

## **2006 Infant Feeding Survey:**

# **Factors Influencing Breastfeeding Initiation, Duration and the Introduction of Solids**

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## **2006 Infant Feeding Survey: Factors Influencing Breastfeeding Initiation, Duration and the Introduction of Solids**

### **Introduction**

The World Health Organization (WHO) recommends “infants should be exclusively breastfed for the first six months of life to achieve optimal growth, development and health. Thereafter, to meet their evolving nutritional requirements, infants should receive nutritionally adequate and safe complementary foods while breastfeeding continues for up to two years of age or beyond”<sup>1</sup>. Despite these recommendations, many women do not practice exclusive breastfeeding or do not continue breastfeeding for the recommended duration.

Supplementation or exclusive formula feeding and the introduction of solid foods before six months of age are two practices that go against the WHO recommendation. Numerous studies throughout the world have investigated breastfeeding practices, and the factors affecting initiation and duration of breastfeeding. The identification of factors that influence breastfeeding initiation, duration and the introduction of solid foods is important for developing strategies to increase breastfeeding rates and to ensure that the most infants possible benefit from the WHO recommendation.

The decisions that women face regarding breastfeeding and introducing solid foods are not made in isolation; women are influenced by social, environmental, physical and personal factors. These factors combine within the context of a woman’s life to create an influence on her infant feeding practices. Given these interactions, it is difficult, if not impossible, for researchers to identify a single factor that exerts the greatest influence for all women. It is helpful to compare studies of women in different contexts and cultures to look for similarities in factors that influence their decisions surrounding infant feeding, but these factors may not generalize to women in other contexts. Qualitative and quantitative studies illuminate different factors that may influence women’s decisions. For example, qualitative studies may provide women’s perceptions of influencing factors, such as personal beliefs and influences of family, whereas quantitative studies may identify associations between breastfeeding practices and certain demographic characteristics of women, such as age, socio-economic status or education level. Both types of data are extremely useful to researchers and public health practitioners aiming to increase adherence to the WHO recommendation.

The following is a summary of a review of literature related to infant feeding that was completed in the spring of 2008. The full-length literature review is available and is stored in the Consultant’s Reports folder on the shared drive.

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## **Factors influencing breastfeeding initiation**

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### **Socio-demographic Factors:**

**Maternal age** has been associated with breastfeeding initiation in the literature. Infant feeding studies in Ontario<sup>2;3</sup> have found that mothers who are younger are less likely to initiate breastfeeding than older mothers.

Mothers' **education levels** are also associated with breastfeeding initiation. Mothers who have a college or university education are more likely to initiate breastfeeding than mothers with a high school education or less<sup>3-7</sup>. Related to education levels, mothers' **income levels** are also associated with breastfeeding initiation. Mothers with lower income levels are less likely to initiate breastfeeding than mothers with higher income levels<sup>3;4</sup>.

A mother's **marital status** may also influence breastfeeding initiation; a study of infant feeding practices in Northern Ontario found that mothers who are single, divorced or widowed are less likely to initiate breastfeeding than married women<sup>3</sup>.

### **Personal Factors:**

The **support** that a mother receives can influence whether or not she initiates breastfeeding. An Australian study<sup>8</sup> found that mothers with high perceived breastfeeding support were more likely to initiate breastfeeding than mothers receiving medium or low support.

The **timing of a decision** for how to feed a baby appears to influence breastfeeding initiation. Mothers who decide **how to feed** their babies before they become pregnant are more likely to initiate breastfeeding, as well mothers who intend to breastfeed for longer periods of time are more likely to initiate breastfeeding than mothers who intend to breastfeed for shorter periods of time or are unsure of how long they will breastfeed for<sup>8</sup>.

The literature indicates that mothers' beliefs in their ability to breastfeed may influence whether or not they initiate breastfeeding. An Australian study found that mothers with higher **breastfeeding self-efficacy** scores appear more likely to initiate breastfeeding than mothers with lower self-efficacy scores<sup>8</sup>.

**Qualitative studies** have suggested that mothers initiate breastfeeding because it is practical, they feel a moral obligation to breastfeed, they wish to bond with their baby and they receive social support to breastfeed<sup>9</sup>.

### **Environmental Factors:**

**Attending prenatal classes** appears to be associated with breastfeeding initiation. Mothers who attend prenatal classes are more likely to initiate breastfeeding than mothers who do not attend<sup>3</sup>. As well, factors related to the **hospital that a mother gives birth in** may influence whether or not she initiates breastfeeding. Research suggests that mothers whose infants are brought to them every three hours and mothers whose infants are brought to them for night-time feedings are more likely to initiate breastfeeding<sup>10</sup>.

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## Factors influencing breastfeeding duration

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### **Socio-demographic Factors:**

**Maternal age** appears to be associated with breastfeeding duration; older mothers are more likely to breastfeed for longer than younger mothers<sup>3;8</sup>.

The **education level** of mothers is also associated with breastfeeding duration. The literature indicates that mothers who have greater than high school education are more likely to breastfeed for longer than mothers with a high school education or less<sup>3;4;8;11-13</sup>. The Ontario Mother and Infant Survey<sup>11</sup> identified not completing high school as one of the most important risk factors for early cessation of breastfeeding.

Both **income levels** and a mother's **working status** appear to be associated with breastfeeding duration. Mothers with higher levels of income are more likely to breastfeed for a longer duration than mothers with lower levels of income<sup>4</sup>. Returning to work has been identified as a factor that influences breastfeeding duration<sup>12-15</sup>, and was cited as the most common reason for breastfeeding cessation by mothers in a Northern Ontario infant feeding survey<sup>3</sup> and a Vancouver survey<sup>16</sup>. An American study<sup>15</sup> found that working more than 20 hours per week post-partum was associated with a shorter duration of breastfeeding.

The literature indicates that **married** mothers appear to breastfeed for longer than mothers who are single, divorced or widowed<sup>3;17;18</sup>. As well, the **number of children** that a mother has may influence breastfeeding duration. A Scottish study<sup>4</sup> found that mothers of second or later babies breastfed for longer than mothers of first babies; similarly an Australian study<sup>8</sup> found that mothers with previous breastfeeding experience had a greater duration of breastfeeding than mothers with no previous breastfeeding experience.

### **Personal Factors:**

A mother's **intention to breastfeed** can influence breastfeeding duration. Mothers who intend to breastfeed for greater lengths of time tend to breastfeed for longer than mothers who intend to breastfeed for less time<sup>8;11;19</sup>. The Ontario Mother and Infant Survey<sup>11</sup>, found that an intention to breastfeed for less than 4 months was a risk factor for early discontinuation of breastfeeding.

Mother's perceptions of **support and feelings of stress** appear to influence the duration of breastfeeding. The Ontario Mother and Infant Surveys<sup>11;19</sup> found that a lack of support was a risk factor for early discontinuation of breastfeeding. These surveys also found that not expecting to rely on a mom's group or a drop-in centre once home were risk factors for early discontinuation of breastfeeding. As well, relationship distress and maternal stress have both been associated with decreased breastfeeding duration<sup>11;15</sup>.

Feelings of **self-efficacy** and **knowledge** also appear to be related to breastfeeding duration. A study of infant feeding in Northern Ontario<sup>3</sup> found that women who felt confident about breastfeeding were more likely to breastfeed for longer than women who did not feel

confident. A study in New Zealand<sup>13</sup> found that women who felt they needed more information about breastfeeding were less likely to breastfeed than women who did not feel they needed more information about breastfeeding. Similarly, a German study<sup>17</sup> found that women who were aware of the WHO recommendations for infant feeding were more likely to breastfeed 4-5 months after birth.

Whether or not a mother **currently smokes** or **smoked while pregnant** may influence breastfeeding duration. Studies have shown that mothers who smoke, or who smoked while pregnant, breastfeed for a shorter duration than mothers who do not smoke and who did not smoke while pregnant<sup>5-7;18</sup>.

### **Environmental Factors:**

The experiences that mothers and their infants have in the **healthcare** system may influence breastfeeding duration. The Ontario Mother and Infant Survey<sup>11</sup> found that making one or more visits to a family physician (for maternal care) and staying in hospital for longer than 48 hours after the baby was born were risk factors for early discontinuation of breastfeeding [the LGLDHU survey did not explore why, but literature suggests that some health professionals may provide negative advice, and some hospitals have harmful practices on establishing lactation - see Humenick<sup>20</sup>, Freed<sup>21</sup> and Cochrane Reviews<sup>22</sup> for greater detail]. The follow-up to the Ontario Mother and Infant Survey<sup>19</sup> found that mothers whose infants had one or more visits to a walk-in clinic and mothers whose infants received formula while in hospital were more likely to discontinue breastfeeding.

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## **Factors influencing the introduction of solid foods**

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### **Socio-demographic Factors:**

A **mother's age** appears to influence when solid foods are introduced. Younger mothers are less likely to follow the WHO recommendations for infant feeding and are more likely than older mothers to introduce solid foods early<sup>18;23-26</sup>.

Maternal **education levels** also appear to influence when solid foods are introduced; mothers with higher education levels are more likely to follow feeding recommendations and less likely to introduce solid foods early compared to mothers with lower education levels<sup>4;24-28</sup>. Studies have also found that maternal **income levels** influence the introduction of solid foods. Compared to mothers with lower income levels, mothers with higher income levels are more likely to follow infant feeding recommendations and less likely to introduce solid foods early<sup>4;24;25;27;28</sup>.

Two studies in Ontario<sup>24;28</sup> as well as other international studies<sup>23;27</sup> have identified a mother's **smoking status** as a factor that influences the introduction of solid foods; mothers who smoke are more likely to introduce solid foods into their infant's diet early compared to mothers who do not smoke.

The **number of children** that a mother has may influence when she introduces solid foods to her baby's diet. In a study of infant feeding in Waterloo, mothers cited 'experience with previous children' as a reason for starting solid foods. The **sex of the baby** may also influence when solid foods are introduced; a Scottish study<sup>27</sup> found that male babies were introduced to solid foods earlier than female babies, and a Norwegian study<sup>18</sup> found that female babies had higher odds of timely introduction to solid foods than male babies.

### **Personal Factors:**

The **support** that a mother receives may influence when she introduces solid foods to her infant's diet. Studies have found that women's mothers, mothers-in-law and friends influence the decision of when to introduce solid foods<sup>27;29-31</sup>.

In a study of infant feeding in Waterloo<sup>2</sup>, mothers who did not attend **prenatal classes** and did not recall **receiving information** about the introduction of solid foods were more likely to introduce solid foods early than mothers who had attended prenatal classes or who recalled receiving information.

Research also indicates that mothers make decisions about when to introduce solid foods based on their **infant's behaviour**. Studies have found that mothers begin to introduce solid foods when they perceive that their infant is showing signs of readiness, when their infant appears unsatisfied with milk feeds, when their infant is teething or when their infant is not sleeping through the night<sup>2;29</sup>. As well, mothers in one of these studies viewed the introduction of solid foods as a milestone that they were eager to achieve<sup>29</sup>.

Whether or not a mother **breastfeeds, bottle-feeds, or formula feeds** her infant appears to influence when solid foods are introduced. Research has found that mothers who bottle-feed are more likely to introduce solid foods earlier than mothers who breastfeed<sup>27</sup>. Studies have also found that mothers who do not breastfeed, or who stop breastfeeding soon after birth, are more likely to introduce solid foods early compared to mothers who breastfeed for longer<sup>4;18;23-25</sup>. As well, mothers who formula-feed may be more likely to introduce solid foods compared to mothers who exclusively breastfeed, or feed a combination of breastmilk and formula<sup>32</sup>.

### **Environmental Factors:**

Mothers' **healthcare providers** appear to influence when solid foods are introduced; studies have reported that mothers introduce solid foods based on their doctor's advice<sup>2;29;31</sup>. As well, the receipt of **food samples** may influence when mothers introduce solid foods. In a Scottish study, mothers who received free samples of solid foods were more likely to introduce solid foods early compared to mothers who did not receive these food samples<sup>27</sup>. Another study in the United Kingdom<sup>29</sup> found that foods that are marketed to appeal to parents may influence parents' decisions of when to introduce these foods.

### **Limitations in the literature**

The term 'breastfeeding' is not well defined in the literature. Some studies define breastfeeding as exclusive breastfeeding, while others define it as any breastfeeding. The

definitions used in research are often not made explicit and it is therefore difficult to compare studies. As well, studies differ in their measurement of breastfeeding duration, and the factors that influence breastfeeding duration at 2 months may differ significantly from the factors that influence breastfeeding duration at 6 months or beyond.

## **METHODS**

### **Study Design and Target Population**

The 2006 LGLDHU Infant Feeding Survey was based on a retrospective inception cohort design of new mothers residing within the jurisdiction of Leeds, Grenville and Lanark Counties, giving birth between March and October of 2006. Potential survey participants were identified through the Integrated Services for Children Information System (ISCIS) database, which generated lists of all mothers giving birth between March 1, 2006 and October 1, 2006. All mothers were sent a letter from the Health Unit requesting permission to release their personal information to a survey research company for the purposes of an Infant Feeding Survey. A negative consenting method was utilized; therefore the contact information of those mothers who did not contact the health unit to refuse participation was forwarded to a contracted survey research company. The survey research company, at the time of initial survey contact, provided the mothers with another opportunity to refuse participation. A structured telephone CATI (computer assisted telephone interview) survey was conducted using trained female interviewers by Compustat Consultants on behalf of LGLDHU. Compustat Consultants is a full service survey research firm with over 17 years experience conducting public opinion, health and employment outcomes surveys. Data collection was time-sensitive and required potential participants to be contacted within a specified 2-week timeframe. A maximum of 10 call attempts were made to each potential participant to ensure maximum participation. The target population for data collection were individual new mothers drawn from a sampling frame of approximately 1200 new mothers of child-bearing age within the jurisdiction of LGLDHU each year who had a telephone on which to be contacted. A sample of 500 participants was surveyed. This sample size gave a post-hoc analytical power of 97% to detect a 12% absolute difference in effect.

### ***Participant Eligibility***

The following criteria for study inclusion were followed to determine eligibility:

- Mothers residing in jurisdiction of LGLDHU who gave birth from March to October 2006;
- Completed a Parkyn, with consent to release information to the health unit
- Baby residing with birth mother at time of contact;
- Birth mother able to be contacted via telephone or cell phone.

Potential participants excluded if:

- Baby still-born or died before study contact made.

### ***Survey Tool and Outcome Measures***

The survey tool contained 172 categorical questions (see Appendix 1 for survey tool) and was developed based on the health unit's 1999-2000 survey, survey tools used by other health units, Compustat Consultants, and the research literature on the factors that influence infant

feeding initiation and duration. Compustat reviewed and formatted the tool and pilot tested it with 10 new mothers prior to commencement of the survey.

Breastfeeding initiation, duration and introduction to solid food outcomes were assessed using binary outcome scores derived from three different survey response questions. The survey questions used to derive outcomes are listed in Table 1 below.

**Table 1: Infant Feeding Survey study variables for logistic regression analysis.**

OUTCOMES	EXPOSURES	COVARIATES
<p><b><u>Breastfeeding initiation:</u></b> Determined by dichotomizing question QB7 (<i>In first 2-days after baby born, was your baby fed breastmilk, formula or something else?</i>)</p> <p><b><u>Breastfeeding duration:</u></b> Determined by dichotomizing question QC2A (<i>What is your baby being fed now?</i>)</p> <p><b><u>Introduction to solids:</u></b> Determined by creating derived dichotomous variable out of continuous variable QOF3A1 (<i>At what age did you first give infant cereal or pablum to your baby?</i>).</p>	<p><b><u>Breastfeeding decisions:</u></b> Determined using questions:</p> <ul style="list-style-type: none"> <li>▪ QA1 (<i>When did you first decide how you would feed your baby?</i>).</li> <li>▪ QA5 (<i>When you were pregnant, what did you plan to feed your baby when your baby was born?</i>). This question was derived into a 3-category response variable.</li> <li>▪ QB7 (<i>In first 2-days after baby was born, was baby fed breastmilk, formula or something else?</i>). This question was derived into a dichotomous response variable.</li> <li>▪ QBF1 (<i>How soon after birth did you try to breastfeed your baby for the first time?</i>). This question was derived into a 3-category response variable.</li> <li>▪ QBF2A (<i>Was your baby fed any fluid other than breastmilk after you started breastfeeding?</i>).</li> <li>▪ QC1D (<i>If you received formula samples have you used them?</i>).</li> <li>▪ QPB2 (<i>When pregnant how long did you plan to breastfeed?</i>). This question</li> </ul>	<p><b><u>Age:</u></b> Determined by creating derived 3-category variable out of continuous age variable QD2 (<i>How old were you when this baby was born?</i>).</p> <p><b><u>Socio-economic status:</u></b> Based on measures of family wealth and education. Determined by deriving questions:</p> <ul style="list-style-type: none"> <li>▪ QD4 (<i>What is the highest level of education you have completed?</i>) into a 3-category variable.</li> <li>▪ QD7 (<i>Which income category includes the total income of your household before taxes in 2005?</i>) into a 3-category response variable.</li> </ul> <p><b><u>Smoking status:</u></b> Determined using question QD5A (<i>Did you smoke tobacco at all during your pregnancy?</i>).</p>

	<p>derived into a 3-category response variable.</p> <p><b><u>Help with infant feeding decisions:</u></b>  Determined using question QA2 (<i>Who or what helped you with your decision about feeding your baby?</i>)</p> <p><b><u>Attended prenatal class:</u></b>  Determined using question QS1 (<i>During your pregnancy did you attend a prenatal class at the Leeds, Grenville &amp; Lanark District Health Unit?</i>).</p> <p><b><u>Work or school plans:</u></b>  Determined using question QW1 (<i>Are you planning to return to work or school in the next year?</i>).</p>	
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***Primary Exposure Measures and Covariates***

The survey tool gathered many potential primary exposure measures that could be directly associated with the chosen outcomes. As well, several secondary covariates were considered as potential confounders to the relationships between the chosen exposure and outcome variables. Exposure variables were chosen from those identified in the literature as well as those encountered in everyday infant feeding-related public health practice.

***Statistical Analysis***

Data analyses were initially conducted using SPSS (SPSS Inc., Chicago, IL, Version 15). A commercially available spreadsheet was used to produce charts and graphics (Excel; Microsoft Inc., Redmond, WA, Version 2000).

Patterns associated with the three general infant feeding outcomes (breastfeeding initiation, breastfeeding duration, introduction to solid food) were evaluated. The descriptive analysis focussed on calculation of rates and associated 95% confidence intervals (95% C.I.), descriptions of infant feeding patterns and prevalence of barriers to breastfeeding initiation and duration. Contingency table analysis ( $\chi^2$  or Fisher’s Exact tests when cell sizes  $\leq 5$  were encountered) where a P-value of  $\leq 0.05$  was considered to be significant, was used in these statistical comparisons.

Multiple logistic regression analyses were used to assess differences in risk for the three general infant feeding outcomes among study participants. These analyses were necessarily restricted to variables that provided a sufficient sample size to be useable in the regression analysis. Variables that had been identified *a priori* as risk factors for the infant feeding outcomes (age group, socio-economic status and smoking during pregnancy) were included as covariates in the statistical models. Both crude and adjusted odds ratios (OR's) were produced with associated 95% C.I.'s.

For the purposes of this report, descriptive statistics from the Infant Feeding Survey are reported in the text or as tables and figures as needed. The following should be noted with regard to the presentation of certain data:

- Missing values were omitted from the analysis;
- Individual sub-categories where the numerator was < 5 were not reported
- All percentages and rates were rounded to the nearest 0.1;
- Percentages do not always total to 100% due to rounding error;
- In the case of multiple response variables for which a study participant could provide more than one response, percentages are expressed in terms of the number of respondents and may add to more than 100% for these variables;
- Coefficients of variation (CV) were calculated for each estimate. The following CV parameters were used to determine if estimates could be presented in this report:
  - CV between 0 and 16.6 (estimate can be released without qualification);
  - CV between 16.7 and 33.3 (estimate can be released with qualification: interpret with caution, high variability); Statistic marked with an "E" in text.
  - CV greater than 33.3 (estimate cannot be released regardless of cell size).

## **Results**

### ***Response Rate and Sample Characteristics***

Five-hundred women who were residents of Leeds, Grenville or Lanark Counties and who gave birth from March 1<sup>st</sup> to October 1<sup>st</sup> of 2006 participated in the study (out of the 990 (NIDAY) (967 ISCIS)). Compustat Consultants contacted 634 eligible women between October 2006 and April 2007, resulting in a response rate of 79%. The mean age of study participants was 29.4 years (S.D.  $\pm$  5.0) (min 16.0, max 47.0). 74.2% (95% C.I.: 69.7, 78.7) of respondents reported having at least a college certificate or diploma, 77.0% (95% C.I.: 72.4, 81.6) reported having a pretax family income of over \$40,000 per year and over 91% of women reported living with a partner or partner and other children (Table 2). Several variables were identified as being significant to the logistic regression models.

### ***Pre/Post-natal Experience***

Twenty-three percent of women (95% C.I.: 15.9, 31.3) reported attending a prenatal class at the Health Unit during their pregnancy. The most common reason reported for not attending a prenatal class at the Health Unit was "no need" at 22.5% (95% C.I.: 13.7, 31.3). As well, 54.2% (95% C.I.: 47.4, 61.0) of women reported having attended a prenatal class with another agency or at the Health Unit with a previous pregnancy.

In terms of their birth experience, 67.8% (95% C.I.: 62.8, 72.8) of women reported giving birth vaginally while 32.2% (95% C.I.: 25.0, 39.4) reported having a cesarean section. 78.7% (95% C.I.: 73.9, 82.1) of respondents reported having pain medication during labour (48.8% epidural, 39.0% IV).

Following the birth of their babies 80.4% (95% C.I.: 76.5, 84.3) of mothers reported that, while at home, they received a call from a public health nurse and 60.0% (95% C.I.: 54.0, 66.0) reported a visit from a public health nurse. As well, 25.5% (95% C.I.: 17.3, 33.7) stated that they had spoken to a lactation consultant at either the Health Unit (30.6%(95% C.I.: 14.9, 46.3)) or some other source (67.6%(95% C.I.: 56.9, 78.3)). When asked if they had attended a “Baby Talk” group at the Health Unit following the birth of their child 38.1% (95% C.I.: 30.6, 45.6) stated that they had. As well, 36.9% (95% C.I.: 29.3, 44.5) of respondents had called the Health Unit 1-800 Health Action Line. However, about 12% stated that they were not aware of the 1-800 service. Finally, 18.7% (95% C.I.: 10.1, 27.3) of women in the survey had accessed the Health Unit website to obtain breastfeeding information. Unfortunately, 49.1% (95% C.I.: 40.8, 57.4) of respondents reported not being aware of the Health Unit website.

### ***Breastfeeding Initiation***

One of the primary objectives of this survey was to identify infant feeding practices of new mothers in the tri-county area. Specifically, factors related to breastfeeding initiation. Of the survey respondents, 84.9% (95% C.I.: 81.5, 88.3) reported initiating breastfeeding within the first two days after their baby was born. This figure represents a 3.3% increase over the initiation rates in the 2001 Infant Feeding Survey.

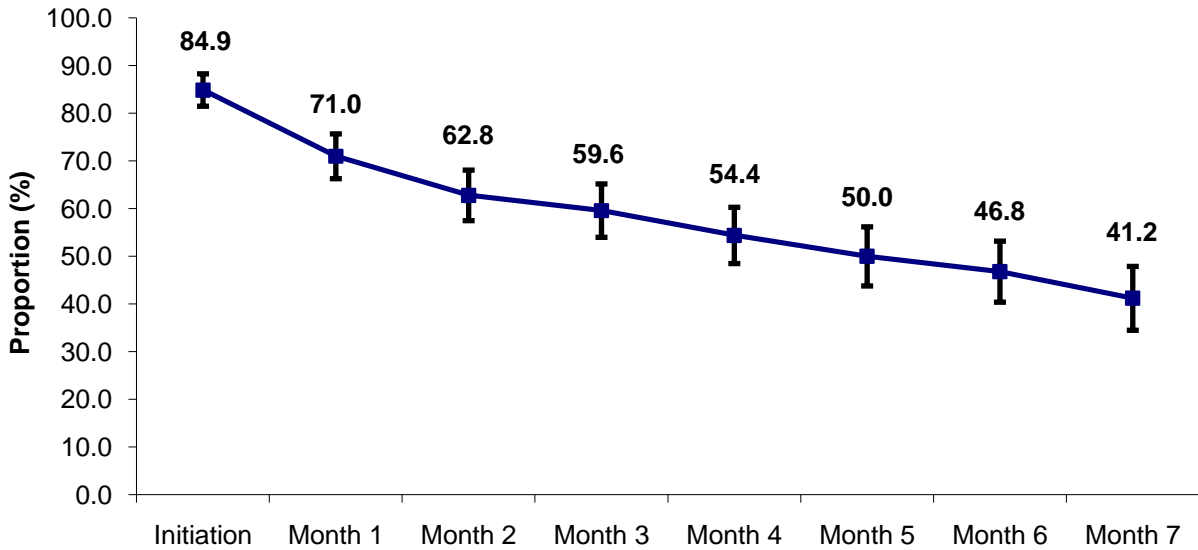
Logistic regression analysis of factors associated with breastfeeding initiation demonstrated that there were strong and consistent associations between higher levels of education, prenatal class attendance, making the decision of how to feed the baby before becoming pregnant, and relying on a friend or relative to aid in breastfeeding decisions with rates of breastfeeding initiation (Table 4). For example, after controlling for potential confounders, women who attended a prenatal class at the Health Unit were 2.4 (95% C.I.: 1.1, 5.7) times more likely to initiate breastfeeding than those who did not attend. As well, women who decided how to feed their baby before becoming pregnant were 3.4 (95% C.I.: 1.3, 8.6) times more likely to initiate breastfeeding than those who decided after their baby was born. Although not significant, not smoking during pregnancy was associated with a 100% increase in the odds of initiating breastfeeding. Dose responses were obtained for the associations between breastfeeding initiation and higher levels of education and deciding how to feed the baby in advance of pregnancy.

### ***Breastfeeding Duration***

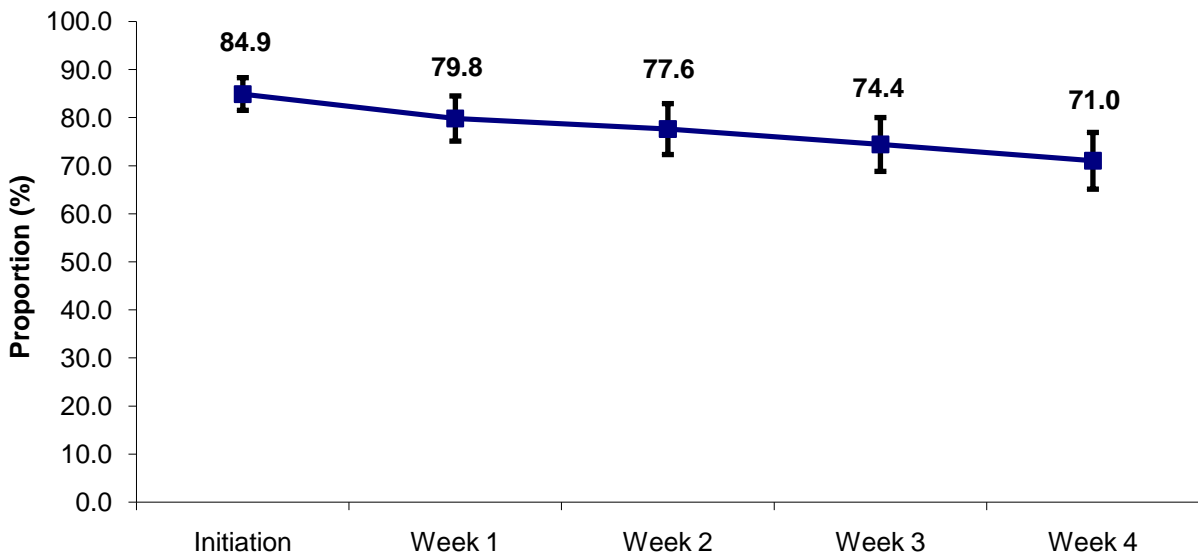
Breastfeeding duration was also one of the primary objectives of this survey. As outlined above, 84.9% (95% C.I.: 81.5, 88.3) of women reported initiating breastfeeding within 2-days of their baby being born. This proportion diminished to 41.2% (95% C.I.: 34.5, 47.9) after 6-months post-partum. A decrease of 13.9% in the proportion of women breastfeeding occurred within the first month post-partum (71.0% (95% C.I.: 66.3, 75.7)) which was the largest statistically significant decrease recorded (Figure 1). When broken down by the first month

there was a fairly constant rate of decline in the proportion of women who reported breastfeeding. This worked out into an average weekly decrease of 3.5% (Figure 2).

**Figure 1: Proportion of Women Breastfeeding in LGL (Birth to 6-months) 2006**

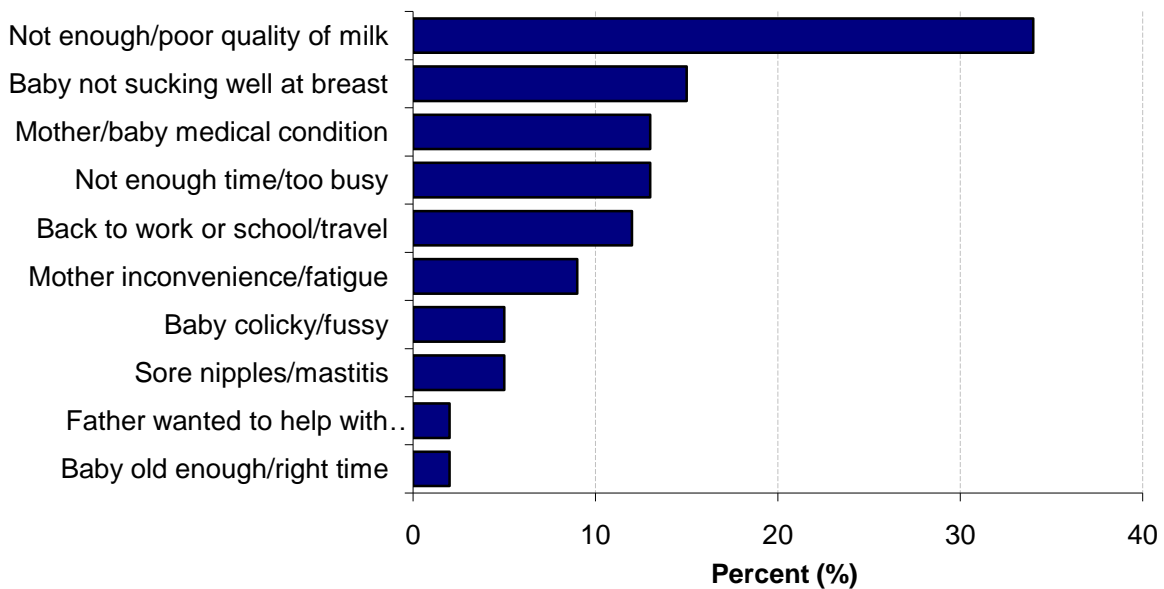


**Figure 2: Proportion of Women Breastfeeding in LGL (Birth to 1-month) 2006**



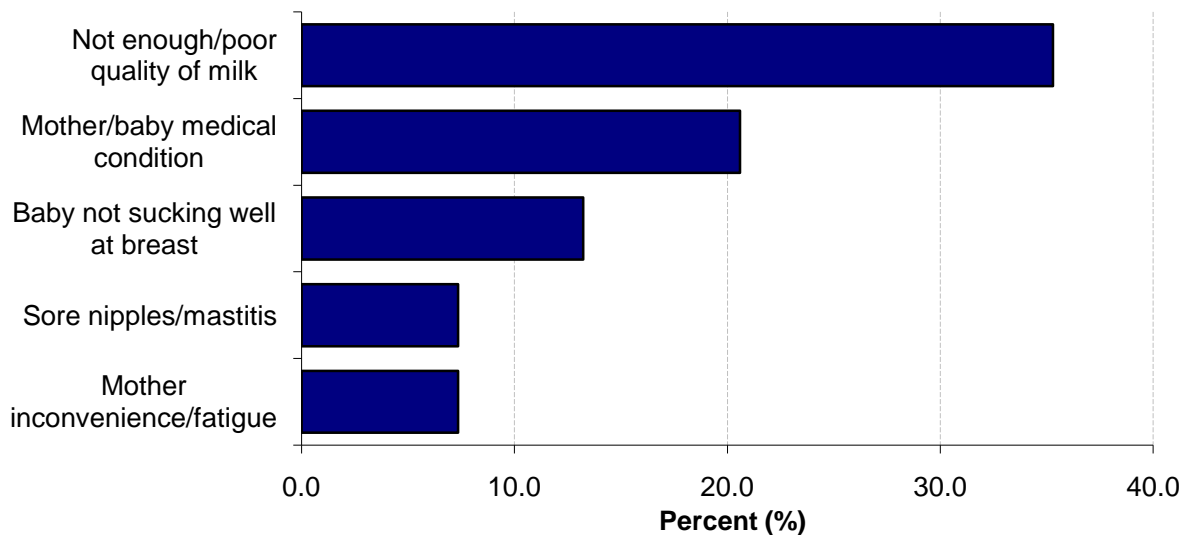
Milk supply and quality, baby latching and medical conditions were given as the main reasons mothers terminated breastfeeding over the 6-month survey period (Figure 3). As well, lacking time to breastfeed, returning to work or school and inconvenience were also stated.

**Figure 3: Main Reasons for Stopping Breastfeeding (n = 217)**



Milk supply and quality, medical conditions and baby not sucking well at breast were given as the main reasons mothers terminated breastfeeding in the first month post-partum (Figure 4).

**Figure 4: Main Reasons for Stopping Breastfeeding Within First Month of Birth (n = 68)**



Logistic regression analysis of factors associated with breastfeeding duration demonstrated that there were strong and consistent associations between higher levels of education, smoking during pregnancy, making plans on how to feed the baby during pregnancy, and the use of formula samples after controlling for potential confounders (Table 5). A dose response was observed between levels of education and breastfeeding duration with the odds of breastfeeding to at least 6-months increasing from 2.2 (95% C.I.: 1.1, 4.4) times with college education to 2.9 (95% C.I.: 1.5, 5.9) times with a university undergraduate or graduate school degree. Planning to breastfeed during pregnancy was also an important predictor to breastfeeding duration past 6-months post-partum. If a pregnant woman planned to initiate and carry through with breastfeeding for at least 6-months she was 2.2 (95% C.I.: 1.2, 4.0) times more likely to breastfeed over 6-months. Also observed was the significant protective effect against breastfeeding duration by women who planned to breastfeed for less than 6-months when they were pregnant resulting in them being 60% less likely to breastfeed for 6-months post-partum. Finally, not using formula samples also resulted in a strong 3.4 (95% C.I.: 1.9, 6.3) times increase in the likelihood of continuing to breastfeed for at least 6-months.

### ***Introduction to Solid Food***

The logistic regression analysis identified several factors that were significantly associated with not introducing a baby to solid foods before 6-months post-partum (Table 6). Once again higher levels of education were positively associated with continued exclusive breastfeeding or breastfeeding in combination with other liquids. Mothers with college or university education were 2.1 (95% C.I.: 1.1, 4.2) to 2.7 (95% C.I.: 1.2, 6.0) times more likely to breastfeed up to 6-months. However, levels of income were inversely associated with introduction to solids with a dose response being observed for higher income families being more likely to introduce solids before 6-months post-partum. In this instance, mothers with a pre-tax family income of \$80,000 or more were 50% more likely to begin feeding their baby solid food before 6-months post-partum.

Once again not smoking and planning to breastfeed while pregnant were strongly and positively associated with a delay in introducing solids (Table 6). Mothers who did not smoke during pregnancy were 2.9 (95% C.I.: 1.2, 6.9) times more likely to delay introducing solids and mothers who planned to breastfeed for more than 6-months when pregnant were 2.7 (95% C.I.: 1.5, 4.9) times more likely to delay solid introduction.

Also observed was an increasing likelihood of mothers who were older to delay the onset of solid introduction past 6-months post-partum but these observations were not significant. Crude odds ratios for mothers who did not plan to return to work 12-months after the survey also supported the delay of introduction to solids, however, this association proved transient when confounding factors were considered.

**Table 2: Overall demographic characteristics of survey respondents (n = 500), women aged 16 or older (Leeds, Grenville and Lanark Infant Feeding Survey 2006).**

	Sample (n)	Prevalence (%)	95% confidence interval
<b>Age (years)</b>			
Less than 25	86	17.2	(9.2, 25.2)E
25 – 34	341	68.2	(63.3, 73.1)
35+	73	14.6	(6.5, 22.7)E
<b>Education completed</b>			
High school or less	128	25.9	(18.3, 33.5)
Trade or college certificate/diploma	243	49.1	(42.8, 55.4)
University or graduate school	124	25.1	(17.5, 32.7)
<b>Income category</b>			
Less than \$40,000	96	23.0	(14.6, 31.4)E
\$40,000 to less than \$80,000	163	39.1	(31.6, 46.6)
\$80,000 or more	158	37.9	(30.3, 45.5)
<b>Living arrangement</b>			
Partner/partner and other children	457	91.4	(88.8, 94.0)
Other	--	--	--
<b>Smoke during pregnancy</b>			
Yes	79	15.8	(7.8, 23.8)E
No	421	84.2	(80.7, 87.7)
<b>Planning to return to work or school in year following survey</b>			
Yes	327	65.4	(60.2, 70.6)
Already returned	--	--	--
No	91	18.2	(10.3, 26.1)E
Don't know	--	--	--

Data source: 2007 Leeds, Grenville & Lanark District Health Unit Infant Feeding Survey

Notes:

1. Other category includes: "Alone with baby/other children, Parents/extended family, Unrelated housemates".
2. Based on sample of 500 survey respondents.
3. \* = Significant, ... = Not applicable, E = Interpret with caution, -- = Suppressed

**Table 3: Description of factors contributing to breastfeeding initiation and duration, women aged 16 or older (Leeds, Grenville and Lanark Infant Feeding Survey 2006).**

	Sample (n)	Prevalence (%)	95% confidence interval	$\chi^2$ analysis ( $p \leq 0.05$ )
<b>During pregnancy attended prenatal class at Health Unit</b>				
Yes	118	23.6	(15.9, 31.3)	0.04
No	382	76.4	(72.1, 80.7)	
<b>When decided how to feed baby</b>				
Before became pregnant	336	67.5	(62.5, 72.5)	0.02
During pregnancy	131	26.3	(18.8, 32.8)	
After baby was born	--	--	--	
<b>When pregnant what planned to feed baby after it was born</b>				
Breastmilk only	426	85.7	(82.4, 89.0)	<0.001
Combination of breastmilk and formula	--	--	--	
Formula only	--	--	--	
<b>Did anyone help you with your decision about feeding your baby</b>				
No help, my own decision	285	57.0	(51.3, 62.7)	0.08
Relative/friend helped in decision	69	13.8	(5.7, 21.9)E	0.02
Health professional helped in decision	84	16.8	(8.8, 24.8)E	0.006
<b>Was baby fed any other fluid after breastfeeding started</b>				
Yes	162	38.5	(31.0, 46.0)	<0.001
No	259	61.5	(55.6, 67.4)	
<b>In first 2-days after baby born, fed breastmilk/breastmilk combination or formula only</b>				
Breastmilk/breastmilk combination	423.0	85.3	(81.9, 88.7)	<0.001
Formula only	73.0	14.7	(6.6, 22.8)E	
<b>How soon after birth did you try to breastfeed baby for first time</b>				
Less than 1-hour	238	57.2	(50.9, 63.5)	0.02
One hour to less than 12-hours	155	37.3	(29.7, 44.9)	
Greater than 12-hours	--	--	--	

**Table 3**

	Sample (n)	Prevalence (%)	95% confidence	$\chi^2$ analysis
<b>When pregnant how long planned to breastfeed baby</b>				
Less than 6-months	140	33.3	(25.5, 41.1)	<0.001
More than 6-months	192	45.7	(38.7, 52.7)	
Other	88	21.0	(12.5, 29.5)E	
<b>If you received formula samples, have you used them</b>				
Yes	176	61.5	(54.3, 67.8)	<0.001
No	110	38.5	(29.4, 47.6)	
<b>Planning to return to work or school in next year</b>				
Yes	327	65.4	(60.2, 70.6)	0.008
Already returned	--	--	--	
No	91	18.2	(10.3,	
Don't know	--	--	--	

Data source: 2007 Leeds, Grenville & Lanark District Health Unit Infant Feeding Survey

Notes:

1. E = Interpret with caution, -- = Suppressed

**Table 4: Crude and adjusted odds ratios relating socio-demographic, lifestyle, health support and pre-term infant feeding decisions to breastfeeding initiation for women aged 16 or older (Leeds, Grenville and Lanark 2006).**

	Crude odds ratio	95% confidence interval	Adjusted odds ratio	95% confidence interval
<b>Age (years)</b>				
Less than 25 <sup>†</sup>	1.0	...	1.0	...
25 – 34	2.3*	(1.3, 4.0)	1.3	(0.6, 2.7)
35+	2.2	(1.0, 4.9)	0.9	(0.3, 2.4)
<b>Education completed</b>				
High school or less <sup>†</sup>	1.0	...	1.0	...
Trade or college certificate/diploma	2.8*	(1.6, 4.8)	2.0*	(1.1, 3.9)
University or graduate school	5.2*	(2.4, 11.3)	2.4	(0.9, 6.0)
<b>Income category</b>				
Less than \$40,000 <sup>†</sup>	1.0	...	1.0	...
\$40,000 to less than \$80,000	1.3	(0.7, 2.4)	0.9	(0.5, 1.9)
\$80,000 or more	3.4*	(1.6, 7.3)	1.8	(0.8, 4.6)
<b>Smoke during pregnancy</b>				
Yes <sup>†</sup>	1.0	...	1.0	...
No	2.6*	(1.5, 4.5)	2.0	(1.0, 4.0)
<b>During pregnancy attended prenatal class at Health Unit</b>				
Yes	2.0*	(1.1, 4.0)	2.4*	(1.1, 5.7)
No <sup>†</sup>	1.0	...	1.0	...
<b>When decided how to feed baby</b>				
Before became pregnant	3.5*	(1.5, 8.0)	3.4*	(1.3, 8.6)
During pregnancy	1.8	(0.8, 4.4)	1.7	(0.6, 4.6)
After baby was born <sup>†</sup>	1.0	...	1.0	...
<b>Did anyone help you with your decision about feeding your baby</b>				
No help, my own decision	1.0	...	1.0	...
Relative/friend helped in decision	4.6*	(1.4, 14.9)	6.7*	(1.5, 29.5)
Health professional helped in decision	2.7*	(1.1, 6.4)	1.8	(0.7, 4.6)

Data source: 2006 Leeds, Grenville & Lanark District Health Unit infant feeding survey  
 Notes. Odds ratios adjusted for age, education, income category and smoking during pregnancy.

<sup>†</sup>Referent category, \*Significant, ...Not applicable

**Table 5: Crude and adjusted odds ratios relating socio-demographic, lifestyle, health support and pre-term infant feeding decisions to breastfeeding duration of at least 6-months for women aged 16 or older (Leeds, Grenville and Lanark 2006).**

	Crude odds ratio	95% confidence interval	Adjusted odds ratio	95% confidence interval
<b>Age (years)</b>				
Less than 25 <sup>†</sup>	1.0	...	1.0	...
25 – 34	2.9*	(1.7, 5.0)	1.9	(0.9, 3.8)
35+	4.7*	(2.3, 9.3)	2.3	(1.0, 5.3)
<b>Education completed</b>				
High school or less <sup>†</sup>	1.0	...	1.0	...
Trade or college	2.8*	(1.7, 4.6)	2.2*	(1.2, 3.9)
University or graduate school	4.4*	(2.5, 7.5)	2.9*	(1.5, 5.9)
<b>Income category</b>				
Less than \$40,000 <sup>†</sup>	1.0	...	1.0	...
\$40,000 to less than \$80,000	1.2	(0.7, 2.0)	0.7	(0.4, 1.3)
\$80,000 or more	1.9*	(1.1, 3.2)	0.8	(0.4, 1.5)
<b>Smoke during pregnancy</b>				
Yes <sup>†</sup>	1.0	...	1.0	...
No	3.2*	(1.8, 5.7)	2.2*	(1.1, 4.4)
<b>Was baby fed any other fluid after breastfeeding started</b>				
Yes <sup>†</sup>	1.0	...	1.0	...
No	2.0*	(1.4, 3.0)	1.9*	(1.2, 3.0)
<b>In first 2-days after baby born, fed breastmilk/combination or formula only</b>				
Breastmilk only	3.5*	(2.4, 5.3)	3.2*	(2.0, 5.0)
Breastmilk and formula or formula	1.0	...	1.0	...
<b>How soon after birth did you try to breastfeed baby for first time</b>				
Less than 1-hour	1.4	(0.6, 3.2)	1.3	(0.5, 3.3)
One hour to less than 12-hours	0.8	(0.3, 1.8)	0.8	(0.3, 2.0)
Greater than 12-hours <sup>†</sup>	1.0	...	1.0	...

**Table 5**

	Crude odds ratio	95% confidence interval	Adjusted odds ratio	95% confidence interval
<b>When pregnant how long planned to breastfeed baby</b>				
Less than 6-months	0.4*	(0.2, 0.8)	0.4*	(0.2, 0.8)
More than 6-months	2.5*	(1.5, 4.1)	2.2*	(1.2, 4.0)
Other <sup>†</sup>	1.0	...	1.0	...
<b>If you received formula samples, have you used them</b>				
Yes <sup>†</sup>	1.0	...	1.0	...
No	2.9*	(1.7, 4.7)	3.4*	(1.9, 6.3)
<b>Planning to return to work or school in next year</b>				
Yes <sup>†</sup>	1.0	...	1.0	...
Already returned	0.4*	(0.2, 0.8)	0.6	(0.3, 1.1)
No	1.5	(0.9, 2.4)	1.7	(1.0, 3.1)
Don't know	1.3	(0.6, 3.1)	1.6	(0.5, 4.6)

Data source: 2006 Leeds, Grenville & Lanark District Health Unit infant feeding survey

Notes. Odds ratios adjusted for age, education, income category and smoking during pregnancy.

**Table 6: Crude and adjusted odds ratios relating socio-demographic, lifestyle, health support and pre-term infant feeding decisions to time baby introduced to solid food after 6-months for women aged 16 or older (Leeds, Grenville and Lanark 2006).**

	Crude odds ratio	95% confidence interval	Adjusted odds ratio	95% confidence interval
<b>Age (years)</b>				
Less than 25 <sup>†</sup>	1.0	...	1.0	...
25 – 34	1.3	(0.7, 2.3)	1.1	(0.5, 2.3)
35+	1.9	(0.9, 3.8)	1.4	(0.6, 3.4)
<b>Education completed</b>				
High school or less <sup>†</sup>	1.0	...	1.0	...
Trade or college	2.2*	(1.3, 3.8)	2.1*	(1.1, 4.2)
University or graduate school	2.4*	(1.3, 4.4)	2.7*	(1.2, 6.0)
<b>Income category</b>				
Less than \$40,000 <sup>†</sup>	1.0	...	1.0	...
\$40,000 to less than \$80,000	0.8	(0.4, 1.4)	0.6	(0.3, 1.1)
\$80,000 or more	0.9	(0.5, 1.5)	0.5*	(0.2, 0.9)
<b>Smoke during pregnancy</b>				
Yes <sup>†</sup>	1.0	...	1.0	...
No	2.3*	(1.3, 4.6)	2.9*	(1.2, 6.9)
<b>In first 2-days after baby born, fed breastmilk/combination or formula only</b>				
Breastmilk only	1.4	(1.0, 2.2)	1.3	(0.8, 2.1)
Breastmilk and formula or	1.0	...	1.0	...
<b>When decided how to feed baby</b>				
Before became pregnant	1.6	(0.7, 4.1)	1.4	(0.5, 4.1)
During pregnancy	1.7	(0.6, 4.4)	1.7	(0.6, 5.2)
After baby was born <sup>†</sup>	1.0	...	1.0	...
<b>When pregnant how long planned to breastfeed baby</b>				
Less than 6-months <sup>†</sup>	1.0	...	1.0	...
More than 6-months	2.6*	(1.5, 4.4)	2.7*	(1.5, 4.9)
Other	1.9	(1.0, 3.5)	1.7	(0.9, 3.6)

**Table 6**

	Crude odds ratio	95% confidence	Adjusted odds ratio	95% confidence
<b>Planning to return to work or school in next year</b>				
Yes <sup>†</sup>	1.0	...	1.0	...
Already returned	1.4	(0.7, 2.5)	1.2	(0.6, 2.5)
No	1.8*	(1.1, 3.0)	1.6	(0.9, 3.0)
Don't know	1.5	(0.6, 3.7)	0.9	(0.3, 3.1)

Data source: 2006 Leeds, Grenville & Lanark District Health Unit infant feeding survey  
Notes. Odds ratios adjusted for age, education, income category and smoking during pregnancy.

<sup>†</sup>Referent category, \*Significant, ...Not applicable

## **Discussion and Recommendations**

The results of the 2006 Leeds, Grenville & Lanark District Health Unit Infant Feeding Survey can be compared to the Health Unit's 2001 Infant Feeding Survey as well as to the literature for similarities and differences. The results for breastfeeding initiation, breastfeeding duration, reasons for stopping breastfeeding, and the introduction to solid foods will be discussed in this section.

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### **Initiation**

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The breastfeeding initiation rates in the 2006 survey increased slightly (by 3.3%) compared to the 2001 survey. In 2006, close to 85% of respondents reported initiating breastfeeding within the first two days after their baby was born, whereas 81.1% initiated breastfeeding in 2001. The following factors appear to influence how likely mothers were to initiate breastfeeding.

#### **Education Level**

The Health Unit's 2006 survey found that a mother's education level was significantly associated with breastfeeding initiation: mothers with a college education were 2.0 times more likely to initiate breastfeeding and mothers with a university education were 2.4 times more likely to initiate breastfeeding compared to mothers with a high school education or less (after adjusting for potential confounders). This trend is also seen in the literature, as two surveys of infant feeding in Ontario<sup>3,5</sup>, as well as infant feeding surveys in Alberta<sup>6</sup> and Quebec<sup>7</sup> have found higher education levels to be associated with breastfeeding initiation. Women with lower education levels could be considered a priority population in terms of increasing breastfeeding initiation rates.

#### **Maternal Age**

Although not statistically significant in the 2006 survey, maternal age was associated with breastfeeding initiation. Mothers between the ages of 25-34 were 1.3 times more likely to initiate breastfeeding and mothers 35 or older were 0.9 times as likely to initiate breastfeeding

compared to mothers younger than 25 years. The Waterloo infant feeding survey<sup>2</sup> found the greatest rate of breastfeeding initiation to be among mothers older than 30 years, and a study of infant feeding practices in Northern Ontario<sup>3</sup> found that mothers younger than 20 years were less likely to initiate breastfeeding than older mothers. Further exploration of the reasons that mothers younger than 25 or older than 35 are less likely to initiate breastfeeding may yield useful information for public health practice. Women in these age groups could also be considered a priority population to target for increasing breastfeeding duration rates.

### **Prenatal Class Attendance**

Mothers who attended prenatal classes at the Health Unit were 2.4 times more likely than mothers who had not attended prenatal classes at the Health Unit to initiate breastfeeding. This result is encouraging, however less than one-quarter of mothers surveyed (23.6%) reported attending prenatal classes at the Health Unit. In the 2001 survey, 32.9% of respondents reported attending prenatal classes at the Health Unit. Other infant feeding surveys in Ontario<sup>3,5</sup> and a study of mothers' breastfeeding knowledge in Australia<sup>8</sup> have found similar associations between attending prenatal classes and increased odds of breastfeeding initiation. It is important to note that a previous evaluation of the Health Unit's prenatal classes<sup>33</sup> found that 78% of women attending the classes intended to breastfeed, so it is possible that the women who attend prenatal classes are women who have already decided to breastfeed their baby, and women who have decided not to breastfeed choose not to attend.

### **Timing and Nature of Infant Feeding Decision**

The timing of when a mother makes the decision of how to feed her baby, and the nature of how she makes that decision both influence breastfeeding initiation. In the 2006 survey, 67.5% of mothers decided how to feed their baby before they became pregnant, compared to 74.1% in the 2001 survey. In the 2006 survey, mothers who decided how to feed their baby before they became pregnant were 3.4 times more likely to initiate breastfeeding than mothers who decided how to feed their baby after it was born. This speaks to the importance of targeting women of reproductive age before they become pregnant and developing strategies to address the broader social environment and cultural norms associated with breastfeeding. A similar example in the literature is an Australian study<sup>8</sup> that found that women who intended to breastfeed for more than 6 months were significantly more likely to initiate breastfeeding than women who were planning to breastfeed for less than 6 months or were unsure of how they would feed their infant.

### **Recommendations Related to Breastfeeding Initiation**

Based on the 2006 results and discussion related to breastfeeding initiation, the following recommendations can be made:

- *Consider mothers with lower education levels and mothers younger than 25 as priority populations in terms of increasing breastfeeding initiation rates*
- *Develop strategies to better understand the barriers these mothers face in initiating breastfeeding and strategies to support these women*

- *Continue to promote upstream thinking about breastfeeding to ensure that girls and women consider breastfeeding the cultural norm, and that their support persons consider breastfeeding to be the cultural norm*
- *Consider female students as a priority population to ensure that they decide to breastfeed before they become pregnant or before they begin thinking about becoming pregnant*

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## **Duration**

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In the 2006 survey, 41.2% of mothers continued to breastfeed after 6 months, compared to the 2001 survey where 39.9% of respondents were still breastfeeding at 6 months. The 2006 duration rate is still below the target of 50% of mothers breastfeeding at 6-months as stated in the Mandatory Health Programs and Services Guidelines.

As with the 2001 survey, the most significant decline in the number of mothers breastfeeding occurred within the first month, and the average weekly decline in 2006 was 3.5%. Several of the factors that influenced breastfeeding initiation were also found to influence breastfeeding duration. Education levels and the timing of the decision for how to feed the infant influenced both initiation and duration.

### **Education**

Once again, mothers' education levels were significantly associated with breastfeeding duration. Mothers with a college education were 2.2 times more likely to breastfeed for at least 6 months, and mothers with a university education were 2.9 times more likely to breastfeed for at least 6 months compared to mothers with a high school education or less. In the 2001 survey, 33% of the mothers who were breastfeeding at two weeks postpartum had a university education compared to only 9.3% of mothers who were formula feeding. Studies of infant feeding in low-income Ontario communities<sup>5</sup> and in Sudbury, Ontario<sup>34</sup> reported similar results, as did international studies in Scotland<sup>4</sup> and Australia<sup>8</sup>. A study of infant feeding in Northern Ontario<sup>3</sup> found that women with greater than high school education were more likely to exclusively breastfeed for longer compared to women with a high school education or less. Similarly, a study of infant feeding in Quebec<sup>35</sup> found that a mother's education level was the strongest influence on breastfeeding status at 4 months, and the Ontario Mother and Infant Survey<sup>11</sup> reported that not completing high school was one of the most important risk factors for early discontinuation of breastfeeding. These results highlight the importance of targeting and reaching mothers with lower education levels.

### **Smoking**

In the 2006 survey, women who did not smoke while they were pregnant were 2.2 times more likely to breastfeed at 6 months post-partum compared to women who smoked while they were pregnant. Other Canadian studies in Ontario<sup>5</sup>, Quebec<sup>7</sup> and Alberta<sup>6</sup> have reported similar results for the influence of mothers' smoking status on breastfeeding duration. As well, a Norwegian study<sup>18</sup> found that the odds of exclusive breastfeeding at both 4 and 6 months

were lower for mothers who smoked. The authors of the Ottawa-Carleton infant feeding survey<sup>24</sup> suggested that infant fussiness due to exposure to tobacco smoke may be misinterpreted as fussiness related to feeding, which could help to explain why mothers who smoked while pregnant tended to have a shorter breastfeeding duration.

### **Timing of Infant Feeding Decision**

The timing of a mother's decision about how to feed her baby appears to influence breastfeeding duration, in addition to initiation. In the 2006 survey, mothers who were planning to breastfeed for more than 6 months while they were pregnant were 2.2 times more likely to be breastfeeding at 6 months compared to mothers who were planning to breastfeed for less than 6 months while they were pregnant. Similarly, in the 2001 Health Unit survey, more mothers who were breastfeeding at two weeks postpartum had made the decision to breastfeed while pregnant (80.6%) compared to mothers who were feeding formula (58.9%). The Sudbury infant feeding survey<sup>34</sup> found a similar association between mothers who decided to breastfeed before the baby was born and increased duration of breastfeeding. The first Ontario Mother and Infant Survey<sup>11</sup> found that the intent to breastfeed for less than 4 months was a risk factor for early discontinuation of breastfeeding and the second Ontario Mother and Infant Survey<sup>19</sup> found that mothers intending to breastfeed for less than 4 months, or who were unsure of how they would feed their baby were 4.03 times more likely to discontinue breastfeeding by 4 weeks postpartum. An Australian study<sup>8</sup> found that mothers who intended to breastfeed for 12 months were 2.45 times more likely to breastfeed at 4 months postpartum compared to women who intended to breastfeed for less than 6 months.

### **Receipt of Formula Samples**

In the 2006 survey, 57.9% of mothers reported receiving formula samples; and 37% of these mothers reported receiving the samples before their baby was born. Mothers in the 2006 survey who received formula samples but did not use them were 3.4 times more likely to breastfeed at 6 months postpartum compared to mothers who had received and used formula samples. In the 2001 survey, 20.0% of respondents reported receiving formula samples from hospitals or through the mail. In 2001, significantly more women who were formula feeding reported receiving a gift pack (31%) compared to women who were breastfeeding (13%). A study in Oregon<sup>36</sup> found that women who received hospital discharge packages (containing formula samples) were more likely to breastfeed for less than 10 weeks than women who did not receive hospital discharge packages. The authors of this study suggested that the distribution of these packages implies hospital and staff endorsement and may influence mothers' decisions to use formula.

### **Recommendations Related to Breastfeeding Duration**

The following recommendations can be made based on the breastfeeding duration results and discussion:

- *Again, consider mothers with lower education levels to be a priority population and consider developing strategies to explore the barriers that these women face in breastfeeding for 6 months or more*

- *Ensure that Family Health staff are aware of infants' hunger cues and can assist parents with distinguishing between infant fussiness due to hunger and fussiness due to other causes*
- *Again, consider female students as a priority population to ensure that they decide to breastfeed for at least 6 months before they become pregnant or before they begin thinking about becoming pregnant*
- *Ensure that health professionals and families are aware of the influence that receiving formula samples can have on a mother*

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## **Reasons for Breastfeeding Cessation**

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### **Insufficient milk supply**

In both the 2001 and 2006 Health Unit surveys, the perception of an insufficient milk supply was the most common reason for breastfeeding cessation within the first month. In 2006, 35% of mothers reported insufficient milk supply as the reason for stopping breastfeeding compared to 54.2% in 2001. Several other studies have also reported 'not enough milk' as the most common reason for breastfeeding cessation<sup>2;3;8;16;17</sup>. The second most common reason for breastfeeding cessation in 2006 was mother/baby medical condition (approximately 20%) compared to 10.4% stating this as the cause of breastfeeding cessation in 2001. This perception of an insufficient milk supply warrants further in-depth investigation to better understand why mothers perceive this.

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## **Introduction of Solid Foods**

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The age at which solid foods were first introduced to an infant was determined by asking the question "At what age did you first give infant cereal or pablum to your baby?" It was felt by the researchers that this is often the most commonly chosen "first food" for babies, and is consistent with national infant feeding recommendations<sup>37</sup>. The recommendation for timely introduction of solid foods has changed in recent years, and varies among individual countries. In Canada, it is recommended that solid foods are introduced at six months of age. It is useful, then, to consider whether solid foods are introduced earlier than the recommended timeline in general, in addition to specific infant ages.

### **Education Level**

In the LGLDHU survey results, women with higher levels of education were significantly more likely to introduce solid foods after 6 months of age. The Ottawa-Carleton infant feeding survey<sup>24</sup> also found that mothers with lower levels of education were more likely to introduce solid foods earlier than the recommended timeline, as did studies by Alder et. al.<sup>38</sup>, Hamlyn et. al.<sup>4</sup> and Coleman<sup>28</sup>. Several studies have reported that college educated or more highly educated women were significantly more likely to follow national recommendations including complementary feeding guidelines<sup>25;26</sup>.

### **Smoking Status**

Women who did not smoke during their pregnancy were significantly more likely to introduce solid foods after 6 months of age. The Ottawa-Carleton study<sup>24</sup> again showed the same result, as did several other studies<sup>28;38</sup>. The authors of the Ottawa-Carleton study<sup>24</sup> went on to suggest that because infants exposed to prenatal and postnatal second-hand smoke exhibit a number of adverse respiratory symptoms and ill health effects, it is possible that these symptoms may be misinterpreted as fussiness on behalf of the infant, leading the mother to give solid foods as an attempt to calm their child.

### **Influence of Infant Feeding Mode**

Survey results showed that at 6 months of age, only 1% of respondents were feeding only breastmilk, and only 1% were feeding only formula. Therefore, the majority of respondents were feeding either breastmilk with other fluids or solids (41.6%), or formula with other fluids or solids (56.0%). In addition, women who planned (when they were pregnant) to breastfeed for longer than 6 months were 2.6 times more likely to introduce solid food after 6 months of age than those women who planned (when they were pregnant) to breastfeed for less than 6 months.

Results of the literature review did not reveal any research directly linking “intention to breastfeed” or the duration of the intention with the timing of when solid foods are introduced. However, several studies showed that mothers who did not breastfeed at all or who stopped breastfeeding soon after baby’s birth were more likely to introduce solid foods earlier compared with mothers who breastfed their infants at birth and 6 months of age<sup>23;24</sup>, and that babies who were not breastfed (otherwise known as bottle-feeders) were more likely to be given solid foods earlier<sup>4;28;32;38</sup>. Some research also showed that early introduction of solid foods was negatively associated with the duration and exclusivity of breastfeeding<sup>23</sup>, and the baby ever being breastfed was associated with the appropriate timing of complementary foods<sup>25</sup>.

### **Return to work**

Research that links the return to work and the timing of when solid foods are introduced is tied to the discontinuation of breastfeeding. Breastfeeding beyond 6 months may be seen as “extra work” in places where the extent of maternity leave is 6 months<sup>9</sup>, and mothers returning to work may add infant cereal earlier<sup>39</sup>. More generally, reasons for giving “something other than breastmilk” can include returning to work<sup>2</sup>. Research that links the return to work or the end of maternity leave and its effect on breastfeeding can also be tied to the timing of when solid foods are introduced.

The return to work as an influence on the timing of solid food introduction may be an indication of the need for parents to ensure that major milestones in infant feeding are met before care is given over to someone other than the baby’s parents. For example, if a mother is planning to return to work before one year post-partum and the baby is going into a daycare arrangement, it is possible that the mother will feel it necessary to ensure that solid foods have not only been

introduced, but that a wide variety are being offered and well tolerated by the baby before the transfer to day care. As the timeline is shortened from one year to 8 months, for example, this lessens the time that a mother has to establish solid food eating by her baby. Educating parents on the signs of hunger and fullness, as well as the age-related developmental milestones associated with feeding foods and texture progression may be one way to address this.

### **Other influencing factors**

Although not statistically significant, several survey results are interesting to comment on related to the literature. Women who were older (over the age of 25 when the baby was born), had higher incomes (over \$40,000) and who had decided how to feed their baby before the baby was born (preconceptionally or prenatally) were all more likely to delay the introduction of solid foods until after 6 months of age. Although the same age and income parameters were not seen in the literature, research can speak generally to these factors, showing that younger<sup>23-25</sup> and lower income<sup>24;25;38</sup> mothers are more likely to introduce solid foods earlier.

Unfortunately, there was no literature found that could directly link the preconception decision to breastfeed to the timing of when solid foods are introduced. However, breastfeeding exclusivity and longer duration are both positively affected by the preconception decision to breastfeed, and exclusivity and duration impact when solid foods are introduced. Therefore, it is hopeful that the preconception decision to breastfeed increases the chances of the appropriate timing of solid food introduction.

### **Recommendations Related to the Introduction of Solid Foods**

Based on the introduction to solid foods results and discussion, it is recommended that the Health Unit focus on the following factors:

- *Barriers associated with the determinants of health, such as low income, social status, and low education*
- *Developmental milestones associated with infant feeding capabilities, such as signs of hunger and fullness, signs of readiness for solid foods, self-feeding skills, texture progression, and associated non-eating developmental milestones that need to happen for feeding to happen*
- *Preconception education on breastfeeding and infant feeding recommendations*
- *Influences on breastfeeding initiation and duration, including reasons why women choose not to or stop breastfeeding*

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### **Interrelationship of Influencing Factors**

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It is interesting that many of the factors that influence when solid foods are introduced are consistent with the broader determinants of health that also influence the initiation and duration of breastfeeding. Income level, for example, was inversely related to the likelihood of solid foods being introduced at the recommended timeline. And as education levels increased, solid foods were again more likely to be introduced at the recommended timeline. Although

lower education would seem to point to the need to increase knowledge, it is well understood that knowledge does not always equal behaviour change. In addition, smoking status was also directly related. Smoking status is considered an example of a lifestyle behaviour that is influenced by a number of determinants of health. Addressing the effect of smoking status on infant feeding by promoting smoking cessation programs, for example, will not address the reasons why people smoke in the first place.

The influence of infant feeding mode on the timing of when solid foods are introduced speaks to the need to focus on the preconceptional period as a time to promote the appropriate timing of the introduction of solid foods to infants. Making the decision on how to feed a baby in the preconceptional period points to the need to influence what is perceived as “normal” infant feeding behaviours. Establishing breastfeeding as the normal, healthy way to feed infants in the preconceptional period may ultimately help prevent risks associated with the early introduction of solid foods

Considering the implications in the literature that breastfeeding initiation and duration themselves affect the appropriate timing of the introduction of solid foods, it would seem wise to focus on the social determinants of health as a way to influence overall infant feeding practices. Addressing the barriers associated with lower income, social status, and low levels of education could impact the domino effect of infant feeding practices by helping to increase breastfeeding initiation, leading to increased breastfeeding duration and appropriate timing of solid food introduction.

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### **Overall Recommendations for Action**

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Based on the results of the 2006 infant feeding survey and this discussion, the following recommendations can be made:

- *Educate current staff in the Family Health Department (FHD) about the interrelation of factors that affect infant feeding*
- *Include education about interrelation of factors that affect infant feeding in the orientation of new staff in FHD*
- *Consider using the complex relationship of factors that influence infant feeding as an example for other departments of the importance of the social determinants on health outcomes*
- *Develop population-level strategies to target mothers with lower education levels, lower social status and younger than 25 years of age*
- *Develop strategies that address the broader influences that impact a mother’s infant feeding intentions, such as targeting family and partner influence on infant feeding*

*decisions, breastfeeding in public places, healthy lifestyle behaviours, preconception knowledge of infant feeding, consistency of infant feeding information offered by health professionals, and helping establish breastfeeding as the cultural norm*

- *Address and work towards developing a better understanding of the factors that undermine a mother's confidence that she can successfully breastfeed her baby, including but not limited to:*
  - *Receipt of formula samples*
  - *Messages from health professionals*
  - *Beliefs of health professionals, family, extended family and friends about infant feeding*
  - *Perceptions of inadequate milk*
  
- *Help to create supportive environments for breastfeeding by engaging in activities such as:*
  - *Educating family, extended family and friends about infant feeding*
  - *Promoting healthy policies and safe spaces for breastfeeding in the public*
  - *Targeting individuals pre-conceptionally – in schools*
  - *Consider promoting the Baby Friendly Initiative community-wide*

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**Appendix 1 – Survey Tool**

**Breastfeeding Initiation and Duration / Childhood Nutrition Survey**  
**Leeds Grenville and Lanark District Health Unit**  
**7 Month Postpartum Survey**

**INTRODUCTION**

I-1 Hello, my name is \_\_\_\_\_ and I am calling on behalf of the Leeds, Grenville and Lanark District Health Unit. May I please speak with \_\_\_\_\_?

- Speaking (go to I-2)
- Goes to get them ( go to I-2 b)
- Not available → When would be a better time to call? (record callback info)  
Thank you, I will call back at that time.
- Refused → Thank you very much. Goodbye. (code as refused)

***If asked why you're calling, say:***

We are doing a community survey on infant health.

**TO THE CORRECT RESPONDENT:**

I-2 Hello, Ms. \_\_\_\_\_.

We are conducting an important survey on the health of infants in your region. I would like about 15-20 minutes of your time to ask you some questions, primarily about infant feeding. Your health unit will be using this information to plan programs and services for new mothers and babies in your community.

The survey is confidential and voluntary. However, your participation IS IMPORTANT for us to get accurate information about infant feeding.

May we continue with the survey now?

- Yes go to I-3)
- No - Later Call Back
- Don't Know (go to I-2a)
- Refused ( go to I2a)

I-2a. Would it be possible to do this at another time? Your participation is very important for the information to be accurate.

- Yes → Thank you. When should I call back? (record info)
- No → Would you like the contact number of your local health unit in case you change your mind or have any questions about the survey, (800 660-5853 insert phone number here)  
Thank you very much. Goodbye. (code as refused )

1-2b Hello \_\_\_\_\_ my name is \_\_\_\_\_ and I am calling on behalf of the Leeds, Grenville and Lanark District Health Unit.

We are conducting an important survey on the health of infants in your region. I would like about 15-20 minutes of your time to ask you some questions, primarily about infant feeding. Your health unit will be using this information to plan programs and services for new mothers and babies in your community.

The survey is confidential and voluntary. You may refuse to answer any question. However, your participation IS IMPORTANT for us to get accurate information about infant feeding.

May we continue with the survey now?

- Yes                      go to I-3)
- No - Later              Call Back
- Don't Know            (go to I-2c)
- Refused                ( go to I2c)

I-2c. Would it be possible to do this at another time? Your participation is very important for the information to be accurate.

- Yes                      → Thank you. When should I call back? (record info)
- No                        → Would you like the contact number of your local health unit in case you change your mind or have any questions about the survey, (800 600 5853)

Thank you for your time. Good bye. (code as refused)

1-3 Thank you. Before we start, I'd like to let you know that I am not a Public Health Nurse. However, everything I ask you is confidential. There are no right or wrong answers, you may refuse to answer any question, or end the survey at any time.

Would you like the phone number of the Health Unit for future reference. 800-660-5853

I-4 Did you have twins or another multiple birth?

- Yes →  Enter number of live births (twins would be 2), and say:

I-4a. I see. For the remainder of this survey, I need you to think about and answer my questions as they apply to just one of your babies, specifically, the baby that was born first. Talking about only one of your babies will keep the survey shorter for you.

- No
- Don't Know
- Refused

I-5 Is your baby living with you now?

- Yes
- No → Thank you very much for your time. [not eligible.]
- Don't Know Thank you very much for your time. [not eligible]
- Refused Thank you very much for your time. [not eligible]

## PART A: PRENATAL

The first few questions are about decisions you might have made before your baby was born.

A-1 When did you first decide how you would feed your baby? Was it....

- Before you became pregnant
- During your pregnancy, or
- After your baby was born
- Don't know
- Refused/No response

A-2 Who or what helped you with your decision about feeding your baby?

*(Do not read List. Select all that apply.)*

*(Use one prompt: Did anyone or anything else help you?)*

- |   |   |
|---|---|
| <input type="checkbox"/> Myself (no one)      | <input type="checkbox"/> Previous experience with other child |
| <input type="checkbox"/> Partner              | <input type="checkbox"/> Books/magazines/media                |
| <input type="checkbox"/> Mother/mother-in-law | <input type="checkbox"/> Friends/co-workers                   |
| <input type="checkbox"/> Other relative       | <input type="checkbox"/> La Leche (community group)           |
| <input type="checkbox"/> Doctor               | <input type="checkbox"/> Prenatal/breastfeeding class         |
| <input type="checkbox"/> Midwife              | <input type="checkbox"/> Internet                             |
| <input type="checkbox"/> Lactation consultant | <input type="checkbox"/> Other, specify _____                 |

- Nurse in doctor's office
- Don't know
- Public health nurse
- Refused/ No response

A-3 When you were pregnant, did you get any information about feeding your baby?

- Yes → (go to question A-4)
  - No (go to b)
  - Don't remember/Don't know
  - Refused/No response → **Go to A-5**
- b Could you tell me why you didn't receive any information?  
(Do not read list)
- Did not want any Go to A-5
  - Did not need any Go to A-5
  - Did not receive any Go to A-5
  - Other: \_\_\_\_\_ Go to A-5
  - Don't know/Don't remember Go to A-5
  - Refused/No response Go to A-5

A-4 Where did you get information on feeding?

*(Do not read list Select all that apply.)*

*( Please prompt: Did you get information from anywhere else?)*

- |   |   |
|---|---|
| <input type="checkbox"/> Books                    | <input type="checkbox"/> Public health nurse                  |
| <input type="checkbox"/> Magazines                | <input type="checkbox"/> Lactation consultant                 |
| <input type="checkbox"/> Television               | <input type="checkbox"/> Prenatal classes                     |
| <input type="checkbox"/> Radio                    | <input type="checkbox"/> Breast feeding classes               |
| <input type="checkbox"/> Newspaper                | <input type="checkbox"/> Prenatal nutrition group (Good Food) |
| <input type="checkbox"/> Internet                 | <input type="checkbox"/> Health information telephone line    |
| <input type="checkbox"/> Videos                   | <input type="checkbox"/> Public Health Unit                   |
| <input type="checkbox"/> Pamphlets                | <input type="checkbox"/> Hospital                             |
| <input type="checkbox"/> School                   | <input type="checkbox"/> Package received in the mail         |
| <input type="checkbox"/> Family                   | <input type="checkbox"/> Other: _____                         |
| <input type="checkbox"/> Friends                  | <input type="checkbox"/> No information received              |
| <input type="checkbox"/> Doctor                   | <input type="checkbox"/> Don't Know/Don't remember            |
| <input type="checkbox"/> Midwife                  | <input type="checkbox"/> Refused/ No response                 |
| <input type="checkbox"/> Nurse at doctor's office |   |

A-5 When you were pregnant, what did you plan to feed your baby when your baby was born?

***(Do not read list )***

(Note: if response is bottle feeding, ask if formula or breast milk in bottle)

- Breast milk only (go to PB-1)
- Combination of breast milk and formula (go to PB-1)
- Formula feeding only (go to S-1)
- Other methods, e.g., evaporated milk formula: \_\_\_\_\_ (go to S-1)
- Don't know (go to S-1)
- Refused/ No response (go to S-1)

## ***Planning to Breastfeed***

PB-1 What were your main reasons for planning to breastfeed?

**(Do not read list Select all that apply).**

- |  |   |
|--|---|
| <input type="checkbox"/> Previous experience     | <input type="checkbox"/> Bonding/closeness to baby          |
| <input type="checkbox"/> Better for baby         | <input type="checkbox"/> Economics                          |
| <input type="checkbox"/> Help mother lose weight | <input type="checkbox"/> Family traditions/cultural beliefs |
| <input type="checkbox"/> Nature's way            | <input type="checkbox"/> Easier/convenience                 |
| <input type="checkbox"/> Protect from infection  | <input type="checkbox"/> Other: _____                       |
| <input type="checkbox"/> Protect from allergies  | <input type="checkbox"/> Don't know                         |
|  | <input type="checkbox"/> Refused/ No response               |

PB-2 When you were pregnant, how long did you plan to breastfeed?

**(Do not read list)**

- |  |   |
|--|---|
| <input type="checkbox"/> Less than 2 weeks     | <input type="checkbox"/> As long as I could     |
| <input type="checkbox"/> 2 weeks up to 6 weeks | <input type="checkbox"/> Until baby weaned self |

- |   |  |
|---|--|
| <input type="checkbox"/> 6 weeks up to 3 months   | <input type="checkbox"/> Until I go to work/school |
| <input type="checkbox"/> 3 months up to 6 months  | <input type="checkbox"/> Other specify____         |
| <input type="checkbox"/> 6 months up to 9 months  | <input type="checkbox"/> Don't Know(no plans)      |
| <input type="checkbox"/> 9 months up to 12 months | <input type="checkbox"/> Refused/no answer_____    |
| <input type="checkbox"/> More than one year       |  |

## ***PRENATAL SERVICES QUESTIONS - ALL MOTHERS***

**Now I am going to ask you some questions about the services you may have received while you were pregnant.**

S-1 During your pregnancy, did you attend a prenatal class at the Leeds, Grenville and Lanark District Health Unit?

- Yes
- No →
- Don't know/Don't remember
- Refused/No response

S-1a. What was your reason for not, attending a prenatal class at the Health Unit?

**(Do not read list)**

- No Need
- Attended Prenatal Class offered by another agency
- Attended Classes with a previous pregnancy
- Got information from another source.
- Wasn't aware of the classes
- Other specify
- Don't know

***Refused/No response***

S-2 During your pregnancy, did you attend Good Food for a Healthy Baby or another prenatal Nutrition Group?

- Yes
- No
- Don't know/Don't remember
- Refused/No response

S-3 During your pregnancy, did a Public Health Nurse visit you in your home?

- Yes
- No
- Don't know/Don't remember
- Refused/No response

**PART B: PERINATAL (ALL MOTHERS)**

Now I am going to ask some questions about your experiences in the first two days after your baby was born.

B-1 First of all, was your baby born in a hospital?

- Yes (go to B-1a)
- No (go to question B-5)
- Refused/No response (go to B-2)

B1a Which hospital did you deliver your baby in?

- Almonte Hospital
- Brockville General
- Kingston General
- Mont Fort Hospital
- Ottawa Civic Hospital
- Ottawa General Hospital
- Perth and Smith Falls Hospital
- Queensway Carlton Hospital
- Winchester Hospital
- Other: \_\_\_\_\_
- Don't know/Don't remember
- Refused/No response

B-2 After your baby was born, how long did you stay in the hospital?  
*(If necessary read options) (Select only one)*

- Drop down 1- 23 hours
- 1 day
- 2 days
- 3 or more days
- Don't know
- Refused/ No response

B-3 Did your baby stay in the hospital after you went home?

- Yes (Go to B-3a)
- No
- Refused/No response

B-3a. How many days did your baby stay in the hospital after you went home?

Number of days - drop down

- Don't know/Don't remember
- Refused/No response

B-3b. For what reason did your baby stay in the hospital after you went home?

Answer \_\_\_\_\_  
Refused/No response

B-4a While in the hospital, did you receive any help feeding your baby?

*(clarify if needed – e.g. assist with latching, positioning OR how to prepare formula, how to burp?)*

- Yes (go to b)
- No (go to question B-5)
- Refused/No response (go to question B-5)

**b) If YES,** How useful was the help that you received with feeding your baby?

- Very useful (go to B-5)
- Somewhat useful (B-5)
- Not very useful (**go to c**)
- Don't know/Don't remember (go to question B-5)
- Refused/ No response (go to question B-5)

c) Could you please explain?

- Answer \_\_\_\_\_
- Refused/No response

B-5 What type of birth did you have (with this child)?

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- Vaginal
- Caesarean
- Refused/No Response

B-6 Did you have any pain medication during labour and delivery?

- Yes (go to b)
- No (go to B-7)
- Don't know/Don't remember ( go to B-7)
- Refused/No response (go to B-7)

b) How was the pain medication given? (Select all that apply?)

- Needle/IV
- Epidural
- Inhalant
- Don't know/Don't remember
- Refused/No response

B-7 In the first two days after your baby was born, was your baby fed breast milk, formula or something else?

**(Do not read list)** (note: breast milk includes colostrum)

- Breast milk at all feedings (**go to** BF-1)
- Combination of breast milk and other fluid (**go to** BF-1)
- Formula at all feedings (**go to** PART C: S2-FF)
- Other, please explain \_\_\_\_\_ (**go to** PART C: S2-FF)
- Don't Know (**go to** PART C: S2-FF)
- Refused/No response (**go to** PART C: S2-FF)

***BREASTFED INFANTS OR INFANTS FED COMBO OF BREAST MILK AND OTHER FLUIDS (B-7)***

BF-1 How soon after birth did you try to breastfeed your baby for the first time?

- less than 1 hour after birth
- 1 – 3 hours after birth
- 4 –11 hours after birth
- 12 –23 hours after birth
- 24 hours or more after birth
- Don't know/Don't remember
- Refused/No response

BF-2 Was your baby fed anything other than breast milk after you started breastfeeding?

- Yes (go to b)
- No (go to BF-4)
- Don't know/Don't remember (go to BF-4)
- Refused/No response (go to BF-4)

b) What was fed to your baby?

*(Select all that apply).*

- Formula → How was this given? \_\_\_\_\_
- Glucose (sugar) water → How was this given? \_\_\_\_\_
- Expressed breast milk / colostrum → How was this given? \_\_\_\_\_
- Water → How was this given? \_\_\_\_\_
- Other, please explain \_\_\_\_\_
- Don't know
- Refused/No response

c) How was it fed to your baby?

*(Select all that apply)*

- Bottle
- Cup
- Dropper
- Finger feeding
- Lactation aid
- Other specify \_\_\_\_\_
- Don't Know/Don't remember
- Refused/No response.

BF-3 Did any of the following occur in the first two days after you gave birth:  
(Select all that apply.)

- Baby did not latch
- Baby nursed too often
- Baby was too sleepy
- Baby was not well enough to breastfeed
- Baby cried when put to breast
- Baby was given a pacifier
- Baby did not always room-in with you
- You had flat or inverted nipples
- You had sore or cracked nipples
- You didn't have enough milk
- You were not well enough to breastfeed
- Other issues: \_\_\_\_\_
- None of the above
- Don't Know/Don't Remember
- Refused/No response

**PART C: POSTNATAL (ALL MOTHERS)**

**Now I am going to ask some questions about experiences you've had since your baby was born.**

S-2 BF a) Since the birth of your baby, have any of the following happened?  
Please answer yes or no for each item.

**SERVICES – MOTHERS OF BREASTFED INFANTS (S-2-BF)**

**IF B7 = "Breast milk at all feedings" OR "Combination of breast milk and other fluid"**

<input checked="" type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input checked="" type="checkbox"/> Don't know/Don't Remember	<input checked="" type="checkbox"/> Refused/ No response	<b>Responses:</b>
				a. A public health nurse telephoned you at home.
				b. A public health nurse visited you at home.
				c. You talked to a lactation consultant. ci) Where did you talk to a lactation consultant? <b>(Do not read list)</b> <input type="checkbox"/> Public health unit <input type="checkbox"/> Hospital <input type="checkbox"/> Other specify <input type="checkbox"/> Don't know/Don't remember <input type="checkbox"/> Refused/No response
				d. You attended one of the Baby Talk groups offered by the Health Unit. di) (If no) Could you tell me the reason you didn't attend a a Baby Talk groups? <b>( Do not read list)</b> <input type="checkbox"/> No Need To <input type="checkbox"/> Not aware of the group <input type="checkbox"/> Other specify Don't know/Don't remember Refused/No response
				e. You attended Good Food for a Healthy Baby.
				f. You called the Health Unit 1-800 line (Health Action line). fi) (If no) Could you tell me why you didn't call the 1-800 (Health Action Line)? <b>(Do not read list)</b> <input type="checkbox"/> No Need To <input type="checkbox"/> Not aware of the service <input type="checkbox"/> Other Specify <input type="checkbox"/> Don't know/Don't remember <input type="checkbox"/> Refused/No response

				<p>g. You read breastfeeding information on the Health Unit website.            gi) (If no) Why didn't you visit the Health Unit's website?  <b>(Do not read list)</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> No Need To.</li> <li><input type="checkbox"/> Not aware of website</li> <li><input type="checkbox"/> No computer/access</li> <li><input type="checkbox"/> Other specify               <ul style="list-style-type: none"> <li><input type="checkbox"/> Don't know/Don't remember</li> <li><input type="checkbox"/> Refused/No response</li> </ul> </li> </ul>
				<p>h. You received a copy of "Breastfeeding Basics".</p>

S – 2 –FF a) Since the birth of your baby ,have any of the following happened?  
Please answer yes or no for each item.

**SERVICES – MOTHERS OF FORMULA FED INFANTS (S-2-FF)**

**IF B7 = “Formula at all Feedings”, “Other”, ”DK”, or “Refused”**

<input checked="" type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input checked="" type="checkbox"/> Don't know/Don't Remember	<input checked="" type="checkbox"/> Refused/ No response	<b>Responses:</b>
				a. A public health nurse telephoned you at home.
				b. A public health nurse visited you at home.
				c. You attended one of the Baby Talk groups offered by the Health Unit. <b>(Do not read list)</b> ci) (If no)Could you tell me why you didn't attend a Baby Talk group? Do not read list <input type="checkbox"/> No Need To <input type="checkbox"/> Not aware of the group <input type="checkbox"/> Other specify <input type="checkbox"/> Don't know/Don't remember <input type="checkbox"/> Refused/No response
				d. You attended Good Food for a Healthy Baby.
				e. You called the Health Unit 1-800 line (Health Action line). ei) (If no) Could you tell me why you didn't call the 1-800 (Health ActionLine)? <b>(Do not read list)</b> <input type="checkbox"/> No Need To <input type="checkbox"/> Not aware of the service <input type="checkbox"/> Other specify <input type="checkbox"/> Don't know/Don't remember <input type="checkbox"/> Refused/No response
				f. You read feeding information on the Health Unit website. fi) (If no) Could you tell me why you didn't visit the Health Unit's website? <b>(Do not read list)</b> <input type="checkbox"/> No Need to <input type="checkbox"/> Not aware of the website <input type="checkbox"/> No computer/access <input type="checkbox"/> Other specify <input type="checkbox"/> Don't know/Don't remember <input type="checkbox"/> Refused/No response

**All Mothers**

C-1 a Have you ever received any formula samples?

- Yes ( go to b)  Don't know/ Don't remember  
 No  Refused/No response



b) Where did you get the samples?

**(Do not read list Select all that apply.)**

- In the mail  
 From the hospital  
 From a store  
 From a magazine  
 From your doctor/OB/ peadiatrician  
 From a friend/co-worker/relative  
 Any other source? \_\_\_\_\_  
 Don't Know/ Don't remember  
 Refused/No response

c) When did you receive the samples?

- Before your baby was born  
 After your baby was born  
 Don't know/Don't remember  
 Refused/No response

d) Have you used the samples?

- Yes (go to question e)  
 No  
 Don't know/Don't remember

Refused/No response

e) **IF YES**, How old was your baby when you first used the formula?

\_\_\_\_\_ weeks (1 month = 4.3 weeks)

Months

Don't know/Don't remember

Refused/No response

C-2 What is your baby being fed now? (***Do not read list*** )

- Breast milk **only** (*clarify there were **no** solids or other fluids given*) → **Go** to BK-1
- Breast milk & formula **only** (*clarify there were **no** solids or other fluids given*)  
→ **Go** to BK-1
- Breast milk with other fluids or solids → **Go** to BK-1
- Formula **only** (*clarify there were **NO SOLIDS GIVEN***) → **Go** to b
- Formula with other fluids or solids (not including breastmilk) → **Go** to b
- Don't know/Don't remember
- Refused/No response

b) Did you ever give your baby breast milk?

- Yes Go to FB-2 (FORMER BREASTFEEDERS)
- No Go to FF-2
- Don't know/Don't remember
- Refused/No response

**CURRENTLY BREASTFED**

IF C-2 = Breast milk only OR Breast milk & formula only OR Breast milk with other fluids or solids

BK-1 How are you giving your baby breast milk?

- Feeding at the breast only
- Feeding expressed breast milk by bottle or cup only
- Feeding at breast & giving the expressed breast milk by bottle or cup
- Other Specify
- Refused/No response

BK-2 Has it ever been suggested that you stop breastfeeding?

- Yes (go to b & c)
- No (go to BK-3)q
- Don't know/ Don't remember (go to BK-3)
- Refused/No response (go to BK-3)

Revised 27 April 2009

- b) Who suggested you stop breastfeeding?  
(Do not read list; Select all that apply)

Books/magazines/media  
Family doctor  
Friend(s) or co-workers  
Hospital Nurse  
Lactation consultant\*  
Mother/mother-in-law  
Nurse in doctor's office  
Other relative  
Partner/father of baby  
Pediatrician  
Public Health Nurse/Health Unit  
Supervisor/boss \*

Other: specify \_\_\_\_\_

Don't Know /Don't Remember  
Refused/No response

- c) Why did they suggest you stop?  
(Do not read list; Select all that apply;  
Probe if mother just says 'difficult')

Baby colicky/fussy  
Baby ill  
Baby not sucking well at breast  
Baby old enough/right time  
Back to work or school  
Family traditions/cultural beliefs  
Father wanted to help with feeding  
Lack of support from family (including partner)  
Mastitis  
Mother didn't like breastfeeding  
Mother taking medication/mother ill  
Mother too tired

Not enough milk  
Not enough time/too busy  
Overwhelmed  
Poor quality milk/poor weight gain  
Sore nipples  
Teething/biting  
Tied down/travel  
Weaned self/refused breast/"nursing strike"  
Other: specify \_\_\_\_\_

Don't Know/Don't Remember  
Refused/no response

BK-3 Have you ever felt too uncomfortable to breastfeed in a public place?

- Yes (go to b & c)
- No (go to BK-4)
- Don't Know/Don't remember (go to BK-4)
- Not applicable (never tried) (go to BK-4)
- Refused/No response (go to BK-4)
- 

b) Where did this happen? (**Do not read list**) Select all that apply?

- Mall/store
- Office / office building
- Park or beach
- Place of worship
- Private residence
- Public transportation
- Recreational facility
- Restaurant/fast food
- Other: specify: \_\_\_\_\_
- Don't know/Don't remember
- Refused/No response

c) What, specifically, made you uncomfortable?  
(**Do not read list** Select all that apply.)

- Cultural values
- Designated breastfeeding location inappropriate
- Lack of confidence
- Location inappropriate (dirty, small)
- No designated breastfeeding location
- No privacy/ too many people
- Noisy or distractible baby
- Not dressed appropriately
- Other customers'/people's negative reaction
- Partner/family self-conscious
- Previous experience negative
- Self-conscious/embarrassed
- Other: specify: \_\_\_\_\_
- Don't know/Don't remember
- Refused/No response

BK-4 Have you ever been prevented from breastfeeding in a public place when you wanted to?

Yes (go to b & c)

No (go to BK-5)

Don't Know/Don't remember (go to BK-5)

Not applicable (have not tried/do not breastfeed in public place) (go to BK-5)

Refused/No response (go to BK-5)

b) Where did this happen?

**(Do not read list )** Select all that apply?

Mall/store

Office /office building

Parks/beaches

Place of worship

Private residence

Public transportation

Recreational facility

Restaurant/fast food

Other: specify: \_\_\_\_\_

Don't know/Don't remember

**Refused/No response**

c) What, specifically, prevented you from breastfeeding?

**(Do not read list; Select all that apply.)**

Designated breastfeeding location inappropriate (too small, dirty, remote, etc)

Negative comment/s or attitude/s from family/friends

Negative comment/s or attitude/s from patrons/public

Negative comment/s or attitude/s from staff

No designated breastfeeding location

Told by staff they couldn't

Other: specify: \_\_\_\_\_

\_\_\_\_\_ Don't know/Don't remember

Refused/No response

BK-5 To what age do you plan to breastfeed your child?

\_\_\_\_\_ Age in months

Don't know

Refused/No response

BK-6 How satisfied are you with your breastfeeding experience? Would you say you are:

- Very satisfied
- Somewhat satisfied
- Neither satisfied nor dissatisfied
- Somewhat dissatisfied, or
- Very dissatisfied
- Don't know
- Refused/No response

***FORMERLY BREASTFED, BUT NOT BREASTFEEDING NOW  
IF C-2= FORMULA FEEDING, BUT GAVE BABY BREAST MILK  
SOMETIME IN 7-MONTHS***

FB-1 How old was your baby when you stopped breastfeeding?

- \_\_\_\_ weeks (convert 4.3 weeks per month)
- Months
- Don't know/Don't remember
- Refused/No response

FB-2 Could you tell me why you decided to stop breastfeeding?

**(Do not read list; select all that apply.)**

- Baby colicky/fussy
- Baby ill
- Baby not sucking well at breast
- Baby old enough/right time
- Back to work or school
- Family traditions/cultural beliefs
- Father wanted to help with feeding
- Lack of support from family (including partner)
- Mastitis
- Mother didn't like breastfeeding
- Mother taking medication/mother ill
- Mother too tired
- Not enough milk
- Not enough time/too busy
- Overwhelmed
- Poor quality milk/Poor weight gain
- Sore nipples
- Teething/biting
- Tied down/travel
- Weaned self/refused breast/"nursing strike"
- Other: specify \_\_\_\_\_
- Don't know/Don't remember
- Refused/no response

b) {If respondent provides more than one response above}, What was the **most** important reason for stopping? ( Do not read list Check only ONE response)

- Baby colicky/fussy
- Baby ill
- Baby not sucking well at breast \*
- Baby old enough/right time
- Back to work or school
- Family traditions/cultural beliefs
- Father wanted to help with feeding
- Lack of support from family (including partner)
- Mastitis
- Mother didn't like breastfeeding \*
- Mother taking medication/mother ill
- Mother too tired
- Not enough milk
- Not enough time/too busy
- Overwhelmed
- Poor quality milk/Poor weight gain
- Sore nipples
- Teething/biting
- Tied down/travel
- Weaned self/refused breast/"nursing strike"
- Other: specify \_\_\_\_\_
- Don't know/Don't remember
- Refused/no response

FB-3 Did anyone ever suggest that you stop breastfeeding?

- Yes (go to b)
- No (go to FB-4)
- Don't know/Don't remember (go to FB-4)
- Refused/No response (go to FB-4)

b) Who suggested you stop breastfeeding? (**Do not read list**)

Books/magazines/media  
Family doctor  
Friend/co-worker  
Hospital Nurse  
Lactation consultant  
Mother/mother-in-law  
Nurse in doctor's office  
Other relative  
Partner  
Pediatician  
Public Health Nurse  
Supervisor/ boss  
Other:specify\_\_\_  
Don't Know /Don't Remember  
Refused/No response

c) Why did they suggest you stop?

(**Do not read list ; Select all that apply**)

(*Probe if mother just says 'difficult'*)

Not enough milk	Back to work or school
Poor quality milk/poor weight gain	Overwhelmed
Teething/biting	Not enough time/too busy
Weaned self/refused breast/"nursing strike"	Tied down/travel
Baby ill	Mother taking medication/mother ill
Baby colicky/fussy	Mother too tired
Baby old enough/right time	Mastitis
Father wanted to help with feeding	Sore nipples
Lack of support from family	Family traditions/cultural beliefs
	Other: specify_____

(including partner)

Don't Know/Don't Remember  
Refused/no response  
Baby not sucking well at breast  
Mother didn't like breastfeeding

FB-4 Did you ever feel too uncomfortable to breastfeed in a public place?

- Yes (go to b & c)                       Don't Know/ Don't remember (go to FB-5)
- No (go to FB-5)                       Refused/No response (go to FB-5)
- Not applicable have not tried to breastfeed in public go to Fb-6**

b) Where did this happen?

**(Do not read list)**

- |  |   |
|--|---|
| <input type="checkbox"/> Mall/store            | <input type="checkbox"/> Public transportation    |
| <input type="checkbox"/> Restaurant/fast food  | <input type="checkbox"/> Private residence        |
| <input type="checkbox"/> Place of worship      | <input type="checkbox"/> Office / office building |
| <input type="checkbox"/> Park or beach         | <input type="checkbox"/> Don't Know               |
| <input type="checkbox"/> Recreational facility | <input type="checkbox"/> Refused/No response      |
|  | <input type="checkbox"/> Other: specify: _____    |

c) What, specifically, made you uncomfortable?

**(Do not read list check all that apply.)**

- |  |  |
|--|--|
| <input type="checkbox"/> Self-conscious/embarrassed    | <input type="checkbox"/> Designated breastfeeding location inappropriate |
| <input type="checkbox"/> Partner/family self-conscious | <input type="checkbox"/> No privacy/ too many people                     |
| <input type="checkbox"/> Not dressed appropriately     | <input type="checkbox"/> No designated breastfeeding location            |
| <input type="checkbox"/> Lack of confidence            | <input type="checkbox"/> Noisy or distractible baby                      |
| <input type="checkbox"/> Previous experience negative  | <input type="checkbox"/> Other customers'/people's negative reaction     |
| <input type="checkbox"/> Cultural values               | <input type="checkbox"/> Location inappropriate (dirty, small)           |
|  | <input type="checkbox"/> Other: specify: _____                           |
|  | <input type="checkbox"/> Don't know                                      |
|  | <input type="checkbox"/> Refused/No response                             |

FB-5 Were you ever prevented from breastfeeding in a public place when you wanted to?

- |  |  |
|--|--|
| <input type="checkbox"/> Yes (go to b & c) | <input type="checkbox"/> Don't Know/Don't remember (go to FB-6)                          |
| <input type="checkbox"/> No (go to FB-6)   | <input type="checkbox"/> Not applicable (do not breastfeed in public place) (go to FB-6) |
| ↓  | <input type="checkbox"/> Refused/No response (go to FB-6)                                |

b) **IF YES**, Where did this happen?

**(Do not read list)**

- |  |  |
|--|--|
| <input type="checkbox"/> Mall/store            | <input type="checkbox"/> Public transportation   |
| <input type="checkbox"/> Restaurant/fast food  | <input type="checkbox"/> Private residence       |
| <input type="checkbox"/> Place of worship      | <input type="checkbox"/> Office /office building |
| <input type="checkbox"/> Parks/beaches         | <input type="checkbox"/> Refused/No response     |
| <input type="checkbox"/> Recreational facility | <input type="checkbox"/> Other: specify: _____   |

c) What, specifically, prevented you from breastfeeding?

**(Do not read list; Select all that apply.)**

- |   |  |
|---|--|
| <input type="checkbox"/> No designated breastfeeding location                 | <input type="checkbox"/> Designated breastfeeding location inappropriate (too small, dirty, remote, etc) |
| <input type="checkbox"/> Negative comment/s or attitude/s from patrons/public | <input type="checkbox"/> Negative comment/s or attitude/s from staff                                     |
| <input type="checkbox"/> Negative comment/s or attitude/s from family/friends | <input type="checkbox"/> Told by staff they couldn't   |
| <input type="checkbox"/> Other: specify: _____                                |  |
| <input type="checkbox"/> Don't know/don't remember                            |  |
| <input type="checkbox"/> Refused/No response                                  |  |

FB-6 How satisfied were you with your breastfeeding experience? Would you say you were...

- Very satisfied
- Somewhat satisfied
- Neither satisfied nor dissatisfied
- Somewhat dissatisfied, or
- Very dissatisfied
- Don't know/Don't remember
- Refused/No response

**FORMULA FEEDING:**

If C-2 = Formula only OR Formula with other fluids or solids (not including breast milk)  
OR Other fluids or solids (not including breast milk)

FF-2 What type of formula are you using now?

(Check **only one**. Clarify for specific brand.)

(May read name to clarify)

- |  |   |
|--|---|
| <input type="checkbox"/> Alimentum (Code: 3)                         | <input type="checkbox"/> Nestle/Carnation Alsoy (2)         |
| <input type="checkbox"/> Carnation evaporated milk (6)               | <input type="checkbox"/> Nestle/Carnation Follow-Up (1)     |
| <input type="checkbox"/> Cow's Milk: Whole, 2%, Skim, etc. (5)       | <input type="checkbox"/> Nestle/Carnation Follow-Up Soy (2) |
| <input type="checkbox"/> Enfalac / Enfalac Regular (1)               | <input type="checkbox"/> Nestle/Carnation Good Start (3)    |
| <input type="checkbox"/> Enfalac AR (4)                              | <input type="checkbox"/> Nursoy (2)                         |
| <input type="checkbox"/> Enfalac Iron Fortified / Enfalac w Iron (1) | <input type="checkbox"/> Parent's Choice (1)                |
| <input type="checkbox"/> Enfalac LactoFree (4)                       | <input type="checkbox"/> President's Choice (1)             |
| <input type="checkbox"/> Enfalac Next Step (1)                       | <input type="checkbox"/> Similac Advance (1)                |
| <input type="checkbox"/> Enfalac Nutramigen (3)                      | <input type="checkbox"/> Similac Advance w Iron (1)         |
| <input type="checkbox"/> Enfalac Prosobee (2)                        | <input type="checkbox"/> Similac Advance Step 2 (1)         |
| <input type="checkbox"/> Enfalac Pregestimil (3)                     | <input type="checkbox"/> Similac LF: Lactose Free (4)       |
| <input type="checkbox"/> Goat's milk (5)                             | <input type="checkbox"/> SMA (1)                            |
| <input type="checkbox"/> Home recipe (6)                             | <input type="checkbox"/> Soya beverage (not formula) (5)    |
| <input type="checkbox"/> Isomil (2)                                  | <input type="checkbox"/> Unilac (1)                         |
| <input type="checkbox"/> Neocate (3)                                 | <input type="checkbox"/> Other formula: Specify: _____      |
|  | <input type="checkbox"/> Don't know/Don't remember          |
|  | <input type="checkbox"/> Refused/No answer                  |

Codes: 1-Cow's milk based; 2-Soya-based; 3-Special allergy/therapeutic; 4-Other formula; 5-Non-formula; 6-Other non-formula.

FF-3 What was your **main** reason for choosing that formula?

**(Do not read list. Check all that apply)**

- Baby had problems (allergy, lactose intolerant, diarrhea, constipation)
- Used with other children
- Family history of allergies
- Healthier for baby (e.g. antibiotics in cow's milk, etc.)
- Family is vegan/vegetarian
- Cultural background
- Doctor/midwife/nurse recommended
- Hospital used it/gave it to me
- Had free samples (not from hospital)
- Family/friends recommended it
- Advertisements (TV, magazine, etc.)
- Availability
- Cost
- Got from food bank
- Other \_\_\_\_\_
- Don't know
- Refused/No response

FF-4 Could you tell me why you choose to feed your baby formula?

**(Do not read list. Select all that apply.)**

- Embarrassed to breastfeed in public
- Easier/Too busy to breastfeed
- Going back to work/school
- Family traditions/cultural beliefs
- Wanted father to participate in child care
- Negative past experience (sexual abuse, etc)
- Negative past breastfeeding experience

- Maternal physical health
- Infant physical health
- No desire to breastfeed/ didn't want to breastfeed
- Other: \_\_\_\_\_
- Refused/No response

## PART D: OTHER LIQUIDS AND SOLID FOODS (ALL MOTHERS)

The next few questions are about the things you that you may have fed your baby since birth.

OF-1 Have you ever given your baby any of the following supplements?

a) Multivitamins such as Poly-vi-sol or Tri-vi-sol?

- Yes
- No
- Don't know
- Refused/no answer

b) Vitamin D supplement such as D-vi-sol?

- Yes
- No
- Don't know
- Refused/no answer

OF-2 Please tell me which of the following liquids your baby has had more than once.

**(Phrases in parentheses are for explanation, if needed.)**

Cow's milk, **not** formula?

- Yes (go to OF-2ai)
- No
- Don't knowDon't remember
- Refused/No answer

OF-2ai) **Was that:**

Whole (3.25% or homo)

Yes → At what age did you first give it to your baby?

\_\_\_\_ Months

Textboxes please Laura

Don't know/Don't remember

Refused/No response

No ( go to 2aii

Don't know

Refused/no answer

2aii) 2% milk, 1% milk or skim milk or chocolate milk?

Yes → At what age did you first give it to your baby?

\_\_\_\_ Months

Don't know/Don't remember

Refused/No response

No

Don't know

Refused/no answer

b) Evaporated milk like Carnation?

Yes →

At what age did you first give it to your baby?

\_\_\_\_ Months

Don't know/Don't remember

Refused/No response

No

Don't know

Refused/no answer

c) Goat's milk?

Yes → At what age did you first give it to your baby?  
\_\_\_\_ Months  
Don't know/Don't remember

Refused/No response

No

Don't know

Refused/no answer

d) Soya beverage, **not** soya formula ?

Yes → At what age did you first give it to your baby?  
\_\_\_\_ Months  
Don't know/Don't remember

Refused/No response

No

Don't know

Refused/no answer

e) 100% Fruit juice?

Yes → At what age did you first give it to your baby?  
\_\_\_\_ Months  
Don't know/Don't remember

Refused/No response

No

Don't know

Refused/no answer

f) Pop, Kool Aid, sugar water, or fruit drinks? (*not real juice*)

Yes → At what age did you first give it to your baby?  
\_\_\_\_ Months  
Don't know /Don't remember

Refused/No response

- No
- Don't know
- Refused/no answer

g) Tea, including herbal?

- Yes → At what age did you first give it to your baby?  
\_\_\_\_Months  
Don't know/ Don't remember  
  
Refused/No response

- No
- Don't know
- Refused/no answer

h) Plain water? *(Tap or bottled)*

- Yes → At what age did you first give it to your baby?  
\_\_\_\_Months  
Don't know/ Don't remember  
  
Refused/No response

- No
- Don't know
- Refused/no answer

OF-3 **Please tell me which of the following solid foods your baby has had more than once.**

*(Phrases in parentheses are for explanation, if needed.)*

a) Infant cereal or Pablum?

- Yes → At what age did you first give it to your baby?  
\_\_\_\_Months  
Don't know /Don't remember

Refused/No response

- No
- Don't know
- Refused/no answer

b) Teething biscuits or cookies?

- Yes → At what age did you first give it to your baby?  
\_\_\_\_ Months  
Don't know/ Don't remember

Refused/No response

- No
- Don't know
- Refused/no answer

c) Grain products, including bread, crackers, breadsticks, or unsweetened breakfast cereals, rice or pasta? (e.g. Cheerios, "baby food" starch products)

- Yes → At what age did you first give it to your baby?  
\_\_\_\_ Months  
Don't know/ Don't remember

Refused/No response

- No
- Don't know
- Refused/no answer

d) Vegetables, including fresh, frozen or in jars or cans? (includes "baby" food vegetables)

- Yes → At what age did you first give it to your baby?  
\_\_\_\_ Months  
Don't know /Don't remember

Refused/No response

- No
- Don't know
- Refused/no answer

e) Fruit, including fresh, frozen, or in jars or cans? (*includes "baby" food pureed fruits*)

Yes → At what age did you first give it to your baby?  
\_\_\_\_ Months  
Don't know/ Don't remember

Refused/No response

No

Don't know

Refused/no answer

f) Baby foods with meat like stews or dinners?

Yes → At what age did you first give it to your baby?  
\_\_\_\_ Months  
Don't know/ Don't remember

Refused/No response

No

Don't know

Refused/no answer

g) Processed meats like hot dogs or bologna?

Yes → At what age did you first give it to your baby?  
\_\_\_\_ Months  
Don't know/ Don't remember

Refused/No response

No

Don't know

Refused/no answer

h) Meat alternatives like beans or tofu?

Yes → At what age did you first give it to your baby?  
\_\_\_\_ Months  
Don't know/ Don't remember

Refused/No response

No  
 Don't know  
 Refused/no answer

i) Fish?

Yes → At what age did you first give it to your baby?  
\_\_\_\_ Months  
Don't know/ Don't remember

Refused/No response

No  
 Don't know  
 Refused/no answer

j) Milk products like cheese, ice cream, or yogurt?

Yes → At what age did you first give it to your baby?  
\_\_\_\_ Months  
Don't know/ Don't remember

Refused/No response

No  
 Don't know  
 Refused/no answer

OF-4 Please tell me whether you have **ever** given your baby any of the following.

a) Nuts, peanuts, or peanut butter?

Yes  
 No

- Don't know
- Refused/no answer

b) Egg white or whole egg?

- Yes
- No
- Don't know
- Refused/no answer

c) Honey?

- Yes
- No
- Don't know
- Refused/no answer

d) Unpasteurized milk, juice or cider?

- Yes
- No
- Don't know
- Refused/no answer

OF-5 Have you ever received information about introducing solid foods to your baby?

- Yes (go to b )
- No → Go to DENTAL CARE (DC-1)
- Don't remember/Don't know → Go to DENTAL CARE (DC-1)
- Refused/No response → Go to DENTAL CARE (DC-1)

b) Where did you get this information from? (*Do not read list. Check all that apply. If only one*

*response, please prompt: "Did you get information from anywhere else?"*)

- Books
- Magazines
- Television
- Radio
- Newspaper
- Internet
- Videos
- Pamphlets
- Feeding Your Baby booklet
- Free samples In-store or by mail
- In-store advertisements
- School
- Family
- Friends
- Doctor
- Nurse at doctor's office
- Midwife
- Nurse Practitioner
- Hospital (from doctor or nurse)
- Public health unit or public health nurse
- Family/home visitor (not a PHN)
- Nutritionist or dietitian
- Lactation consultant
- Pharmacist / pharmacy
- Prenatal classes
- Parenting classes
- Baby Talk
- Health information telephone line
- Telemarketers/telephone calls to home
- Other: \_\_\_\_\_
- Don't Know/Don't remember → **GO TO next section**
- Refused/ No response → **GO TO next section**

## PART E: DENTAL CARE (ALL MOTHERS)

**Next I'm going to ask you several questions about baby dental care.**

DC-1      In the past week, how often did you put your baby to bed, at bedtime or naptime, with a bottle or sippy cup with anything except plain water? Would you say,, never, once, a few times, or every day?

Interviewer Prompt: bottle or sippy cup stays with child while sleeping)

*(Note: anything other than plain water includes breast milk, formula, sweetened water, and juice).*

- Never
- Once
- A few times
- Every day
- No response/refused

DC-2 Do you ever clean your baby's mouth, gums or teeth?

- Yes (go to b)
- No → Go to W-1
- No response/refused → Go to W-1

b) **If YES**, In the past week, how often did you clean your baby's mouth – at least once a day, every few days, at least once, or not at all?

- At least once a day
- Every few days
- At least once
- Not in the past week
- Don't know/Don't remember
- No response/refused

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## Section D: EMPLOYMENT/WORKPLACE

Now I'd like to ask you a few questions about work and/or school.

W-1) Are you planning to return to work or school in the next year?

Yes	Go to 1A
Already returned	Go to 1A
No	Go to D1
Don't Know	Go to D1
Refused	Go to D1

A ) Would that be work or school?

Work  
School  
Don't Know  
Refused

2 How old will your baby be when you return to work/school?

Skip if not W1=1

- \_\_\_\_\_ months  
 Don't know  
 Refused/no response

3. How old was your baby when you returned to work/school?

Skip if not W1=2

- \_\_\_\_\_ months  
 Don't know/Don't remember  
 Refused/No response

**INTERVIEWER: CHECK BREASTFEEDING STATUS OF RESPONDENT - ASK ONLY OF THOSE STILL BREASTFEEDING for b only**

4a) Are you planning to continue breastfeeding when you return to work?

Skip if not C-2 = 1,2,3 and W 1a=1

- |  |  |
|--|--|
| <input type="checkbox"/> Yes             | <input type="checkbox"/> Don't know          |
| <input type="checkbox"/> No go to<br>↓ d | <input type="checkbox"/> Refused/No response |

b) Did you continue to breastfeed when you went back to work?

skip if not B-7=1,2 and W 1a=1

- |  |   |
|--|---|
| <input type="checkbox"/> Yes (go<br>to D1) | <input type="checkbox"/> Don't know (go to D1)          |
| ↓ <input type="checkbox"/> No (go to<br>d) | <input type="checkbox"/> Refused/No response (go to D1) |

c) **IF NO**, Would you tell me why not? (Select all that apply?)  
Skip if not W 3c=2

- Personal choice/plan to quit
- Baby old enough
- Embarrassed/not comfortable
- No appropriate facilities at workplace or school (e.g. no fridge, no

- room, etc.)
- Inconvenient (e.g. leaking, need to pump, etc.)
  - Time (e.g. breaks not long enough, too busy at work)
  - No on-site day care – or - too far to drive home/sitters
  - No support from employer/school for breastfeeding
  - Other: please specify:
  - Don't Know/Don't Remember
  - Refused/no answer

**W-5 Ask only mothers returning to work (not school)**

skip if not W 1a =1

Does your workplace provide any of the following arrangements for mothers? *Read responses Select all that apply).*

- Flexible work hours
- On-site day care
- Top-up funding for extended maternity leave
- Designated room or area to breastfeed or express milk
- Refrigerator to store expressed milk (any fridge, not necessarily one specifically for breast milk)
- Workplace breastfeeding policy
- Support from management on these issues
- Any other arrangements for new parents \_\_\_\_\_
- None of the above
- Don't know
- Refused/No response

## PART G - DEMOGRAPHIC CHARACTERISTICS – ALL MOTHERS

Finally, I'd like to ask some questions about you. These questions are used to group your answers together with others like you.

D-1 If you had another baby, would you breastfeed or use formula?

- Breast milk
- Formula
- Both
- Not planning another baby
- Other specify?
- Don't know
- No response/refused

D-2 How old were you when this baby was born?

- \_\_\_\_\_ years
- Refused/No response

D-3 Who lives with you and your baby in your household? (Check all that apply)

- Partner
- Partner and other children
- Alone with baby/other children
- Parents / extended family
- Unrelated housemates
- Other (specify): \_\_\_\_\_
- Refused/No response

D-4 What is the highest level of education you have completed? (Read the options if needed. Completed means: received diploma, certificate, or degree.)

- Elementary school or some high school
- High School diploma
- Trade certificate or non-university/college certificate/diploma
- Bachelor's degree or higher
- Refused/No response

D-5 Did you smoke tobacco at all during your pregnancy?

- Yes (go to b)
- No
- Refused/No response

b) **IF YES**, Have you smoked tobacco at all since you had the baby?

- Yes
- No
- Refused/No response

D-6 Does anyone currently smoke tobacco inside your home?

- Yes
- No
- Refused/No response

D-7 Of the following income categories, which one includes the total income of your household, before taxes, in 2005? Please stop me when I reach your category. Was it...

- Less than \$20,000
- \$20,000 to less than \$40,000
- \$40,000 to less than \$60,000
- \$60,000 to less than \$70,000 - or -
- \$80,000 or more?
- Don't Know
- Refused/No response

D-7 Do you have any comments you would like to make about this survey?

Yes (go to D-8com)

No

D8com. \_\_\_\_\_

We have come to the end of the survey. Your responses will help your local Health Unit plan programs to meet the needs of people in your community.

If you would like any information about any of the topics in this survey please contact your local Health Unit. 800-660-5853

Thank you and have a good day/evening.