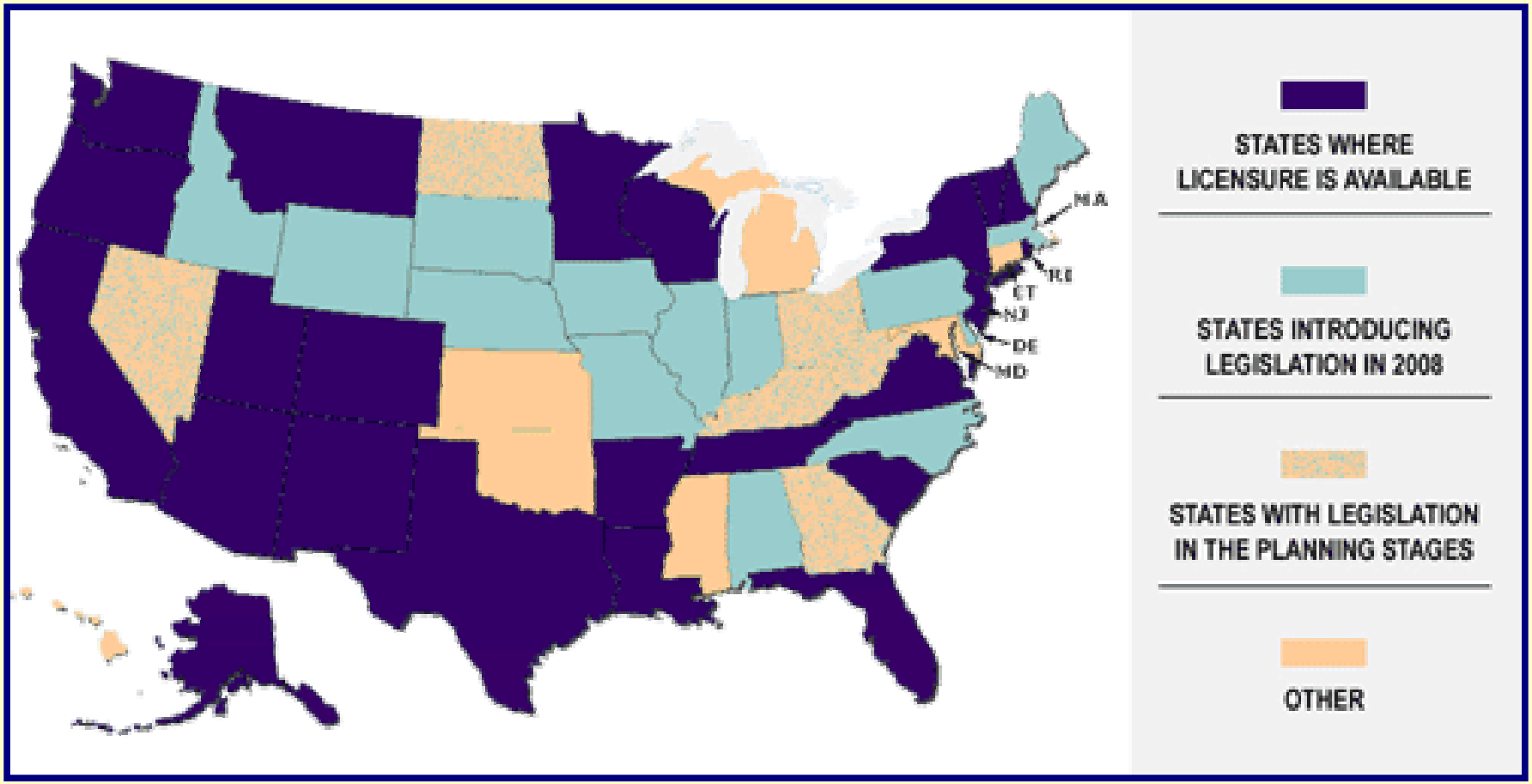
New Midwifery Activism

- "Midwife supporters and Attorney General's Office appeal to Missouri Supreme Court to uphold Midwife Law"

- Massachusetts SENATE, No. 1251 by Mr. Moore, a petition for legislation relative to a:

  BOARD OF REGISTRATION IN MIDWIFERY

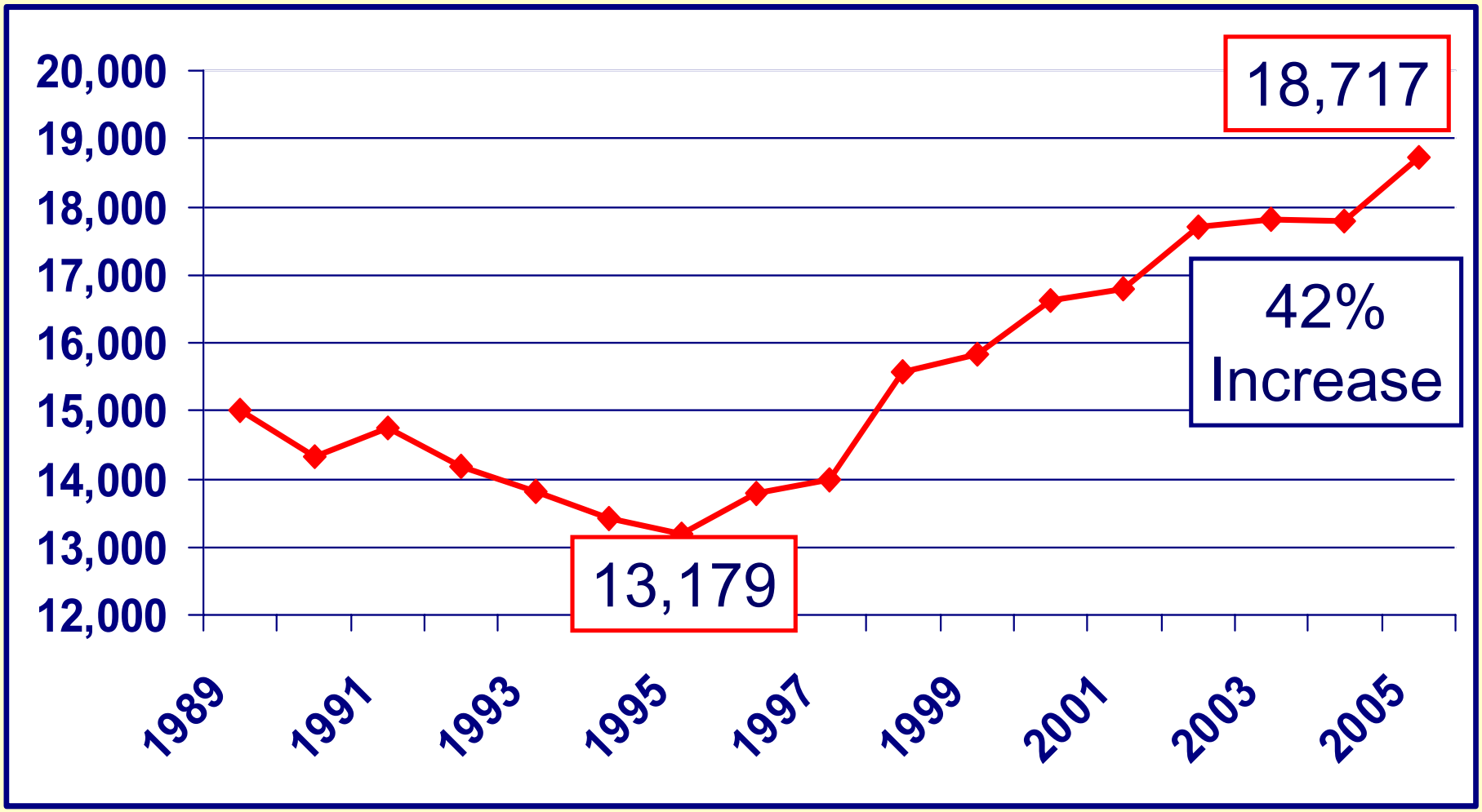
State-by-State Status of Legislation to License Certified Professional Midwives



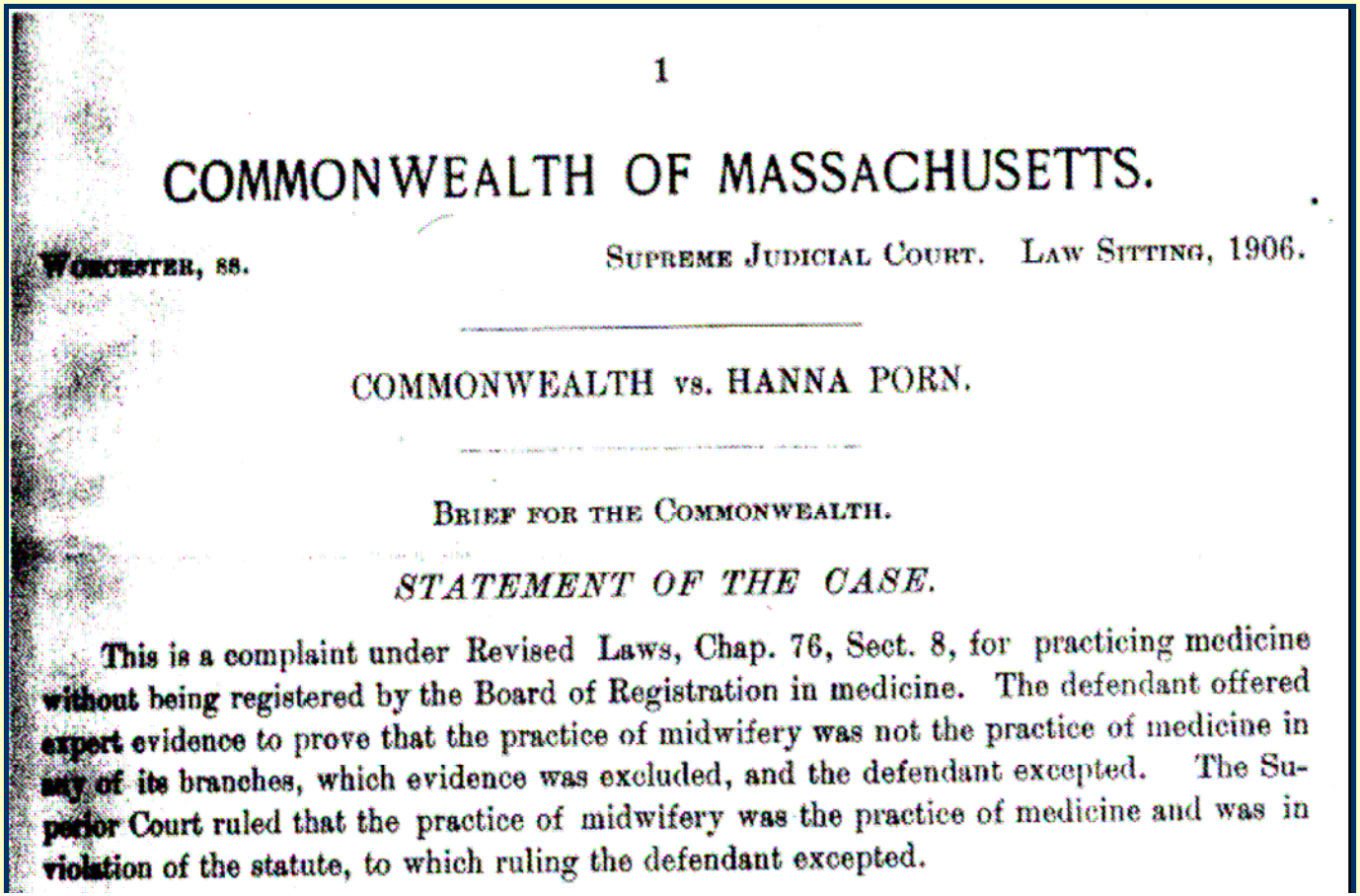
National & International Organizations

- Citizens for Midwifery
- International Center for Traditional Childbearing
- Midwives Alliance of North America
- National Association of Certified Professional Midwives
- North American Registry of Midwives

“Other” Midwives, 1989-2005



Source: National Center for Health Statistics. *Births* (annual reports), 1991-2005



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COMMONWEALTH OF MASSACHUSETTS.

WORCESTER, ss. SUPREME JUDICIAL COURT. LAW SITTING, 1906.

COMMONWEALTH vs. HANNA PORN.

BRIEF FOR THE COMMONWEALTH.

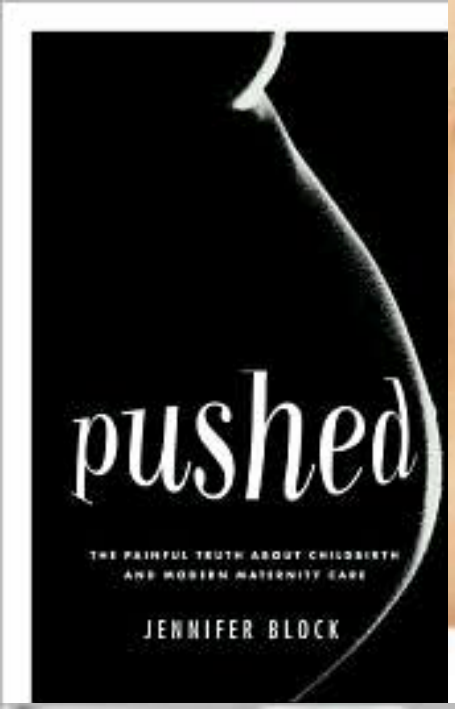
STATEMENT OF THE CASE.

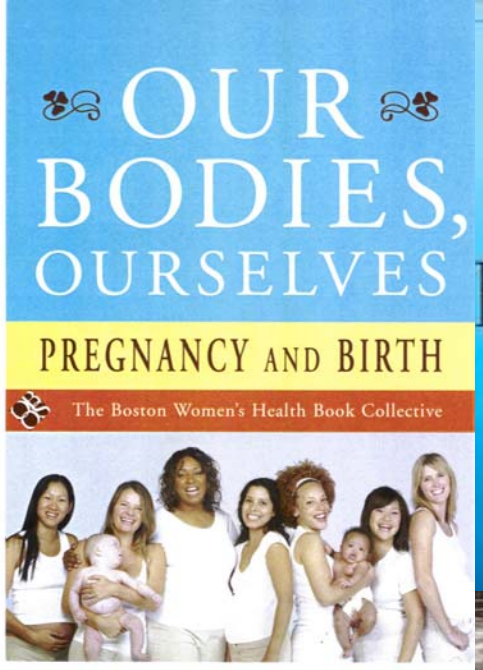
This is a complaint under Revised Laws, Chap. 76, Sect. 8, for practicing medicine without being registered by the Board of Registration in medicine. The defendant offered expert evidence to prove that the practice of midwifery was not the practice of medicine in any of its branches, which evidence was excluded, and the defendant excepted. The Superior Court ruled that the practice of midwifery was the practice of medicine and was in violation of the statute, to which ruling the defendant excepted.

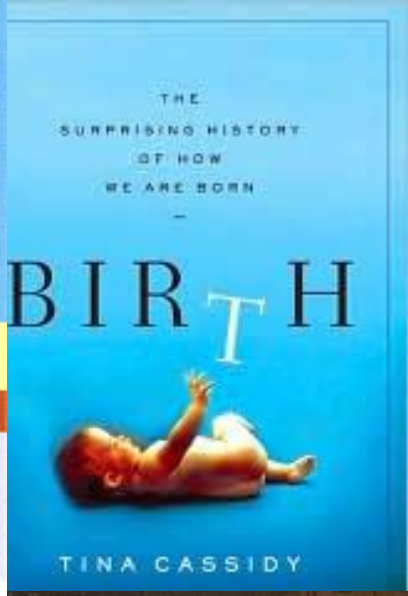
the court suggested that it would be possible for "the Legislature to separate by a line of statutory demarcation the work of the midwife from that of the practitioner of medicine." However, their prevailing interest was with "the maintenance of a high standard of professional qualifications for physicians."

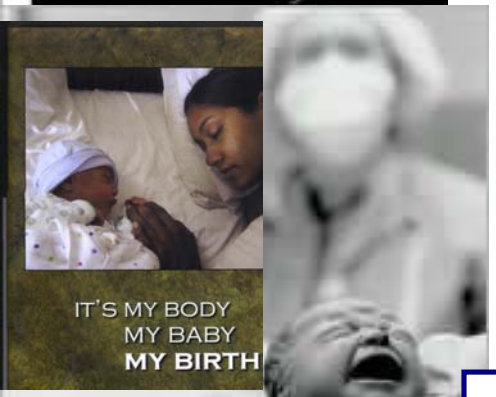
Source: Declercq. Trials of Hanna Porn. *Amer J of Public Health* 1994; 84:1022-1028.

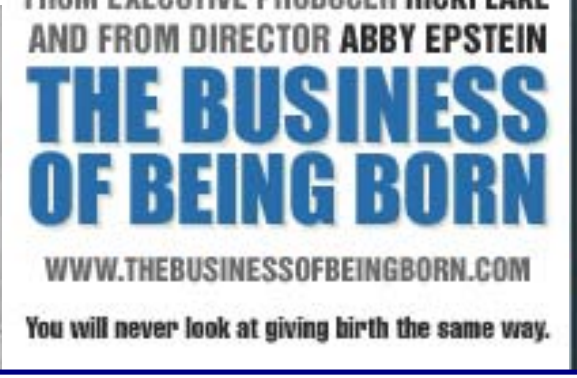
New Childbirth Activism











Orgasmic Birth

First Cut

Questions & Comments?