

Peel Infant Feeding Survey 2015

Annual Summary Report

A Peel Health Technical Report

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KEY MESSAGES

- Although almost all (99%) Peel mothers initiated breastfeeding, approximately half (of infants were given formula prior to being discharged from hospital after birth.
- About one in four (28%) mothers reported being given formula to take home from the hospital.
- About half (46%) of women who breastfed experienced difficulties (e.g. not latching, engorgement) or concerns (e.g. perception of not enough milk).
- The majority (70%) of women who used a breastfeeding service visited a Breastfeeding Clinic.
- Two thirds (64%) of mothers breastfed their infant for six months or longer.
- A majority of mothers (75%) introduced solids at around six months.
- About one fifth (18%) of mothers who introduced solids to their infant prior to six months of age reported exclusive breastfeeding until that point.

INTRODUCTION

Breast milk is the only food that infants need for healthy development in the first six months of life. Daily vitamin D supplementation is also recommended for breastfed infants and infants not receiving adequate vitamin D from other dietary sources, including formula during the first year of life.¹ Breastfeeding has both short-term and long-term health benefits for mother and infant. Breastfed babies are at a lower risk for respiratory and gastrointestinal infections.² Maternal health outcomes associated with breastfeeding include a lowered risk of breast cancer and increased bonding between mother and infant.² The World Health Organization (WHO) recommends breastfeeding within one hour of birth, and exclusive breastfeeding for the first six months of life as optimal for healthy development. By about six months of age, infants are developmentally ready for other foods.³

In May of 2015, the Peel Infant Feeding Survey (PIFS) was launched by Peel Public Health (PPH). The PIFS is an annual cross-sectional survey that provides information regarding infant feeding practices of Peel mothers up to six months postpartum. PPH has developed the PIFS to establish and maintain a system of ongoing collection, analysis, interpretation, and dissemination of Peel-specific infant feeding data to inform Peel Public Health practice and programs that support infant feeding practices.

PURPOSE OF THE INFANT FEEDING SURVEY

The data collected through PIFS will be used for:

1. Informing the Family Health Division's Breastfeeding programs
2. Population health assessment and surveillance activities outlined in the Ontario Public Health Standards (2008, revised October 2015) that aim to promote public health and protect the public from harm
3. Maintenance of Peel Public Health's Baby-Friendly Initiative (BFI) designation
4. Planning breastfeeding programs and services in the community, including hospital partners.



PURPOSE OF THE REPORT

The purpose of this report is to provide the results of data collected through the Peel Infant Feeding Survey (PIFS) with 455 mothers, surveyed between May and August 2015.

HOW TO READ THIS REPORT

The methods and data limitations are described on pages 13 and 14 of this report.

Ninety-five per cent confidence intervals (presented as 95% CI in the report) are provided for many of the estimates (e.g., percentages) throughout this report. The confidence interval presents a lower and upper range of values which we are confident contains the true value of the estimate for the whole population 95% of the time, or 19 times out of 20.

When the 95% confidence interval of one estimate does not overlap with that of another estimate, the difference between the estimates is considered statistically significant (i.e., very unlikely to be due to chance). If the confidence intervals of two estimates do overlap, the estimates may still be significantly different. An appropriate statistical test would be required to assess the statistical difference of the two estimates.

Definitions of Terms

In this report, ***breastfeeding*** is defined as any self-reported attempt to feed the infant at the breast, or feed breast milk or mother's milk by cup, tube, or bottle. ***Breastfeeding initiation*** is measured by the question "Have you ever tried to feed your baby breast milk?"

Exclusive breastfeeding is defined as breastfeeding only, without additional food or liquid (e.g., water, sugar water or formula) excluding vitamins, minerals, or required medication. By this definition, an infant would no longer be classified as exclusively breastfeeding after consuming only a single sip of water or other liquid.

Combination feeding occurs when an infant receives any combination of formula and breast milk.

Eligible mothers were six to eight months postpartum at the initiation of this survey and residing in one of Peel's municipalities. Mothers who were less than 15 years of age, had known involvement with the Children's Aid Society, or experienced a still birth or had a live born infant who died were not eligible to participate. For additional details about eligible mothers, please see *Methods – Survey Sampling*.



RESULTS

Between May 25th and August 21st 2015, a total of 455 surveys were completed with eligible mothers. A small number of surveys were conducted with teen mothers aged 15 to 19 years (n=17). Given the reporting restrictions noted in the *Methods* section, this report cannot provide results according to teen respondents. No home births are reported because all completed surveys reported a hospital birth.

Response Rate

Table 1 presents the call disposition status for the 1,011 records available in the Peel Infant Feeding Survey database.

**Table 1: Call Disposition Status
Peel, 2015**

Status	Number	Per cent
Completed survey	455	53.7
Other call types**	27	3.2
Refused	122	14.4
Terminated	244	28.8
Total	848	

* There are 38 ineligible and 125 not in service records excluded from the denominator for the purposes of calculating the response rate.

Notes – Not in service includes: business numbers; fax/computer line; moved, with no new number given; not in service numbers; and wrong numbers.

**Other call types include those who requested a call back, hung up, or required an interpreter.

To calculate the response rate, the total number of completed calls was divided by the total number of potentially eligible calls. The response rate for the PIFS was 54%.

Characteristics of Respondents

Table A1 (Appendix) provides a description of the un-weighted sample of mothers from the Peel Infant Feeding Survey.

The profile of mothers surveyed shows that:

- 56% of respondents are younger than 30 years compared to 37% of Peel women who gave birth in 2014 being younger than 30 years^A;
- 54% of respondents are multiparous compared to 59% of Peel women who gave birth in 2014 being multiparous^A;
- 81% of respondents are legally married compared to 80%[†] of Peel women who gave birth in 2011 being legally married^B;
- 76% of respondents are post-secondary graduates; and
- 63% of respondents are immigrants.

^A Public Health Unit Analytic Reporting Tool (Cube), BORN Information System (BIS), BORN Ontario. Information accessed on July 6, 2016.

^B Ontario Live Birth Database 2011, Ontario Office of the Registrar General, IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.

[†] Caution should be taken when interpreting this estimate. Marital status for 7% of live birth records was missing.



Of mothers who responded:

- 91% who had a previous child had breastfed one of their previous children;
- Among primiparous mothers, 45% attended a prenatal class; whereas 11% of multiparous mothers attended a prenatal class;
- 69% had a vaginal delivery; and
- 91% delivered an infant born at 37 weeks or more (full term).

Characteristics of Non-Respondents

The characteristics of those who completed the Peel Infant Feeding Survey were compared to those who were selected from the Integrated Services for Children Information System (ISCIS) but did not respond to the survey (i.e., non-respondents). Non-respondents included those who had an incomplete survey, declined to participate/consent or were not contacted before the sample size was reached.

Table A2 (Appendix) shows the comparison of respondents and non-respondents. Respondents were similar to non-respondents based on: gestational age, infant sex, type of birth, feeding method at hospital discharge and method of delivery. Non-respondents were more likely to be younger mothers compared to respondents.

Intention to Breastfeed

While pregnant, mothers were intending to feed their baby the following during the first four weeks of life:

- Breast milk only (82%)
- Combination of foods (e.g., breast milk, formula, juice) (16%)
- Formula only (1%)

Breastfeeding Initiation

Almost all mothers (99%) reported initiating breastfeeding either in hospital or after discharge.

Reasons for not breastfeeding included:

- Did not consider breastfeeding or planned to bottle feed/formula feed
- Not producing milk
- Mother's health problems

Feeding While in Hospital

Overall, 92% of mothers reported breastfeeding in the hospital. A small percentage of women who did not breastfeed while in hospital initiated breastfeeding after discharge (8%). Of those who breastfed in hospital, 87% reported receiving help from a health professional while in hospital.



Approximately half (52%) of mothers reported their infant was given liquids other than breast milk in hospital. For these infants, 96% were given formula; other infants (4%) received sugar water, water, or an intravenous feeding. A small percentage (4%) of these infants was given both formula and other liquids such as sugar water or water.

Among mothers who initiated breastfeeding, the reasons for feeding babies liquids other than breast milk while in hospital included (multiple reasons possible):

- Not enough breast milk (41%, n=94)
- Latching concerns (15%, n=34)
- Low blood sugar (11%, n=26)
- Baby was hungry (10%, n=23)
- Concerns about baby's weight (6%, n=13)
- Baby was ill (5%, n=11)

About one in four mothers (28%) reported being given formula to take home with them when they left the hospital. For mothers who gave birth at Brampton Civic Hospital, 42% received formula to take home; 23% at The Mississauga Hospital; and 12% at Credit Valley Hospital. For additional details about formula, please see the *Feeding within First Two Weeks* and the *Breastfeeding Duration* sections.

Feeding within First Two Weeks (after baby leaves hospital)

Ninety-five per cent of mothers were breastfeeding at two weeks after hospital discharge, of which 39% introduced formula to their infant during this time. Of these mothers who introduced formula while breastfeeding in the first two weeks, 61% provided breast milk and 25% provided formula for more than half of these feedings. At least 21% of mothers had fed a combination of both formula and breast milk in the same meal during the first two weeks.

Breastfeeding Duration

Overall, 87% of mothers were breastfeeding at two months and 74% were breastfeeding at four months after hospital discharge (Table 2, Figure 1). By six months, 64% of mothers were breastfeeding. In addition, preliminary analysis showed mothers who received formula to take home from the hospital had significantly reduced rates of breastfeeding beginning at one month compared to those who did not receive formula (Appendix Table A3).

Among mothers who stopped breastfeeding, the most common reasons for stopping were (multiple responses possible):

- Not enough milk (53%, n=99)
- Breast refusal (12%, n=22)
- Mother was fatigued/exhausted/needed to rest/no time (11%, n=21)
- Not latching (10%, n=18)
- Baby was hungry (6%, n=12)



Table 2: Any and Exclusive Breastfeeding Duration, Peel, 2015

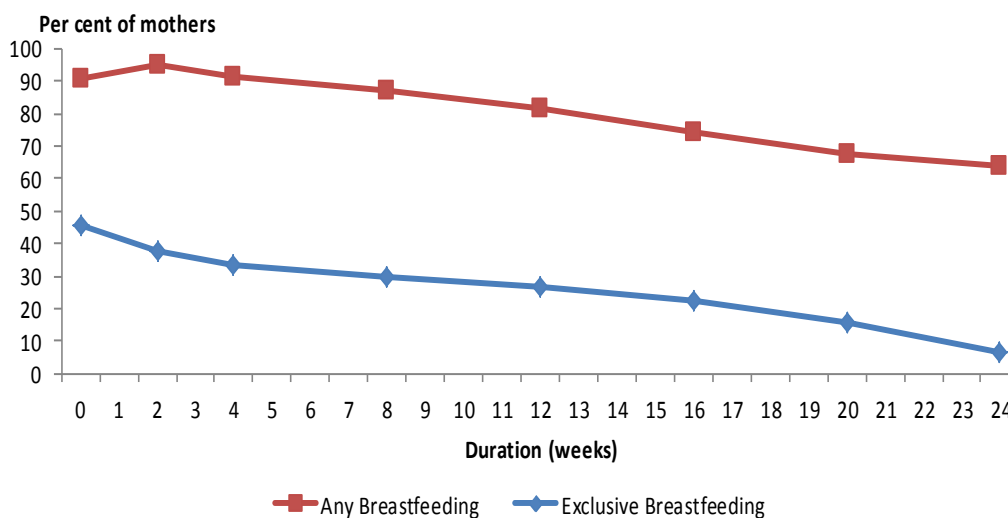
Breastfeeding duration	Any breastfeeding		Exclusive breastfeeding	
	Number of mothers (n=455)	Per cent (95% CI)	Number of mothers (n=455)	Per cent (95% CI)
Two weeks	432	95.0 (92.5 – 96.6)	174	38.2 (33.8 – 42.8)
1 month	416	91.5 (88.5 – 93.7)	152	33.3 (29.1 – 37.8)
2 months	397	87.2 (83.8 – 90.0)	136	29.8 (25.8 – 34.2)
3 months	372	81.8 (77.9 – 85.1)	123	27.1 (23.2 – 31.4)
4 months	337	74.2 (70.0 – 78.1)	103	22.8 (19.1 – 26.9)
5 months	308	67.9 (63.4 – 72.0)	71	15.7 (12.6 – 19.4)
6 months or longer	290	63.9 (59.3 – 68.2)	30	6.7 (4.7 – 9.4)

CI: Confidence Interval

Note: Weighted data

Source: Peel Infant Feeding Survey 2015, Peel Public Health.

**Figure 1:
Duration of Any Breastfeeding and Exclusive Breastfeeding to Six Months Postpartum, Peel, 2015**



Note: Weighted data

Source: Peel Infant Feeding Survey 2015, Peel Public Health.



Exclusive Breastfeeding

Although almost all mothers initiated breastfeeding, only 46% reported exclusively breastfeeding at the time of discharge from hospital. As most mothers (75%) stay in hospital for less than 72 hours, this is a significant drop in a short time (Appendix Table A1). However, some of these infants may have been given supplementation due to health concerns. Seven per cent of mothers reported exclusively breastfeeding at six months postpartum (Table 2, Figure 1).

Breastfeeding Support and Concerns

Of mothers who ever breastfed, 46% experienced difficulties or concerns with breastfeeding. The most common concerns with breastfeeding included (multiple responses possible):

- Not latching (43%, n=90)
- Not having enough breast milk (42%, n=87)
- Sore nipples (12%, n=25)
- Sore breasts/mastitis, engorgement (8%, n=16)
- Difficulty breastfeeding due to baby's physical health (including tongue-tie) (7%, n=14)

After being discharged from the hospital, 43% of mothers who attempted to breastfeed reported a time when they would have benefited from a breastfeeding program or service. Of these women, 23% were not able to use a breastfeeding program or service. The most common reasons for not being able to use a breastfeeding program or service included (multiple responses possible):

- Too busy (22%, n=14)
- Transportation (20%, n=13)
- Personal/family responsibilities (16%, n=10)
- Postpartum challenges (related to C-section, fatigue, or pain) (14%, n=9)

After leaving the hospital, 43% of mothers used a breastfeeding program or service. Of these mothers, 83% reported needing breastfeeding assistance. The most common places where mothers received help with breastfeeding were (multiple responses possible):

- Breastfeeding clinic (69%, n=133)
- Home visit by any professional (15%, n=28)
- At the hospital (13%, n=25)
- Doctor's office (9%, n=17)
- Telephone support (8%, n=16)

Vitamin D

While breastfeeding, 86% of mothers said they had given their infant a vitamin D supplement at least once. Peel's Family Health Division recommends that all breastfed infants receive a daily vitamin D supplement of 10 µg (400 IU) beginning at birth and continuing until the infant's diet includes at least 10 µg (400 IU) per day of vitamin D from other dietary sources.



Introduction of Liquids (Before Six months)

Mothers were asked when their infant was first given liquids other than breast milk, such as formula, water, honey, sugar water, juice or tea. In total, between 74 and 135 infants (17 – 32%) were given formula before the age of two weeks. For 100 infants (24%), liquids other than breast milk were not introduced until they were at least five months old (Tables 3-5). For additional details about liquids introduced in hospital, please see the *Feeding While in Hospital* section.

Table 3: Introduction of Only Formula Among Breastfeeding Mothers, Peel, 2015

Timing of Liquids	Number	Per cent	95% confidence interval
Less than 2 weeks	74	52.4	44.2 – 60.6
2 weeks to less than 1 month	13	9.0	5.3 – 14.9
1 to less than 2 months	13	9.0	5.3 – 14.9
2 to less than 3 months	14	9.7	5.8 – 15.8
3 to less than 4 months	13	9.2	5.4 – 15.2
4 to less than 5 months	NR	NR	NR
5 to less than 6 months	NR	NR	NR
More than 6 months old	NR	NR	NR

N = 142

NR = Not releasable due to small numbers

Note: Mothers introduced formula at least once and may or may not be continuing to formula feed.

Note: Weighted data.

Source: Peel Infant Feeding Survey 2015, Peel Public Health.

Table 4: Introduction of Liquids Other than Formula Among Breastfeeding Mothers, Peel, 2015

Timing of Liquids	Number	Per cent	95% confidence interval
Less than 2 weeks	NR	NR	NR
2 weeks to less than 1 month	NR	NR	NR
1 to less than 2 months	NR	NR	NR
2 to less than 3 months	NR	NR	NR
3 to less than 4 months	10	9.4	5.1 – 16.6
4 to less than 5 months	20	18.4	12.2 – 26.9
5 to less than 6 months	25	22.8	15.9 – 31.7
More than 6 months old	38	35.3	26.8 – 44.8

N = 109

NR = Not releasable due to small numbers

Note: Mothers introduced liquids other than formula at least once and may or may not be continuing to feed these liquids.

Note: Weighted data

Source: Peel Infant Feeding Survey 2015, Peel Public Health.



Table 5: Introduction of Formula and Other Liquids Among Breastfeeding Mothers, Peel, 2015

Timing of Liquids	Number	Per cent	95% confidence interval
Less than 2 weeks	61	36.1	29.2 – 43.6
2 weeks to less than 1 month	18	10.5	6.7 – 16.1
1 to less than 2 months	14	8.3	5.0 – 13.6
2 to less than 3 months	13	7.7	4.5 – 12.9
3 to less than 4 months	21	11.9	7.9 – 17.7
4 to less than 5 months	15	8.7	5.3 – 14.0
5 to less than 6 months	12	7.1	4.1 – 12.2
More than 6 months old	16	9.5	6.0 – 15.0

N = 170

Note: Mothers introduced formula and other liquids at least once and may or may not be continuing to feed formula and other liquids. The timing was for the first liquid introduced which may or may not be the same for subsequent liquids introduced.

Note: Weighted data

Source: Peel Infant Feeding Survey 2015, Peel Public Health.

Among mothers who introduced liquids other than breast milk after leaving the hospital, 312 mothers (74%) introduced formula to their infant. Other common liquids were (multiple responses possible):

- Water (57%, n=242)
- Juice (17%, n=72)
- Sugar water (3%, n=13)

The most common reasons for introducing only formula to babies (n=142) included (multiple responses possible):

- Not enough milk (46%, n=66)
- Baby was hungry (16%, n=23)
- Not latching (7%, n=10)

The most common reasons for introducing liquids other than formula to babies (n=109) included (multiple responses possible):

- Hydration or constipation (23%, n=25)
- Supplementing solid foods (15%, n=16)
- Health professional’s advice (12%, n=13)

The most common reasons for introducing formula **and** other liquids to babies (n=170) included (multiple responses possible):

- Not enough milk (30%, n=51)
- Hydration or constipation (19%, n=32)
- Supplementing solid foods (11%, n=19)



Introduction of Solids

Mothers were asked when their infant was first given solid foods such as infant cereal, fruit, vegetables, meat products, dairy products, grain products, eggs, or legumes. In total, 75% of infants were given solids around the recommended age of six months (Table 6).

Table 6: Introduction of Solids, Peel, 2015

Timing of solids	Number	Per cent	95% confidence interval
Less than 4 months	NR	NR	NR
4 to less than 5 months	85	19.0	15.6 – 22.9
5 to less than 6 months	161	36.0	31.7 – 40.6
6 to less than 7 months	176	39.6	35.1 – 44.2
7 to less than 8 months	16	3.6	2.2 – 5.8

N = 446

Note: Weighted data

Source: Peel Infant Feeding Survey 2015, Peel Public Health.

Among mothers who introduced solids to their infant prior to six months of age, 18% reported exclusive breastfeeding up until that time point.

The most common purees or solid foods given to babies by mothers who introduced solid foods were (multiple responses possible):

- Fruit (88%, n=396)
- Vegetables (88%, n=395)
- Infant cereal (82%, n=368)
- Meat products (36%, n=163)
- Grain products (30%, n=133)

Nine of ten mothers (91%) had given their infant iron-rich foods such as infant cereal, meat products or grain products. Of these mothers, 21% provided one serving of iron-rich foods per day and 78% provided two or more servings per day.

The most common reasons for feeding babies purees or solid foods included (multiple responses possible):

- Health professional's advice (38%, n=169)
- Baby showed interest (29%, n=128)
- Baby was hungry (27%, n=119)
- Mother felt it was time (9%, n=40)



DISCUSSION

At Peel Public Health, the Family Health Division is focussed on supporting families to reach their infant feeding goals by providing just-in-time information and technical support and by streamlining services between the hospital and the community. As breast milk is the optimal source of nutrition for babies, supporting women to predominantly or exclusively breastfeed during the first six months of their baby's life is an important part of the work of the infant feeding teams at Peel Public Health. The Peel Infant Feeding Survey was developed to obtain information about infant feeding practices, to monitor the rates of breastfeeding in the region over a three year period, and to gain a better understanding of both the challenges parents face and the supports available to them in the community. This information helps to inform the strategic directions of the Family Health division.

In Peel, almost all mothers (99%) initiated breastfeeding after the birth of their baby. Most women continued to breastfeed with over 87% breastfeeding at 2 months and almost 64% breastfeeding at 6 months postpartum.

For most mothers (75%), their hospital stay was less than 72 hours post-delivery. Despite short hospital stays, approximately half of Peel infants were given liquids other than breast milk while in hospital. Common reasons for supplementation included maternal concerns regarding insufficient milk supply and difficulties latching, however, some infants received supplementation due to concerns regarding the baby's health (e.g., low blood sugar, illness, weight). Although 50% of infants receive formula while in hospital, most mothers continue to breastfeed, with 95% reporting any breastfeeding at two weeks after discharge.

This survey reveals that 28% of Peel mothers were given formula to take home from hospital. Mothers who were given formula to take home reported significantly reduced breastfeeding duration, compared to those who did not receive formula samples. Giving mothers free samples of formula contravenes the World Health Organization's *International Code of Marketing of Breast-milk Substitutes*⁴.

Among mothers who introduced liquids other than breast milk to their babies after hospital discharge, the most common liquid given was formula, followed by water, juice, and sugar water. Mothers reported introducing these liquids because of concerns regarding their breast milk supply, concerns regarding their baby's well-being (e.g., hydration, constipation, hunger), or on the advice of a health professional. For mothers who stopped or discontinued breastfeeding in the first few months postpartum, perception of insufficient milk supply, breast refusal, mother's exhaustion or fatigue, baby's difficulty latching and baby's hunger were the most commonly reported reasons for making this decision.

Most mothers (69%) who accessed breastfeeding services reported accessing help through breastfeeding clinics. Home visits, hospitals, doctors' offices and telephone support were identified as other places where families received infant feeding assistance. For those mothers who were not able to access programs or services in their community, barriers included transportation, personal/family responsibilities and postpartum challenges such as Caesarean Section, fatigue or pain).



According to the World Health Organization (WHO) and the Baby-Friendly Initiative (BFI), exclusive breastfeeding for the first six months of life contributes to optimal development. Under the WHO and BFI guidelines, breastfeeding exclusivity is only achieved if the infant receives no other food or liquid from the time of birth. By this definition, a single introduction of other liquids or solids moves an infant from the category of exclusive breastfeeding to “some” or “any” breastfeeding. For example, infants who are given formula while in hospital and then solely breastfed once home are no longer considered to be exclusively breastfed. As a result, only 46% of mothers are considered to be exclusively breastfeeding by hospital discharge. Exclusive breastfeeding rates then decline steadily over the first six months postpartum with 7% of babies continuing to be exclusively breastfed at 6 months.

Most mothers (75%) reported introducing solid foods to their baby between five and seven months of age. This is consistent with the Family Health recommendation regarding the introduction of solids **at around** six months of age based on readiness cues. Approximately 20% of mothers were introducing solids prior to five months of age, when children may not be developmentally ready for solid foods. Mothers reported that the most common reasons for starting solids were based on health professional’s advice, their own knowledge of introducing solids, or due to baby’s readiness cues. When introducing solids, 90% of mothers were providing iron-rich foods (i.e. infant cereal, meat or grain products), which are recommended by Family Health as the first foods to offer. Infants introduced to solids after the recommended time may also be at risk as breast milk or formula alone may not provide sufficient nutrients, growth may be impacted and the development of motor skills, such as chewing, may be compromised.

Although breastfeeding initiation rates are high and most mothers continue to breastfeed for at least 6 months, there are still opportunities for improvement. These include:

- increasing the number of women who provide any breast milk;
- increasing the number of women who are predominantly or exclusively breastfeeding at 6 months; and
- increasing the number of parents who introduce solid foods at the right time.

Parental beliefs, inconsistent messages, barriers to accessing services, and current hospital policies all impact on infant feeding practices.

As an organization, Peel Public Health has a mandate to work with community partners to address these factors, remove barriers and provide services that meet the needs of Peel parents. By collaborating with our partners we can better support infant feeding practices across Peel region by:

- ensuring infant feeding programs and services are available to all new mothers and their families when they need or want it;
- providing parents with clear and consistent information about when and how to introduce solid foods; and
- working with Peel hospital partners to review infant feeding policies and protocols regarding supplementation and provision of formula.



METHODS

Survey Sampling

Following the birth of an infant, consent is obtained by the hospital nurse or midwife for the mother to be contacted by Peel Public Health. During the data collection period, consent was documented using the Healthy Babies Healthy Children (HBHC) Screening Tool. Completed screening tools are faxed to Peel Public Health and entered into the provincial Integrated Services for Children Information System (ISCIS) database.

Mothers with infants between 26 and 33 weeks of age (approximately six to eight months) were selected from the ISCIS database for inclusion in the sampling frame. All teen mothers (aged 15 to 19 years) were selected, along with a random sample of adult mothers (20+ years) residing within one of Peel's three municipalities.

Excluded from the sampling frame were:

- Mothers who were less than 15 years of age
- Mothers with known involvement of the Children's Aid Society
- Mothers of a multiple birth where one or more of the infants died
- Mothers of a stillborn infant or a live born infant who died

Survey Tool

The survey tool was comprised of 45 questions, six of which had two versions to account for differences in wording for hospital births and home births. The survey was approximately 15 to 20 minutes in duration and completed using a Computer-Assisted Telephone Interview (CATI) system. Topics included in the survey and described in this report include:

- Birth and Baby
- Breastfeeding Initiation and Support
- Feeding in Hospital
- Feeding at Home (Breastfeeding)
- Vitamin D Supplementation
- Hospital Births: Feeding at Home (Other liquids)
- Home Births: Feeding at Home (Other liquids)
- Feeding at Home (Solids)
- Characteristics of the Mother

Data were collected through a telephone survey conducted by CCI Research Inc. The surveys were administered in the respondent's language of preference through the use of a professional language line. Calls were made during the day and evening, on weekdays and weekends between May 25th and August 21st, 2015.

A standard script was used to describe the survey and to obtain consent to participate. Respondents were informed of their rights as a participant (e.g., to refuse to answer any question, to end their participation at any time).



All mothers in the sample were called until the list was exhausted according to the call specifications (i.e., at least 15 call attempts). Call disposition statistics were collected to capture the number of completed calls and the reasons for non-completion or refusal (where given).

Survey Development

The survey questions were revised from the previous Infant Feeding Surveillance System Tool (2012). Questions regarding exclusivity at two weeks, introduction of solids, vitamin D supplementation, introduction of iron rich foods, and use of supports were added into the Peel Infant Feeding Survey.

Peel Public Health conducted a pre-pilot test of the survey questions and skip patterns in the Region of Peel Family Health Division in March 2015. In May of 2015, CCI Research Inc. pilot tested the survey tool using the CATI System. A total of 49 records were used in the pilot survey, which were not included in the final dataset. Minor revisions to the survey instrument were considered following the results of these pilot phases.

Analysis and Reporting

Data analysis includes descriptive statistics, as well as bivariate analysis by the characteristics of the mother (e.g., age, education, income). Respondents to the Peel Infant Feeding Survey were compared to non-respondents using chi-square tests (categorical variables) and t-tests (continuous variables) based on mother's municipality of residence, mother's age, gestational age, infant sex, type of birth, feeding method at discharge and delivery method. A *p-value* of less than 0.05 was considered statistically significant.

The data presented in this report have been weighted using design weights based on age category of mothers (e.g., teen mothers, adult mothers). The weighting was done to account for the probability of selection for each respondent and non-response. The final design weight was based on the product of the probability of being sampled and the non-response adjustment factor. Estimates and confidence intervals presented in this report were weighted, unless otherwise noted, and computed using Stata/SE 14.0.

In this report, data are presented where the numerator is 10 or more and the denominator is 30 or more. Any data with values less than this numerator or denominator were suppressed and labelled as not releasable due to small numbers. Additionally, if the proportion of missing responses for a question was five per cent or greater, cases with missing responses were kept in the analysis. If the proportion of missing responses for a question was less than five per cent, cases with missing responses were excluded from the analysis. Instances where the missing responses were included in the analysis are noted in the text, tables or figures.

LIMITATIONS

There are several limitations to the Peel Infant Feeding Survey and analysis presented in this report:

- The sampling frame from ISCIS does not include all births in the Region of Peel because not all women consent to have their data collected through ISCIS. It is possible that the 10 to



15% of births not captured in ISCIS are systematically different than the births that are included in the database.

- PIFS was developed to have a sufficient sample to provide a precise estimate of the rate of exclusive breastfeeding at six months postpartum. However, the PIFS is insufficiently powered to detect differences between subgroups (e.g., age group, immigrant status, income).
- Due to the small number of teen mothers surveyed and the releasability guidelines for the PIFS (required denominator of at least 30 individuals), the PIFS sample does not allow for the reporting of breastfeeding practices among teen mothers (15 to 19 years) at this point in time.
- Due to differences in sampling methodology, data from the 2015 PIFS should not be compared with previous reports by Peel Public Health (2004/2005, 2009/2010) where convenience sampling was used.
- In addition, some questions have changed and may be asked differently from the 2012/2013 Infant Feeding Surveillance System Summary Report. When making comparisons between 2015 PIFS data and 2012/2013 data, caution should be taken to ensure questions are comparable. Differences in weighting methods between 2012/2013 and 2015 analyses will not have significant impact on the proportions presented; however they will provide additional precision to the estimates.

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APPENDIX 1: Supplemental Tables

Table A1: Demographic Characteristics of Adult Respondents, Peel, 2015

Characteristic	Number	Per cent
Municipality		
Brampton	232	51.0
Caledon	22	4.8
Mississauga	201	44.2
Maternal Age Group (years)		
15-19	17	3.7
20-24	67	14.7
25-29	169	37.1
30-34	163	35.8
35-39	29	6.4
40+	NR	NR
Respondent's First Child		
Yes	209	46.0
No	245	54.0
Breastfed Previous Children (n=245)		
Yes, some of them	11	4.5
Yes, all of them	211	86.1
No	23	9.4
Sex of Infant		
Female	208	45.8
Male	246	54.2
Type of Birth		
Single	442	97.1
Multiples	13	2.9
Delivery Type		
Caesarean Section	141	31.0
Vaginal	314	69.0
Planned Caesarean Section (n=141)		
Yes	66	46.8
No	75	53.2
Attended Prenatal Classes		
Yes	122	27.0
No	329	73.0



Table A1: Demographic Characteristics of Adult Respondents continued

Characteristic	Number	Per cent
Birth Hospital		
William Osler (Brampton Civic Hospital)	151	33.2
William Osler (Etobicoke campus)	25	5.5
Trillium Health Partners (Mississauga Hospital)	86	18.9
Trillium Health Partners (Credit Valley Hospital)	138	30.3
Home birth	0	0
Other	55	12.1
Baby's Length of Stay in Hospital		
Less than 1 day (Less than 24 hours)	15	3.3
1 day (24 to 47 hours)	189	41.5
2 days (48 to 71 hours)	137	30.1
3 days (72 to 95 hours)	60	13.2
4 days or more (96 hours or more)	54	11.9
Marital Status		
Married (legally)	367	80.7
Common-law or living with a partner	45	9.9
Single (never married)	39	8.6
Separated (not legally divorced)	NR	NR
Divorced	NR	NR
Education		
High school or less	74	16.3
Some post-secondary	37	8.1
Post-secondary graduate	343	75.6
Household Income Before Taxes		
Less than \$50,000	150	33.0
\$50,000 to less than \$80,000	73	16.0
\$80,000 or more	151	33.2
Don't Know	41	9.0
Refused	40	8.8
Gestational Age		
<37 weeks (preterm)	37	8.1
37 weeks or greater (term)	413	91.9
Born in Canada		
Yes	167	36.7
No	288	63.3



Table A1: Demographic Characteristics of Adult Respondents continued

Characteristic	Number	Per cent
Length of Time in Canada		
Non-immigrant	167	37.0
Recent (0 to 5 years)	94	20.8
Intermediate (6 to 10 years)	69	15.3
Long term (11 years or more)	121	26.8
Ethnic Origins		
North American (e.g., Canadian, American)	73	16.0
British	44	9.7
South Asian (e.g., East Indian, Pakistani, Sri Lankan, Punjabi)	171	37.6
Caribbean (e.g., Jamaican, Trinidadian, West Indian)	58	12.7
African (e.g., South Africa, Ethiopian, Somali)	18	4.0
European (e.g., Italian, Portuguese, Polish, French, Greek)	92	20.2
East or South East Asian (e.g., Filipino, Japanese, Chinese, Vietnamese)	43	9.5
West Asian/ Arab (e.g., Persian, Egyptian, Iranian, Lebanese)	22	4.8
Latin, Central and South American (e.g., Brazilian, Columbian)	21	4.6
Other	NR	NR

N=455

NR = Not releasable due to small numbers

Note: Unweighted data

Source: Peel Infant Feeding Survey, Peel Public Health, 2015.



Table A2: Comparison of Characteristics of Adult Respondents to Non-Respondents*, Peel, 2015

Variable	Respondents % (n=455)	Non-respondents % (n=556)	p-value
Municipality			0.09
Brampton	51.0	49.5	
Caledon	4.8	2.5	
Mississauga	44.2	48.0	
Mother's age (years)			0.04
Mean	28.7	28.1	
Gestation age group (singletons only)			0.31
<37 weeks (preterm)	6.6	8.3	
37 week or greater (term)	93.4	91.7	
Sex of Infant			0.83
Female	46.2	46.9	
Male	53.8	53.1	
Type of birth			0.36
Single	97.1	98.0	
Multiple	2.9	2.0	
Feeding Method at Discharge			0.79
Breast Milk	55.4	53.8	
Breast Milk Substitute	4.4	5.6	
Both	27.2	28.4	
Missing	13.0	12.2	
Delivery Method**			0.33
Caesarean Section	30.1	25.9	
Vaginal	60.7	64.2	

*Non-respondents include those who wanted a call back (n=5), required an interpreter or hung up (n=22), refused or removed their number (n=122), were ineligible (n=163), or were not reached before the maximum number of call attempts (n=244).

**Caution should be taken when interpreting proportion of delivery methods. The proportion of missing data for delivery method is 9.6%.

Note: Un-weighted data

Source: Peel Infant Feeding Survey 2015, Peel Public Health.



Table A3: Any Breastfeeding Duration by Formula Received from Hospital at Discharge Status, Peel, 2015

Breastfeeding duration	Did not receive formula to take home		Received formula to take home	
	Number of mothers (n=324)	Per cent (95% CI)	Number of mothers (n=127)	Per cent (95% CI)
Two weeks	313	96.6 (93.9 – 98.1)	116	91.5 (85.2 – 95.3)
1 month	305	94.1 (90.9 – 96.2)	108	85.4 (78.1 – 90.5)
2 months	296	91.3 (87.6 – 93.9)	98	77.4 (69.3 – 83.9)
3 months	278	85.7 (81.5 – 89.2)	92	72.7 (64.2 – 79.7)
4 months	257	79.5 (74.7 – 83.5)	78	61.8 (53.0 – 69.8)
5 months	238	73.6 (68.5 – 78.2)	68	53.8 (45.1 – 62.3)
6 months or longer	226	69.9 (64.6 – 74.7)	62	49.0 (40.4 – 57.7)

CI: Confidence Interval

Note: Weighted data

Source: Peel Infant Feeding Survey 2015, Peel Public Health.



Table A4: Characteristics Associated with Exclusive Breastfeeding at Hospital Discharge, Peel, 2015

Characteristic	Number exclusively breastfeeding at discharge	Per cent with characteristic exclusively breastfeeding at discharge	95% confidence interval
Maternal age group (years)			
15-19	NR	NR	NR
20-24	36	53.0	41.0 – 64.7
25-29	71	41.7	34.4 – 49.3
30-34	79	48.5	40.9 – 56.1
35-39	NR	NR	NR
Respondent's first child			
Yes	97	45.9	39.2 – 52.7
No	113	46.4	40.2 – 52.8
Delivery Type			
Caesarean Section	47	33.2	25.9 – 41.4
Vaginal	163	52.0	46.4 – 57.5
Birth hospital			
William Osler (Brampton Civic Hospital)	66	43.4	35.7 – 51.5
William Osler (Etobicoke campus)	NR	NR	NR
Trillium Health Partners (Mississauga Hospital)	42	49.8	39.3 – 60.3
Trillium Health Partners (Credit Valley Hospital)	74	53.6	45.2 – 61.8
Home birth	0	0	0
Other	20	35.6*	24.2 – 49.0
Marital Status			
Married (legally)	168	45.8	40.7 – 50.9
Common-law or living with a partner	21	46.6	32.4 – 61.2
Single (never married)	21	53.6	37.9 – 68.7
Separated (not legally divorced)	0	0	0
Divorced	0	0	0
Education			
High school or less	33	44.6	33.6 – 56.2
Some post-secondary	16	41.1*	26.7 – 57.3
Post-secondary graduate	160	46.7	41.5 – 52.1



Table A4: Characteristics Associated with Exclusive Breastfeeding at Hospital Discharge continued

Characteristic	Number exclusively breastfeeding at discharge	Per cent with characteristic exclusively breastfeeding at discharge	95% confidence interval
Household Income Before Taxes			
Less than \$50,000	67	44.4	36.6 – 52.5
\$50,000 to less than \$80,000	34	46.4	35.2 – 57.8
\$80,000 or more	71	47.2	39.3 – 55.2
Don't Know	16	38.4*	24.9 – 54.0
Refused	22	55.0	39.5 – 69.6
Ethnic Origins			
North American (e.g., Canadian, American)	36	49.5	37.9 – 61.2
British	22	50.8	36.2 – 66.1
South Asian (e.g. East Indian, Pakistani, Sri Lankan, Punjabi)	66	38.9	31.6 – 46.6
Caribbean (e.g. Jamaican, Trinidadian, West Indian)	28	48.0	35.1 – 61.1
African (e.g. South Africa, Ethiopian, Somali)	NR	NR	NR
European (e.g., Italian, Portuguese, Polish, French, Greek)	50	53.6	42.9 – 63.9
East or South East Asian (e.g. Filipino, Japanese, Chinese, Vietnamese)	16	37.2	23.7 – 53.0
West Asian/ Arab (e.g. Persian, Egyptian, Iranian, Lebanese)	NR	NR	NR
Latin, Central and South American (e.g. Brazilian, Columbian)	NR	NR	NR
Other	NR	NR	NR
Born in Canada			
Yes	91	54.6	47.0 – 62.1
No	119	41.2	35.6 – 47.0
Length of Time in Canada (immigrants only)			
Recent (0 to 5 years)	47	49.8	39.8 – 59.9
Intermediate (6 to 10 years)	20	29.0*	19.5 – 40.8
Long term (11 years or more)	49	40.4	32.0 – 49.4
Gestational Age (singletons only)			
<37 weeks (preterm)	NR	NR	NR
37 weeks or greater (term)	198	47.9	43.1 – 52.8

N=455

*Use estimate with caution

NR = Not releasable due to small numbers

Note: Weighted data

Source: Peel Infant Feeding Survey, Peel Public Health, 2015.



Table A5: Characteristics Associated with Any Breastfeeding at Six Months Postpartum, Peel, 2015

Characteristic	Number breastfeeding at six months	Per cent with characteristic breastfeeding at six months	95% confidence interval
Maternal age group (years)			
15-19	NR	NR	NR
20-24	39	58.2	46.1 – 69.4
25-29	113	66.9	59.4 – 73.6
30-34	102	62.6	54.9 – 69.7
35-39	NR	NR	NR
Respondent's first child			
Yes	135	64.8	58.0 – 71.0
No	155	63.3	57.1 – 69.2
Delivery Type			
Caesarean Section	79	56.2	47.8 – 64.1
Vaginal	211	67.4	62.0 – 72.4
Birth hospital			
William Osler (Brampton Civic Hospital)	91	60.4	52.3 – 67.9
William Osler (Etobicoke campus)	NR	NR	NR
Trillium Health Partners (Mississauga Hospital)	57	66.8	56.2 – 75.9
Trillium Health Partners (Credit Valley Hospital)	85	61.3	52.9 – 69.1
Home birth	0	0	0
Other	40	73.0	59.8 – 83.1
Marital Status			
Married (legally)	250	68.1	63.1 – 72.7
Common-law or living with a partner	21	46.2	32.2 – 60.8
Single (never married)	19	49.9	34.6 – 65.2
Separated (not legally divorced)	0	0	0
Divorced	0	0	0
Education			
High school or less	30	40.2	29.6 – 51.8
Some post-secondary	22	60.8	44.5 – 75.1
Post-secondary graduate	238	69.3	64.2 – 74.0
Household Income Before Taxes			
Less than \$50,000	84	56.2	48.0 – 63.9
\$50,000 to less than \$80,000	45	61.5	49.8 – 71.9
\$80,000 or more	103	68.4	60.5 – 75.3
Don't Know	28	68.3	52.6 – 80.7
Refused	30	75.0	59.4 – 86.0



Table A5: Characteristics Associated with Any Breastfeeding at Six Months Postpartum continued

Characteristic	Number breastfeeding at six months	Per cent with characteristic breastfeeding at six months	95% confidence interval
Ethnic Origins			
North American (e.g., Canadian, American)	41	56.9	45.2 – 68.0
British	29	66.4	51.9 – 79.9
South Asian (e.g. East Indian, Pakistani, Sri Lankan, Punjabi)	109	63.9	56.4 – 70.8
Caribbean (e.g. Jamaican, Trinidadian, West Indian)	33	57.1	43.7 – 69.6
African (e.g. South Africa, Ethiopian, Somali)	NR	NR	NR
European (e.g., Italian, Portuguese, Polish, French, Greek)	59	64.5	54.1 – 73.8
East or South East Asian (e.g. Filipino, Japanese, Chinese, Vietnamese)	26	60.5	44.7 – 74.3
West Asian/ Arab (e.g. Persian, Egyptian, Iranian, Lebanese)	NR	NR	NR
Latin, Central and South American (e.g. Brazilian, Columbian)	NR	NR	NR
Other	0	0	0
Born in Canada			
Yes	104	62.6	55.0 – 69.7
No	186	64.6	58.8 – 69.9
Length of Time in Canada (immigrants only)			
Recent (0 to 5 years)	69	73.5	63.6 – 81.4
Intermediate (6 to 10 years)	39	56.5	44.6 – 67.7
Long term (11 years or more)	75	62.0	53.0 – 70.2
Gestational Age (singletons only)			
<37 weeks (preterm)	NR	NR	NR
37 weeks or greater (term)	275	66.7	62.0 – 71.1

N = 290

NR = Not releasable due to small numbers

Note: Weighted data

Source: Peel Infant Feeding Survey, Peel Public Health, 2015.

