



Breastfeeding Initiation: 1997 data from the Colorado Pregnancy Risk Assessment Monitoring System (PRAMS)

An update from the Survey Research Unit

Highlights

Among Colorado women who delivered infants in 1997, 81 percent initiated breastfeeding. The National Healthy People 2000 objective is to increase the proportion of new mothers breastfeeding in the early postpartum period to at least 75 percent.¹

Among all Colorado infants born in 1997, 53 percent were breastfed for nine weeks or longer. Most women who initiated breastfeeding, but did not continue for more than eight weeks, stopped in the first four weeks following the birth (65 percent).

In 1997, women who started prenatal care in the first trimester of their pregnancies were significantly more likely to breastfeed than women who started prenatal care later in their pregnancies.

Education level was associated with both initiation and duration of breastfeeding. Compared to women with twelve or fewer years of education, women with some college were significantly more likely to start breastfeeding and to continue for nine or more weeks.

While it is recommended that infants be exclusively breastfed for the first six months, 71 percent of infants in Colorado were given something other than breast milk (juice, water, formula, etc.) before they were nine weeks old.

BRIEF

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Methods

The Pregnancy Risk Assessment Monitoring System (PRAMS) is an ongoing population-based surveillance system designed to supplement vital records data and to generate state-specific perinatal health data. Each month, a stratified random sample of infants 2 to 4 months old is selected from birth certificate files to comprise the PRAMS sample. The sample is stratified on region of residence (Denver Metro, Other Metro, Rural) and birth weight (low, adequate) to ensure a large enough sample in the rural and low birth weight categories. In 1997, a total of 2,646 women were randomly selected to participate in PRAMS and 1,847 (70 percent) of those women completed surveys. Survey data from respondents are weighted to represent all live births in 1997 to Colorado residents 15 years and older. Weighting procedures account for the probability of selection of each record and adjust for nonresponse. Because the majority of women are surveyed when their infants are 2 to 3 months old, breastfeeding duration rates after nine weeks are not available. Although it would be useful to look at duration rates after the second month, they cannot be reliably presented in this report.

The American Academy of Pediatrics recommends breastfeeding as the "optimal method of feeding and

nurturing infants."² Research demonstrates the health benefits of breastfeeding for both the infant and mother. Benefits for the infant include a decreased incidence of diarrhea,^{3, 4, 5, 6} lower respiratory infection,⁷ otitis media,^{4, 6, 8} and urinary tract infections.⁹ Breast milk may also offer a protective effect against insulin-dependent diabetes mellitus,¹⁰ allergic diseases,¹¹ and other chronic digestive diseases.¹² The breastfeeding mother has been shown to experience less postpartum bleeding,¹³ a faster return to prepregnancy weight,¹⁴ and an increase in the time between pregnancies due to a delay in ovulation.¹⁵ Breastfeeding has also been shown to have economic benefits; families can save more than \$400 per child during the first year of life by exclusively breastfeeding.^{16, 17}

Breastfeeding initiation rates are higher in the Mountain and Pacific regions of the United States regardless of racial/ethnic background or Women, Infants, and Children (WIC) supplemental food program participation.¹⁸ Data from the Colorado PRAMS project corroborate those national data and provide an opportunity to analyze state-specific data to better understand the breastfeeding practices of women in Colorado.

Breastfeeding Initiation

In 1997, women who were older, married, or had attended some college were more likely to breastfeed, although younger and less educated women in Colorado still met or were close to meeting the Healthy People 2000 objective for breastfeeding initiation (see Table 1). Regardless of age, married women had the highest rates of initiation, except in the 20 to 24 year old age group where rates were comparable. Women with some college were more likely to breastfeed; this was also true across all age groups. Significantly lower rates of initiation were found among women who started prenatal care after the first trimester, had an unintended pregnancy, smoked during or after the pregnancy, were unmarried, or had a low birth weight infant. Nationally, WIC participants have a much lower rate of initiation as compared to women who do not participate in WIC; however, in Colorado while WIC participants had a slightly lower rate of initiation (76 percent vs. 83 percent), the difference in rates was not significant.

Breastfeeding Duration

While Colorado reported high rates of breastfeeding initiation across subpopulations in 1997, there was variability in breastfeeding duration rates (see Table 2). Among all Colorado women (includes those who did not initiate breastfeeding), 53 percent breastfed for nine weeks or longer. The National Healthy People 2000 objective for breastfeeding duration is to increase to at least 50 percent the proportion of mothers who breastfeed until their infants are five to six months old¹; however, it is difficult to compare Colorado data to that goal because duration rates at six months are not available from PRAMS. Older women, married women, women with more than twelve years of education, and women with higher household incomes were all significantly more likely to breastfeed for nine or more weeks. Regardless of age, married women were always more likely to breastfeed for nine or more weeks than unmarried women. Overall, PRAMS data indicate that most women (65 percent) who initiated breastfeeding, but did not continue for more than eight weeks, stopped in the first four weeks following the birth.

Table 1. Breastfeeding initiation rates by selected characteristics: Colorado PRAMS, 1997 live births

	Percent	95% CI ¹
All Infants	81.0	(78.3, 83.7)
Region of Residence²		
Denver Metro	81.6	(77.4, 85.8)
Other Metro	79.2	(75.0, 83.4)
Rural	82.2	(79.2, 85.2)
Race/Ethnicity		
White/Non-Hispanic	81.7	(78.5, 84.9)
Hispanic	79.5	(73.6, 85.4)
Other	76.7	(65.9, 87.5)
Age		
15-19 years	71.3	(61.7, 80.9)
20-24 years	75.9	(69.7, 82.1)
25-34 years	81.9	(78.1, 85.7)
35+ years	91.4	(86.8, 96.0)
Marital Status		
Married	84.2	(81.3, 87.1)
Unmarried	70.7	(64.1, 77.3)
Education		
<12 years	75.2	(67.2, 83.2)
12 years	71.0	(65.2, 76.8)
>12 years	87.9	(85.0, 90.8)
Income		
\$0-\$15,999	74.3	(67.7, 80.9)
\$16,000-\$24,999	78.5	(71.1, 85.9)
\$25,000-\$39,999	80.2	(73.1, 87.3)
\$40,000+	87.6	(83.7, 91.5)
Unknown	78.3	(71.2, 85.4)
Parity		
Primiparous ³	82.7	(78.9, 86.5)
Multiparous ⁴	79.5	(75.7, 83.3)
Unintended Pregnancy		
Yes	74.8	(69.9, 79.7)
No	85.1	(81.7, 88.5)
Birth Weight		
Low (<2500 grams)	73.5	(69.4, 77.6)
Normal	81.6	(78.7, 84.5)
Infant in ICU at Birth		
Yes	73.5	(65.3, 81.7)
No	81.9	(79.0, 84.8)
When Prenatal Care Started		
1st Trimester	83.9	(81.0, 86.8)
2nd or 3rd Trimester	71.2	(64.4, 78.0)
WIC⁵ Participant		
Yes	76.2	(71.3, 81.1)
No	83.4	(80.1, 86.7)
Current Smoker		
Yes	64.3	(56.5, 72.1)
No	85.1	(82.4, 87.8)

1 Confidence Interval

2 Denver Metro region includes Adams, Arapahoe, Boulder, Denver, Douglas, and Jefferson counties. Other Metro region includes El Paso, Larimer, Mesa, Pueblo, and Weld counties.

The Rural region includes the remaining counties of the state.

3 Women who have completed one pregnancy to viability.

4 Women who have completed multiple pregnancies to viability.

5 Women, Infants, and Children supplemental food program.

Table 2. Breastfeeding duration rates by selected maternal characteristics: Colorado PRAMS, 1997 live births

	Breastfed for 9+ Weeks	
	Percent	95% CI ¹
All Infants	53.4	(50.0, 56.8)
Region of Residence²		
Denver Metro	54.2	(48.9, 59.5)
Other Metro	49.9	(44.9, 54.9)
Rural	57.4	(53.6, 61.2)
Race/Ethnicity		
White/Non-Hispanic	57.1	(53.3, 60.9)
Hispanic	43.2	(34.8, 51.6)
Other	41.5	(26.8, 56.2)
Age		
15-19 years	23.6	(14.3, 32.9)
20-24 years	37.4	(30.4, 44.4)
25-34 years	59.9	(55.4, 64.4)
35+ years	74.7	(67.5, 81.9)
Marital Status		
Married	61.4	(57.8, 65.0)
Unmarried	27.3	(20.6, 34.0)
Education		
<12 years	40.9	(30.9, 50.9)
12 years	39.1	(33.3, 44.9)
>12 years	64.8	(60.7, 68.9)
Income		
\$0-\$15,999	36.0	(28.7, 43.3)
\$16,000-\$24,999	42.4	(33.2, 51.6)
\$25,000-\$39,999	57.4	(49.5, 65.3)
\$40,000+	68.7	(63.5, 73.9)
Unknown	46.6	(37.6, 55.6)
Parity		
Primiparous ³	49.8	(44.8, 54.8)
Multiparous ⁴	56.5	(52.0, 61.0)

1 Confidence Interval

2 Denver Metro region includes Adams, Arapahoe, Boulder, Denver, Douglas, and Jefferson counties. Other Metro region includes El Paso, Larimer, Mesa, Pueblo, and Weld counties.

The Rural region includes the remaining counties of the state.

3 Women who have completed one pregnancy to viability.

4 Women who have completed multiple pregnancies to viability.

Introduction of Food Other than Breast Milk

The American Academy of Pediatrics recommends that infants be exclusively breastfed for the first six months of life, unless a medical indication exists.² In Colorado, 29 percent of all infants were exclusively breastfed for at least nine weeks, while 71 percent were given something other than breast milk (juice, water, formula, etc.) in the first eight weeks of life (see Table 3). Older women, more educated women, married women and women with higher incomes were more likely to delay the introduction of foods other than breast milk. However, in no subgroup did the majority of women wait until nine weeks or longer to introduce other foods. In Colorado, breastfeeding duration and the introduction of foods other than breast milk appear to be related. Women who introduce other foods before their infants are nine weeks old are significantly less likely to continue breastfeeding for nine weeks or longer.

Table 3. Introduction of foods other than breast milk by selected maternal characteristics: Colorado PRAMS, 1997 live births

	Foods other than breast milk before 9 weeks of age	
	Percent	95% CI ¹
All Infants	71.2	(68.2, 74.2)
Region of Residence²		
Denver Metro	72.1	(67.6, 76.6)
Other Metro	71.7	(67.3, 76.1)
Rural	66.8	(63.3, 70.3)
Race/Ethnicity		
White/Non-Hispanic	69.4	(66.0, 72.8)
Hispanic	74.9	(67.7, 82.1)
Other	81.9	(71.4, 92.4)
Age		
15-19 years	85.9	(77.9, 93.9)
20-24 years	82.5	(77.1, 87.9)
25-34 years	65.9	(61.7, 70.1)
35+ years	62.6	(54.8, 70.4)
Marital Status		
Married	67.1	(63.7, 70.5)
Unmarried	85.2	(79.6, 90.8)
Education		
<12 years	80.2	(72.2, 88.2)
12 years	82.8	(78.8, 86.8)
>12 years	61.5	(57.4, 65.6)
Income		
\$0-\$15,999	86.6	(82.2, 91.0)
\$16,000-\$24,999	74.0	(65.3, 82.7)
\$25,000-\$39,999	71.7	(65.0, 78.4)
\$40,000+	58.7	(53.3, 64.1)
Unknown	75.3	(67.7, 82.9)
Parity		
Primiparous ³	72.4	(68.1, 76.7)
Multiparous ⁴	70.3	(66.3, 74.3)

1 Confidence Interval

2 Denver Metro region includes Adams, Arapahoe, Boulder, Denver, Douglas, and Jefferson counties. Other Metro region includes El Paso, Larimer, Mesa, Pueblo, and Weld counties.

The Rural region includes the remaining counties of the state.

3 Women who have completed one pregnancy to viability.

4 Women who have completed multiple pregnancies to viability.

Conclusions

While breastfeeding prevalence is high in Colorado, there is still room for improvement to support more women in the initiation and continuation of breastfeeding for at least six months. There is little variability in breastfeeding rates by geographic region (Denver metro, other metro, rural); therefore, the characteristics of women who are least likely to breastfeed are very similar across the state. Less educated, low income young women are typically less likely to start and continue breastfeeding their newborns. Interventions that support and encourage all women may provide the most benefit in Colorado. Breastfeeding education during the prenatal period, hospital policies that encourage breastfeeding

during the hospital stay, and follow-up by health professionals during the early postpartum period may provide the support and information women need to successfully breastfeed.^{2, 19} To increase breastfeeding duration rates among women in Colorado, social support from friends and family, routine insurance coverage for breastfeeding services and supplies, and appropriate facilities in the workplace for breast pumping may be beneficial.² Health care providers can help increase initiation and duration rates

by promoting and supporting breastfeeding during their visits with women during and after pregnancy. Providers can also encourage women to exclusively breastfeed and avoid the early introduction of foods other than breast milk. Breastfeeding has proven health benefits for both infants and mothers; continuing to promote breastfeeding as a normal part of life and encourage social support for breastfeeding will help to ensure healthier infants and mothers in Colorado.

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Additional Information

For more information about breastfeeding support and education, contact Debbie Montgomery in the Nutrition Services Section at the Colorado Department of Public Health and Environment, 303-692-2471. For more information about Colorado PRAMS, contact the Health Statistics Section at the Colorado Department of Public Health and Environment, 303-692-2160.

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