

BREASTFEEDING PRACTICES, AWARENESS & ATTITUDES IN MIDDLESEX-LONDON 2007-2009

Issue 25, January 2011

KEY FINDINGS

- 52% of Middlesex-London mothers who gave birth within the past five years breastfed their babies for six months or more; 17% breastfed their babies for twelve months or longer.
- Six-month breastfeeding duration rates in Middlesex-London appear to have increased somewhat between 2004 and 2009, however, this is not statistically significant.
- The level of awareness that babies who are exclusively breastfed for the first six months of life get all the food that they need for growth was lower between 2007 and 2009 (70.8%) than in previous years (2004: 85%, and 2006: 75%).
- Public acceptance of breastfeeding in restaurants and shopping malls in Middlesex-London has grown since 2002; 71% accepted breastfeeding in restaurants and 73%, in shopping malls during 2007-2009 compared to 65% for both of these public places in 2002.
- Young adults ages 18 to 24 showed a lower awareness of health benefits of breastfeeding to the child and a lower acceptance of breastfeeding in restaurants than older age groups.
- Mothers ages 25 to 34 were significantly less likely to breastfeed for at least six months than their older counterparts. The 18 to 24 year old age group was too small to yield reliable statistics.

INDEX

Background.....	1	Attitudes Towards Breastfeeding in	
Breastfeeding Initiation Rates in		Public Places	5
Middlesex-London	2	Restaurants	5
Breastfeeding Duration Rates in		Shopping Malls	6
Middlesex-London	2	Implications and Future Directions	7
Breastfeeding Awareness.....	2	Methods & Definitions.....	8
Health Benefits to the Child	3	References	8
Health Benefits to the Mother	4	Contacts	10
Awareness of the Breastfeeding Protects			
Campaign	4		

BACKGROUND

Breast milk is the optimal nutrition for healthy infants and young children. Research supports the fact that breastfeeding has nutritional and immunological benefits for the infant, and health related benefits for both the infant and the mother¹. There is also an increasing awareness about the broader and longer term benefits, such as the link to poverty reduction and obesity reduction; therefore, breastfeeding remains an important public health issue.

The current provincial, national and international recommendations for infant feeding state that healthy term infants should be exclusively breastfed until around six months of age, when complementary iron-rich foods are introduced. Breastfeeding should continue up to two years and beyond^{1,2,3}.

The Rapid Risk Factor Surveillance System (RRFSS) was used to identify how residents within Middlesex-London fared from 2007 to 2009 regarding breastfeeding practices, attitudes and awareness. RRFSS is an ongoing population health survey which conducts 100 telephone interviews monthly from residents in the Middlesex-London Health Unit (MLHU) area. Many health units in Ontario participate in this population health behaviour surveillance system.

BREASTFEEDING INITIATION RATES IN MIDDLESEX-LONDON

RRFSS data collected between 2007 and 2009 among women 18-49 years of age residing in Middlesex- London show a breastfeeding initiation rate of 90.2% ($\pm 3.7\%$) during this three-year period.

This is similar to the rates seen in 2004 (86.5% $\pm 4.2\%$) and 2006 (88.7% $\pm 5.6\%$)⁴. The initiation rate for Middlesex-London also corresponds with the national average from the Canadian Community Health Survey in 2009, which found that nearly 88% of women who had given birth, breastfed even if only for a short while⁵.

BREASTFEEDING DURATION RATES IN MIDDLESEX-LONDON

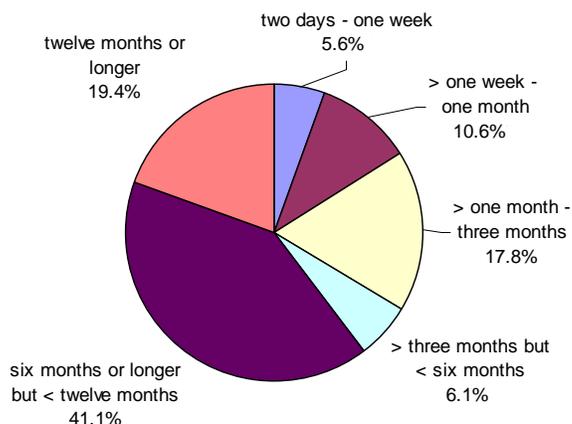
Breastfeeding exclusivity and duration have both been shown to maximize the benefits of breastfeeding, and are both indicators for breastfeeding success^{6,7}. The Ontario Public Health Standards (2008) indicate that, in order to enable all children to reach optimal health and development, communities need to ensure that women have the knowledge, skill and support to continue breastfeeding⁸.

Among all Middlesex-London mothers who gave birth within the past five years 52.2% ($\pm 6.8\%$) breastfed their babies for six months or more. Although the rate appears higher than those from 2004 (44.3% $\pm 5.7\%$) and 2006 (46.1% $\pm 8.2\%$)⁴, the difference is not statistically significant. A breastfeeding duration of twelve months or longer was observed among 16.7% ($\pm 5.1\%$) of these mothers.

Figure 1 shows the proportion of mothers who initiated breastfeeding by duration of breastfeeding.

Figure 1. Breastfeeding duration among women who initiated breastfeeding.

Women 18-49 years of age, who gave birth to a child in the past five years. Middlesex-London 2007-2009.



Source: RRFSS 2007, 2008 and 2009. This analysis does not include the women (n=40) reporting that they were currently breastfeeding.

Women who were 35 years of age or older were one and a half times more likely to breastfeed for six months or longer (72.4% $\pm 9.4\%$) compared to women in the age group 25-34 (47.0% $\pm 10.7\%$). The sample size for women 18-24 was small, thus the estimate for this group was considered too unreliable to be released.

The most common reason for discontinuing breastfeeding that was cited among women living in Middlesex-London was perceived insufficient milk supply (25.0% ± 6.4%), followed by mother returning to work or school (15.3% ± 5.3%) and the child weaning him or herself (14.8% ± 5.2%). These are similar to the rates found in 2006⁴.

BREASTFEEDING AWARENESS

Breastfeeding is supported by extensive evidence for its short term and long term benefits, for both mother and baby. RRFSS collected data regarding awareness within residents of Middlesex-London about these health benefits to both the child and to the mother. Data was also collected regarding awareness of the Breastfeeding Protects campaign that ran locally during the time of data collection.

HEALTH BENEFITS TO THE CHILD

It is well documented that babies receive all the nutrients that they need exclusively from breastfeeding for the first six months of life. Just over half of Middlesex-London residents (58.2% ± 1.8%), however, believed this to be true.

When focusing specifically on those with children 0-11 years of age living in the household, a significantly larger proportion (70.8% ± 3.4%) believed that a baby who is exclusively breastfed for the first six months gets all the food it needs for growing, compared to those without children in the household (54.4% ± 2.0%). Middlesex-London parents/caregivers with children 11 years and under who were asked a similar question previously, however, had higher rates of awareness at 85.6% ± 2.3% in 2004 and 75.5% ± 3.6% in 2006⁴.

Females were more likely to believe that babies who are exclusively breastfed for the first six months get all the food they need for growth, compared to males (62.3% ± 2.3% vs. 52.7% ± 2.7%).

This belief was least frequent among those 18-24 years of age (44.9% ± 6.0%) compared to older age groups. Middlesex-London residents in the age group 25-44 were most likely to believe this (64.2% ± 3.1%) compared to all other age groups (Figure 2).

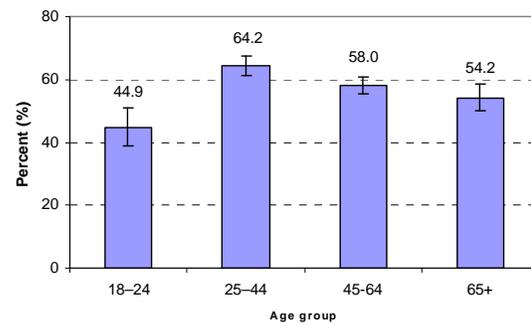
This belief increased with level of education (Figure 3). Post-secondary graduates were more likely to think that babies who are exclusively breastfed for the first six months get all the food they need for growth (62.6% ± 2.3%) compared to those with lower education.

There was a lower likelihood of believing that babies who are exclusively breastfed for the first six months get all the food they need for growth among Anglophones (57.4% ± 1.8%) compared to those speaking other languages (72.4% ± 6.5%).

No statistically significant difference was noted across income levels or area of residence (Middlesex County vs. City of London).

Figure 2. Proportion of residents who believed that a baby who is exclusively breastfed for the first six months gets all the food it needs for growth, by age group.

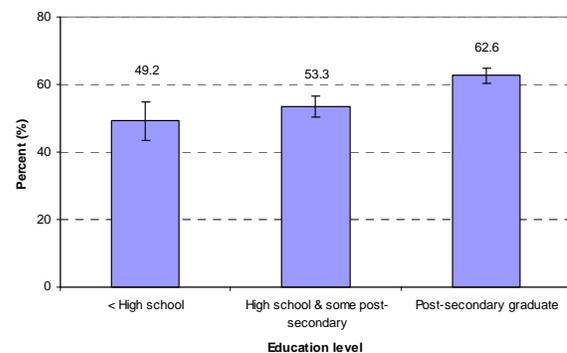
Adults 18 years and older. Middlesex-London 2007-2009.



Source: RRFSS June-December 2007, February-December 2008, and January-December 2009

Figure 3. Proportion of residents who believed that a baby who is exclusively breastfed for the first six months gets all the food it needs for growth, by education level.

Adults 18 years and older. Middlesex-London 2007-2009.



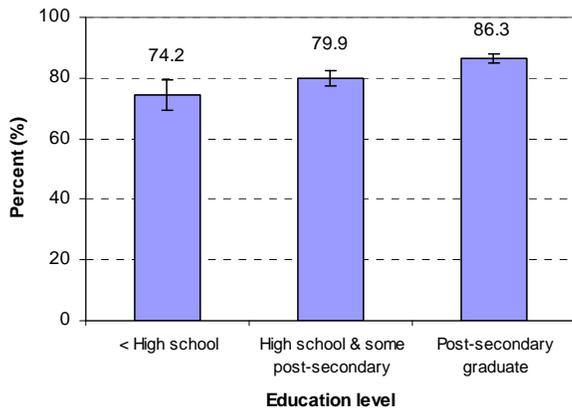
Source: RRFSS June-December 2007, February-December 2008, and January-December 2009

During the period 2007 to 2009, 83% (± 1.3%) of residents of Middlesex-London believed that

breastfeeding helps to keep babies from getting sick. The rate was stable across the three years. Those with higher education were more likely to believe that breastfeeding helps to keep babies from getting sick; 86.3% ($\pm 1.6\%$) of post-secondary graduates believed this to be true compared to 79.9% (± 2.5) among those with high school or more, and 74.2% ($\pm 5.0\%$) among those who did not finish high school (Figure 4).

Figure 4. Proportion of residents who believed that breastfeeding helps to keep babies from getting sick, by education level.

Adults 18 years and older. Middlesex-London 2007-2009.



Source: RRFSS June-December 2007, February-December 2008, and January-December 2009

No statistically significant difference between those having children 0-11 years of age living in the household or not, gender, age groups, marital status, income level, language, or area of residence (Middlesex County vs. City of London) was observed.

HEALTH BENEFITS TO THE MOTHER

There are a number of health benefits of breastfeeding for the mother, such as reducing the risk of postpartum blood loss, premenopausal breast cancer, and ovarian cancer⁹.

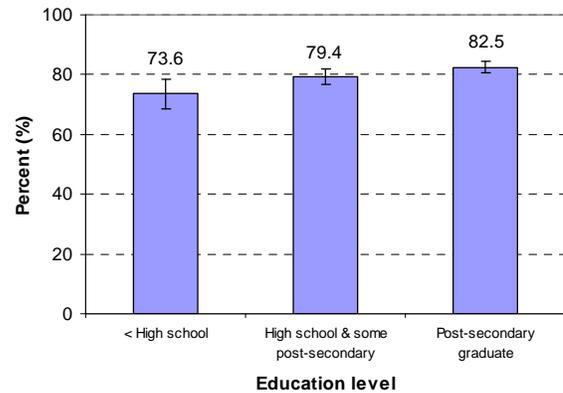
Among Middlesex-London residents, over eighty percent thought that it is good for the mother's health if she breastfeeds (80.7% $\pm 1.4\%$). The rate did not change between the years 2007-2009. Women were more likely to agree that breastfeeding is good for the mother's health (85.2% $\pm 1.7\%$) compared to males (74.5% $\pm 2.4\%$). A larger proportion of post-secondary graduates believed breastfeeding is

good for the mother's health (82.5% $\pm 1.8\%$) as compared to those who did not finish high school (73.6% $\pm 5.0\%$) (Figure 5).

No statistically significant difference between age groups, marital status, income level, language or Middlesex County vs. City of London residents was found.

Figure 5. Proportion of residents who thought that breastfeeding is good for the mother's health, by education level.

Adults 18 years and older. Middlesex-London 2007-2009.



Source: RRFSS June-December 2007, February-December 2008, and January-December 2009

AWARENESS OF THE BREASTFEEDING PROTECTS CAMPAIGN

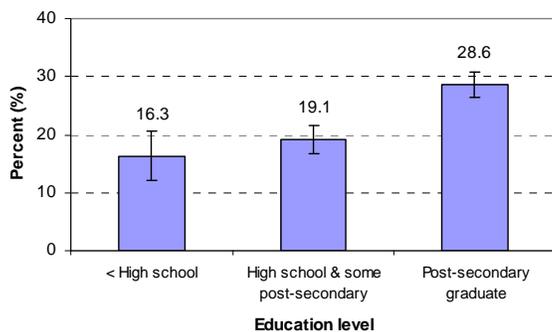
The Ontario Public Health Standards (2008) requires boards of health to increase public awareness of breastfeeding through the utilization of communication strategies⁸. The Breastfeeding Protects campaign which was implemented in Middlesex-London between 2006 and 2008 meets this requirement. The goal of the campaign was to increase awareness of current breastfeeding recommendations, as well as highlight the importance of providing a supportive environment for continued breastfeeding.

During the years 2007-2009, about one quarter of the residents in Middlesex-London had heard or seen of the breastfeeding campaign that was running (24.2% $\pm 1.5\%$). There was no difference in awareness between the years. Residents who had children ages 0-11 years living in their household were significantly more likely to have seen or heard of the campaign (37.0% $\pm 3.6\%$) than those without children in that age group (20.4% $\pm 1.6\%$). Females were more aware of the campaign (27.2% $\pm 2.1\%$) compared to males (20.0% $\pm 2.2\%$). Education was

also associated with awareness of the breastfeeding campaign. Those with a post-secondary degree being more likely to have seen or heard of the campaign (28.6% ± 2.1%) compared to those with a lower level of education (Figure 6).

Figure 6. Proportion of residents who had heard of or seen the breastfeeding awareness campaign, by education level.

Adults 18 years and older. Middlesex-London 2007-2009.



Source: RRFSS June-December 2007, February-December 2008, and January-December 2009

No statistically significant difference between age groups, marital status, income level, language, or Middlesex County vs. City of London residents were detected.

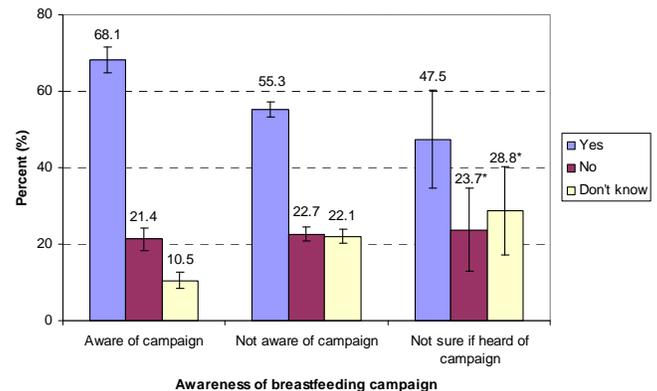
Those who were aware of the campaign were more likely to also be aware of the benefits of breastfeeding, compared to those who were not aware of the campaign. This pattern was true for the three different beliefs:

- a baby who is exclusively breastfed for the first six months gets all the food it needs for growth (68.1% vs. 56.3%),
- breastfeeding helps to keep babies from getting sick (88.4% vs. 81.7%),
- breastfeeding is good for the mother's health (87.5% vs. 78.8%).

The proportion of people not believing in the benefits of breastfeeding did not change according to awareness of the campaign. However, it was more common to respond 'don't know' among those who were not aware of the campaign, compared to those who were aware of the campaign (as illustrated in Figure 7).

Figure 7. Proportion of residents who believed that a baby who is exclusively breastfed for the first six months gets all the food it needs for growth, by awareness of breastfeeding campaign.

Adults 18 years and older. Middlesex-London 2007-2009.



* Less reliable due to small numbers. Use with caution.

Source: RRFSS June-December 2007, February-December 2008, and January-December 2009

ATTITUDES TOWARDS BREASTFEEDING IN PUBLIC PLACES

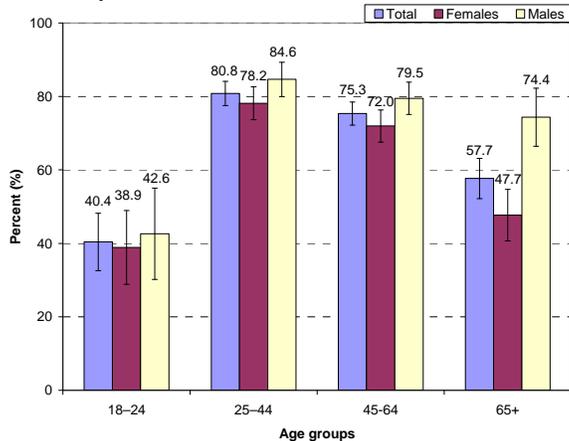
The experience of breastfeeding is significantly impacted by the attitudes of the surrounding community. These attitudes can affect women's willingness to breastfeed in public places, which in turn can affect the length of time a mother continues to breastfeed. Although the Ontario Human Rights Commission (1999) released a document which clearly protects the rights of women to breastfeed in public places, this continues to be a challenge for breastfeeding women¹⁰.

RESTAURANTS

Over two-thirds of residents in Middlesex London (70.8% ± 2.1%) indicated that it is acceptable for a mother to breastfeed her baby while in a restaurant. This rate is higher than in 2002 (64.8% ± 2.7%)¹¹. Attitudes towards mothers who breastfeed in restaurants differed by age group. People in the age groups 25-44 and 45-64 years of age were most accepting of mothers breastfeeding in restaurants (80.8% ± 3.3% and 75.3% ± 3.1%, respectively), compared to only 40.8% (±7.8%) in the age group 18-24, and 57.7% (±5.5%) among those 65 years of age or older. Women in this older age group were especially unlikely to accept breastfeeding in restaurants (Figure 8). A gender difference was not noted in any other age groups.

Figure 8. Acceptance of breastfeeding in restaurants by age group and gender.

Adults 18 years and older. Middlesex-London 2007-2008.



Source: RRFSS July-December 2007 and January-December 2008

Respondents living in the same household as a 0-11 year old child were more accepting of a mother breastfeeding while in a restaurant (83.4% ± 3.6%) compared to those living in households without children in this age group (67.0% ± 2.5%).

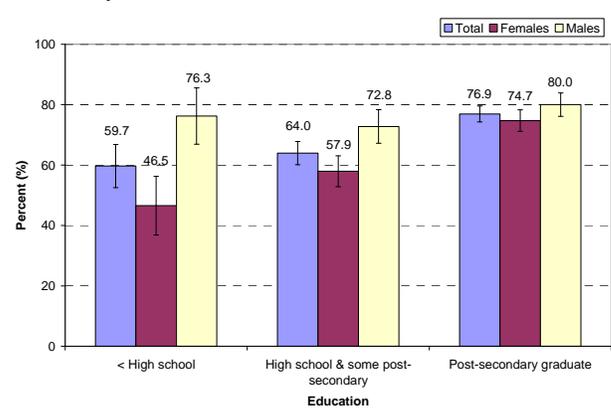
In general, a higher level of attained education was associated with a larger acceptance of breastfeeding in restaurants. Three-quarters of the post-secondary graduates (76.9 ± 2.6%) were accepting of this practice, compared to about two-thirds among those who had completed high school (64.0% ± 3.8%) and 59.7% (± 7.1%) among those without completed high school education. However, when looking at females and males separately, this trend was only seen among females (Figure 9). Furthermore, the gender difference decreased with increased level of education and there was no statistically significant gender difference among post-secondary graduates.

Acceptance of breastfeeding in restaurants rose with income level (Figure 10). 79.2% (± 4.5%) of those earning \$100,000 per year or more felt that it was acceptable for a mother to breastfeed in a restaurant, compared to two-thirds (65.0% ± 6.6%) among those earning less than \$30,000.

Those who were aware of the breastfeeding campaign were more accepting of mothers breastfeeding in restaurants (79.8% ± 4.1%), compared to those who had not seen or heard of the campaign (68.5% ± 2.5%).

Figure 9. Acceptance of breastfeeding in restaurants by level of education and gender.

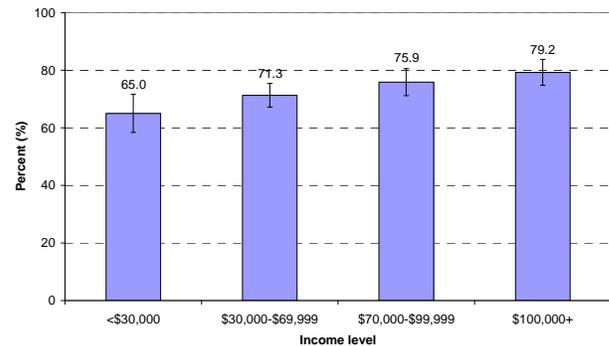
Adults 18 years and older. Middlesex-London 2007-2008.



Source: RRFSS July-December 2007 and January-December 2008

Figure 10. Acceptance of breastfeeding in restaurants by income level.

Adults 18 years and older. Middlesex-London 2007-2008.



Source: RRFSS July-December 2007 and January-December 2008

SHOPPING MALLS

Almost three-quarters of residents in Middlesex-London (72.7% ± 2.1%) were accepting of mothers breastfeeding their babies in shopping malls. This is a significant increase compared to 2002 when almost two-thirds (64.5% ± 2.7%) were accepting of this practice¹¹. Trends and patterns observed across gender, age groups, households with or without young children, levels of education, income levels, language spoken at home, and awareness of breastfeeding campaign were similar to those reported for acceptance of breastfeeding in restaurants.

There was no statistically significant difference between residents in Middlesex County and the City of London in acceptance of breastfeeding in restaurants or in shopping malls.

IMPLICATIONS AND FUTURE DIRECTIONS

Breastfeeding initiation and duration remain key indicators of health status. Although there was no evidence of change in these rates within Middlesex-London from 2007 to 2009, the most recent Canadian Community Health Survey (2009) indicates that our local data are comparable to the national averages. It is important to note that the current rate of breastfeeding for twelve months or longer within Middlesex-London was found to be 16.7%. The Ontario Public Health Standards clearly indicate that public health should support breastfeeding for up to 2 years and beyond through efforts to increase knowledge, skill, and support to women and families. It will be critical to monitor these longer term breastfeeding duration trends over the coming years.

Although the most recent overall rate of mothers breastfeeding for at least six months is 52%, it is interesting to note that for those ages 25 to 34, the majority of mothers, the rate is even lower at 47%. This is significantly lower than the rate for mothers ages 35 and older at 72%. The local data validates previously documented trends of older mothers breastfeeding for longer durations than their younger counterparts.

Notably, the general awareness that babies who are exclusively breastfed for the first six months of life get all the food that they need for growth, was lower between 2007-2009 than in previous years. Furthermore, among females, there was a higher likelihood of believing that babies who are exclusively breastfed for the first six months get all the food they need for growth, compared to males. This would suggest that awareness strategies should continue to be targeted to both the general population as well as male partners to ensure exclusive breastfeeding is well supported within households and communities.

Emerging adults (18 – 24 years) have a lower awareness of the health benefits of breastfeeding to the child, and are less supportive of breastfeeding in restaurants. This highlights the need for age-appropriate education about the physiological and psychological benefits of breastfeeding to both the mother and baby. With a goal of empowering young people to make good decisions later in life and positively impacting attitudes about breastfeeding, the Ontario Public Health Association Breastfeeding Promotion Workgroup developed the Breastfeeding

Information and Activity Kit in 2009¹². Along with targeted promotion activities and support, encouraging the use of such resources with teens and young adults would further contribute to a culture where breastfeeding is viewed as the norm for infant feeding.

When considering the level of awareness about the benefits of breastfeeding, there was a higher level of awareness that breastfeeding helps keep babies from getting sick, than about the fact that exclusive breastfeeding to six months is all baby needs for growth. Specifically, Anglophones had a lower likelihood of believing that babies who are exclusively breastfed for the first six months get all the food they need for growth compared to those speaking other languages. This would highlight the need to continue promotion around current infant feeding recommendations, and identifies one possible priority population.

The Breastfeeding Protects campaign utilized multi-phase messaging to target different groups along the breastfeeding continuum (general population, prenatal, early postpartum, and late postpartum). Parents of young children were found to be more likely than the general population to have been aware of the campaign. This supports the campaign's intention to reach parents of young children as the primary target group. The fact that females were more aware of the campaign than males, validates the intended target for some campaign activities, but also highlights the need to be more inclusive of males/partners in future campaign messaging and design.

Over two-thirds of residents in Middlesex-London indicated that it is acceptable for a mother to breastfeed her baby while in a restaurant. Almost three quarters of residents were accepting of mothers breastfeeding in shopping malls. This data indicates significant increases in supportive attitudes compared to 2002 and 2004. The increase in acceptance of breastfeeding in public places is a positive finding that supports continued programming in this area.

Results from the local RRFSS data affirm that although some gains have been made in breastfeeding practices, attitudes and awareness, continued efforts to promote breastfeeding are needed within the Middlesex-London area. Best practice guidelines and the Ontario Public Health Standards provide clear direction for

comprehensive strategies to support ongoing programming.

METHODS AND DEFINITIONS

All data are from the Rapid Risk Factor Surveillance System (RRFSS) and were collected for the Middlesex-London Health Unit by the Institute for Social Research at York University between 2007 and 2009. Monthly, about 100 adults (age 18+) were randomly selected from households with land line telephones in London and Middlesex County and interviewed by telephone.

The RRFSS results were drawn from responses to multiple-choice questions that were intended to capture:

- Breastfeeding initiation and duration, and reasons for discontinuation,
- Public awareness of the benefits of breastfeeding to the child and the mother, and awareness of breastfeeding campaigns,
- Community attitudes towards breastfeeding in public places (restaurants and shopping malls, beyond the public washroom).

Breastfeeding initiation and duration: Only women between the ages of 18 and 49 years who had given birth in the last five years were asked about their breastfeeding practices. Data presented in this report were collected throughout the whole years of 2007 (n=70), 2008 (n=85), and 2009 (n=95). Women who reported that they were currently breastfeeding were not included in the calculation of the breastfeeding duration rates.

In 2007 the screening question needed to select only women who gave birth to a baby within the past 5 years was not asked. To make the three years comparable we excluded those who did not live in the same household as a child in the age range 0 to 5, resulting in exclusion of an additional two women in each of the years 2008 and 2009.

Breastfeeding awareness: All adults 18 years of age or older were asked questions relating to breastfeeding awareness. Data presented in this report were collected during the following time periods: June-Dec 2007 (n=715), Feb-Dec 2008 (n=1107), and 2009 (n=1203).

Attitudes towards breastfeeding in public places: All adults 18 years of age or older were asked questions about their acceptance of breastfeeding in public places. Data presented in this report were collected from July to December 2007 (n=614), and throughout all of 2008 (n=1202).

Where applicable data were analyzed by gender, age, level of education, annual household income, marital status, whether or not living in the same household as a child 11 years of age or younger, area of residence (Middlesex County vs. City of London), and language most often spoken at home (English vs. other).

Total response rates for Middlesex-London for the relevant years were 54% for 2007 and 2008 and 56% for 2009. All point estimates were analyzed with 95% confidence intervals (CIs). Differences in proportions were considered statistically significant when CIs did not overlap. The presented results are statistically significant, unless otherwise specified. Reported data were weighted to account for each respondent's probability of being selected within households of different sizes.

Respondents who replied "don't know" and "refusal" were excluded from the denominator when analyzing breastfeeding initiation and duration, and attitudes towards breastfeeding in public places. This is deemed appropriate when these represent less than 5% of the total sample. However, we decided to include those responding "don't know" in the denominator when analyzing breastfeeding awareness, since this is a meaningful response when considering knowledge questions.

REFERENCES

¹ Exclusive Breastfeeding Duration – 2004 Health Canada Recommendation. Catalogue No.: H44-75/2004E-HTML ISBN: 0-662-37813-X, Publication No.: 4823 © Her Majesty the Queen in Right of Canada 2004 [http://www.hc-sc.gc.ca/hpfb-dgpsa/onpp-bppn/exclusive_breastfeeding_duration_e.html]

² The World Health Organization (2001). Child and Adolescent Health and Development: Nutrition, Infant and Young Child [http://www.who.int/child-adolescent-health/NUTRITION/infant_exclusive.htm]

³ The Ontario Public Health Association (2007). Breastfeeding Position Paper. [http://www.opha.on.ca/our_voice/ppres/papers/2007-03_pp.pdf]

⁴ Middlesex-London Health Unit (2008). Breastfeeding Fast Facts: Differences in Breastfeeding Practices, Awareness & Attitudes in Middlesex-London. [<http://www.healthunit.com/articlesPDF/14133.pdf>]

⁵ Statistics Canada (2009). Canadian Community Health Survey. [<http://www.statcan.gc.ca/daily-quotidien/100615/dq100615b-eng.htm>]

⁶ The World Health Organization (2003). Global Strategy for Infant and Young Child Feeding. [<http://whqlibdoc.who.int/publications/2003/9241562218.pdf>]

⁷ The Ministry of Health Promotion (2010). Child Health: Guidance Document. [<http://www.mhp.gov.on.ca/en/healthy-communities/public-health/guidance-docs/ChildHealth.pdf>]

⁸ The Ministry of Health and Long-Term Care (2008). Ontario Public Health Standards. [http://www.health.gov.on.ca/english/providers/program/pubhealth/oph_standards/ophs/progstds/pdfs/ophs_2008.pdf]

⁹ Labbok, M.H. (1999). Health sequelae of breastfeeding for the mother. *Clinics in Perinatology*, 26(2), 491-503.

¹⁰ Ontario Human Rights Commission (1999). *Pregnancy, before, during and after: Know your rights*. Toronto, Ontario, Canada: Government of Ontario ISBN 0-7778-9010-0/9/99 1500.

¹¹ Middlesex-London Health Unit (2005). *The Health Index: Breastfeeding Practices, Awareness & Attitudes in Middlesex-London*. [<http://www.healthunit.com/articlesPDF/11184.pdf>]

¹² Ontario Public Health Association (2009). *A Breastfeeding Information and Activity Kit for Secondary School Teachers*. [http://www.opha.on.ca/our_voice/workgroups/breastfeeding/BF_Info-ActivityKit-May2009.pdf]

CONTACTS

Authors: Magdalena Lagerlund, Contract Epidemiologist, Middlesex-London Health Unit (MLHU)
Laura Dueck, Public Health Nurse, MLHU
Kristin Heard, Public Health Nurse, MLHU

Contacts: Laura Dueck
Public Health Nurse
Middlesex-London Health Unit
50 King Street
London, Ontario N6A 5L7
Phone: 510-663-5317 ext. 2266
Email: laura.dueck@mlhu.on.ca

Kristin Heard
Public Health Nurse
Middlesex-London Health Unit
50 King Street
London, Ontario N6A 5L7
Phone: 510-663-5317 ext. 2440
Email: kristin.heard@mlhu.on.ca

This report is also available at: www.healthunit.com.

The authors wish to acknowledge their colleagues:

- Evelyn Crosse, Epidemiologist, Family Health Services, for editing the report.
- Jim Madden, Manager, Family Health Services, for reviewing the report.
- Nancy Forbes and Lillian DeLellis for their administrative assistance in formatting the text.
- The Institute for Social Research, York University, for data collection.

The contents of the Health Index may be reproduced with acknowledgement of the Middlesex-London Health Unit.