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# Current Controversies in Perinatal Health

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# Presentation Overview

*Trends in . . .*

- ◆ Low birth weight rates
- ◆ Multiple birth rates
- ◆ Artificial reproductive technology
- ◆ Cesarean delivery rates
- ◆ Live births vs. fetal deaths
- ◆ Racial disparities in content of care
- ◆ Early discharge postpartum

## Section A

*Trends in Low Birth Weight  
and Reasons for the Rise  
in Multiple Births*

# Increasing Low Birth Weight Rates

- ◆ United States
- ◆ Some Western European countries
  - England and Wales
  - France
  - Norway

# Reasons for Rise in LBW Births

- ◆ Rising percentage of multiple births
- ◆ Rising percentage of LBW among multiple births

# Live Births by Multiplicity and Birth Weight: England and Wales, 1983, 1995–1997

	Birth Weight (grams) (%)		
	<1500	1500-2499	>2500
	<b>Singletons</b>		
<i>1983</i>	0.7	5.1	5.8
<i>1995–1997</i>	0.9	5.1	6.0
	<b>Twins</b>		
<i>1983</i>	7.7	42.7	50.4
<i>1995–1997</i>	9.1	43.8	52.9
	<b>Triplets and More</b>		
<i>1983</i>	27.8	66.4	94.2
<i>1995–1997</i>	35.1	60.8	95.9
	<b>All Births</b>		
<i>1983</i>	0.8	5.9	6.7
<i>1995–1997</i>	1.2	6.1	7.3

# Live Births by Multiplicity and Birth Weight United States, 1981–1983, 1995–1997

	<b>Birth Weight (grams) (%)</b>		
	<1500	1500-2499	<2500
	<b>Singletons</b>		
<i>1981–1983</i>	1.1	4.9	6.0
<i>1995–1997</i>	1.2	5.0	6.2
	<b>Twins</b>		
<i>1981–1983</i>	10.7	40.2	50.9
<i>1995–1997</i>	10.5	43.1	53.6
	<b>Triplets and More</b>		
<i>1981–1983</i>	37.0	52.3	89.3
<i>1995–1997</i>	37.5	55.7	93.2
	<b>All Births</b>		
<i>1981–1983</i>	1.3	5.6	6.9
<i>1995–1997</i>	1.5	6.0	7.5

# Trends in Multiple Births

- ◆ Increase in twin births in Western Europe and U.S. since the 1970s
- ◆ Precipitous increase in triplets or greater births since the 1970s

# Increase in the Number of Twins and Triplets in France and in the United States, 1998 Compared to Mid-1970s

1998 Data	France	United States
<b>Number of Births</b>	741,765	3,941,553
<b><i>Twins</i></b>		
<b>% Increase</b>	62%	58%
<b>Number</b>	21,106	110,670
<b>Excess Number</b>	8,000	40,500
<b><i>Triplets</i></b>		
<b>% Increase</b>	310%	696%
<b>Number</b>	745	7,625
<b>Excess Number</b>	500	6,500

# Percentage Increase in Triplets or Higher Order Births, Lowest Point 1960-1975 to 1990

	<b>Year of Lowest Rate</b>	<b>Percentage Increase in 1990</b>
<b>Germany</b>	1960	367
<b>United Kingdom</b>	1965	336
<b>Spain</b>	1960	275
<b>France</b>	1970	528
<b>Netherlands</b>	1965	801
<b>Italy</b>	1975	532
<b>Finland</b>	1960	630
<b>Norway</b>	1975	719
<b>Belgium</b>	1960	1158
<b>Sweden</b>	1960	695

# Rise in Multiple Births

## Twin Deliveries

- ◆ 1980—68,339
- ◆ 1999—114,307
- ◆ 2001—121,246
- ◆ 2002—125,134

## Triplet Deliveries

- ◆ 1980—1,337
- ◆ 1999—6,742
- ◆ 2001—6,805
- ◆ 2002—6,898
- ◆ (7,401)

# Rise in Multiple Births

## Quadruplets

- ◆ 1989—269
- ◆ 1994—336
- ◆ 1996—641
- ◆ 1998—641
- ◆ 2002—434

# Reasons for the Rise in Multiple Births

- ◆ Delayed childbearing
- ◆ 25-33 % of the rise between 1975 and 1998 attributable to increase in maternal age
- ◆ Data from England and Wales, France, Sweden, and the U.S.

# Reasons for the Rise in Multiple Births

- ◆ ART
  - 10–24% of twin pregnancies
  - 22–59% of triplet pregnancy
- ◆ Ovulation stimulation alone
  - At least 75% of triplet pregnancies in France in 1993 and the U.S. in 1997
- ◆ Ovulation stimulation in general
  - 5.4% of twins and 69.8% of triplet pregnancies in Italy in 1993–1994

# Infertility Treatment

- ◆ Variability among countries in a number of embryos transferred in ART procedures
- ◆ Variability among countries in a number of multiple pregnancies
- ◆ U.S. has higher success rates than Europe but greater numbers of embryos transferred and resulting multiple births

# ART Cycles, Births, and Percentage of All Births, 1999, All Clinics Reporting in Country

	<b>Number of Cycles</b>	<b>% of All Births</b>	<b>ART Births (N)</b>
<b>Iceland</b>	415	3.6	(149)
<b>Denmark</b>	8793	3.2	(2119)
<b>Finland</b>	7320	2.7	(1553)
<b>Sweden</b>	8660	2.6	(2293)
<b>Norway</b>	4029	1.8	(1058)
<b>France</b>	51868	1.4	(10167)
<b>Switzerland</b>	4166	0.7	(548)
<b>Total</b>	99629	1.6	(17887)

# Percentage Distribution of the Number of Embryos Transferred after IVF and ICSI, Western Europe Countries, 1999

	Number of Embryos Transfer				
	One	Two	Three	Four	Total N
<b>Finland</b>	20.8	73.9	5.3	0.0	4,052
<b>Sweden</b>	11.2	84.3	4.5	0.0	6,247
<b>Switzerland</b>	12.9	57.1	28.1	1.9	2,415
<b>Belgium</b>	10.6	46.7	34.0	8.6	8,015
<b>France</b>	13.8	42.3	37.2	6.7	30,459
<b>Germany</b>	11.1	37.3	51.6	0.0	41,490
<b>Portugal</b>	12.8	30.1	40.9	16.9	10,198
<b>Italy</b>	11.3	31.1	40.9	16.9	10,198
<b>Greece</b>	10.0	20.0	32.2	37.8	5,209
<b>Ireland</b>	8.2	22.0	67.3	2.5	972
<b>Spain</b>	8.6	16.3	45.6	29.4	8,355

# Percentage Distribution of Singleton, Twin and Triplet or Greater Births after IVF and ICSI, 1999, Western Europe Countries

	<b>Singleton</b>	<b>Twin</b>	<b>Triplet or Greater</b>	<b>Total N</b>
<b>Spain</b>	48.5	40.3	11.2	2,547
<b>Italy</b>	57.7	33.6	8.7	2,775
<b>Ireland</b>	55.6	36.3	8.1	259
<b>Germany</b>	58.4	35.2	6.3	9,112
<b>Portugal</b>	51.9	42.0	5.1	362
<b>Iceland</b>	67.2	28.4	4.5	134
<b>Switzerland</b>	54.4	42.5	3.1	391
<b>France</b>	59.3	37.7	3.1	9,230
<b>Finland</b>	60.1	37.9	1.6	1,670
<b>Greece</b>	58.6	39.8	1.6	1,670
<b>Norway</b>	59.0	39.5	1.4	1,058
<b>Sweden</b>	60.3	38.8	0.6	2,087
<b>Denmark</b>	60.8	38.6	0.6	1,965
<b>Total (Range)</b>	(42–79)	(19–44)	(0.6–14.6)	36,135

# Multiple Births by ART Transfer Procedure, U.S. 2000

	Number of Multiple Birth Deliveries	Percent of Multiple Birth Deliveries	Number of Multiple Birth/Infants	Percent of Multiple Birth/Infants
<b>Patients eggs used</b>				
Freshly fertilized embryos	19,219	35.3	26,800	53.6
Thawed embryos	2,360	25.8	3,048	42.6
<b>Donor eggs used</b>				
Freshly fertilized embryos	3,041	40.6	4,382	58.8
Thawed embryos	608	29.1	795	45.8
<b>Total transfers</b>	<b>25,228</b>	<b>34.9</b>	<b>35,025</b>	<b>53.1</b>

# Ethical Dilemmas

## Assisted Reproductive Technologies

- ◆ High cost of technology—who pays the bill?
- ◆ Who is responsible for decisions about multiple pregnancies?
- ◆ What is the cost of success?

# Embryo Transfers in the U.S.

- ◆ Reduction in higher order transfers
- ◆ Increase in transfer of two embryos
- ◆ No change in transfer of one embryo
- ◆ Less than 5% of transfers

# Strategies to Reduce Multiple Births after IVF

- ◆ UK—regulatory bodies determine number of transferred embryos
- ◆ U.S.—American College of OB/GYN statement
  - Limit the number of embryos transferred
  - Withhold ovulation inducing drugs with many mature follicles

# Additional Clinical Recommendations

- ◆ Transfer good quality embryos one at a time
- ◆ Ovulation stimulation
  - Performed only by specialists
  - Network of providers of ART

# Impact of Reducing Embryo Transfers

- ◆ Finland
  - 50% reduction in triplet rate
  - Better outcomes for IVF newborns
- ◆ Norwegian IVF clinic:
  - LBW percent declined from 47% to 14% after limiting number of embryos to three

# Reduce Multiple Births

- ◆ Collect data about multiple births . . . .
  - Do not report them as success of infertility treatment
  - Report them as complications of ART

## Section B

### *Trends in Cesarean Deliveries and Other Concerns*

# Increasing Cesarean Delivery Rates, 1990–1999, 2002

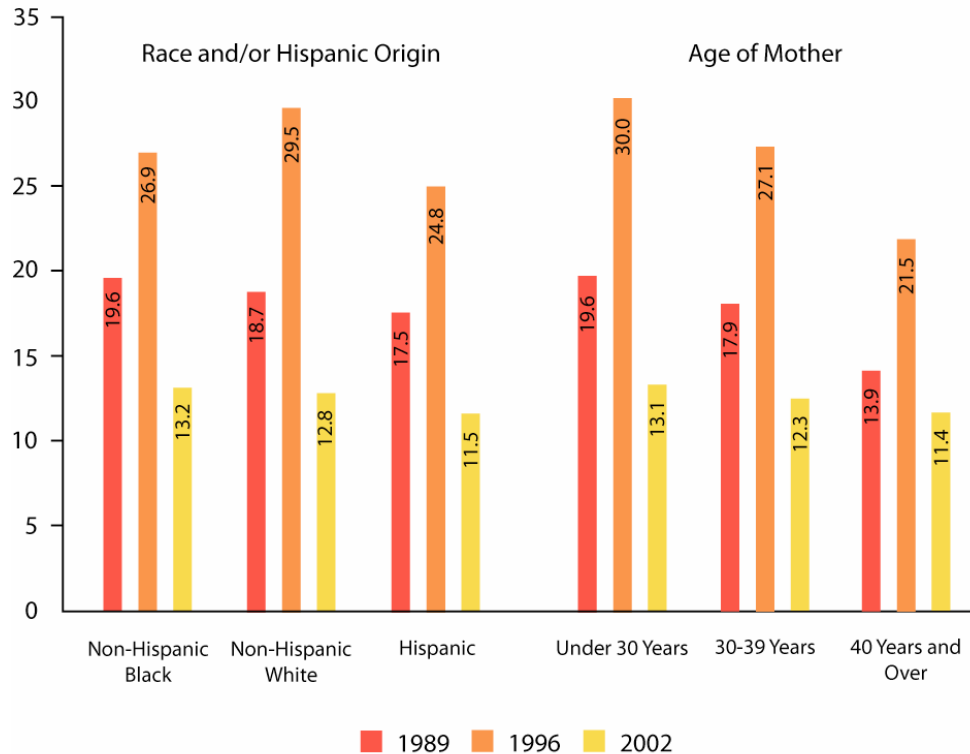
- ◆ Across Western Europe—7% to 53% increase
- ◆ Specific trends in the U.S.—3% decline, but increase to 2002

# Cesarean Delivery Rates, 1990, 1994–1996, 1996 for Selected Western European Countries and the United States

	1990	1994	1995	1996	1999	% Change
<b>United States</b>	22.7	21.2	20.8	20.7	22.0	-3
<b>Italy</b>	20.8	24.8	26.1	26.4	31.1	+49
<b>Portugal</b>	18.6	23.9	24.2	24.6	27.5	+48
<b>Germany</b>	15.7	17.1	17.2	17.6	19.8	+26
<b>France</b>	13.9	15.1	15.0	15.4	15.7	+13
<b>Spain</b>	14.2	17.8	18.8	19.3	--	(+36)
<b>Finland</b>	14.2	15.2	15.5	15.5	15.5	+9
<b>Norway</b>	12.8	12.6	12.6	12.7	13.7	+7
<b>United Kingdom</b>	12.4	15.5	15.8	16.0	17.0	+17
<b>Sweden</b>	10.8	11.7	12.0	11.8	14.4	+33
<b>Belgium</b>	10.4	12.9	13.4	13.7	15.9	+53
<b>Netherlands</b>	7.4	9.2	9.6	10.1	11.3	+53

# Vaginal Birth after Cesarean

Vaginal Birth After Cesarean (VBAC) Rates by Age, Race, and Hispanic Origin of Mother: United States, 1989, 1996, and 2002



Notes: VBAC rate is the number of vaginal births after previous cesarean delivery per 100 births to women with a previous cesarean delivery. For 1989, excludes data for Louisiana, Maryland, Nebraska, and Oklahoma, which did not report method of delivery on the birth certificate. Race categories are consistent with the 1977 Office of Management and Budget guidelines.

# Strategies to Reduce Cesarean Deliveries

- ◆ Consumer education
- ◆ Clinical guidelines with feedback
  - Individual physicians
  - Maternity units
  - Promote normal births in low risk settings
  - Medical and review/education—little influence on practices

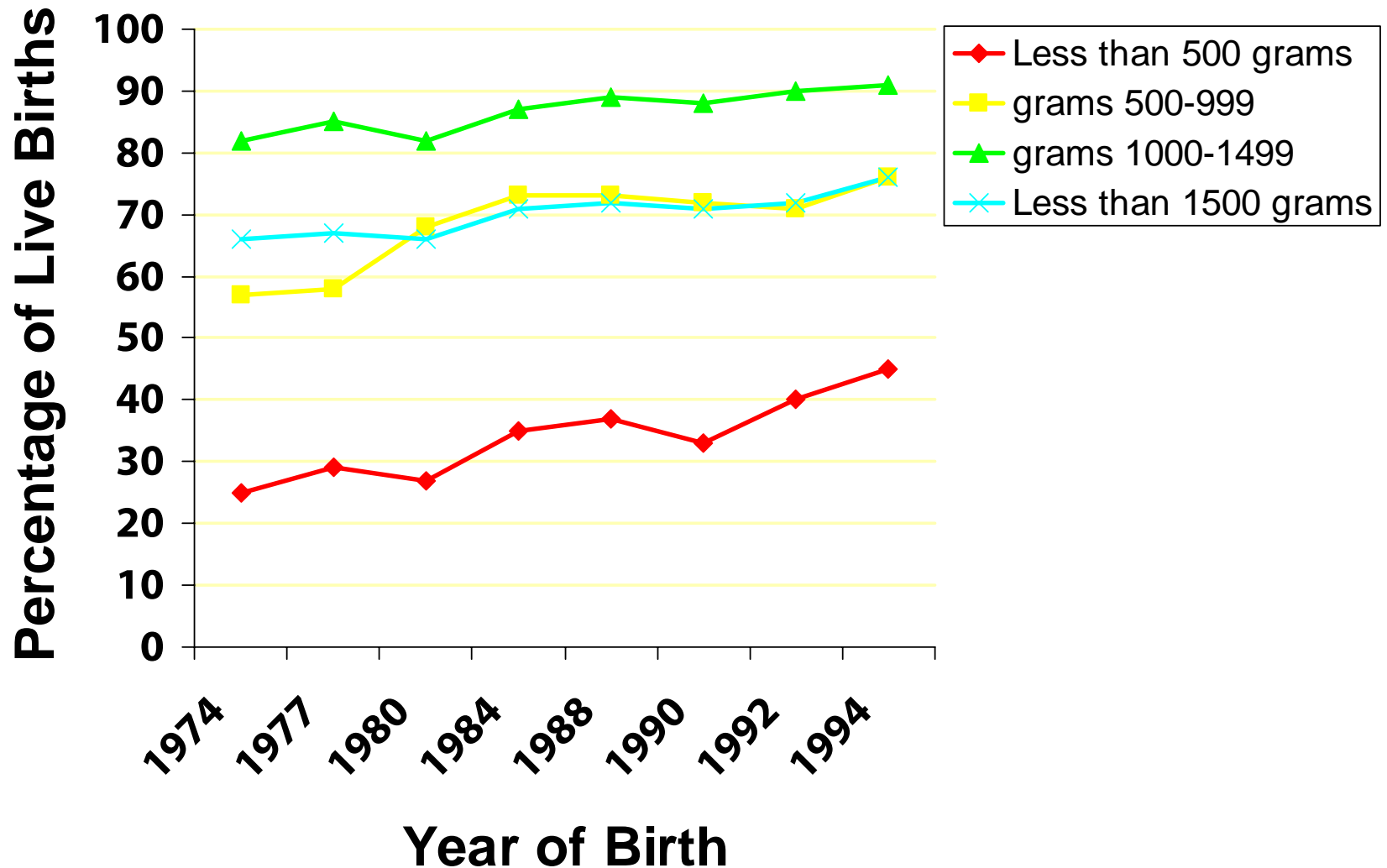
# Other Trends

- ◆ Rise in the smallest births
  - Among live births
  - Not comparable for stillbirths

# Percentage of Very Low Birth Weight Births Less than 500, 500-999, 1,000–1,499, and Less than 1500 Grams, 1974–1994, Alabama

Year of Birth	Total Births	Percentage of Births			
		Less than 500 grams	500–999 Grams	1000–1499 Grams	Less than 1500 Grams
<b>1974</b>	60,228	0.20	0.72	0.94	1.86
<b>1977</b>	62,707	0.21	0.72	0.80	1.73
<b>1980</b>	64,128	0.33	0.81	0.77	1.91
<b>1984</b>	60,964	0.37	0.85	0.76	1.98
<b>1988</b>	61,374	0.46	0.92	0.96	2.21
<b>1990</b>	64,110	0.46	0.92	0.96	2.24
<b>1992</b>	62,885	0.45	0.98	0.88	2.31
<b>1994</b>	61,421	0.51	0.90	1.01	2.42

# Percentage of Live Births of All Births (Live and Stillbirths), Less than 500, 500-999, 1,000-1,499, and Less than 1500 Grams, 1974–1994, Alabama



# Recent Changes or Advances in Perinatal Care

- ◆ Extending the limits of viability
  - To as early as 23–24 weeks gestation
- ◆ High mortality and subsequent morbidity
  - Results in increase in VLBW births?

# Ethical Dilemma

- ◆ Extension of the limits of viability
  - How does it affect obstetrical practice?
  - How does it affect population statistics?
  - What are the ultimate costs?
    - To the family
    - To society

# Racial and Socioeconomic Disparities in Use of Prenatal Interventions

- ◆ Lower rates among black, Latina, and poor women in the use of . . .
  - Ultrasound
  - Amniocentesis, CVS
- ◆ Question whose preferences

# Receipt of Health Education

*Greater among Minorities and Low Income Women on Sensitive Issues*

- ◆ HIV testing
- ◆ Family violence
- ◆ Family planning
- ◆ Substance use

# Recent Changes in Perinatal Care

- ◆ Early discharge
  - SVD—12–24 hours
  - CS—48-72 hours
- ◆ Due to changes in the following:
  - Medical practices
  - Reimbursement
  - Patient preferences

# Early Discharge

- ◆ Guidelines for the Mother
  - Minimal criteria for early discharge
  - Mechanism for asking questions
  - Follow-up telephone contact or home visit
  - Little documentation
  - Capacity in question?

# Early Discharge

- ◆ AAP Suggested Guidelines
- ◆ Medical and social evaluation before early discharge
- ◆ Clinical follow-up within three days of discharge
  - Type not specified

# Early Discharge

- ◆ Effects—inconclusive
  - No increase in neonatal mortality
  - Rehospitalization—jaundice, dehydration, sepsis?

# Remaining Concerns

- ◆ Inadequate time for detection of breastfeeding problems
- ◆ Increase maternal-infant bonding at expense of maternal well-being
- ◆ Reduction in time for in-hospital teaching and support
- ◆ Completeness of newborn metabolic screening