

## Breastfeeding Support in the Information Age – MAVINS for the NICU

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## Objectives

- ▶ Review Canadian breastfeeding rates
- ▶ Discuss challenges to providing breast milk/breastfeeding to infants pre and post-hospital discharge
- ▶ Mavins Project

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## Burden of illness

- ▶ **According to the World Health Organization (WHO) and UNICEF about 1.5 million babies die every year because they were not breastfed. In many parts of the world, not breastfeeding means the difference between life and death.**

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Statistic Canada

Breastfeeding practices by province and territory (Percent)				
	2011	2012	2013	2014
	%			
<b>Breastfeeding Initiation</b>				
<b>Canada</b>	<b>88.4</b>	<b>90.3</b>	..	..
Newfoundland and Labrador	54.3	59.3	..	..
Prince Edward Island	91.8	59.4 <sup>1</sup>	..	..
Nova Scotia	80.2	86.7	83.9	88.6
New Brunswick	69.5	78.5	79.6	75.0
Quebec	88.7	89.9	89.9	87.3
Ontario	87.1	90.4	91.8	89.8
Manitoba	94.4	91.1	..	..
Saskatchewan	85.3	86.0	..	..
Alberta	93.3	91.3	95.1	95.1
British Columbia	94.2	97.2	..	..
Yukon	93.0	99.2	..	..
Northwest Territories	97.7	92.5	87.0	90.1
Nunavut	73.0	85.4	70.9	78.3

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	2011	2012	2013	2014
<b>Exclusive breastfeeding</b>				
<b>Canada</b>	<b>27.8</b>	<b>24.2</b>	..	..
Newfoundland and Labrador	F	17.1 <sup>1</sup>	..	..
Prince Edward Island	F	F	..	..
Nova Scotia	26.5 <sup>1</sup>	20.1 <sup>1</sup>	34.5 <sup>1</sup>	30.2 <sup>1</sup>
New Brunswick	20.9 <sup>1</sup>	27.3 <sup>1</sup>	21.3 <sup>1</sup>	15.8 <sup>1</sup>
Quebec	22.6	16.1	23.4	23.5
Ontario	27.3	22.4	33.3	27.5
Manitoba	37.0	31.8 <sup>1</sup>	..	..
Saskatchewan	23.8	36.6	..	..
Alberta	27.1	27.8	33.0	30.5
British Columbia	41.4	40.3	..	..
Yukon	F	48.0 <sup>1</sup>	..	..
Northwest Territories	F	F	34.8 <sup>1</sup>	41.1 <sup>1</sup>
Nunavut	28.7 <sup>1</sup>	F	28.2 <sup>1</sup>	F

**Notes:** Based on information provided by women aged 15 to 55 who had a baby in the last 5 years. Breastfeeding initiation refers to infants who are exclusively breastfed or tried to breastfeed their last child even if only for a short time. Exclusive breastfeeding refers to an infant receiving only breast milk, without any additional liquid (even water) or solid food for at least 6 months. Source: Statistics Canada, Census of Health and Social Statistics, Health and Nutrition, Table 105-0501 and Catalogue no. 82-221-X. Last modified: 2015-06-17.

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**Proportion of women who had introduced liquids other than breast milk to their baby's diet within the first week after the birth among women who breastfed or tried to breastfeed their baby, by province/territory, Canada, 2006-2007**

Province/territory	%	95% CI
Newfoundland and Labrador	22.7	17.8-27.6
Prince Edward Island	17.2	13.5-21.0
Nova Scotia	27.7	23.2-32.3
New Brunswick	22.0	17.6-26.5
Quebec	20.3	17.9-22.6
Ontario	22.1	20.2-24.0
Manitoba	19.2	15.2-23.1
Saskatchewan	17.6	13.8-21.4
Alberta	22.4	19.2-25.6
British Columbia	18.1	15.1-21.2
Yukon	12.3	8.4-16.3
Northwest Territories	13.2	9.1-17.2
Nunavut	17.8 <sup>-</sup>	11.7-24.0
<b>Canada</b>	<b>21.0</b>	<b>20.0-22.1</b>

CI - confidence interval.  
<sup>-</sup> Coefficient of variation between 16.6% and 33.3%.

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## Benefits of Breastfeeding

**Mother's milk: A rich opportunity**

*Research on the contents of milk and how breast-feeding benefits a growing child is surprising scientists.*

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**Table 1. Excess Health Risks Associated with Not Breastfeeding**

Outcome	Excess Risk* (%)
<b>Among full-term infants</b>	
Acute ear infection (otitis media) <sup>1</sup>	100
Eczema (atopic dermatitis) <sup>11</sup>	47
Diarrhea and vomiting (gastrointestinal infection) <sup>1</sup>	178
Hospitalizations for lower respiratory tract diseases in the first year <sup>6</sup>	257
Asthma, with family history <sup>4</sup>	67
Asthma, no family history <sup>7</sup>	35
Childhood obesity <sup>2</sup>	52
Type 2 diabetes mellitus <sup>8</sup>	64
Acute lymphocytic leukemia <sup>3</sup>	23
Acute myelogenous leukemia <sup>3</sup>	18
Sudden infant death syndrome <sup>5</sup>	56
<b>Among preterm infants</b>	
Neurologic morbidities <sup>9</sup>	138
<b>Among mothers</b>	
Breast cancer <sup>10</sup>	4
Ovarian cancer <sup>10</sup>	27

\* The excess risk is approximated by using the odds ratios reported in the referenced studies. Further details are provided in Appendix 2.

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES  
U.S. Public Health Service  
Office of the Surgeon General      **AHRQ Publication No. 07-E007  
April 2007**

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## Other benefits of Breastfeeding

- ▶ Psychosocial effect
- ▶ Economic effect
- ▶ Environment effect
- ▶ Cognitive effect

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**ORIGINAL ARTICLE**

## Breastfeeding and Child Cognitive Development

New Evidence From a Large Randomized Trial

Michael S. Kramer, MD, Frances Aboud, PhD, Elena Mironova, MSc, Irina Yamilovich, MD, MSc, Robert W. Platt, PhD, Lilia Manash, MD, MSc, Sergei Ignatov, MD, PhD, Eric Fombonne, MD, Natalia Rogolomovich, MD, MSc, Thierry Durost, MSc, Jean-Paul Collin, MD, PhD, Beverly Chalmers, DSc, PhD, Ellen Hasbani, PhD, Sergei Davydov, MD, MSc, Oleg Shagarovskiy, MD, PhD, Oleg Trofimovich, BSc, Ludmila Kocjoun, BSc, Stanley Shapiro, PhD, for the Promotion of Breastfeeding Intervention Trial (PROBIT) Study Group

Outcome	Score, Mean (SD)		ICC	Cluster-Adjusted Mean Difference (95% CI)
	Experimental Group	Control Group		
Vocabulary (n=13 838)	53.5 (11.6)	46.9 (11.4)	0.28	+4.9 (-0.4 to +9.3)
Similarities (n=13 836)	46.6 (9.9)	50.7 (13.7)	0.29	+4.6 (-0.2 to +9.0)
Block designs (n=12 840)	37.2 (9.4)	54.6 (10.3)	0.21	+1.9 (-1.7 to +5.5)
Matrices (n=13 841)	52.8 (10.1)	50.9 (9.9)	0.20	+1.8 (-1.9 to +5.5)
Verbal IQ (n=13 828)	108.7 (16.4)	98.7 (16.0)	0.31	+7.2 (+0.8 to +14.3)
Performance IQ (n=13 836)	108.6 (15.1)	104.6 (15.4)	0.24	+2.9 (-3.3 to +9.1)
Full-scale IQ (n=13 824)	109.7 (15.4)	101.9 (15.8)	0.31	+5.9 (-1.0 to +12.8)

Abbreviations: CI, confidence interval; ICC, intraclass correlation coefficient.

PROBIT Trial – Promotion of breastfeeding intervention trial

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### Table 2. Provisional Breastfeeding Rates Among Children Born in 2007\*

Sociodemographic Factor	Ever Breastfed (%)	Breastfeeding at 6 Months (%)	Breastfeeding at 12 Months (%)
<b>United States</b>	<b>75.0</b>	<b>43.0</b>	<b>22.4</b>
<b>Race/ethnicity</b>			
American Indian or Alaska Native	73.8	42.4	20.7
Asian or Pacific Islander	83.0	56.4	32.8
Hispanic or Latino	80.6	46.0	24.7
Non-Hispanic Black or African American	58.1	27.5	12.5
Non-Hispanic White	76.2	44.7	23.3
<b>Receiving WIC<sup>†</sup></b>			
Yes	67.5	33.7	17.5
No, but eligible	77.5	48.2	30.7
Ineligible	84.6	54.2	27.6
<b>Maternal education</b>			
Not a high school graduate	67.0	37.0	21.9
High school graduate	66.1	31.4	15.1
Some college	76.5	41.0	20.5
College graduate	88.3	59.9	31.1

\* Survey limited to children aged 19–35 months at the time of data collection. The lag between birth and collection of data allows for tracking of breastfeeding initiation as well as calculating the duration of breastfeeding.

<sup>†</sup> WIC = Special Supplemental Nutrition Program for Women, Infants, and Children, U.S. Department of Agriculture.

Source: Centers for Disease Control and Prevention, National Immunization Survey.<sup>20</sup>

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### Key barriers to breastfeeding:

**Lack of Knowledge**  
While breastfeeding is considered a natural skill, some mothers may need education and guidance. Providing accurate information can help prepare mothers for breastfeeding.

**Lactation Problems**  
Without good support, many women have problems with breastfeeding. Most of these are avoidable if identified and treated early, and need not pose a threat to continued breastfeeding.

**Poor Family and Social Support**  
Fathers, grandmothers, and other family members strongly influence mothers' decisions about starting, continuing, and accommodating breastfeeding.

**Social Norms**  
Many people see breastfeeding as an alternative rather than the routine way to feed infants.

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**Key barriers to breastfeeding:**

**Embarrassment**

The popular culture's sexualization of breasts compels some women to conceal breastfeeding. Improving support for women to breastfeed can help them better accommodate the demands of everyday life while protecting their infants' health.

**Employment and Child Care**

Employed mothers typically find that (1) returning to work and (2) lack of maternity leave are significant barriers to breastfeeding.

**Health Services**

Health care systems and health care providers can improve mothers' breastfeeding experiences by pursuing and obtaining the training and education opportunities they need in order to fully support their patients.

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**Breastfeeding challenges facing mothers of Preterm infants**




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**Why Do Women Stop Breastfeeding? Findings From the Pregnancy Risk Assessment and Monitoring System**  
 Indu B. Ahluwalia, Brian Moxrow and Jason Hsia  
*Pediatrics* 2005;116:1408-1412

**TABLE 2.** Reasons for Breastfeeding Cessation According to Length of Time That Infants Were Breastfed: PRAMS, 2000–2001

Reason*	<1 wk (n = 1105), % (95% CI)	1–4 wk (n = 4687), % (95% CI)	≥4 wk (n = 5617), % (95% CI)
Sore/cracked/bleeding nipples	34.9 (30.0–39.8)	30.2 (27.8–32.6)	12.9 (11.4–14.5)
Not producing enough milk	28.1 (23.7–32.6)	38.8 (36.3–41.3)	37.1 (34.8–39.3)
Sick/couldn't breastfeed	7.0 (4.4–9.5)	7.9 (6.5–9.2)	5.5 (4.6–6.5)
Baby had difficulty	48.4 (43.3–53.4)	34.0 (31.3–36.4)	15.3 (13.7–16.9)
Baby not satisfied with breast milk	22.2 (18.1–26.3)	38.6 (36.1–41.1)	42.4 (40.1–44.7)
Baby not gaining enough weight	9.6 (6–12.9)	10.4 (8.9–11.9)	8.8 (7.4–10.2)
Baby sick/couldn't breastfeed	3.9 (2.0–5.8)	3.4 (2.5–4.2)	3.1 (2.4–3.9)
Too many other responsibilities	80.8 (3–10.8)	11.4 (9.8–13.0)	12.5 (11.0–14.0)
Right time to stop	4.3 (2.2–6.5)	8.2 (6.8–9.7)	21.8 (19.8–23.7)
Work/school	7.3 (4.7–9.9)	14.2 (12.4–16.0)	35.0 (32.8–37.2)
Partner wanted to stop	2.8 (1.0–4.6)	1.6 (0.9–2.2)	1.7 (1.1–2.3)
Someone else to feed the baby	8.5 (5.7–11.4)	0.0 (8.4–11.3)	10.7 (9.3–12.0)
Other†	29.3 (24.7–34.0)	25.2 (23.1–27.4)	25.3 (23.3–27.3)

\* Women could give >1 reason for breastfeeding cessation.  
 † Women who picked the "other" category wrote in responses; of these, 20% said that their breasts dried up, ~15% had multiple infants or infants were hospitalized for a long period of time, and the rest gave a variety of other reasons.

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## New Ideas !



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"We owe it to our patients and to our society to join forces with them in technology-enabled enhancement of clinical care and there is no better time to do this than now."

— Dr. Kendall Ho



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## Next Step

- ▶ Current project: Online Interactive Breastfeeding Support Clinic



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## Mavins Project – Objectives

- ▶ Providing professional and lay peer support to breastfeeding mothers online, will increase maternal satisfaction with the breastfeeding experience and 6 month-exclusive breastfeeding rates.



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## Mavins– Methods



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## Mavins– Methods

### Project Evaluation

- ▶ Quantitative data analysis
  - 1 and 6 month questionnaire to ascertain BF rates
- ▶ Qualitative Data Analysis
  - Maternal satisfaction and sense of BF support



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## Mavins project – Relevance

- ▶ Assess effectiveness of a breastfeeding online support intervention on improving breastfeeding outcomes;
- ▶ Examine maternal satisfaction with the intervention; and
- ▶ Potential public health benefits



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<https://mavins.lhsc.on.ca/home>

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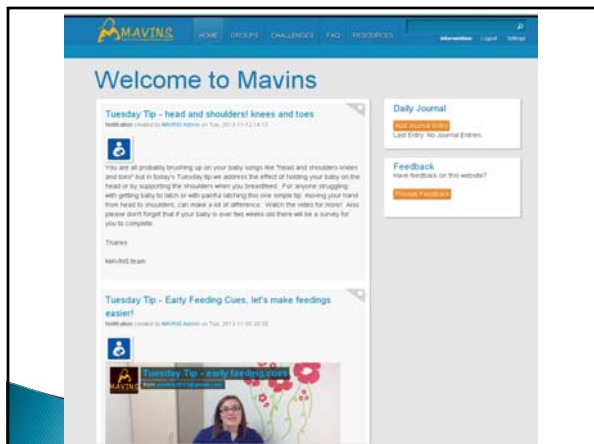
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**Tuesday Tip - Early Feeding Cues, let's make feedings easier!**  
Post also posted to MAVINS Admin on Tue, 2013-11-05 20:28



**Group Forum Guidelines**  
Post also posted to MAVINS Admin on Wed, 2013-10-16 21:24

Guidelines for MAVINS forum usage

This group is for asking questions about breastfeeding. Of course, how you feed your baby is intertwined with many other topics and we encourage all discussions that relate to breastfeeding in some way. Your group will be the core of your support but sometimes topics, new research, and videos will be posted for you to see.

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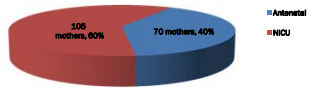
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## Progress to date


MAVINS CURRENT STUDY STATISTICS					
Total Approached		Total Consented		Total Approached Who Consented (%)	
Antenatal	NICU	Antenatal	NICU	Antenatal	NICU
78	140	70	105	90%	75%

Recruitment: February 2015 to present  
 Total Number of Mothers recruited: 175 in one year

**Total Number of Participants Recruited:  
 Antenatal Unit vs. NICU**



■ Antenatal  
 ■ NICU




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## Mavins Project

› Biggest challenge – client participation!!!

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Thank You !



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- ▶ Best Start Health Nexus – Funding
- ▶ Nicola Morphet-Geoghegan
- ▶ Michelle Angelini
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- ▶ Cesar Abeid
- ▶ Stephen Cross



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