Seeing the big picture:
Breastfeeding as part of a
primary health care strategy

or

A paradigm shift: new ways of
looking at “public health”

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Outline of talk

• A look at public health issues
  • Globally
  • Infectious disease, chronic disease, obesity
  • Disaster management, food security issue

• Some basic epidemiology
  • Upstream, midstream and downstream intervention
  • Rose Theorem, Population Attributable Risk

• The big effect of small effects
  • Obesity, type 2 diabetes

• Making the right choice the easy choice
  • World-wide information (growth charts, food guides) and media ads
  • Attitude change (don’t bet on it; on the other hand, The Tipping Point)
  • Program change/policy change in a community like Sagkeeng
  • Policy change (BFHI, Maternity Leaves, WHO Code)

• So what? Now what?
  • Meaning for the researchers, health care providers, lay counsellors, government planners, etc. – we ALL have work to do
Public Health

- Pictures from the past
  - A historical trip into the past ... Canadian Mother and Child books from my grandmother’s era (1920)
THE CANADIAN MOTHER'S BOOK.

"The greatest gift is a child, and the greatest honour is to be a mother."

No national service is greater or better than the work of the mother in her own home. The mother is "The First Servant of the State."...

Nursing the baby yourself is the ONE BEST WAY. 'Bottle feeding' is one of the greatest errors of human history and it is dying out. .. Nursing by the mother is safer, easier, cheaper, wiser, and more successful and it is going to be the fashionable way, from the Queen on her throne down to the newest Canadian."

No Baby—No Nation.
Public Health

Word association – what comes to YOUR mind!

• Public health “programs”
• Infectious diseases
• More recent focus
  – Chronic diseases (diabetes, heart conditions)
  – Underlying “determinants” (social inequity?)
  – Obesity
  – Food security
The big picture: reducing child mortality and public health

• Jones et al. 2003; Bryce et al. 2003
  – How many child deaths can we prevent this year?
    • 42 countries with 90% of the 10.8 million child deaths under five years old
  
• Most promising interventions include promotion of breastfeeding, oral rehydration therapy, education on complementary feeding, insecticide-treated materials

• 13% of the deaths are avoidable if the 42 countries could achieve 90% being exclusively breastfeeding up to 6 months of age
64% to 75% = $3.6 billion savings

Increasing rates of breastfeeding is a crucial strategy for improving children's health, reducing childhood overweight, and reducing health-care costs. For example, increasing the proportion of children breastfed in the early postpartum period from 64% in 2000 to the Healthy People 2010 goal of 75% would save an estimated $3.6 billion in health-care costs annually (1). Although racial and economic disparities in breastfeeding initiation rates appear to have decreased in recent decades, they have not been eliminated. Barriers to breastfeeding initiation and continuation include lack of social support, lack of proper guidance from health-care providers, lack of adequate or timely postpartum follow-up care, and disruptive hospital maternity-care practices (e.g., delays in breastfeeding initiation, use of pacifiers by newborns, and hospital promotion of formula through the provision of free formula in hospital discharge packs) (1,9). Public health measures to promote breastfeeding should continue and should target groups with the lowest initiation rates, such as black
MODERN civilisation may not be quite as safe as we thought. Britain’s security services have been privately warning their staff that western societies are just 48 hours from anarchy.

MI5’s maxim is that society is “four meals away from anarchy”. In other words, the security agency believes that Britain could be quickly reduced to large-scale disorder, including looting and rioting in the event of a catastrophe that stops the supply of food.

Arnold Rimmer from Red Dwarf, third season, when he found Dave Lister burning books to stay warm:
Rimmer: "They say that every society is only three meals away from revolution. Deprive a culture of food for three meals, and you'll have an anarchy. And it's true, isn't it? You haven't eaten for a couple of days, and you've turned into a barbarian."
Disaster management – living in an uncertain world

• Hope in the darkest days: Breastfeeding support in emergencies (Heinig 2005)
• ILCA’s Position on Infant Feeding in Emergencies

ILCA Fact Sheets

4. training of all humanitarian aid workers include essential breastfeeding messages:

- Nearly every woman can breastfeed her baby (babies). Mother’s milk alone has everything a baby needs to grow well in the first six months of life. Breastfeeding is protective against infectious diseases, especially diarrhea and acute respiratory infections (ARI). Even malnourished and traumatized mothers produce adequate quantities of good quality milk. The hormones released by the mother in the course of breastfeeding help the mother relax and counteract some of the results of stress.

(http://www.ilca.org/pressroom/positionpapers.php)
Breastfeeding During Emergencies

Q. How does breastfeeding save lives and prevent illnesses during an emergency?

A. Breastfeeding protects babies from the risks of a contaminated water supply. It provides protection against respiratory illnesses and diarrhea—diseases that can be fatal in populations displaced by disaster. This is especially important during disruption of power, water and other services.

Lawrence M. Garther, M.D., chair of the Section on Breastfeeding of the American Academy of Pediatrics and Health Advisory Council Member of La Leche League International (LLLJ) states: "Human milk is a valuable resource that can not only protect the vulnerable infant from disease, but can also promote psychological health and comfort during stressful times. Human milk reduces pain and promotes more rapid healing after injuries and infections."

As natural disasters in recent years have demonstrated, the ability to transport and store water, food and other necessities is greatly diminished during and following catastrophic destruction. Human milk is readily available and provides all the necessary nutrition needed by an infant. In fact, according to the American Academy of Pediatrics and other health organizations around the world, exclusive breastfeeding, i.e., breastfeeding without the introduction of any other foods or water is the ideal infant feeding method for all babies during the first six months.

In special situations such as when complementary foods are not available, many infants have been exclusively fed on human milk for more than six months.

Q. How does a mother breastfeed a baby during or after an emergency?
Important message #1

• We live in times where public health and population health issues are critical – so what should be our perspective?
Some basic epidemiology to help us answer this …

• The importance of looking at any health problem from an “upstream, midstream and downstream” approach simultaneously

• The importance of small effects over large populations
  • Rose’s Theorem
  • Population Attributable Risk
Paradigmatic obstacles to improving the health of populations - Implications for health policy*

John B. McKinlay, Ph.D. (1)

Abstract
While there are promising developments in public health, most interventions (both at the individual and
Paradigmatic obstacles to improving the health of populations - Implications for health policy*

John B. McKinlay, Ph.D.*

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John B. McKinlay, 1998
A breastfeeding equivalent? Where do YOU fit in, and How would you fill this in ...

Tax incentives  
Maternity legislation  
BFHI  
Public policies

training health care providers peer supports pre/postnatally "fixing" bf clinics

Upstream  
Midstream  
Downstream
The importance of a population perspective on public health

• **Rose's Theorem**: "a large number of people at small risk may give rise to more cases of disease than a small number who are at high risk."

• **Reference**
Paradigm shift in the health sector: Tax incentives for physically active people change the environment to facilitate activity. (Upstream) (Healthy public policy)

From: Jette, 1994

**Figure 3. Points of contention**

![Graph showing the normal distribution of blood pressure in a human population.](image)

The public health approach involves a shift in the entire distribution to the left.

From: reference 64

**Figure 2. The normal distribution of blood pressure in a human population.**

2.5% of the population with the highest blood pressure lying about 2 standard deviations from the mean.
The importance of a population-based approach

An approach for only the very high risk – limited overall population effects

31% “unhealthy”
50% “unhealthy”

slide curve over 1/2 a Standard Deviation

LESS healthy  MORE healthy
The meaning of a “shift”

- IQ: mean is 100, SD is 15.
- Breastfeeding and cognitive development often finds a 4 to 7 point difference
  - A slide of 1/4 SD makes a 10% difference
  - A slide of 1/3 SD makes a 13% difference
  - A slide of ½ SD makes a 19% difference
50% < IQ 100
SD=15

¼ SD slide:
40% < IQ 100

½ SD slide:
31% < IQ 100
Important message #2

• THINK BIG
  – Downstream, midstream and upstream
  – The Rose Theorem is important to all of us …
    Even a small population “mean” shift can have profound effects on the % of the population who become healthy or unhealthy
Obesity Trends Among Canadian and U.S. Adults, 1985

Mokdad AH. *Unpublished Data.*
Obesity Trends Among Canadian and U.S. Adults, 1990

Mokdad AH. Unpublished Data.
Obesity Trends Among Canadian and U.S. Adults, 1994

Obesity Trends Among Canadian and U.S. Adults, 1996

Obesity Trends Among Canadian and U.S. Adults, 1998

Obesity Trends Among Canadian and U.S. Adults, 2000

TIME OUT: WHAT IS AN ODDS RATIO OR A RELATIVE RISK?

OR = 0.96, 95% CI 0.94 to 0.98

FIGURE 2. Odds ratios (with corresponding 95% confidence intervals in parentheses) for overweight, per month of breastfeeding. Studies are ordered alphabetically by first author. The pooled or “combined” odds ratio (OR) was calculated by a random-effects model.
Individual versus population risk

• Relative Risk and Odds Ratios
  • Talks about individual risk
  • Need to think at a POPULATION PUBLIC HEALTH level
  • Even a small benefit/risk can become a large population effect when a very large number of people are “exposed” (Rose Theorem)

  – Meta-analyses: Odds Ratios (OR) of obesity
  – .93 (Owen et al. 2005)
  – .78 (Arenz et al. 2004)
  – .94 for each 3.7 month increment of additional breastfeeding (Gillman et al. 2006)
  – .96 for each month of additional breastfeeding (Harder 2005)
Population Attributable Risk (Etiologic Fraction)

• Focuses on entire population, and benefits of an intervention to the entire community

• What proportion of the disease experience in the WHOLE population is attributable to a particular exposure?
  • Depends upon how much of the population is exposed to the risk factor
  • Can be thought of as exposed to a benefit, with a beneficial effect on risk of disease (OR less than 1); or exposed to a disease, with a detrimental effect on risk of disease (OR greater than 1)
Population Attributable Risk (Etiologic Fraction)

\[ \text{PAR} = \frac{P(RR-1)}{P(RR-1)+1} \]

Assume 70% of children are breastfed for a month. Assume small RR of .96. So let’s flip that to 30% NOT breastfed, RR of 1.042.

\[ \text{PAR} = \frac{.3(.042)}{.3(.042)+1} = .0126/1.0126 = .012 \]

So 1% of obesity is attributable to NOT being breastfed in this population (and this is only 1 month of breastfeeding as the “protection”).
Population Attributable Risk (Etiologic Fraction)

$\text{PAR} = \frac{P(\text{RR}-1)}{P(\text{RR}-1)+1}$

California breast cancer rates for women:

... out of the 13,000 cancers, 1400 attributable to never breastfeeding
Figure 4: Population attributable risk of breast cancer associated with not breast feeding (compared to breastfeeding for 31 months or more over a lifetime) for various levels of population prevalence and relative risk.

Linking breastfeeding and Type 2 diabetes

• Prospective study of Pima First Nations
  • Pettitt et al. 1997; Pettitt and Knowler 1998

• Case-control study of Manitoba First Nations adolescents
  • Young, Martens et al. 2002

• Other studies
  • Kjos et al. 1993; Stuebe et al. 2005

Review
• Taylor 2005
• Breastfeeding may lower both the maternal and child rates of type 2 diabetes
Rate of Type 2 diabetes by infant feeding group

Infant Feeding Groups:
- first two months

- exclusive bf
- partial bf
- exclusive bottle feeding

(Pettitt et al., 1997)
Rate of Type 2 diabetes by maternal diabetes and infant feeding group

Infant Feeding Groups

- exclusive bottle feeding
- exclusive bf

(Pettitt and Knowler, 1998)

* OR=0.56 (0.41-0.76)

n=551
Type 2 Diabetes Mellitus in Children: Prenatal and Early Infancy Risk Factors among Native Canadians
(Young, Martens, et al. 2002)

• pre-existing maternal diabetes
  » OR 14.4, 95% CI 2.86-72.5

• maternal gestational diabetes
  » OR 4.40, 95% CI 1.38-14.1

• breastfeeding
  » 12 months or longer: OR 0.24, 95% CI 0.07-0.84
  » 6 months or longer: OR 0.36, 95% CI 0.13-0.99
Looking at the mother: Stuebe et al. 2005

- **Nurses’ Health Study**
  - For those reporting a birth in the past 15 years (young and middle-aged women)
  - Hazard Ratio = 0.85 (95% CI 0.73-0.99) in study 1, 0.86 (0.79-0.93) in study 2, for each additional year of breastfeeding
  - Larger effect for each year of *exclusive* breastfeeding
  - Controlled for confounding effects such as diet, exercise, smoking
  - Benefits begin after 6 months of breastfeeding

- Longer duration of breastfeeding associated with lower incidence of type 2 diabetes in women (may improve glucose homeostasis)
Kjos et al. 1993

- Effect of lactation on glucose metabolism
  - n=809 Latina women with gestational diabetes, 4-12 weeks breastfeeding vs. bottlefeeding
  - breastfeeding reduced the risk of diabetes (± SD)
    - Mean fasting glucose: 93 ± 13 vs. 98 ± 17 mg/dL, p<.0001
      - 1/3 SD shift
    - mean two hour glucose levels: 124 ± 41 versus 134 ± 49 mg/dL, p<.01
      - 1/4 SD shift
    - diabetes at half the rate (4.2% versus 9.4%, p<.01), controlling for BMI, age and insulin use during pregnancy

TIME OUT - What is P<.0001, P<.01, p<.05
Population Attributable Risk (Etiologic Fraction)

• As to Type 2 diabetes, what is the risk to the whole population of not breastfeeding?
  • Depends upon how much of the population is not breastfed

• RR = somewhere around 2 (ie, twice as likely to get Type 2 diabetes if not breastfed)
  – Exposed to a detriment (not being breastfed), with a risk of disease (type 2 diabetes), i.e., greater than 1
Population Attributable Risk (PAR)
RR = 2, ie, non-breastfed people are at 2 times the risk for Type 2 diabetes

<table>
<thead>
<tr>
<th>Prevalence of breastfeeding</th>
<th>Prevalence of artificial baby milk feeding (bottlefeeding)</th>
<th>PAR Population attributable risk of Type 2 diabetes due to NOT being breastfed</th>
</tr>
</thead>
<tbody>
<tr>
<td>90%</td>
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<td>9%</td>
</tr>
<tr>
<td>80%</td>
<td>20%</td>
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<td>70%</td>
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<td>40%</td>
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<td>38%</td>
</tr>
<tr>
<td>30%</td>
<td>70%</td>
<td>41%</td>
</tr>
</tbody>
</table>
Important message #3

• Even a small OR or RR, if it involves a huge proportion of the population (for example, all newborns), can have a BIG effect on “population attributable risk” of a disease
Attitude change is hard

• My own research on nurses’ attitudes
  • Martens 2000

• Public attitudes research
  • Hannan et al. 2005
  • “… the American public seems to agree that breastfeeding is healthier but disagree that formula-fed babies are sick more often. Thus, a successful breastfeeding campaign needs not only to educate people about the health benefits of breastfeeding but also to increase the awareness of people about adverse consequences of not breastfeeding.”

• Hmm, not so sure!
• Work on it, but don’t wait for it!
Hospital Nurses’ Attitudes: health benefits of breastfeeding

80% agree or strongly agree

30-50% agree or strongly agree

1 = strongly disagree; 5 = strongly agree

South Eastman Interlake Brandon Arborg Pine Falls

Martens 2000
Martens & Romphf 2003
Martens et al. 2003
Figure 1. Breastfeeding knowledge.
The shading scheme of the maps is based on the percentage agreement with each statement.
Why anti-smoking ads don’t work

- Canadian Tobacco Control Research Initiative
  - Neuroscience and marketing
  - MRI scans of the brain
    - “few images elicited a negative reaction, and smokers in the group were untroubled by even the most disgusting ones, possibly due to a combination of habituation and denial”
    - “the few anti-smoking messages that had an effect on volunteers were shown to activate brain regions linked to feelings of aversion (ads should show that smoking makes you poor, or if you smoke you’ll get ugly)”

- Be careful of how we “advertise” breastfeeding
Systems change:
“If you build it, they will come”

- Policy interventions  
  (upstream, midstream)

- Make the healthy choice the easy choice
  - BFHI
  - Maternity leave
  - Essential documents
    - Growth charts
    - Food Guides
Change can happen quickly: WHO and UNICEF … thank you!!

The Tipping Point

• Ideas must be “sticky”

• Ideas require information mavens, connectors and salespersons
Baby Friendly Hospital Initiative: definitely UPSTREAM!

- Kramer et al. 2001
  - PROBIT study in Belarus
  - 19.7% vs. 11.4% still breastfeeding at 1 year (OR = .47, 95% CI 0.32-0.69)
  - 43.3% versus 6.4% exclusively breastfeeding at 3 months

- Grizzard et al. 2006
  - Levels of implementation of Ten Steps in Massachusetts hospitals
    - Acceptance of free formula, and no control over pacifier use was associated with lower levels of implementation of Ten Steps
Hospital BFHI Compliance Scores

BFHI Compliance

Time (8 month interval)

Martens 2001
Positive changes in hospitals

† **Step 1:**
  • Have a written breastfeeding **policy** that is routinely communicated to all health care staff (40% to 87%)

† **Step 6:**
  • Give newborn infants **no food or drink** other than breastmilk, unless medically indicated (rare/never: 45% to 87%)

† **Step 9:**
  • Give **no artificial teats or pacifiers** to breastfeeding infants (advise avoidance of bottles always/most of the time: 30% to 67%)

† **Step 10:**
  • Foster the establishment of **breastfeeding support groups** and refer mothers to them on discharge from the hospital (45% to 67%)
Hospital Intervention Effects
true treatment effects of survey

*\(p<0.05\) (difference between intervention and control)

Also: more exclusively breastfed babies at intervention site
Intervention site: 30% to 55% (\(p<.05\)) pre- to post-intervention
INFANT
Canada

IBFAN
North America

Infant Feeding Action Coalition, 6 Trinity Square
Toronto, ON M5G 1B1 tel: (416) 595-9819 fax: (416) 591-9355

Newsletter
Fall 2005

Maternity benefits and breastfeeding
Providing structural support for breastfeeding is good for all

Canada’s maternity benefits for mothers returning to the workplace rank among the best in the world. We share this honoured position with countries such as Sweden and Norway, long known for their progressive approaches to health and social policies. The federal government and provincial feds to expand eligibility to include self-employed new mothers. This important step can be seen as a precedent for other provinces to plug the loopholes and improve eligibility to these important supports.

Current status requires mothers to negotiate their lactation needs with their employer. The right to a workplace negotiated arrangement to continue lactation was an important legal precedent won in 1997 by Michelle Poirier, then the President of British Columbia’s

...
<table>
<thead>
<tr>
<th>Country</th>
<th>Weeks of job-protected leave</th>
<th>Weeks of other leave</th>
</tr>
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<tbody>
<tr>
<td>Canada</td>
<td>50</td>
<td>15</td>
</tr>
<tr>
<td>Denmark</td>
<td>28</td>
<td>0</td>
</tr>
<tr>
<td>France</td>
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<td>35</td>
</tr>
<tr>
<td>US</td>
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<td>12</td>
</tr>
</tbody>
</table>
Spearman’s $r = 0.55$, $p < .05$

Spearman’s $r = 0.00$, $p = .99$
Breastfeeding is when a woman feeds an infant or young child with milk produced from her breasts, usually directly from the nipples. Babies have a sucking urge that usually enables them to take in the milk, provided there is a good latch, a detached phrenium, and a milk supply.

Breast milk has been shown to be best for feeding a child if the mother does not have any transmissible infections. Nevertheless, some mothers do not breastfeed their children, either for personal or medical reasons. Some diseases, such as HIV and HTLV-1, which are transmitted through bodily fluids, can be passed through the breast milk, and may therefore preclude breastfeeding in these cases. Some medicines may also transfer through breast milk. However, most medicines are transferred in very small amounts and are considered safe to take during breastfeeding. Therefore most women are not precluded from breastfeeding, and doctors and governments are keen to promote the practice. Nevertheless, many medications are still required by law to be labeled as not safe when breastfeeding.

Many governmental strategies and international initiatives have promoted breastfeeding as the best method of feeding a child in its first year. So does the World Health Organization (WHO) [1] and the American Academy of Pediatrics (AAP) [2] and many others.
Breastfeeding is the feeding of an infant or young child with milk from a woman's breasts. Babies have a sucking reflex that enables them to suck and swallow milk.

Experimental evidence suggests that, with few exceptions, human breast milk is the best source of nourishment for human infants.[1] Experts still disagree about how long breastfeeding should continue to gain the most benefit, and how much extra risk is involved in using breast milk substitutes.[2][3][4]

An infant may be breastfed by its own mother or by another lactating female, a wet nurse. Breast milk may be expressed and fed to a baby through a bottle, and pasteurized donor human milk may also be used. Breast milk substitutes are available for mothers or families who cannot or prefer not to breastfeed their children. While there are conflicting studies about the relative value of breast milk substitutes, the use of commercial infant formulas is acknowledged to be inferior to breastfeeding for both full term and premature infants.[5] In many countries, artificial feeding is associated with a greater mortality from diarrohoea in infants[6] but where there is clean water, many consider artificial feeding to be acceptable.[9]

Governmental strategies and international initiatives promote breastfeeding as the best method of feeding infants in their first year and beyond. The World Health Organization (WHO) and the American Academy of Pediatrics (AAP) also promote breastfeeding.[7][8]

A YEAR LATER (summer 2007)
The Toronto Star editorial: Facebook “loses face”

Sep 16, 2007

Facebook, the social networking website, unfairly stigmatized nursing mothers when it deleted pictures of breastfeeding babies, calling them "obscene content." It also closed the account of an Edmonton mother after she asked for a clarification of its policy on obscenity.

That led to a groundswell of protest from around the world and a new Facebook group called "Hey Facebook, breastfeeding is not obscene!" Its membership swelled to almost 15,000 in a few days, many posting their own nursing pictures.

With Canadian physicians and the World Health Organization recommending breastfeeding up to two years of age, nursing mothers everywhere need to be encouraged. So it is good news that Toronto's public health department is calling on restaurants here to post decals, starting next year, that would indicate they are breastfeeding-friendly. The plan, which next week goes to the board of health for approval, would see decals and information pamphlets sent next spring to 6,100 restaurants as well as all city-run boards, commissions and agencies. While each business can decide for itself whether to take part in the voluntary program, customers should encourage them to do so.
Weight-for-age GIRLS

Birth to 5 years (z-scores)

The importance of “getting the growth charts right”
Encourage and support breastfeeding

Breast milk is the best and most natural food for infants. It is ideally suited to their needs. It not only provides nutrients for the baby but also provides growth factors and protection against infection and disease. The best start a baby can have is to be exclusively breastfed for the first six months of life.

How does breastfeeding work?

Close contact between mother and baby immediately after birth helps to establish breastfeeding. The high-protein milk produced immediately after birth is called colostrum. Breast milk changes over time. After a week or two, the colostrum is gradually replaced by mature breast milk, which is higher in fat.

Breast milk also changes during growth. Part of the benefit of breastfeeding is that babies can satisfy their thirst and hunger seconds from the same feed. The amount of fat in breast milk is low at the start of a feed and high at the end. Fast-growing babies, who need plenty of kilojoules, will stay on the breast a little longer to get the benefits of the rich milk available at the end of the feed.

It is important that breastfeeding women themselves have a good diet and that they limit their consumption of alcohol and stimulants such as caffeine.

Why is breast milk so special?

Breast milk is uniquely suited to the needs of infants. It provides all the nutrients needed for the first six months of life and ensures no deficiencies occur. Breast milk provides protein, carbohydrates, fat, omega 3 and omega 6 fatty acids, and all the vitamins and minerals a baby needs to grow and thrive.

The benefits of breast milk go beyond good nutrition. Breast milk:

- contains unique growth factors
- has anti-infective agents, which protect against diarrhea
- protects against asthma and lung infections
- protects against eczema

Breast milk has its greatest health benefits in the first three months of life. It is also hygienic, inexpensive, convenient, and available on demand. Breastfeeding has benefits for the mother too, aiding in the recovery after childbirth and the return to normal body weight.

Dietary Guidelines for Children and Adolescents in Australia

Encourage and support breastfeeding

Children and adolescents need sufficient nutritious foods to grow and develop normally

- Growth should be checked regularly for young children
- Physical activity is important for all children and adolescents

Enjoy a wide variety of nutritious foods

Children and adolescents should be encouraged to:

- Eat plenty of vegetables, legumes, and fruits
- Eat plenty of cereals (including bread, rice, pasta, and noodles), preferably wholegrain
- Include lean meats, fish, poultry, and/or alternatives
- Include milks, yoghurts, cheese, and/or alternatives. Reduced-fat milks are not suitable for young children under 2 years, because of their high energy needs, but reduced-fat varieties should be encouraged for older children and adolescents
- Choose water as a drink. Alcohol is not recommended for children
- Care should be taken to:
  - Limit saturated fat and moderate total fat intake. Low-fat diets are not suitable for infants
  - Choose foods low in salt
  - Consume only moderate amounts of sugars and foods containing added sugars

Care for your child’s food: prepare and store it safely
Important message #4

• Although downstream and midstream programs are also important …
  – Upstream approaches are very important in shifting population behaviours for the WHOLE population (which is where the action is from a perspective of public health)
Internal validity

Lower

Anecdote/case study

Cross-sectional

Observational (prospective, historical prospective)
Case-control
Time series with comparison or qualitative layer

Quasi-experimental comparison group studies (good external validity)

Randomized Controlled Trials, RCTs

Higher
Coming Full Circle: Sagkeeng’s story

community

effect

hospital

prenatal

peer counsellor

school
Community Effect

Evaluate the population-based effects of multi-faceted community initiatives to promote breastfeeding

- 1993-1994 (prospective survey, semi-structured interviews)
- 2000-2002: community charts 1998 - 2000 data, plus qualitative contextual information from key informants
- 2002+: in the midst of a third study, community chart data plus semi-structured interviews
Manitoba’s 11 RHAs

Breastfeeding initiation

**Manitoba**
- First Nations 58%
- All others 82%

**North Eastman**
- First Nations 44%
- All others 80%

Martens et al 2001
Video and Breastfeeding Booklet

1995/96
Breastfeeding Initiation 1992-97

Martens 2002

Hartley and O’Connor, 1996

CHN attends conference, uses new techniques to address prenatal feeding intent

Martens 2002

* significantly higher

CHN hired

PC Training begun

Breastfeeding booklet completed, video and booklet used in individual prenatal instruction by CHN

1994 Breastfeeding study: pregnant women interviewed


year

percentage initiating breastfeeding


breastfeeding

Hartley and O’Connor, 1996

CHN attends conference, uses new techniques to address prenatal feeding intent

Martens 2002

* significantly higher

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1994 Breastfeeding study: pregnant women interviewed


year

percentage initiating breastfeeding


breastfeeding
Sagkeeng breastfeeding initiation rates 1992 to 2000

* p<0.05 adjusted for birth weight and parity

Martens and Romphf 2002
Breastfeeding initiation rates by region of Manitoba, 1992-1998

% initiated any breastfeeding

year

Manitoba
South Rural
North
Sagkeeng
Breastfeeding Duration by PC Program, 1992-1997 (pilot PC program in 1997)

PC clients: 61% still breastfeeding at 2 months, 56% at 6 months

Non-clients: 48% still breastfeeding at 2 months, 19% at 6 months

Martens 2002
Breastfeeding duration by PC program 1997-2000

PC clients: 71% still breastfeeding at 2 months, 56% at 6 months, 33% at one year

Non-clients: 39% still breastfeeding at 2 months, 24% at 6 months, 13% at one year

Martens and Romphf 2002
Millennium Calendar

So you want a healthy baby
So you want a healthy baby: Breastfeeding teachings

Released spring 2004
Important message #5

• make a population and public health difference by thinking along the entire spectrum
Breastfeeding determinants and a suggested framework for action in Europe (Yngve and Sjöström 2001)

“Promotion, protection and support should be provided to all breastfeeding mothers and their babies, in order not to perpetuate today’s situation when a child is provided the benefits of breastfeeding depending on nationality, economic circumstances, and their mother’s educational level and age.”
Population health and the Medicine Wheel

“The lines intersecting at the centre of the circle signify order and balance. They help people examine experience by breaking down complex situations into constituent parts, while reminding them not to forget the whole. The centre of the wheel is the balance point where apparent opposites meet. The flags at the ends of the intersecting lines signify the four winds whose movement is a reminder that nothing is fixed or stagnant, that change is the normal experience and transformation is always possible.”

Royal Commission on Aboriginal Peoples (1996:647)