

**Breast milk feeding practices of singletons  
and twins:  
initiation, duration, exclusivity, and factors  
associated with choice and achievement**



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# Benefits of Breastfeeding

- Individual Benefits<sup>(4)</sup>
  - Infants: allergy, infection, SIDS, diabetes, necrotizing enterocolitis
  - Mothers: diabetes, certain adult cancers, emotional benefits
- Societal Benefits
  - Economic:
    - possible savings of 3.6 billion dollars in annual health care costs<sup>(5)</sup>
    - savings for public health programs such as the Special Supplementation Program for Women, Infants, and Children (WIC)<sup>(1)</sup>
    - reduced employee absenteeism with loss of productivity and income<sup>(1)</sup>
  - Reduced Environmental Burden<sup>(1)</sup>
    - produces no waste and requires little to no external energy for manufacture and transport

# Breastfeeding Recommendations

Infants should be breastfed exclusively to 6 months of age, and then to continue with appropriate complementary foods until at least 12 months of age.

- American Academy of Pediatrics (AAP)<sup>(1)</sup>
- American Dietetic Association (ADA)<sup>(2)</sup>
- World Health Organization (WHO)<sup>(3)</sup>

# Multiple Birth

- Increase in birth rate of twins and higher-order multiples <sup>(7)</sup>
  - Twins: 18.9 to 32.1 per 1,000 births from 1980-2006.
  - Higher-order multiples: 37.0 to 153.3 per 100,000 total births from 1980-2006.
- Outcomes <sup>(7)</sup>
  - 60.4 % of twins born < 37 weeks gestation compared to 11.1% of singletons
  - 1 out of 8 twin pairs born < 32 weeks gestation compared to 2 out of 100 singletons
  - More likely to experience Cesarean sections

# Breastfeeding Multiples

- Breastfeeding is physiologically possible for multiples
  - increased milk yield due to increased sucking stimulus and milk withdrawal <sup>(8)</sup>
- Mothers of multiples disproportionately affected by documented risk factors for delayed lactogenesis II: <sup>(9, 10)</sup>
  - Preterm delivery
  - Delayed breastfeeding initiation and/or low perinatal breastfeeding frequency
  - Unscheduled Cesarean section
  - Stress

# Study Hypothesis

Mothers of twins may experience reduced breastfeeding initiation, duration, and exclusivity compared to mothers of singletons as a result of a variety of influences during the peri- and post-natal periods that put them at risk for delayed lactogenesis II.

# Specific Aims

1. Determine breastfeeding initiation, duration, and exclusivity rates for preterm and term singletons and twins.
2. Identify factors that influence a mother's feeding choice for her infant(s).
3. Identify factors that either helped or hindered mothers in achieving the feeding choice for their infant(s).

- **Research Design**

- descriptive, cross-sectional survey of mothers who delivered infants at the University of Washington Medical Center.

- **Methods**

- Chart Review and Telephone Survey

- **Subjects**

- 100 mothers of twins and 200 mothers of singletons who delivered at the UWMC between June 2006 and June 2008. Infants were matched by gestational age.

- **Participation**

- Response rate of 37.3%
- 112 women completed the telephone survey (68 mothers of singletons and 44 mothers of twins)

- **Statistical Analysis**

- Categorical data – Logistic Regression and Fisher's Exact Test
- Continuous data – Linear Regression and Two-sample t test with unequal variances

## Maternal Characteristics, Singletons and Twins

Variable	Singletons N=68	Twins N=44	P value
<b>Maternal Age (years)</b>	30.5 ± 6.6	33.8 ± 7.7	<b>0.005<sup>a</sup></b>
<b>Gravida</b>	2.6 ± 1.9*	2.6 ± 1.7	<b>0.881</b>
<b>Parity</b>	0.75 ± 1.0*	0.68 ± 1.3	<b>0.733</b>
<b>Marital Status</b>			<b>0.211</b>
Unmarried	25(36.76%)	16(36.37%)	
Married	43(63.24%)	28(63.64%)	
<b>Race</b>			<b>0.067</b>
African American	5(7.4%)	1(2.27%)	
Asian/Pacific Islander	7(10.3%)	0(0%)	
Caucasian	31(45.6%)	19(43.18%)	
Hispanic	2(2.9%)	1(2.27%)	
Unknown	23(33.8%)	23(52.27%)	

\* 1 value missing

<sup>a</sup> statistically significant at  $p < 0.05$

## Maternal Characteristics, Singletons and Twins; continued

Variable	Singletons N=68	Twins N=44	P value
<b>Received Free Formula</b>			<b>1.000</b>
Yes	50(73.6%)	32(72.7%)	
No	18(26.4%)	12(27.3%)	
<b>Working 6 months postpartum</b>			<b>0.857</b>
No	43(63.24%)	28(63.64%)	
< 20 hours/week	6(8.82%)	5(11.36%)	
> 20 hours/week	19(27.94%)	11(25.0%)	
<b>Education</b>			<b>0.506</b>
≤ high school graduate	11(16.18%)	4(9.09%)	
Some college	23(33.82%)	14(31.82%)	
College graduate	34(50.0%)	26(59.09%)	
<b>Income</b>			<b>0.240</b>
< \$15,000	9(13.24%)	2(4.55%)	
\$15,000- 34,999	12(17.65%)	4(9.09%)	
\$35,000 - \$54,999	11(16.18%)	7(15.91%)	
\$55,000 - \$74,999	11(16.18%)	13(29.55%)	
\$75,000 - \$99,999	11(16.18%)	5(11.36%)	
>\$100,000	14(20.59%)	13(29.55%)	

# Non-Participants

- Younger
  - ( $28.3 \pm 7.1$  versus  $31.8 \pm 7.2$ ,  $p < 0.001$ )
- More likely to be multiparous
  - ( $1.1 \pm 1.4$  versus  $0.72 \pm 1.2$ ,  $p = 0.0201$ )
- More likely to be not married
  - (39.4% versus 63.4%,  $p < 0.001$ )

## Infant Characteristics, Singletons and Twins

Variable	Singletons N=68	Twins N=88	P value
<b>Infant Gestational Age (weeks)</b>	34.1 ± 3.5	33.8 ± 3.4	<b>0.728</b>
Term	13(19.0%)	14(16.0%)	<b>0.672</b>
Preterm	55(81.0%)	74(84.0%)	
<b>Infant Gender</b>			<b>0.255</b>
Female	35(51.47%)	54(61.36%)	
Male	33(48.53%)	34(38.64%)	
<b>Infant Birth Weight (grams)</b>	2265 ± 828	2054 ± 687.5	<b>0.091</b>
<b>Birth Type</b>			<b>0.096</b>
Cesarean	37(54.4%)	60(68.2%)	
Vaginal	31(45.6%)	28(31.8%)	

# Results

- **Initiation**

- 92.6% of all singletons and 93.1% of all twins initiated breastfeeding
- The odds ratio for initiation of breast milk feeding by twins was never statistically different from the singleton reference group
  - OR = 1.08 (0.32,3.72); Adjusted OR = 0.19 (0.02, 1.8)

- **Duration**

- Twin infants breastfed a significantly shorter duration in weeks than singleton infants
  - p value = 0.045; adjusted p value = 0.019

\*odds ratios/p values adjusted for infant gestational age, maternal age, race, marital status, education, annual household income, delivery method, receipt of free formula, and working by 6 months postpartum

# Results

- **Exclusivity**
  - **At 3 months postpartum:**
    - Significantly fewer twins exclusively breastfeeding than singletons
      - OR=0.31 (0.16, 0.6); Adjusted OR = 0.28 (0.14, 0.58)
  - **At 6 months postpartum:**
    - Significantly fewer twins exclusively breastfeeding than singletons
      - OR = 0.30 (0.15, 0.62); Adjusted OR = 0.27 (0.12, 0.58)
  - **At 12 months postpartum (with complementary solids):**
    - No significant difference between twins and singletons
      - OR = 0.57 (0.26, 1.3); Adjusted OR = 0.51 (0.2, 1.3)

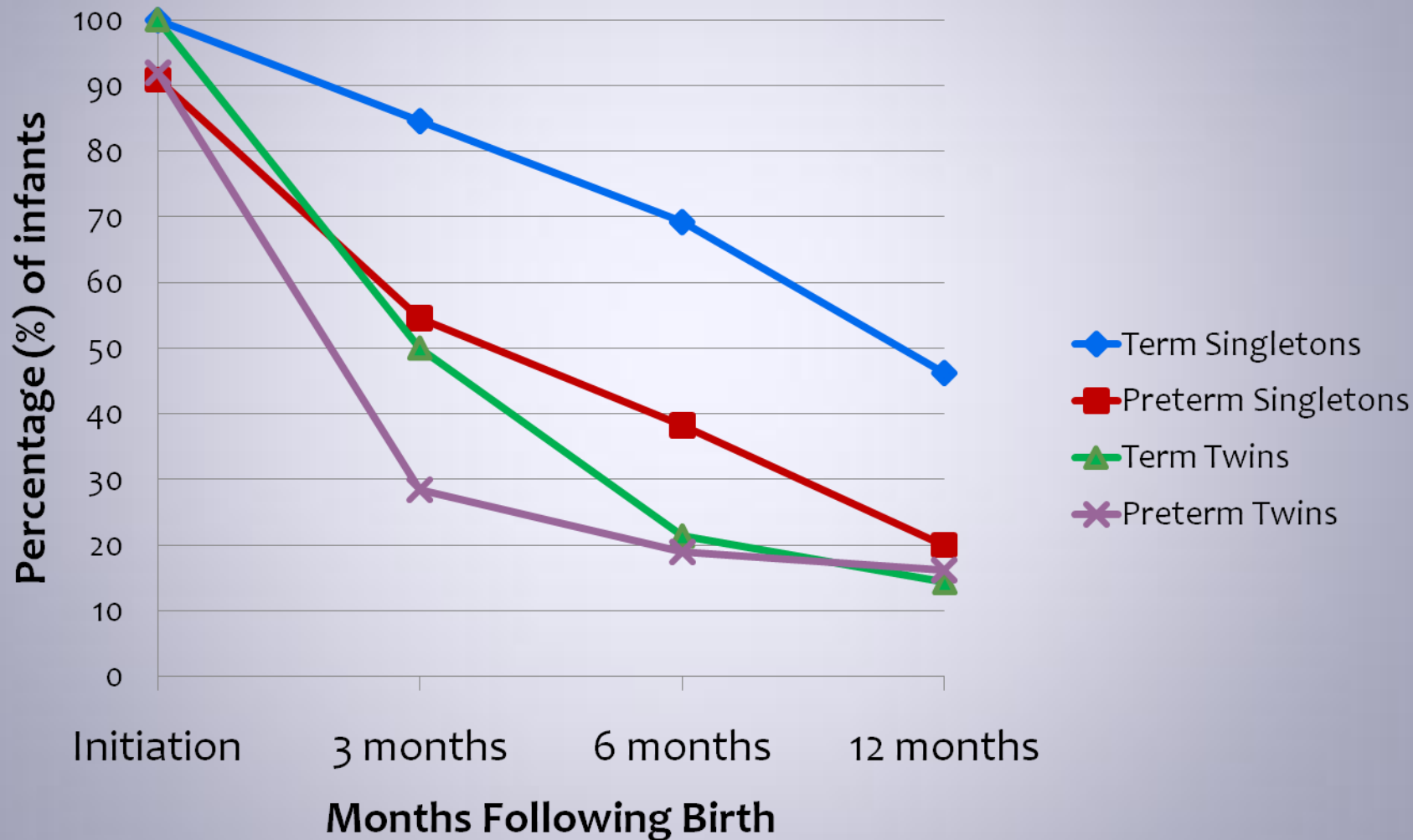
\*odds ratios/p values adjusted for infant gestational age, maternal age, race, marital status, education, annual household income, delivery method, receipt of free formula, and working by 6 months postpartum

# Results

- ***Average weeks of exclusive breastfeeding from 0-12 months:***
  - Twin infants were exclusively breastfed significantly fewer weeks between 0-12 months, than singleton infants
    - Adjusted and Unadjusted  $P < 0.001$

\*odds ratios/p values adjusted for infant gestational age, maternal age, race, marital status, education, annual household income, delivery method, receipt of free formula, and working by 6 months postpartum

# Breast Milk Feeding Initiation and Exclusivity at 3, 6, and 12 Months



# Factors that Influenced Decision to Feed with Breast Milk

- The majority of all mothers in this study chose to breastfeed because of the benefits it provides their infant(s).
  - 82.7% of singleton mothers
  - 83.8% of twin mothers
- Benefits Include:
  - Health Benefits
  - Bonding
  - Natural
  - Cost

# Factors Assisting Breast Milk Feeding

- Mothers of twins more frequently cited
  - Staff/lactation consultant at hospital
  - Pumping
  - Determination/patience
  - Support from family/spouse

# Factors Hindering Feeding with Breast Milk

- Mothers of twins more frequently cited
  - Prematurity
  - Time
  - Maternal/Infant Medical Complications
  - Feelings of Inadequate Milk

# Summary

- Multiples are a rising segment of the population
- While breastfeeding initiation rates of twins may be similar to singletons, breastfeeding duration and exclusivity, particularly for preterm twins falls more rapidly over time.
- Barriers to achievement for mothers of twins differ from those of singleton mothers.



# Future Areas for Study

- Further evaluation of potential causes of reduced exclusive breast milk feeding seen in twins at 3 and 6 months
- Effective education/coping strategies and/or interventions that target barriers to exclusive breast milk feeding for twins



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# Questions