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***AFN-CPNP evaluation***

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# **Evaluation of the Canada Prenatal Nutrition Program in First Nations Communities.**

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Report to the Assembly of First Nations  
Prenatal Health and Nutrition Sub-Committee  
in collaboration with **CIET**canada

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**List of acronyms**

AFN:	Assembly of First Nations
CBR:	Community-based researcher
CPNP:	Canada Prenatal Nutrition Program
DIAND:	Department of Indian Affairs and Northern Development
FNIC:	First Nations and Inuit component of the CPNP
FNIRHS:	First Nations and Inuit Regional Health Survey
<b>FNHB:</b>	First Nations and Inuit Health Branch
ICQ:	Individual client questionnaire
OCAP:	Ownership, control, access and possession
RCP:	Reproductive Care Program
SIDS:	Sudden infant death syndrome
WHO:	World Health Organisation

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The evaluation was made possible by the 135 First Nations women who trained as community-based researchers (CBRs) to interview mothers, to arrange the youth survey and to encourage community leaders, Elders, traditional healers, midwives and service providers to participate. Several researchers deserve special mention. In Quebec, Carol Whiteduck from Kitigan Zibi Anishenabeg First Nation, the first CBR trained by the evaluation team assisted Serge Merhi with training and follow-up in Quebec communities. In the Atlantic region Elizabeth Marshall from Eskasoni First Nation and April Dedam from Listuguj Mi'Gmaq First Nation assisted in the Atlantic communities.

Six First Nations women were invited to join the evaluation team and facilitate focus groups in the participating communities. Five had implemented the evaluation in their home community as CBRs. These included April Maloney (Indian Brook NS), Shannon Anderson (Naotgamegwanning ON), Cheryl Edwards (Lake Manitoba MB), Charmaine Larson (Sucker Creek AB), and Karen Tom (Tlaz'ten Nations BC). Dominique-Helene Poitras, an Aboriginal Francophone woman based in Ottawa, facilitated focus groups in Quebec.

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We are also grateful to the Chiefs and Health Directors of the participating communities. They provided the way forward for the evaluation to proceed in communities across the country. Recognition is also due to the AFN Chiefs Committee on Health and the Prenatal Health and Nutrition Subcommittee for their commitment to the evaluation and determination to evaluate a federal health program within a First Nations paradigm.

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## SUMMARY

The Canada Prenatal Nutrition Program (CPNP) started in 1994, to assist communities in developing or improving programs for pregnant women. The Program spends some \$20 million each year, much if not most of it to benefit First Nations women. Over the past three years, \$10.7m was allocated each year to First Nations women on-Reserve.

It was not possible to access information on CPNP allocations prior to 1999. Since that time, each Band received a formula-based allocation, precluding comparison of Bands that received CPNP funding (one-third in 1998) with those that did not. The CPNP did not supply information on project locations and the activities supported in each project<sup>1</sup>. The information available to the evaluation team – totals allocated to each Band – effectively restricted this evaluation to the *type* of intervention that CPNP might support, without reference to its stake in each intervention.

It was possible to measure the relevance of some traditional resources, like the advice of Elders, separately and in conjunction with the type of activities CPNP might support. But true evaluation of the CPNP was avoided by inaccessibility of data on the location and activities of the program. Any apparent impact can therefore be claimed as the result of the program, while underachievement of any intervention could conceivably be because CPNP resources were not used for the intervention in question.

Between October 2001 and September 2002 the AFN team asked 2,523 women about their prenatal experiences during 2,819 pregnancies in nearly 100 Bands across the country. The sample was stratified by region and degree of remoteness, with last stage random selection of Bands from the register held by the AFN. An administered questionnaire documented access to

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<sup>1</sup>The CPNP management reports their program is accessed by “over 6000 women each year, in over 400 projects dealing with specific mixes of prenatal nutrition interventions”, Ms Lori Doran, 6 July 2003 <<Check date>>.

prenatal service and the impact of these services on behaviour during pregnancy and the health of babies at birth. CBRs took results of the questionnaires back to communities, to discuss them with mothers in focus groups. Health service providers, Elders, traditional healers and midwives also completed interviews in each Band. First Nations students in grades 7 to 9 also completed a self-administered questionnaire about their views of prenatal care.

### 1. Coverage and targeting of the CPNP

Based on a review of facilities available in each sentinel community, 90% of First Nations' women on-Reserve had *theoretical* access to prenatal care. Only one half of them, however, actually accessed *any* prenatal service. This low coverage would be of less concern if services targeted the most vulnerable. But prenatal class attendance was significantly *more likely* among women who lived in non remote communities; women whose main language was not an Aboriginal one; women who had graduated from high school; women who felt cared for during pregnancy; women whose partners were supportive during their pregnancies and those who had access to child care. These are neither the most vulnerable, nor those most in need of care. Only one in five of the most vulnerable First Nations women actually received prenatal care classes or nutrition counselling. The same pattern was evident in relation to food coupons, community kitchens and cooking classes.

The implication is that there is no (or ineffective) targeting of the CPNP activities on-Reserve. Some 30% of respondents did not *know* about the prenatal services in their community. Knowledge of entitlements would help to increase coverage. The program would also benefit from an evidence-based approach to targeting. This implies an ongoing monitoring role, documenting those who access the program and reaching out deliberately to those who do not access it.

## 2. The impact of the CPNP-supported activities

Several interventions that might be supported by the CPNP had a measurable positive impact. Prenatal classes had a protective effect against **use of street drugs** during pregnancy. Nutrition counselling had a demonstrable effect on **improvement of diet** during pregnancy and on **taking it easy** during pregnancy. Prenatal classes and the receipt of food coupons had independent promotive effects on **initiation of breastfeeding**. None of these associations could be explained by chance, or by over 70 covariants taken into account in this evaluation.

Several other CPNP supported activities – prenatal classes, nutrition counselling, cooking classes, community kitchens – had no demonstrable effect on *any* health outcomes. And no activities supported by CPNP affected duration of breastfeeding, smoking reduction, alcohol use during pregnancy, knowledge of the importance of binge drinking for foetal alcohol syndrome, or on inappropriate beliefs regarding alcohol, smoking or street drugs. There was also no demonstrable link with low birth weight, high birth weight or premature birth.

Because of the relative sparseness of data on low birth weight (n125), high birth weight (n188), and premature delivery (n273), the inability to demonstrate an impact is not proof of “no impact”.

## 3. The cost and cost effectiveness of the CPNP

In 1998, the CPNP management provided projections on *allocations* to some 200 Bands. After 1999, however, this was extended to all Bands, on a *per capita* basis, with an allocation of \$10.7m. According to the scheduled allocations from Health Canada, First Nations Bands should receive in the region of \$4,000 per pregnant woman (the allocation is actually worked out on the basis of number of women of

childbearing age, not by number of pregnancies) with special allowance for remoteness.

The amounts CPNP reported allocating to each community coincided well with amounts reported by each community. This is compatible with financial probity of the program.

The cost effectiveness of the investment is another matter. It was possible to develop a working estimate of the cost effectiveness of the type of activities supported by the CPNP. The *gain per 1000 women* (akin to population attributable risk percent) was calculated for each of the activities that might be supported by the CPNP, and this was applied to the estimated number of pregnant First Nations women each year. Dividing the total expenditure by these gains provides a first very crude estimate of the cost per “provable case saved” (reduction in use of street drugs, initiation of breastfeeding, taking it easy during pregnancy and improved diet). Even recognising the heroic assumptions forced on the crude estimates by lack of exposure (program investment) data, this suggests some space to improve program performance.

#### **4. Community-led solutions**

In the First Nations context, more consultation and engagement with communities might result in better targeting of services and, possibly, measurable impact where no impact is now evident. Focus groups discussed possible solutions to the issue of low uptake of services by First Nations’ women. Based on the evidence presented to them, they recommended three changes to increase uptake of nutrition counselling: make mothers more aware of the benefits, provide incentives and support (like coupons and child care) and make the service more interesting. They also recommended health workers develop better attitudes, that they should respect client confidentiality and that they should be “less judgmental”. Focus groups discussing what it would take to improve the level of trust in health workers suggested “training in Aboriginal ways” for health workers.

A special type community-led solution can be seen in the role of Elders. Although underutilised, Elders have a measurable impact in their own right and are acceptable prenatal support to most First Nations women. Elders made women feel more cared for, which itself was associated with several positive health choices. They increased attendance of and satisfaction with prenatal classes. They increased use of iron and vitamin supplements in several subgroups. Among unemployed women, perhaps those at increased risk, Elders reduced smoking in pregnancy. They also reduced alcohol consumption and, unlike any of the CPNP-supported interventions, **Elders reduced measurably the risk of premature birth**. This impact was independent of effects on premature birth of poverty, diabetes, hypertension and physical effects of abuse during pregnancy.

A positive finding of this evaluation was that some prenatal programs do invite Elders into their nutrition education services. This demonstrates the feasibility of more systematic incorporation of Elders in prenatal care. Given the relatively low cost-effectiveness of activities currently financed by CPNP, serious investment in development of Elders as a program resource could be a much needed and cost-effective reform.

## **5. Building capacities for scientific evaluation**

Three of the original sample communities declined to participate at all. Each community received and approved the design and instruments. Only one community requested that certain questions not be asked. In each participating community, a separate data sharing agreement was negotiated and signed. In the context of the frequent complaint of being “researched to death”, this represents important buy-in by First Nations communities, offering a standard approach for future evaluations.

A total of 135 community-based researchers (CBRs) were

selected for training by their communities. Sometimes one-on-one and sometimes in small groups, these emerging researchers received training in administration of the instruments approved by their communities. Some CBRs showed particular promise in the administration of questionnaires to mothers and youth. These were recruited to join the evaluation team for the design and implementation of the focus groups.

A First Nations intern joined the evaluation team in October 2001, tasked with establishing and keeping contact with the sample communities. She was trained in aspects of the logistics of the fieldwork and, to a limited extent, in data management.

## **6. Promote the voice of First Nations communities**

The very fact that this evaluation was done by the AFN promotes the voice of First Nations' communities. It is the first of its kind and, hopefully, opens the way for others. The active players included the community, traditional care givers and leaders. The evaluation asked Elders and traditional healers what they thought about the program. It included women who were supposed to benefit from the program, women who did not benefit, and young people who might benefit in the future. Participants did not receive any financial incentive, and their motivation is testimony to the way this evaluation allowed their voice to be heard.

The voice of young First Nations women currently in grades seven, eight and nine will help to anticipate what they need of prenatal nutrition services, including those supported by the CPNP. Focus groups of women, who stand to benefit from the program, discussed the results to produce led solutions. Taken seriously by the CPNP, these can improve the coverage and impact of the program among First Nations women.

The AFN shared these results with all First Nations, in the form of six prenatal health bulletins, sent to all Bands (Annex 11).



## Limitations

The essence of evaluation is accountability. Despite a score of formal communications on the matter, the CPNP program management consistently denied access to the key data that would permit evaluation of their program. While this might seem to have some short term advantages, it keeps alive the fundamental issue that led to the evaluation: federally funded initiatives run for First Nations really should be accountable to First Nations.

The change in investment strategy (a formula-based allocation to *every* community) and the several shifts in program objectives (dropping measurable health outputs) outdated the agreed evaluation framework and its objectives. Inability to access the basic data on program investment further limited the scope.

As it stands, this evaluation is not without merit. But it still cannot answer the main question it set out to answer: how well does the CPNP work. This can be answered only with information on where the CPNP investments were placed, and for what activities.

## **INTRODUCTION**

### **The Canada Prenatal Nutrition Program**

In 1994 the federal government announced the Canada Prenatal Nutrition Program (CPNP) to help improve birth outcomes, through nutrition support to high risk prenatal women. According to its website, the CPNP funds communities to develop or enhance programs for vulnerable pregnant women. The CPNP aims to reduce the incidence of unhealthy birth weights, improve the health of both infants and mothers and encourage breastfeeding<sup>2</sup>.

The components of the Canada Prenatal Nutrition Program are delivered through parallel structures within Health Canada. The First Nations and Inuit Component (FNIC) targets prenatal women residing in First Nations and Inuit communities served by First Nations and Inuit Health Branch (FNIHB), or indirectly through the governments of the Northern Territories. The Population and Public Health Branch (PPHB) program serves other women, including First Nations women living off-reserve, Metis and some Inuit.

Funding was initiated in July 1994, with \$5.1 million allocated to FNIHB regions. In 1997, the Federal Government allocated an additional \$2 million for a three year development period. Two-thirds was to be used at the regional level to enhance program coordination and development and one third allocated to community-based projects. In 1999, the total funding available for the First Nations and Inuit Component of CPNP expended to \$14.12M annually. Of this, \$10.7M was to go directly to communities for programs and services. The allocation formula (not available to this evaluation) considers the number of women of childbearing age in each community and their degree of isolation.

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<sup>2</sup> This section is drawn largely from [http://www.hc-sc.gc.ca/dca-dea/programs-mes/cpnp\\_main\\_e.html](http://www.hc-sc.gc.ca/dca-dea/programs-mes/cpnp_main_e.html), accessed in February and March 2003. An updated official position of the CPNP was provided by Ms Lori Doran on 7<sup>th</sup> April 2003.

## **Rapidly evolving objectives of the CPNP**

In the course of this evaluation, the declared objectives of the CPNP have evolved considerably. When the terms of the evaluation were agreed, the objectives were specific and target oriented, fitting with similar programs internationally:

1. reduce the incidence of low birth weight
2. reduce the incidence of premature births
3. reduce the incidence of high birth weight
4. reduce the incidence of infant death and promote the birth of healthy babies
5. improve the health status of native women
6. promote breastfeeding
7. increase the accessibility of services for
  - less adequately served high density urban and isolated rural or northern areas
  - culturally or linguistically hard-to-reach at-risk mothers
8. increase partnerships, linkages and collaboration in the community in order to increase the recognition and support for the needs of at-risk mothers and infants and to increase the number of effective community resources and programs for them.

Within a year of starting the evaluation, most of the references to health outcomes were removed from the objectives (reduce incidence of low birth weight, reduce incidence of high birth weight, reduce incidence of premature births, reduce incidence of infant death, promote the birth of healthy babies, and improve the health status of native women). By July 2003, the evaluation was read in the context of another set of objectives.

“ The overall goal of the expansion of the CPNP-FNIC is to improve maternal and infant nutritional health by providing a greater depth of service to women earlier in their pregnancy and for a longer duration postpartum with a particular focus on those at high risk”.

In order to achieve this goal, program managers specified the following objectives:

1. Improve the adequacy of the diet of prenatal and breast feeding First Nations and Inuit women.

2. Increase access to nutrition information, services, and resources to eligible First Nations and Inuit women, particularly those at high risk.
3. Increase breastfeeding support, initiation and duration.
4. Increase knowledge and skill building opportunities for those involved in this program.
5. Increase the number of infants fed age-appropriate foods in the first twelve months.

Although successive versions of the objectives left behind the more challenging aspects of prenatal nutrition, in principle CPNP continues its concern with women most likely to have unhealthy babies due to poor health and nutrition.

### **CPNP successes**

The CPNP claims to enhance access to services and to strengthen inter-sectoral collaboration to support the needs of pregnant women facing conditions of risk. Although the program management is unable to provide details about where these projects were located, the official website claims that “96% of projects provide food supplements; 91% offer breastfeeding support; 86% offer one-to-one nutrition counselling, and 80% offer vitamin supplements and dietary assessment. Other services include education and counselling on lifestyle issues, food preparation training, transportation, childcare and referral to other services. In 2000/01, over 40,000 referrals were made to other services by CPNP projects.” The website reports there are “over 550 CPNP projects funded by the First Nations and Inuit Health Branch (FNIHB) in Inuit and on-reserve First Nations communities.”

Although the CPNP has never been subjected to community-based evaluation – evaluation of the off-reserve investment is based on service workers and some beneficiaries filling in questionnaire – the managers claim the CPNP reaches “those pregnant women most at risk for poor birth outcome and least likely to participate in traditional prenatal programming”. Yet

#### **Service based evaluation**

Evaluation data provided by the CPNP do not specify what proportion of teenagers *benefit* from the CPNP, or how many of those with low education, single /divorced, or low income benefit.

If, for example, only 30% of the rest of the population smoked during pregnancy, would this be evidence that the CPNP *promotes* smoking, or that it is correctly targeted to smokers.

data collected between 1996 and early 2002<sup>3</sup> revealed that only 22% of off-reserve respondents were Aboriginal. Of those who responded to the questionnaire:

- 34% of women served were teenagers, including 8% who are 16 years old or younger
- 79% had less than 12 years of education; 21% had not completed grade 10, two-thirds of whom were 18 years or older
- 46% were single, divorced, separated or widowed
- 56% lived on household income of less than \$1,000 per month
- 43% smoked during their pregnancy
- 14% reported abuse during the current pregnancy

The program claims that “Positive impact results include a breastfeeding initiation rate of 79%.” Noting that this is not directly comparable, the program claims that this is above the breastfeeding initiation rates reported for similar at-risk groups in the NPHS<sup>4</sup> (18-19 years old 66%; high school 60%; single 74%; low income 75%; Aboriginal 61%)<sup>5</sup>.

In Manitoba, an analysis of regional CPNP participants found that 100% of Manitoba mothers who had previously delivered a low birth weight baby were breastfeeding their babies to some extent upon hospital discharge, compared with 86.5% of other women.

Yet the CPNP off-reserve evaluation has no mechanism for detecting whether the breastfeeding rates are a *result* of their program, or if more health conscious mothers are more likely to attend their program. Or worse, that more health conscious mothers within their program fill in the questionnaire.

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<sup>3</sup> All data from 2000/01 IPQ Report and Participant Summary Report, 1996-2002. From the actual 1996-1999 data set provided to the evaluation team, less than 200 off-reserve First Nations women had been reported on in the four years.

<sup>4</sup> Federal, Provincial and Territorial Advisory Committee on Population Health. Statistical Report on the Health of Canadians. Prepared for the Meeting of Ministers of Health, Charlottetown: PEI; 1999.

<sup>5</sup> Health and Welfare Canada, 1990

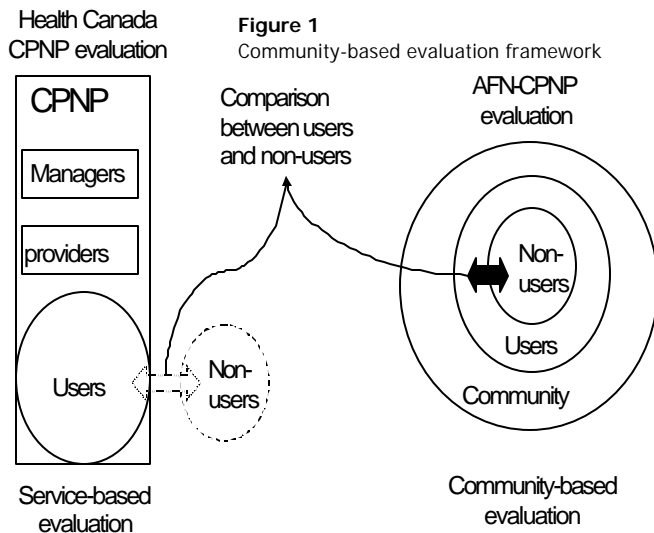


Figure 1  
Community-based evaluation framework

The Health Canada evaluation focuses on program beneficiaries, the AFN-CPNP evaluation focuses on First Nations communities, including women who *should* benefit but who do not, and future beneficiaries.

## Framework for a community-based evaluation

Service-based evaluations look at how well services work from the point of view of those who use the services. This type of evaluation focuses on the list of known beneficiaries. Evaluation of program impact depends on ‘before-after’ comparisons or it may involve a separate ‘control’ group to compare those who got the service with those who did not.

In a community-based evaluation, the whole community can be involved in identifying and solving problems. The health program is then seen as one of many influences that affect the well-being of mothers. Other things, like the

culture and community life, are also part of the picture. All First Nations women are intended beneficiaries of the CPNP. The AFN evaluation includes views of women who do not use the program, and looks at their reasons for not doing so (Figure 1).

A community-based strategy is more able to separate the impact of the CPNP from other influences, for example, traditional pregnancy support. A substantial advantage is that this approach more readily leads to community-led solutions.

*Where:* The ideal evaluation would contact every First Nations mother to hear about her views and experience. Lack of resources obliged us to take a *sample*. One hundred randomly selected Bands represented on-reserve First Nations communities South of Latitude 60, including the Yukon and all of First Nations in the Northwest Territories. In each sample Band, evaluators contacted all women who delivered a child in the last three years.

### Four directions in prenatal nutrition

NORTH represents spiritual preparation and the future; it is the gift from the creator. It is time when the mother begins the spiritual preparation to accept the gift of the baby from the Creator.

EAST represents strength: exercise, rest, eating good foods are needed for a strong baby. We assess what information we have and what we are receiving about this problem, embracing the problem and the solutions to come.

SOUTH is associated with direction and discipline. A mother can use the teachings to help with self-discipline as she sets new guidelines and goals; based on the information she is part of what works.

WEST is associated with the family and community giving support. This is important in the pregnancy and delivery, but also after the birth, for the healthy development of the child.

**Objectives of the AFN CPNP evaluation:**

- provide evidence on CPNP coverage in First Nations communities characterising vulnerable groups excluded from coverage and mechanisms for their inclusion;
- provide evidence on the impact of the CPNP taking into account the values, needs and traditional ways of these communities;
- provide evidence on the cost of the CPNP in these communities;
- identify *community-led solutions* to prevent high-risk pregnancy, emphasising traditional knowledge and ways endogenous to First Nations cultures;
- empower First Nations peoples by *building capacities for scientific evaluation* based on First Nations knowledge and values; and
- promote the voice of First Nations communities in health services planning.

*Focus on the positive:* All too often, studies of First Nations focus on special risks of First Nations and ‘what we do wrong’: smoking, drug addiction, sexual abuse and other negative aspects. Yet it is possible that traditional coping and support mechanisms may help to protect women in pregnancy. For example, First Nations’ infants are at lower risk of low birth weight. It could be that First Nations women are doing something better than others to have, on average, higher birth weight babies. It makes sense to focus on why this is so, despite often disadvantageous social conditions. A First Nations’ approach builds on positive attributes of the First Nations ways of life, their traditional knowledge, resilience and endogenous or “homegrown” coping mechanisms to deal with prenatal nutrition. To avoid reductions about causality, the AFN-CPNP requires a higher level of analysis than is typical in program evaluation.

*Getting behind the indicators:* To clarify the impact of the CPNP, given the wide range First Nations local support and resilience mechanisms, collecting numbers without looking at the reasons behind them would be insufficient for program evaluation. When funding data become available, the AFN-CPNP evaluation will document the effect of the program on its own and in combination with other interventions. But this rigorous and exhaustive epidemiological analysis is just the starting point for the evaluation.

*Communities interpret the evidence:* The AFN-CPNP evaluation separates analysis, the mechanical processing of the data using computers, from interpretation - First Nations own interpretation. After preliminary analysis, we return the evidence to the communities for discussion and to enrich the preliminary findings from the community perspective and to generate community-led solutions based on evidence. This extra layer gets incorporated into the final results as qualitative evidence, complementing and completing the findings with other layers of evidence.

## Rationale for the AFN evaluation of CPNP

There is good reason to expect some benefit from a prenatal nutrition program. A literature review by Choquette and Julien stressed the importance of dietary assessment and nutrition counselling as the basis for program delivery<sup>6</sup>. A national program evaluation, prior to this evaluation, was underway dealing with the program impact among First Nations women<sup>7</sup>. However, there are cogent arguments for a First Nations component receiving special attention. Aboriginal women is a target group of the CPNP, so the Assembly of First Nations is concerned to ensure that their constituency is receiving a program that ‘works’.

*1. Ownership:* Well-being and self-confidence are the cornerstones for good governance in First Nations communities, and good governance is a central concern for First Nations. The tools for dealing with these issues – the tools for generating well informed community-led solutions – are relevant to many other health issues. First Nations taking full control of their part of the CPNP evaluation was a necessary part of the self-determination process, consistent with the First Nations’ principles of ownership, control, access and possession (OCAP). This initiative was also compatible with the Government of Canada's commitment towards strengthening First Nations communities by enabling them to govern themselves. In this context, the AFN’s starting point for evaluation of the CPNP included three principles:

- full First Nations’ ownership of data and research process;
- it should build upon existing research capacity; and
- First Nations communities, people and organisations must be actively involved in the process.

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<sup>6</sup> Choquette, JD, Julien M. Prenatal Nutrition Programs Parts I Review of the International Literature. Part II Review of Key Canadian programs. Part III - Suggested indicators for the CPNP. June 1995.

<sup>7</sup> Barrington Research Group, Inc. *Canada Prenatal Nutrition Program. IPQ (1996-97) Summary Report.* January 1998.



2. *A First Nations' approach to pregnancy:* An AFN Special Chiefs Assembly on Health on maternal and reproductive health called for reaffirmation of traditional values and beliefs to deal with the 'reproductive and infant health challenges in a manner that is at once effective and culturally appropriate'.<sup>8</sup> Emphasis on traditional ways was also emphasised by the First Nations and Inuit Regional Health Surveys. Traditional approaches to nutrition and teachings by Elders are often a positive source for mothers during pregnancy.

3. *A First Nations approach to program evaluation:* Classic program evaluation and the Health Canada CPNP evaluation considered the CPNP itself as the centrepiece. The AFN-CPNP considered First Nations communities to be the central concern of the evaluation. This reflects who needs the results of the evaluation. It affects the sample, the questions and concerns addressed, and the interaction with the women who are beneficiaries of the program. It also affects the solutions and it affects the way decisions are taken about solutions.

- *Who needs the data:* Traditional program evaluation considers program managers and funders as the prime end-users of the data. In addition to these users, the AFN-CPNP was also concerned that First Nations households, communities and Bands should have the evidence they need, and the skills to use this evidence. In the case of the CPNP evaluation, evidence is needed on pregnancy.

- *Sample:* The sample of a program evaluation is typically drawn from program beneficiaries. The AFN-CPNP approach to sampling placed all First Nations' women, in interaction with their families and communities, as the centrepiece. *One* of the influences on their lives might be the CPNP program but, to understand that in a First Nations' context, evaluation of this program must be community-based, looking outward at the service provision (see below). The AFN-CPNP evaluation

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<sup>8</sup> Dion Stout, Madeline, Kipling, Gregory D. Assembly of First Nations Special Chiefs Assembly on Health. Sessions on Maternal and Reproductive Health. Proceedings. January 30, 1999. Ottawa, Ontario.

thus made First Nations Bands the sampling unit, in which both beneficiaries and non-beneficiaries were contacted.

- *Questions and concerns:* Some major concerns are shared by First Nations and non-First Nations women. These include inadequate diets, teenage pregnancy, foetal alcohol syndrome and low or high birth weight babies. Some of these risks may affect First Nations disproportionately, for example, high birth weight, whereby birth injuries and developmental problems are more common in high birth weight infants<sup>9</sup>. The rate of foetal alcohol syndrome may be more common in some First Nations communities. For example, in a Manitoba case study, the rate was 28-72 per 1000 live births compared with the worldwide figure of 1.9 per 1000 live births<sup>10</sup>. In addition to these shared concerns, some issues are of specific concern for First Nations. For example, one would be concerned with traditional foods and nutritional support practices that are not relevant for non-First Nations women.

- *Risk and resilience:* Too often, programs available to First Nations have been evaluated with a focus on special risks of First Nations and ‘what they do wrong’: smoking, drug addiction, sexual abuse and other negative aspects. Yet there is some indication that traditional coping and support mechanisms may offer resilience or protective factors for women in pregnancy. For example, First Nations’ infants do not seem to be at risk of low birth weight: this could mean that, despite sometimes physical impoverishment, First Nations women are doing something right to have, on average, higher birth weight babies. It makes good sense to focus on how they manage to do this despite, in many cases, disadvantageous social conditions. A First Nations’ analytical approach builds on positive attributes of the First Nations ways of life, their traditional knowledge, resilience and endogenous coping

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<sup>9</sup> First Nations and Inuit Regional Health Survey National Steering Committee. *First Nations and Inuit Regional Health Survey. National Report*, 1999.

<sup>10</sup> Organizational Development Services. *First Nation Children, Our Future. A comprehensive review on the cultural conflicts contributing to First Nation child poverty*. March 1998

mechanisms to deal with prenatal nutrition. In order to avoid simple reductions about causality, the AFN-CPNP requires a higher level of analysis than is typical in program evaluation.

- *Potential solutions:* First Nations also have access to potential solutions that may not be accessible to non-First Nations women. For example, peer counselling and information sharing might use traditional talking circles; ‘circle teachings’ might be used to learn prenatal care from First Nations Elders<sup>11</sup>; or a community health program might be specifically attuned to a First Nations paradigm<sup>12</sup>. Within First Nations, there may also be a need for culturally specific interventions in different Bands, to fit with their specific cultural heritage. Communication strategies also need retuning for First Nations, emphasised by an evaluation of sudden infant death syndrome (SIDS) which revealed that the image of happy healthy baby did not work for First Nations women; they wanted images to be more powerful and culturally appropriate<sup>13</sup>.

#### Tracking the databases

- How do they collect information on maternal and infant care?
- How is it recorded?
- Is there a First Nations identifier?
- Does it collect any intervention data such as services the mother have had exposure to?
- Is exposure to CPNP included in the database as a variable?
- Have they had previous interaction with the CPNP evaluation process?
- Is the data base accessible for analysis?
- Where and who should the AFN write to for access to the database?
- Does the data base link to other data bases in the province or nationally?
- What forms are used to collect this information? And is it possible to get a copy of the forms?
- Are there other useful sources of data in their provinces?

#### Review of existing data sources

The review of existing data was informed by the overall objective of building on existing info-structure. Consequently, the AFN-CPNP evaluation began by identifying and documenting existing databases across the country related to maternal and infant care. The purpose was to learn from existing databases and to explore further the First Nations dimensions and concerns that might be in the data set, but not yet drawn out.

Specifically, documentation and re-analysis of the existing data would be conducted with a view to:

- a) understand the performance of the various instruments in a

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<sup>11</sup> These suggestions come from the Aboriginal Nurses Association of Canada. *Healthy Children-Healthy Nations*. March 1996

<sup>12</sup> There is a community healing program in Ktunaxa/Kinbasket territory in south east British Columbia.

<sup>13</sup> Poirier Communications Ltd. *Dialogue Circles: Sudden Infant Death Syndrome (SIDS)*. Health Canada: Ottawa, 1999.

First Nations context;

- b) explore the First Nations dimensions and concerns that might be in the data set, but not yet drawn out; and
- c) examine comparability and overlap with the Reproductive Care Program (RCP), the FN-HIS and other databases.

The documentation of existing databases started with calls to the provincial departments of health, reproductive care programs, or provincial epidemiology department and enquiring what provincial data bases do they have on maternal and infant care.

There is a wealth of information and a wealth of individuals committed to having quality data that is useful (Annex 1). At the same time, the databases containing this information across the country are severely limited. The conclusions were:

- Many databases are held by a third party (neither caregiver nor First Nations communities). There are no data sharing agreements in place for First Nations to access these data. This is of concern as issues of validity, quality and missing data become more prevalent.
- In most cases, the records are based on service provider observations. There is rarely direct questioning. Apart from reflecting a single view, this leaves room for discretion on part of the service provider who might not want this information in a data base.
- None of the databases reviewed collects information on exposure to the CPNP or other prenatal programs. Some do ask whether the mother attended prenatal classes or visited a doctor. Those who held each database showed interest in exposure to interventions, as they saw that it could help for planning.
- Most databases have no First Nations identifier, making it difficult to assess how First Nations babies and mothers fare in the system, compared with other babies and mothers.

- There is no free access to these databases, even for organisations like the AFN. In most cases, the exorbitant cost of access precludes use for evaluation purposes. An exception to this was the Barrington Research Group who made their data available to the team. It dealt with the off-reserve component of the CPNP.

*Barrington Research Group data 1996-1999*

The Barrington's Research Group kindly provided their individual client questionnaire (ICQ) records for secondary analysis. The ICQ data set offered two fields through which information on First Nation mothers and infants could be selected: Aboriginal status and postal code. Clients in the data set were entered between 1996-1999. Specific details concerning accessibility, ownership, collection, entry, quality control and content are described in Annex 1, along with basic frequencies generated from the data set.

The original intention of this exercise was to create maps of existing data. However, the limited number of records (n159) and the extreme biases in their selection rendered this meaningless. The records provided represent a non-random sample of approximately one thousand First Nations women who accessed the program over the period. These selected women were asked questions by service providers, who then filled in a questionnaire. Three of these were in Yukon Territory, 18 in Northwest Territories, 28 in British Columbia, 21 in Alberta, and 87 in Ontario (Annex 1). Two additional records were represented by invalid postal codes (likely the result of keystroke errors during data entry).

The number of respondents at each location varied and in a way that does not reflect the actual First Nation communities. There were no records from other provinces.

More detailed risk analysis was not undertaken due to the limited number of individual records. Considering that there were some 10,000 First Nations deliveries in the period 1996-

1999, and up to one third of these was supposed to access the the CPNP, the “sample” of 159 First Nations women reveals little about their condition.

**Table 1**  
Design of the on-reserve study population

REGION	Total population	female population aged 14-45y**	number women pregnant each year	number women pregnant in last 3 yrs	number of women aged 15-19 years	SAMPLE OF CPNP BENFICIA-RIES	SAMPLE OF GRADE 7, 8 and 9s
ALBERTA	50818	13223	354	1063	2338	171	377
ATLANTIC <sup>~</sup>	15732	4093	110	329	724	53	117 $\bar{A}$
BC	52046	13542	363	1089	2394	176	386
MANITOBA	60694	15792	423	1270	2792	205	450
ONTARIO	70434	18327	491	1473	3240	238	523
QUEBEC	41487	10795	289	868	1908	140	308
Saskatchewan	49176	12795	343	1029	2262	166	365
NWT <sup>h†</sup>	13998	3642	98	293	644	47 $\bar{A}$	104 $\bar{A}$
YUKON	3742	974	26	78	172	13 $\bar{A}$	28 $\bar{A}$
TOTAL	358127	93183***	2497	7492	16474	1209	2658

Source: 1999, Indian Register, DIAND

<sup>~</sup> The Atlantic provinces have been combined.

<sup>h†</sup> This combines both reserve and off-reserve population, since there are few reserves in NWT.

\*\* based on the proportion of the population of that region multiplied by the total number of on-reserve females

\*\*\* based on total population of women in this age group 157,937 and calculating 59% being on-reserve and 41% off-reserve.

$\bar{A}$  Over-sampling was necessary to provide an adequate population size in the Atlantic and NWT.

## METHODS OF THE AFN-CPNP EVALUATION

### The sample

One hundred Bands were selected for the CPNP evaluation, representing on-reserve First Nations communities including sites in the Yukon and the Northwest Territories (Figure 2). A list of alternates was also drawn up should any of the selected communities decline to participate in the research process.

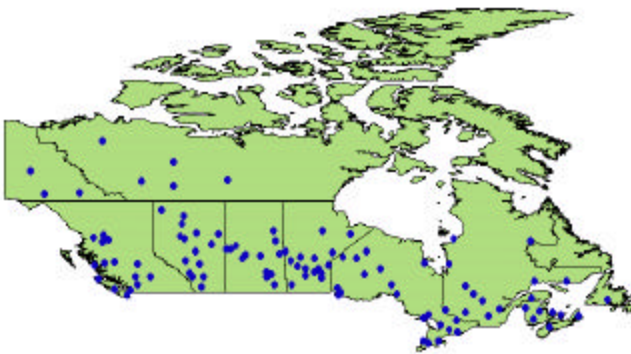
Table 1 shows characteristics of the on-reserve study population.

The sample was stratified or balanced by:

- proportion of in each region (Atlantic, BC);
- community size (very small 0-225 people, small 226-700 people, medium 701-1200 people, large >1201 people); and
- remoteness (very isolated, isolated, semi-isolated, non-isolated).

Population counts were updated using Department of Indian

**Figure 2**  
Sample sites for the AFN-CPNP evaluation



Affairs and Northern Development (DIAND) 1999 population figures<sup>14</sup>. Tables were created showing the total population of each site living on reserve, the male population, the female population, and a breakdown of the female population by age groups in order to estimate the number of mothers that could be involved in the evaluation.

Additional sites were added from the original list in the Atlantic, Yukon, Northwest Territories and Ontario to allow for improved quality of regional analysis.

### **Ethical review and informed consent**

'It is acknowledged and respected that the right of self determination of the First Nation and Inuit peoples includes the jurisdiction to make decisions about research in their communities. The benefits to the communities, to each region and to the national effort should be strengthened by the research. Research should facilitate the First Nation and Inuit communities in learning more about the health and well being of their peoples, taking control and management of their health information and to assist in the promotion of healthy lifestyles, practices and effective program planning'.

- First Nation/Inuit Research  
Policy Statement

The AFN promotes evidence-based decision taking in health services. This evaluation developed in this broader context of building evidence-based planning in First Nations communities.

Several ethical issues are relevant to this, including:

- continued use of resources without audit or review of effectiveness or cultural appropriateness;
- use of confidential information derived from consenting individuals; and
- obtaining information from individuals who do not benefit from a given service.

Despite a strong tradition of ethical review in clinical epidemiology, there is little international experience of the ethical implications of using epidemiology in planning. It is not difficult to argue that planning *not* based on evidence is probably unethical. Yet part of the mood towards transparency in planning is that the very basis of the evidence, the research methods used, should come under professional scrutiny.

Service-based evaluations may be unethical in enquiring about determinants of health among those who do not benefit directly from services. From the community perspective, concerned about women who benefit and women who do not

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<sup>14</sup>Information Management Branch, Department of Indian Affairs and Northern Development. *Registered Indian Population by Sex and Residence 1999*. Ottawa, Canada: Government of Canada, 2000.



benefit from a specific intervention but who have access to a series of other interventions (formal and informal), it is unethical to continue to ignore those who are left out by the services. The evaluation must try to include their interests and work out how best these might be served, with or without the program in question.

As with all research projects with AFN supports, this evaluation went through an ethical review process. The AFN-CPNP evaluation recognises the First Nations and Inuit Regional Health Survey Code of Research Ethics and the Tri-Council Policy Statement on research involving Aboriginal Peoples<sup>15</sup>. This document identified certain best practices:

- Respect Aboriginal culture, traditions and knowledge;
- Conceptualize and conduct research in partnership with Aboriginal groups.

The AFN requires evaluations and research it supports to go through an independent ethical review. In addition, informed consent is required from all participants, who must receive information about the purpose of the study; what will happen to the information they provide; their right to refuse to participate or not answer any questions; their right to terminate participation at any time; and the confidential and anonymous nature of their replies.

The identity of individuals from whom information was obtained during the evaluation will be managed in a way that guarantees confidentiality. No information revealing the identity of any individual will be included in any report or communication prepared in carrying out this project, unless the individual concerned has consented in writing to this inclusion beforehand.

The approaches used in this evaluation followed accepted

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<sup>15</sup> Medical Research Council of Canada, Natural Sciences and Engineering Research Council of Canada, Social Sciences and Humanities Research Council of Canada. Tri-Council Policy Statement. Ethical Conduct for Research Involving Humans. Ottawa: Public Works and Government Services Canada; August 1998.

Implementation steps	
<b>Phase I</b>	Recruiting communities Selecting CBRs Training CBRs Data collection and quality assurance Data entry Preliminary analysis
<b>Phase II</b>	Selecting focus group facilitators Training focus group facilitators Focus group data collection Double data entry and validation Analysis and mapping

ethical standards<sup>16</sup>:

1. Confidentiality: all personal information was anonymous and will remain confidential.
2. First Nations ownership to the data will be respected. The communities participating were the first to receive results and the first invited to provide input on the results.
3. No prejudice. All communication efforts were calculated to benefit First Nation communities, not to harm them in any way.

### Data collection instruments

The set of data collection instruments includes:

- mother's questionnaire
- youth questionnaire
- key informant questionnaire
- service provider questionnaire
- community profile.

*Mother's questionnaire:* The mother's questionnaire documented women's experience during pregnancy, their use and perceptions of prenatal services, and the health of their children. Women who had children in the three years prior to the evaluation were interviewed and could provide information on more than one pregnancy/child. The questionnaire was a face-to-face interview.

*Youth questionnaire:* The youth survey was an opportunity to hear the opinions of First Nations youth in grades 7 to 9, and to raise their awareness about nutrition in general and about nutrition during pregnancy in particular. Male and female youth filled in scannable questionnaires.

*Key informant questionnaire:* The key informant questionnaire collected background service information on the whole community. For example, there is little point in asking every

<sup>16</sup> First Nations and Inuit Regional Health Survey National Steering Committee. *First Nations and Inuit Regional Health Survey. National Report*; 1999.

household if there is a traditional healer in their community, or about traditional practices. Some may have found such questions intrusive or about sacred practices. As Elders and traditional care givers are the guardians of this information, they know what information should be shared and can provide insight on how such traditional practices can enhance or support maternal and infant health. There were four main types of key informants: community leaders, traditional healers, Elders, and traditional midwives.

*Service provider questionnaire:* The service provider questionnaire was used to gather information about services available in the community that support expectant mothers and mothers that are breastfeeding. Staff and directors of health services were interviewed.

*Community profile:* The community profile documented resources available to expectant or breastfeeding mothers. Information collected included: type of service provided, target group, cost to the user if any, size of organisation, and hours of operation.

Design of the data collection instruments for the evaluation relied on a standards-based approach. The initial set of questions came from a series of existing instruments and national and international literature. The evaluation team piloted these questions in a First Nations context, first within the design team, to assess clarity and flow, and to ensure that the results would meet the objectives of the evaluation. After that, AFN staff participated in further “internal” pilots before instruments went to the field for external piloting. In pilot locations, an additional three rounds first tested sections of the instrument, then tested the instrument for flow, and finally each instrument as a whole.

### **Participating communities**

A letter to all Grand Chiefs on 20 April 2001 provided information about the national evaluation and the communities

invited to participate (Annex 2). Once the contracting for the evaluation was settled with Health Canada, a follow-up letter on 22 August 2001 provided an update and informed them that community Chiefs would soon be contacted (Annex 2).

At the request of the Assembly of First Nations Prenatal Health and Nutrition Sub-Committee (26 July 2001), a memo was also sent to the Health Canada CPNP regional leads on 22 August 2001, providing an update on the status of the evaluation (Annex 2). This invited the CPNP leads to provide comments or suggestions on the sample communities.

The evaluation team began contacting the Chiefs of the sample communities during the week of 24 September 2001. Each community received the materials needed to promote informed participation in the evaluation. A letter inviting the community to participate and a Question and Answer fact sheet (Annex 2) provided further information about the evaluation. These were faxed to the Chief and health director of each community. Each fax was followed with a series of telephone calls to establish consent and to establish a contact within the community.

In some communities, agreement to participate came directly from the Chief, who then directed the evaluation team to the health director. In other communities, further information was needed for presentation to the Band Council, who decided on participation.

Each community also received the five survey instruments for review. Although the wording of questions could not be changed (to maintain consistency across the country), questions could be vetoed by each community. One community requested that certain questions not be asked.

Typically, communities needed assurance that the evaluation would not cost the community. Several requested assistance and advice on hiring a community-based researcher (CBR). A CBR from Indian Brook joined the evaluation team to help

contact communities and develop agreements with them to participate in the evaluation. This CBR implemented the evaluation in her own community and was very effective in explaining how the evaluation unfolds from the point of view of a CBR.

### **Community-based researchers**

Each community selected a CBR to implement the evaluation. The number of CBRs selected was dictated by community population or size of the area that needed to be covered. Most communities selected one; 15 communities selected two CBRs, two communities selected three CBRs, two communities selected four CBRs and one selected five CBRs.

Since CBRs would be interviewing mothers, only women were selected. The evaluation team provided a full description of the attributes and the roles and responsibilities of the CBRs (Annex 3). These terms of reference were distributed to communities to aid their selection of CBRs. Communities had different processes for hiring CBRs. In some, the position was advertised and potential candidates were interviewed. In others, the Health Director or Chief suggested someone. Once the evaluation team was notified that a community had selected a CBR, plans were made to organise a training session.

Detailed training materials accompanied each data collection instrument. This manual outlined each question and provided guidelines about ethics, conduct in the communities and the management of potentially sensitive situations. The training manuals helped with training sessions and served as a reference in the field.

In some cases, CBR training was one-on-one. When possible, training sessions addressed groups of CBRs. Group sessions (up to 14 CBRs) allowed CBRs to learn from each other and promoted discussion. The team reviewed each question and highlighted potential mistakes if the questions were not asked

correctly or if the responses were not recorded properly. Training emphasised reading the question exactly as it was written and recording the responses exactly as given. Training included mock interviews between CBRs and the trainers reviewed the results to give guidance on interviewing skills and to make sure that all questions were well understood.

CBRs received the number of the AFN-CPNP 1-800 helpline to call if they needed additional support once in the field. Early fieldwork identified areas of the questionnaire that needed extra attention and these received attention in subsequent training sessions (Annex 4). The training began on 15 October 2001 and ended on 14 June 2002. A total of 135 women from 107 communities received training in 24 workshops across the country (Annex 4).

### **Data collection and quality assurance**

Once trained, CBRs returned to their communities to begin collecting data. They started by collecting information from eight mothers and sent these interviews to the evaluation team for review. Each of the eight questionnaires was checked to make sure it was implemented properly and that the interviewer had recorded the responses properly. The team then contacted the CBR and discussed any errors or provided clarification where necessary. With this feedback, the CBRs continued the fieldwork. Through ongoing contact with the CBRs, the team provided feedback and discussed problems. Each successive set of questionnaires was checked for data quality. CBRs were paid once the questionnaires were received and their quality approved.

As CBRs collected data, they also disseminated a pamphlet outlining the purpose and objectives of the evaluation and provided respondents with information material such as Canada's Food Guides, traditional food wheels and reference manuals for native foods and nutrition.

Data collection began in October 2001, after the first CBR

was trained, and was completed by September 2002. Throughout this data collection period the evaluation team provided support to the CBRs with a toll free technical help line. This valuable tool was used extensively by the CBRs, who called at all times of the day and night with questions or comments.

Data were entered twice and verified using Epi Info 6, a public domain software program<sup>17</sup>. The first data entry cycle for the mothers' questionnaires ended on 30 September 2002. Scanning of the youth questionnaires ended on 7 October 2002. Data entry for the key informant and service provider questionnaires and the community profiles ended in January 2003.

With the first data entry cycle of the mothers' and youth questionnaires, a preliminary analysis identified evidence and associated questions for deeper discussion in the community focus groups. The design team formulated ten questions. These were pretested in focus groups with women at the Institute of Population Health and with two different groups of First Nations women at the AFN. After each design focus group the questions were modified based on the reception and responses from the groups. Annex 5 provides the focus group questions and the form used by the rapporteur to record the discussion.

Double data entry for the mothers' questionnaires took place while focus groups were implemented. The two separate entries were then compared and validated and discordant entries were identified. Using the original interview entries the researchers went through all mismatches and made corrections to produce one clean and accurate data set. Double data entry and validation was completed by the week of February 2003.

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<sup>17</sup>EpiInfo is available for free download at <http://www.cdc.gov>

## Analysis and mapping

Formal epidemiological analysis probed behind the indicators to deepen understanding of vulnerability in relation to exposures, attitudes and practices. We analysed promising associations using standard epidemiological techniques to identify confounding effects of age, sex of respondent, education, residential area and other factors. Risk analysis used the Mantel-Haenszel procedure<sup>18 19</sup>. Contrasts are reported as the odds ratio, and exact confidence intervals (CI) are those of Cornfield. Heterogeneity tests between strata used the Woolff procedure.

Tests of difference between averages (for example, initiating breastfeeding and when breastfeeding advice is received) used standard procedures: where the variances of the two groups were homogenous (95% confidence), the t-test was used. Where the variances were heterogenous, the Kruskal Wallis test for two samples was used. Only those associations significant at the 5% level were reported. Other associations can be assumed to be easily explained by chance alone.

The risk analysis also linked the service provider, community profile and focus group data with the individuals from the same community. This approach (known as *meso-analysis*) allows interpretation of data from the individuals in a local context<sup>20</sup>. Meso-analysis deals with factors operating in the community or institution by linking them to the behaviour and attitudes of the individuals in that community.

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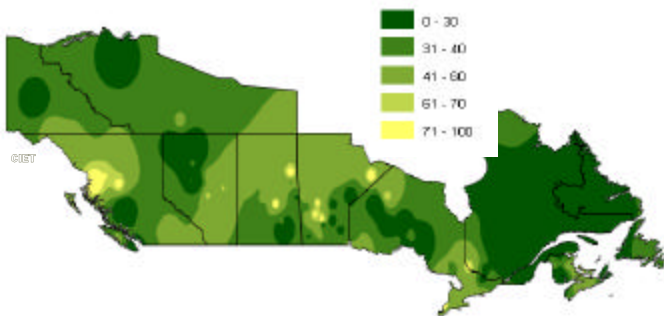
<sup>18</sup> Mantel N., Haenszel W. Statistical aspects of the analysis of data from retrospective studies of disease, *Journal of the National Cancer Institute*; 1959, 222: 719-748.

<sup>19</sup> Mantel, N. Chi-square tests with one degree of freedom: extensions of the Mantel Haenszel procedure, *Journal of American Statistical Association*; 1963, 58: 690-700.

<sup>20</sup> Andersson N. Meso-analysis: Quantifying qualitative data from communities and services in *Evidence based planning: the philosophy and methods of sentinel community surveillance*. Washington: EDI/World Bank.; 1996.



Figure 3. The proportion of First Nations' women who attended prenatal classes



Key community-based results are represented in population weighted raster maps. These were made by draping a surface (raster) – as one might do a tent – over a matrix of ‘tent-poles’ located in each of the sentinel (community) sites. The height of the tent-pole reflects the height of the indicator in question (Figure 3).

As the surface of the tent rises and falls over tent poles of different heights, the colour changes to reflect the different level of the indicator. An important characteristic of the CIETmap geomatics is that it permits weighting of where the colour changes between tent poles of different heights. As the value of each sentinel site is related across to all other sentinel sites through the shared surface, the population each site represents weights the interpolation<sup>21</sup>.

The interpretation of CIETmaps is straightforward, similar in some ways to weather maps. Darker colours on the map represent higher levels of the indicator, as if the population represented by each sentinel site were ‘spread out’ on the geographic surface. Population weighting thus transforms the geographic space into population space. For example, if 30% of the map falls into a given range of the indicator, because of the way the sample was chosen and interpolation weighted by population, 30% of the population of the country falls within that range. Much like a standard weather map, the proportion of the map covered by a particular colour is more interpretable than the exact location of any contour.

Darker areas on the map represent the need for attention or investment. Sufficient class ranges are used to ensure that individual communities are not easily identified. Each colour set represents the different CIET levels of indicators. For example, a green palette represents coverage (such as use of

<sup>21</sup>Andersson N., Mitchell S. CIETmap: free GIS and epidemiology software from the CIET group, helping to build the community voice into planning. World Congress of Epidemiology, Montreal, Canada, 19 August, 2002.

prenatal classes) and a brown palette represents impact (such as initiation of breastfeeding).

### **Returning results to communities for discussion**

The initial plan was to train a CBR from each participating community who would return to her community and facilitate a focus group. To make the most of available resources and to maintain quality control over results, this strategy was revised. A smaller group of the best CBRs were invited to join the evaluation team and facilitate focus groups in the communities. Each of these new team members was trained by the evaluation team and in turn they trained the community CBR to record the proceedings of the focus groups. This strategy was intended to produce a sustainable skill set for the CBRs selected as trainers/facilitators, since each will do a greater number of focus groups than the single one originally planned. They would also benefit by being part of the evaluation team, and by building their competence and confidence in logistics.

CBRs who did outstanding work in the first phase of the evaluation and who demonstrated interest and commitment were invited to join the evaluation team and to receive additional training on focus group methods. Annex 6 provides the terms of reference, roles and expected abilities developed for new evaluation team members. A training session for the new members of the evaluation team.

Training included a context to the focus group through discussions on the objectives of the AFN-CPNP evaluation and the progress of the evaluation to date. Specific focus group training centred on the purpose of focus groups, the role of the facilitator, the role of the monitor, and techniques on how to conduct a focus group and how to train a monitor. A large portion of time was spent holding mock focus groups so each new member could have practice at facilitating and recording a group. An afternoon was dedicated to the logistics of arranging focus groups and travelling to the communities. New members were supplied with lists of community contacts made during the mothers' questionnaires, and they were

briefed on how to get in touch with the contacts based on the team's experience during the initial interviews. With the aid of maps and the Internet, new members located the communities to which they were scheduled to travel and contacted airlines, bus lines, and car rental firms to find the cost, time required and ease or difficulty associated with travel to the communities. New members were also instructed on how to submit receipts for their expenses and to receive payment for their work.

The training emphasised the importance of communicating with the team in Ottawa. Again, the toll-free technical help line proved helpful for new members to get support they needed at any time and wherever they were. Annex 7 provides the agenda for the training session, and a guide for focus group facilitators and monitors. New team members then returned to their region to begin doing focus groups on their own with support from the team members in Ottawa.

Prior to starting the focus groups, the AFN sent a letter to all of the participating communities to provide an update of the progress of the evaluation and to notify the communities that they would soon be contacted to arrange for a focus group (Annex 8). Those communities that were not able to submit data sets for interviews were notified that the evaluation team was going to attempt to visit enough of these missing communities to ensure regional representation and they may be asked to participate in this phase.

Team members in the field began to contact communities upon their return to their regions. Typically, the team member contacted the CBR and with her arranged a date and time for the focus group. The CBR recruited between 6 and 10 women to participate and arranged a venue. With confirmed dates, the CBR contacted the evaluation team in Ottawa and together arranged the needed travel requirements.

The trainer travelled to each community to train the CBR to record the proceedings of the focus group. After the focus

group the team member and the CBR went over the notes taken to ensure they were legible and meaningful. The teams completed the focus groups in January 2003.

### Establishing exposure categories

One challenge in any program evaluation is to establish who is *exposed* to the program and who is not. A first obvious reason for doing this is to work out the *coverage* of the program – what proportion of those who should benefit actually do so. The second reason is to be able to work out, by contrasting those exposed and those unexposed, the program impact.

The evaluation team faced several problems in assessing exposure. The CPNP is only one among several initiatives providing prenatal support for First Nations women on reserve. Communities with nutritionists generally provide counselling, whether this is CPNP supported or not. Cooking classes accessed by pregnant women may be offered through Aboriginal Head Start, prenatal classes by nursing services and, in Quebec, food vouchers may be offered through a provincial program. The concern was therefore twofold: the coverage and impact of *any* prenatal services and, secondly, the *added value* of the CPNP. This meant the evaluation was heavily dependent on the CPNP for exposure data.

**Table 2**  
Official CPNP expenditure in the sample communities

	2001	2002
Bands with data available	79	81
Average \$	\$17,813	\$19,794
Median	\$14,788	\$16,068
25%ile	\$9,106	\$11,039
75%ile	\$21,689	\$24,465
Total disbursed	\$1,407,291	\$1,603,347

### CPNP investment

Each financial year of 2000-1 and 2001-2, Health Canada spent \$10.7 million on-reserve<sup>22</sup>. This represents around one third of the total expenditure for the project nationally. It is disbursed on a per capita basis, which accounts for the 35-fold range between smallest and largest Bands.

The CPNP management provided levels of funding for 79 of the communities in 2001 and for 81 in 2002. The average

<sup>22</sup>Ms Lori Doran, personal communication, 7<sup>th</sup> April 2003.

amount disbursed in 2001 was \$17,813 and in 2002 it was \$19,794. In both years the range was \$4,076-\$146,069 (Table 2). Considering that this sample represents approximately 13% of the First Nations reserves, and slightly more than that in terms of population, this accounts for the \$10.7 million assigned to on-reserve communities.

**Table 3**  
Community-reported CPNP expenditure in the sample communities

	2001	2002
Bands with data available	51	52
Average \$	\$19,183	\$19,663
Median	\$12,926	\$14,520
25%ile	\$7,860	\$8,491
75%ile	\$24,465	\$25,333
Total disbursed	\$978,376	\$1,022,503

In the course of contact with each community, details were sought from the Band about how much had been received from the CPNP. In 2001, 51 communities said they received funds and in 2002, 52 (Table 3). The amounts were broadly compatible with the reported investment by Health Canada, although the range included zero, \$1,000 and \$2,258 – below the minimum reported by Health Canada.

An early conclusion is that the *level* of disbursement reported by Health Canada is compatible with that received by the sample Bands. There are only a few mismatches. In one community, the Band reported receiving no funds whereas the CPNP reported paying that Band \$12,187. In another, the Band reported receiving \$1,000 and they were listed by CPNP as receiving \$7,771. In a third case, the Band reported \$2,258 and the CPNP reported \$4,516. Several other communities said they received the amount stipulated, but only a year or two after reported by the CPNP. For others where the Band reported, discrepancies were tiny.

Using CPNP data or, in a few cases when these were not available, community data, classification of CPNP exposure was possible for 82 of the 85 sample Bands. The CPNP investment approach is on a per capita basis, rather than as a given package of interventions. From evidence of the disbursements, it seems this reached the Band in most if not all cases. Quite how that translated into *care and advice* is another matter.

### *Defining CPNP-funded services*

Since 1999, in principle the CPNP has provided resources to *all* Bands. The Band allocates these resources to a range of activities, almost all of which have other funding. In this sense, the CPNP probably “greases the wheels” of prenatal care, rather than providing basic services that would not be provided without these funds. The focus, therefore, is not on communities with and without services, but between users and non-users *of the sort of services CPNP resources support*.

According to CPNP manager, over 95% of projects target pregnant women living in poverty, teens, or women living in isolation or with poor access to services. Other client groups targeted include women who abuse alcohol or drugs, live with violence, women with gestational diabetes, Aboriginal women, and immigrant and/or refugee women. The program funds more than 400 projects serving the majority of First Nations communities. CPNP managers claim the program is accessed by more than 6,000 women annually (Lori Doran 4<sup>th</sup> July 2003) although no details of activities or targeting strategies could be made available to the evaluation team.

An allocation to each reserve precludes comparison between Bands receiving CPNP funding (one-third in 1998) with those that did not. Without data on project locations and activities, it was also not possible to contrast CPNP funded activities and other prenatal nutrition activities in the same locality. The evaluation was thus limited to the impact of services supported by CPNP, without reference to the stake of CPNP in each intervention.

*Presence of services in the community:* In 71 of the communities, it was possible to document prenatal services. Most other communities were very small and had no services of their own. Table 9 outlines the services available and the proportion of the sample receiving them. With the exception of child care/day care, services were offered without charge.

**Table 4**

Potential exposure to prenatal nutrition services based on institutional reviews in the sample communities

Service	Total woman receiving coverage	Coverage in Non/semi remote communities	Proportion receiving this service in non/semi remote communities	Coverage in Remote Communities	Proportion receiving this service in remote communities
Consultation w/ Elders	83%(2006/2423 )	79%(1452/1835)	91%(1213/1327)	94%(544)	100%(401/401)
Friendship centre	4%(85/2423)	5%(85/1835)	100%(85/85)	0%	0%
Traditional healer	59%(1437/2423)	58%(1072/1835)	92%(818/897)	62%(365)	18%(53/294)
Addiction services.	92%(2235/2423)	90%(1663/1835)	96%(1522/1578)	97%(572)	100%(311/311)
Breast feed. Support	90%(2184/2423)	89%(1630/1835)	96%(1421/1477)	94%(554)	100%(401/401)
Child care /day care	81%(1954/2423)	92%(1682/1835)	37%(505/1352)	46%(272)	28%(47/168)
Comm .kitchens	40%(956/2423)	31%(569/1835)	78%(327/418)	66%(387)	100%(129/129)
Food Bank	32%(780/2423)	34%(628/1835)	91%(527/578)	26%(152)	100%(7/7)
Nutrition programs	93%(2265/2423)	92%(1693/1835)	90%(1416/1582)	97%(572)	100%(397/397)
Prenatal classes	89%(2189/2423)	87%(1593/1835)	96%(1377/1433)	93%(546)	100%(401/401)
Parenting programs	72%(1743/2423)	65%(1198/1835)	100%(1127/1127)	93%(545)	100%(356/356)
Smoking cessation	32%(760/2423)	36%(678/1835)	100%(628/628)	16%(91)	100%(91/91)

**Table 5:**  
Comparison of sample and total on-reserve women (aged 15-44)

Province	Total on-reserve women* (n=87205)	Respondents (n=2474)
British Columbia	15.1% (13208)	6.4% (158)
Alberta	13.7% (11945)	7.3% (181)
Saskatchewan	13.1% (11458)	14.2% (352)
Manitoba	17.5% (15265)	26.4% (654)
Ontario	20.6% (17920)	19.1% (473)
Quebec	11.6% (10137)	14.3% (355)
Atlantic	4.7% (4093)	8.8% (218)
NWT/Yukon	3.6% (3179)	1.5% (83)

\*Source: DIAND 1999

## KEY FINDINGS<sup>23</sup>

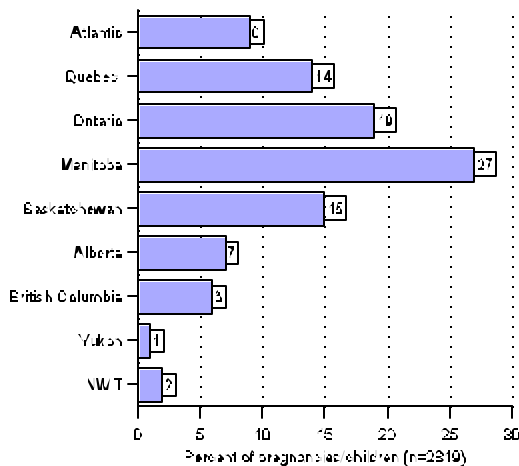
### The evidence base

**Table 6**  
Evidence base of the evaluation

2,523	women interviewed about pregnancies
2,819	
2,499	youth questionnaires
52	focus groups with 277 mothers
226	key informant interviews
117	service provider interviews
71	community profiles

Direct interviews with mothers and the self-administered questionnaires filled in by youth form the quantitative base of the evaluation. Preliminary evidence from the mothers' questionnaires were returned to the communities in 52 focus group discussions. Service providers, Elders and community leaders were also consulted to get their views and document services they provided. Table 6 details the evidential base of the evaluation and Figure 4 illustrates the national distribution of the information gathered. This differs significantly from the official distribution of on-Reserve women (Table 4, previous page) for several reasons. First, the evaluation deliberately oversampled some regions, to provide a sufficient sample size for at least some regional comparisons. This is balanced by the weighting strategy.

**Figure 4**  
National distribution of sample



*Pregnancies:* The 2,523 mothers provided information on 2,819 pregnancies and children born in the past 3 years. Eight out of ten women (weighted 80%, unweighted 81% 2040/2523) had just one child in the last three years. Also, 28% (weighted 622/2495) of women were first-time mothers. The number of pregnancies was as high as 15, the average per woman being three. Two thirds of children were one year of age or younger (62%, 1742/2801), close to one third were two years old (31% 856/2801) and the remaining 7% (203/2801) were three years old. For 16% (449/2753) of the children in the evaluation, their mothers had been teenagers (under the age of 20) when they were born.

*Age:* Women who had children in the last three years were interviewed by CBRs in their own homes. The average age of respondents at the time of the interview was 27 years, the youngest being 14 years and the oldest being 47 years. More

<sup>23</sup> All percentages given are unweighted percentages unless otherwise indicated in the text. A comparison of proportions for the weighted and unweighted variables is presented in Annex 9.



Table 7: Marital status and number of children

	Total on-reserve (n=115675)*	Respondents (n=2486)
single	58.6%	27.8% (692)
married/comm on law	33.5%	70.0% (1740)
separated	1.9%	1.5% (38)
divorced	1.8%	0.3% (7)
widowed	4.3%	0.4% (9)
Average number of children	3.2	3

\*Source: 1996 Census (First Nations and Northern Statistics Second Edition 2001)

than half (58% weighted, 1444/2477) of the women interviewed were between 20 and 30 years of age and 12% (weighted, 265/2477) were under the age of 20 years.

**Marital status:** Seven out of ten respondents (1740/2486) were either married or living in a common law relationship. Given that the 1996 census found no less than 59% (Table 7) of on-Reserve mothers were single (First Nations and Northern Statistics Second Edition 2001), this raises an important potential bias. The greater part of the explanation for this is that the evaluation included women who had been pregnant in the last three years, while the census identified all women. It is also possible that responses reflect different levels of validity (truth) between the census and the AFN-CPNP evaluation (the interviewers were all well known to the interviewees in this evaluation). It is also possible that communities were more likely to choose married women to represent them as CBRs. If these CBRs then opted selectively to interview those they considered to be more like themselves, this could explain how 70% of those interviewed were married. However it occurred, the bias could be important, as there are quite different risks – largely explained by age, income and support mechanisms – between married and single women. Recognising the potential effect of this bias, all indicators where marital status makes a difference are presented separately for married and single women. All other associations were stratified by marital status.

Figure 5  
Level of schooling completed by mothers

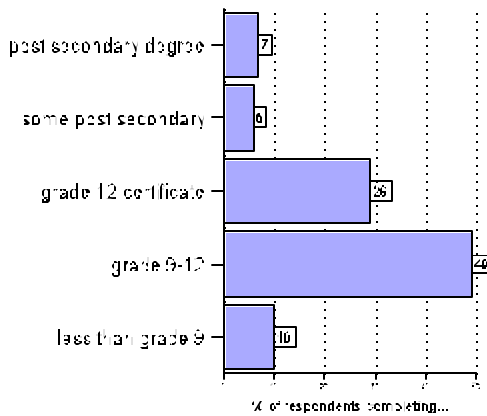


Table 8: Education levels

	Male & female on-Reserve	Sample (female only)
less than grade 9	30%	11% (268)
grade 9 - 13	40%	74% (1820)
post-secondary	31%	15% (364)

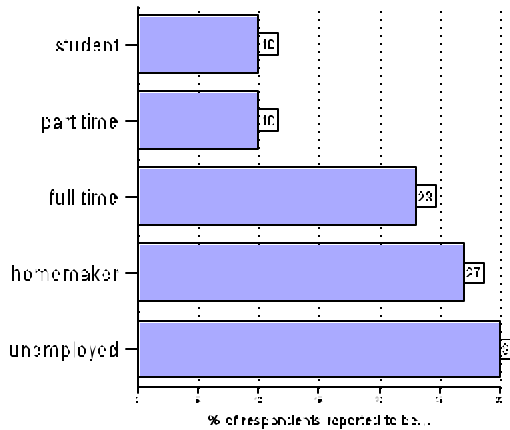
\*Source: Statistics Canada 1996

**Education:** More than one half of the women had not completed secondary school (59% weighted, 58% unweighted 1411/2452). While 10% (weighted, 11% unweighted, 268/2452) of respondents did not have any secondary school education at all 13% (weighted, 15% unweighted 364/2452) of respondents had gone on to post secondary education (Table 8, Figure 5).

**Main language:** A First Nations language was the main language spoken in 16% (weighted, 20% unweighted (505/2501) of households where a mother was interviewed.

Most common among the First Nations languages was Cree (9% weighted, 288/2501). English was the main language in 83% (weighted, 1973/2501) of households and French in 1% (weighted, 23/2501).

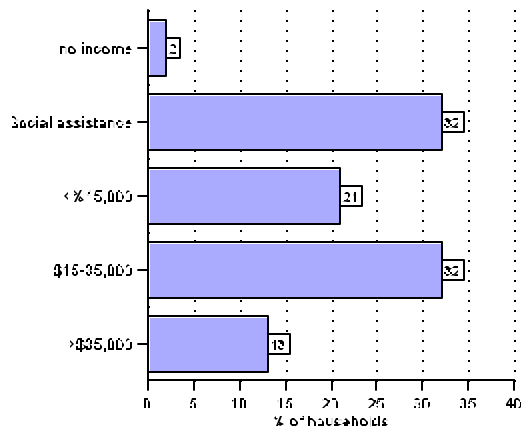
**Figure 6**  
The employment status of women respondents



**Employment:** Figure 6 shows a similar proportion employed full or part-time (33% weighted, 859/2479) and unemployed (30% weighted, 770/2479). Again, this is somewhat different to the estimates from the 1996 census, since the subgroup addressed in the evaluation were women who had been pregnant in the last three years.

**Household income:** More than one half (58% weighted, 1335) of the households reported an income of less than \$15,000. These include the 34% (weighted, 782/2411) of households on social assistance and 2% (weighted, 58/2411) of households that reported no income. Some 30% (weighted, 763/2411) had an income between \$15,000 and \$35,000 per year and 11% (weighted, 782/2411) had an income over \$35,000 (Figure 7).

**Figure 7**  
Household income



For the purposes of this evaluation, households reporting no income, those on social assistance or those with an income less than \$15,000 were defined as “low income”, regardless of the number of people in the household. Households with more than 6 people and with an income of \$15,000-\$35,000 or more than \$35,000 were also defined as having “low income”. Households with less than 6 people and with an income of \$15,000-\$35,000 or more than \$35,000 were defined as “higher income”. Applying these definitions, 31% (743/2411) of households had low income while 69% (1668/2411) of households had higher incomes.

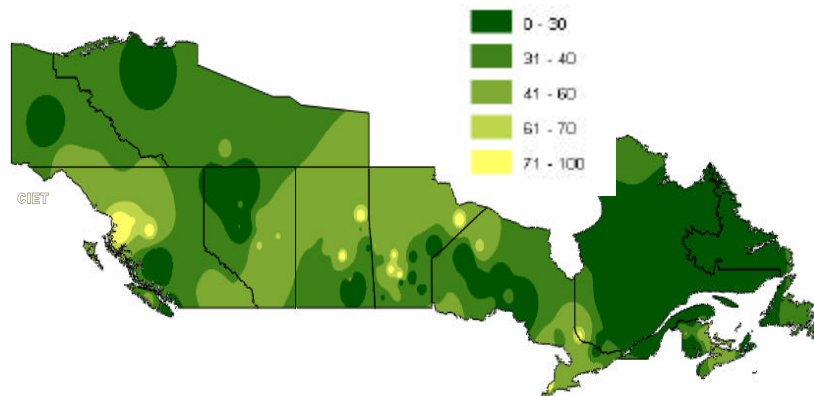
**Isolation:** Some 63% (1598/2523) of households were in locations with road access of less than 90 km to physician services; 12% (309/2523) were in semi-isolated locations with road access of more than 90 km to physician services; and 24% (616/2523) were in isolated communities with no road access. For the purposes of this evaluation semi-isolated was combined with non-isolated.

*Housing:* Some 34% (858/2523) of women lived in households with more than five people.

*Diabetes:* No less than 16% (392/2493) of women said they had been told at some time they had diabetes. Of those, most were told during pregnancy (94%, 368/392) and 6% (24/392) were told when not pregnant. One in every five women (20%, 509/2500) were told by a doctor or nurse they had high blood pressure during one of their pregnancies.

The following sections consider the *exposure* of First Nations women to various activities that might be supported by the CPNP: prenatal classes, nutrition counselling, .....

**Figure 8**  
Percent who attended prenatal classes during pregnancy



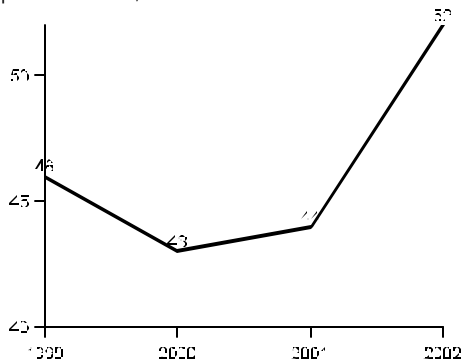
**Table 9**  
Prenatal attendance by province (household survey)

Province	% of women attending prenatal class	% who could attend within community
Atlantic	39% (93/240)	87% (81/93)
Quebec	19% (77/401)	69% (53/77)
Ontario	39% (206/529)	80% (157/198)
Manitoba	37% (282/762)	83% (234/282)
Sask	51% (210/410)	64% (133/208)
Alberta	43% (88/205)	80% (69/86)
BC	49% (87/179)	33% (25/77)
Yukon	31% (11/36)	100% (11/11)
NWT	26% (14/55)	79% (11/14)

**Table 10**  
Coverage of prenatal classes for new and teenage mothers

Province	Teenage mothers	First time mothers
Atlantic	29% (9/31)	50(24/48)
Quebec	13% (8/60)	21% (16/75)
Ontario	44% (36/82)	53% (83/157)
Manitoba	40% (52/130)	46% (70/152)
Sask	52% (35/68)	57% (48/85)
Alberta	58% (19/33)	54% (32/59)
BC	52% (16/31)	54% (37/68)
Yukon	29% (2/7)	39% (5/13)
NWT	29% (2/7)	8% (1/13)

**Figure 9**  
Proportion of primiparous mothers who attended prenatal classes, 1999-2002



## Prenatal Classes

### Coverage of prenatal classes

According to the institutional review of facilities in the sample communities, 93% (546/588) of the respondents from the remote communities and 87% (1593/1829) of the women in non or semi remote areas had prenatal classes available to them.

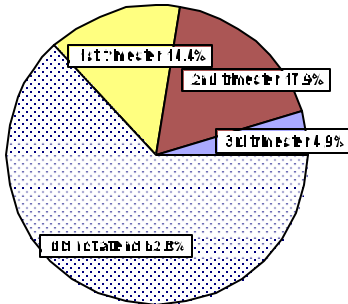
Despite this theoretical availability of classes, actual attendance at prenatal classes was less than 50% in all provinces except Saskatchewan (Table 9). First Nations women in Quebec had the lowest coverage (19%). Some 74% (774/1046) of those who attended prenatal classes were able to do so in their own community. In the Yukon, 100% of mothers interviewed could attend classes in their own community. In British Columbia, only 33% of mothers had access to classes within their communities. The pattern for coverage of prenatal classes, across the country, for new and teenage mothers is similar to that for all mothers with the highest coverage in Saskatchewan and the lowest in Quebec (Table 10 and Figure 8).

Overall, 38% (1068/2817) of all First Nations women who had children within the last three years attended prenatal classes. A similar proportion (38%, 969/2523) attended prenatal classes during their most recent pregnancy. Looking at only the most recent pregnancy (Figure 9), some 47% (311/662) of *first time* mothers attended prenatal classes compared with 35% (648/1833) of mothers who had been previously pregnant (OR 1.6, 95% CI 1.4-2.0, 311/662 vs. 648/1833). This demonstrates some fall-off between first and subsequent pregnancies, but the real shortfall is in attendance at all.

Because the CPNP designated some money to most communities for the years 2000-2002, it is not easy to distinguish the added value of the CPNP regarding attendance of prenatal classes. Some pointers can be gained from the

trends over the past few years. Figure 9 shows the proportion of primiparous (only one pregnancy) mothers who attended prenatal classes during their pregnancies over the last 4 years. With the substantial increase in CPNP budget in 2000, one might expect an increase (not a decrease from 1999 to 2000). In 2002 there was an increase.

**Figure 10**  
Proportion attending prenatal classes



Approximately one half of those who attended prenatal classes (48%, 503/1047) attended during the second trimester. A further 39% (406/1047) attended in the first trimester. Only 13% (138/1047) of new mothers began classes in the last trimester of their pregnancy. Figure 10 shows the proportions of women attending classes at different times during pregnancy.

A typical prenatal course provides curriculum content for five sessions. The presentation varies across provinces and within provinces. In many communities, the small number of expectant mothers makes it impractical to run structured prenatal courses. Sessions may be one-on-one. They might happen weekly for the duration of the pregnancy or they might be completed over the course of one day if need be.

Given the variety of presentation methods of prenatal classes, it is conceivable that women who reported attending only one class might have received the same content as those who went to five or more classes. That said, the number of prenatal classes attended did impact smoking, drinking and drug use during pregnancy (see below).

Some 64% (665/1048) of women who attended prenatal classes reported attending five or more classes during the course of their pregnancy. Attendance at five or more prenatal classes varied between non/semi remote and remote areas; but only among those women whose main language was not First Nations. Among these women, a woman from a non- or semi-remote area was two and a half times more likely to have attended five or more prenatal classes (OR 2.5, 95%CI 1.5-4.1, 535/803 vs. 35/78). Among women speaking a First

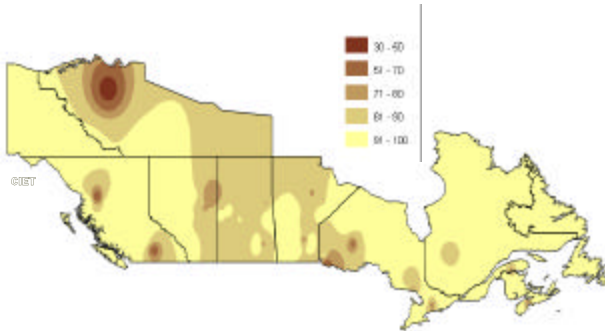
Nations language, remoteness of the community did not impact the number of prenatal classes attended.

**Table 11**  
Number of classes attended

Trimester when attendance started	more than 5 classes	less than 5 classes
1 <sup>st</sup> trimester	47% (313)	24% (87)
2 <sup>nd</sup> trimester	47% (309)	52% (190)
3 <sup>rd</sup> trimester	6% (42)	25% (92)
	N=664	N=369

Table 11 illustrates the number of classes attended by women who started classes in the first, second and third trimester of pregnancy. As might be expected, women who started prenatal classes earlier in their pregnancy attended more prenatal classes than those beginning classes later in their pregnancy. Some 84% (622/664) of mothers who started prenatal classes in the first or second trimester completed five or more classes, compared with 5% (42/664) of mothers starting classes in the third trimester.

**Figure 11**  
Percent of women who were satisfied/very satisfied with prenatal classes (among those who attended classes)

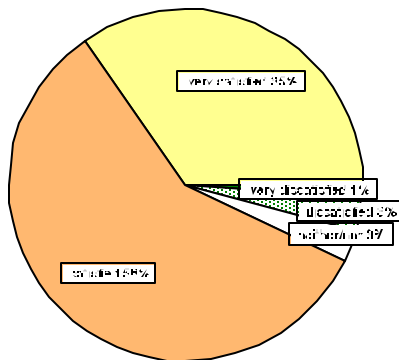


*Satisfaction with prenatal classes*

Some 94% of all participants who attended classes were either satisfied or very satisfied with the prenatal classes they attended (Figures 11 and 12). Figure 11 draws attention to very low levels of satisfaction in the north. Those who attended classes within their own communities were more likely to be satisfied<sup>24</sup> as were women from non- or semi-remote communities<sup>25</sup>.

**Factors that influence prenatal classes attendance**

**Figure 12**  
Satisfaction with prenatal services



According to provincial public health departments and service providers in the communities, prenatal information reaches mothers in a host of formats suited to the mother’s time, needs and the number of expectant mothers in the community.

There was no convincing association between location of services within the community (15 minutes walk or less) and class attendance (OR 0.8, 95% CI 0.7-1.0, 349/782 vs. 290/584). Women from communities where nutrition programs were located within fifteen minutes of the community centre

<sup>24</sup> OR 1.8, 95% CI 1.1-3.2; 75% (727/971) of women who attended classes within their own community were satisfied compared with 62% (42/68) of women who attended classes outside their own community.

<sup>25</sup> OR 2.3, 95% CI 1.3-4.0; 95% (817/863) of women from non/semi remote communities were satisfied with prenatal classes, compared with 89% (174/196) of women from remote communities.

were if anything *less* likely to attend (OR 0.7, 95% CI 0.6-0.9, 435/771 vs. 359/557).

Overall, *any* prenatal class attendance was *more likely* among women who lived in non or semi remote communities<sup>26</sup>, among women whose main language was not First Nations<sup>27</sup>, and among women who had graduated from high school<sup>28</sup>.

*Care and support:* Feeling cared for and having support during pregnancy also influenced prenatal class attendance. Women were 40% more likely to attend a prenatal class if they had a supportive partner during pregnancy<sup>29</sup> and twice as likely to attend if they felt cared for<sup>30</sup>.

*Seeing a health professional:* Women who saw a doctor or nurse regularly during their pregnancy were also more likely to attend prenatal classes<sup>31</sup>. This influence was particularly strong for women who mainly spoke a First Nations language. Among these women, a woman who saw a doctor or nurse regularly was twice as likely to attend prenatal classes<sup>32</sup>. The availability of transportation and childcare both influence prenatal class attendance with a greater influence in remote communities. A woman from a remote community where **transportation was available** was over three and a half times more likely to have attended prenatal classes<sup>33</sup> while in a non

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<sup>26</sup>OR 1.9, 95% CI 1.5-2.3 42% (869/2095) of women from non- or semi remote areas attended prenatal classes compared with 28% (199/722) of women from remote areas.

<sup>27</sup>OR 1.7, 95% CI 1.3-2.1; 41% (892/2203) of women who mainly spoke French or English attended prenatal classes compared with 28% (167/590) whose main language was a First Nations language.

<sup>28</sup> OR 1.4, 95% CI 1.2-1.6; 43% (482/1132) of women who had a high school diploma attended prenatal classes compared with 35% (564/1610) of women with less than a high school education.

<sup>29</sup>OR 1.4, 95% CI 1.2-1.7; 40% of women with supportive partners attended prenatal class compared with 32% (192/606) of women without supportive partners.

<sup>30</sup>OR 2.0, 95% CI 1.5-2.8; 40% (1002/2528) of women who felt cared for attended prenatal class compared with 24% (52/255) who did not feel cared for.

<sup>31</sup>OR 1.3, 95% CI 1.1-1.6; 41% (606/1468) of women who saw a doctor or nurse regularly during their pregnancy attended prenatal classes compared with 35% (443/ 1279) who did not see a medical professional regularly during pregnancy.

<sup>32</sup>OR 2.1, 95% CI 1.4-3.1; 37% (96/261) of women who saw a doctor or nurse regularly attended prenatal classes compared with 22% (66/300) of women who did not see a doctor or nurse regularly.

<sup>33</sup>OR 3.7, 95% CI 2.4-5.7. Among women from a remote community, 49% (91/185) of women who had transportation available attended prenatal class compared with 21% (57/275) of women who did not have transportation available.

or semi remote community where transportation was available was twice as likely to attend prenatal classes<sup>34</sup>.

**Child care** was associated with attending prenatal classes and getting nutrition counselling. In those communities where a community profile could be completed, some 81% of women (1954/2423) had child care available to them. Some 92% (1682/1835) of women from non- or semi-remote areas had access to child care compared with 46% (272/588) of women from remote areas (OR 12.8, 95%CI 10.0-16.3). For most women (75%, 1459/1954), child care services were accessible within fifteen minutes walk from the centre of the community. A woman in a community offering child care services was twice as likely to attend prenatal classes compared with one from community where no child care was available<sup>35</sup>.

In remote communities, a woman where child care was available was almost three times more likely to have attended prenatal classes<sup>36</sup> while in non and semi remote communities a woman from a community with child care available was only 36% more likely to attend prenatal classes<sup>37</sup>. Partner participation in prenatal classes was also associated with prenatal class attendance, but only in non and semi-remote areas. In these areas, a women from a community where **husbands/ partners participated** in the prenatal classes was almost three times more likely to attend prenatal classes<sup>38</sup>.

### **Knowledge and use of prenatal nutrition services**

Almost three quarters (1748/2498) of the respondents reported they knew about prenatal nutrition services in the

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<sup>34</sup>OR 2.0, 95%CI 1.5-2.5 In non or semi remote communities 47% (590/1247) of women who had transportation available attended prenatal classes compared with 31% (136/432) of women who did not have transportation available.

<sup>35</sup>OR 2.05, 95%CI 1.6-2.7, stratified by non- or semi-remote 752/1682 vs. 41/153; and remote community 75/270 vs. 54/316)

<sup>36</sup>OR 2.8, 95%CI 2.0-4.1; In remote communities, 37% (143/391) of women who had child care available attended prenatal classes compared with 17% (56/331) of women who did not have child care available.

<sup>37</sup>OR 1.4, 95%CI 1.2-1.6; In non/semi remote communities, 44% (565/1273) of women who had child care available attended prenatal classes compared with 37% (304/822) of women from communities without childcare available.

<sup>38</sup>OR 1.6, 95%CI 1.3-2.1; In non and semi remote areas 46% (626/1357) of women from a community where husbands/partners participated in prenatal classes attended prenatal classes compared with 34% (109/318) of women from a community where husbands/partners did not participate.



community. Among these women, almost three quarters (72%, 1258/1746) reported using a prenatal nutrition service. Use of prenatal services during last pregnancy was more likely among women from non or semi isolated communities<sup>39</sup>, women who had at least a high school diploma, and first time mothers<sup>40</sup>.

*Why services were not used*

Among women who did not use any prenatal nutrition service, almost one half (43%, 178/417) did not do so because they had no interest or felt they had no need. About one third (154/417) did not use any services because they were not accessible to them (timing of services mainly). The remaining women reported they did not use services because they were not available in the community (12%, 50/417) or because they were too shy or not pregnant (8%, 35/417).

*What was most useful about these services*

Table 12 shows what women report to be the most useful thing about these services and how these selections vary with remoteness. The most common response was that women learned what to expect (38%) followed by getting food coupons (24%) and learning about nutrition (18%). A woman from a remote area was over three times more likely to have found learning about nutrition the most useful thing about prenatal services<sup>41</sup>.

**Table 12**  
The most useful thing about prenatal nutrition services

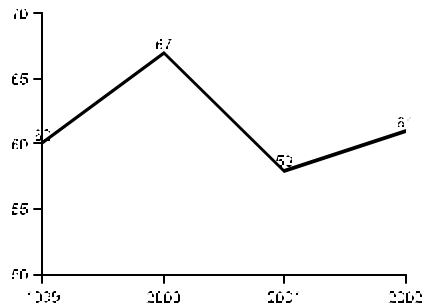
Most useful thing	from non/semi remote areas	from remote areas
learning about nutrition	15% (145/976)	37% (69/187)
free food coupons	25% (243/976)	20% (38/187)
learning what to expect	39% (383/976)	30% (56/187)
group activities	7% (64/976)	5% (10/187)
breastfeeding support	1% (10/976)	2% (4/187)
everything	9% (93/976)	4% (8/187)
interaction with medical profession	4% (40/976)	1% (2/187)

<sup>39</sup>OR 2.3, 95%CI 1.9-2.8; 56% (1044/1873) of women from non-remote communities had used a prenatal service during their last pregnancy, compared with 35% (214/610) of women from remote communities.

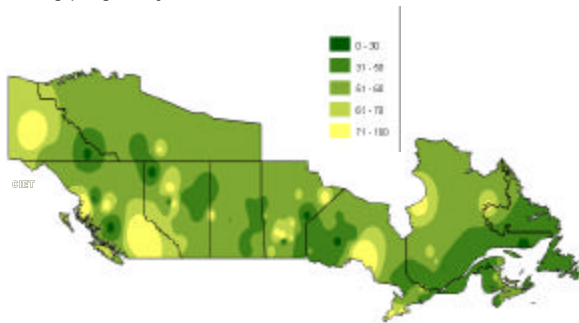
<sup>40</sup>OR 1.4, 95%CI 1.1-1.6; 56%(366/657) of women pregnant for the first time used a prenatal service compared with 49% (885/1816) of women who had been previously pregnant.

<sup>41</sup>OR 3.4, 95%CI 2.3-4.8; 37% (69/187) of women from remote areas found learning about nutrition the most useful thing compared with 15% (145/976) of women from non/semi remote areas.

**Figure 13**  
Proportion of primiparous mothers who received nutrition counselling, 1999-2002



**Figure 14**  
Percent of women who received any nutrition counselling during pregnancy



**Table 13**  
Sources of nutrition counselling

	% receiving
Nutrition/dietician	15% (219/1450)
PHN/nurse	44% (641/1450)
Family	3% (49/1450)
Friends	0.3% (4/1450)
Health worker	10% (146/1450)
Books	1% (18/1450)
Doctor	17% (239/1450)
Prenatal class	8% (110/1450)
Midwife	1% (16/1450)
Friendship centre/ women's group	1% (8/1450)

## Nutrition counselling

Some 52% (1461/2815) of mothers received nutrition counselling during their pregnancy. As with prenatal classes, it was possible in a limited way to examine time trends in nutrition counselling. Figure 13 shows the trend among primiparous (only one pregnancy) mothers. After a brisk increase between 1999 and 2000, compatible with a dramatic funding increase, the proportion who received counselling fell off below 1999 levels by 2001 to return to their 1999 levels in 2002.

Levels of nutrition counselling are fairly consistent across the country, with some small pockets of high coverage (Figure 14).

Some 95% (1374/1450) of mothers received their nutrition counselling from a health professional. Table 13 details sources from whom mothers received nutrition counselling. The single most common source was the nurse. Some 96% (1389/1444) were satisfied or very satisfied with the counselling they received.

### Access to nutrition counselling

Service providers were asked if they provided group nutrition counselling and/or one-on-one sessions. Table 14 shows the type of nutrition counselling available in non- and semi-remote areas, compared with remote areas. Women from non/semi-remote areas were more likely to have:

- better access to both types of nutrition counselling – group and individual<sup>42</sup>,

<sup>42</sup>OR 1.3, 95%CI 1.1-1.6; 46% (973/2095) of women from non/semi remote communities had access to both types of nutrition counselling compared with 39% (285/724) of women from remote communities.

- better access to group nutrition counselling sessions among non remote and remote communities offering only that type of nutrition counselling<sup>43</sup>,
- better access to one-on-one nutrition counselling sessions among communities offering only that type of nutrition counselling<sup>44</sup>.

**Table 14**  
Proportion of women having access to group and/or one-on-one nutrition counselling

Type of nutrition counselling	Non/semi remote areas	Remote areas
group and one-on-one	46% (973)	39% (285)
group only	17% (355)	10% (74)
one-on-one only	13% (272)	5% (34)
neither	24% (495)	46% (331)
	(n=2095)	(n=724)

Women from remote areas were less likely to access one-on-one *or* group nutrition counselling sessions<sup>45</sup>.

Overall, nutrition counselling was more likely among:

- first time mothers<sup>46</sup>
- women with a high school diploma<sup>47</sup>.

### *Childcare and nutrition counselling*

As with prenatal class attendance, having child care available was associated with receiving nutrition counselling with a stronger association in remote communities. In remote communities, a woman in a community that offered child care was six times more likely to receive nutrition counselling<sup>48</sup> while women from in a non or semi remote community were two times more likely to have received nutrition counselling if childcare was available<sup>49</sup>.

The availability of child care impacted nutrition counselling only of women from households with higher income. Among

<sup>43</sup>OR 1.8, 95%CI 1.4-2.4; 17% (355/2095) of women from non/semi remote communities had access to group nutrition counselling sessions compared with 10% (74/724) of women from remote communities (when non remote and remote communities offering only that type of nutrition counselling are compared).

<sup>44</sup>OR 3.0, 95%CI 2.1-4.5; 13% (272/2095) of women from non/semi remote communities had access to one-on-one nutrition counselling sessions compared with 5% (34/724) of women from remote communities (when non remote and remote communities offering only that type of nutrition counselling are compared).

<sup>45</sup>OR 2.7, 95%CI 2.3-3.3; 46% (331/724) of women from remote areas did *not to have* access to either one-on-one *or* group nutrition counselling sessions compared with 24% (495/2095) of women from non/semi remote areas.

<sup>46</sup>OR 1.7, 95%CI 1.4-2.0; 61% (409/669) of new mothers received nutrition counselling compared with 49% (1033/2115) of mothers who had been previously pregnant.

<sup>47</sup>OR 1.4, 95%CI 1.2-1.6; 57% (645/1132) of women with a high school diploma received nutrition counselling compared with 49% (784/1608) of women who had not graduated from high school.

<sup>48</sup>OR 6.5, 95%CI 4.4-9.5; In remote areas, 71% (193/270) of women from a community with childcare available received nutrition counselling compared with 28% (88/315) of women from a community without childcare available.

<sup>49</sup>OR 2.1, 95%CI 1.5-3.0; In non and semi remote areas, 55% (925/1682) of women from a community with childcare available received nutrition counselling compared with 37% (56/152) of women from a community without childcare available.

these households, a woman with access to child care was nearly four times more likely to have received nutrition counselling<sup>50</sup>.

*Prenatal classes and nutrition counselling*

Women who received nutrition counselling were also more likely to attend prenatal classes<sup>51</sup>. Some 53% (777/1461) of women who received nutrition counselling also went to prenatal classes, compared with 22% (291/1354) of women who did not receive nutrition counselling.

The influence of nutrition counselling on prenatal class attendance depended on household income with a stronger influence among those with a lower income. Among households with higher income, a woman who received nutrition counselling was three times more likely to have attended prenatal classes<sup>52</sup>, while in lower income households women who received were four and a half times more likely to attend prenatal classes<sup>53</sup>.

The heterogeneity of effect between different income groups could be because those with higher incomes got information from additional sources-- dietician, mass media and so forth.

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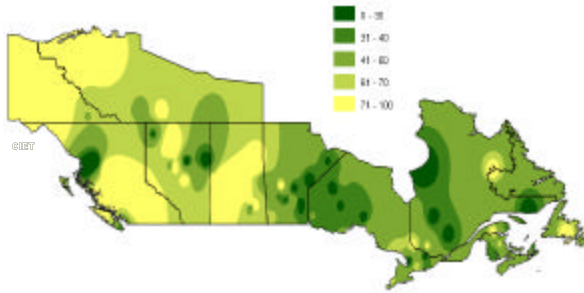
<sup>50</sup>OR 3.8, 95%CI 2.9-5.0; In household with higher incomes, 58% (737/1276) of women with childcare available received nutrition counselling compared with 27% (91/341) of women without child care available.

<sup>51</sup>OR 4.2, 95%CI 3.5-4.9; 53% (777/1461) of women who received nutrition counselling also went to prenatal classes, compared with 22% (291/1354) of women who did not receive nutrition counselling.

<sup>52</sup>OR 3.0, 95%CI 2.2-4.1; Among households with higher income 49% (242/493) of women who received nutrition counselling also went to prenatal classes compared with 29% (104/361) of women who did not receive nutrition counselling.

<sup>53</sup>OR 4.7, 95%CI 3.8-5.8; Among households with lower income 52% (507/969) of women who received nutrition counselling also went to prenatal classes compared with 19% (175/922) of women who did not receive nutrition counselling.

Figure 15  
Percent of women who received food coupons or vouchers



**Table 15**  
Proportion receiving food coupons per province/CPNP region

Province	% of mothers receiving coupons
Atlantic	54% (128/239)
Quebec	54% (213/400)
Ontario	42% (222/528)
Manitoba	39% (296/762)
Saskatchewan	83% (342/410)
Alberta	65% (133/205)
BC	77% (138/179)
Yukon	78% (28/36)
NWT	74% (40/64)

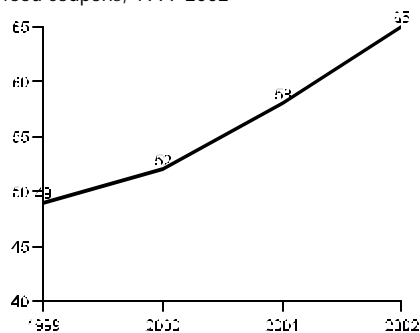
## Food coupons

Over one half (55% 1540/2813) of the mothers interviewed received food or milk coupons during their pregnancy. The receipt of food coupons varied across provinces. Saskatchewan had the highest proportion of mothers receiving food coupons (83%) and Manitoba, the lowest (39%) (Table 15 and Figure 15).

Considering the time trend in receipt of coupons (Figure 16), there is a steady and impressive increase in receipt of coupons by primiparous mothers over the four years, compatible with an increase in funding. Although the only prenatal service that can be linked convincingly to increased CPNP funding, it is important for direct and indirect reasons. Direct reasons include the food value and expenditure sparing. Indirect reasons include the incentive to attend prenatal classes.

The majority of women (88%) received their coupons from a health professional. The band council and social services were the second largest providers of coupons (8%) (Table 19).

**Figure 16**  
Proportion of primiparous mothers receiving food coupons, 1999-2002



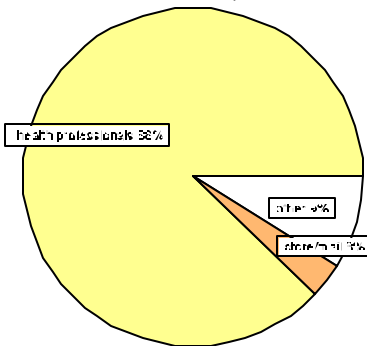
The reasons that food coupons were not received varied between remote and non-/semi-remote communities (Table 16). A woman from a non or semi remote area was more likely to report not needing food coupons<sup>54</sup> and a woman from a remote area was more likely to report that coupons were not available to her<sup>55</sup>.

Asked to name the most effective activity offered, some 30% (17/56) of the service providers said food coupons/baskets or gifts. However, only non-/semi-remote communities found coupons effective (36%, 17/47). No remote communities named coupons as the most useful activity offered.

<sup>54</sup>OR 3.5, 95%CI 2.3-5.4; 22% of women from a non/semi remote area reported not needing food coupons compared with 8% from remote areas.

<sup>55</sup>OR 4.6, 95%CI 3.4-6.2; 82% of women in remote areas said that coupons were not available to them, compared with 50% of women from non-/semi-remote areas.

**Figure 17**  
Source of food and milk coupons



Receiving food coupons during pregnancy was more likely among:

- women from non or semi remote communities<sup>56</sup>
- women who were under the age of twenty when they gave birth<sup>57</sup> and
- first time mothers<sup>58</sup>.

*Prenatal classes and coupons*

Some 53% (812/1540) who received food coupons attended prenatal class, compared with 20% (255/1273) of women who did not receive food coupons (OR 4.5, 95%CI 3.7-5.3). The relationship between receiving food coupons and attendance at prenatal classes varied with remoteness of the community.

In non-remote or semi-remote communities, a woman receiving food coupons was over three times as likely to have attended prenatal classes<sup>59</sup>, whereas in remote communities, a woman who received food coupons was eight times more likely to have attended a prenatal class<sup>60</sup>.

This suggests that 1) food coupons were an effective incentive to bring women to prenatal classes and 2) in remote areas, this was more effective than was the case in non/semi remote communities. In non/semi remote areas, food coupons may be accessed through various channels, whereas in remote communities, the access to coupons may be more closely tied to the provision of prenatal services. This is supported by the fact that a woman from a non/semi remote area was four times more likely to have received food coupons than a woman from a remote area<sup>61</sup> and more likely to have attended classes,

**Table 16**  
Why women did not receive food coupons

Reason	Non/semi remote area	Remote areas
no interest	22% (140/628)	8% (34/451)
not available	50% (313/628)	82% (370/451)
not aware	22% (136/628)	8% (36/451)
inaccessible	6% (39/628)	2% (11/451)

<sup>56</sup>OR 3.9, 95%CI 3.3-4.7; 63% (1321/2092) of women from non-or semi- remote areas received food coupons during their pregnancies compared with 30% (219/721) of women from remote areas.

<sup>57</sup>OR 1.3, 95%CI 1.0 -1.6; 60% (268/449) of women under the age of twenty when they gave birth received food coupons during their pregnancy, compared with 54% (1243/2298) of women who were age twenty or older when they gave birth.

<sup>58</sup>OR 1.3, 95%CI 1.1-1.5; 59% (397/669) of new mothers received food coupons while they were pregnant, compared with 53% (1126/2113) of women who had been pregnant before.

<sup>59</sup>OR 3.5, 95%CI 2.9-4.3; In non/semi remote communities, 52% (686/1321) of women receiving food coupons attended prenatal classes compared with 24% (182/771) of women that did not receive food coupons.

<sup>60</sup>OR 8.0, 95%CI 5.4-11.7; In remote communities, 58% (126/219) of women who received food coupons attended a prenatal class, compared with 15% (73/502) of women who did not receive food coupons.

<sup>61</sup>OR 4.0, 95%CI 3.3-4.7; 63% (1321/2092) of women from a non/semi remote area received food coupons compared with 30% (219/721) of women from a remote area.

but the relationship between coupons and classes was not as strong in non/semi remote areas.

The effect of food coupons on attending prenatal classes varied with home language and was stronger among women speaking a First Nations language. Among women who mainly spoke a First Nations language, a woman who received food coupons was six times more likely to have attended prenatal classes<sup>62</sup>; among those whose main language was English or French, the average woman who received food coupons was four times more likely to have attended prenatal classes<sup>63</sup>.

Part of this “language” effect relates to remoteness. Some 60% (429/721) of women living in remote areas speak a First Nations language, compared with only 9% (161/2074) living in non-remote or semi-remote areas. Again, the distribution of food coupons in remote areas may be closely tied to prenatal services, whereas in non-remote areas, food coupons can be obtained from a wider variety of sources.

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<sup>62</sup>OR 6.3 95%CI 4.1-9.5; Among women who mainly spoke a First Nations language, 51% (115/225) of women who received food coupons attended prenatal classes compared with 14% (52/364) of women from this language group who did not receive coupons.

<sup>63</sup> OR 3.9 95%CI 3.1-4.7; Among those whose main language was English or French, 53% (688/1302) of women who received food coupons attended prenatal classes compared with 23% (203/898) of women who did not receive food coupons.