

# Breastfeeding practices

Wayne J. Millar and Heather Maclean

## Abstract

### Objectives

This article examines demographic and socio-economic factors associated with breastfeeding among women aged 15 to 55 in 2003 who had had a baby in the previous five years.

### Data sources

The data are from Statistics Canada's 2003 Canadian Community Health Survey (CCHS). Supplementary information is from earlier national and regional surveys.

### Analytical techniques

The analysis is based on information provided by 7,266 women aged 15 to 55 who had had a baby in the previous five years. Cross-tabulations were used to estimate the proportions who breastfed their most recent child and those who did so exclusively for at least six months, by age, marital status, education, household income, rural/urban residence, immigrant status and province. Multiple logistic regression was used to estimate the association of these characteristics with the prevalence and duration of breastfeeding and of exclusive breastfeeding.

### Main results

In 2003, an estimated 85% of mothers reported that they had attempted to breastfeed, up markedly from around 25% in the mid-1960s. However, 17% had breastfed exclusively for at least six months. The likelihood of exclusive breastfeeding varied substantially by province. It rose with the mother's age and tended to be more common among those who lived in urban areas and who were college/university graduates.

### Key words

infant nutrition, infant welfare, infant care, maternal behaviour

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The World Health Organization has described breastfeeding as “an unequalled way of providing ideal food for the healthy growth and development of infants.”<sup>1</sup> Epidemiological studies suggest that breastfeeding may be protective against gastrointestinal infections,<sup>2,3</sup> otitis media,<sup>4,5</sup> allergies<sup>6</sup> and respiratory infections,<sup>7-9</sup> and that it is associated with lower rates of Type 2 diabetes.<sup>10,11</sup> Recent American research has shown breastfeeding to be related to a reduction in risk for post-neonatal death.<sup>12</sup>

Exclusive breastfeeding is the practice of feeding an infant only breast milk, without the addition of water, breast milk substitutes, other liquids or solid foods. The most recent guidelines from the Public Health Agency of Canada, revised in 2004 to align with those of the World Health Organization, state: “Exclusive breastfeeding is recommended for the first six months of life, as it provides all the nutrients, growth factors and immunological components a healthy term infant needs.”<sup>6</sup> Previously, Health Canada had recommended a minimum of four months of exclusive breastfeeding.<sup>11</sup>

With data from Statistics Canada's 2003 Canadian Community Health Survey (CCHS), it is possible to estimate the proportion of mothers whose breastfeeding practices conformed with these recommendations (see *Methods* and *Definitions*). This article describes the prevalence and duration of breastfeeding among women aged 15 to 55 in 2003 who had had a baby in the previous five years. Factors associated with starting to breastfeed and with breastfeeding exclusively for at least six months are examined, along with reasons for not starting and reasons for stopping.

### Few hit the target

According to the 2003 CCHS, the majority of Canadian women who had had a baby in the previous five years—85%—had attempted to breastfeed the infant. This was a fundamental change from the mid-1960s when the comparable percentage was around 25% (see *Trends in breastfeeding*).

At the time of their CCHS interview, 16% of the women who had given birth within the previous five years were still breastfeeding (data not shown). Among those who had stopped, fewer than half had

## Methods

### Data sources

Most of the analysis in this article is based on data from cycle 2.1 of Statistics Canada's Canadian Community Health Survey (CCHS), which was conducted from January through December of 2003. The CCHS covers the non-institutionalized household population aged 12 or older in all provinces and territories, except residents of Indian reserves, Canadian Forces Bases, and some remote areas. The sample size was 135,573, and the response rate was 80.6%. The sample size for the population analyzed in this article—women aged 15 to 55 who had had a baby in the previous five years—was 7,266, weighted to represent 1.4 million women in the 10 provinces (Appendix Tables A and B). More detail about the sample design of the CCHS is available in a previously published report.<sup>13</sup>

Supplemental data used to trace trends in breastfeeding initiation were obtained from various national and regional health surveys.<sup>14-16</sup>

### Analytical techniques

Cross-tabulations were used to estimate the proportion of women who breastfed their most recently born child and the proportion who did so exclusively for at least six months, by the mother's age, marital status, education, household income, immigrant status, rural/urban residence and province. Multivariate logistic regression was used to estimate the association of these characteristics with the prevalence and duration of breastfeeding. For ease of presentation, unadjusted prevalence estimates are shown alongside adjusted odds ratios. To account for the multi-stage sample design of the survey, the bootstrap technique was used to calculate confidence intervals and coefficients of variation and for testing the statistical significance of differences.<sup>17,18</sup> A significance level of  $p < 0.05$  was applied in all cases.<sup>19</sup>

### Limitations

Because the data collected by the CCHS are cross-sectional, no temporal or causal relationships between variables can be inferred from this analysis. As well, the data are self-reported; no other sources were available to verify if mothers actually did breastfeed and for how long.

The question about duration of breastfeeding applied only to mothers who were no longer breastfeeding when they were interviewed for the CCHS. About 16% of all women who had had a baby in the previous five years were still breastfeeding when the survey was conducted and so could not be included in the analysis of duration.

There were some discrepancies between stated duration of exclusive breastfeeding and the time when other foods were introduced. For this analysis, inconsistent responses were deleted.

The demographic and socio-economic characteristics of the mothers—the independent variables in the analysis—pertained to 2003. These characteristics might have been different when their last child was born, which could have been as many as five years earlier. For instance, a mother's marital status, educational attainment, household income and place of residence could have changed since she had her baby. This could affect the strength of some associations between various factors and the likelihood of breastfeeding.

While there is a possibility of recall bias, an assessment of breastfeeding studies suggested that the data are valid and reliable.<sup>20</sup>

Although vitamin D supplementation is recommended for all women who breastfeed, the CCHS question was asked only of women who had exclusively breastfed for more than one week.

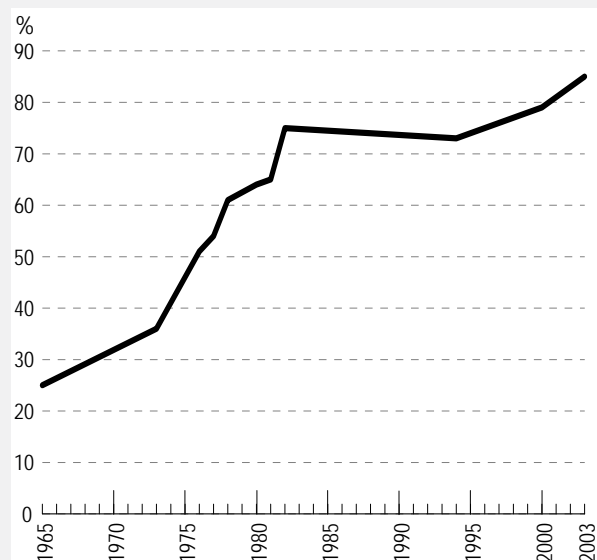
breastfed for at least six months and of these, fewer than half again had done so exclusively. Thus, the breastfeeding practices of just 17% of the women who had had a baby in the previous five years (and were no longer breastfeeding) matched the 2001 World Health Organization and 2004 Health Canada recommendation of exclusive breastfeeding for at least six months. The previous Health Canada recommendation (2001) had been exclusive breastfeeding for four months, a target that was met by 37% of the CCHS respondents.

### Trends in breastfeeding

The estimated 85% of mothers who, according to the results of the 2003 Canadian Community Health Survey, attempted to breastfeed their infant is a marked increase since the mid-1960s. In that era, only about 25% of mothers breastfed their baby during their hospital stay.<sup>15</sup> By the 1980s, an estimated 62% of mothers had at least initiated breastfeeding,<sup>14</sup> and in the early 1990s, the figure had risen to almost 75%.<sup>21,22</sup>

Because of classification inconsistencies between surveys, only a general sense of trends in breastfeeding duration is possible. Nonetheless, the results of several national surveys suggest that the length of time mothers breastfeed has been increasing.<sup>14,15,22</sup>

#### Percentage of mothers who initiated breastfeeding, selected years, 1965 to 2003

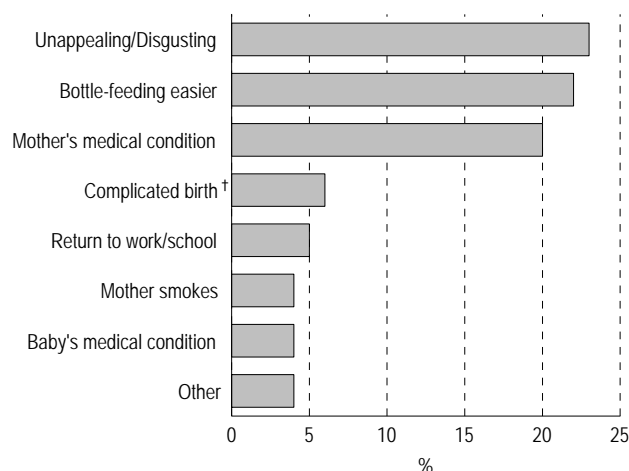


Data sources: References 14, 15, 16; 2000/01 and 2003 Canadian Community Health Survey

### Why not?

A sizeable proportion of mothers—15%—did not breastfeed. The reasons mentioned most frequently were that breastfeeding was “unappealing” or “disgusting” (23%) and that “bottle-feeding was easier” (22%) (Chart 1). A medical condition was cited by 20% of mothers, and 4% said that they smoked. Only about 5% of women said that a return to work or school prevented them from breastfeeding.

Chart 1  
Main reason for not breastfeeding, women aged 15 to 55 in 2003 who had a baby in previous five years, Canada excluding territories



Data source: 2003 Canadian Community Health Survey  
Note: Based on 1,213 women who had a baby in previous five years and did not breastfeed.  
† Caesarean, premature or multiple

### Most start

The likelihood that a mother had attempted to breastfeed was associated with several demographic and socio-economic factors.

While a solid majority (81%) of mothers younger than 25 had tried to breastfeed, this was low compared with rates at older ages (Table 1). As well, the prevalence of breastfeeding initiation was lower among women who were not married than among those who were married or in a common-law relationship.

The proportion of women who had started breastfeeding tended to rise with education and household income. Just 71% of women with less than secondary graduation had started breastfeeding,

compared with 89% of those who were postsecondary graduates. Similarly, the breastfeeding initiation rate was 74% for women in the lowest income households, but 89% among those in the highest.

Starting to breastfeed varied with urban/rural residence and immigrant status. Women in urban areas were more likely to initiate breastfeeding than were those in rural areas: 86% versus 80%. And 92% of mothers who identified themselves as immigrants had breastfed their most recent child, compared with 83% of non-immigrants.

Breastfeeding initiation rates were relatively low in Atlantic Canada and Québec and high in Ontario and the western provinces. The percentages ranged from 63% in Newfoundland to 93% in British

Columbia. The results of two national surveys in the early 1980s had shown similar provincial patterns, with rates rising steadily from east to west.<sup>14</sup> The persistence of these differences may, to some degree, reflect intergenerational influences.<sup>23</sup> On issues such as breastfeeding, new mothers may seek the advice of their own mothers. If a relatively small proportion of the previous generation of women breastfed, it would be less likely to be a social norm.<sup>24</sup>

Of course, many of the variables that are associated with high or low rates of starting to breastfeed are themselves interrelated. For instance, very young mothers may have little education and may be more likely to live in lower-income households. Similarly, substantial proportions of immigrants settle in large urban areas. When all

## Definitions

Female respondents to the 2003 Canadian Community Health Survey (CCHS) who were the birth parent of a child younger than 5 were asked: "Did you breastfeed or try to breastfeed your baby, even if only for a short time?" Although some women may have had more than one baby during the previous five years, their responses applied to the most recent birth.

Those who did not breastfeed were asked the main reason why they did not.

Women who had breastfed their last baby, but were not doing so at the time of their CCHS interview, were asked: "For how long did you breastfeed?" For this analysis, two duration categories were defined: less than 6 months and 6 months or more. These women were also asked the main reason they stopped breastfeeding.

*Exclusive breastfeeding* refers to an infant receiving only breast milk, without any additional liquid (even water) or solid food. The *duration of exclusive breastfeeding* is the length of time before the introduction of solid foods or other liquids. The prevalence of exclusive breastfeeding for six months or more, as recommended by the World Health Organization and Health Canada, was based on mothers who had breastfed but were no longer doing so at the time of their CCHS interview, plus those who had never breastfed, plus those still breastfeeding but not exclusively. Women still exclusively breastfeeding when they were interviewed were not included.

Mothers who had breastfed exclusively for at least one week were asked: "During the time when your baby was only fed breast milk, did you give the baby a vitamin supplement containing vitamin D?"

The mother's *age* in 2003 was grouped into four categories: younger than 25, 25 to 29, 30 to 34, and 35 or older. In the multivariate logistic models, age was used as a continuous variable.

The mother's *education* in 2003 was categorized as less than secondary graduation, secondary graduation, some postsecondary, and postsecondary graduation.

*Marital status* in 2003 was defined as married (including common-law) or not married (never married, divorced, separated or widowed).

*Household income* groups were based on the number of people in the household and total household income from all sources in the 12 months before the 2003 interview.

Household income group	People in household	Total household income
Lowest	1 or 2	Less than \$15,000
	3 or 4	Less than \$20,000
	5 or more	Less than \$30,000
Lower-middle	1 or 2	\$15,000 to \$29,999
	3 or 4	\$20,000 to \$39,999
	5 or more	\$30,000 to \$59,999
Upper-middle	1 or 2	\$30,000 to \$59,999
	3 or 4	\$40,000 to \$79,999
	5 or more	\$60,000 to \$79,999
Highest	1 or 2	\$60,000 or more
	3 or more	\$80,000 or more

*Residence* in 2003 was defined as urban or rural.

To identify *immigrant status*, respondents were asked if they had been born a Canadian citizen.

Table 1  
Prevalence of and adjusted odds ratios for initiating breastfeeding, women aged 15 to 55 who had a baby in previous five years, by selected characteristics in 2003, Canada excluding territories

	Estimated number who had had baby '000	Initiated breastfeeding		
		Prevalence %	Adjusted odds ratio	95% confidence interval
Total	1,400	85	...	...
<b>Age group</b>			0.98 <sup>§</sup>	0.96, 1.00
< 25	152	81 <sup>†</sup>	...	...
25-29	342	84	...	...
30-34	454	86	...	...
35+	451	85	...	...
<b>Marital status</b>				
Married	1,213	86 <sup>†</sup>	1.22	0.92, 1.62
Not married <sup>‡</sup>	185	77 <sup>†</sup>	1.00	...
<b>Education</b>				
Less than secondary graduation <sup>†</sup>	139	71 <sup>†</sup>	1.00	...
Secondary graduation	273	79 <sup>†</sup>	1.40	0.97, 2.00
Some postsecondary	104	79 <sup>†</sup>	1.48	0.99, 2.22
Postsecondary graduation	869	89 <sup>†</sup>	3.05 <sup>*</sup>	2.17, 4.29
<b>Household income</b>				
Lowest <sup>†</sup>	152	74 <sup>†</sup>	1.00	...
Lower-middle	298	82	1.30	0.90, 1.87
Upper-middle	453	86	1.54 <sup>*</sup>	1.07, 2.21
Highest	384	89 <sup>†</sup>	1.73 <sup>*</sup>	1.14, 2.64
<b>Immigrant status</b>				
Immigrant	315	92 <sup>†</sup>	2.12 <sup>*</sup>	1.46, 3.08
Non-immigrant <sup>†</sup>	1,072	83 <sup>†</sup>	1.00	...
<b>Residence</b>				
Rural <sup>‡</sup>	247	80 <sup>†</sup>	1.00	...
Urban	1,153	86 <sup>†</sup>	0.99	0.77, 1.28
<b>Province</b>				
Newfoundland and Labrador	23	63 <sup>†</sup>	0.34 <sup>*</sup>	0.22, 0.52
Prince Edward Island	7	77	0.62	0.37, 1.03
Nova Scotia	45	76 <sup>†</sup>	0.58 <sup>*</sup>	0.39, 0.86
New Brunswick	33	64 <sup>†</sup>	0.35 <sup>*</sup>	0.24, 0.51
Québec	294	76 <sup>†</sup>	0.51 <sup>*</sup>	0.39, 0.67
Ontario <sup>†</sup>	560	87 <sup>†</sup>	1.00	...
Manitoba	53	89 <sup>†</sup>	1.45	0.97, 2.18
Saskatchewan	47	86	1.31	0.85, 2.01
Alberta	166	90 <sup>†</sup>	1.80 <sup>*</sup>	1.16, 2.79
British Columbia	171	93 <sup>†</sup>	2.35 <sup>*</sup>	1.54, 3.57

**Data source:** 2003 Canadian Community Health Survey  
**Note:** Based on 7,156 women who had a baby in previous five years and for whom breastfeeding information was available. "Missing" categories for education, household income, and immigrant status were included in model to maximize sample size, but prevalences and odds ratios are not shown. Because of rounding, detail may not add to total.

<sup>†</sup> Significantly different from value for total ( $p < 0.05$ )

<sup>‡</sup> Reference category

<sup>§</sup> Treated as continuous variable

<sup>\*</sup> Significantly different from reference category ( $p < 0.05$ )

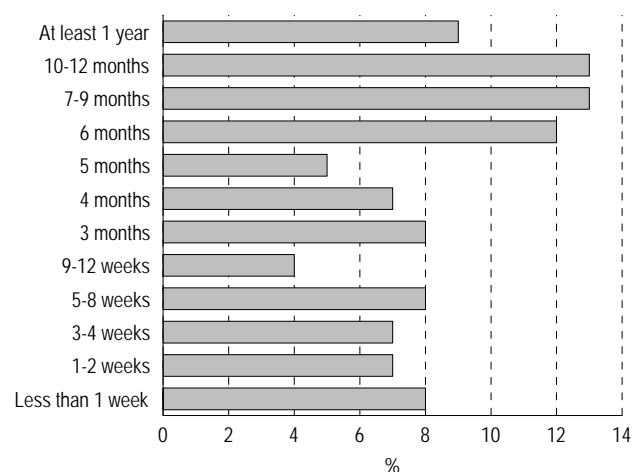
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these variables were considered simultaneously in a multivariate model, education, household income, immigrant status and province of residence remained significantly associated with the likelihood that a woman would initiate breastfeeding. Marital status and rural/urban residence were no longer significant.

### Drop-out rate

Among the women who had breastfed their most recent child but were no longer doing so at the time of their CCHS interview, 22% had stopped within the first month (Chart 2). Close to half (47%) had breastfed for six months or more.

Chart 2  
Age of child at cessation of breastfeeding, women aged 15 to 55 in 2003 who had a baby in previous five years, Canada excluding territories



**Data source:** 2003 Canadian Community Health Survey

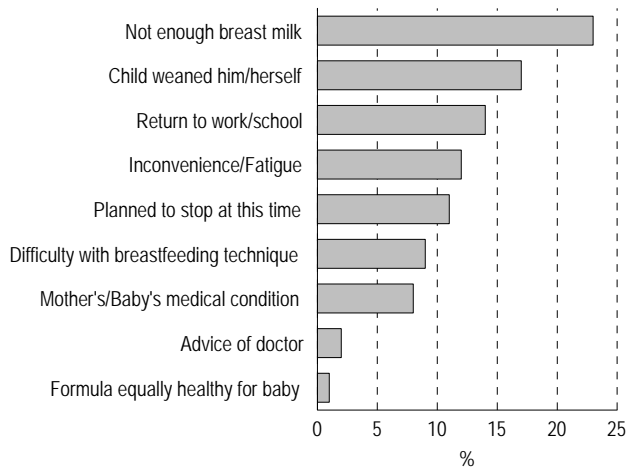
**Note:** Based on 5,124 women who had breastfed baby, but were no longer doing so at time of CCHS interview.

Overall, the most common reasons for stopping were not enough milk (23%), child weaned itself (17%), mother returned to work or school (14%), and inconvenience/fatigue (12%) (Chart 3). Reasons for cessation, however, varied with the duration of breastfeeding. For women who had breastfed less than six months, not enough milk was cited most often (31%), followed by inconvenience/fatigue (15%), difficulties with technique (13%), and medical problems of mother or baby (11%) (data not shown).



Chart 3

Main reason for stopping breastfeeding, women aged 15 to 55 in 2003 who had a baby in previous five years, Canada excluding territories



Data source: 2003 Canadian Community Health Survey

Note: Based on 5,124 women who had breastfed baby, but were no longer doing so at time of CCHS interview

Reasons for stopping also differed by household income. Women in higher income households (20%) were less likely than those at lower income levels (30%) to state that not enough milk was a factor. On the other hand, return to work or school was offered as a reason by 19% of mothers in high-income households, compared with 7% of those in low-income households (data not shown).

### Exclusive breastfeeding

Fewer than half the women who had breastfed their most recent baby did so for six months or more, and less than half of them had breastfed exclusively. In fact, as a percentage of the women who had had a baby in the five years before the 2003 CCHS, just 17% had breastfed exclusively for at least six months (Table 2).

Generally, the characteristics associated with starting to breastfeed were also associated with exclusive breastfeeding for six or more months. The likelihood of exclusive breastfeeding tended to rise with the mother's age, education and household income. It was more common among married than single women, immigrant than non-immigrant women, and urban than rural women. The

Table 2

Prevalence of and adjusted odds ratios for exclusive breastfeeding at least 6 months, women aged 15 to 55 who had a baby in previous five years, by selected characteristics in 2003, Canada excluding territories

	Estimated number who had baby excluding mothers still exclusively breastfeeding '000	Breastfed exclusively at least 6 months		
		Prevalence %	Adjusted odds ratio	95% confidence interval
<b>Total</b>	1,319	17	...	...
<b>Age group</b>			1.05 <sup>§</sup>	1.04, 1.07
< 25	140	8 <sup>†</sup>	...	...
25-29	323	15 <sup>†</sup>	...	...
30-34	421	18	...	...
35+	435	21 <sup>†</sup>	...	...
<b>Marital status</b>			1.09	0.82, 1.44
Married	1,140	18 <sup>†</sup>	1.00	...
Not married <sup>‡</sup>	179	14 <sup>†</sup>	1.00	...
<b>Education</b>			1.00	...
Less than secondary graduation <sup>†</sup>	131	11 <sup>†</sup>	1.14	0.76, 1.71
Secondary graduation	260	15	1.26	0.78, 2.04
Some postsecondary	99	15	1.46 <sup>*</sup>	1.00, 2.12
Postsecondary graduation	815	19 <sup>†</sup>	1.00	...
<b>Household income</b>			1.00	...
Lowest <sup>†</sup>	145	13 <sup>†</sup>	1.18	0.81, 1.71
Lower-middle	278	16	0.95	0.65, 1.37
Upper-middle	435	19	0.96	0.66, 1.42
Highest	360	19	1.00	...
<b>Immigrant status</b>			1.07	0.84, 1.37
Immigrant	293	20 <sup>†</sup>	1.00	...
Non-immigrant <sup>†</sup>	1,016	16 <sup>†</sup>	1.00	...
<b>Residence</b>			1.00	...
Rural <sup>†</sup>	235	13 <sup>†</sup>	1.29 <sup>*</sup>	1.03, 1.60
Urban	1,083	18 <sup>†</sup>	1.00	...
<b>Province</b>			0.54	0.28, 1.04
Newfoundland and Labrador	22	9 <sup>†E2</sup>	0.74	0.37, 1.46
Prince Edward Island	7	12 <sup>E2</sup>	0.91	0.57, 1.47
Nova Scotia	43	14 <sup>E1</sup>	0.52 <sup>*</sup>	0.30, 0.91
New Brunswick	32	8 <sup>†E1</sup>	0.53 <sup>*</sup>	0.39, 0.73
Québec	281	10 <sup>†</sup>	1.00	...
Ontario <sup>†</sup>	532	18	1.23	0.79, 1.91
Manitoba	51	18	1.29	0.94, 1.77
Saskatchewan	44	18	1.38 <sup>*</sup>	1.05, 1.81
Alberta	151	22 <sup>†</sup>	1.80 <sup>*</sup>	1.38, 2.33
British Columbia	156	28 <sup>†</sup>	1.00	...

Data source: 2003 Canadian Community Health Survey

Note: Based on 6,802 women who had a baby in previous five years, including those who did not breastfeed, but excluding those still breastfeeding exclusively at the time of CCHS interview. "Missing" categories for education, household income, and immigrant status were included in model to maximize sample size, but prevalences and odds ratios are not shown. Because of rounding, detail may not add to total.

<sup>†</sup> Significantly different from value for total ( $p < 0.05$ )

<sup>‡</sup> Reference category

<sup>§</sup> Treated as continuous variable

<sup>\*</sup> Significantly different from reference category ( $p < 0.05$ )

E1 Coefficient of variation 16.6% to 25.0%

E2 Coefficient of variation 25.1% to 33.3%

... Not applicable

percentages of mothers who breastfed exclusively were high in British Columbia and Alberta, and low in New Brunswick, Newfoundland and Québec.

When the potential interrelationships between these factors were taken into account, only age, education, urban/rural residence and province were significantly associated with exclusive breastfeeding for at least six months. The odds increased with the mother's age and were significantly high among college/university graduates; the odds were significantly low among women in rural areas. Compared with women in Ontario, those in Alberta and British Columbia had high odds of exclusive breastfeeding for at least six months, while those in New Brunswick and Québec had significantly low odds.

### Vitamin D

Infants who are breastfed exclusively may be at risk of vitamin D deficiency, and in extreme cases, rickets.<sup>25</sup> Primarily because of the northern latitude, a vitamin D supplement is recommended for all breastfed infants in Canada.<sup>6,11</sup> Even so, only about half of mothers who had breastfed exclusively for at least six months reported that they had given their baby a vitamin D supplement (data not shown).

### Concluding remarks

According to the results of the 2003 Canadian Community Health Survey, an overwhelming majority of mothers—85%—attempted to breastfeed their most recent baby. But while most mothers started to breastfeed, many stopped within the first month, and fewer than half breastfed for

at least six months. And of those, just half breastfed exclusively. Thus, the breastfeeding practices of 17% of recent mothers conformed to the current recommendations of the World Health Organization and the Public Health Agency of Canada.

The relatively low percentage of Canadian mothers whose breastfeeding practices matched the current recommendations is a challenge for public health. The sharp drop in breastfeeding within a few weeks of leaving hospital suggests a lack of reinforcement in the family or community. A number of studies have called on health care professionals to provide consistent, clear information about breastfeeding and support throughout pregnancy, childbirth and the postpartum period.<sup>11,26-30</sup> According to the Canadian Expert Advisory Panel on Exclusive Breastfeeding, implementation of the most recent recommendations requires “the provision of adequate social support to breastfeeding women by increasing community, public health, hospital and workplace efforts.”<sup>6</sup>

The striking provincial disparities in breastfeeding rates are noteworthy. Whether they reflect differences in the provision of hospital and public health services, or the interplay of complex cultural, social, psychological, and economic factors is beyond the scope of this analysis. Closer scrutiny of provincial differences might provide insight into the role of health professionals, media and social networks on both the decision to attempt to breastfeed and the decision to stop. ●

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## Appendix

Table A  
Selected indicators of breastfeeding, women who had a baby in previous five years, Canada excluding territories, 2003

	Sample size	Estimated population	
		'000	%
Total	7,266	1,400	100
Did not breastfeed	1,213	212	15 <sup>†</sup>
Initiated breastfeeding	6,034	1,183	85 <sup>†</sup>
Still breastfeeding	910	194	16 <sup>‡</sup>
Finished breastfeeding	5,124	989	84 <sup>‡</sup>
Breastfed 6+ months	2,355	467	47 <sup>§</sup>
Breastfed exclusively 6+ months	1,139	226	17 <sup>††</sup>

*Data source: 2003 Canadian Community Health Survey*

<sup>†</sup> The denominator is women who had a baby.

<sup>‡</sup> The denominator is women who initiated breastfeeding.

<sup>§</sup> The denominator is women who had completed breastfeeding.

<sup>††</sup> The denominator is women who had a baby. Women who were still breastfeeding and who had not added liquid or solid food to the baby's diet were excluded.

Table B  
Selected characteristics of women who had a baby in previous five years, Canada excluding territories, 2003

	Sample size	Estimated population	
		'000	%
Total	7,266	1,400	100
<b>Age</b>			
<25	919	152	10.9
25-29	1,903	341	24.4
30-34	2,397	454	32.5
35+	2,047	451	32.3
<b>Marital status</b>			
Married	5,800	1,213	86.7
Not married	1,461	185	13.2
Missing	5	1	0.1
<b>Education</b>			
Less than secondary graduation	863	139	9.9
Secondary graduation	1,440	273	19.5
Some postsecondary	553	104	7.4
Postsecondary graduation	4,370	869	62.1
Missing	40	15	1.0
<b>Household income</b>			
Lowest	1,065	152	10.8
Lower-middle	1,610	298	21.3
Upper-middle	2,357	453	32.4
Highest	1,728	384	27.4
Missing	506	113	8.1
<b>Immigrant status</b>			
Immigrant	995	315	22.5
Non-immigrant	6,257	1,072	76.6
Missing	54	13	0.9
<b>Residence</b>			
Rural	1,773	247	17.7
Urban	5,493	1,153	82.4
<b>Province</b>			
Newfoundland and Labrador	234	23	1.6
Prince Edward Island	144	7	0.5
Nova Scotia	262	45	3.2
New Brunswick	241	33	2.4
Quebec	1,337	294	21.0
Ontario	2,437	560	40.0
Manitoba	467	53	3.8
Saskatchewan	476	47	3.4
Alberta	879	166	11.9
British Columbia	789	171	12.2

*Data source: 2003 Canadian Community Health Survey*