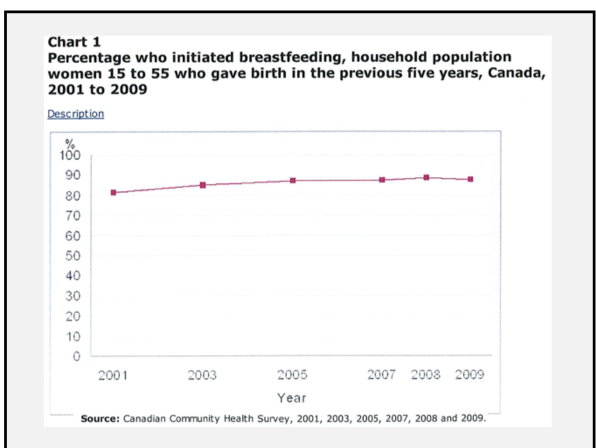
Providing Breast Milk to Infants in the NICU and Beyond: Challenges and Opportunities

Orlando da Silva, MD, MSc, FRCPC

London, October 3, 2011

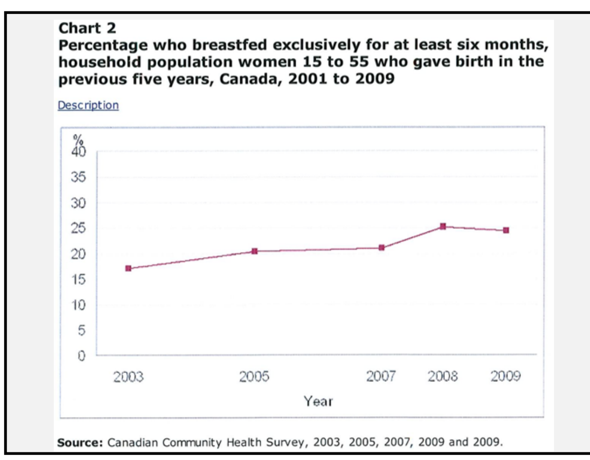


Statistics Canada / Statistique Canada — Canada

Breastfeeding practises by province and territory
(Percent)

	2007	2008	2009	2010
	%			
Breastfeeding initiation				
Canada	**87.1**	**88.3**	**87.5**	**87.2**
Newfoundland and Labrador	66.8	70.4	61.1	63.4
Prince Edward Island	75.3	72.0	73.6	75.7
Nova Scotia	76.1	73.5	76.7	77.7
New Brunswick	75.5	75.0	84.3	80.0
Quebec	82.1	85.8	81.8	83.8
Ontario	88.6	89.7	87.8	89.6
Manitoba	86.4	82.6	87.1	90.9
Saskatchewan	83.4	92.3	90.3	89.8
Alberta	92.2	91.6	92.4	89.5
British Columbia	94.9	94.6	97.3	89.0
Yukon	98.3	97.9	100.0	93.8
Northwest Territories	87.1	86.9	86.4	92.3
Nunavut	71.8	68.5	72.9	59.2^{E}
Exclusive breastfeeding				
Canada	**21.0**	**25.1**	**24.4**	**27.7**
Newfoundland and Labrador	10.7^{E}	F	16.0^{E}	18.2^{E}
Prince Edward Island	15.7^{E}	F	23.9^{E}	18.4^{E}
Nova Scotia	16.3^{E}	16.8^{E}	13.1^{E}	22.9^{E}
New Brunswick	12.4^{E}	17.7^{E}	15.3^{E}	20.7^{E}
Quebec	14.2	17.9	19.0	21.6
Ontario	21.6	25.6	23.1	28.9
Manitoba	18.9^{E}	27.5^{E}	30.7^{E}	28.5^{E}
Saskatchewan	28.1	26.0	31.9	33.8
Alberta	17.2	31.4	29.7	29.6
British Columbia	39.7	35.4	33.6	35.6
Yukon	36.1^{E}	40.3^{E}	F	44.6^{E}
Northwest Territories	26.1^{E}	F	35.8^{E}	33.1^{E}
Nunavut	17.9^{E}	29.7^{E}	29.3^{E}	F

^{E} : use with caution.
F : too unreliable to be published.
Notes: Based on information provided by women aged 15 to 55 who had a baby in the last 5 years. Breastfeeding initiation refers to mothers who 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, CANSIM table 105-0501 and Catalogue no. 82-221-X.



Proportion of women who intended to breastfeed, proportion who initiated breastfeeding and duration of breastfeeding, by province/territory, Canada, 2006-2007
[Contains data for Figure 29.1]

Province/territory	Intention		Initiation		3-month - any		3-month - exclusive		6-month - any		6-month - exclusive	
	%	95% CI	%	95% CI	%	95% CI	%	95% CI	%	95% CI	%	95% CI
Newfoundland and Labrador	75.7	71.5-79.9	74.6	70.3-79.0	44.8	39.8-49.9	34.8	30.1-39.6	37.6	32.5-42.7	5.8 +	3.4-8.3
Prince Edward Island	71.9	68.1-75.7	72.2	68.6-75.9	46.2	42.0-50.4	37.4	33.3-41.5	34.5	30.3-38.7	10.0	7.4-12.7
Nova Scotia	82.5	79.1-86.0	83.2	79.8-86.5	55.6	51.1-60.1	40.1	35.7-44.5	39.7	34.8-44.6	9.6	6.7-12.6
New Brunswick	80.0	76.0-84.0	78.6	74.6-82.7	48.8	43.9-53.8	41.3	36.4-46.2	35.5	30.5-40.4	11.7	8.4-15.0
Quebec	86.8	85.0-88.6	87.0	85.3-88.8	61.0	58.5-63.6	48.0	45.3-50.7	48.9	46.1-51.7	10.2	8.4-12.0
Ontario	90.4	89.1-91.6	90.6	89.3-91.9	69.1	67.1-71.1	52.5	50.3-54.7	54.0	51.7-56.3	15.6	13.8-17.3
Manitoba	90.6	87.7-93.5	91.2	88.4-94.0	63.8	59.0-68.6	52.8	47.8-57.8	51.2	45.9-56.5	15.7	12.0-19.4
Saskatchewan	91.4	88.7-94.2	91.4	88.6-94.3	65.3	60.8-69.9	50.1	45.2-54.9	51.7	46.6-56.7	16.7	12.9-20.5
Alberta	93.8	92.0-95.7	94.6	92.8-96.3	73.2	69.8-76.5	53.1	49.4-56.8	58.9	55.0-62.8	15.8	13.0-18.7
British Columbia	96.4	95.1-97.8	97.0	95.8-98.3	80.8	77.9-83.7	61.4	57.6-65.2	68.1	64.4-71.8	19.2	16.0-22.4
Yukon	96.7	94.5-98.9	93.4	90.4-96.3	78.5	73.6-83.4	70.5	65.2-75.8	73.6	68.4-78.8	34.2	28.6-39.7
Northwest Territories	83.6	79.5-87.8	85.1	81.1-89.0	63.0	57.7-68.3	46.4	40.7-52.1	46.7	41.2-52.2	18.7	14.5-23.0
Nunavut	81.5	75.7-87.3	84.3	79.2-89.3	62.4	55.6-69.2	49.6	42.2-56.9	53.3	46.4-60.3	19.7	13.9-25.5
Canada	**90.0**	**89.3-90.7**	**90.3**	**89.6-91.0**	**67.6**	**66.5-68.8**	**51.7**	**50.4-53.0**	**53.9**	**52.6-55.2**	**14.4**	**13.5-15.4**

CI - confidence interval.
+ Coefficient of variation between 16.6% and 33.3%.
Rates of breastfeeding at six months exclude women interviewed at less than six months postpartum.

Source: **Data Tables - The Maternity Experiences Survey (MES) 2006-2007**

Proportion of women who intended to breastfeed, proportion who initiated breastfeeding and duration of breastfeeding, by maternal age, maternal education, parity and low income cut-off, Canada, 2006-2007
[Contains data for Figure 29.2, Figure 29.3 and Figure 29.4]

	Intention		Initiation		3-month - any		3-month - exclusive		6-month - any		6-month - exclusive	
	%	95% CI	%	95% CI	%	95% CI	%	95% CI	%	95% CI	%	95% CI
Maternal age (years)												
15-19	83.3	79.2-87.4	83.6	79.6-87.7	40.5	34.6-46.4	34.1	28.4-39.7	22.8	17.9-27.8	5.1 +	2.3-7.8
20-24	88.8	86.6-90.9	89.3	87.2-91.4	54.3	50.7-57.9	46.3	42.7-50.0	37.1	33.3-40.8	7.6	5.5-9.6
25-29	88.9	87.6-90.2	88.5	87.2-89.9	65.2	63.2-67.2	50.5	48.2-52.7	51.3	48.9-53.6	12.7	11.1-14.3
30-34	91.6	90.4-92.8	92.0	90.8-93.2	73.1	71.2-75.0	54.9	52.7-57.0	60.2	57.9-62.5	16.8	15.1-18.6
35-39	91.3	89.6-93.1	92.7	91.1-94.3	76.1	73.3-78.9	55.0	51.8-58.3	64.3	60.9-67.6	19.9	17.0-22.8
>40	92.5	88.5-96.4	92.5	88.5-96.5	79.1	72.9-85.3	58.6	51.1-66.1	69.7	62.3-77.1	22.8	16.0-29.6
Level of completed maternal education												
Less than high school	82.8	79.5-86.1	82.5	79.2-85.8	44.9	40.3-49.6	38.3	34.0-42.7	31.5	27.0-36.0	4.9 +	2.8-7.1
High school graduate	85.6	83.7-87.5	86.0	84.1-87.9	57.5	54.7-60.3	46.5	43.5-49.5	42.8	39.8-45.8	11.1	9.1-13.1
Post-secondary diploma	88.2	86.9-89.5	88.6	87.3-89.9	63.5	61.5-65.5	47.9	45.7-50.1	48.5	46.2-50.9	12.9	11.4-14.4
University graduate	95.9	95.0-96.7	96.1	95.3-96.9	82.2	80.6-83.9	61.4	59.3-63.5	70.6	68.5-72.6	19.9	18.0-21.8
Parity												
Primiparous	93.2	92.3-94.1	92.8	91.8-93.7	66.0	64.2-67.8	49.2	47.2-51.1	52.0	50.0-54.0	12.5	11.2-13.9
Multiparous	87.5	86.4-88.6	88.4	87.4-89.4	68.9	67.4-70.4	53.8	52.2-55.5	55.5	53.7-57.3	16.0	14.7-17.3
Household low income cut-off (LICO)												
At or below the LICO	86.9	84.9-88.9	87.7	85.8-89.6	63.0	60.1-65.9	48.8	45.8-51.8	47.3	44.1-50.4	11.6	9.5-13.7
Above the LICO	91.1	90.3-91.9	91.1	90.3-91.9	69.1	67.8-70.5	52.8	51.3-54.2	56.0	54.4-57.6	15.4	14.3-16.6
All women	**90.0**	**89.3-90.7**	**90.3**	**89.6-91.0**	**67.6**	**66.5-68.8**	**51.7**	**50.4-53.0**	**53.9**	**52.6-55.2**	**14.4**	**13.5-15.4**

CI - confidence interval.
+ Coefficient of variation between 16.6% and 33.3%.
Rates of breastfeeding at six months exclude women interviewed at less than six months postpartum.

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+	11.7-24.0
Canada	**21.0**	**20.0-22.1**

CI - confidence interval.
+ Coefficient of variation between 16.6% and 33.3%.

Table 1. Excess Health Risks Associated with Not Breastfeeding

Outcome	Excess Risk* (%)
Among full-term infants	
Acute ear infection (otitis media)[2]	100
Eczema (atopic dermatitis)[11]	47
Diarrhea and vomiting (gastrointestinal infection)[3]	178
Hospitalization for lower respiratory tract diseases in the first year[4]	257
Asthma, with family history[2]	67
Asthma, no family history[2]	35
Childhood obesity[7]	32
Type 2 diabetes mellitus[6]	64
Acute lymphocytic leukemia[2]	23
Acute myelogenous leukemia[5]	18
Sudden infant death syndrome[2]	56
Among preterm infants	
Necrotizing enterocolitis[2]	138
Among mothers	
Breast cancer[8]	4
Ovarian cancer[2]	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

Other benefits of Breastfeeding

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

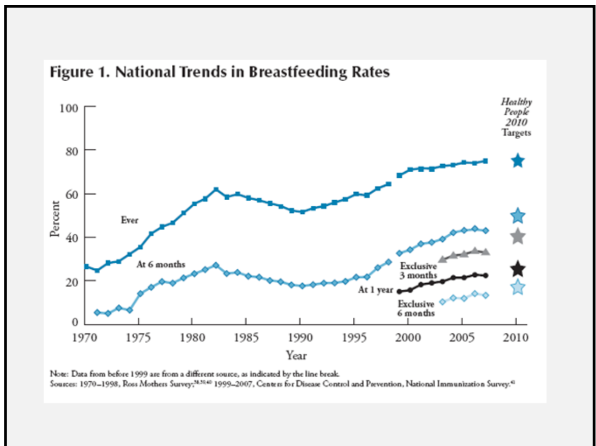
2011

The Surgeon General's Call to Action to Support Breastfeeding

U.S. PUBLIC HEALTH SERVICE
1798

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
U.S. Public Health Service
Office of the Surgeon General

U.S. Department of Health and Human Services. *Executive Summary: The Surgeon General's Call to Action to Support Breastfeeding*. Washington, DC: U.S. Department of Health and Human Services, Office of the Surgeon General; January 20, 2011.



BFHI 10 Steps

- Step 1: Have a written breastfeeding policy that is routinely communicated to all health care staff.
- Step 2: Train all health care staff in skills necessary to implement this policy.
- Step 3: Inform all pregnant women about the benefits and management of breastfeeding.
- Step 4: Help mothers initiate breastfeeding within a half-hour of birth.*
- Step 5: Show mothers how to breastfeed and how to maintain lactation even if they should be separated from their infants.
- Step 6: Give newborn infants no food and drink other than breast milk, unless medically indicated.
- Step 7: Practise rooming-in; allow mothers and infants to remain together 24 hours a day.**
- Step 8: Encourage breastfeeding on demand.
- Step 9: Give no artificial teats or pacifiers (also called dummies or soothers) to breastfeeding infants.
- Step 10: Foster the establishment of breastfeeding support groups, and refer mothers to them on discharge from the hospital or clinic.

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Executive Summary

Executive Summary

The Surgeon General's Call to Action to Support Breastfeeding

U.S. Department of Health and Human Services

Actions for Mothers and Their Families:

1. Give mothers the support they need to breastfeed their babies.
2. Develop programs to educate fathers and grandmothers about breastfeeding.

Actions for Communities:

3. Strengthen programs that provide mother-to-mother support and peer counseling.
4. Use community-based organizations to promote and support breastfeeding.
5. Create a national campaign to promote breastfeeding.
6. Ensure that the marketing of infant formula is conducted in a way that minimizes its negative impacts on exclusive breastfeeding.

Actions for Health Care:

7. Ensure that maternity care practices around the United States are fully supportive of breastfeeding.
8. Develop systems to guarantee continuity of skilled support for lactation between hospitals and health care settings in the community.
9. Provide education and training in breastfeeding for all health professionals who care for women and children.
10. Include basic support for breastfeeding as a standard of care for midwives, obstetricians, family physicians, nurse practitioners, and pediatricians.
11. Ensure access to services provided by International Board Certified Lactation Consultants.
12. Identify and address obstacles to greater availability of safe banked donor milk for fragile infants.

Actions for Employment:

13. Work toward establishing paid maternity leave for all employed mothers.
14. Ensure that employers establish and maintain comprehensive, high-quality lactation support programs for their employees.
15. Expand the use of programs in the workplace that allow lactating mothers to have direct access to their babies.
16. Ensure that all child care providers accommodate the needs of breastfeeding mothers and infants.

Actions for Research and Surveillance:

17. Increase funding of high-quality research on breastfeeding.
18. Strengthen existing capacity and develop future capacity for conducting research on breastfeeding.
19. Develop a national monitoring system to improve the tracking of breastfeeding rates as well as the policies and environmental factors that affect breastfeeding.

Action for Public Health Infrastructure:

20. Improve national leadership on the promotion and support of breastfeeding.

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 the routine way to feed infants.

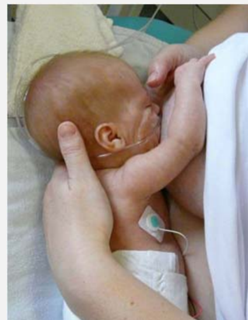
Key barriers to breastfeeding:

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.

Breastfeeding challenges facing mothers of Preterm infants



Community Breastfeeding Support for Preterm Infants in Southwestern Ontario After NICU Discharge

Orlando da Silva, Andrea Page, Kathy N. Speechley
Department of Pediatrics, St. Joseph's Health Care, London and London Health Sciences Centre, London, Ontario
(2007/2008)

Variable	Preterm (n=35)	Controls (n=35)
Maternal age (y)	30±5.1	31.2±4.4
Parity		
Primiparous	22	15
Multiparous	13	20
Married or C. Law	34	34
GA at birth (wks)	29.9±2.3	38.9±1.6
GA at discharge	37.9±2.9	38.9±1.6
Birth Weight (g)	1440±413	3448±504
Discharge Wt (g)	2994±746	3448±504
Singleton (n)	26	35
Any BM at 1 M (%)	73	88
Any BM at 4 M (%)	53	73

Breastfeeding: Why women stop
(Preterm and Controls at 1 and 4 months)

- Not enough milk (perception)
- Not knowing how much baby is getting
- Feeding schedule
- Concerns about baby latching on and sucking
- Unsure about being able to exclusively breastfeed

Why Do Women Stop Breastfeeding? Findings From the Pregnancy Risk Assessment and Monitoring System
Indu B. Ahluwalia, Brian Morrow 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 (6.5–9.3)	5.5 (4.6–6.5)
Baby had difficulty	48.4 (43.3–53.4)	34.0 (31.5–36.4)	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	9.8 (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	8.0 (5.3–10.8)	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)	9.9 (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.

Post Discharge Breastfeeding/Nutrition Support for Preterm Infants in Southwestern Ontario

O da Silva, D. E. Yuen, M. Angelini and C. Ulrich
November 1st , 2010 to May 31st, 2011

Results

- Birth weight — 1650±503 g
- Gest age — 33±1.4 weeks (25-34)
- Maternal age — 29±6 y
- Male — 62%
- Vaginal delivery — 67%
- Married or CL — 92%
- Singleton — 86%
- College or Univ. — 74%
- First baby — 64%
- Any BF at 6 months of age — 64% (Ontario: 54%)
- Exclusive BF at 6 months — 32% (Ontario: 15.6%)

Galactagogues

Galactagogues (**Origin:** mid 19th century: from Greek *gala*, *galakt* 'milk' + *agōgos* 'leading')

- Herbal: fenugreek, brewer's yeast, blessed thistle, alfafa; anise, astragalus root, boza, burdock, nettle, fennel, flax, soapwort, vervain, and althaea root
- Pharmacological: metoclopramide and domperidone

Effect of domperidone on milk production in mothers of premature newborns: a randomized, double-blind, placebo-controlled trial

Orlando P. da Silva,[*] David C. Knoppert,[†] Michelle M. Angelini,[‡] Penelope A. Forret[‡]

Research

Recherche

From the Departments of *Pediatrics, †Pharmacy and ‡Nursing, University of Western Ontario and St. Joseph's Health Care London, London, Ont.

This article has been peer reviewed.

CMAJ 2001;164(1):17-21

Table 1: Characteristics of mothers expressing low volumes of breast milk for their premature newborns who were randomly assigned to receive either domperidone or placebo

Characteristic	Received domperidone *n* = 7	Received placebo *n* = 9	*p* value
Mean maternal age (and SD), yr	28.2 (5.0)	27.9 (6.6)	NS
Mean gestational age (and SD), wk	29.1 (2.0)	29.1 (3.7)	NS
Mean no. of days between delivery and study entry (and SD)	31.9 (10.5)	33.1 (22.9)	NS
First pregnancy, no. of women	3	3	NS
No. who breastfed previously	1	3	NS
No. who smoked	0	1	NS
Reason for preterm delivery, no. of women			
Spontaneous labour	5	6	NS
Pregnancy-induced hypertension	2	3	NS

Note: SD = standard deviation.

CMAJ 2001;164(1):17-21

Table 2: Daily volumes of breast milk recorded by subjects in the domperidone and placebo groups

	Study day; milk volume, mL						
Patient	Baseline*	2	3	4	5	6	7
Domperidone							
1	13†	3	49	66	51	68	45
2	262	286	291	342	323	337	346
3	6	21	19	35	39	45	45
4	17	49	81	121	146	170	190
5	120	135	167	132	–	–	–
6	51	69	95	96	125	126	125
7	320	350	356	385	378	323	350
Mean volume	112.8	130.4	151.1	168.1	177.0	178.2	183.5
Placebo							
1	201†	152	180	102	133	80	110
2	12†	14	15	16	12	14	14
3	32†	36	36	32	36	40	40
4	14	37	62	55	42	57	58
5	11	28	18	8	4	0	0
6	50	92	82	120	121	150	180
7	89	102	94	111	95	101	107
8	23	21	22	22	–	–	–
9	< 1	10	20	25	27	15	19
Mean volume	48.2	54.7	58.8	54.6	58.8	57.1	66.1

*Defined as the volume of milk produced during the 24 hours before the start of the study medication.
†Baseline volume was unavailable; instead, volume produced within the 24 hours following enrolment was considered as the baseline.

CMAJ 2001;164(1):17-21

June/Juin 08, 2011
DCO150GP

Canadian Institutes of Health Research/Instituts de recherche en santé du Canada
Notice of Recommendation/Avis de recommandation

Application Number/Numéro de la demande: 244254
Committee Code/Code du comité: CIA

Applicants/Candidats: Dr. Elizabeth Vagi ASZTALOS; Dr. Orlando Pereira DA SILVA; Mrs. Marsha Lynn CAMPBELL-YEO

With/Avec: Dr. S. ITO; Dr. A. KISS; Mr. D. KNOPPERT

Institution paid/ Établissement payé: Sunnybrook Research Institute (Toronto, Ontario)

Title/Titre: Enhancing Breast Milk Production with Domperidone in Mothers of Preterm Neonates (EMPOWER Trial)

Primary Inst./Inst. principal: Human Development, Child and Youth Health
Other Related Inst./ Autres inst. connexes: Nutrition, Metabolism and Diabetes

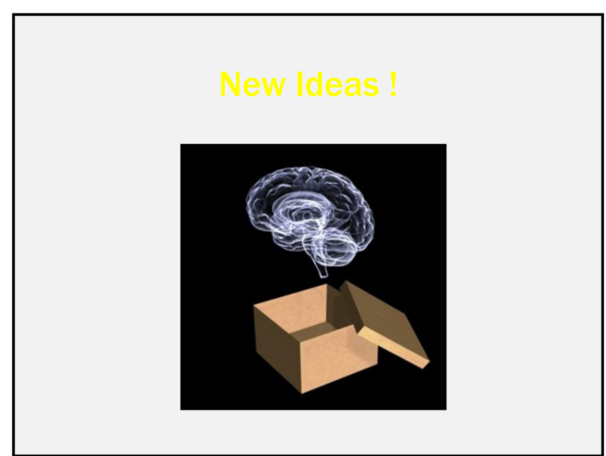
Competition /Concours: Operating Grant March/Mars 01, 2011

Number in competition/Nbre de demandes dans le concours: 2298

Peer Review Committee Recommendation, for your information and use/ Recommandation du comité d'examen par les pairs, pour fins d'information et d'utilisation:

Committee/Comité: Clinical Investigation - A
Number reviewed/ Demandes examinées: 41
Application rank within the committee/ Rang de la demande dans le comité: 1
Percent Rank within the committee / Rang en pourcentage au sein du comité: 2.44%
Rated / Cote: 4.49
Recommended Term/ Durée recommandée: 5 years/ans 0 months/mois
Recommended average annual operating amount/ Montant annuel moyen recommandé pour le fonctionnement: $248,311
Recommended equipment amount/ Montant recommandé pour les appareils: $0

New Ideas !



MEDIEVAL MODELS, AGRARIAN CALENDARS, AND 21ST-CENTURY IMPERATIVES

George L. Mehaffy
American Association of State College and Universities

Three Challenges

In this new century, three forces-declining funding, rising expectations and rapidly developing technology-will profoundly challenge public higher education. My core thesis is simple: resources

HOW DO WE CREATE

1. New Models for Institutional Organization and Design (Academic Affairs-Student Affairs collaboration, departmental/college structure, etc.)

2. New Models for Enrollment Management (academic advising, tracking, early warning, etc.)

3. New Models for Faculty (faculty work, the use of part-time faculty, use of faculty time, etc.)

4. New Models for Curriculum and Course Design (degrees limited to 120 hours, reduced seat time, interdisciplinary, new designs for general education, etc.)

5. New Models for Instructional Design (new forms of student engagement, use of technology in teaching, distance education, etc.)

To achieve those outcomes, I would hope that the project we undertake can design new models, processes, and programs that respond to the three core challenges:

LOWER COSTS

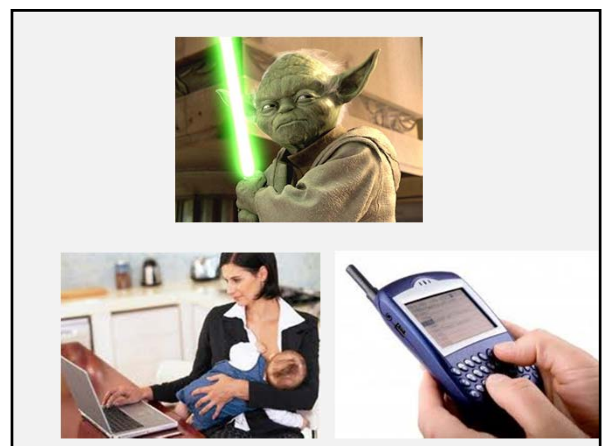
Maximize cost-effectiveness (either hold costs constant while increasing the number of students involved, or reduce costs).
Make programs scalable (increase the number of students served while reducing per-student costs).

INCREASE PARTICIPATION

Create more effective student engagement. Engagement is the key to greater learning outcomes.
Produce greater learning outcomes documented by a rich array of instruments and assessment strategies.

RESPOND TO THE CHALLENGE OF TECHNOLOGY

Focus on the development of 21st-century skills to create 21st-century learning and leadership outcomes.
Rethink teaching, learning, and faculty roles.



Next Step

- In progress: Online Interactive Breastfeeding/Infant Nutrition Clinic